

Dig Diary

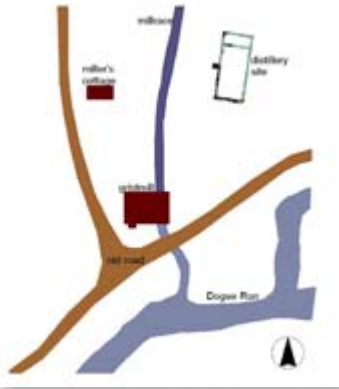
DIG DIARIES

Periodically, Mount Vernon's archaeologists will provide you with a summary of our excavation and lab activities through a feature called Dig Diaries. That way, we can keep you up to date on the exciting discoveries at the Distillery site.

DIG DIARY #4

Water, Water Everywhere

Water is a key ingredient for the production of whiskey. Distilling manuals from the time period of our distillery express how important it is to have a good supply of water close by. Initially, the water used in Washington's distillery came from the millrace that powered the gristmill. However, Washington's notes contain references to many problems regarding the water at the gristmill and distillery. The millrace would freeze in the winter and drought often halted operation of the mill. Because of the unreliability of the millrace, a well was dug in the spring of 1798 to supplement the distillery's water supply. A farm reports note the well was fitted with a pump and troughs were put in place to bring water into the distillery.



GIS map of the distillery landscape.

A complex system of troughs and drains carried the water throughout the building both above and below ground. Water needed to be channeled to and from the boiler, mash tubs and furnaces. Evidence of the underground portion of these drains is all that remains for archaeologists to find. But from this evidence we can better understand how the process of distilling took place at our site.

For the past few weeks we have been completing the excavation of the largest drain associated with the distillery. Running along the eastern exterior of building for over 60 feet, this long wooden trough appears to have carried water out of and away from the distillery. Typically wood does not survive for two hundred years in our soil;

however, due to the wetness of the soil in the area of the drain, there was good preservation! We actually discovered 18th century wood fragments. Several sections of the drain contained intact pieces of wood and dozens of nails were found in situ, or in their original location where the wood rotted away.



GIS map of the wooden perimeter trough in relation to the distillery.



Nails found lining trough.

From the evidence we found, it appears that the trough was constructed of planks of wood nailed together to form a long box that was placed in a trench. The pitch of the drain slopes gently to the south, apparently to carry the water down toward Dogue Creek. We believe that the trough had a wooden cover, as it runs deeper underground toward the south end of the building. However, no conclusive evidence has been found regarding a cover.

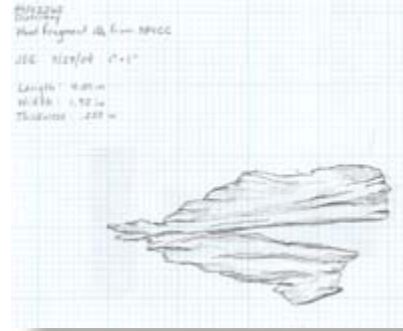
Excavation of the wood was a bit tricky. As soon as it was exposed to the air, it began to dry out – hastening its decay. We covered the area with a tent and misted water over the wood fragments as we carefully picked the soil away from the wood. Once fully exposed, we carefully lifted the wood, sealed the fragments in plastic bags and cushioned them in boxes for transport back to our lab. We stored



Excavating the wood.

the pieces in our refrigerator to help preservation, occasionally taking them out to mist them with more water.

The three largest pieces of wood were chosen for closer study. We took close up photographs of the fragments and drew them to scale with detailed measurements. No notable marks were found on the pieces, but we were able to have the species of the wood identified as pine by our archeobotanical consultant, [Justine McKnight!](#)



Detailed drawing of wood fragment.

DIG DIARY #3

GW's Stills

While we prepare to excavate the northern furnace complex, we've begun to analyze the evidence discovered during the excavation of the southern-most complex of furnaces. Excavations over the last several weeks revealed two different furnace constructions in the southeast corner for heating two stills. The first or southern furnace had a brick base and a rectangular brick construction similar to mid-20th-century backyard barbecues. The reddened soil in the second furnace slightly to the north suggests that this feature did not have a brick bottom. No bricks remained to provide evidence on the shape or size of this furnace. Understanding where the stills were located and how the furnaces that held them were constructed is one of the contributions archaeology is making to the reconstruction of the distillery. While we are busy excavating we are also conducting historical research and we've recently discovered important clues about the stills which made Washington's whiskey.

[Washington's probate inventory](#), a list of his belongings made after his death, recorded five copper pot stills. When the distillery expanded into the new stone building three stills were purchased. The distillery's account ledger records that these stills were fabricated by George McMunn, an Alexandria, VA whitesmith and coppersmith who specialized in distillery equipment. McMunn charged £103.16.0 for the stills which contained 110, 116, and 120 gallons. These three stills joined two purchased by James Anderson, Mount Vernon's plantation manager and distillery mastermind, in February 1797. Although we have no record of their purchase, we know these two stills were used in the makeshift distillery located in the cooperage during 1797. With the success of this operation Anderson convinced Washington to expand the distillery.



Copper pot still c.1787. Owned by the Smithsonian.

To furnish the reconstructed distillery we need to fabricate replicas of the five stills and we were missing important size information for the original two units. Combing through the distillery account ledgers we recently discovered that Washington was paying federal tax on a total still capacity of 616 gallons. By subtracting 346 (the capacity of the three known stills) from 616 we now know that the two original stills held 270 gallons total or approximately 135 gallons each.

This information also helps us place Washington's distillery into a broader historical context. We've been compiling data about early American distilleries to help us better understand Washington's whiskey making. Most distilleries operated 1 or 2 stills with an average total capacity of 183 gallons in a distillery. Washington's was much larger with 5 stills totaling 616 gallons. Still size ranged from 20 to 163 gallons so Washington's five stills, while on the large end, were well within what still makers were fabricating.

The discovery of the still sizes provides us with the necessary information to plan the furnaces and still reconstructions. When the reconstruction of the distillery is finished Mount Vernon's visitors will be able to experience an 18th-century whiskey distillery.

DIG DIARY #2

Digging Through Time

One primary mission of the Mount Vernon Restoration Department is to educate the public about how archaeology helps us learn about the history of the George Washington and his plantation. This is done in a variety of ways, including site tours for special groups, on-site interpretation of archaeology and current excavations to the visiting public, and formal educational programs such as lectures for adult audiences and lessons for school children.



Gwyn teaches children and their parents how to identify artifacts by playing 'Artifact Bingo.'

Our "Digging Through Time" program focuses on answering questions such as "What is archaeology?" and "Why do we need archaeology to understand history?" The program is targeted towards students in grades 4 through 6. The content fits well into the standards of learning for Virginia, Maryland, and the District of Columbia since students review mapping skills, 18th century American history, and most importantly practice their critical thinking skills.

During our lesson an archaeologist provides a tour of our current excavations and explains how we decide where to dig and how we develop our hypotheses about each excavation. We also explain the archaeological method through hands-on activities such as having the students identify differences in soil color and texture and learn how to understand soil stratigraphy. Students are always interested in how we discovered the distillery and are often surprised to learn that it was never lost! They are also curious about how deep we dig and how long it has taken us to excavate the site. When we mention that we really don't dig down very far (only to sterile soil which may be just a foot under modern topsoil), they are surprised that we've been working for 5 years on the same excavation. That is until we show

them the tiny trowels that we use to excavate the dirt – no backhoes here!

Often the students want to hop into the trenches with us and are reluctant when we move away from the site to teach our lesson. When they enter our mock archaeology lab they're excited to try a hand at artifact identification and analysis. Through small group discussion the students have to come up with realistic contexts and identification for groups of artifacts from the 18th century. They then have to present their findings to their peers. Watching young minds churn through ideas is an amazing experience. Our students have given brilliant and amusing identifications for artifacts, and while their answers are not always correct, it is clear that critical thinking skills are at work in these young minds.



Jen talking to a group of young enthusiastic students.

Students are asked to take the artifacts from an assemblage think about how they are the same and how they differ. For example, one assemblage consists of objects attributed to Martha Washington. They include a copper key, a wooden fan, a broken thimble, and part of a teacup. The students are not told who the objects belonged to; they must make an educated guess from a list of choices 1) an overseer, 2) a slave, 3) a child, or 4) Mrs. Washington. We ask the students to make observations about the function of each object and then make conjecture about who might have owned or used it. For example it is quite possible that an Overseer or Mrs. Washington used keys. Then the children are asked to look at the group of objects as a whole! Then they begin to realize that it is unlikely that an overseer had a thimble, fan and a key. Therefore, the most logical owner of the assemblage was Mrs. Washington.

My favorite part of the lesson is when they are asked to come up with a plausible story for how their assemblage got into the archaeological record. The best stories relate to an assemblage of children's items including several toys. Students have often told a tale of a marble lost under a bush when playtime was interrupted by a dinner call. When modern children can interpret 18th century items through story telling they are able to make connections to their own lives and can understand how archaeologists interpret daily life in the past.



Students getting their hands dirty helping archaeologists screen soil.

By the end of the lesson, we often have students gleefully announcing that they plan on becoming archaeologists. Regardless of whether or not we increase the number of future archaeologists we hope that we have at least taught students why and how we study the past.

DIG DIARY #1

Want to know what we did last winter?

Our winter started off with a major flurry of activity. The crew traveled to St. Louis, MO to present a session of research papers on the Distillery site at the [Society for Historical Archaeology's](#) (SHA) annual conference. We titled the session [Distilling the Past](#) and included five papers. The session drew an interested, if somewhat bleary-eyed audience (the first paper began on Friday at 8am). Our discussant, Dr. Donald Linebaugh of the University of Kentucky, offered some insightful comments on our paper session: "...the Mount Vernon distillery project is distinguished by its broad multi-disciplinary research approach, and by the integration of this plan into the larger interpretive scheme for the site. The work engages issues ranging from entrepreneurship and mercantilism to the history of technology and the central place of enslaved African labor in this industrial operation... In the final analysis, the distillery project has much to offer and is the type of reconstruction project that we should be undertaking. While some scholars question the use of reconstructions for reasons of site preservation and historical accuracy, they are clearly very popular with the public and are potent interpretive devices. The sense of industrial space and place that the distillery and gristmill complex will convey is very powerful. The ability to tell the story of Washington as entrepreneur will be significantly enhanced by this physical reconstruction."

To supplement the paper presentations, Jen Ebbert designed a stunning 4 x 8 foot poster featuring the highlights of the excavations and put it on display at the SHA's. The poster is now embarking on its worldwide tour and has been seen at such locations as the Mount Vernon administration building, the food court, and the Gristmill.



Students checking out Jen's distillery poster.

After returning from the SHA Conference and catching our breath, we worked in the lab for a couple months processing Distillery artifacts, organizing and preparing the collection for cataloguing, and taking a close look at the stratigraphy of the site. We compiled Harris Matrices, or soil layer flow charts, for each excavated unit. This gives us an understanding of how the layers across the site relate to each other. These relationships help us group layers into phases of soil deposition that occurred at the distillery over time. For example, there is the phase of layers deposited when the distillery was in operation in the late 18th-century. On top of that, there is the phase relating to the destruction of the building, and so on.

We participated in another exciting project this winter – coming up with a model for the Distillery reconstruction. Esther White and Dennis Pogue met every other week with Orlando Ridout of the Maryland Historical Trust and Willie Graham of Colonial Williamsburg, the architectural historians brought on as consultants for the distillery reconstruction project. Each meeting the group focused on a different topic (the floors, the furnaces, the loft space, etc.) offering their unique archaeological, historical, or architectural perspective, with only the occasional food court cookie thrown in anger. The sessions resulted in a solid blueprint for the historical structure. The group is now meeting with architects and engineers to create an acceptable building that won't fall down.

Based on the archaeological evidence, detailed historical record, and knowledge of late 18th-century construction methods, George Washington's stone building was one story, contained four furnaces for five stills and one boiler and had space for mashing and fermenting in a large 60 x 30 foot room. The building contained a loft housing both grain and distillery workers. Last summer we excavated what appeared to be a stone wall partitioned room on the north end of the building. After removing destruction layers, we exposed five postholes containing well-preserved pine posts dividing this northern 15 x 30 foot space into two rooms. We interpret these as the office and whiskey storage rooms completely separated from the whiskey production area by a solid sandstone partition wall (logical when considering the combustible nature of alcohol and fire). This division of space accounts for the asymmetrical façade of the industrial building. Architects and archaeologists continue to struggle over a couple of unresolved issues – the height of the floor in relation to the flow of the water throughout the building and the layout of the stair.



Esther, Dennis, Willie, and Orlando visiting the excavation site.

Our sponsors, the [Distilled Sprints Council of the United States](#), recently proposed that the second floor be the home of a whiskey history museum and the first stop on the new "American Whiskey Heritage Trail" that would lead from Mount Vernon to points west. Providing access to the second floor is a challenge, but it also ensures that the domestic space will be furnished and visible. Two bedchambers housed the white distillers John Anderson and his assistant Peter Bingle.

Now that you are up to date on our winter activities, let me give you a little preview of our upcoming field summer field season... We plan to be back out at the Distillery on Monday May 10th. Our crew will consist of distillery veterans Esther White, Eleanor Breen, Jen Ebbert, Kim Christensen, and Gwyn Maccubbin. We will be welcoming a new crew member, Jeremy Floyd, who just graduated from the University of Nevada with a B. A. in Anthropology and History. We also expect interns and devoted volunteers to assist us in our excavations.



Jen cleaning the furnace feature.

After a day or two of removing water from the plastic that covered the site this winter and generally cleaning the site, we plan to jump right back into the excavations where we left off last December. Jen and Kim will be excavating the furnace feature on the south end of the building while Eleanor and Gwyn will be exploring the northern furnace. We also intend to finish "Dan's drain," the cobble-lined linear feature partially excavated by our 2003 summer intern, Dan Baicy. Also, we will be testing certain areas of the property where new construction activities are planned related to the reconstruction.

We hope you visit this page frequently over summer to hear about our latest news and discoveries!

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