CHAPTER TWELVE
The Well-Tempered Pottery Analysis: Residue and Typological Analysis of Potsherds from the Lower Mississippi Valley

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This chapter discusses the relationship between archaeological pottery typology and prehistoric pottery use through absorbed pottery residue analysis. Using residue analysis we can validate some aspects of this relationship that have been previously addressed only through indirect methods, experimental studies or theoretical discussion. Residue analysis provides an additional way of looking at archaeological typology and may be one of the best ways to interpret archaeological pottery use, shedding light on human behavior. This approach requires a thorough grasp of the form of the vessel prior to sampling, which means that a rim sherd is the ideal sampling type. Since absorbed pottery residue analysis is destructive, analysis of form and function using residue analysis has seldom been combined. Given sufficient documentation of the sherds to be sampled, however, the destruction of a relatively small rimsherd (2-10 g) can yield valuable knowledge about the ways in which form and function were linked in ancient pots.

A series of 24 rimsherds and 15 bodysherds from six sites in the Lower Mississippi Valley were submitted for absorbed pottery residue analysis, allowing a preliminary comparison of vessel shape and vessel contents in the Tensas basin of Louisiana. This showed a widely varied diet, which continued through time as maize was introduced to the region, and that variation in vessel form and treatment corresponded to variations in vessel use.

Archaeological Background

The Lower Mississippi Valley (LMV) is defined as beginning at Cairo, Illinois, where the Ohio River flows into the Mississippi (Kidder 1998). In this study, however, all the sherds are from Louisiana. The chronological sequence for the region is divided into three periods following the Middle Woodland Issaquena period: Baytown, Coles Creek, and Mississippi. Due to the abundant natural resources throughout the LMV, agriculture or horticulture was not extensively used until the end of the Coles Creek period. Particularly in the rich floodplains of the Tensas and Yazoo river basins, foraged resources were more than sufficient to support towns and mound construction activities. The advent of maize into the region, which has been estimated at about 1100 CE, did change the culture noticeably, but in ways unique to this highly varied region, and noticeably different from the effects of maize further north along the Mississippi River (Kidder 1992; Kidder and Fritz, 1993).

Most of the cultures in the Baytown period seem to have been relatively egalitarian. Group burials in or near small mounds, often associated with feasting remains were typical of the Troyville culture. The Troyville mound centers were organized around plazas, but the mounds seem to have been centers of ceremonial activity for the entire group. All members of the group were buried in the mound, and grave goods were rare (Kidder 1998). Towards the end of the Baytown period and the beginning of the Coles Creek, shifts begin to appear in burial patterns, diet and community organization. Despite this, there is considerable continuity between the periods, with Coles Creek centers often built atop Baytown sites. Coles Creek diet seems to have depended more upon starchy seeds, particularly maygrass, than the earlier groups. Despite this, horticulture appears to have been very limited, and subsistence was still based primarily upon foraging. Burials during the Coles Creek period are more concentrated on the individual than the group, and access to mounds is apparently restricted by architectural barriers (Kidder 1998). Kidder (1998) suggests that some members of powerful lineages began to occupy the mound centers and restrict less powerful members of society from mound access. At the same time, mound centers tend to grow in size and decrease in number, though there are still a large number of apparently independent mound centers spread across the floodplain.

Over the course of the Coles Creek period, access to mounds seems to become increasingly restricted. By about 1200 CE, increased centralization, exclusivity and stratification led to the development of the Plaquemine culture. This regional culture operated within the Mississippian cultural sphere, and is distinguished from other Mississippian societies primarily on the basis of pottery. Whereas most Mississippian cultures adopted the use of shell tempered wares, peoples of the Plaquemine culture in the vicinity of Vicksburg and Baton Rouge adopted mixed grog/organic/shell tempered 'Addis' wares, while further south along the coast other Plaquemine peoples maintained the use of grog (crushed pottery) tempered wares until the Contact period. Like other Mississippian cultures Plaquemine communities demonstrate increased political centralization around mound centers.

By the 15th century CE, there were a relatively small number of large mound centers across the landscape, maize horticulture was common and the majority of the non-elite population lived in small farming hamlets that were evenly spread across the landscape. Maize appears in measurable quantity in the archaeological record about 1100 CE (calibrated), during the late Coles Creek culture, after the development of mound centers and chiefdoms in the LMV. In sum, maize adoption in the LMV did not cause increased stratification and centralization so much as it allowed the strengthening of a cultural trend already present in the Coles Creek culture prior to the common use of the plant.

Description of the Sites

Sherds were sampled from six sites in the Lower Mississippi Valley: Bayou des Familles, Emerson, Morgan Mounds, Osceola, Reno Brake, and St. Gabriel Mound (Table 1, Figure 1). These sites can be grouped into two smaller regions: three from the Tensas basin in northern Louisiana (Reno Brake, Osceola and Emerson) and three from the Gulf Coast region of the state (St. Gabriel Mound, Morgan Mound and Bayou des Familles). Sherds contributed by Dr. T.R. Kidder, then of Tulane University, from the Tensas basin sites included a large percentage of rimsherds, which allowed for a better understanding of the types of vessels sampled. Of these sites, the 20 sherds from the Osceola site made up more than half of the total sherds sampled, and thus represent the largest dataset to date from any site in the Lower Mississippi Valley.

The Reno Brake and Osceola sites are located about 400 m apart, along the abandoned Clark Bayou channel of the Mississippi River in the Tensas River basin of Louisiana. Due to their geographic and chronological proximity, the two sites must have been closely linked. The Reno Brake site consists of four dome-shaped mounds along the southern end of an oxbow lake. Although Reno Brake may have been first occupied during the Middle Woodland Issaquena phase, the majority of the occupation dates to the Troyville culture of Late Woodland Baytown period. The area was occupied throughout the Baytown period, but by the end of this period, the southern end of the lake had apparently either closed or begun to silt, and occupation shifted 400 m to the north, to the Osceola site.

Site	Body sherds	Rim sherds	Total (% total)	Residue present
Bayou des Familles	4	0	4 (10%)	2
Emerson	1	2	3 (8%)	3
Morgan Mounds	4	0	4 (10%)	4
Osceola	1	19	20 (51%)	20
Reno Brake	1	3	4 (10%)	4
St. Gabriel Mound	4	0	4 (10%)	3

Table 1: Number of sherds from each site in this study.

Subsistence at Reno Brake seems to have been based on foraging. Wild plant species were dominated by nuts and fleshy fruits, rather than starchy or oily grains. Acorn, pecan nuts, persimmon seeds, and palmetto seeds were among the most commonly found archaeobotanical remains from the period. Some chenopod and amaranth seeds were recovered, but appeared to be from wild populations. The faunal assemblage consisted of 71% large mammal fragments, primarily deer, opposed to only 5% fish and 10% reptile, primarily turtle (Kidder and Fritz 1993). However, fish have been underrepresented due to poor bone preservation at the site. The ubiquity of deer in the assemblage from Reno Brake does agree with evidence of feasting at other Baytown burial sites. Ethnobotanical and faunal analysis suggests that the rich environment around the Reno Brake site was enough to support the local population without recourse to domesticated eastern horticultural complex crops. The four sherds from the Reno Brake site were taken from a 1 x 2 m excavation unit near the crest of Mound A, containing a well-preserved midden.