An Analysis of Coles Creek Period Vessel Shapes and Sizes

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Functional studies of ceramic assemblages can provide a wealth of information about the cultures that constructed them. For prehistoric societies, these analyses are even more important as they are an essential component for interpreting cultural change.

Utilizing a three-dimensional design program, this paper analyzes a collection of Coles Creek pottery. Though not considered to be definitive, findings indicate that the vessels in this collection were not only being produced in a variety of shapes, but also exhibited intentional size-bounding within and across identified vessel categories.

The assemblage of pottery that constitutes the focus of this paper is from at the Feltus Mounds site in Jefferson County, Mississippi and is currently under the private ownership of Dr. Robert Prospere of Natchez, Mississippi (Slide 2). While conducting a surface collection of the site, Dr. Prospere discovered the assemblage at the edge and bottom of a ravine located next to the southwestern corner of Mound B (Slide 3).

In its totality, the Prospere collection consists of 107 rim sherds, 52 body sherds, and 2 pipe stems, spanning a time sequence from the late Marksville, continuing up through the Late Coles Creek and early Plaquemine periods (Slide 4). Type-varieties for the sherds were identified using the methodology established by Williams and Brain (1983) in their Lake George site report (Slide 5).

As you can see from the table, the majority of the sherds in this assemblage were found to date to the periods traditionally classified as early Coles Creek and late Baytown (Slide 6). Recent research at both Feltus and Hedgeland suggest that late Baytown and early Coles Creek varieties may actually comprise a single assemblage, rather than dating to separate phases. For the purposes of this paper, vessels from these categories will be considered together, and defined inclusively as early Coles Creek.

As there were few whole vessels available in the collection, a comparative study was needed from which to base vessel shape identifications. I chose the notable study conducted by James A. Ford at the Greenhouse site in Avoyelles Parish, Louisiana (1951), a site that bears similarities to Feltus in its typical mound-plaza arrangement and contemporaneous use dates. Ford's study was particularly useful as it was one of the few that included numerous drawings of reconstructed vessel forms found at the site (Slide 7).

The vessel drawings from Greenhouse served as a base from which I created nine vessel categories to use as analytic models for later reconstructions. I defined the categories by their varying morphological parameters. There were three bowl varieties and six jar varieties that I identified: simple/shallow bowls (*SB*), deep bowls (*DB*), and constricted bowls (*CB*); wide-mouth jars (which are reverse trapezoidal in shape) (*J1*), straight-sided jars (*J2)* (which are cylindrical in shape), constricted or barrel-shaped jars

(*J3*), necked jars (*N*), flaring-neck jars (*FN*), and a squashed/pyramidal vessel (*U*) that bears similarities to the constricted bowls and barrel jars.

As Ford did not typically include vessel dimensions in his report to go along with the drawings, I had no gauge for actual vessel size. To solve this problem, I measured all of the drawings from Greenhouse to look for recurring vessel dimension ratios for each of the shape categories (Slide 8). I used the measurement for rim diameter as my primary starting point, comparing it to measurements of the vessels' height, width, widest point, and base dimensions. Throughout calculations, the rim diameter remained a key component of my comparisons as it would be the dominant piece I had to use from the Feltus sherds.

After determining the ratios for the varying vessel categories, I could then use them to determine the actual heights and widths for the vessels from Feltus. I also chose to use the median ratio of each shape category for my calculations as I hoped that in doing this I would create a more midline "typical" vessel for each group.

My next step was to create an approximated vessel from each category based upon the Feltus sherds (Slide 9). To do this, I began with a rim sherd profile drawing which was converted into a JPEG image and imported into the *DesignCAD* 3000 program. I then used the identified rim diameter and the appropriate shape ratio to mathematically calculate the approximate height and width dimensions of the vessel. (Slide 10) Once these points were determined, I was able do draw the vessel in the program, completing its profile up to the midline. After completion, *DesignCAD* was able to "spin" my drawing into a 3-dimensional vessel, thus enabling approximated calculations of vessel volume to be determined (Slide 11).

This process was repeated for each of the nine vessel shape categories. An added benefit was that once a typical vessel was created for a shape category, differing rim diameters could be ascribed to the vessel based upon the Feltus sample, and thus the range of volumes for any given category could be approximately determined.

Utilizing this process, I determined that vessels were not only being produced in a variety of distinctive shape categories, but also in modal sizes. And for clarification, when I state that the vessels are appearing modally, I am referencing that they appear in distinct, bounded size ranges with noticeable absences in between. I will attempt to demonstrate this modality by going through the categories found in the sample:

In the assemblage, there were only three shallow bowls that were found, with date ranges spanning from late Baytown up through early Plaquemine (Slide 12); yet in their variable time frames all of the shallow bowls had similar volumes ranging from 0.3 to half a liter.

In the early Coles Creek period, the deep bowls had two repetitive size ranges: a smaller vessel between 2-4 liters, and a larger just shy of 10 liters (Slide 13).

Likewise, the constricted bowls were modally distributed: the small vessel from this group was between 1 to 3 liters; the medium vessel was from 6-8 liters; and the large bowls of this group were from 12-14 liters. There was also one extra-large constricted bowl that was found at 40 liters (Slide 14).

Before continuing with the jars, and to briefly lend a generalized perspective to our discussion of vessel size distributions, let us consider that the sizes of the smallest serving vessels from this assemblage are from 0.300 to 0.500 liters (Slide 15). If then, we use 0.5 liters as a single-serving size estimate we can judge that at any single sitting a 40 liter vessel might yield around 80 servings; a 20 liter vessel, 40 servings; 10 liters = 20 servings, and 3 liters = 6 servings. Thus, at a single sitting, a small family or household group could be served by a 3 liter vessel (Slide 16).

So in continuing through our discussion of vessel size distributions determined for the sample: in the early Coles Creek period the first of the six identified jar varieties, wide-mouth jars (J1), which are thought to be largely serving vessels, appeared with two vessel sizes, at 1 liter and a larger vessel in this category at 3-5 liters (Slide 17). Here again, the serving sizes indicate either individual or household use.

In like manner, the straight-sided jars exhibited three distinct, repetitive sizes: at 1 liter for the smallest vessel, 4 or 5 liters for a mid-range in this category, and just below 10 liters for the large (Slide 18).

Constricted barrel jars (*J3*) and flare-neck jars (*FN*) again demonstrate a modal size distribution for the vessels (Slide 19). For the barrel jars, two vessel sizes are again found: at 10 liters and a larger just below 20 liters. Flare-necked jars (*FN*) as well exhibited three sizes: a smaller vessel at 1 liter, a medium at about 7 liters, and a larger vessel again at 18 liters.

There were a few vessels found in the assemblage whose shapes appeared to be a mix between the barrel jars and pyramidal-shaped jars (*J3/U*). These also exhibited discreet rather than continuous sizing as a smaller vessel was found between 6 to 10 liters, and a larger vessel appeared around 18 liters. Additionally, an extra-large vessel was found for this category at approximately 46 liters, constituting the largest vessel in the assemblage.

Lastly, both the necked jars (*N*) and pyramidal jars (*U*) exhibited two sizes in this sample: a small vessel with a volume of about 10 l and a large vessel between 27 and 29 liters (Slide 20).

Thus, to summarize, the vessels in this collection were found to not only exhibit distinct morphological variance, but also distinct size ranges within each vessel shape category. This distinction in categories and sizes is important as it indicates intentional size-bounding and special-purpose functions for the vessels.

Significance

To facilitate general site interpretations for the distributions found here, the hypothesis I would like to suggest is that the varying morphology of vessels is largely a by-product of its varying utilitarian functions, but the differences in size for at least some types of vessels may be a reflection of group size or social status.

In this assemblage, the varying morphology of the vessels is so distinctive, that when coupled with the discreet sizes emerging in each category, it suggests a variety of special-purpose functions for these vessels. John Blitz suggests that in a general light, "domestic contexts are expected to represent the most diverse set of activities and thus have the greatest range of sizes; specialized contexts [on the other hand], have a limited set of activities, and [thus] would tend to have a more restricted range of sizes"(1993:85).

We have calculated that vessels of 10 liters or less could have served approximately 20 people or less, (depending on whether or not their primary function was serving or storage). With this in mind, it is interesting that the overwhelming majority of vessels from this collection have volumes of 10 liters or less (Slide 21). After this there is a small spike of significantly larger vessels, varying between 20 and 30 liters, and two extra large vessels at 40 and 46 liters. If this distribution were tied to household size, as is theorized by authors David Hally (1986:269) and John Blitz (1993:85), than it suggests the emphasis of this collection may have been on serving the dietary needs of a small group.

An additional consideration is offered by the Hedgeland site report, which suggests that vessels such as wide-mouth jars [which are identified there as beakers] were considered fine serving vessels that could have been viewed as status symbols (2004: 248). The report also suggests that an increase in fine, decorative serving ware, when coupled with a decrease in bowls might be an indicator of both a mound-dwelling group utilizing more special purpose serving vessels as well as a potential indicator of emergent site rank. This is interesting as the proliferation of finely decorated jar varieties found in this collection does in fact coincide with a low number of bowl varieties during the early Coles Creek period (Slide 22).

In consideration of the larger vessels, one proposition offered by John Blitz suggests that:

> "the sharing of a meal by a large group [was] often an important event, an opportunity to reaffirm social unity, as well as promote personal ambition […] Kin groups that amassed more food [would have] held an advantage in the competitive arena of feasts and gift giving that served to bind together households in small-scale societies" (1993:93,80).

In this way, the reciprocal processes of communal feasting and food storage could have been used as "a social strategy to extend alliances, reinforce obligations, [as well as] promote prestige" (Blitz 1993:80). He further conjectures that the

> "delegation of authority over communal food storage and disbursement may have arisen in an atmosphere reinforced by sanctity and ritual regulation. Voluntaristic food storage and feasting, localized in a ceremonial precinct, [could have] served as a launching pad for ambitious personages and as an impetus for […] the development of social rank" (1993:93).

This idea is further reiterated by Kidder who suggests that during the Coles Creek period:

> Solidification of power and prestige was apparently undertaken within the existing framework of local kinship networks and community and household independence. The ability to mobilize labor, probably through kinship networks and clan affiliation, was likely to have been an important aspect of elite status and maintenance (Knight 1990) [1992:157].

Regardless of whether the emergence of social deference is being implied in this collection, the proliferation of decorative jar varieties does suggest both special purpose functions and an accommodation of feasting and/or storage activities (Slide 23). In this light, the smaller vessels may have either served multiple households, or one household with a variety of specialized activities, storage, and consumption practices. Under the same premise, it is also plausible that the mid-range vessels could have served dual households, kinship groups, or smaller parties of community leaders or other such important persons; the largest vessels bespeak either long-term or large-scale storage or communal gatherings of a sizable nature, both of which imply orchestrated activities at Mound B emerging in the early Coles Creek period.

In summary, the assemblage that comprised the focus of this study found approximately nine varieties of vessels appearing in distinct, modally distributed size categories, with an emphasis on jar varieties. The jars both functionally and volumetrically indicated specialized activities were taking place in and/or around Mound B, a place that may be considered a zone of the sacred. The focus of this assemblage appeared to be on smaller household units or group gatherings of approximately 20 people or less; however, the presence of a small influx of larger vessels indicated the need for either large-scale storage or feasting activities at Mound B. These larger vessels, capable of 40 servings for a midrange and 80 servings for a large, are somewhat difficult to interpret as their connotations are wide. If for single serving purposes, then they suggest food preparation activities for gatherings of larger groups. If however, they are intended for use as food storage or multi-serving containers for a smaller group, then it would connote serving a smaller population for a longer duration.

Activities that would provide explanation for this variance are diverse: ranging from egalitarianism in communal dining practices favoring a pooling of resources, to a more elitist view where the juxtaposition of a majority of small vessels in a mound context might be interpreted to signify an emergent high-status group of some sort, capable of orchestrating gatherings or food storage on a larger scale, whether through ceremonial contexts, communal politics, reciprocal obligations, or other such mechanisms.

However, whether these findings are indicative of emerging communal politics or aspiring elites remains to be determined, although this paper does propose interpretation in favor of some form of specialized activity and a possible deference in food consumption practices. More research is needed on a larger scale at the site to determine how representative this sample is of activity at Mound B and the site as a whole.

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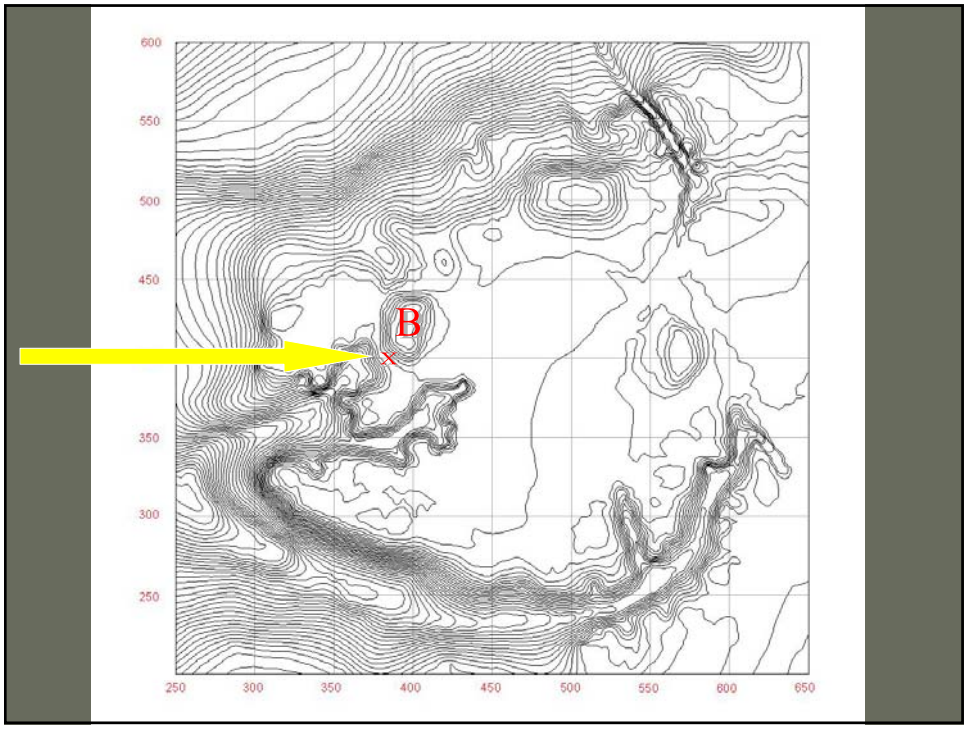
An Analysis of Coles Creek Period Vessel Shapes and Sizes

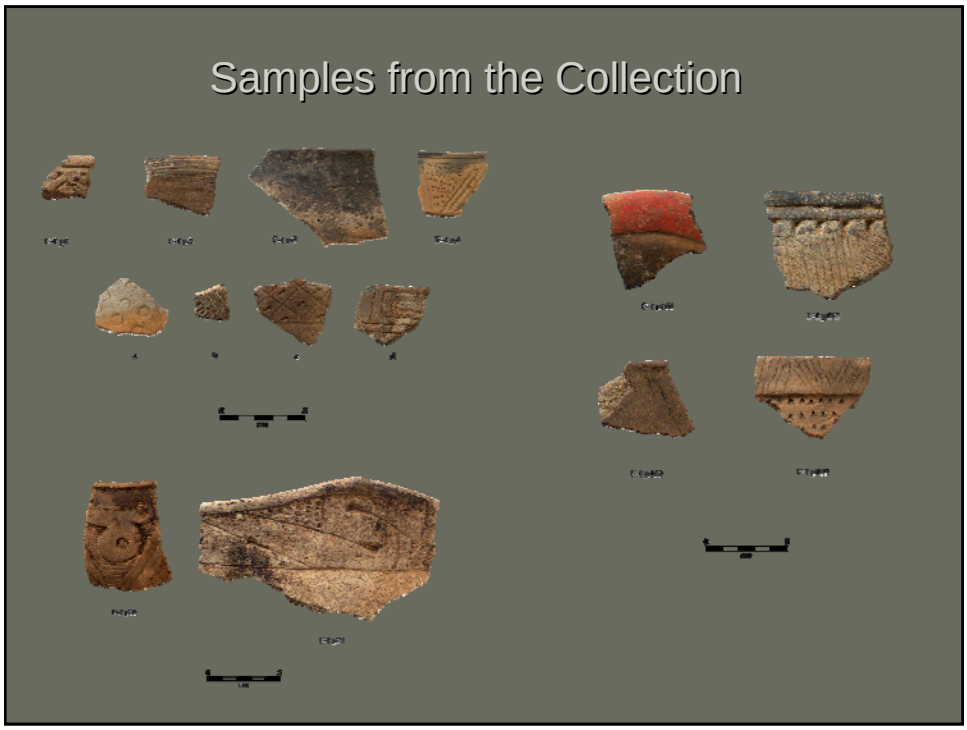
By Vanessa Patchett

[Slide 1]

[Slide 2]



[Slide 3]



[Slide 4]

[Slide 5]

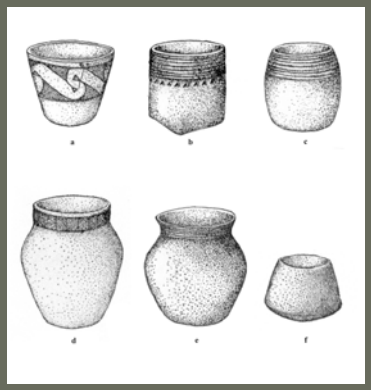
Representative Collection Chronology

Period Dates (A.D.)	Period	Phase	Sherd Count
1200-1350	Plaquemine	Winterville	2
1000-1200	Late Coles Creek	Crippen Point	9
900-1000	Middle Coles Creek	Kings Crossing	6
750 -900	Early Coles Creek	Aden	68
550 - 700	Late Baytown	Bayland	29
300-550	Early Baytown	Deasonville	8
100 - 300	Late Marksville	Issaquena	3

[Slide 6]

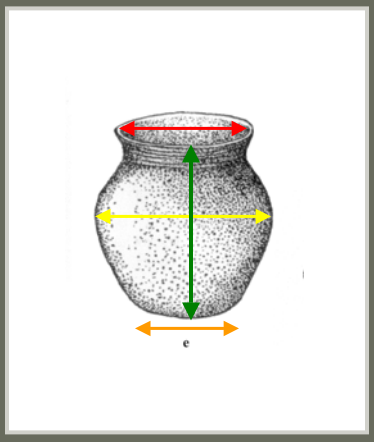
Nine Identified Vessel Categories:

- Simple, Shallow bowls
- Deep Bowls
- Constricted Bowls



- Wide-Mouth Jar
- Straight-Sided Jar
- Constricted/Barrel Jar
- Necked Jar
- Flare-Necked Jar
- Pyramidal Jar

[Slide 7]



Measurements:

1. Rim Diameter (*Primary Ratio Calculator)
2. Base Diameter
3. Height
4. Widest Point

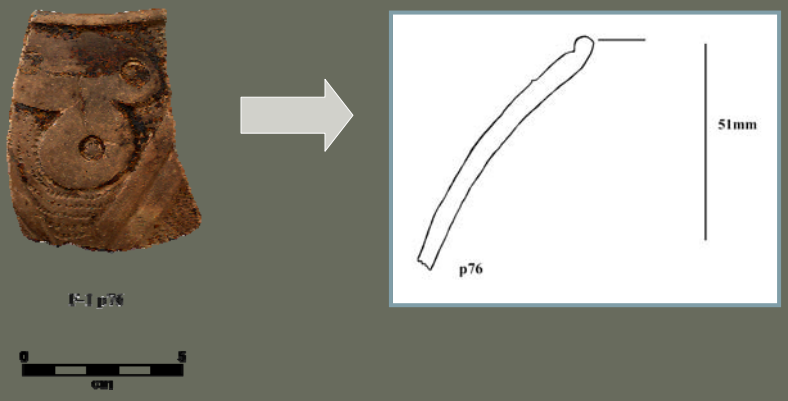
Ratios for each vessel category compared the rim diameter to each of the other measurements (median vessel boundaries):

Example: Rim Diameter/Base, Rim Diameter/Height, etc.

[Slide 8]

3-Dimensional Construction Sequence

Step 1: Create and Convert the Profile



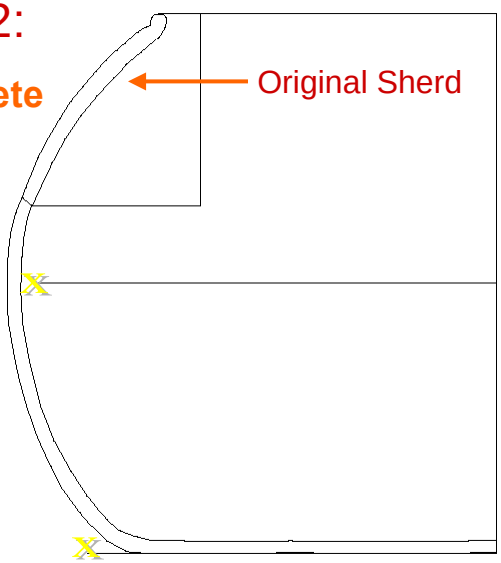
[Slide 9]

3-Dimensional Construction Sequence

Step 2:

Complete the Profile

Using Shape Ratios

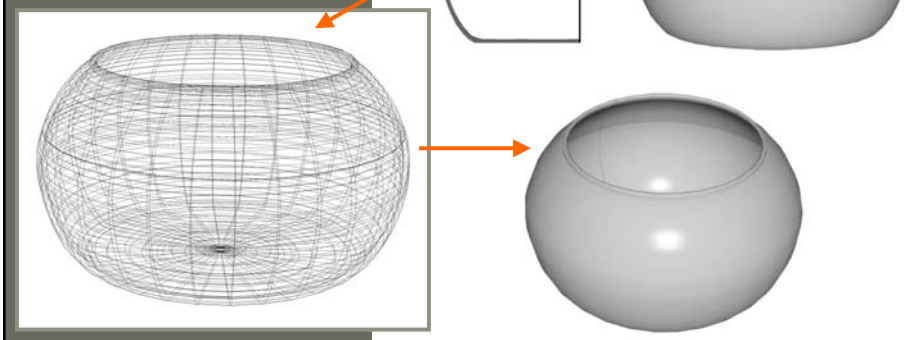


[Slide 10]

3-Dimensional Construction Sequence

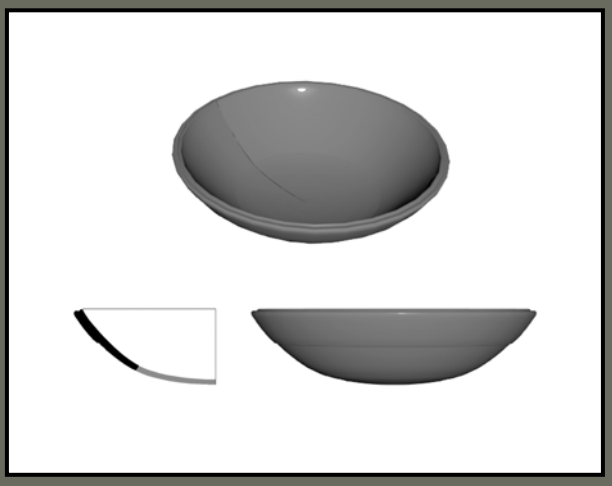
Step 3:

Spin the Vessel



[Slide 11]

Larto Red Filmed variety *Silver Creek* Shallow Bowl



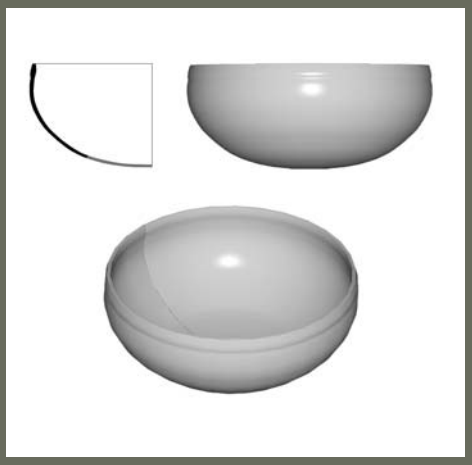
Shallow Bowl Volumes

All ≤ 0.5 liters

[Catalog number: p100.] *Rim diameter = 19 cm* *Volume Approximation = 0.3 liters.*

[Slide 12]

Deep Bowls



2 Modes of Deep Bowls:

- 2-4 liters
- ~ 10 liters

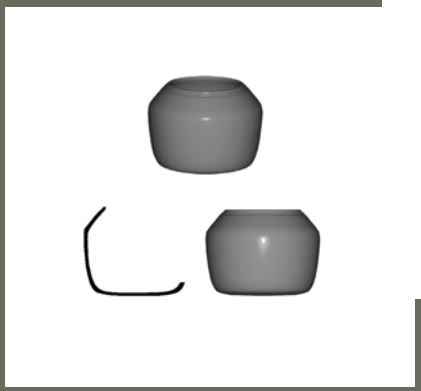
Coles Creek Incised variety *Stoner* deep bowl (DB). Late Baytown period.

[Slide 13]

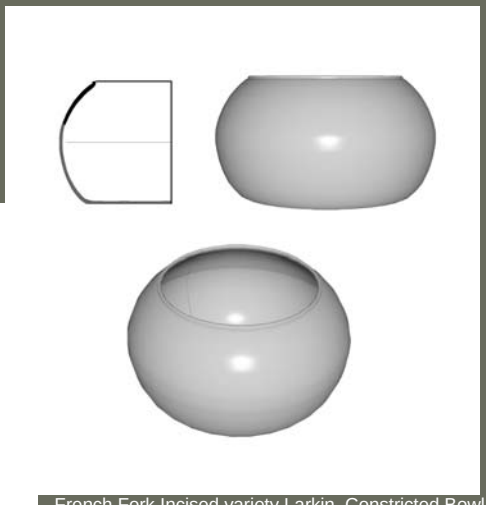
Constricted Bowls

Modal Sizes:

- 1-3 liters
- 6-8 liters
- 12-14 liters



Coles Creek Incised variety *Hunt*, constricted bowl (CB). [Catalog number: p50.]



French Fork Incised variety Larkin, Constricted Bowl (CB). [Catalog number: p76.]

+ One 40 liter vessel

[Slide 14]

Conversions

Via 0.5 liter approximations of single serving size, in one sitting vessels of:

- **40 liters = 80 servings/people**
- **20 liters = 40 servings**
- **10 liters = 20 servings**
- **3 liters = 6 servings**

[Slide 15]

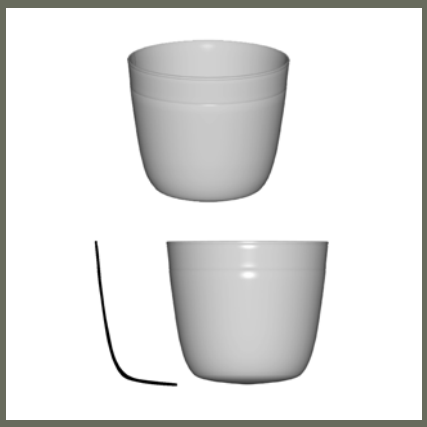
Deep Bowl at 9.4 liters

Constricted Bowl at 1 liter

[Slide 16]

Wide-Mouth Jars

Modal sizes: 1 liter, and 3-5 liters



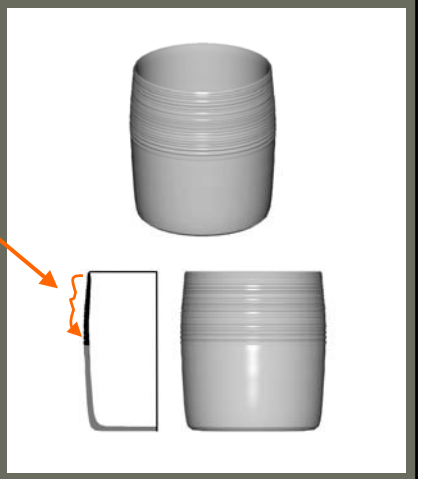
Harrison Bayou Incised variety *Harrison Bayou*, Wide-Mouth Jar (J1).
[Catalog number p96.]

[Slide 17]

Straight-Sided Jars

Modal Sizes:

- **1 liter**
- **4-5 liters**
- **10 liters**



Coles Creek Incised variety *Mott*, Straight-Sided Jar (J2). Diameter = 12 cm; Volume Approximation = 1 liter. Profile image: Black = original profile; Gray = extension to midpoint. [Catalog number p51.]

[Slide 18]

Constricted/Barrel Jars

Modal Distribution:

- 10 liters
- 20 liters

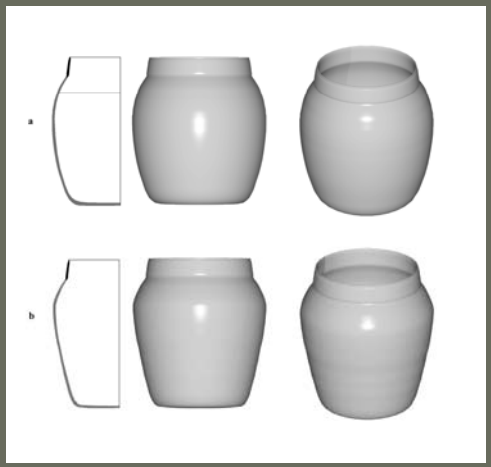
Flare-Necked Jars

Modes:

- 1 liter
- 7 liters
- 18 liters

[Slide 19]

Necked Jars and Pyramidal Jars

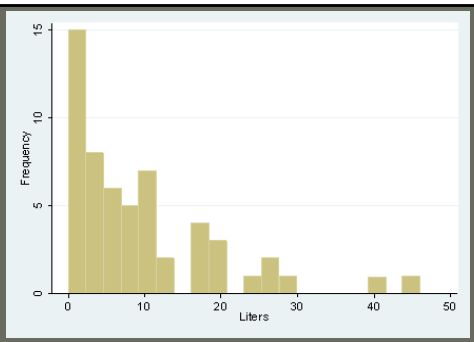


Modal Distribution:

- 10 liters
- 27 and 29 liters

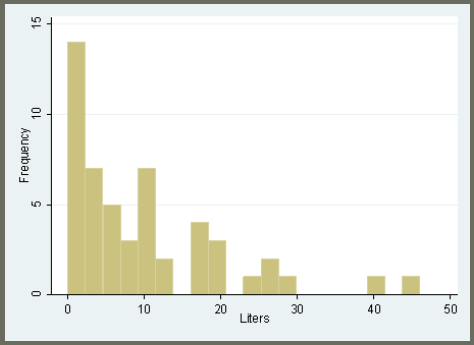
[Slide 20]

A)



Vessel Volume Distribution
Across All Time Frames

B)



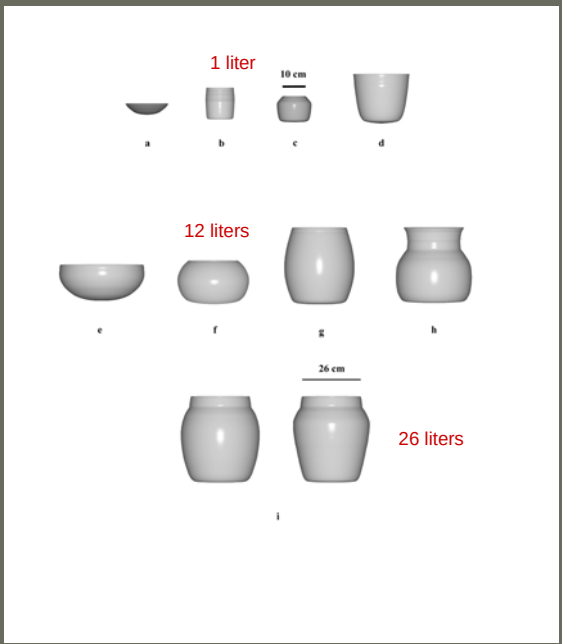
Early Coles Creek Period
Vessel Volume Distribution

*All vessel varieties included in these tables

[Slide 21]

Comparison Of Vessel Sizes and Shapes

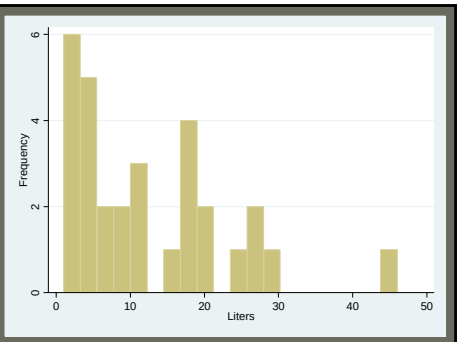
(Volumes Increasing From Left to Right)



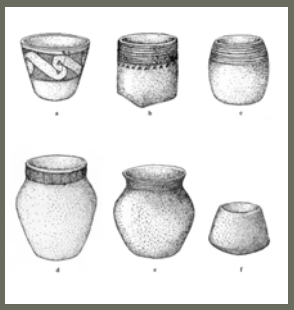
[Slide 22]

Jar Volumes

*Note how volumes tend to modally advance in doubles, both within and between categories.



Jar Variety	Possible Function	Volumes
Wide-Mouth	Serving	1, 3-5 liters
Straight-Sided	Serving	1, 4-5, 10 liters
Barrel	Cooking/Storage	10, 20, 46 liters
Flared-Neck	Liquids Primarily	1, 7, 18 liters
Necked	Cooking/Storage	10, 27-29 liters
Pyramidal	Cooking/Storage	10, 27-29 liters



[Slide 23]