Whiskey on the Rocks: Excavating and Interpreting the Archaeological Remains of George Washington's Distillery

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Abstract: In 1999, Mount Vernon's Archaeology Department began the large-scale excavation of the site of George Washington's Distillery culminating in the final 2003 field season. This project represents the first research oriented, systematic excavation of an 18th-century whiskey distillery in America. The documentary record for this plantation industry is rich, but in terms of the organization of distilling-related activities inside and adjacent to the foundation, the documents are silent. The archaeological evidence, therefore, will serve as the primary research tool implemented to understand and reconstruct the Distillery. This paper addresses questions relating to the form, layout, and use of space within this Distillery based on interpretations of the archaeological remains.

The excavation of George Washington's Distillery site represents the first research oriented, systematic excavation of an 18th-century site of this type in America. Mount Vernon's Archaeology Department embarked upon excavations in 1997 with a systematic survey of the 6.5-acre Gristmill and Distillery complex. The results supported a full-scale excavation that began in 1999 and continued up until last week when we came inside to write our SHA papers. To date, archaeologists exposed 4550 square feet, including the entire building and area just outside of the foundation walls. More limited excavations of the site will continue up until the building is reconstructed in 2006.

Research to date highlights the uniqueness of George Washington's Whiskey Distillery and supports its categorization as an early plantation industry (Anderson 2002; White 2002). The few distillery sites excavated in the United

States tend to represent the processing of whiskey on the level of a "'distiller-producer' or vocational distiller," as opposed to George Washington's classification as a 'merchant-distiller' (Eck 2001:3). White's (2002) survey of 19th-century primary sources from Virginia and Maryland supports the industrial nature of George Washington's Distillery. This large scale distilling operation could not have been carried out without a large labor force that included the distiller, an assistant, and as many as six enslaved men (Fitzpatrick 1940 37:268). Eck (2001:3) writes:

> It was also common for the merchant-distiller… to incorporate slave labor as a part of the distillation process to lower employment costs and ensure a secure and trained workforce. Because the distillation process typically required continual maintenance and attendance… distilling was a rigorous, demanding, and frequently dangerous line of work that would not have been as attractive to free labor as many other occupations.

An industrial archaeological approach that takes into account the archaeological remains and documentary evidence of the distilling technology within the context of the social interactions that took place at this industrial and domestic site provides an anthropological basis for interpretations.

Borrowing from the work of Donald Hardesty (1988) on the mining industry, his model of "feature systems" defined as "a group of archaeologically visible features and objects that is the product of a specific human activity," is directly applicable to the interpretation of the Distillery site. In order to get at this specific human activity, Hardesty (1988:9) advocates a descriptive and observational approach to the features that includes location, association with other features, and physical characteristics.

I would suggest that the accuracy of these detailed observations is incumbent upon the proper excavation (including open air excavation) of these interrelated features that maximizes the ability to see patterns and relationships of soil interfaces. Additionally, site formation and destruction processes can obfuscate observations of feature patterns and characteristics. For example, at mining sites, new technology is incorporated into earlier existing structures, so the archaeologist may be observing an amalgamation of many different time periods of industrial occupation (Hardesty 1988:12). At the Distillery, there is no evidence of the introduction of new technology replacing old (the site was only in use for a short period of time); however, there is some evidence that process-related changes occurred during the period of operation, such as the relaying of drains (Abbot 1998:September 1,1798). The site did undergo destructive, post-operational processes including partial robbing of the foundation and possibly other materials inside the building in the 19th century. Additionally, the Commonwealth of Virginia excavated the site in the 1930s, stripping an approximately 30-by-60-foot area over the building and trenching around certain features. Therefore, understanding how the Distillery was arranged and what went on there not only requires an excavation methodology that facilitates an understanding of features and relationships, but also a solid grasp of site formation and destruction processes.

From here, hypotheses about the technological process that created the features can be formed and are best supported by evidence from the documentary record (Hardesty 1988:9). This paper employs Hardesty's

industrial archaeology approach of feature systems to integrate the archaeological remains with the documentary evidence of George Washington's Distillery. One source available to aid in our understanding of the distilling process exists: three manuals (Krafft 1804; M'Harry c1809; Hall 1818) written in the early 19th century, the equivalent of our modern version of 'distilling for dummies.' The distilling manuals complement the weekly work reports, ledgers, and other documents specific to George Washington's Distillery by providing general information about the processes of distilling, occasionally as they relate to the workers. There are, of course, some biases inherent in industry manuals: they are prescriptive and therefore more idealized than reality; they were written 5 to 20 years after the Distillery was built during an era of enormous change to the industry; and they may have an agenda (such as promoting a patented process or a particular product). Additionally, Hardesty (1988:13) suggests that while textbooks and manuals relating to industrial processes are important sources of information about a site's technological and spatial layout, that local variation may take precedence over the systematized way of making the product. While acknowledging these biases, the integration of the manual information and the archaeological evidence identified four feature systems: the Distillery complex; the mashing and fermenting; the distillation; and the industrial household feature system. Interpretations about the archaeological and documentary evidence of distilling begin to form the picture of the social interactions that took place at this early plantation industry.

The three manuals (Krafft 1804:18-28; Hall 1818:19-26; M'Harry c1809:135-139) agree on the components necessary for proper situation of a distillery: nearby access to a market; a consistent source of grain and wood; and a constant overhead flow of good quality water. George Washington's Distillery fits this model of the regional and local feature system (Hardesty 1988:10). Boats and wagons could travel between the Distillery and the market in Alexandria quickly. The Gristmill provided a constant source of grain, and wood could be gathered from the uncultivated sections of George Washington's 8000-acre plantation. A cooperage made barrels to process and store the whiskey. In terms of water sources, the Distillery is located down slope from the millrace and later a well (Abbot 1998:May 12-June 2, 1798), and utilized the forces of gravity to run the water from the millrace into the building. The local feature system at George Washington's Distillery also included auxiliary components, in addition to the cooperage, suggested as options in the distilling manuals. These include structures to house livestock, a profitable by-product of distilling, and a malt house and kiln.

Whereas the distilling manuals dictate the situation necessary for a distillery, very little is specified in terms of the internal layout of the building while the emphasis is on the process of making whiskey, including specific recipes. This suggests that the manuals were more concerned with imparting information crucial to perfecting the process involved in making good whiskey and less concerned with where and how the processes are laid out within the building. Applying Hardesty's model of feature systems: from the excavation and

identification of the archaeological features and the descriptions of making whiskey discussed in the manuals, the spatial arrangement of the particular processes can be inferred.

There are two major processes that take place to produce whiskey as described by Hall (1818:8): "…first the mashing and germination, by which the spirit is formed, though still united with other substances; secondly; distillation, by which the spirit is separated from those substances and obtained in a pure state." The distilling manuals describe the process of mashing and fermenting in detail, but the equipment necessary for and thereby the feature system associated with these processes is most likely fairly simple. Mashing and fermenting require an inside, temperature-regulated space for the mash-filled hogsheads and a boiler (Peter 1800). Krafft (1804:85) describes:

> When casks are truly and justly mashed, they should never be disturbed until the operation is finished and the fermentation has perfectly subsided, and by all means should be kept on a solid floor which does not shake with every motion of the foot.

At the site of George Washington's Distillery, in the middle of the building on the west side, there is a system of features that could relate to the mashing and fermenting process. A masonry floor exists on the western side of the building, partially composed of dry-laid cobble and sandstone, and partially composed of brick. Strong Ebbert and Seifert (2003:8) hypothesized that: "The uneven and un-mortared sandstone and cobble surface… may have been a sub floor used to reduce vibrations and add extra structural support." A wooden floor could easily have covered the sandstone and cobble surface. However, the brick section of the flooring system directly abuts, and is at the same level as, the

cobble and sandstone floor, a relationship that seems to argue against the sub floor hypothesis. The change in material from stone to brick suggests a change in activity above. The pattern of bricks, in addition to the documentary evidence, leads to the interpretation that this floor could have been the support for stairs leading up to the loft space (Abbot 1998:March 3 and March 10, 1798).

Additionally, there is a brick-based, stone-lined furnace foundation protruding from the western wall that could have served as the fire source for the boiler. The other intriguing feature is a drain that originates at the brick floor. This drain was possibly used to carry excess water from the boiler out of the building.

In terms of the manpower required to perform the mashing and fermenting process, the bulk of the work is devoted to the former. M'Harry (c1809:123-124) urges the distiller to arise at four o'clock every morning and begin his day by cleaning and lighting fires under the boiler and the first-run still. As soon as the water is boiling, he commences mashing, which requires a great deal of maintenance because ingredients must be constantly added, stirred, and evaluated. The mash tubs must be thoroughly cleaned after each use – outdoor work done in a variety of ways, which included burning hay inside them. Hall (1818:95) cautions: "To this point the owner or superintendent of the distillery should direct his attention every day, it is the most laborious and disagreeable operation in the business of the house, and therefore most apt to be carelessly performed by negligent hands."

Distillation, the second part of the whiskey making process, would leave a more complex feature system than that left by mashing and fermenting, although this is suggested by the archaeological and not the documentary evidence. To distill whiskey, a pot still (or in George Washington's case, 5 pot stills) is mortared into a furnace. Each still is connected to a tub that contains a coiled pipe or worm surrounded by cool, flowing water, also called a worm tub, where the alcohol gas is condensed into liquid. All three of the manuals (M'Harry c1809:93-97, Kraft 1804:51-52, Hall 1818:90-91) describe in detail how to build the furnace, including dimensions, and set the stills.

At the Distillery site, archaeologists uncovered two intact masonry features associated with heat-altered subsoil that served at least four, if not five, of the stills. The burn feature in the southeast section of the site is strikingly similar to the manual's description and period sources on furnaces. As we excavated soils and rubble overlying the southeast furnace, it became clear that there were bricks two courses wide forming the three sides of the firebox (truncated by a utility trench), surrounding a void filled with brick rubble, most likely the ash hole. Just to the north exists a small patch of brick, representing the corner of a second firebox, and the location of another still. Additional information on this feature comes from the single photograph taken of the Distillery site in the 1930s, which shows a more intact version of the feature. The second burn feature, north of the first, does not fit as nicely with the manual's description. This one is comprised of brick and stone loosely arranged in a circular pattern. The exposed

feature has yet to be excavated, which may more clearly suggest its purpose, but we interpret it as the location of a furnace for two more stills.

Further evidence supporting these two features as furnaces comes from the related components of the distillation feature system. Both burn features sit between connecting brick and earthen drains to the north, and an earthen drain feature to the south. The five drains start about halfway through the building, the sixth begins at the northern partition wall and is, therefore, probably not associated with a worm tub. The distilling manuals (M'Harry c1809:139; Hall 1818:36) mention the worm tub needing a constant source of running water, but do not discuss a drainage system. Distilleries would have needed some type of drainage system either above or below ground to deal with excess water from the worm tub, the configuration of which most likely varied from site to site. As mentioned before, water most likely entered the building through the west overhead, a fact supported by the underground remains of drains that start at the building's center. The construction of these drainage features is repeatedly mentioned in the weekly work reports (Abbot 1998: February 1798, March 10-31, 1798, etc.).

The work involved in distilling required constant maintenance, as did mashing and fermenting. The grain in the still must be stirred periodically so that it does not stick to the sides and burn (M'Harry c1809:69-70). The fire underneath must be regulated. Monitoring of the stills must also occur so that the grain mixture does not get too hot and explode (Hall 1818:231). Mashing,

fermenting, and distilling required both unskilled and skilled labor. It is unknown if any of the slaves were trained on site or simply used as manual labor.

At future stages of excavation and research, both the type of work performed by the Distillery laborers and their domestic arrangement will be further explored. At this point, however, it is possible to hypothesize about the final feature system identified at the Distillery, that of the industrial household. Documentary and archaeological evidence confirms that at least two of the eight workers lived in the loft of the Distillery (Fitzpatrick 1914 36:176-177). The 1997 survey of the property did not find evidence of a slave quarter, nor do documents speak to the existence of this type of structure. Hall (1818:25) makes mention of this situation: "The house should be of stone, one story and a half high… and the upper, divided for the different kinds of grain, and the accommodation of the workmen." We spent a large portion of this past field season excavating the northern area of the building, separated from the mashing, fermenting, and distillation processes by a partially intact sandstone partition wall.

Revisiting the 1930s excavation and photograph explains much about the stratigraphy in this 30-by-10-foot area. The excavators in the 1930s did not know the size of George Washington's Distillery, detailed in a Mutual Assurance (1803) document as 30-by-75 feet, and only removed soil enough to uncover a 30-by-60-foot area. From the photograph, it appears that they uncovered the sandstone partition wall and assumed they had reached the north foundation wall of the building. North of the wall, we encountered the debris from the building's destruction and the 18th-century living surface, strata removed in the 30-by-60-

foot area by the previous excavators. The west two thirds of this northern space contained a dense layer of destruction rubble, while the eastern third was old topsoil.

Underneath the destruction rubble layer, which we interpret as wall collapse, we came down on a layer of charcoal-dense soil, containing architectural debris such as plaster and nails, and our only deposits of domestic debris at the site. These layers appear to relate to the collapse of the loft space of the Distillery, perhaps indicating where the workmen lived. That the only portion of the robber's trench containing redeposited Distillery-period domestic debris was in this northwest corner supports this hypothesis. This evidence suggests the location of at least part of this industrial household – in the loft space in the north section of the building.

Removal of the destruction layers exposed a line of postholes running north south, dividing the north area in half. These postholes possibly relate to an additional partition wall, but why divide this small space with a post-in-ground wall? Typically, partition walls are keyed into wood running along the floor and do not need such secure, substantial bases. The posts leave an approximately four-foot space in the center for a door. This leads to the hypothesis that this western area was the location of an above ground cellar, cordoned off from the process of making whiskey by a stone partition wall and separated from the eastern room of this space by a post-in-ground wall, perhaps ensuring the safe storage of whiskey. The weekly work reports contain three references to a cellar (Abbot 1998:February 18, 1798, February 25, 1798, March 3, 1798) and

plantation manager James Anderson (Twohig 1998 1:199-200) writes in a letter to George Washington that, “a strong cellar must be at hand to Lodge the Spirits in…” We initially expected to find a below ground cellar, but this was not the case. Perhaps the movement of whiskey-filled barrels up and down stairs is inefficient and unwieldy or that ground water in this low-lying, wetland environment precludes a below ground cellar. This evidence suggests the northern partition space contained an aboveground cellar and in the overlying loft space, quarters for some of the workforce.

At the site of George Washington’s Distillery, the archaeological remains contain direct evidence for the spatial layout of the distilling process whereas the documentary record speaks to the people and the process itself. The integration of the archaeological and documentary record allows for the formulation of feature systems – spatial arrangements of labor and daily life structured by the technological process of producing whiskey. At George Washington’s Distillery, they take the form of the Distillery complex, mashing and fermenting, distilling, and the industrial household feature system. As the first 18th-century whiskey distillery excavated in the world, this site possesses the potential to inform the sparse body of literature on this early industry. Site formation processes and stratigraphic relationships of features play a heightened role at this industrial complex and require certain excavation techniques that maximize our ability to decipher their meaning. The excavation and analysis of George Washington’s Whiskey Distillery is far from complete and many questions remain. However, through the application of an industrial archaeology approach, we can begin to

formulate interpretations about different feature systems within the Distillery. Industrial archaeology, in its broadest definition, provides that link between the archaeological remains and process, and the social and cultural factors that shaped this Distillery (Hardesty 1988:17).

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