MENDS AND MYSTERY BUILDINGS: A CASE STUDY OF INTER-STRUCTURE CROSS-MENDED OBJECTS FROM MONTICELLO'S MULBERRY ROW REASSESSMENT PROJECT

Mends and Mystery Buildings: A case study of inter-structure cross-mended objects from Monticello's Mulberry Row Reassessment Project

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Introduction

(SLIDE: Title) Last year the Mulberry Row Reassessment at Monticello came to a close following the completion of digitizing field maps, context information, and cataloguing artifacts from thirteen sites into the DAACS database. Early analysis focused on establishing inter- and intra-site chronologies. During this process, Monticello staff also identified previously un-documented structures on Mulberry Row, revealing it to be an extremely dynamic landscape. While artifact-level aggregation has been the primary tactic for analysis thus far, data from cross-mended objects has been under-utilized. In this paper we use a case-study at the Smokehouse-Dairy site to examine depositional practices and site formation processes through the use of cross-mended object data. We explore the spatial relationships between cross-mended artifacts in a given object to evaluate depositional practices as well as to challenge the assumption that contexts which contain fragments of a given object are synchronic.

Overview of the Mulberry Row Reassessment

[SLIDE 2] The Mulberry Row Reassessment (MRR) was a project undertaken in order to remedy the lack of accurate and easy-to-search artifact inventories from archaeology conducted in previous years on the Monticello plantation. The goal was to digitize the excavation records as well as to systematically catalogue the artifacts into a modern database system in which the data was standardized and more easily used for analysis and comparison. The project was undertaken in three major phases, funded by grants from the Mellon Foundation, Robert H. Smith, and the National

Project History



Number of Sites	Number of Structures	Total Artifacts Catalogued
13	17	440,163

Year(s)	Grant	MR Sites
1999-2003	Mellon Foundation	Buildings <i>l, o, r, s, and t</i>
2006-2007	Robert H. Smith	West Kitchen Yard, Joinery, Carpenter's Shop
2009-2012	National Endowment for the Humanities	East Kitchen Yard, MRS-2, Smith's Shop/Nailery, Smokehouse/Dairy, 1809 Stonehouse



Endowment for the Humanities. Over a 13-year time span, analysts painstakingly catalogued a total of 440,163 individual artifacts at a fine level of detail. These artifacts were recovered from 17 structures on 13 sites along the 1,000-foot avenue. Once all of this information had been collected, analysts were able to look at stratigraphic associations, and use ceramic seriation and mean ceramic dating to create basic internal site chronologies. The MRR project has given archaeologists a new understanding of the dynamic quality of the mountaintop landscape and its arrangement of buildings. Thanks to our phasing process for each site, we can compare the peaks of occupation and then identify and group sites together that were used at the same time. Thus far, the analyses using this data have been completed at the artifact-level, but thanks to the incredible level of detail recorded, the types of research that can be conducted cover a much wider range (such as at the object-level).

[SLIDE 3] The information from the Reassessment joins a larger-scale project known as the Digital Archaeological Archive of Comparative Slavery (DAACS), which currently houses data from 60 archaeological sites from the Chesapeake, Tennessee, South Carolina, and the Caribbean. The artifacts from each of these sites have been catalogued using protocols that have been standardized by DAACS staff in collaboration with other experts in the field. This allows the information from Mulberry Row to be used in analyses and in comparison with other sites that are entered into DAACS.

[SLIDE 4] The initial excavation of Mulberry Row was undertaken by Oriel Pi-Sunyer in 1957. The primary focus of his study was locating and identifying various structures along the western half of Mulberry Row. Pi-Sunyer utilized the method known as cross-trenching, and dug a pair of parallel trenches, documenting structures as he encountered them. During this architectural study, he did recover a host of artifacts, but did not pay much attention to artifact provenience, nor note much about any of the layers removed.

[SLIDE 5] The primary focus of the Mulberry Row Reassessment was the excavation of Mulberry Row in the 1980s under the direction of Dr. William Kelso. He used as a guideline for excavation a



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SEARCH



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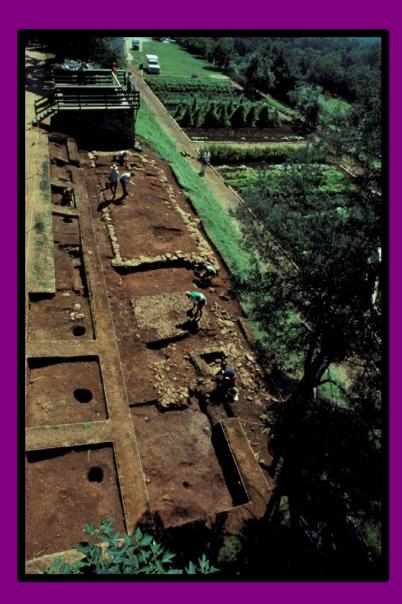
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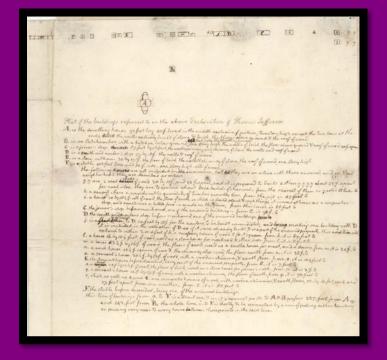


Oriel Pi-Sunyer's 1957 excavations









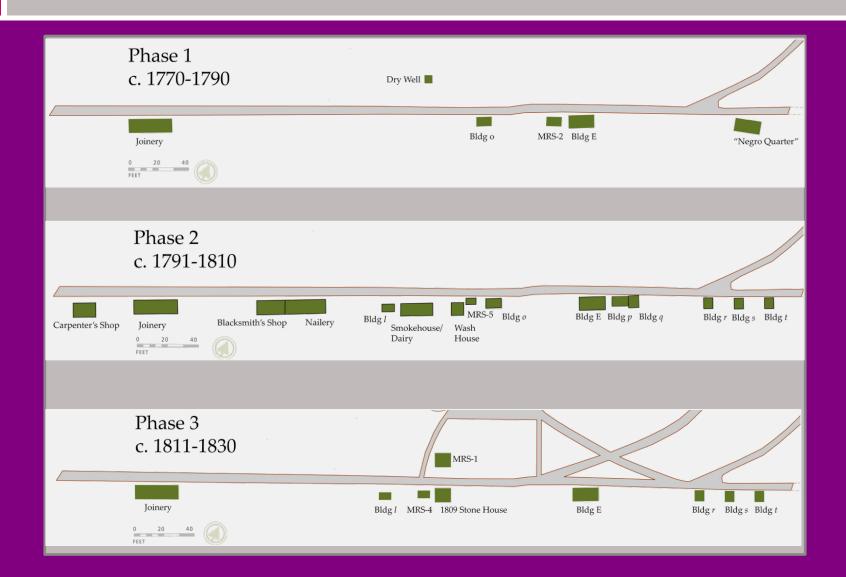
Mutual Assurance Declaration drawn by Jefferson himself in 1796 for insurance purposes. It outlined and labeled 18 structures and areas, of which few physical remains exist today. Because we know that the area was utilized from the 1770s to the 1820s, we also recognize that this is simply a snapshot and only represents what existed at one point in time, and that the layout and various functions of Mulberry Row changed multiple times. As a result, during the excavations led by Kelso, the team uncovered some additional buildings not recorded in any existing documents. With these discoveries in mind, the door was left open for possible new discoveries and interpretations of the existing landscape.

Chronology

[SLIDE 6]One of the first steps of analysis at the completion of the Reassessment project was to establish both chronologies for each site and one for all of Mulberry Row. Site chronologies were established using the detailed frequency-seriation-based analysis of ceramic assemblages, as set forward by the DAACS project (see Neiman, Galle, and Wheeler 2003 for technical details). This analysis focuses primarily on ceramic artifacts, yet it does take into account TPQs (terminus post quem) for non-ceramic artifacts such as wrought or machine cut nails. Through this analysis, we assign most contexts to a site phase, or a broad period of site occupation. Therefore, deposits within a given phase are believed to be broadly contemporary.

To begin this process, contexts are first grouped into stratigraphic groups, or SGs, when possible. These are groups of deposits that were excavated separately yet are part of a larger deposit. Site seriations are derived from "ceramic assemblages aggregated at the level of contexts and stratigraphic groups, and not at the level of features. This is because most contexts and stratigraphic groups on the site are not parts of features" (Smith 2012, Building *m* Chronology Page). Next, in order to reduce error incurred by assemblages with small sample sizes, only those with more than 5 sherds and more than one ceramic type are included.

Chronology



(SLIDE 7) This aggregated data is then run through a correspondence analysis, or CA. A helpful statistical method, CA generates plots where similar assemblages are close together and disparate assemblages are farther apart (DAACS Glossary). We can then readily see patterns in the data, remove anomalous assemblages, and begin grouping assemblages into different phases. This statistical data is checked against each deposit's position in the site Harris Matrix and if everything looks good, the phases for each context and/or SG are entered into DAACS. The result looks something like this (SLIDE 8).

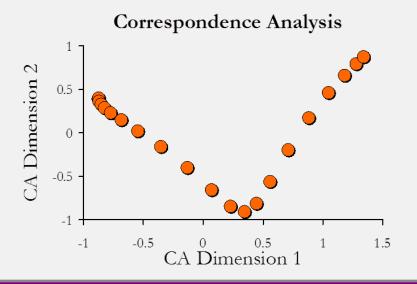
Once these intra-site chronologies were established, we took things a step further. In a paper presented at last year's SHA conference in Baltimore, Karen Smith, et al, generated a chronology for all of Mulberry Row. The patterns that emerged demonstrated that the peak periods of occupation could be grouped into three phases: Mulberry Row 1 (1770-1790), 2 (1791-1810), and 3 (1811-1826). (SLIDE 9) Not only does this clearly delineate which sites were occupied synchronically, but it is a very dynamic view of the history of inhabitation on Mulberry Row.

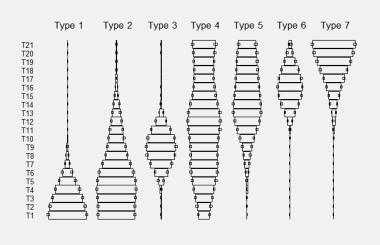
Up to this point, all analysis was conducted solely on the sherd-based level. However, excavators in the 1980s painstakingly cross-mended and analyzed over 2000 objects found during the Mulberry Row excavations that remained an untapped resource for analysis. Artifacts belonging to a recognized object were linked to an object record in the DAACS database and therefore can be used for analysis on the object-level of aggregation. Wanting to make use of this data, we turned to a site with both abundant ceramic object data and the presence of multiple, temporarily-distinct occupations: the Smokehouse-Dairy.

(SLIDE 10) The Smokehouse-Dairy site is located near the middle of Mulberry Row and was excavated from 1979 to 1981. While it sounds like an odd mix of uses for a building, a letter from Jefferson to his farm manager described the structure as "two meat-houses to be made, about the same size each, 12 feet apart and a cover over the whole: one of them for me, the other for Mr. Randolph and the passage between, for their dairy" (Jefferson letter; SH-D background). A contemporary plantation in

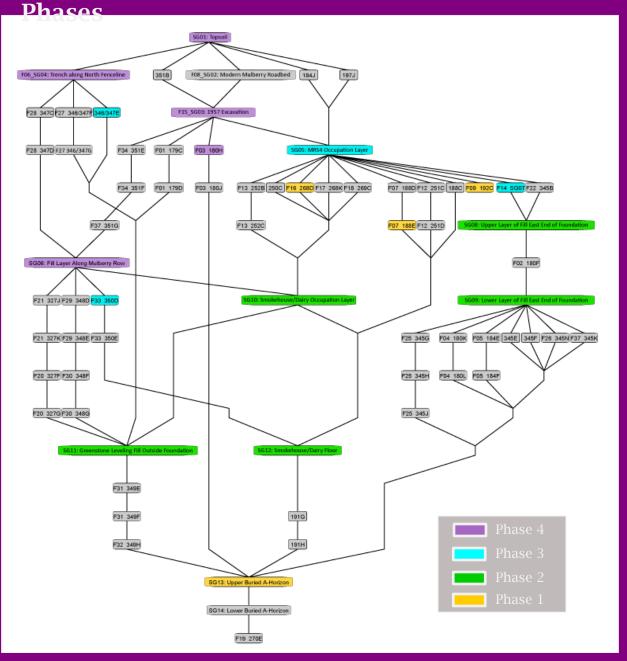
Correspondence analysis (CA):

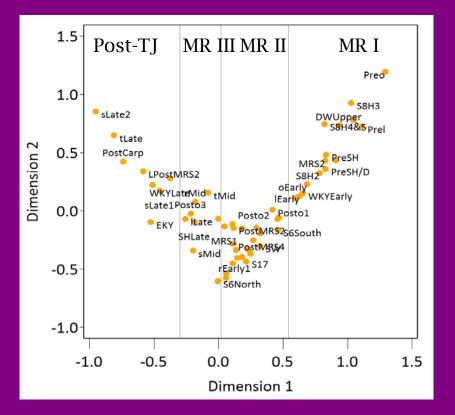
A multivariate statistical method that estimates the position of a set of assemblages along an underlying gradient or dimension on the basis of the relative frequencies of types in each assemblage. The spacing of the assemblages relative to one another on the gradient is a function of how similar their relative frequencies of types are.

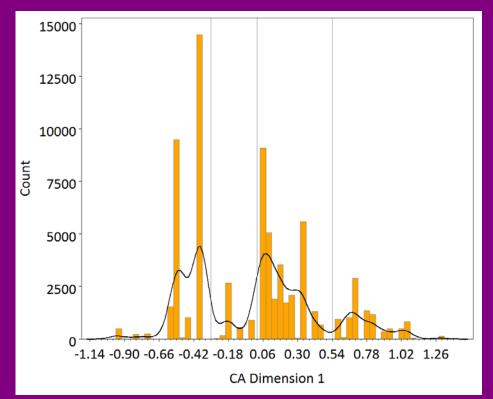




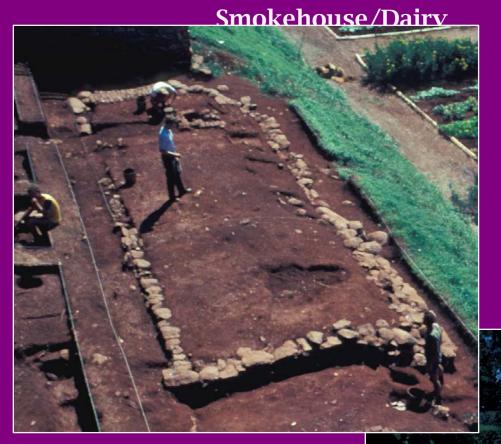
Smokehouse/Dairy Harris Matrix with Site







Excavations at the



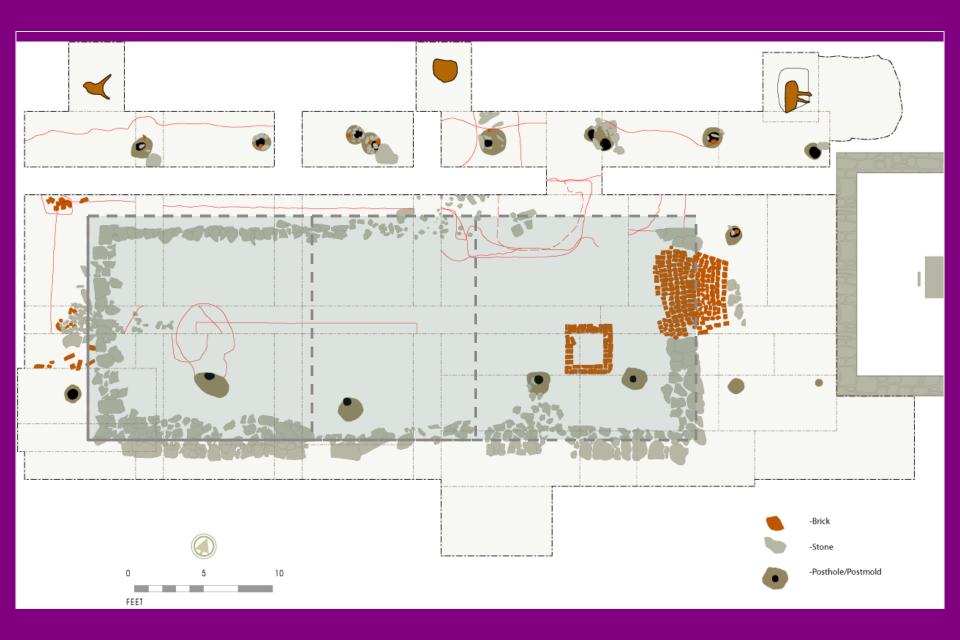


Albemarle County has a similar structure, still standing today, that served the same dual purposes of dairying and smoking meat. (**SLIDE 11**) In use from approximately 1790 until 1808, this structure had a substantial foundation and many archaeological features, as seen on this site map. After 1809, dairying and smoking meat were moved to the South Dependency wing of the house and this structure was abandoned, or more likely, dismantled and the upper portion of its stone foundation robbed to construct other buildings.

Both the archaeological features encountered and the artifacts recovered during excavation hinted at the presence of a later structure or inhabitation at this site (SLIDE 12). Previous researchers interpreted the brick paving and brick-lined fire box as evidence for the eastern meat smoking area (Hill 2002). However, upon deeper analysis of the site's ceramic assemblages through the DAACS phasing process, it was determined that there was a later period of occupation that correlated with these features. In addition, when looked at separately, it is clear that these features match adjacent Building *I*, and we theorized that it was therefore built after Building *I* and likely to match Building *I*'s layout.

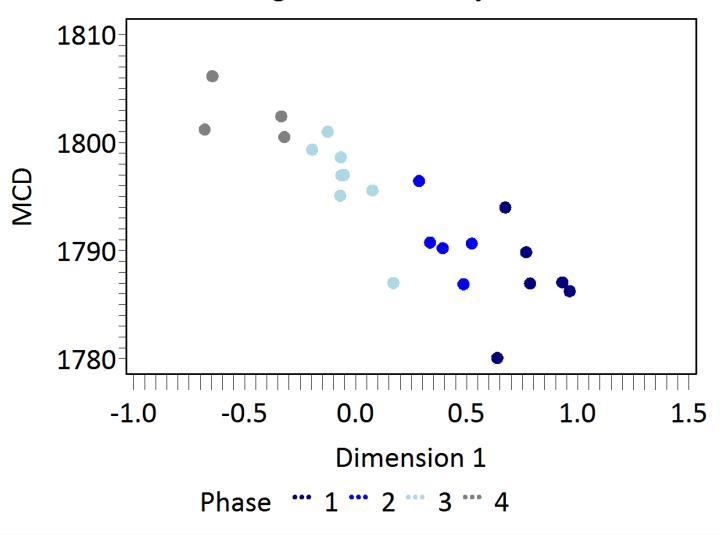
(SLIDE 13) Looking at the phasing analysis for this site, we can see that the Smokehouse-Dairy has four distinct periods of occupation correlating with discrete deposits, as color-coded on this CA graph. Phase one consists of the presence of an early-Jefferson artifact scatter that pre-dates the Smokehouse-Dairy, likely from the early days of Monticello, when Mulberry Row was still being leveled and constructed. The Smokehouse-Dairy deposits comprise the second phase of occupation. Our mysterious structure, dubbed MRS-4 dates to the third phase at the site and was likely in place during the Mulberry Row Phase 3. This means it was contemporary with occupation at the Building / site as we suspected.

Now, getting to objects and why they are important and interesting at this site. The Smokehouse-Dairy excavations generated tens of thousands of artifacts, including thousands of sherds of ceramics. Of those, nearly 700 sherds were identified and grouped into distinct objects by the









original excavators and analysts. During the Reassessment, we recorded this object data into DAACS using the database's object table. In this way, each object is also linked in the database to each sherd and to each context from which it came. This gave us the ability to organize the data on multiple levels of aggregation and to conduct analysis at the object-level instead of the typical sherd-based analysis used to date.

(SLIDE 14) As we catalogued these objects, we noted how many of them came from a wide array of contexts and how many actually mended with sherds from other sites on Mulberry Row. These objects often had sherds that mended together but were from either far-flung contexts or deposits that were not contemporary, given our understanding of the stratigraphy and site phasing. If the sherds were not from contemporary deposits, though, how was it that they came from the same vessel? What site formation processes took place for this to occur? Could we identify a parent deposit, or deposits, from which the sherds were generated? To tackle these questions we decided to divide our analysis into two sections: an investigation of the temporal organization at the Smokehouse-Dairy site itself and the spatial distribution of these cross-mended vessels.

Smokehouse-Dairy Stratigraphy/Temporal Study

(SLIDE 15) Our first step was to generate a list of objects that included sherds from Smokehouse-Dairy contexts, the deposits from which they came, and their correlating Mean Ceramic Dates (MCDs). To generate and utilize more robust MCD estimates we chose to use stratigraphic group MCDs, where available. This first list was a little overwhelming, as it included over 60 objects spanning about 50 years of Mulberry Row occupation. In fact, we could not figure out a way to even graphically present this data in a meaningful way!

We then decided to limit this section of our analysis by including only objects comprised primarily of sherds from the Smokehouse-Dairy and objects with more than five sherds. Furthermore, we grouped objects by ware type and organized those groups chronologically. Objects comprised of

Object Study











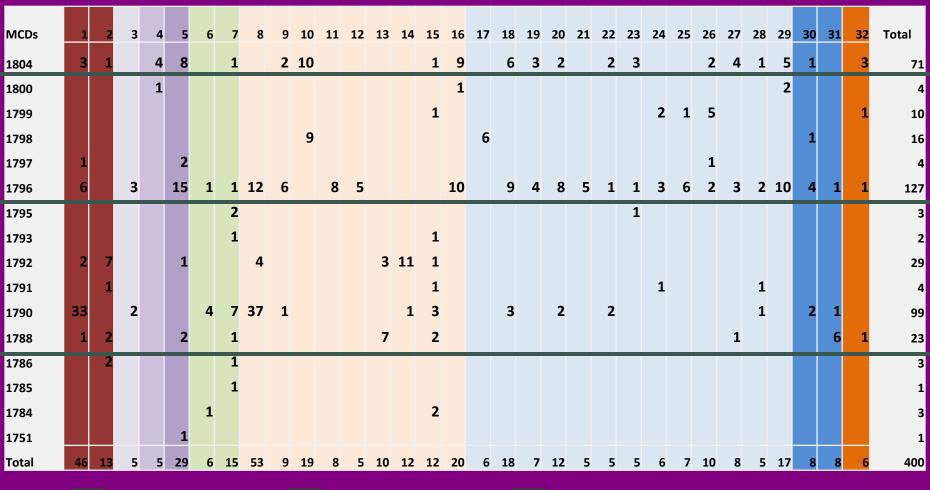
sherds from early ware types appear on the left and later ware types on the right. (**SLIDE 16**) This cut down our results considerably and gave us something much more manageable to work with. As you can see here, the table has time on the Y axis and each column represents the sherds found in a given object. We organized this table like a seriation, so time runs with the earliest assemblages on the bottom. This table demonstrates the pattern we previously observed: there are multiple objects that have cross-mends between deposits with widespread MCDs.

(SLIDE 17) Another way of looking at this is by graphing the frequency of sherds at a given time for each object, generating something very similar to a frequency histogram. Here, we see four peaks where the concentrations of mended sherds are greatest. This graph is strikingly similar to the histogram generated during the phasing process. The fact that these two graphs look the same is a good check of the phasing chronology, which was conducted at the sherd-level for all site assemblages. Even though the object data is a subset of the site-wide ceramic data, it illustrates the same expected pattern, which again is a good check for the precision of the phasing analysis.

Spatial Analysis

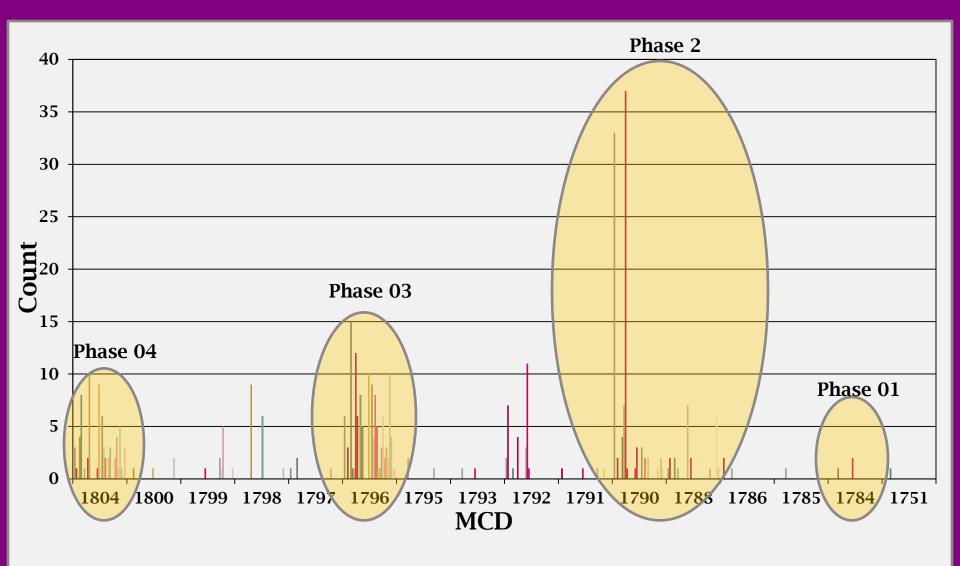
[SLIDE 18] While we primarily looked for re-deposition patterns for this initial analysis, we also took the opportunity to look at spatial patterns. The objects included in our study were comprised of mended sherds from a variety of contexts not only within the Smokehouse-Dairy, but also with sherds in other projects. By far, the majority of inter-site crossmends occurred between the Smokehouse-Dairy, and Building *I* (the Storehouse next door). Because these projects are adjacent to one another and the division was defined arbitrarily at the beginning of the Reassessment, this is not at all surprising. What is intriguing, however, are the cross-mends to sites all along Mulberry Row, including the West Kitchen Yard, Building *O*, MRS-2 and even Building *s* at the far eastern end of the Row. In a cursory second glance of some of these objects, it becomes clear that sherds assigned to the same object number do not necessarily come from the same vessel, but rather a vessel that matches in pattern. Even so, there

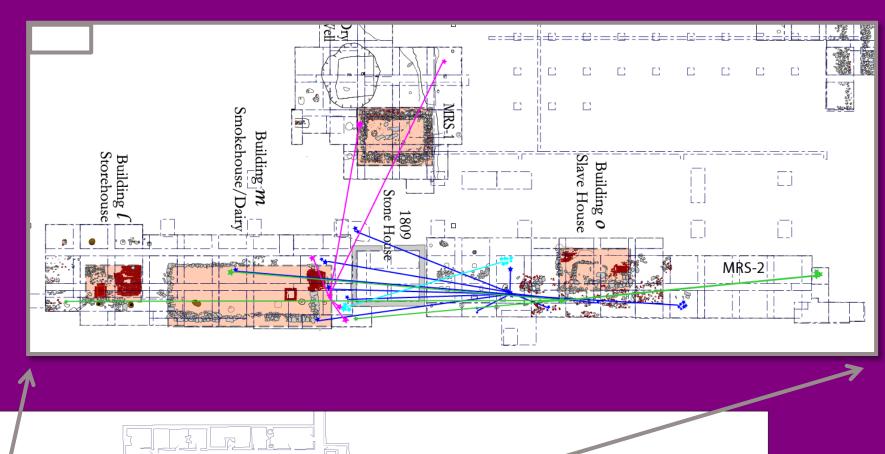
Object Sherd Distribution

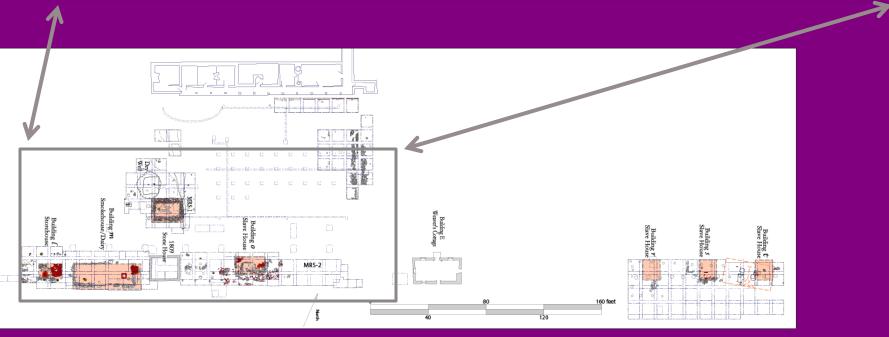




Object Sherd Distribution







are interesting spreads between sherds believed to be directly related to one another. In this slide, you can see four examples of this: each star represents an individual sherd in an object, placed on top of the excavation unit within which it was found. For each object we calculated which context had the earliest MCD and drew from it radiating lines that connected to all other sherds in the object. While in this example there are no recognizable patterns, it does show a possible jumping point for future research about the movement of sediments and sherds after their initial deposition.

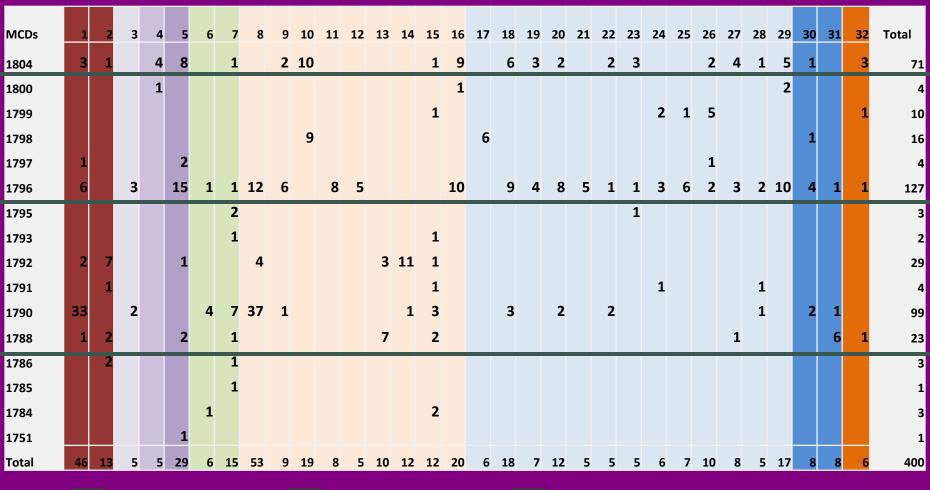
What is meaningful about the patterns we see from both the spatial and site-specific temporal analyses is that individual objects have sherds spread throughout several phases of occupation at the Smokehouse-Dairy. (**SLIDE 19**) We expected to see only mends between contemporary deposits, but with a few exceptions, this shows quite the opposite trend.

However, when regarded in light of our understanding of the depositional history at the Smokehouse-Dairy and the site formation processes going on there, this pattern makes a lot of sense. What we have captured is evidence indicating that the deposition, disturbance, and re-deposition of sediments and artifacts occurred over the course of many years. We know that there were four phases of deposition at this site, including two periods of occupation in two different structures. It makes sense that objects deposited during an early phase would be disturbed, churned up, and re-deposited during the next phase of occupation. This practice would then be repeated at during successive inhabitation. Our analysis demonstrates that cross-mended sherds cannot be assumed to be from contemporary deposits but rather object data must be reviewed in light of other, independent temporal analysis.

Challenges Encountered

[SLIDE 20] During the Mulberry Row Reassessment, the analytical staff encountered some challenges. A prominent challenge arose in the integration of the original excavation records and drawings into the modern-day DAACS system. In the decades following the original study of Mulberry

Object Sherd Distribution





ER . 346 con't. SOUTH EDGE OF plan / Challenges areamulber PY ROW ROAD sec. ___ DATE: opened: 5/22/81 MONTICELLO STRATIGRAPHIC RECORD 4 (NS) x8' trench, east of ER342, to closed: / /81 further expose fence in earth of Mulberry Row road. E.R. 346 TPS: description: Brown loan topsoil O BMG-3 BMG above ER 346 AB E.R. 346 A.B E.R. below feature identification: Topsoil Flash bulb, blue shelf-edge peartware, window paneglass, amber artifacts: Buss coce where, machine cut noul, modern bottle glass, brickfrag, brass button, creamware, mortar, Chinese porculain, melted glass, bone, wright nails. E.R. 346 A : description: Dark Brown comm, S Monticello Archaeological Databas Data Entry Artifact Entry Preferences Help Artifact Forms 🚍 👰 🚮 🎇 🧓 🐷 🧳 🚬 👟 📗 Reload Drop Down Values above below Brown loam topsoil Context Entry Form Search For A Context feature identification: fill ("mside 14 4 274 of 327 | 1 1 1 Line of Stones 105-346TPS Rox Number artifacts: Long sechinailrod, CW, PW Project ID Number Contract World 4 0000 E.R. 346 B : description: Dark brown loam w/sl Was this Context Excavated? Click to go to rec Level Type 346/3476 above 8,0000 346/347H 8.0054.00 below Dark brown loam 346/347TPS Deposit Type Quadrat Width 3464 feature identification: (Level simil Include in Distribution Map? 3468 346C Quadrat/Unit artifacts: Nailrod, would nails, brock t 346TPS TPO Notes machine-cut nail window paru slass white salt laces E.R. 346C: description: Brownish-red dayey above below ER 346 TPS, A, B feature identification: pearlinate, craminare, green wind bottle glass, brok besselflass, poverlain, nail rod frag. Date Opened 5/22/1981 Data Entry Notes Excavated By

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Row, excavation and record-keeping methods have evolved dramatically, and DAACS is set up to record things to a much finer level of detail than was thought necessary in the 1980s. For example, the observation and descriptions of sediment and stratigraphic layers were not consistent from unit to unit, making it difficult to reconstruct stratigraphic relationships. Additionally, the plan and profile drawings were often difficult to relate to one another, and in many cases, incomplete. Despite these issues, the availability of records enabled analysts to merge the data into the DAACS system. Because DAACS makes the information easy to search and manipulate, we were able to somewhat smooth over the inconsistencies.

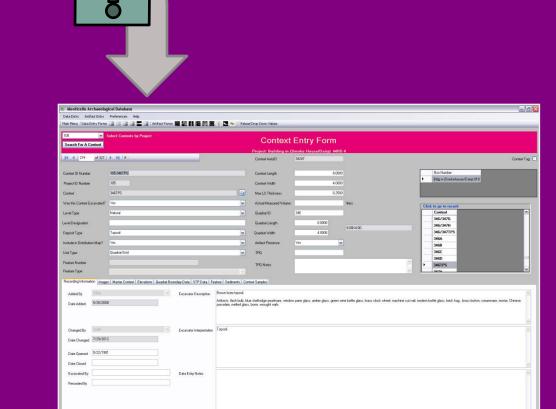
[SLIDE 21] The examination of objects has in particular brought to light issues concerning the excavations by Pi-Sunyer in the 1950s. Though Pi-Sunyer was primarily concerned with the architectural features along Mulberry Row, he did collect artifacts as he encountered them. The storage room in the Monticello Archaeology Department currently houses 21 boxes of artifacts from these excavations, but very little in the way of excavation records or systematic documentation. Whether these issues are due to practices in the field, or a loss of records in the 60+ years since is unknown, but thus far we have not been able to integrate the 1957 collection into the work done in following years. Many of the objects both in and beyond this particular study are comprised not only of sherds from the 1980s excavations, where we can conclusively identify where they were found, but also sherds from the 1957 work, where we cannot. Because we have not yet come up with a way to incorporate these records and artifacts into the modern framework (which is so heavily dependent on the recording of minute detail), all of the analysis done in this study, as well as every analysis conducted using Mulberry Row data, is slightly skewed and incomplete.

Conclusion

The creation and evolution of the DAACS database has been crucial to the archaeological research done at Monticello. The strategy of recording artifact data to such a minute level of detail has

Structure II BRICK MULBERRY ROW ROAD 5 10 15 SCALE 1 INCH . 5 FEET . 1/60

Challenges



allowed analysts to conduct thorough statistical analyses, and in turn come to deep understanding of life on the plantation where there is no evident documentation or answers to be found on the surface.

Because of the breadth of information recorded in DAACS, the possibilities of analysis seem endless, but thus far, the approaches to utilizing this data have been fairly limited. Through cross-mends and the object table, we are able to tie together contexts that would otherwise not seem related, and it forces us to question the life of an object after its initial deposition, as well as the changes that have occurred in the surrounding landscape. The spread of sherds throughout various contexts does not necessarily imply synchronic nature of contexts as is often assumed, but also suggests a more dynamic movement of artifacts. By seeing the variety of context Mean Ceramic Dates associated with one object, it is possible to see which areas of the landscape may have seen more change throughout time. It also brings to light questions as to how contexts in distant areas could be related.

In examining some of the objects from the Smokehouse-Dairy, we aimed to explore how a previously untapped subset of data could be used. While the research presented in this paper is very preliminary, it raises more opportunities for research than previously thought of before. We hope that this will encourage future research to look beyond the traditional sherd-level based analysis, and provide a stepping stone for much more object research in the future.

(SLIDE 22: Closing)

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THANK YOU!

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