

## A New Spatial Analysis of the Early Chesapeake Architecture

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Practitioners of the "new social history," which came to prominence beginning in the 1960s and 70s, utilized digital tools and data-driven methodologies to glean an understanding of people who left little documentary record of their daily lives. Perhaps most enduring of these techniques has been the utilization of quantitative methods to describe communities and to build better arguments about the daily lives of historical subjects. The focus for these historians is not only the high points thought worthy of record in diaries, newspapers, or court papers, but also how quotidian interaction and daily chores – such as cooking, cleaning, or plowing – were accomplished and how their patterns differed across regions. While quantitative techniques have yielded a rich analysis of the past, temporal, social, and geographic dimensions of historical data often diverge and can be muddled in the choices scholars make about how best to tell their story given time and resource considerations, as well as how to argue the larger points of a particular person's, event's, or object's societal influence.

In our recent work at the Scholars' Lab at the University of Virginia Library (where we support geospatial technology in the humanities and social sciences and have recently played host to an NEH-funded Institute for Enabling Geospatial Scholarship and a Mellon Scholarly Communication Institute on spatial tools and methods), we have been advocating the idea that incorporating geographic information systems into projects can yield interesting new interpretative apparatus for scholarship. This is neither a new concept, or an especially easy path to take. Martyn Jessop has detailed the obstacles to incorporation of geospatial information in humanities research in the pages of *Literary and Linguistic Computing*.<sup>1</sup> However, to test the approaches we advocate to others, I decided

to revisit a project that I undertook a few years ago with several prominent historians and archaeologists of the architectural development of the Colonial Chesapeake.<sup>2</sup> While the data resulting from their work is the basis of two important essays on Chesapeake architecture, and additionally served as the framework for an NEH grant investigating the development of slave quarters in Virginia, it has languished and few outside the project team actually know of the data's existence.<sup>3</sup> I considered this a perfect example of an important project to rethink by adding a more defined geographic dimension to its analytical approach. Could the application of GIS technologies further test our long-held beliefs about the development of the Chesapeake?

In their seminal essay on "impermanent" Chesapeake architecture, Cary Carson, Norman Barka, William Kelso, Gary Wheeler Stone, and Dell Upton first attempted systematically to synthesize and analyze data extracted from several investigations into early Chesapeake architecture.<sup>4</sup> This article was squarely focused on the structures settlers built between first shelters and more durable buildings. Despite the genius of their work, the Carson team was limited in that archaeological work in the Chesapeake region was then still young, and the data from a scant two dozen sites supported their analysis.

In the nearly three decades since this piece was published, more than ten times that number of sites has been identified and excavated. However, this boom in investigation of the Colonial Chesapeake resulted not in masses of usable data for broad-scale analysis, but in the explosion of a so-called "gray literature"—reports produced for project clients and funding organizations, but circulated only in limited numbers. Often, after their initial compilation, these reports have languished in state or institutional archives and little systematic work has been done to organize, or even make available, this often tangled mass of data. As a result, the accumulation of archaeological data has far outpaced its published analysis. Further complicating matters are embargoes placed upon research reports (usually meant to help protect against artifact theft) that even further distance access to raw facts on these early sites from the hands of researchers.

In conjunction with celebrations marking the 400<sup>th</sup> anniversary of the founding of the Jamestown settlement, a new team (consisting of Willie Graham, Carter Hudgins, Carl Lounsbury, Fraser Neiman, James Whittenburg, and myself) looked to the more recent archaeology.<sup>5</sup> Having collected references to archaeological sites mentioned in articles, research reports, conference proceedings, and in personal interviews, Willie Graham of the Colonial Williamsburg Foundation amassed an index of known sites dated before ca. 1720 in the Colonial Chesapeake. From this index, our research team designed a data model that provided a crucial new dimension into this particular facet of history by combining solid statistics pertaining to material culture with an appreciation for the historical discourse in this area of study. Dubbed the Database of Early Chesapeake Architecture (DECA), we took a quantitative approach to this expanded set of archaeological and architectural data making it possible for the first time to accurately date significant shifts in the cultural repertoires of Chesapeake colonists and link them in convincing – and testable – ways to the unique ecological, economic, and social conditions to which they were a response. Through the use of solid data modeling techniques, information from hundreds of new archaeological and architectural investigations provided a fresh opportunity to analyze the emergence of regional building practices and chart the dynamics of social interaction in the tobacco colonies through the arrangement of planters' houses and outhouses, as well as in the types of goods the colonists possessed and food they consumed.

When the database was initially designed, it was composed of a handful of simple tables detailing building and phase dates, dimensions, floor plan types, chimney types, and foundation characteristics and documented using the unified modeling language (UML). As the project progressed, the database structure evolved to include owner information and documentary references, resulting in a complex implementation of relational tables. However, the only documentation of place was in the recording of a town or county in which the site was located.

My current work reimagines the original DECA project to include not only its core statistical information, but also well-defined geographic locations allowing scholars to ask new questions of the data and visualize them in new and compelling ways. Through the addition of well-constructed geospatial information, and the application of tools and methods, we are refining a more striking analysis of the Chesapeake data for the use of our faculty collaborators in the Scholars' Lab. A new presentation, not only of traditional statistical outputs (distribution curves, ANOVA tables, etc.), but of distribution patterns in architectural and archaeological details manifested across time and across the landscape of the Chesapeake, affords researchers even more insight into regional differentiation in building patterns, and more striking opportunities to display and engage their data. This presentation will describe the spatial tools and methods we advocate in the Scholars' Lab including the use of the PostGIS data store, Ruby on Rails (with the GeoKit gem), and OpenLayers, outline their application to the Chesapeake dataset, and offer some observations on lessons (both methodological and substantive) learned in my revisiting of this digital humanities project through the lens of geospatial analysis.

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#### Notes

1. Martyn Jessop, "The Inhibition of Geographical Information in Digital Humanities Scholarship," *Lit Linguist Computing* (November 20, 2007): fqm041.
2. Willie Graham, Carter L. Hudgins, Carl R. Lounsbury, Fraser D. Neiman and James P. Whittenburg, "Adaptation and Innovation: Archaeological and Architectural Perspectives on the Seventeenth-Century Chesapeake," *The William and Mary Quarterly* 64, no. 3 (July 2007),  
<http://www.historycooperative.org/journals/wm/64.3/graham.html>.
3. See Doug Sanford (University of Mary Washington) and Dennis Pogue (Mount Vernon), "Measuring the Social, Spatial, and Temporal Dimensions of Virginia Slave Housing," *National Endowment for the Humanities*, 2009 and Cary Carson et al., "New World, Real World: Improvising English Culture in Seventeenth-Century Virginia," *Journal of Southern History* LXXIV (February 2008).
4. Cary Carson et al., "Impermanent Architecture in Southern American Colonies," in *Material Life in America, 1600-1860* (Boston: Northern University Press, 1988), 113-158.
5. The data that the "Adaptation and Innovation: Archaeological and Architectural Perspectives on the Seventeenth-Century Chesapeake" and "New World, Real World: Improvising English Culture in Seventeenth-Century Virginia," articles were based on is available for browsing at <http://deca.swem.wm.edu>.