Uncovering Jamaican slave villages through spatial survey: methods and results

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1. The Problem

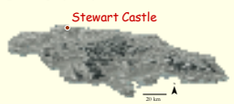
New Montpelier slave village, Jamaica

Caribbean slave villages provide some of the best clues to how enslaved people forged social and economic relationships over time and space in rapidly changing Caribbean contexts. Unlike slaves in North American colonies, Caribbean slaves lived in large-scale villages comprised of 30 or more houses. Spread over many acres, these villages were often occupied for decades, housing multiple generations of enslaved people.

Until recently, all archaeological research on Caribbean slave villages has focused on individual houses. Given the size of village sites and the large number houses they contain, a house-specific focus means that only a small portion of a village's extent can been investigated.

Recent village-wide surveys on Jamaica (2007, 2008) and Nevis (2006) initiated by The Digital Archaeological Archive of Comparative Slavery (DAACS) are, for the first time, addressing large-scale comparative questions about the social, economic, and subsistence strategies employed by slaves across an entire plantation.

2. The Site



In 2007, DAACS (www.daacs.org) initiated a shovel-test pit (STP) survey of the village and main house complex at Stewart Castle, an eighteenth-century sugar plantation on the north coast of Jamaica.

Patented in 1754, Stewart Castle had grown to well over 1200 acres with an enslaved population of over 300 people by 1800 (Panning 1995). The estate thrived until the 1830s when slavery was abolished and the plantation switched to cattle farming, a transition that surely had significant consequences for those living on the property.

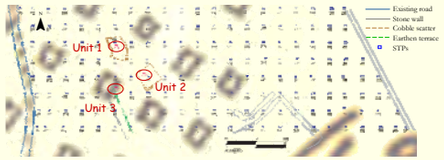
A 1799 plat captures the scope of the property. Our STP survey focused on the slave village, located east of the fortified main house.

3. STP Survey Methods

With the help of students from the University of the West Indies and the University of Virginia, 176 shovel-test pits (STPs) were excavated across a 7000 square meter area that represents roughly 1/8th of the village.

- STPs were placed on 6-meter centers across the survey area.
- STPs were 50 cm. in diameter. All dirt was screened through ¼ in. mesh. Sediments and stratigraphy were recorded for each STP.
- Three 1 x 1 meter units were excavated to further explore observed temporal trends and to clarify stratigraphy.
- Recovered artifacts were cataloged to DAACS (www.daacs.org) standards.

Survey area overlying portion of 1799 plat



UWI and UVA students excavating STPs and quadrats at Stewart Castle

4. Smoothing the Data

Two goals of the STP survey were to isolate temporal trends and to identify areas that might represent individual house sites. Empirical-Bayesian smoothing methods that reduce sampling error are ideally suited to the analysis of variable artifact distributions across our study area.

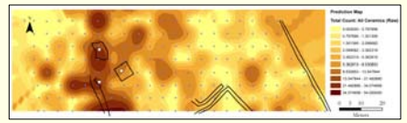
Two forms of Bayesian smoothing are used in succession to help isolate occupation zones and chronological variation within the village: gamma-Poisson and beta-binomial models. Together these models provide smoothed, stable estimates of artifact-type frequency variation in individual STPs, allowing us to see overall site patterning that may otherwise be distorted using raw data (Neiman et al. 2008).

5. The Gamma-Poisson Model

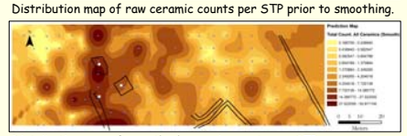
The gamma-Poisson model works by smoothing counts of a single artifact type within an STP by using information about the counts of that artifact type in surrounding STPs.

For example, the number of artifacts found in STP 50 is likely to be similar to the number of artifacts found in pits within a certain distance from STP 50. The information contained in the neighborhood of pits is combined with the actual number of artifacts from STP 50 to arrive at an estimate of artifact counts that are less influenced by sampling error (Neiman et al. 2008).

STP Neighborhood



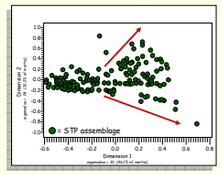
Distribution map of raw ceramic counts per STP prior to smoothing.



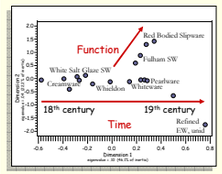
Distribution map of smoothed ceramic counts per STP.

6. The Beta Binomial Model and Correspondence Analysis

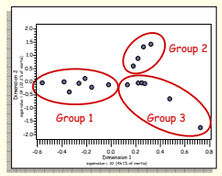
The Beta-Binomial model transforms the smoothed count densities produced by the gamma-Poisson model into stable estimates of the relative frequency of a range of artifact types within a given STP (Neiman et al. 2008). We use correspondence analysis (CA) of the frequencies of ceramic ware-types to infer chronological and functional variation within the village.



A plot of individual STP assemblages along Dimension 1 and Dimension 2 forms a wedge-shape. The wedge suggests that two dimensions, or factors, account for variation within the data.

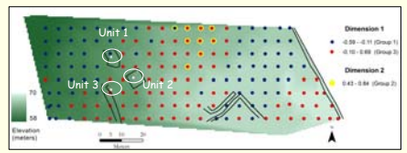


When ceramic ware-types are plotted, it becomes clear that Dimension 1 measures time, with earlier ware-types on the left and later ware-types on the right. The Dimension 2 spread is represented by differences in function: utilitarian ware-types are higher on this axis; tablewares score lower. If Dim 1 is time, then the wedge-shaped configuration suggests that functional differentiation in the use of space was increasing over time at the village.



The ceramic ware-types can be divided into three groups:

- **Group 1** is comprised of mid-18th century tablewares.
- **Group 3** is comprised of late-18th to 19th-century tablewares.
- **Group 2** is comprised of utilitarian wares whose spatial distinctiveness increased over time.



The temporal and functional differences suggested by the CA plots become clear when the Dim 1 and Dim 2 scores are plotted for individual STPs across the village.

- Dark blue STPs have assemblages dominated by Group 1's early-period ceramics.
- Red STPs have assemblages dominated by Group 3's later period ceramics.
- Yellow STPs have assemblages dominated by utilitarian forms, spatially clustered along the northern edge of the survey area, suggesting a possible food processing and storage activity area. Expansion of the survey to the north in 2009 will help to clarify this pattern.

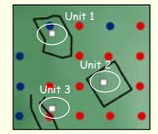
References:
Neiman, Fraser, Karen Smith, Derek Wheeler, and Sara Bon-Harper
2008 Measuring Settlement Pattern Change on the Monticello Plantation Home Farm. Paper presented at the Society for Historical Archaeology Meetings, Albuquerque, New Mexico.
Panning, Stephen
1995 Exploring Stewart Castle Estate, Parts I and II. *Jamaica Historical Society Bulletin.*

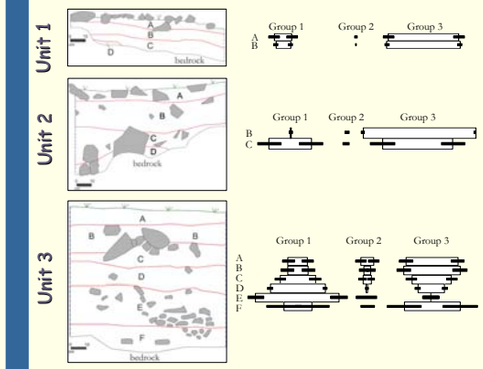
Acknowledgements: All data used is this poster may be found online at www.daacs.org.
Many thanks to The Reed Foundation, The Jamaica National Heritage Trust, The University of West Indies and the University of Virginia for their support. Also, special thanks to Karen Smith for her valuable input.

7. Stratigraphic Evidence

Stratigraphic evidence is one way we can independently evaluate the idea that our spatial analysis has successfully recovered evidence of change.
We should see the following results when seriating the ceramic ware-type groups within each excavated 1 x 1 meter unit:

1. Refined ceramics that score low on Dim 1 (Group 1) should be lower stratigraphically; Group 3 ceramics should be higher up.
2. The utilitarian wares (Group 2), which also have higher Dim 1 scores, should also be higher stratigraphically.





Both predictions are confirmed by the seriations. Units 2 and 3 clearly have earlier deeper deposits (Group 1) followed by later deposits (Group 3). The presence of Group 2 ceramics in the upper levels also confirms that functional differences within the village may have occurred during the 19th century. The shallow and temporally mixed deposits in Unit 1 suggest that people were depositing ceramics in this area throughout the 18th and 19th centuries. The CA results are mirrored in the stratigraphy of the area excavations.

8. Conclusions

Shovel-test pit survey and Bayesian smoothing methods are powerful tools for understanding both temporal and functional variation over large areas. Future field seasons will expand coverage in the Stewart Castle village to corroborate these results while also testing spatial auto-correlation within STP neighborhoods by tightening the distance betweens STPs.