Building a continuous chronology for studying early-modern Atlantic slavery.

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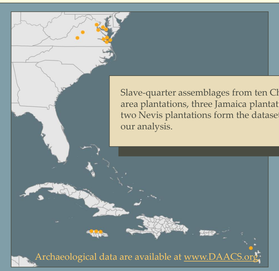


1 Introduction

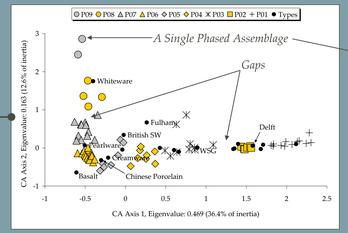
Among historical archaeology's goals is explaining patterns of variation in the lifeways of enslaved Africans and their descendents in the New World. Achieving that goal requires serious engagement with chronological inference: we need to be able to place accurately assemblages separated by large chunks of time and space into a single chronological sequence.

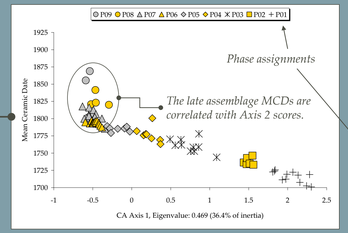
Our methodological approach combines correspondence analysis (CA) of ware-type frequencies, mean ceramic dates, frequency seriation, and pipe-stem dating to construct and objectively evaluate a single chronological sequence covering the 18th through late-19th centuries. The results offer unprecedented chronological control of 78 archaeological assemblages from sites in the Chesapeake and Caribbean. We demonstrate that variation in ceramic acquisition between the two regions, although present, is not significant enough to prevent the creation of a unified chronology.

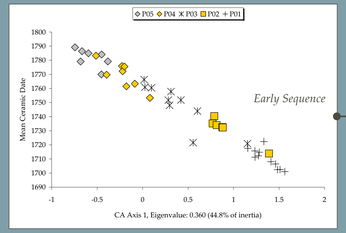
2 CA: The Big Picture

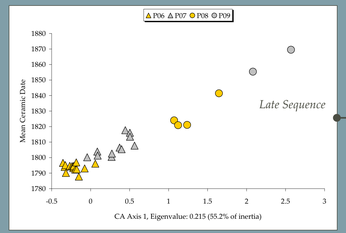
CA is a powerful statistical method that can summarize variation in type frequencies among assemblages in a small number of underlying axes. When trajectories of change in type frequencies follow Gaussian curves with uniformly distributed means, and assemblages are uniformly distributed in time, we expect only assemblage Axis-1 scores to reflect assemblage dates.

A CA of all 78 assemblages produces results that contradict this expectation: two CA axes are required to capture time. The unusual L-shaped point scatter is the result of gaps in the sequence between Whiteware-dominated assemblages with high Axis-2 scores and Creamware- and Pearlware-dominated assemblages with low Axis-1 *and* 2 scores, and the much bigger gap between the latter and Delft-dominated assemblages with high Axis-1 scores[1]. Despite the unusual point scatter, we use the results to group assemblages into phases. Axis-1 scores for assemblages assigned to Phases 1-5 correlate with assemblage MCDs; however, Axis-2 scores correlate with assemblage MCDs for assemblages assigned to Phases 6-9.



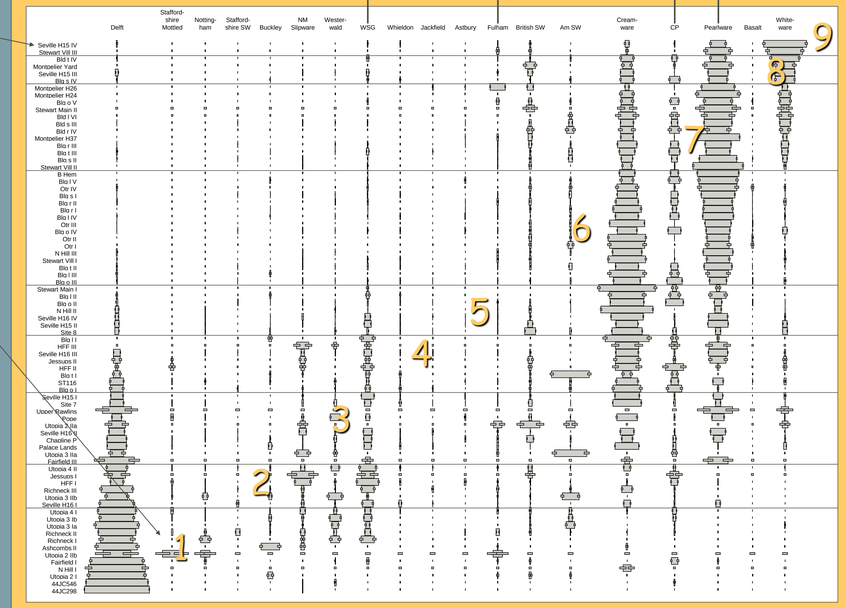






3 CA: Finding Time on Axis 1

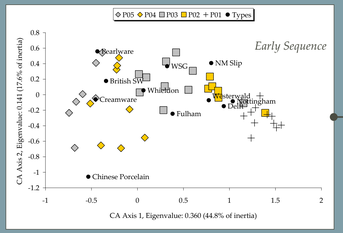
We split the dataset into two parts, an early sequence (Phases 1-5) and a late sequence (Phases 6-9) to reduce the impact of gaps observed in the first analysis. The early sequence captures ceramic-frequency variation among 18th century assemblages. The late sequence includes assemblages that date to the 19th century. For both sequences, assemblage Axis-1 scores remain correlated with MCDs, but, as we had hoped, Axis-2 scores were no longer correlated with MCDs. These results give us the opportunity to explore atemporal ceramic variation among assemblages using patterning along Axis 2.

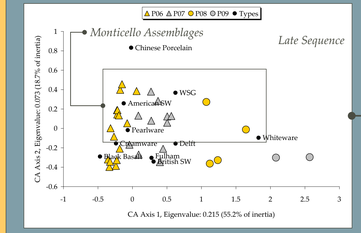


The seriation diagram above reflects approximately two-hundred years of ceramic-frequency change. The order is based on the position of Phases 1-5 assemblages along Axis 1 and the position of Phases 6-9 assemblages along Axis 2 in the first CA.

The assemblages have been assigned to nine phases defined by the CA.

It is clear from the diagram that several ware types do not behave like good "historical" types with temporal trajectories that are Gaussian, or battleship shaped. These include British and Fulham stoneware, which continued to be imported into the British Caribbean, but not the U.S., after the American Revolution. Also included is American Stoneware, which was produced briefly in the early-18th century at Yorktown, Virginia and reintroduced in the late-18th century. These types probably should be eliminated from future chronologies.

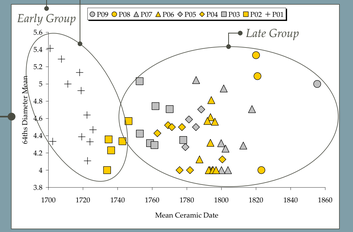




4 CA: Is Axis 2 Meaningful?

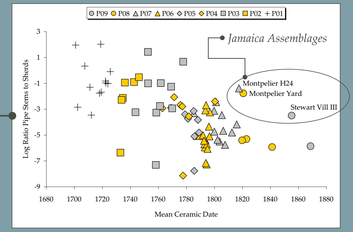
Having established a continuous chronology, we now are positioned to examine other sorts of assemblage-level variation. The early sequence has an arch-shaped point scatter indicative of underlying Gaussian curves. In this case, Axis 2 scores carry no additional meaning; Axis 2 is a quadratic function of Axis 1.

For the late sequence, however, a striking Axis 2 pattern did emerge. Time, captured on Axis 1, remains the primary source of variation among assemblages, but Axis 2 reveals a distinction between assemblages that have Chinese porcelain and American Stoneware and assemblages that do not. Those that do are from the Monticello Plantation, home of Thomas Jefferson and scores of enslaved African Americans. This pattern, so starkly revealed by CA, may reflect an ongoing preference for fine china among Monticello enslaved domestics even though many individuals, slave and free alike including Jefferson himself, had begun to acquire other wares[2].



5 Pipe Stem Dating

Our ceramic chronology offers an opportunity to evaluate pipe stem dating by plotting MCDs against mean bore diameters from the same assemblages. The resulting scatter plot reveals two groups. For the early group, there is a detectable negative correlation between time and bore diameters. For the later assemblages, there is no detectable relationship at all. Thus pipe stem dating is unreliable for assemblages with MCDs later than ca. 1740. In the Chesapeake, the correlation between time and bore diameter disappears at about the same time as pipe stems themselves. In Jamaica, clay-pipe smoking remained popular in some households. This contrast highlights cultural variation among Africans and their descendents both within and between each region.



6 The Highlights

- A single chronology *is* possible for British colonial and early American plantation-era slave quarter sites in the Chesapeake and the Caribbean.
- Only a handful of ceramic types behave like good historical types: Delftware, White Salt Glaze Stoneware, Creamware, Pearlware, and Whiteware. These wares happen to be the ones primarily used in dining, i.e., as "tablewares." An implication of this intriguing pattern is that different social processes are responsible for shaping the temporal trajectory of historical and non-historical types.
- CA is a superior method that simultaneously elicits atemporal and temporal variation among assemblages.
- Pipe stem dating is not reliable after the middle of the 18th century.

References Cited: [1]Smith and Neiman (2007) "Frequency Seriation, Correspondence Analysis, and Woodland Period Ceramic Assemblage Variation in the Deep South." *Southeastern Archaeology* 26:47-72. [2]Galle (2006) "Strategic Consumption: Archaeological evidence for costly signaling among enslaved men and women in the eighteenth-century Chesapeake." Ph.D. dissertation. University of Virginia.