TEXTILE IMPRESSED CERAMICS FROM THE OLIVER SITE, OBION COUNTY, TENNESSEE

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ABSTRACT

The Oliver site (40OB161) is an upland Emergent Mississippian site dating between approximately A.D. 900 and A.D. 1000. In this paper, we describe the textile structures represented on the sample of Kimmswick Fabric Impressed sherds from the site. Comparisons with other textile impressed ceramic assemblages in the Midsouth are also presented.

Introduction

Textiles represent an important aspect of prehistoric North American material culture. Unfortunately, they are also very perishable and are seldom preserved in the Southeast except in cave and shelter contexts (e.g., Scholtz 1975). However, information about prehistoric textiles is sometimes preserved through the medium of fabric impressed ceramics.

The "salt pans" of the Mississippian period are perhaps the best known examples of textile impressed ceramics in the Midsouth. This vessel form has been long established in the archaeological literature, and is thus called because of its presumed use in salt production and repeated associations with saline springs (Brown 1980; Phillips 1970; Walker and Adams 1947; S. Williams 1954). The exterior, and occasionally the interior, of Mississippian salt pans exhibit a textile impressed surface treatment, which seems to be a by-product of manufacture. Specifically, fabrics apparently were used to aid in the removal of these oftentimes large vessels from earthen molds (Drooker 1992; Kuttruff and Kuttruff, in press).

The textiles employed in the manufacture of salt pans are generally an open weave that may exhibit a diverse and often complicated series of structures including, but not limited to: simple weft twining, alternate weft pair twining, interlacing, and knotting (Drooker 1990, 1992; Garland 1992; Kuttruff and Kuttruff 1992, in press).

The Oliver Site

The Oliver site (40OB161) is located in the uplands near the headwaters of Hoosier Creek, a tributary of the Obion River, several kilometers northwest of Union City, in Obion County, Tennessee (Lawrence and Mainfort 1994; Mainfort ed. 1994; Figure 1). The west-flowing Reelfoot Creek drainage lies approximately 8 km to the west. Local soils are those of the Grenada group, which are well-suited for row crop agriculture (Brown, et al 1973). The site encompasses a minimum of 4.5 ha, of which approximately 3 ha lie within the holdings of Mr. Junior Oliver, after whom the site is named.

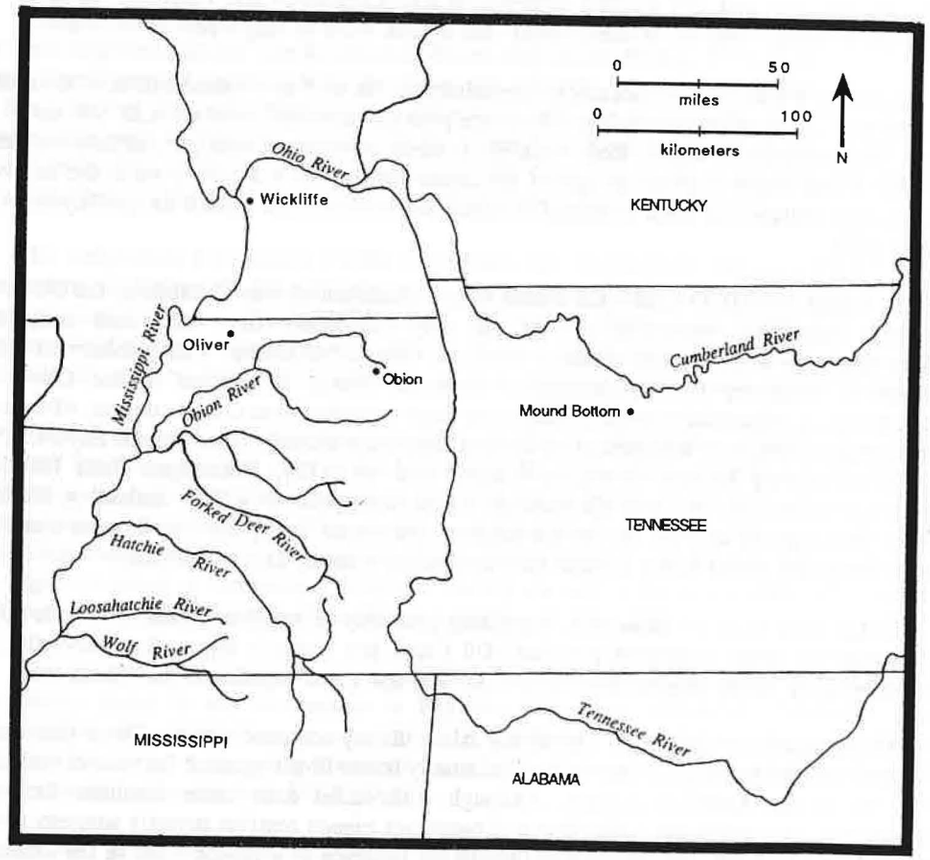

Figure 1. Location of sites mentioned in text.

Fieldwork at the Oliver site was conducted during late May, June, and early July, 1992 by Tennessee Division of Archaeology staff and several field school students from Memphis State University. A total of 24 two-meter squares was excavated encompassing some of the highest portions of the site (Figure 2). Intact midden deposits were found throughout the excavated area, but are much better preserved in the northernmost units. Numerous posts and 53 prehistoric features were exposed, but no clear evidence of actual structures was recorded. Since no wall trenches were encountered, it seems likely that houses were of single-post construction.

Based on a total of 11 radiocarbon determinations, as well as a consideration of the artifact assemblage, major occupation of the Oliver site probably occurred between A.D. 900 and A.D. 1000. The presence of Varney Red, Wickliffe funnels, stumpware, seed jars, and the frequency of Mill Creek chert supports an age of no earlier than about A.D. 900, while the relatively sparse representation of shell tempered ceramics seems to militate against an age beyond A.D. 1000-1050.

Including over 10,000 individual sherds from a minimum of over 700 vessels, the Oliver site ceramic assemblage represents one of the only moderately large excavated samples of Early/Emergent Mississippian ceramics from the Central Mississippi Valley (Mainfort 1994). Sherds of Mulberry Creek Cordmarked comprise nearly 80 percent of the Oliver site assemblage; a substantial number of these have been smoothed over to some degree, often to the extent that cordmarking was difficult to discern. Important minority types include Baytown Plain (N=931), Kersey Incised (N=231), Varney Red (N=182), Mississippi Plain (N=161), Wickliffe Thick (N=38), and Kimmswick Fabric Impressed (N=137). Inslanting Mulberry Creek Cordmarked jars are by far the predominant vessel form; few bowls were identified. Other identified vessel forms include seed jars, pans, funnels, and stumpware.

Lithic tools were not numerous, consisting primarily of small triangular projectile points. The relatively large number of polished Mill Creek hoe flakes is especially noteworthy, and provides fairly strong support for a post-A.D. 900 age for occupation at the Oliver site.

Maize appears to have been a relatively minor dietary component at the Oliver site, and the frequency of this tropical cultigen falls considerably below levels reported for sites of circa A.D. 800 age in the American Bottom. Although white-tailed deer bones dominate the faunal assemblage, an extraordinary abundance of passenger pigeon remains strongly suggests that the location of the Oliver site can be attributed to the presence of a pigeon roost in the immediate vicinity.

In the Reelfoot Lake Basin, there are numerous sites believed to date within the A.D. 750-1050 time range, and there are obvious grounds for viewing these as components of hierarchical settlement systems (Mainfort 1989). Thus, these sites correspond to concepts of Emergent Mississippian not only in terms of material culture, but also political organization. Since no upland sites comparable to the Oliver site are presently known in the area, it is not known if Oliver represents a component of an emerging political hierarchy. Hence, although we use the

term "Emergent Mississippian" in reference to the Oliver site, we do so cautiously, and with the understanding that corn, shell tempered ceramics, and hoe flakes do not, by themselves, constitute Emergent Mississippian.

Typology of Mississippian Textile Impressed Ceramics

In the Central Mississippi Valley, Mississippian period salt pans are usually subsumed within the shell tempered ceramic type Kimmswick Fabric Impressed (Phillips 1970; S. Williams 1954). The fabric impressed ceramics from the Oliver site generally conform to published descriptions of this type, but the unlike Phillips' *var. Kimmswick*, the vast majority are not shell tempered. Rather, the paste is virtually identical to the "Late Woodland/Emergent Mississippian series paste" defined for the Oliver site ceramic assemblage (Mainfort 1994), in that the paste includes numerous baked clay particles that presumably represent a tempering agent.

The designation Kimmswick Fabric Impressed, *var. unspecified* has been used by some researchers to distinguish the primarily grog or mixed grog/shell paste often seen in western Kentucky and Tennessee (Kreisa 1991; Lewis 1986; Stout 1987). Allen (1976) introduced the clay tempered *variety Dedmon* based on field work in Marshall County, Kentucky. *Dedmon* was subsequently used by Clay (1979, 1984) in several papers on ceramic sequences in Kentucky.

In 1987, researchers from the University of Illinois proposed the provisional variety *Marshall* for fabric marked pans in the Mississippi River counties of Kentucky. *Marshall* is defined as having a "well compacted paste" with "a high density of grog temper." Fabric impressions are described as "widely spaced, coarse rectilinear or diamond shaped patterns" that are at times smoothed over. The presence of red filming is noted, and the interiors are described as "highly polished or smoothed." *Marshall* sherds are said to be thicker than other varieties of Kimmswick Fabric Impressed (Sussenbach and Lewis 1987: 58).

The paste of Kimmswick Fabric Impressed, *var. Marshall* is implied to be (although not specifically stated to be) comparable to Baytown Plain, *var. Mayfield,* Mulberry Creek Cordmarked, *var. Sandy Branch*, and Varney Red Filmed, *var. Carlisle*. These varieties are described as having a fine grog tempered paste "difficult to sort . . . consistently from Bell Plain" (Sussenbach and Lewis 1987: 59-60).

Virtually all of the Kimmswick Fabric Impressed sherds from the Oliver site are tempered primarily with baked clay particles. Three exhibit a mixed shell and clay tempered paste similar to Mississippi Plain, *var. Mitchell* (Lumb and McNutt 1988). No sherds strictly correspond to Kimmswick Fabric Impressed, *var. Kimmswick* (Phillips 1970).

Based on the assemblage from Oliver and the occurrence of similar material at roughly contemporary sites in western Kentucky, a clay tempered variety of Kimmswick makes sense. However, *Marshall* is not applicable to the fabric marked sherds from Oliver because the "fine temper" of the *Mayfield/Sandy Branch/Marshall/Carlisle* group is not represented at the Oliver site.

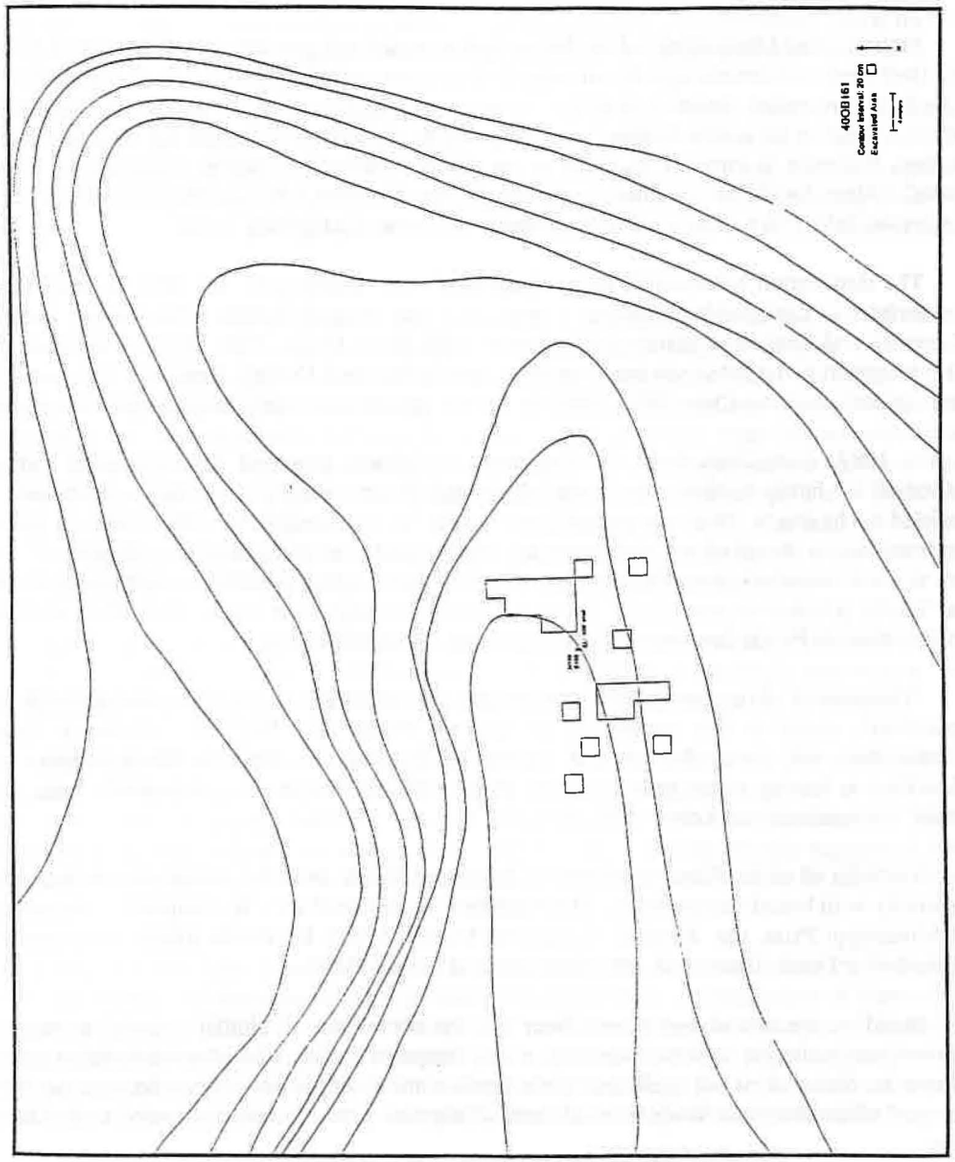

Figure 2. Topographic map of the Oliver site, showing excavation units.

Therefore, we will employ the designation Kimmswick Fabric Impressed, *var. unspecified* for all Emergent Mississippian fabric impressed ceramics (N=137) from the Oliver site, and variations in temper will be noted within this type. A description of this variety as it occurs in the Oliver site assemblage follows below.

Temper: Most of the sample (N=134, 98%) is clay tempered. Temper size is variable, but falls within range of the Late Woodland/Emergent Mississippian clay tempered paste described above. A mixed shell/clay temper paste similar to Mississippi Plain, *var. Mitchell* (Lumb and McNutt 1988) makes up the remainder (N=3).

Texture: Hard with jagged, angular breakage.

Color: 10YR3/1 (dark grey brown) to 2.5YR5/8 (red), with most clustering around 10YR6/3 (pale brown)

Thickness: Mean: 8.9 mm; range: 5.2 mm to 12.8 mm

Surface Treatment: Fabric impressed into the wet clay of the exterior surface; three instances of fabric marked over cordmarking. Red filming present on the interior of one shell/clay tempered sherd.

Vessel Form: Most sherds are assumed to represent salt pans, although relatively thin specimens suggest the possibility of other vessel forms.

Vessel Diameter: unknown (no data)

References: Phillips (1970); Sussenbach and Lewis (1987); S. Williams (1954)

Analysis of Fabric Structures

Accurate analysis of fabric structure requires that both sides of a textile be examined and that one or two selvages be present (Drooker 1992; Emery 1980; King 1978). Several difficulties occur when performing textile analysis on ceramic fabric impressions. Warp can never be positively distinguished from weft, and fiber may not be accurately identified (King 1978). Nonetheless, basic aspects of textile structure may be identified through positive clay impressions of these ceramics (Drooker 1990, 1992; King 1978; Rachlin 1955).

Positive clay impressions of all fabric impressed ceramics from the Oliver site were produced using Sculpey, a ceramic-like compound which does not dry out and can be fired at a temperature as low as 275 degrees (see Figures 3 and 4). This offered flexibility in working materials, and the ability to make impressions permanent through low temperature firing. The resulting impressions were then examined in an attempt to identify textile structure and

Figure 3. Fabric impressed sherds from the Oliver site. Far right, Withers Fabric Marked; all others, Kimmswick Fabric Impressed.

characteristic elements of these structures. Of the 139 fabric impressed sherds recovered from the Oliver Site, 21 percent (N=28) of the textiles were unidentifiable and are excluded from the descriptions below.

Twining, a structure in which pairs of adjacent elements turn about each other on their path through the fabric (Emery 1980) is by far the dominate structure (N=104 , 95.41%). Two sub-categories of twining were identified in the Oliver site assemblage (Figure 5). Plain twining over a well processed 2-plied yarn warp accounts for 56 percent (N=59) of the sample, while plain twining over braided bundles of unspun fibers comprises 43 percent (N=45).

Two examples of weft-faced or compact twining were observed (Figure 5). The term "weft-faced" refers to a structure whose elements are so compact that the structure of a textile is indecipherable. These structures are probably plain twining, but as Drooker notes (1992), they also can be interlacing. In the case of the Oliver site specimens, the sherds are attributable by paste and surface treatment to a minor Tchula/Early Middle Woodland component, and are classified as Withers Fabric Marked, *var. Cypress Creek* (Mainfort, ed. 1994).

Three possible cases of oblique interlacing, plain interlacing with one set of elements (Drooker 1992; Emery 1980) were noted. All sherds were small and their structures are not easily deciphered. No alternate pair twining was observed which is interesting in light of the fabric impressed assemblages from several other sites in the Midsouth. Knotting, basket impressions, and other types of textile structures are not present in the Oliver site assemblage.

Identified textile structures represented in the Oliver site assemblage are summarized in Table 1 below. In two cases multiple fabrics were used on the same vessel, making identification impossible. No selvages or joins were positively identified during the study, and while many textiles appeared worn (especially the braided warps), only a single case of clearly damaged fabric was noted.

Plain Twining with a Plied Warp	59	(54.1%)
Plain Twining with a Braided Warp	45	(41.3%)
Total Twining	104	(95.4%)
Possible Oblique Interlacing	3	(2.8%)
Weft-faced or Compact Structure (Withers Fabric Marked, *var. Cypress Creek*)	2	(1.8%)
TOTAL IDENTIFIED	139	

Table 1. Textile structures at the Oliver site.

Note: Of the shell/clay tempered sherds, two had plain twining structures (one with a red filmed interior), and one exhibited the plain twining with a braided warp variation over cordmarking.

Figure 4. Kimmswick Fabric Impressed sherds from the Oliver site.

Comparisons With Other Sites

The textile impressed ceramic assemblages from three other sites in the Midsouth have been described in detail. These are Wickliffe Mounds, Mound Bottom, and the Obion site, all of which are multi-mound towns and, thus, are not strictly comparable to Oliver. Moreover, major occupation of all these sites probably postdates the Oliver site by 100 years or more. Nonetheless, some instructive comparisons can be made.

Wickliffe Mounds is a small Mississippian town located near the confluence of the Ohio and Mississippi rivers. The site seems to have been used primarily between A.D. 1100 and 1350 (Wesler 1991). Textile impressed ceramics comprise approximately two percent of the total assemblage. Drooker (1992) analyzed 1,559 textile impressed sherds from the site, including 194 rims. Simple plain twining (55%) and alternate pair twining (30%) were the most common fabric structures identified. A plethora of other fabric structures are represented in the remainder of the sample, including weft-faced structures (7%), knotting (0.6%), and interlacing (0.06%). Virtually all structural elements exhibited an S-twist (Drooker 1990,1992).

Smoothed-over rims were noted at Wickliffe, with smoothing strips as wide as 6 cm. Most specimens analyzed were over one centimeter thick, but vessels (pans?) as thin as 3 mm were noted (Drooker 1992). Few examples of interior fabric impressions were recorded in the Wickliffe assemblage; selvages are not uncommon.

	Oliver	Wickliffe	Mound Bottom	Obion
Simple plain twining	104 (95.4%)	830 (55.4%)	266 (76.9%)	238 (52.1%)
Alternate pair twining	0	450 (30.0%)	59 (17.1%)	139 (30.4%)
Complex combination twining	0	6 (0.4%)	0	0
Other twining	0	93 (6.2%)	0	0
Total twining	104 (95.4%)	1,379 (92.1%)	325 (93.9%)	377 (82.5%)
Weft-faced	2 (1.8%)	109 (7.3%)	5 (1.5%)	80 (17.5%)
Knotting	0	9 (0.6%)	0	0
Interlacing	3 (2.8%)	1 (0.1%)	0	0
Complex structure	0		16 (4.6%)	0
TOTAL IDENTIFIED	139	1,498	346	457

Table 2. Identified fabric structures at selected sites.

Note: In the case of Wickliffe Mounds (Drooker 1992), "Plain Twining" and "Alternate Pair Twining" represent fabrics that exhibit those structures and no others. All combinations and variations of these structures are listed under "Complex/Combination" for comparative purposes. "Other Twining" category includes unknown twining structures, wrapped twining over single warps, and twining over nonalternating paired warps. Kuttruff and Kuttruff (1992) refer to Drooker's (1992) "Weft-faced" category as "Compact;" Garland's (1992) "Closed Simple Twining" and "Plaited" structures, which are combined here due to the admitted sorting difficulties, are comparable to "Weft-faced"/"Compact."

Situated on a horseshoe bend of the Harpeth River near Nashville, Tennessee, Mound Bottom is a relatively large (36 ha) multi-mound Mississippian town? Nine uncalibrated radiocarbon assays bracket occupation of the site between approximately A.D. 900-1250 (Kuttruff 1979). All of the Mississippian ceramics are shell tempered, and no sherds exhibit interior fabric marking (Kuttruff and Kuttruff 1992).

Textile impressed ceramics constitute three percent (N=510) of the Mound Bottom ceramic assemblage, of which 354 specimens could be analyzed. Among the identifiable textiles, 77 percent (N=260) were identified as simple twining, 17 percent (N=59) as alternate pair twining, one percent were described as "compacted" (Drooker's "weft-faced"), and the remaining five percent represented complex structures such as interlacing. No examples of knotting or netting were observed, and no Z-twist fabrics were recorded. Sherd thickness was not discussed. Smoothed-over rims are not mentioned, the presence of seven Kimmswick Plain saltpans is noted (Kuttruff and Kuttruff 1992).

The Obion site is an Early/Middle Mississippian town located on the North Fork of the Obion River in the extreme northeastern section of West Tennessee. Mississippian occupation at the site began *circa* A.D. 1050 and lasted perhaps 200 years (Garland 1992).

Most of the Kimmswick Fabric Impressed sherds from the Obion site (N=639) are clay ("grog") tempered, and consequently should not have been classified as *Kimmswick* (*contra* Garland [1992]: 71). Only 17 specimens are shell tempered, while 46 exhibit both shell and clay particles in the paste. All are interpreted as fragments of salt pans. Most vessels were fabric marked to the lip, but several plain pan sherds are also reported. Two unidentified fabric impressed sherds were made on Obion Plain paste, and represent a straight jar rim and a non-saltpan(?) body sherd, respectively.

Simple twining is exhibited by 238 sherds in the Obion site assemblage, and "twilled twined" (described as "alternate pair twined" by Drooker and the Kuttruffs) by 139 specimens. Fabric structures were not identifiable for the remainder of the sample. Neither sherd thicknesses nor ply direction were reported (Garland 1992).

Several notable similarities are evident among the assemblages from Oliver and the other sites. Virtually all of the fabric impressed ceramics from Oliver, Mound Bottom, and Wickliffe exhibit an S-twist. Simple twining is the dominate structure at all four sites; frequencies range from 52 percent at Obion to 55 percent at Wickliffe, 77 percent at Mound Bottom, and 95 percent at Oliver. Small numbers of "weft-faced" structures are present at each site, although most of these probably are attributable to pre-Mississippian components.

Significant differences are also apparent, most notably, the absence of alternate pair twining in the Oliver assemblage. Perhaps alternate pair twining represents a later innovation, and its absence reflects the relatively early age of the Oliver site. Temporal considerations aside, the lack of alternate pair twining at Oliver suggests that the inhabitants invested considerably less time in producing fabrics than occupants at the other sites considered here. Alternate pair

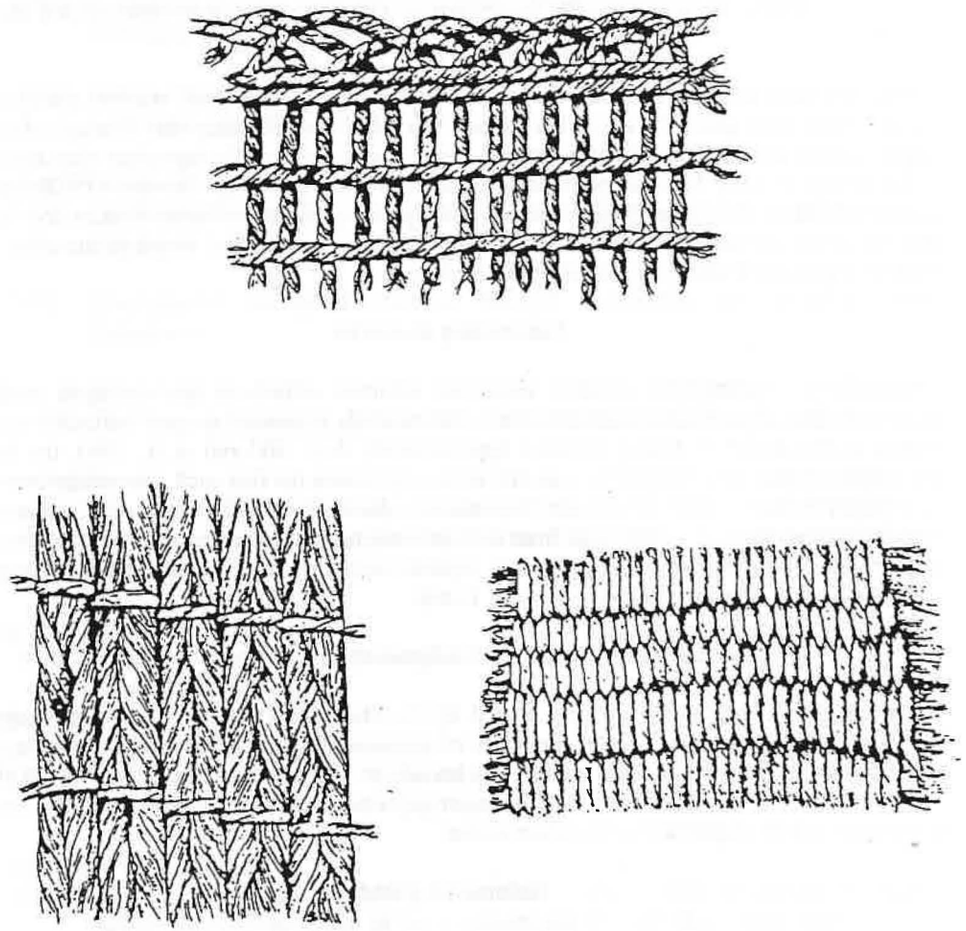

Figure 5. Some common textile structures in the Midsouth: (upper) simple twining over a plied warp; (lower left) simple twining over a braided warp; (lower right) compact or "weft-faced" structure. (After Holmes 1884).

twining is a relatively complex, labor intensive technique (Drooker 1992; Kuttruff and Kuttruff 1992). Also worth mentioning is the occurrence of fabric marking over cordmarking only at Oliver.

Thickness data are available only for Oliver and Wickliffe; the fabric marked sherds from Oliver appear to be generally somewhat thinner than those from the latter site. The lack of fabric impressed rim sherds in the Oliver assemblage is somewhat curious. Perhaps plain rims are more characteristic of early Mississippian fabric impressed wares, although Drooker (1992) reports several smoothed over rims from Wickliffe. The "plain" pans from Mound Bottom and Obion may represent smoothed over fabric impressions. It is also possible that vessel forms other than pans were produced using the earthen mold technique.

Concluding Remarks

Analysis of pseudomorphs on fabric impressed ceramics affords an opportunity to study an important class of prehistoric material culture that is rarely preserved at open habitation sites in eastern North America. Dating between approximately A.D. 900 and A.D. 1000, the fabric impressed ceramic assemblage from the Oliver site represents the first such assemblage from the Mississippi River counties of western Tennessee to be systematically analyzed. Comparisons with three other analyzed collections from the Midsouth has revealed significant similarities and differences. Future studies might profitably explore variability in fabric marked Mississippian ceramics by focusing on temporal and areal trends.

Acknowledgments

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