

QUARTERLY



BULLETIN



Volume 77

Number 2

June 2022

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Cover: A variety of ceramics excavated from the Hall Site (44MT0173) in Mathews County, Virginia (Photo by Katie Brauckmann).

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ISSN 0003-8202



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Quarterly Bulletin



Publication of the
Archeological Society of Virginia
Since 1942

Volume 77
Number 2
June 2022

Editor's Note:

This June *Quarterly Bulletin* contains three informative articles, beginning with Katie Brauckmann's summary of a search for a colonial homesite in Mathews County. This is followed by Yvonne French's article detailing the use of German POWs as laborers during World War II and her effort to identify orchards where they worked. The final article from Dr. Michael Barber explores the relationship between a lithic quarry and reduction station in Wythe County. These articles take us across a vast amount of time and space within Virginia's cultural landscape and highlight the diversity of topics being researched across the state. The *QB* needs more articles like these, covering diverse topics and submitted by authors who represent the full spectrum of ASV membership.

Thane Harpole

November 2022

IN SEARCH OF THE HALL FAMILY HOME: ARCHAEOLOGICAL EVALUATION OF THE HALL SITE (44MT0173), MATHEWS COUNTY, VIRGINIA

By Katie Brauckmann

Abstract

Between October of 2016 and April of 2019, staff and volunteers with DATA Investigations LLC conducted excavations at the Hall Site (44MT0173) in Mathews County, Virginia. Excavations were undertaken to identify the home of the Hall family, who lived in the area during the 18th and early 19th centuries. These excavations revealed a series of postholes and other features, as well as thousands of artifacts. These included architectural materials such as brick and nails, decorative tablewares and utilitarian ceramics, Dutch and English tobacco pipes, wine and case bottle glass, and several small finds such as silver real coins and a toothbrush. Based on several converging lines of evidence – including (1) land ownership reconstructions from the historical record, (2) postholes and a possible root cellar indicating a structure, (3) artifacts indicating a domestic occupation of the correct time period and socioeconomic status, and (4) possible ties to individuals who lived on the property – we believe this site is likely the Hall home. While various disturbances and the limited excavation have prevented delineation of the building's exact shape, this site is still significant for its potential to yield information about modest 18th-century farm sites in eastern Virginia, especially given it is one of the only sites excavated to this extent in Mathews County.

Introduction

The Hall Site (44MT0173), located near Port Haywood, Mathews County, Virginia, is an 18th-century site which was the home of the Hall family (Figure 1). A descendant of the Halls, Conrad M. Hall, was compiling a book to chronicle the origins of his family in Virginia and had conducted extensive historical research to locate the property they initially owned. Having narrowed it down to an area in Mathews 2.6 miles south of the county's historic courthouse, Mr. Hall then contracted DATA Investigations, LLC in the hope of using documentary evidence combined with archaeological methods to further narrow down the location of the homesite. That search resulted in the excavation of 64 shovel tests, 32 test units, and a sampling of historic features contemporary with his family's ownership of the property (Figures 2 and 3). This project is particularly exciting because very few excavations of this scale have been conducted in Mathews County, and this work demonstrates the potential for archaeology to significantly expand on our knowledge of 18th-century Mathews and its residents.

Historical Background

The land on which the Halls would eventually reside was patented in 1651, a part of the 17th-century land rush on the Middle Peninsula that occurred after the region was fully reopened to English settlement in 1649. Unfortunately, the survey area is very close to the boundaries of the patent lines. Depending on where certain patent boundaries are drawn relative to the modern landscape, the site could be located on land patented in 1651 by William Hampton or by Thomas Todd in 1657 and repatented by Thomas Falkener in 1671. Further research is needed to verify the exact location of the patent boundaries, if possible, to determine which patentee's land eventually became the Hall property.

Due to the lack of Mathews County property records from most of the 18th century, the descent of land to the Hall family is unclear. The land tax records first show Ann Hall, wife of Robert Hall, owning 41 ½ acres in 1782 (this is the first year land tax records are available for Mathews County; she or others in the Hall family acquired the property before this date). How she acquired the land is unclear, though it was likely inherited by her through her late husband Robert Hall, who had died by 1781. In the 1780s, Ann Hall lived at the house with her youngest son, Thomas (1764-1840), and they managed a small farm of approximately 50

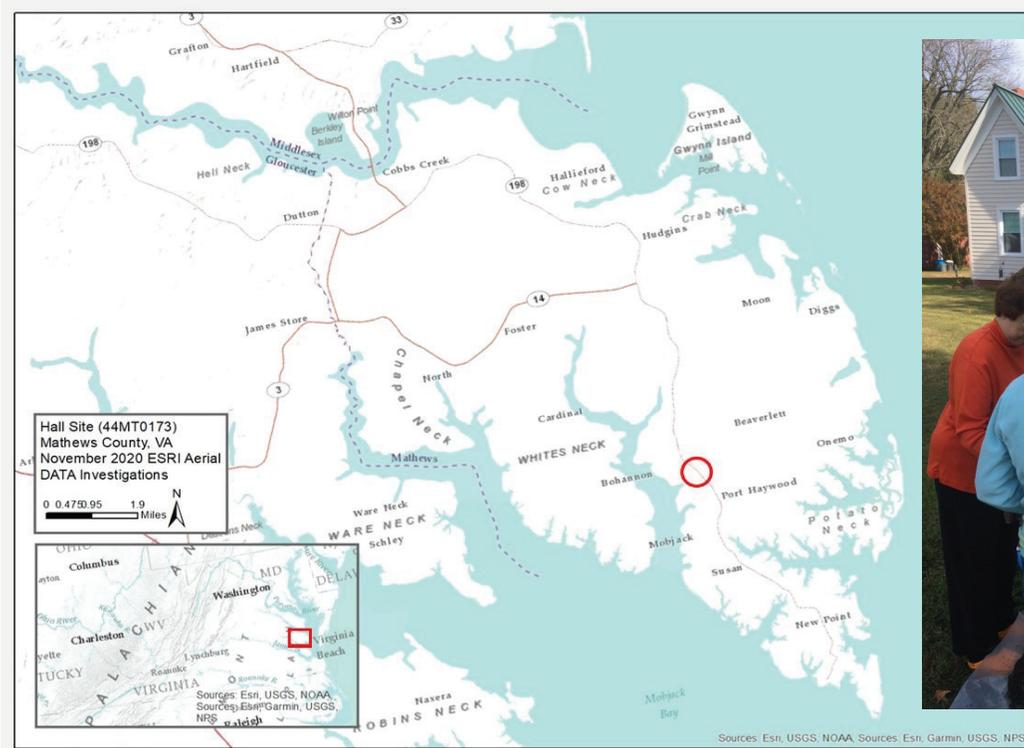


Figure 1. Map of Mathews County, Virginia, showing the location of the Hall Site circled in red.

Figure 2. Volunteers excavate a STP west of the extant (c. 1874) house (Photo by DATA Investigations).

acres. There are also records of enslaved African Americans living on the property. In 1787, there was one enslaved person over the age of 16 and two below, while in 1791, there was only one enslaved individual listed (Hall 2010:167). Ann died sometime after 1797, and her acreage passed to Thomas.

Thomas Hall was a Revolutionary War veteran and became an accomplished shipbuilder. The first record of his shipbuilding business was in 1819. Prior to this, he was likely a mariner, and a “Captain Hall” (possibly Thomas) is listed as trading pipes of wine from New York; additionally, Thomas obtained a merchandising license in 1802, although the records from subsequent years are incomplete in this regard (Hall 2020:173-174). Thomas’s shipbuilding business, which was located on a separate tract of land from his family home, was fairly successful. An 1820 census showed 11 white individuals living in his household, including his wife Mary and their children, as well as 19 enslaved African Americans (Hall 2020:204). Thomas acquired and sold acreage in Mathews County throughout the early 1800s, including the additional lands on which his shipyard may have been located (Hall 2020:174-177).

Interestingly, the last record of a building (until the current house was constructed) on the Hall lands that comprise the project area is 1838, with one building valued at \$105 and one for \$40. However, a nearby property called Sutherland shows a \$700 increase in building value in the same year. The Sutherland property was purchased by Thomas Hall in 1834 or 1835, and may have been where he was living prior to his death in 1840 (Hall 2020). Based on the common ownership and changes in land taxes, it is possible that the 18th-century Hall family building, or a portion thereof, was moved to Sutherland around 1838. The Sutherland house has elements from c. 1840 and the late 19th century, but the core of the building may be either late 18th or early 19th century (Brown et al. 2014, VCRIS 2014). The Hall property presumably sat vacant after the house was moved or torn down. The extant house on the property was built circa 1874, likely by Thomas R. Weston when the property was dedeed to him from Thomas G. Weston.

Brief Summary of Excavations

The eligible property for testing was determined through land trace reconstructions, paired with an analysis of available resources such as fresh water, road/water access, and topographic features suitable for buildings (i.e. relatively high, flat land). Excavations on the property began with a shovel test survey,

excavated at 50' intervals east of the extant house and at 25' intervals west of the extant house where more 18th-century artifacts were recovered. The shovel test survey confirmed the presence of intact cultural deposits beneath a layer of plowzone, and narrowed down the search area to an area approximately 100' square between the extant house and the road where high concentrations of 18th- and 19th-century artifacts were recovered.

Test unit excavation was conducted in the form of 5' square units mostly excavated in a single plowzone layer. A total of 32 test units were excavated to subsoil, with 21 features identified at the base of plowzone cutting into subsoil (see Figure 4; Table 1). The majority of the documented features were postholes, some with identifiable molds and some without. Only five of these features were sampled or completely excavated. Unfortunately, no definitive building layout was determined; however, given the quantity and layout of features, combined with the high quantity and types of artifacts, we can say with certainty there was a domestic structure present in the area.

One particularly interesting feature is a likely root cellar (Feature 4) which was filled in the mid- to late-18th century. The south half of this feature was excavated as a sample, with the rest left preserved in place. It extended 0.9' into subsoil and consisted of a single cultural layer of dark grayish brown (10YR4/2) clay loam mixed with gray (10YR5/1) sandy clay. The feature's walls taper in slightly towards the bottom, while the base is quite flat (Figure 5). Artifacts recovered included tobacco pipe fragments, window glass, pig teeth, oyster shell, handmade brick, nails (too corroded to identify but certainly not wire nails), and a variety of ceramics. The ceramic assemblage largely dates to the 18th century, including delft, creamware, North Midlands slipware, and white salt-glazed stoneware. One sherd of pearlware was also recovered. This sherd could be intrusive, as pearlware can date as late as the mid-19th century, however it is more likely a late 18th-century fragment and may help date the filling of this feature to the later part of the century. The low density of artifacts found in the feature relative to the quantity in the plowzone above, however, suggests that this pit was not filled at the end of the site's occupation, and was likely filled while the structure above it was still in use. The conclusion that this feature is a sub-floor pit or root cellar is good evidence for the presence of some type of domestic structure above, whether a house, kitchen, or slave quarter.

Artifact Analysis

Artifacts from these excavations ranged from the Archaic period up through the 20th century. The Archaic-period occupation is evidenced through two projectile points and a few quartzite flakes. However, the vast majority of the artifacts date from the mid-18th century through the mid-19th century. These include delft, creamware, North Midlands slipware, white salt-glazed stoneware, pearlware, tobacco pipes, wrought and cut nails, wine bottle glass, and other container glass. A high percentage of these artifacts, including ceramic sherds and tobacco pipes, sported highly decorative hand-painted or molded decorations. The later artifacts

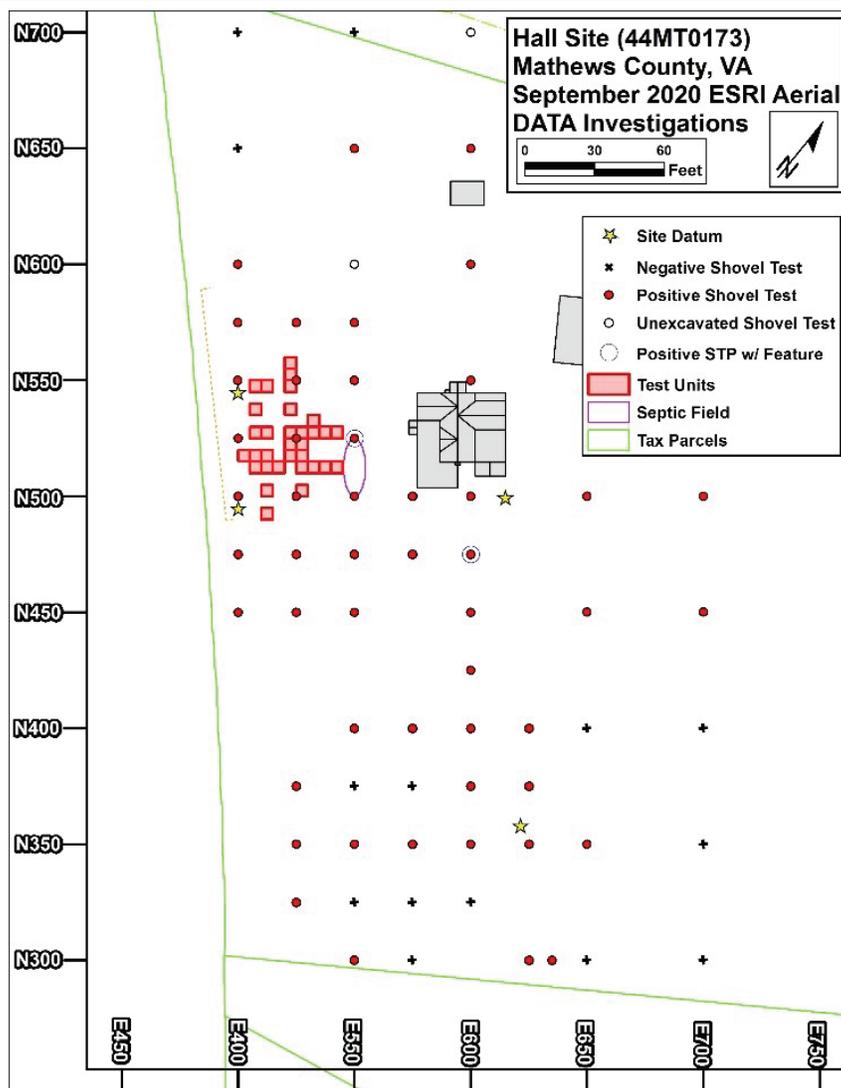


Figure 3. Site plan showing the shovel test and test unit excavations relative to the extant c. 1874 house.

Feature	Test Unit	Type	Feature Size (N-S x E-W)	Excavated?
1	10	Modern disturbance	1.55' x 0.4'*	Yes—South Half
2	10	Modern disturbance	unknown	Yes—South Half
3	1	Probable post hole	1.1' x 0.6'*	No
4	3, 4, 6, 16	small cellar/sub-floor pit	5.6'* x 3.3'	Yes—South Half
5	7	Post hole	1.2' x 1.3'	No
6	9, 23	Possible post hole or pit	3.0' x 2.7'*	No
7	10	Possible cellar/pit	2.1' x 4.0'*	No
8	10	Posthole with mold	PH: 0.9' x 1.7'* PM: 0.75' x 1.1'*	No
9	10	Possible feature or burrow	2.0' x 2.5'	No
10	11	Possible feature or burrow?	0.9' x 1.1'	No
11	13	Posthole with mold	PH: 1.3' x 1.4' PM: 0.6' x 0.5'	No
12	15	Shallow feature	1.8' x 2.9'*	No
13	15	Unidentified	0.7' x 0.6'*	No
14	16	Possible pit or large post hole	0.6' x 1.5'*	No
15	20	Large post hole	1.5' x 1.1'	No
16	23	Posthole with mold	PH: 0.95' x 0.9' PM: 0.5' x 0.6'	Yes—Completely
17	23	Possible post hole	0.6' x 1.2'*	No
18	22	Post hole	1.4' x 0.9'	No
19	24	Rectangular feature	3.6' x 1.5'	Yes—Completely
20	31	Posthole	2.2' x 1.7'	No
21	31	Posthole repair	0.95' x 0.95'	No

Table 1. Identified features and their interpretations. Note that feature sizes marked with an asterisk* are either cut by another feature or extend out of the excavated test unit.

such as Rockingham-type ceramic are likely related to the extant c. 1874 house, especially given their concentration on the peripheries of the yard in front of the house rather than centered in front of it like the earlier artifacts. A distinct concentration of 18th- and early 19th-century artifacts were found in the vicinity of TU 3-4, where the likely root cellar was located.

Tobacco Pipes

Over 800 fragments of clay tobacco pipe stems and bowls were recovered, many of which were decorated with rouletted or molded designs. Tobacco pipes are particularly useful for dating and other interpretative applications because they were not generally curated objects—meaning that they were used, broken, and discarded soon after purchase. Nearly all of the pipe fragments at this site were white clay pipes imported from England or Holland. There is much that can be learned from the examination of these pipes, specifically the pipe stem bore diameters, bowl shapes, decoration, and maker's marks.

The first of these elements, bore diameter, can be used to derive an approximate date for a site's occupation. The method was first developed in 1954 by J.C. Harrington, who noticed that pipe stem bores generally decreased in diameter over time; using pipes from contexts with known dates, he was able to assign approximate date ranges based on the bore diameters (Harrington 1954). The Hall Site bore diameters provide a date range of 1750-1800, with some possible stem fragments dating from 1710-1750. This observation was further refined into a linear regression formula by Lewis Binford (1962), whose formula produced a date of

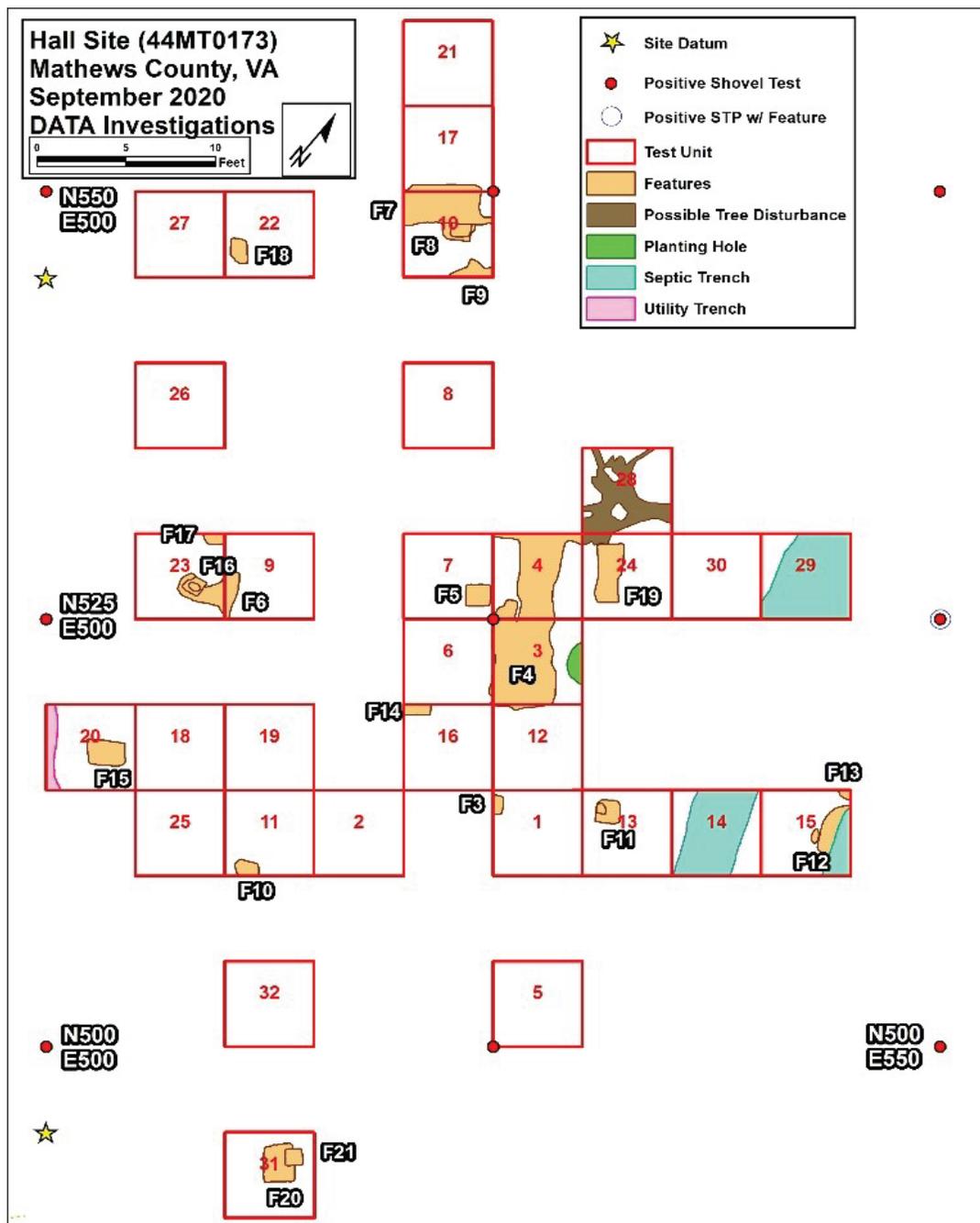


Figure 4. Site plan of the test unit excavation area, showing the identified features present at subsoil.

1768 for the Hall Site. However, the actual date could be slightly earlier; Dutch pipes are difficult to distinguish from English pipes without the use of maker’s marks or molded designs, and tend to have smaller bore diameters than their English counterparts. At the Hall Site, there are dozens of confirmed Dutch pipes, which may skew the average bore diameter to appear smaller and therefore later than the actual dates of production. Fortunately, many of the pipe stem dating techniques were developed in the Chesapeake region, where English and Dutch pipes could have easily been mixed in the studies’ original samples, so the dates derived from such formulas are still valid provided they are supported with multiple other lines of evidence (McMillan 2010, 2016).

One method that often augments imported white clay tobacco pipe stem bore diameter analyses is an examination of bowl shapes. As the culture surrounding tobacco smoking changed and pipe-making technology improved, the shape of the pipe bowl evolved. As a very generalized trend, tobacco pipe bowls became larger, less bulbous, and more sharply angled relative to the pipe stem (Oswald 1975, Noël Hume 1969). Unfortunately, many of the pipe bowl fragments at the Hall Site are broken in fragments too small to



Figure 5. South profile of Feature 4, a likely root cellar or sub-floor pit (Photo by DATA Investigations LLC).



Figure 6. Pipe with "TD" maker's mark (All artifact photos are by the author).

identify bowl shape or angle. The few bowl fragments large enough to identify largely date to the 18th century, which concurs with the bore diameter and other dating methods.

The stamps and markings on the pipestems are also very interesting. A significant number of pipe bowl fragments have rouletted decoration, a practice that occurred on almost all 17th- and 18th-century Dutch pipes but which occurred on very few English-made pipes after the early 18th century (McMillan 2010). Given the suggested dates for the Hall Site — the mid-18th to early 19th century — it suggests a strong Dutch connection, which is strengthened by many of the identifiable maker's marks and stamps.

Thomas Dormer Mark

The 'TD' maker's mark, located on the back of a pipe bowl, facing the smoker, is possibly associated with Thomas Dormer, who operated in London from 1748-1770 (Figure 6). Thomas Dormer pipes were traded throughout the Americas and examples can be found from Virginia to Newfoundland (Oswald 1975:69, Mount Vernon Middens Project 2012, NL Heritage n.d.). However, it could also possibly be a 'TD' pipe from the 19th century, which are also common on American archaeological sites (Oswald 1975, Fox 1998). The similarity of marks and their reuse, on rare occasions, highlights how substantial numbers of them are necessary to get an accurate sense of when an occupation occurred.

"Bunch of Grapes" Mark

Nearly a dozen pipe bowls from the Hall Site are stamped with a small bunch of grapes, with two leaves near the top of the bunch (Figure 7). This stamp appears to be the druiventros (literally "bunch of grapes") mark, used in Gouda, Netherlands in the 17th and 18th centuries. While there are few exact matches among the available druiventros examples, the closest match dates to c. 1780 (Claypipes.nl 2020). Additionally, multiple pipe stem fragments from the Hall Site were recovered containing either the whole or partial word GOUDA, a major location of Dutch pipe production, strengthening the connection. In the relevant period, the druiventros mark belonged to Gouda pipe makers Jan Heijndricksz Proefhamer, Barend van Even, and Willem Monk (Meulen 2003, Gouda Pipes 2020).

BVHE-, -INGO-- and GOUDA Marks

Another common mark, which was rolled around the pipe stem above multiple rouletted lines, is the BVHE or BVHEV stamp. On some of these BVHE pipes, the stem is also marked with the word GOUDA (Figure 8). A near-exact match can be found in *Clay Pipes for the Archaeologist* (Oswald 1975:117), which has the words GOUDA followed by a series of rouletted bands followed by initials VERZYL. This pipe dates from 1726-1785, with the only difference being the maker's initials. Unfortunately, no pipe makers from Gouda were identified which have the exact initials "BVHE" or "BVHEV"; however, one of the closest matches in a database of Gouda pipe makers is Barend van Even, one of the pipe makers associated with the



Figure 7. Details of the “bunch of grapes” mark, including two different styles of grapes (the top photograph may be a different flora-related mark).



Figure 8. Details of the GOUDA and BVHE marks.

grape maker’s mark discussed above (Meulen 2003, Gouda Pipes 2020). Unfortunately we were not able to mend pipe fragments together to determine if the BVHE and ‘bunch of grapes’ marks are found on the same pipes.

Lastly, several tobacco pipe stems from this site also have a partial mark “-INGO-“ stamped on them, with at least one example in conjunction with the BVHE mark. Based on the placement of the stamp on some pipes — -INGO- below a series of roulettes below the initials BVHEV — it is likely indicative of a place name, such as ‘in Gouda’, although there are no pipes recovered at the Hall Site with both the INGO and GOUDA stamps on the same pipe. Alternatively, the INGO mark could also be a second pipe maker’s initials.

In sum, there is much the tobacco pipe fragments recovered from the Hall site can tell us. For one, the bore diameter and bowl shape can be used to give approximate dates of occupation, both of which suggest an occupation in the mid- to late-18th century. Additionally, the decorations and identifiable maker’s marks suggest both English and Dutch connections, the latter most compellingly through the GOUDA, BVHE, and “bunch of grapes” marks.

Ceramics

The ceramics recovered in the test unit excavations consisted of wares from the 18th, 19th, and 20th centuries (Figure 9). Historic ceramics are useful as they can often be dated by their ware type based on historic records of production. Much like the tobacco stem bore dating, these dates of production can be used to calculate a mean ceramic date (MCD) (South 1972). The mean date calculated for the Hall Site is approximately 1749. However, this date must be taken tentatively since the most common type of ceramic found, delftware, has a long period of production and breaks easily, both of which could skew the MCD. As with many aspects of archaeological interpretation, this date must be compared with multiple methods of dating.

Tin-glazed earthenwares, also called delft or delftwares, were the most common type of ceramic recovered at the Hall Site by far, though this may be due in part to the fragmentary nature of the glaze and body resulting in higher artifact counts. Delft was produced in Europe and imported to the United States from

the 17th century to about 1800 (in the Chesapeake region, most tin-glazed wares are English and Dutch in origin, although occasional examples from France and Italy are recovered). An early attempt at emulating Chinese porcelain, these were among the first painted blue and white wares in Europe, and many feature Chinese floral and other designs. Many of the sherds are hand-painted blue or polychrome, including bold-colored Fazackerly-style decoration (c. 1760-1770) and purple sponged motifs. Unfortunately, the vast majority of fragments were too small to identify vessel type, with one notable exception being multiple fragments of a delft punchbowl recovered at the base of TU 28.

White salt-glazed stoneware, produced circa 1720-1805 but uncommon in the U.S. after the Revolutionary War, is the third most prevalent type of ceramic found on the site. This ware was very popular in the mid-18th century, sometimes replacing the use of tin-glazed earthenwares. Some of the most common vessels included press-molded plates with decorative bands with dot-diaper-basket, barley, and cordoned motifs, all of which were present at the Hall site. Other common vessels included pitchers, jugs, punchbowls, and teapots, all of which were recovered in small quantities from the site.

Another major innovation in the English ceramic industry was the invention of creamware, a mostly white earthenware with a lead glaze that was known at time as Queen's Ware. It was produced beginning in the 1740s by Thomas Whieldon and other Staffordshire potters, and most popularized by Josiah Wedgwood (Noël Hume 1962). It was durable and affordable and was imported in large quantities into the American colonies by the 1760s. Some potteries in America were also producing creamware-type ceramics, particularly in the Carolinas during the late 18th century (South 2004). Creamware continued into production well into the 19th century, but was declining significantly in popularity by 1820, in favor of pearlware and whiteware. Pearlware was a refined version of creamware with a much whiter glaze produced from 1775-1830, while whiteware was a further innovation that began appearing in the 1810s. Pearlware gradually replaced creamware, and whiteware replaced pearlware, each rising in popularity for a period and dominating the markets through rapid production, relative affordability, and the increased purchase of matched sets. Creamware was recovered in large numbers across the site, while pearlware was less common and whiteware even more so. Many of the creamware fragments from the Hall site had decoration, including various molded, painted, and printed designs as well as tortoiseshell and cauliflower decorations. The tortoiseshell patterns, often referred to as Whieldon ware, were only fashionable for a few decades (1740-1775) before being supplanted by other decorative patterns.

A variety of other ceramic tableware was also recovered, including North Midlands Slipware, dating from the late 17th through the 18th century, with dotted and trailed decorations, along with several fragments of Jackfield-type earthenware (1740-1790). Another ceramic found at the site in small quantities was Westerwald (c. 1650-1775), a grey stoneware produced in Germany that was popular for drinking vessels and chamber pots. Later wares recovered include yellow ware and Rockingham type ceramics, both popular from the second quarter of the 19th century into the 20th. A few mended sherds of Rockingham form part of a



Figure 9. Sample of decorated ceramic types from the Hall Site, including (from left to right): delftwares (top), creamware, Whieldon ware, painted pearlware, and colonoware (middle), and white salt-glazed stoneware and North Midlands slipware.

“Rebecca at the Well” motif, a popular design on teapots and jugs most common during the mid- to late 19th century.

Most of the identifiable ceramic vessels discussed above relate to food consumption, such as plates, cups, bowls, and punchbowls. On a basic level, these ceramics, combined with other categories of artifacts recovered such as tobacco pipes and some of the small finds, indicate a domestic site. Further, many of the identifiable vessel forms are related to serving and entertaining, such as punchbowls and tea wares. Some creamware, pearlware, and white salt-glazed stoneware sherds were identifiable as tea-related forms, including pots, saucers, tea cups, and tea bowls. Other ceramic types, such as Jackfield, Whieldon, and Cauliflower-type wares, are most commonly found as teapots and cups/bowls, even if individual vessel forms were unidentifiable. The presence of tea wares is especially interesting — in this period, the consumption of tea played an important social function, both as a symbol of social and economic status and as a bonding activity. Tea drinking in the 18th century mostly took place at the home, and involved specialized, often high-quality equipment (teapots, teacups, tea bowls) and a kind of “ritual” to serve it. This display, often involving guests of a similar social class, signified wealth/status to visitors and reinforced the shared cultural values of the upper and (to a lesser degree) middle class citizens (Mahoney 2007).

In addition to the types of ceramic discussed thus far, a smaller quantity of utilitarian wares was recovered. These wares would have likely been used for cooking and storage, and included wares such as Buckley-type (1720-1775) and North Devon Gravel Tempered wares (1600-1775). Additionally, 31 sherds of colonoware were recovered from the site, concentrated in the southeast test unit excavation area. Colonoware is a low-fired earthenware typically found in contexts associated with enslaved Africans. Large quantities of colonoware were produced on the Pamunkey Reservation and traded across eastern Virginia, though some was also made more locally (Egloff 2008, Noël Hume 1962). The colonoware could indicate the presence of enslaved Africans on the site, as they were most likely to have been the ones using colonoware in this context, and their presence is corroborated by the historical record.

In sum, the greatest quantity and greatest variety of ceramics at this site were in use during the mid-to-late 18th century and may have continued in use into the early 19th century. Lower quantities of later wares were recovered as well, suggesting a potentially longer occupation, albeit by fewer individuals or those with less means. Many of the ceramic fragments were decorated with painted, printed, or molded designs. Unfortunately, most sherds were too small to identify full patterns or vessel forms, with plates being the most commonly identified form. A relatively common identified genre included tea wares, documenting an important social and economic tradition in 18th-century American society employed primarily by upper-class citizens. The quantity and variety of high-quality ceramic types, including decorated vessels and those used for the serving of tea, indicate a middle- to upper-class household.

Small Finds

Two of the more striking small finds recovered at the site are two silver Spanish *reales* recovered from Test Units 6 and 7 (Figure 10). Both are 18th-century Philip V coins milled in Seville. As specie was rare during the colonial period, many coins were cut or clipped in order to make change, as both of these examples were. A possible coin weight recovered from TU 1 may suggest the coins were measured and cut on site by the Hall family.

One of the two excavated coins is cut roughly in half and would have read “PHILIPPUS V * D * G” and “HISPANIARUM REX 1733” when complete. The pierced hole is particularly interesting, and could have multiple interpretations. Pierced coins with dates were sometimes worn to commemorate a special date such as a wedding, birth, or death of a loved one. Pierced coins are also documented on archaeological sites associated with enslaved populations, with one *real* coins being the most common pierced denomination found on such sites. Based on 20th-century ethnographies, the coins were often worn for good luck, protection against sickness, or for the ‘X’ motif in the Spanish coat of arms, reminiscent of some West African cosmological symbols (Lee 2011). One could argue for either interpretation; however, the connection to an enslaved population is particularly intriguing given the presence of colonoware on the site.

The other coin is also cut in half and is stamped with -PANIARUM on one side and -ILIPPUS V on the reverse, much the same as the first real. Philippus V, or Felipe V, was king of Spain from 1700 to 1746 (except

for a brief interlude in 1724). To the left of the seal is the letter S, indicating the coin was minted in Seville, Spain, and on the right are the letters PJ, which are the initials of the assayers who ensured the quality of the silver (Jordan n.d.). There are a number of possible assayers with those initials who worked in Seville at the time, all of whom worked between 1737 and 1757. Based on the date of the first *real* coin, they are likely the marks of Pedro Remigio Gordillo and José Antonio Fabra, who worked from 1737 to 1750 (eNumismatic Catalog 2017). This narrows the date range between 1737 and 1746.

Another category of small finds present on the site is representative of children’s activities. While most of the artifacts directly tied to children date to the 20th century, such as a Lesney, England toy car wheel from the 1960s, a few older artifacts were also recovered. These include a marble, a slate pencil, and a porcellaneous toy saucer. In addition to toys, other evidence of leisure activities for all ages includes a copper-alloy clasp from a book and the vast array of tobacco pipes.



Figure 10. The two Spanish *reales* found on site.

Other small finds relate to personal care and style. For starters, a variety of buttons from the 18th, 19th, and 20th centuries were recovered. Most buttons were copper alloy, along with some glass and later plastic buttons. A more recently-made but interesting button was recovered from an STP, and was identified as a 1960s reproduction of a Teutonic eagle or a Hessian Revolutionary War-era button. Another personal item recovered at the site is a copper-alloy thimble. Interestingly, no other artifacts relating to tailoring, such as straight pins or needles, were recovered from the site. This could suggest this thimble was discarded in a trash area, rather than lost in a high-activity work area where sewing or mending activities took place, which would have likely resulted in the deposition of other tailoring-related items.

Another interesting object recovered from TU 1 is a small square brass object, measuring approximately 11mm x 11mm and 1.7mm thick — likely a coin weight. Much like the name suggests, coin weights were used to determine the weight and thereby the value of a given coin (Colonial Williamsburg Foundation 2020). They were also used to guard against coin shaving or clipping, where unscrupulous traders would shave off the edges of coins to obtain some of the precious metals. Unlike modern coins, colonial coin value was determined solely by its content of gold or silver (Jamestown Rediscovery 2020).

Two final objects recovered at the site speak to the economic status of the inhabitants. An elliptical bone toothbrush head was recovered which shows evidence of carved channels running along the rows of bristles. These channels would have served as guides for a manufacturer to hand-drill the bristle holes, suggesting this toothbrush dates prior to the invention of machine-drilled toothbrushes in the late 19th century (Samford 2002). The shape and number of bristles corroborate this—elliptical brush heads are most commonly found in the 19th century— but the condition and size of the recovered toothbrush fragments make further dating uncertain. Regardless, there was no widespread manufacture of toothbrushes until after the Civil War, and prior to that point they were considered “luxury” imports primarily owned by the wealthy (Mattick 1993:165). The second object is a fragment of a wig curler. Wig curlers are round ceramic objects used to curl the hair on wigs, worn primarily by men in the 17th and 18th centuries. While more accessible in the 18th century than in the previous century, wigs were a highly visible symbol of status during the colonial period (Muraca et al. 2011).

Conclusions

The test unit and feature excavations at the Hall Site suggest at least one structure was present on the site, although our understanding of it is underdeveloped at this time. Unfortunately, disturbance from trees, animals, and the septic drain field make delineating the shape of a building difficult based on the current excavations alone. Based on the presence of brick and large numbers of ceramics, combined with the presence of a probable sub-floor pit and multiple possible pit features, there is likely a domestic building of unknown size surrounding TU3. The surrounding postholes could represent a fence line and/or at least one post-in-ground supporting structure. The lack of substantial post holes situated at regular intervals to match a frame building of the typical colonial type is frustrating, as is the lack of comparable colonial buildings in Mathews County, either standing or found through archaeology. Despite the number of test units excavated, there are still multiple possible locations for postholes that were not explored. There may also be a unique architectural tradition specific to this region, or simply a preference for ground-laid sills or other construction techniques that do not leave a substantial archaeological footprint.

Besides being useful for dating and spatial patterning, the artifacts can also speak to the cultural aspects of the occupants of this site. The quantity and variety of high-quality ceramics, many of which have rather lavish decoration, speak to individuals with relatively high socioeconomic status or aspirations towards those levels. This is corroborated by the presence of multiple types of ceramic tea wares, which speaks to a social emphasis on entertaining and display of class.

Another interesting aspect of the site is the apparent Dutch connection. While this may be true of some of the tin-glazed ceramics, it is most clearly evident in the tobacco pipes. Many of the pipes included markings suggestive of Dutch origin, such as rouletting and relatively extensive decoration. Others have marks indicating they were made in the Netherlands, such as the druiventros mark and the GOUDA stamp. The lack of a distinct Dutch architectural presence, such as yellow Dutch brick (which may be more indicative of direct Dutch connection as seen on some sites on the Eastern Shore) points to a largely mercantile connection, either through intrepid Dutch traders or through the Hall family's extensive maritime connections. It is highly likely that the Hall family had relationships with Dutch merchants and businessmen at the very least, but other questions arise regarding whether they limited their trade to smoking pipes or if they included other items in their business dealings. Comparable sites on the Eastern Shore reflect a much more integrated network of material culture, although there was a greater number of Dutch descendant residents at those sites than in what is now Mathews County.

There is also evidence of an enslaved African/African American population on the site. The colonoware sherds are the most direct association, although the pierced real coin as well as some of the possible pit features (sub-floor pits are commonly found in slave quarters dating to this period) could also be interpreted as connected to an enslaved population. The large quantity and relatively high status indicated by the ceramics and glasswares suggests the presence of more affluent residents, but enslaved workers were sometimes housed in the same building as the owners, or in quarters placed very close by. They also likely performed tasks across the farmstead, from cooking to carpentry to planting, and so their presence is not only indicated by the items used almost exclusively by enslaved people, such as colonoware, but also in the artifacts and features that represent the other work and activities that they would have undertaken.

Evaluation: Is this the Hall family home?

As mentioned at the beginning of this article, extensive historical research by Conrad Hall was undertaken to narrow down an area in which the Hall family home could be located using archaeological means. Knowing that the project area was located within the historically Hall-owned lands, this survey was focused on determining the location of their homestead and the footprint of their dwelling house, and was somewhat successful in this endeavor. While the exact type of building/s found is unclear due to recent disturbances, limited testing, and the nature of most domestic architecture from this period, there is evidence for a structure of some sort on the site.

To determine if this building is the Hall family home, there are several "signatures" we might expect to see. First, we would expect a date range beginning in the 18th century and ending sometime around 1838, when the house was possibly moved to Sutherland. The Hall family at the time represented an upper middle class family living in a bustling maritime region with ready access to goods via the waterways. We would

expect an artifact assemblage reflective of an upper-middle to upper class household. Additionally, many members of the family were involved in various maritime industries, and historical documents show at least one (Thomas) likely engaged in trade while commanding a ship. While Thomas Hall's eventual shipbuilding business was located elsewhere in Mathews, it is likely that evidence of maritime trade would show up at the site of his home.

As mentioned earlier, the artifact assemblage at the site does provide a date range coinciding with the Hall occupation of the landscape. Most of the 18th- and early 19th-century ceramics are grouped in one area, in the likely vicinity of the 18th-century house. The quantity of delft, white salt-glazed stoneware, creamware and pearlware suggests a continuous occupation potentially from the 1730s into the early 19th century, which would match with the projected occupation by the Hall family. The post-1830s ceramics, such as whiteware, are distributed in such a way that suggests they are associated with the extant house, which was never associated with the Hall family. The tobacco pipe bore diameter date of 1768, the pipe bowl shapes, the silver reales, and the wig curler fragment also corroborate this date range.

In addition, multiple lines of evidence support the idea that this assemblage is reflective of an upper-class household. The ceramic types recovered, the large ceramic variety, the highly-decorated nature of many of the sherds, and presence of multiple types of tea-related wares all suggest a household of the expected upper middle class. The toothbrush, wig curler, coins, coin weight, and copper-alloy book clasp also seem to support this idea, as these would have represented somewhat restricted goods at the time.

Evidence of maritime trade activities is somewhat more difficult to ascertain. Perhaps the clearest indication is also among the smallest: the possible coin weight from TU 1. There are also large quantities of Dutch tobacco pipes at this site, as evidenced by the rouletted rims of the bowls and some of the maker's marks. Also recovered were the two Spanish real coins, though the piercing through one of them suggests it eventually was used as something other than currency. While all of these artifacts could have arrived at the site through other means, they become particularly interesting given what we know about the Halls' involvement in maritime trade.

In conclusion, this location stands a good chance of being the 18th-century Hall family home. The site (1) is in the right location as indicated in the historical record, (2) shows evidence of a domestic building, even though the exact footprint is unclear, (3) produced artifacts dating to the appropriate period, (4) produced artifacts of the expected socioeconomic status, and (5) shows evidence of European imports that could indicate involvement in maritime trade. It may never be known for certain until a clearer footprint of the house is confirmed, but we believe there is sufficient evidence to conclude this is the site of the Hall household. Irrespective of its ownership, the site provides an opportunity to explore the lives of 18th-century Mathews County residents through archaeology, as few such sites have been excavated to this extent in the county. The rich material culture from this site – only a small portion of which has been discussed in this paper – could provide a launching point for a variety of academic inquiries. Particular research questions could include further identification of structures and their functions, the study of trade and import in colonial Virginia port towns, or the lives of enslaved workers in a small farm setting where related archaeological research has often been focused on large plantation sites.

Acknowledgements

I would like to thank Conrad Hall for making these excavations possible, and for his continued enthusiasm for our findings. His research into the history of Mathews and his family is invaluable to this project and to our greater understanding of Mathews' past. We would also like to thank LeAnne and David Shields, who kindly allowed us to excavate extensively on their property, and whose keen interest in our findings was always appreciated. Finally we would like to thank the dedicated volunteers who assisted on this project, including but certainly not limited to bobbi hatton, Tom Karow, Noah Brown, Sandy Diggs, Jeff Lane, Sara Lewis, Susan Hill, Colleen Betti, Ailin and Aden Harpole, as well as Conrad's sister Carol Gosse and his sons Cosby and Mercer Hall.

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POWS AND THE APPLES THEY PICKED DURING WORLD WAR II IN LOUDOUN COUNTY, VIRGINIA¹

By Yvonne French

Abstract

Seventy-seven years ago the U.S. War Department set up a POW camp for German World War II prisoners in Loudoun County five miles southwest of Leesburg, Virginia. The POWs worked at local farms and orchards in 1945. To learn more about where they worked, information was gathered in a two-part project to locate historic orchards. The first part focused on the western half of the county and used analog maps, photographs, and deeds to identify orchards. The second part focused on the entire county and took a partially digital approach. After all of the orchards in the county were located through crowd-sourcing, they were placed into Geographic Information System (GIS) software. This allowed the analysis of historic orchard properties to determine their modern land-use designations. There is good potential for a hybrid analog/digital approach to studying former orchards.

Introduction

For the first part of the project, 40 orchards in Loudoun County west of the Catoctin Mountains were found on 1:24,000 scale historic maps and confirmed by looking at historic aerial photographs. The seven orchards closest to the POW camp were further identified through chain-of-title deed research tracing ownership back to the World War II years. The result was that commercial apple orchards can be “map-truthed” using analog tools by following a simple three-step process: search, confirm, and identify. In the second part of the project, 70 historic orchards from across the county were found through crowd-sourcing at the 2018 and 2019 conferences of the Middle Atlantic Archaeological Conference (MAAC). Later the orchards were placed into GIS software to analyze land-use zoning patterns, revealing that there are 2,000 acres of historic orchards, most of which were not slated for very dense development as of late 2019. It is not known if any of the orchards is still extant. The lifespan of an apple tree is 35-40 years but can be longer (Zander 2022).

Location

The POW camp was an ephemeral site lasting from June to October 1945 (Figure 1). Its location, and that of local orchards where the prisoners worked, are in the



Figure 1. POWs at German POW camp on Woodburn Road near Route 15 (Winslow Williams Photograph Collection (VC 0003) Thomas Balch Library, Leesburg, Virginia. Reprinted with permission).

¹ This article was adapted from research completed for two classes at Northern Virginia Community College (NVCC)- historical archaeology (spring 2017), and Geographical Information Systems II (fall 2019)- as well as crowd sourced information from the 2018 and 2019 meetings of the Middle Atlantic Archaeological Conference.

northernmost portion of the Piedmont physiographic province of Virginia (Egghart 2020:4) on land formerly inhabited by the Manahoac people (Phillips 1996:1). Part one of the project focused on Loudoun County west of the Catoctin Mountains, a low range that stretches for 50 miles between Emmitsburg, Maryland, and Leesburg, Virginia. Part two of the project focused on the entire 520-square-mile county.

History

The history of the POWs in the United States in general and Loudoun County in particular is not widely known or talked about. The number of people who remember it first-hand is becoming fewer. The impetus for this project was to locate orchardists, farmers, and neighbors, or their descendants, who might remember the POWs or recall hearing about them from their elders. Former orchard manager Kenneth Lowery told oral history interviewer Allison Weiss that he did not use POWs himself but confirmed “. . . there were prisoners of war in this area who did work on the orchards” (Loudoun Heritage Farm Museum, Sterling, Virginia, 2002: It’s Just a Way of Life: Reminiscing about the Family Farm).

POW housing came into existence quickly. It reflected a fission/fusion-like system based on seasonal work. Permanent base camps housing 3,000-4,000 men, and sometimes thousands more, were first located on or near existing military reservations or at former Civilian Conservation Corps camps (Table 1). Soon base camps (also called ‘main’ camps) were placed in areas that were experiencing severe labor shortages. Finally, temporary branch camps housing between 250-1,000 men were established even closer to places where seasonal labor was needed (Thompson 2010:10). First called side camps (Gansberg 1977:25), branch camps were “portable tent cities, easily installed and removed” (Freitus 2014:25) that “enabled the POW workers to follow harvests” (Krammer 1991:36). The Leesburg camp, known as “Branch Camp #4,” housed between 150-200 POWs (Army Service Forces, Office of the Commanding General [ASF, OCG] 1945) (Table 2).

Whether at a base camp or a branch camp, the POWs were in the custody of the newly established Office of the Provost Marshal General, which also was responsible for the internment of several thousand enemy aliens who were citizens of the United States (Bernard 2011:6). However, “Virginia had very few enemy aliens. . .,” nevertheless, the federal government made provisions to assist financially the dependents of enemy aliens interned (Virginia Conservation Commission, Division of History and Archaeology [VCC, DHA] 1944:30).

Although the branch camps had staffs of their own, the nearest base camp directed their operations (Gansburg 1977:25). The Virginia Front Royal Remount Depot directed the Leesburg branch camp. It also directed camps at Fairfax, Lyndhurst, Timberville, Winchester, and White Hall, Virginia; and Flintstone, Maryland (ASF, OCG 1945). The Remount was located three and a half miles southeast of Front Royal. Its POW camp housed 400 men who cared for pack mules bound for arduous fronts and war dogs destined mostly for coastal patrols as part of the Army’s new K-9 Corps (Freitus 2014:50-51, NoVA 4-H Center 2018).

Camp Allen, Naval Operating Base, Norfolk	1,615
Camp Ashby, Virginia Beach (Branch Camp)	2,230
Camp Lee, South Petersburg (Fort Lee)	1,016
Camp Hill, Newport News	1,400
Camp Patrick Henry, Newport News	1,807
Camp Peary, Yorktown	1,706
Camp Pendleton, near Virginia Beach	723
Camp Pickett, Blackstone (Fort Pickett)	2,436
Camp Shelton, Little Creek	785
Fort John Custis, Kiptapeake	535
Fort Eustis (Fort Abraham), Newport News	800
Fort Eustis, Newport News	4,345
Fort Eustis, Special Project Center, POWs	Classified
Fort Monroe (Hospital)	580
Fort Story, Norfolk	839
Front Royal Remount Depot, Front Royal	1,590
Hampton Roads, Port of Embarkation, Newport News	1,380
Fort Hunt (Restricted, classified listing)	----
McGuire General Hospital, Richmond	465
Norfolk Army Supply Base	560
Richmond Army Air Base, Richmond	1,181
Richmond ASF Depot	1,988

Table 1. World War II POW Base Camps in Virginia (Freitus 2014:155).

Catawba	Roanoke	175 POWs involved in forestry work
Cheatham Annex	York Co.	520 general maintenance work
Cumberland	Cumberland Co.	172 agriculture work
Danville	Pittsylvania Co.	214 forestry
Ettinger	Northampton Co.	233 food processing/agriculture
Fairfax	Fairfax Co.	150 agriculture
Green Bay	Prince Edward Co.	225 agriculture
Leesburg	Lauden Co. (sic)	150 agriculture
Little Creek	Norfolk	142 military maintenance
Lyndhurst	Augusta Co.	228 agriculture/forestry
Naval Armed General Service, Elizabeth City (Camp Ashby)		number as needed
Radford (branch camp for Pickett)		number as needed
Salem	Roanoke Co.	172 agriculture/forestry
Sandy Level	Henry Co.	Ft. Pickett maintenance
Shelton	Ft. Pickett	
Suffolk	Nansemond	288 food handling
Timberville	Rockingham Co.	205 forestry
White Hall	Albemarle Co.	225 forestry
Winchester	Frederick Co.	236 food processing

Table 2. World War II POW Branch Camps in Virginia (Freitus 2014:156).

The POWs staying in Front Royal helped build the Leesburg branch camp (*Warren Sentinel* [WS], May 31, 1945). Up to 25 farmers and orchardists picked up groups of POWs in the morning and returned them to the camp in the evening (Report of Inspection [ROI] of Prisoner of War Camp, Aleshire Quartermaster Depot-Remount, Front Royal, Virginia, and Two Branch Camps, September 17-18, 1945). The farmers contracted for their labor through the Loudoun Cooperative Association, paying 40 cents per hour to the government (*Loudoun Times Mirror* [LTM], May 24 and June 14, 1945). The POWs were not paid in cash but received coupons worth 80 cents a day, and up to \$1.50 a day for overtime, that they could use at the camp exchange (Krammer 1991:87).

In order to better understand the environment in which the POWs worked, let us focus on the history of apple cultivation. We will fast forward through 16,000 years (Boyd 2020:31) of Loudoun prehistory and all of the Native Americans who lived there. They may have chosen it in part because of the outcroppings of cryptocrystalline lithics from the Triassic Basin for toolstone (Egghart: 2020:6), the springs of soft water, the Potomac River for food and transportation, and, importantly for this study, the exceptional soil that supported hunting, gathering, and crop domestication.

We will pause briefly in the historic period, when the soil was used for more intensive agriculture, especially the cultivation of fruits. Even the way the land was initially allotted in what was to become Loudoun County spoke to the importance of fruit trees to the colonists. As early as 1688, Lord John Culpeper had secured land interests in the Northern Neck Proprietary that were inherited through marriage by the Fairfax family. The Sixth Lord Fairfax appointed resident agent Robert ‘King’ Carter to distribute patents to the lands. Once granted in a patent, land was parceled out in three ways, one of which was that tracts were leased for a period of three lifetimes if the grantee built a dwelling house and barn or granary, *planted apple and peach orchards*, and generally maintained the place. “As a consequence, large areas of Loudoun . . . must have seemed as one vast orchard” (Phillips 1996:8-196, emphasis added).

Further evidence for the importance of fruit trees to the colonists can be found in a January 10, 1775, letter from George Washington to James Cleveland, saying, “If you could get peach, or any other kind of fruit stones, or apple seeds, it would not be amiss . . .” (G. Washington to J. Cleveland, letter, Library of Congress, Washington, DC).

According to Monticello, “Hundreds of apple varieties were available to colonial Virginia gardeners, many of them cider apples, most well adapted to the region's warm, humid summers. Jefferson, however, concentrated on only four cultivars either unequalled for cider production (Hewe’s Crab and Taliaferro) or unsurpassed as dessert fruits (Newtown Pippin and Esopus Spitzenburg)” (Monticello).

In a letter to his grand-daughter, Jefferson raved about one variety, writing, “They are called the Taliaferro apple, being from a seedling tree discovered by a gentleman of that name near Williamsburg, and yield unquestionably the finest cyder we have ever known, and more like wine than any liquor I have ever tasted . . .” (T. Jefferson to E. W. R. Coolidge, letter, March 19, 1826, National Archives and Records Administration, College Park, Maryland).

Growing good fruit requires good soil, and Loudoun County had a great deal of it according to a 1903 soil survey that identified several types, one of which was named after the county: Loudoun County Sandy Loam. It was noted that “Apples, pears and small fruits do well on this soil,” especially when it included a bit of clay in the upper layers to hold in moisture (Carter and Lyman 1903:200). Between Washington's 1775 instructions and the 1903 soil assessment, a lot of fruit was grown, picked, graded, counted, trucked, sold, cooked, eaten—and drunk—in what is now Loudoun County.

One form of the drink was applejack, recently named “the original moonshine of the colonies” by the *New York Times*. It was created by progressively freezing and skimming the slush off of hard cider, thus ‘jacking’ it. “In the eighteenth century, when the Blue Ridge Mountains were part of a remote western frontier, applejack was so prized that it was used as local currency” (*New York Times* 2021).

Other apple foodways included fried apples, apple toddy, and apple cider, according to first-hand accounts from Loudoun County residents. John Jay Janney (1812-1907) grew up in a Quaker family near Goose Creek and remembered that apples were never served at table unless cooked, sometimes by frying slices in butter. He continues, “We had an orchard of seven acres, but there were not more than a dozen trees which bore fruit worth anything. There were about half a dozen Newtown Pippins. . . . I picked from one tree sixty three bushels of Newtown Pippins, all perfect apples, letting the imperfect ones fall to the ground, the largest crop I ever heard of” (Janney and Janney 1998:35). Sally McCarty Pleasants (1833-1916) grew up the daughter of ardent Whigs in Leesburg. “I remember marching in a torchlight procession with a band of little girls during the Harrison and Van Buren campaign” of 1840. “Windows were illuminated, every house was thrown open, cold collations [meals] were spread and punch and apple toddy brewed without stint” (Pleasants 1916:6). Toddy was a concoction of roasted apples, rum, sugar, orange juice, and lemon peel (White 2020). Marvin K. Compher (1915-2008) grew up in a family of German extraction on a 240-acre farm near Waterford, Virginia, in the 1920s. “I can recall going up to the Leadham farm, where they had an orchard that produced a lot of apples. I helped to pick those apples up off the ground, usually in the orchard grass, and we bought them for about five cents a bushel, maybe ten cents at the most, and then they were taken to the cider mill not too far away. Each year we made two barrels of cider. One was for drinking purposes and the other was for making vinegar. After we drank a week or two from one barrel, Fent [Fenton Isaac Pollard, a farm hand] would add some sugar and raisins to the barrel, and, believe me, after a few weeks it would really get you drunk if you drank enough of it!” (Compher 1994: 65).

The apple proliferated in Virginia through the 20th century. Orchardists in 1939 harvested more than 11.5 million bushels of apples across the Commonwealth, almost double the 1909 haul of about 6 million bushels. Loudoun County produced 163,327 bushels in 1939 (U.S. Department of Commerce 1942).

Not long after, the first POW arrived in the United States, on December 7, 1941. The War Department initially disallowed the building of POW camps in Virginia and several other states for security reasons

(Thompson 2010:1-9). As of May 1942, the United States had 32 POWs, mostly from U-boats sunken off of the North Carolina coast (Bernard 2011:6). The United States held only 1,881 POWs by the end of 1942. But “Britain . . . which had been fighting since 1939, held a staggering and growing number of German and Italian prisoners, with an estimated 150,000 from the once-vaunted Afrika Korps. Unable to house or feed the rapidly increasing numbers, Great Britain asked the United States to intern 75,000 POWs.” Soon they were arriving in droves. More than 135,000 POWs would come through the Hampton Roads Port of Embarkation (Freitus 2014:52-154).

In 1943, food shortages had become a serious concern in Virginia. “This was partly due to the large number of farm workers drafted, but more to the laborers who left rural scenes for the get-rich-quick wages of the war industries. In some sections of Virginia, farm labor almost disappeared” (VCC, DHA 1944:13). That same year, the Central Shenandoah Valley suffered a severe shortage of labor. The “harvest, which was bountiful, was salvaged with the help of the Women’s Land Army, students, convicts, conscientious objectors and POWs” (Freitus 2014:155):

In April 1943, the War Department announced that POW labor would be made available to the civilian sector, an announcement which was hailed by farmers across the country. Unfortunately, it took some time for the proper bureaucratic procedures to be established and for a sufficient number of prisoners to arrive in the United States. In fact, not until the fall of 1943 did the War Department, the War Manpower Commission, and the War Food Administration finally manage to work out a satisfactory method of making the POW labor available (Krammer 1991:86).

Three sites were considered for the Leesburg branch camp. (LTM, February 8, 1945). The site chosen for the branch camp was on land owned by the Moss family (LTM, May 31, 1945). On April 26, 1945, prisoners were expected to arrive in Front Royal (Warren Sentinel [WS], April 26, 1945). On June 4, 1945, The Leesburg POW branch camp opened (Figure 2). The prisoners were contracted out by the “Loudoun Agricultural Co-operation Association, the agency set up to meet the regulations of the government for the employment of the men” (LTM, May 31, 1945). An example of their labor can be inferred from a report from Augusta County, Virginia, Agriculture Extension Agent James M. Gorsline:

A Prisoner of War camp was secured at Camp Lyndhurst in Augusta County. Two hundred Germans started work 14 August 1944, under a six-month contract. Contract was made by Higges and Young, Incorporated of Staunton, who then subcontracted them out in groups of 20 men to various orchardists. Whenever available these orchardists allowed farmers to use them at farm work. Their aid has been a material help to the war effort in harvesting 2,000,000 bushels of apple crop (Freitus 2014:156).



Figure 2. German POW camp on Woodburn Road near Route 15 (Winslow Williams Photograph Collection (VC 0003), Thomas Balch Library, Leesburg, Virginia. Used with permission).

There were reports in Leesburg of a lack of food for the mid-day meal and dissatisfaction among civilian laborers that the POWs were being treated better than they were, including “claims from both black and poor white laborers that German POWs working in Loudoun orchards got preferential treatment” (Thomas Balch Library [TBL] 2014). The following could have been a response: “The Third Service Command . . . emphasized . . . that the prisoners will replace no free American workers, but are being used because sufficient labor is not available at present to meet the demands for greater quantities of food for American forces. . . .

Every delay in getting supplies to the war theater is of assistance to the enemy. . . . Speed in the prosecution of this war is vital” (LTM June 7, 1945).

Wilson Townsend, Jr., an employee at Green Field Farm on present day Cochran Mill Road, worked regularly with the same three captured German paratroopers. For lunch all they got was “a loaf of loose bread” with bologna thrown on top in a paste board box, according to his oral history (Black History Committee [BHC], Friends of the Thomas Balch Library, Community History and Mapping Project, Leesburg, Virginia, 2004: Interview with Wilson Townsend, Jr., used by permission).

Farm workers like Townsend took matters into their own hands despite rules not to feed the prisoners. “I had two brothers, in [the] war. And if they was captured, I wanted them to be treated human . . . So I just treated *them* human. Just like I would anybody else. . . . I’d just give them sandwiches, and sometimes ham and eggs (BHC 2004:11).

Townsend may as well have been quoting from the Geneva Convention of 1929, which guided the handling of war prisoners so that their overseas counterparts would be treated reciprocally. In late June of 1945 the farmers “were doubtful that the mid-day ration given the men was sufficient. They expressed the hope that ‘something could be done to ensure that the men received a good, round meal, to which any working man is entitled’” (LTM June 28, 1945) (Figure 3). Two weeks later “the clamor by Loudoun farmers employing German prisoners of war labor for a more adequate noon-day meal than is now being provided by the government arose in a crescendo this week.” The work was “efficient” but the noontime rations were not. “Protests have been lodged with Army authorities and telegrams have been sent to [U.S.] Senator from Virginia Harry F. Byrd” (LTM July 19, 1945), himself a prominent apple grower in the region (Linhart 2014):

It was being pointed out by some of the farmers who have gone to considerable lengths in their efforts to get more food for the men that the Geneva Convention, to which the United States adheres, provides . . . that: ‘The food ration of prisoners of war shall be equal in quantity to that of base camps (of the country in which they are held captive). It was also emphasized that the convention provided that canteens shall be installed in all camps where prisoners may obtain, at local market prices, food products and ordinary objects’ (LTM July 19, 1945).

Although there were escapes from POW camps, they were not frequent: The rate was about three per 10,000 prisoners (Krammer 1991:117). The POWs wore khaki fatigues with a large PW stenciled on the back of both shirt and pants (Gansberg 1977:89-92).

Apparently, the prisoners at Leesburg were not guarded when they worked in the community. According to the September 1945 report of inspection, the Leesburg branch camp had a prisoner population of 6 noncommissioned officers and 181 enlisted men, and was allotted 17 American enlisted men, with 7 for guard duty (5 of whom were out sick). They served “. . . as main guard in the two towers at the stockade.” It added that “none of the 25 details going out of the camp is ever accompanied by a guard or other Army personnel” (ROI 1945).

This lack of security matched recollections from POW Paul Lohmann, who was interned at Fort Dix in New Jersey. Although the setting differs because it is a base camp rather than a branch camp, Lohmann



Figure 3. German POW camp on Woodburn Road near Route 15—galley kitchen (Winslow Williams Photograph Collection (VC 0003), Thomas Balch Library, Leesburg, Virginia. Used with permission).

recalled that many of the guards “. . . enjoyed an active night life, they were always tired . . . We fully understood their tired conditions and we hid them, so that they could sleep during the day. We warned them when the Sergeant of the Guard was approaching, to check on them. We always made sure that our ‘sleepers’ were up in time. We were very well organized” (Thompson 2010:91).

Soon the war drew to a close. “Officers at the German prisoner of war camp near Leesburg . . . said they . . . were not in a position . . . to comment on news dispatches asserting that 3,647 Germans, including 650 now employed in Virginia, would be removed from all forms of industrial and agricultural contract work . . . by the end of October” (LTM, October 5, 1945).

By the end of the war there had been more than 425,000 Axis POWs in the states (Thompson 2010:1), peaking in June 1945 with 371,505 Germans, 50,052 Italians, and 4,249 Japanese (Krammer 1991:272). Before being sent back, more than 25,000 POWs made a stop at Fort Eustis, Virginia, the site of a reeducation or ‘denazification’ school (Bernard 2011: 9-15).

The POW camps that existed during the war were a boon to local communities. “Nationally, the infusion of nearly 200,000 workers who could be transported to branch camps across the country as needed allowed the government flexibility in providing relief and freed up thousands of U.S. citizens to serve in war industries and the military” (Thompson 2010:102) (Table 3).

Methods Part I

The first part of this project took place in spring 2017. Two historic maps showing the middle of the county, the Leesburg and Lincoln quadrangles, were ‘map-truthed’ by layering partially transparent maps over historic aerial photography from the mid-1900s to confirm the presence of orchards, which can be recognized in photographs by their uniformly spaced trees (Figure 4). This photographic signature was further confirmed with former orchardist John Sleeter (personal communication 2017) by looking at aerial photographs in his possession. With these checks, there appeared to be a high degree of accuracy for the placement of orchards on the topographical maps. The names of the orchards, and of their owners and neighbors, were obtained through chain-of-title research in Loudoun County circuit court records, beginning with the current owners of land parcels located on historic orchards and tracing ownership back to the 1940s. A three-step process was developed to obtain the data: search, confirm, and identify.

Search

A large computer monitor was used to inspect U.S. Geological Survey (USGS) 1:24,000, 7.5 minute quadrangle maps downloaded for free from the USGS store. The maps were dated 1943, 1944 and 1952. The

Date	Man-Days
June 30	1,401
July 15	1,244
July 31	935
August 15	1,136
August 31	1,304
September 15	1,707
September 30	1,297
October 15	1,297
October 31	1,781
Total	12,102

Table 3. Agricultural Contract Work at the Leesburg Branch Camp (War Department Reports, Branch Camp #4, Leesburg, Virginia).



Figure 4. John Sleeter showing an aerial photograph with some of the 500 acres of apple and peach trees his family owned and rented from 1942-1985 around Round Hill, Virginia.

date range is because not all maps were available for each year. Orchards, which are signified by green dots on the maps, were outlined in red (Figure 5). Nearby street addresses were obtained from Google Maps and placed into WebLogis, the Loudoun County Online Mapping System. Initial focus was placed on waterways and roads as primary features. Present-day structures and property boundaries were depicted by zooming in to a resolution of 1:7,200. Screenshots were taken and made 85 percent transparent. The screenshots were placed over the red-outlined orchards on the quad maps and resized proportionally with preference given to alignment of streams, historic structures, and roads, in that order. It should be noted that registration was not always perfect, especially where roads had been realigned.



Figure 5. Dotted orchard symbol on USGS maps.

Confirm

The locations were double-checked by looking at the present-day parcels as a base layer with overlays of archival aerial photographs from 1937 and 1957, also available on the Loudoun County mapping system, to make sure the parcels' ID numbers were within the historic orchards. With tree lifespan of at least 35 years and beginning to bear fruit after 5 years (Zander 2022), bracketing the 1944 maps showing green dots for orchards with photographs from eight years before and fifteen years after the maps were field-checked was an effective test to confirm the presence of orchards.

Identify

A list of parcel IDs (average $N=7.5$) was made within the boundaries of seven historic orchards. Assuming that the 1940s ownership of the land would show fewer, larger landowners since some orchards appeared to have been subdivided, it was not necessary to capture the ID of every single parcel within each historic orchard. Larger parcels and those with buildings that matched 1944 structures signified by small black squares and rectangles on the maps were given preference. Chain-of-title research was performed in the offices of the Loudoun County Office of the Clerk of the Circuit Court, Historic Records and Deed Research on 27 parcels. In some cases the chain of title was clear, in others it was not.

Results Part I

Seven orchards were studied in detail. The products of the study were:

- the 1944 map with the orchard circled and a transparent overlay depicting current parcels and structures
- the parcel ID and present-day street address that had clear chain of title to the 1940s
- aerial photographs of the orchard from 1937 and 1957 with present-day parcels appearing as a base layer
- tables listing the historic orchard name, World War II-era owner(s), years owned, location, acreage, and any interesting facts, including names of land owners and adjacent property owners

Summary Part I

The goal of finding commercial orchards in Loudoun County west of the Catoclin Mountains was the purpose of a preliminary research project and archives report that led to this article. The intent was to gather names of landowners and neighbors to interview them or their descendants about the presence of the POWs. Our teacher, Professor David T. Clark, PhD, of Catholic University of America, had shared with our historic archaeology class that perhaps during the war years, old farmers or orchardists or their children knew how to speak German and were able to communicate with the POWs in their native language. Maybe, he speculated, a POW fell in love with a local farmer's daughter, got married and stayed on after the war ended. A couple with the names of Wolfgang and Hannah Joerg did own one of the orchards in 1946, but Wolfgang Joerg had immigrated from Germany to New York before moving to Loudoun County, according to the 1930 U.S. Census. Northwestern Loudoun County was settled in part by Germans who came down from Pennsylvania after all the prime spots further north had been occupied (Carter and Lyman 1903:92).

World War II-era owners of a subset of seven orchards from 1944 maps of Leesburg and Lincoln were identified. Orchard names discovered were Blytheview Orchard, Catoctin Orchard, Dunrobin, Evergreen Farm, High Point Orchard, Loudoun Orchard, and Pancoast Farm. Two are described in more detail as an example of the type of information that could be gleaned. Dunrobin was a 204-acre property two miles south of Leesburg owned from 1912-1953 by Louise S. and Robert Macdonald, who was deceased at the time of sale in 1953. It was the closest orchard to the POW camp, which was three miles further south. Adjoining property owners' names included Nixon, Elgin, Hawling, Milbourn, Gray, Lowe and Mott (Louise S. Macdonald et.al. to Robert O. Hunter, sale of property, December 31, 1953, Historic Records and Deeds Research [HRDR] Office of the Clerk of the Circuit Court, Loudoun County, Leesburg, Virginia). Loudoun Orchard was a 437-acre spread owned from 1936-1959 by Grace Burdette Bratney and Bertrand H. Bratney (brother and sister). It spanned both sides of Route 662 five miles southwest of Leesburg. Adjoining property owners included John L. Ball, John Piggott, Mrs. Janney and a black school, David E. Bryant, Bushrod W. Lynn, the Heaters, Heavners, and Hoges, J. W. Carr, W. D. Robertson, and James H. Laycock (Sarah M. Bratney to Grace Burdette Bratney and Bertrand H. Bratney, sale of property, June 11, 1945, HRDR). "It was owned in the early 1900s by Loudoun Orchard Company, as was the home farm owned by another orchard company at that time, and the two properties once again combined under the ownership of Mr. Bertrand Bratney and his sister," wrote John G. Lewis in a historic buildings survey. The properties contain "excellent examples of Loudoun's early stone craftsmanship," (TBL, Rust Archive, December 4, 1973, Virginia Historic Landmarks Commission Survey Form 53-319).

Methods Part II

The second part of this project took place in fall 2019. Digital methods were used to pinpoint orchards throughout the county and understand their future use according to Loudoun County's land-use plan, which was undergoing revision at the time. It was understood that in general, the county would continue to retain the rural setting of its western half, while slating its eastern half for denser urban and suburban development.

Orchard locations were crowd sourced by sharing copies of 17 historic maps with people who attended the 2018 and 2019 MAAC conferences. They were asked to help locate the dotted orchard areas, which can be such a light yellowish-green color as to be almost indecipherable. Seventy orchards were found on the maps. They were placed into GIS software and their zoning was analyzed as follows:

- county boundary and zoning maps were downloaded
- historic topographical maps were downloaded
- historic topographical rasters were clipped to the county boundaries
- a feature class of orchards was created and polygons were made by outlining the orchards in red, capturing area
- the orchard layer was intersected with the county zoning layer
- the zoning data was statistically summarized by counting the frequency of instances of the same zoning name
- the area field, shown in square meters, was summed
- a field was added to the table for acres and calculated by dividing the area column's square meters by 4,046.856

Data came in two forms, vector and raster. The Loudoun County boundaries and zoning data were downloaded as vector data from Loudoun County's online mapping system. The 17 historic topographical maps were downloaded as raster data from the USGS national map viewer. The vector data was preconditioned by changing the projection from World Geodetic System 1984 to Virginia State Plane (North), Zone 4501, which was the projection preferred by Loudoun County. It is considered generally good for Northern Virginia. The raster data arrived as georeferenced .tiff files. These were preconditioned by projecting them from a geographic coordinate system to a planar system called State Plane Virginia North FIPS 4501 (meters), with a datum of NAD83 HARN.

Summary Part 2

It was discovered that in western Loudoun County, some 1,883 acres of historic orchards were zoned for either one house per 20 acres around Purcellville (1,587 acres total), or one house per 40 acres (296 acres total) around Middleburg. The remaining 141 acres, which cluster mostly in the eastern portion of the county near Dulles International Airport, were designated for shopping centers and industrial or office parks (10

Zoning Name	Density	Count	Acres
Agricultural Rural - 1	1 unit per 20 acres	44	1,587.19
Agricultural Rural - 2	1 unit per 40 acres	15	295.86
Transitional Residential - 3	3 units per 1 acre	1	55.23
Joint Land Management Area - 3	1 unit per 1 acre	4	52.98
Planned Development Housing - 3	3 units per 1 acre	5	13.34
Planned Development - Industrial Park	industry / parklike	1	7.58
Incorporated Towns	up to town	2	5.7
Agricultural/Residential	1 unit per 3 acres	1	2.55
Planned Development - Office Park	office / parklike	1	1.53
Countryside Residential - 1	1 unit per acre	1	1.16
Townhouse/Multifamily Residential - 16	16 units per acre	1	0.63
Planned Development Shopping Center	shopping / parklike	1	0.08
Total		77	2,023.83

Table 4. Acres of Zoning Densities in Loudoun County Historic Orchards, 2019.

acres), or were destined to hold between 1 and 16 dwellings per acre (126 acres), with less than an acre being slated for the highest townhouse or multifamily construction.

Additional Notes

For the safety of archaeologists, it must be noted that former orchard soils have the potential to contain lead and arsenic (Robinson et al. 2007). Both are heavy metals that have a cumulative toxic effect on the body (Hughes et al. 2011). Lead arsenate (LA) was widely sprayed in orchards to combat codling moth (*Cydia pomonella*) (Schooley 2005), which bores in and eats the fruit, causing it to rot (CAB International 2021).

The USGS mapped orchards west of Loudoun County under cultivation between the 1920s and 1960s, focusing on Berkeley and Jefferson counties, West Virginia, and Frederick and Clark counties, Virginia. They noted that application of LA peaked in the 1940s but offered this caveat: “. . . an orchard's presence in the data set does not necessarily indicate the use of arsenical pesticides on that site or that elevated arsenic and metal concentrations are present. Arsenical pesticides may have been used on part, or none, of the land; furthermore, the land may have been remediated and may no longer contain elevated arsenic and metal concentrations in the soil” (Reed et al. 2006).

If contamination is present, it would most likely be in and around sheds, at orchard gates and anywhere the pesticide was mixed or poured, in addition to wherever sprayers initially were turned on (Michael B. Harman, personal communication 2022). Specialists have noted that lead is not water soluble and remains in the top 12 to 18 inches of topsoil. However, “Arsenic, as arsenate, even though somewhat sparingly soluble, is soluble, and it will move in water,” says Washington State University soil scientist Frank Peryea. “I’ve seen some sites where almost all of the arsenic is still in the topsoil, in the tillage zone, and I’ve seen sites where I’ve measured arsenic movement as deep as a meter or so” (Hood 2006). Presence of lead and arsenic can be detected by using X-ray fluorescence (Schick and Flatt 2015).

Conclusion

The analysis of historic orchards in Loudoun County, Virginia, where German POWs from a camp five miles southwest of Leesburg worked—and their present-day land-use zoning—can be researched using both analog and digital approaches. Part one findings indicated that the analog use of historic maps and aerial imagery along with chain-of-title deed research can result in the identification by name of historic orchards, their owners, and their neighbors. Forty former orchards were found, seven of which were traced back to their World War II era owners. Part two findings made clear that digital analysis of historic maps can provide total orchard area, and that intersecting orchards with current zoning can reveal future land-use designations on

former orchard properties. Seventy historic orchards were found, occupying a total of 2,023 acres. The Loudoun County land use plan in 2019 called for 93 percent of the former orchard acreage, which occurs primarily in the western half of the county, to retain its rural character.

An unexpected outcome of this project, based on USGS analysis done in the four counties immediately to Loudoun's west, was that historic orchards can potentially contain lead and arsenic deposits in the first three feet of soil. This is important for the long-term health of archaeologists if Phase II archaeological evaluation and Phase III data recovery are planned. It becomes especially salient as local governments upzone, allowing for denser redevelopment in former orchards, and doubly so if the federal government is providing assistance, funding, licensure, permitting, or approval of new construction, because Section 106 of the National Historic Preservation Act of 1966 calls for preservation or mitigation of archaeological sites such as agricultural landscape features. Despite this cautionary aside, there is overall good potential for using a hybrid analog/digital approach to study historic orchards. In this way, students who may not have worked with analog copies of historic maps and lifetime learners who might be reluctant to trust or use GIS software can be included in citizen science.

Acknowledgements

I thank my professors, David T. Clark, PhD, of Catholic University; and Michael B. Harman, PhD, of West Virginia University, who assigned the research that led to this article, and classmate Robyn Jackson for her 2017 classroom presentation on the POW branch camp. I thank Patrick L. O'Neill, president of the Northern Virginia Chapter of the Archeological Society of Virginia (ASV), and vice president of the state society, for showing me my first orchards in historic aerial photographs, and Diane Schug-O'Neill and Paul R. Hogroian of the Library of Congress for assistance with maps and photographs. I thank Mary Fishback, sadly now deceased, and all the staff of the Thomas Balch Library including Curator of Manuscripts Laura E. Christiansen, Senior Library Associate Patricia Di Filippo, Library Genealogy Associate Norah Schneider, Joanna Lee, and Isabella Meier. Special thanks to local history inspiration Wynn C. Saffer for showing me how to get around Leesburg's labyrinthine courthouse, and to Mike Johnson, PhD; Mike Madden, Archaeologist, U.S. Forest Service; and Dave Shonyo, Archaeologist, Gunston Hall, for being sounding boards. Special thanks to Carole Nash, PhD, RPA, co-chair of the Virginia Archaeological Technician Certification Program and Associate Professor at James Madison University, for encouraging me to submit this article, and to *Quarterly Bulletin* Editor Thane Harpole for nurturing it along. Finally I thank my family for their understanding and flexibility.

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1952 Sterling quadrangle (map) 1:24,000. 7.5 Minute Series (Topographic), Washington, DC.
1953 Harper's Ferry quadrangle (map) 1:24,000. 7.5 Minute Series (Topographic), Washington, DC.
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THE HORSE HEAVEN ROAD COMPLEX, WYTHE COUNTY, VIRGINIA: A SAVANNAH RIVER QUARRY / REDUCTION STATION COMPLEX IN A MOUNTAIN SETTING¹

By Michael B. Barber, Ph.D., RPA

Abstract

The Horse Heaven Road Quarry Complex is made up of two sites in the higher elevations of the Blue Ridge on Horse Heaven Mountain in the Iron Mountains of Wythe County, Virginia. The analysis of recovered artifacts determined that the complex consisted of a quarry and associated reduction station. The quartzite quarry site, 44WY0103, is found at an elevation of 3200' above mean sea level on a steep sideslope. Here, early stage bifaces were produced and transported to the reduction station, Site 44WY0040, c. 80' below in a level saddle. At Site 44WY0040, the early stage bifaces were further reduced into final point forms representing only Late Archaic (2500 – 1200 BCE) Savannah River forms. This paper will compare the complex with proposed settlement models and place it within a regional perspective.

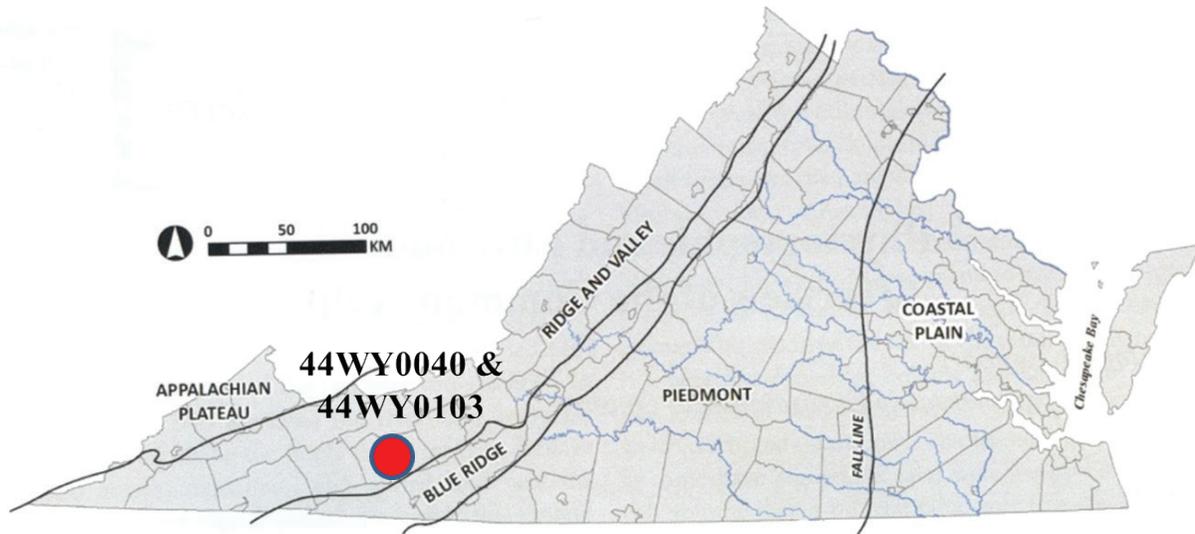


Figure 1. Horse Heaven Road Complex (Sites 44WY0040 and 44WY0103), Wythe County, Virginia: Location of Sites (after Egghart 2022).

Introduction: The Sites

The Horse Heaven Road Complex (Sites 44WY0103 and 44WY0040) is located in Wythe County, Virginia, approximately 12 miles south of the Town of Wytheville and two miles southeast of the community of Speedwell (Figures 1 and 2). Situated within the New River drainage system in Virginia's Blue Ridge Mountains Physiographic Province, the Horse Heaven Road Complex is found in a high elevation side slope and mountain saddle on Horse Heaven Mountain in the Iron Mountains. The sites are associated with the Erwin (Antietam) Formation, a Cambrian age, metamorphosed formation well known for its copious quartzite, and, for all practical purposes the entirety of the artifact assemblage from both sites is derived from these metamorphosed sandstones, a quartz sand cemented with silica (Keith 1903). Site 44WY0040 was recorded

¹ This article has been peer reviewed.

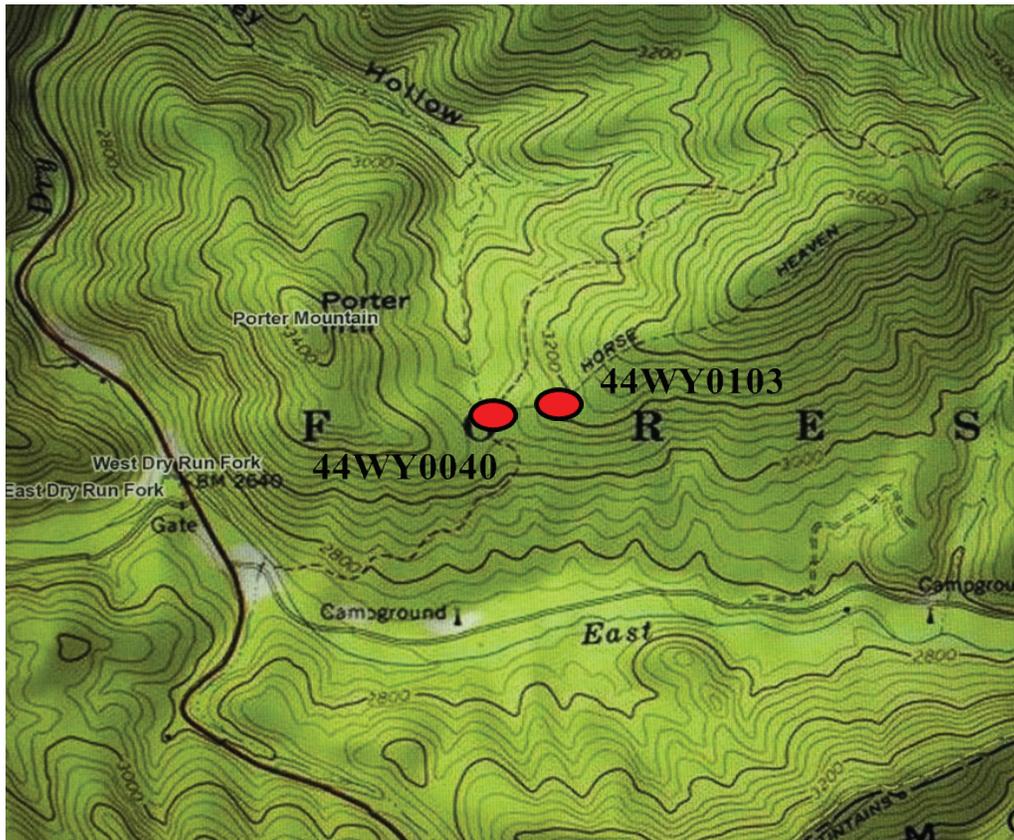


Figure 2. Horse Heaven Road Complex (Sites 44WY0040 and 44WY0103): Location of Sites (USGS Quad).

during a cultural resource management survey for timber road construction (Barber 1978). As the site appeared to have research potential, a field school sponsored by the Department of Sociology and Anthropology, Radford University and USDA-Forest Service, was initiated in the summer of 1982 and followed by the Archeological Society of Virginia’s field school the following year.

The Data

Site 44WY0040 is located in a broad saddle at an elevation of 3120’ amsl (Figures 3 and 4). Excavation strategy was organized around a 25’ grid system laid out on the ground. Two and one-half foot squares were selected as the units of excavation based on time allotted and site size, as well as an attempt to limit the number of artifacts recovered. In all, 38 units were excavated with the artifact analysis limited to the 10 squares in Area 2 (Figure 5). The 62.5 square foot area was divided into units designated A through J with artifacts isolated by unit (Figure 6). The excavation of Area 2 resulted in the collection of 10,478 artifacts, an average of 1,048 per unit, 168 per square foot, or approximately 336 per cubic foot. Artifacts collected are listed by generalized type in Table 1.



Figure 3. Horse Heaven Road Reduction Station (Site 44WY0040): Site Visitation 2022 (note level saddle) (All photos by author).

Three chert artifacts were recovered: one projectile point, one end-scraper, and one non-utilized flake. The projectile point consisted of the projectile point base with two potlids indicative of on-site heating. The potlids were detached from the finished point and the chert was grey in color due to

the incidental firing. Although damaged and broken, the point appears to be a side-notched variant of the Brewerton type dating to the Late Archaic (Ritchie 1977:19). The black chert end-scrapers were unifacially worked with a minimum of bifacial retouch. Tear drop in form, the scraper can be temporally placed in an Early Archaic context (Chapman 1977:58-61). The final chert artifact was a flake without any wear.

Rhyolite was restricted to two broken bifaces. The first was the mid-section of a relatively large, thin biface, possibly a cutting tool, although wear was not apparent. The second rhyolite biface is a less refined, earlier stage biface, possibly a preform.

Quartzite from the Erwin Formation was the most frequently encountered material with a total of 10,473 of the 10,478 artifacts accounting for 99.95% of the assemblage. Fifteen artifact types were isolated in the analysis of the quartzite. The most abundant type recovered from the excavation of Area 2 was production bifaces. Thirty-seven aborted or broken blanks were collected in various stages of reduction. Four early stage bifaces were complete and abandoned during manufacture due to excessive thickness or with “humped” protrusions difficult to remove. Twenty-nine were broken in production with no attempts at reworking. An additional four bifaces showed wear with three used in a cutting function and one notched for use as a spokeshave. Bifaces made up 0.36% of the Area 2 sample.

Twenty-five utilized flakes were identified, all were non-prepared waste flakes with little or no additional work implemented, and used as removed from cores. Fifteen functioned as cutting tools, six as notched spokeshaves, two as scrapers, one as a drill, and one as a graver. Utilized flakes made up 0.25% of the Area 2 assemblage.

Two quartzite projectile points were recovered. The first was in the final stages of reduction when it was broken. Having a narrow, almost straight stem and parallel-sided blade, the point falls within the Savannah River broadspear type. The second projectile point had not reached the final stages of reduction when it suffered a longitudinal break at mid-section. Although exhibiting only the initial stages of stem reduction, it too fell within the Savannah River typology.



Figure 4. Horse Heaven Road Quarry (Site 44WY0103): Reduction Debris on Surface, Site Visitation 2022.

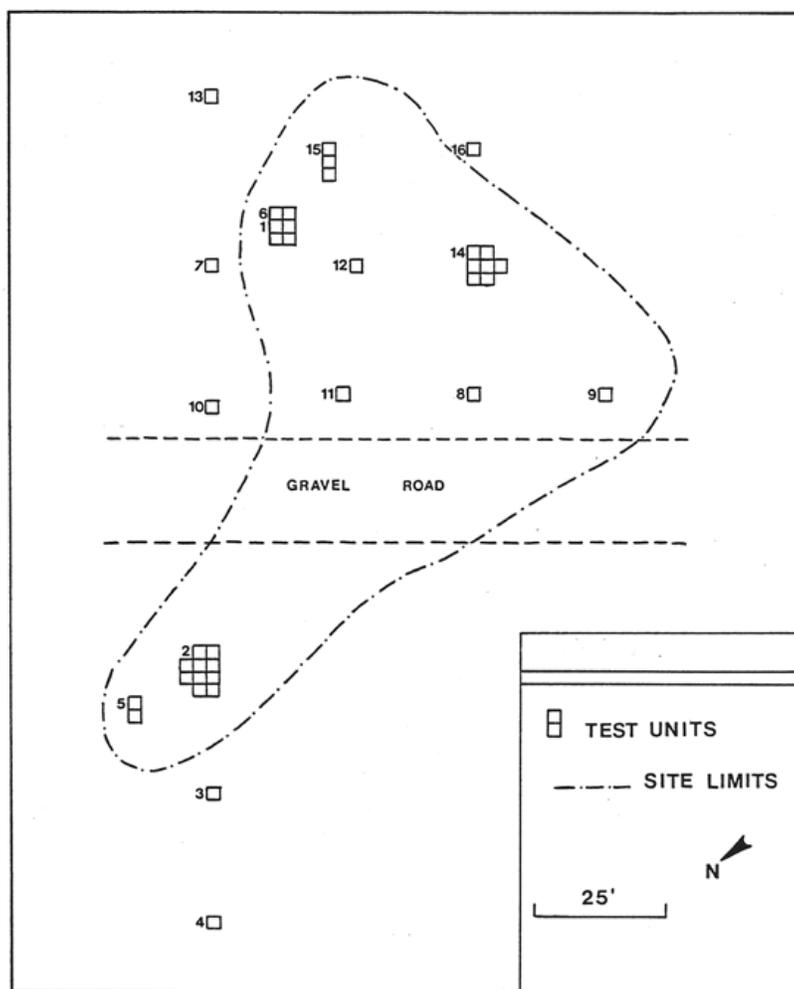


Figure 5. Horse Heaven Road Reduction Station (Site 44WY0040): Distribution of 2.5' Square Excavation Units.

	1	2	S	G	Sp	CT	ES	SS	B	bB	D
Total											
2500	419	1285	735	19	11	19	5	2	2	2	1
%	16.76	51.40	29.40	.76	.44	.76	.20	.08	.08	.08	.04

Table 1. Horse Heaven Road Quarry (Site 44WY0103): Artifacts Recovered from Unit 1, Level 2 (1 = primary flake, 2 = secondary flake, S = shatter, G = graver, Sp = spokeshave, CT = cutting tool, ES = end scraper, SS = side scraper, B = first stage biface, bB = broken biface, D = drill).

Non-utilized flakes comprised the remaining quartzite assemblage, numbering 10,404 and making up 99.29% of the quartzite total. These flakes were the result of extensive bifacial reduction.

After testing across the entire site, it was determined that the majority of cultural debris was recovered from the upper duff and A-horizon with little material recovered from the B-horizon subsoil. Artifacts recovered from the lower level consisted of a low number of smaller flakes suggesting downward movement through bioturbation. With the exception of two units, excavations were limited to the artifact bearing levels.

The vast majority of artifacts collected were comprised of primary and secondary flakes (Figure 7 and 8). Early stage bifaces, both broken and aborted, were also present (Figure 9). While a low number of late stage bifaces were collected (Figure 10), Savannah River broad spears broken in manufacture were of relatively high frequency (Figures 11, 12, and 13). With the exception of the chert point and chert scraper, these broadspears formed the only temporally diagnostic artifacts present and the site was determined to be a single Late Archaic occupation. A number of other flake tools were noted (Figure 14).

The excavations at Site 44WY0103 occurred in the summer of 1985 through a Radford University and USFS field school (Figure 15). Five 2.5' units were excavated on the quartzite ridge outcrop roughly 200' to the east of Site 44WY0040 and 80' higher in elevation. The quartzite deposit is oriented east-west and grades into unmetamorphosed sandstone to the east. The ground surface of Site 44WY0103 is strewn with discarded cores / early stage bifaces and quartzite debitage, and copious primary and secondary flakes (Figure 16 and 17). The sample selected for analysis consisted of artifacts recovered from one 2.5' test unit from the surface to 1.20' below ground surface.

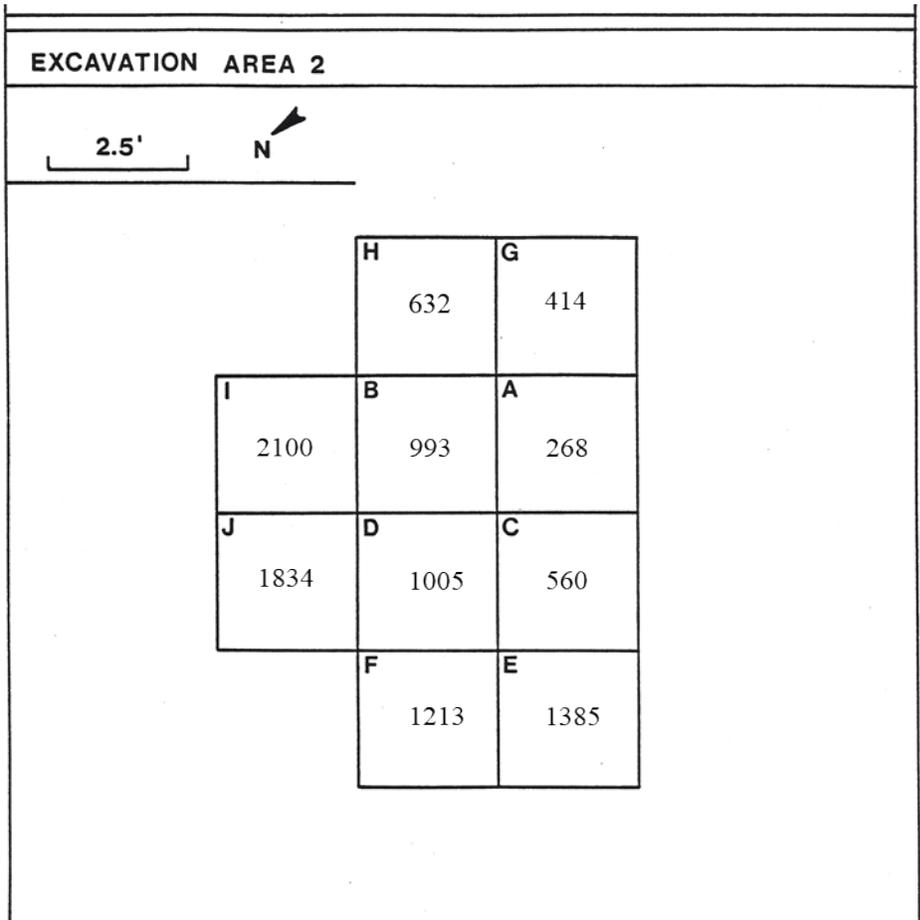


Figure 6. Horse Heaven Road Reduction Station (Site 44WY0040): Area 2 Excavation Area with Number of Quartzite Artifacts per Unit.



Figure 7. Horse Heaven Road Reduction Station (Site 44WY0040): Sample of Primary Flakes from 2022 Collection.



Figure 8. Horse Heaven Road Quarry (Site 44WY0103): Sample of Secondary Flakes from 2022 Collection.



Figure 9. Horse Heaven Road Reduction Station (Site 44WY0040): Sample of Early Stage Bifaces from 2022 Collection.

The sites were re-visited in June 2022 in order to evaluate current management practices as well as collect a representative sample of artifacts related to on-site activities. The artifacts recovered during the original excavations were unavailable for re-study due to curatorial considerations based on pandemic restrictions and the isolated nature of the curation facility. All material collected in 2022 was from a surface context. With the exception of the construction of one recent hearth, the sites remained in the same condition as when recorded 40 years ago.

Research Design

The research goals of the testing of Sites 44WY0040 and 44WY0103 were relatively modest in scope and consisted of questions in four major areas:

- 1) Site Function – Cultural material noted and/or collected during the original survey (Barber 1978) consisted of a broken Savannah River projectile point, a quartzite spokeshave, a chert flake, and an abundance of quartzite debitage. Although based on meager data, such an assemblage suggested a site function of reduction station and possible base camp. Controlled testing was designed to clarify on-site activities. The make-up of the occupying task force should also be apparent through on-site activities.
- 2) Date of Occupation – The most abundant temporal diagnostic artifact was the Savannah River point pointing to occupation during the Late Archaic (2500 – 1200 BCE) (Egloff 2018). However, previous site recordation in the Virginia Blue Ridge (Barber 1984, 1999; H. Piper 1977, J. Piper 1977, Piper and Piper 1978)) suggests a high correlation of continued use of sites from the Middle



Figure 10. Horse Heaven Road Reduction Station (Site 44WY0040): Sample of Late Stage Bifaces from 2022 Collection.

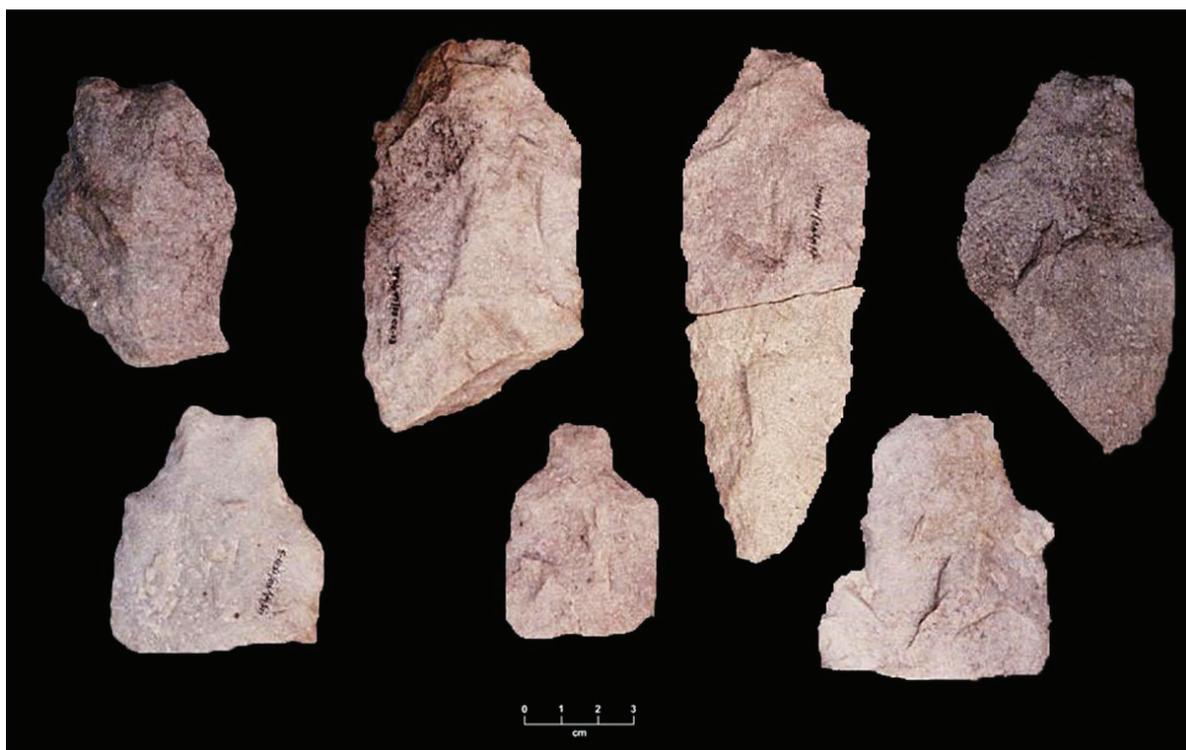


Figure 11. Horse Heaven Road Reduction Station (Site 44WY0040): Aborted Savannah River Projectile Points Recovered during the Radford University Excavations.



Figure 12. Horse Heaven Road Reduction Station (Site 44WY0040): Aborted Savannah River Projectile Points Recovered in 2022 Collection.



Figure 13. Horse Heaven Reduction Station (Site 44WY0040): Savannah River Base from 2022 Collection.

Archaic (Morrow Mountain, Guilford points)) through Late Archaic (Savannah River). Due to the perceived overlap of land use and quartzite for tool making, it was possible that the sites were occupied in the earlier time period (6000 – 2500 BCE) (Egloff 2018). In addition, the presence of chert, a material not heavily utilized during Middle and Late Archaic occupations in the Blue Ridge, might point to other time periods.

- 3) Site Integrity – In a mountainous setting, slow soil build-up plus 19th- and 20th-century forest denudement through timbering, it is always suspected that the integrity of sites at the higher elevations has been compromised. Site testing was designed to examine both horizontal and vertical distribution in order to determine the extent of disturbance.
- 4) Regional Perspective – As part of the overall research, existing records with the state were examined and local collectors interviewed in order to relate the Horse Heaven Road Complex to adjacent areas and the region as a whole.

Hypotheses Building

In order to determine the fit of current models at Sites 44WY0040 and 44WY0103, attempts were made to isolate predictive attributes for various site types. Following the hypotheco-analog method of reasoning as presented by Smith (1977, 1978), a method of inductive confirmation was applied to the recovered data. Under normal circumstances, scientists follow the edicts of deductive reasoning. Here, a research idea is converted into an hypothesis where defined variables are tested to determine their fit with the hypothesis (Gravetter and Forzano 2003). A research design is developed for the study and the variables are

tested and evaluated for their fit with the hypothesis. As information is gathered, the data will either fit or not fit the hypothesis and the hypothesis is either supported or rejected. The hypotheco-analog is a form of inductive reasoning where the data are gathered as the first step. Where deductive reasoning is from the top down, hypothesis to data, inductive reasoning is just the opposite from the bottom up, with data isolated first then evaluated to arrive at a generalized statement.

The function of the sites under consideration has been determined, and collected data used to test the current adequacy of generalized settlement typologies. In a mountainous Blue Ridge environment, site types were limited to transient camp, quarry, quarry-related reduction station, base camp, and base camp / reduction station. Models and data set expectations will be compared. Definitions were found in relation to Early and Middle Archaic period sites and should be consistent with the Late Archaic period as well. When particular sites are considered, data from the sites should exhibit predicted attributes. The better the fit, the more likely the site functioned for that purpose (Smith 1978:146). Due to the total absence of ethnobotanical and zooarchaeological material recovered in the open-air, high elevation Horse Heaven Road Complex, these data will not be considered.

Site Type: Transient Camp

Definition: Short-term occupation by low level population for the gathering of specific commodities for transport back to a base camp or longer term site.

Corollaries:

- A. Numbers of artifacts should be low
- B. Range of artifacts involved in different activities should be low;
- C. Numbers of fire-cracked rocks should be low;
- D. Debitage recovered should be medium to small in size reflecting tool production from preforms or tool resharpening.

For transient camps, corollaries A and D are not met. The number of artifacts is of such a high number, a transient camp site is ruled out for Sites 4444WY0040 and 44WY0103.



Figure 14. Horse Heaven Reduction Station (Site 44WY0040): Sample of Tools from 2022 Collection (left to right): drill, drill, burin, knife.



Figure 15. Horse Heaven Quarry (Site 44WY0103): 1980s Radford University Excavations.



Figure 16. Horse Heaven Road Quarry (Site 44WY0103): Sample of Primary Flakes from 2022 Collection.

Figure 17. Horse Heaven Road Quarry (Site 44WY0103): Sample of Discarded Early Stage Bifaces and Primary Flakes from 2022 Collection.

Site Type: Quarry

Definition: Located at either primary or secondary (cobbles) outcrops of high quality material, quarry sites are the location of initial procurement of materials for the manufacture of stone tools. Common artifacts are waste flakes and bifaces that show signs of having been rejected early in the manufacturing process due to flaws in raw materials (Custer 1990:22).

Corollaries:

- A. Numbers of artifacts in the form of debitage should be high;
- B. Range of artifacts representing different functions should be low;
- C. Number of fire-cracked rocks should be low;
- D. Debitage should consist of a mix of primary and secondary flakes;
- E. A large number of aborted and broken first stage bifaces should be present;
- F. Hammerstones should be present;
- G. Features suggesting sedentism should be absent.

The Highland Site (18FR647) in the Maryland Blue Ridge provides a close fit for the description of quarry (Geasy and Ballweber 1991). While not related to the production of Late Archaic Savannah River points, it was characterized by large quantities of lithic debitage, large primary flakes, spalls, battered and broken fragments of rhyolite boulders, and hammerstones, so the site fits the above definition and corollaries.

The Horse Heaven Road Site 44WY0103 fits six of the seven attribute predictions (A, B, C, D, E, and G) for quarry. The mix of primary and secondary flakes is of note. Secondary thinning flakes were present higher numbers than primary flakes: secondary flakes numbered 1,285 compared to primary flakes at 419, or in the range of a 3 to 1 ratio. This points to more intensive spall reduction into early stage bifaces with second stage thinning (Figures 16 and 17).

The missing attribute was the lack of on-site hammerstones. The single hammerstone recovered from either site was a sandstone example collected during the 2022 visit (Figure 18). This remains problematic. An experimental workshop was held in 1986 testing the Erwin quartzite in attempts to reproduce Savannah River points. The knappers who experimented with the quartzite reduction process from the site were highly possessive of favored hammerstones and this may be a common practice through time (Barber 1986). If this is the case, the hammerstones were curated and left the site with the knappers. However, hammerstones on materials like quartzite tend towards breakage and the almost total lack of any indication of hard hammers is unlikely.

An alternative hypothesis would hold that the reduction was carried out through soft hammer / billet technology only. It may well be that the knappers in 1986 were viewing quartzite through chert-knapping eyes. At that time, little work had been done with quartzite and the flintknappers fell back to their normative practice of early biface reduction with hard hammer (Johnson 2022). This is no small thing as quartzite was extensively utilized in the Blue Ridge and Ridge and Valley of Virginia during Middle and Late Archaic times. On the whole, however, Site 44WY0103 falls within the parameters of quarry.

Site Type: Quarry-Related Reduction Station

Definition: "These sites are located on level ground near water sources close to the quarry and are locations for reduction into smaller and thinner bifaces for transport (Custer 1990:22).

Corollaries:

- A. Numbers of primary and secondary flakes should be high;
- B. Frequency of flake with regard to other artifacts should be high;
- C. Number of broken preforms should be high;
- D. Number of hammerstones should be high;
- E. Number of fire-cracked rocks should be low;
- F. The site should be located near a quarry;
- G. The site should be located near a water source;
- H. Features suggesting sedentism should be absent;
- I. The site should be located on level terrain.

The Horse Heaven Complex Site 44WY0040 adheres to 7 of 9 predicted attributes (A, B, C, E, F, H, I) for reduction station. Variation from the predicted norm included a lack of hammerstones with only a single example recovered in 2022. Again, this could be reluctance on the part of the knappers to jettison favored tools. An alternative explanation may negate the attribute where staging now favors the use of soft hammer billets over hard hammer stone. The high elevation saddle is dry and would have been even more so during the xerothermic where drier than present conditions prevailed (Sears 1942, Virginia Department of Conservation and Recreation 2021:16). A lack of water, while a limiting factor to long term occupation, was obviously outweighed by the desire for good quality quartzite. As water is a fundamental attribute of long-term occupation, its lack also negates any concept that the site was a long-term base camp. A final discrepancy, and one of significance, is the production of completed broadspears. While it is possible that preforms were also produced for ease of transport, it is evident that the entire production sequence to the final bifacially worked point was also taking place.



Figure 18. Horse Heaven Road Reduction Station (Site 44WY0040): Sandstone Hammerstone Recovered during 2022 Collection.

Site Type: Base Camp and Base Camp / Reduction Station

Definition: “Base camps are the main sites...and are characterized by house structures and a wide variety of tool types relating to domestic activities. These sites are located close to water and usually have a southern exposure. The largest base camps are located near quarries and have extensive amounts of chipping debris related to late-stage biface reduction and tool manufacture (Custer 1990)”.

Corollaries:

- A. Number of artifacts should be high;
- B. Range of tool types should be high;
- C. Activity areas can be isolated;
- D. Artifacts involved in different activities should be high;
- E. Fire-cracked rocks should be high;
- F. House structures should be present (if found);
- G. Exhausted tools should be high;
- H. Site should be close to water.

If Base Camp / Reduction Station, added corollaries:

- I. Chipping debris should be high;
- J. Debitage should include all levels of reduction at high levels.

While many of the proposed attributes are present, all related to the site as a reduction station and not a base camp. For example, all base camp corollaries, A through H are not met.

Based on a comparison with settlement models normally considered for sites in the Middle Atlantic for the Paleoindian through the Late Archaic Period, Site 44WY0103 is identified as a quarry site focusing on high grade quartzite outcrops and Site 44WY0040 is identified as a quarry-related reduction station.

Discussion

Quarry sites and related reduction stations have long been integral parts of prehistoric Native American settlement pattern models in the Middle Atlantic Region (e.g. Barber and Tolley 1999; Boyer 1982; Custer 1980, 1990; Custer and Curry 1986; Foss 1983; Gardner 1989; Gardner and Boyer 1978; Geier 1979; Hoffman and Foss 1980; Stewart 1983; Tolley 1983; Wall 2018). Savannah River points have been noted at the higher elevations of the Ridge and Valley (Barber and Tolley 1994) and the Blue Ridge (Barber 1985) as noted by Egghart (2020). Two quartzite sites in Wythe County, Virginia, fit the definitions for the site types: Site 44WY0103 for quarry, and Site 44WY0040 for reduction station (Barber 1986) (see Figures 1 and 2). Artifacts recovered from the upland reduction station run the gamut from early biface to nearly completed projectile point. Of note, all nearly completed points were of the Savannah River type, broken in production (see Figures 3 and 4). Savannah River points are well known broadspears utilized through the Ridge and Valley, Blue Ridge, Piedmont and southern Coastal Plain of Virginia (Barber 1984, 1999; Barber and Tolley 1999; Egghart 2020). As presented by Justice (1995:163-167), Savannah River Broadspears are indicative of the Late Archaic time period from 3000 – 1000 BCE with Egloff (2018) and Egghart (2020) placing their utilization in Virginia at 2500 – 1200 BCE.

Due to Covid restrictions and the sealed nature of curation, the 1980s assemblage could not be accessed for further data collection. In order to allay some of the shortcomings, the sites were revisited on June 8, 2022, when minimal artifact collection was implemented.

Analytical Technique

The analysis of the artifact assemblage recovered from a quarry site and a reduction station site were the subject of analysis after Andrefsky (1998, 2001). The vast majority of artifacts were reduction waste material or debitage (i.e. lithic flakes) produced through bifacial reduction. Here the main outcome desired is a differentiation between primary and secondary flakes in order to determine stages of reduction. In this analysis, primary flakes are defined as those which are the result of primarily hard hammer reduction. Hard hammer is a stone-on-stone technique utilized in the initial shaping of the parent material. Given the apparent lack of hammerstones, alternative technologies may have come into play. It should be noted that antler and wooden billets can also produce primary flakes; hence, the analysis is more of a sequence of reduction than

relating to associated reduction tools. The resulting waste products from initial reduction are large thick flakes which are usually broader than they are long. Secondary flakes are thinning and further shaping waste flakes utilizing primarily a soft hammer technology, although, again, hard hammers can also produce thinning flakes. The resulting flakes are thinner than primary flakes and longer than they are broad. As lithic reduction is a subtractive process, secondary thinning flakes are progressively smaller as the process enters later phases. In essence, as the core is reduced in size, the waste flakes are likewise reduced in size. On some sites (but not here), where the initial cores are river cobbles, the early phases of primary reduction are also marked by the presence of cortex or outer patinated rind.

Tertiary flakes were not a consideration. Coe (1964:44) described the technique of manufacture of Savannah River points as points made almost entirely by percussion with little pressure retouch. Hence, tertiary flakes do not play a high role in the manufacturing process and few were seen at either Site 44WY0040 or Site 44WY0103. However, field collection techniques were probably more causal than reduction technology. As soils were only screened through ¼" mesh, the smaller flakes would not be collected. Coe may still be correct in his analysis with the smaller flakes more related to platform production than edge retouch. The lack of using a smaller mesh screen does introduce a flaw in the data where both the smaller flakes produced by both platform production and retouch are missing from the data set. While this was the norm in the 1980s, more recent excavations have corrected the problem through the use of wet-screening through window mesh and flotation (e.g. Barber 2022, Barber et al. 1995).

Experimentation

In conjunction with Radford University's archaeological testing of the Horse Heaven Road Complex in the 1980s, a three day knap-in was arranged involving experienced flint-knappers from the Middle Atlantic regions (Jack Cresson, Norman Jefferson, Mike Johnson, and Scott Silsby). The concept was to quarry out some quartzite from Site 44WY0103 and experiment in making facsimile Savannah River Broadspears. At that time, quartzite was not a favored material and its method of workability a virtual unknown. The strategy was to take the early stage quarry biface and reduce it bifacially into a Savannah River point while recording each flake as it was detached (Barber 1986). Faculty and students from Radford University participated in the recordation. While the overall experimentation guided some of the analysis in this paper (i.e. reduction in flake size through the reduction sequence), many of the concepts brought to bear on the material during that experiment were flawed (Johnson 2022). First, the quartzite was considered a "tough" material as per Callahan's (1979) toughness chart and the knappers were inadvertently overpowering a brittle material through methods better matched to chert reduction. Second, Johnson (2022) noted initially that the time interval necessitated by recordation may have created a break in the knappers normal rhythm which may have resulted in overthinking later more successful attempts. The recording delays may have benefited the knappers by providing more time to focus on platform preparation and ensuing steps. Finally, much depends on the general skill of the knapper and the experience level with quartzite. While the final analysis of this paper rests with flake size through the manufacturing sequence, the use of certain percussive tools through the sequence is not fully understood.

Reduction Discussion

The Savannah River Broadspear was named by Claflin (1931) and described by Coe (1964), Cambron and Hulse (1969), Egloff (2019), Fogelman (1988), Justice (1987), and others. The general description is that the point is large with a triangular blade, straight shoulders at right angle with the blade, straight stem, and usually incurvate (concave) base. While the blades are large and heavy, they are relatively thin.

In reviewing the Savannah River tool kit, formal chipped stone tools are limited to the broadspears, expanded base drills, and chipped stone axes. The broadspears also functioned as cutting tools with the blade often asymmetrical with one side straightened and sometimes diminished through resharpening. End and side scrapers were made on cores and flakes with graters, spokeshaves, generalized cutting tools, and pieces esquilles made almost exclusively on flakes (McLearan 1991:98). While these tools are often described as 'expedient,' the term is not a precise fit as it implies that such tools were not curated, and some show heavy use wear. Having said that, if there are any places in the overall settlement pattern of the Late Archaic people where expedient tools would come into play, it would be in a quarry / reduction station complex where literally thousands of potential tool blanks were available. All in all, the point itself is the major target of bifacial reduction.

The Savannah River Stemmed Projectile Point was precisely typed by Coe (1964:44) in his seminal work *The Formative Cultures of the Carolina Piedmont*. His summary description for the point was “a large, heavy triangular blade with a broad stem.” Of interest here is the technique of manufacture:

These points were made almost entirely by percussion flaking. Retouching and pressure flaking was relatively insignificant and served only to smooth out irregularities along the sides and to straighten the stem and shoulder. Quarry blades....appear to have been prepared prior to the finishing of the point.

McLearan (1991:99) speaks to the issue of knapping Savannah River points as follows:

However, some general differences in basic lithic technology as opposed to that of earlier periods are evident. The typical large bifaces are reduced from large cobbles or, when derived from primary and talus deposits, from thick massive flakes. The long, flat rectangular to oval quarry blade first noted by Coe (1964) is a typical part of most Savannah River assemblages on either quarry-related sites or on those in close proximity to the lithic sources.

This does not seem to be the case with the Horse Heaven Road Complex. Here, early stage bifaces move from the quarry down slope to the reduction station to be further processed. While the sample size is limited to Sites 44WY0040 and 44WY0103, there seems to be a differential reduction methodology in the southern Blue Ridge than northward (Nash 2021) and elsewhere in Virginia.

The excavations at Sites 44WY0103 and 44WY0040 give the opportunity to compare the knapping debris from a quarry site with that of an accompanying reduction station. Due to the overwhelming amount of reduction debris, only one level from one 2.5' square unit from each site will be included in the sample (Tables 1 and 2). Sample size is not a problem with 2,500 flakes recovered from the quarry unit and 1,379 from the reduction station.

	1	2	S	G	Sp	CT	ES	SS	B	bB	C	PE
Total												
1379	124	1161	16	32	16	20	5	1	-	1	1	2
%	8.99	84.19	1.16	2.32	1.16	1.45	3.62	.07	-	.07	.07	.15

Table 2. Horse Heaven Road Quarry Related Reduction Station (Site 44WY0040): Artifacts Recovered from Unit 21, Level 2 (1 = primary flake, 2 = secondary flake, S = shatter, G = graver, Sp = spokeshave, CT = cutting tool, ES = end scraper, SS = side scraper, B = first stage biface, bB = broken biface, C = chopper, PE – piece esquille).

With regard to reduction debris, primary flakes accounted for 16.76% at the quarry and 8.99% at the reduction station (Figures 17, 18, and 19). Secondary flakes made up 51.40% at the quarry and 84.19% at the reduction station. Shatter, debitage exhibiting no flake attributes, accounted for 29.40% at the quarry and 1.16% at the reduction station. In terms of the ratio of shatter to primary flakes to secondary flakes, it is in the range of 2 : 1 : 3 at the quarry and 0 : 1 : 9 at the reduction station. Hence, there is a high frequency of shattering breakage in the removal of quarry spalls from the parent material outcrops. Once removed from the quartzite blocks, the spalls were trimmed and further processed into early stage bifaces. In this form, they were transported to the reduction station where little in the way of initial shaping was taking place and the next steps of more precise shaping and thinning were implemented. Shatter was almost not existent at the reduction station. From recovered points broken in late reduction sequence, three production aspects are apparent. First, the timeframe of use for the two sites is limited to the Savannah River period. Second, completed points were being manufactured on-site, not preforms. And, third, in the making of Savannah River points, the base and stem were finished first, with work on the blade the final stage. The points recovered were broken in production as the distal ends of the blades were broken off with remnants not yet thinned and, in some cases, with unstraightened edges showing a lack of pressure flaking.

The tools at both sites are of interest (Table 3). Although only 2.28% (n = 57) at the quarry and 5.58% (n = 77) at the reduction station, activities other than tool making were taking place. Eight different tool types

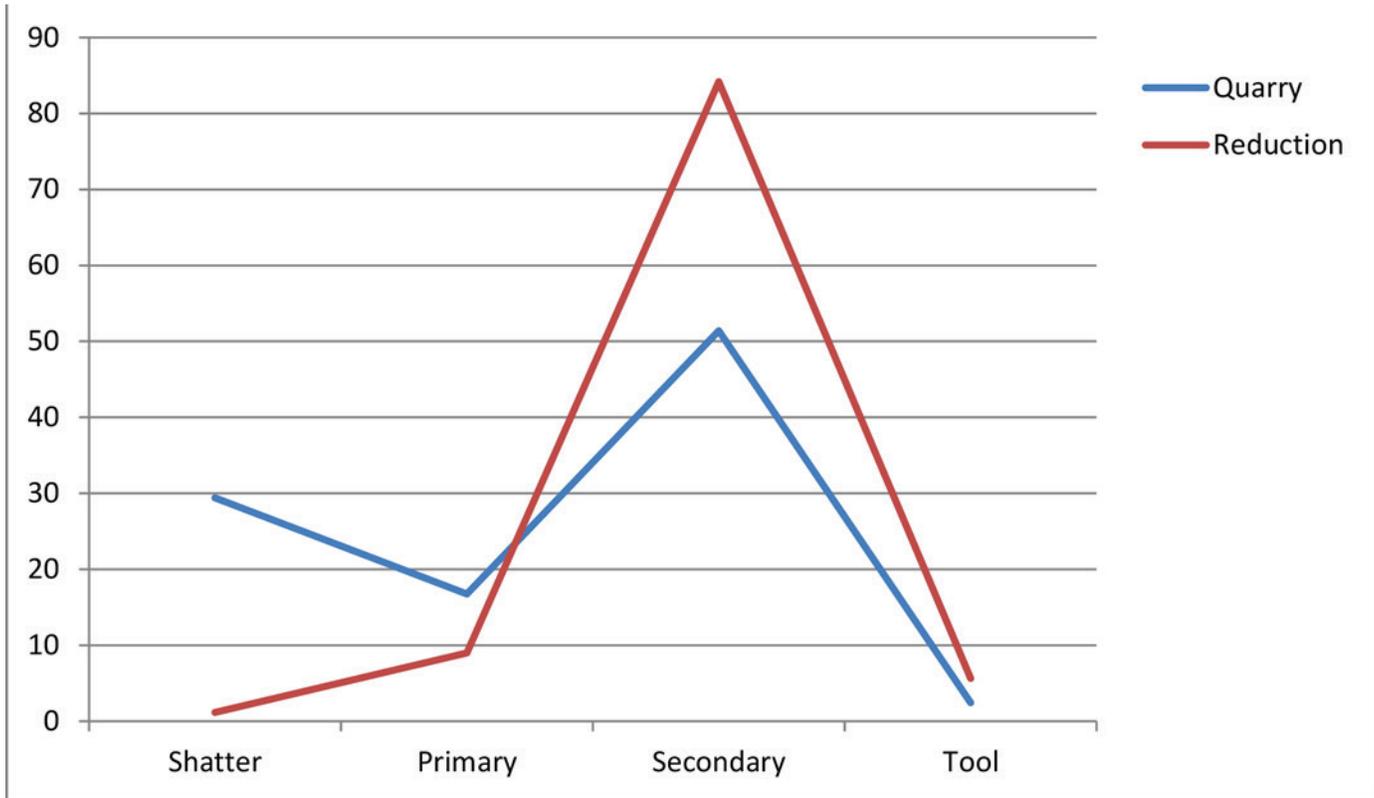


Figure 19. Horse Heaven Road Complex Quarry (Site 44WY0103) and Reduction Station (Site 44WY0040): Percentage of Level of Reduction per Site.

and/or functions were noted. Gravers were of varying sizes from fist-sized early stage flakes to middle sized secondary flakes. Often flakes were selected where primary flake removal intersected forming a ridge which extended to the flake edge. Here a point was formed which could be used with little rework needed. Utilized gravers were identified primarily through wear patterns which produced dullness. Spokeshaves were produced by selecting a flake with a sharp edge and unifacially removing a single or series of small flakes in a crescent shape. Flake scars were often difficult to determine due to wear. Cutting tools can be characterized by the use of a sharp flake with no resharpening. When dull, the utilized flake was discarded. Scrapers, end and side, were flakes with wear apparent on a blunt flake edge. If prepared at all, the reduction was unifacial and wear appeared primarily on one edge. Pieces esquille were identified through the battering of two opposing ends of

Site	Graver	Spoke shave	Cutting Tool	End Scraper	Side Scraper	Drill	<i>Piece Esquille</i>	Chopper	Total
44WY0103	19	11	19	5	2	1	0	0	57
%	33.33	19.30	33.33	8.77	3.51	1.75			100
44WY0040	32	16	20	5	1	0	1	1	76
%	42.11	21.05	26.32	6.58	1.32		1.32	1.32	100

Table 3. Horse Heaven Road Complex Quarry (Site 44WY0103) and Reduction Station (Site 44WY0040): Percentage of Level of Reduction per Site.

a flake. Examples from the Horse Heaven Road Complex were of a rounded nature. The drills identified were elongated thick flakes with minimum preparation and showing twist wear. The only chopper recovered was a large primary flake with battering along one edge.

The primary tools recovered at both sites were graters, spokeshaves, and cutting tools. Although these tools may have been used in a multiplicity of functions, all would be used in woodworking. One site which might shed some light on the ancillary activities at the Horse Heaven Road Complex is the Coles Run Site (44AU0548) in Augusta County, Virginia (Tolley and Barber 1996). This site located in Big Levels is a specialized quartzite quarry site utilized during the Early and Late Archaic Periods. In addition to the normal quarry related debris, there were a relatively high number of spokeshaves. From an ecological perspective, Big Levels can be characterized by extremely well drained soils, its arid nature, and the high frequency of forest fires. It would have been even drier during the warmer xerothermic of Savannah River times. In such an environment, forest succession would be held in the earlier stages and saplings, due to low environmental productivity, would grow more slowly with an added density and toughness. It is possible that these resources were sought after for the production of spear shafts, handles, etc. and were fashioned using the woodworking spokeshaves. A similar scenario may apply to the Horse Heaven Road Complex.

Social Constructs

The question remains as to the nature of the task force group mining the quartzite resources at Horse Heaven. Organized at the band level of society (Service 1962), or the egalitarian level (Fried 1967), or that of family level foragers (Johnson and Earle 1987), the social organization can be characterized as a low population density and kinship oriented group gaining subsistence primarily from the natural environment. In viewing settlement pattern models, it has been hypothesized that the party would be all male, consisting of a number of men from the same band or group, in the range of six or seven individuals, and would remain at the quarry and reduction station for a short period of time (Barber 1984). If only the acquisition of lithic material was occurring, a synchronized exhaustion of raw material of all lithics by all individuals within the band would be necessary with a concomitant necessity to revisit the quarry. Such an organizational consistency is unlikely at the band level, and lithic rejuvenation needs were likely idiosyncratic.

Couple this with Binford's (1989) concept of embedded behavior (Haynes 1987) or Custer et al.'s (1983) concept of a serial settlement model and the uniformity of needs becomes even less. If the acquisition of lithics were an activity embedded in other procurement pursuits, the task force would be meeting a number of requirements in addition to quarrying. And, although some members of the group would be in need of new stone tools, this was not the case across the board, and some individuals, at least, would have no interest in the procurement of lithics. These individuals were at the quarry as part of the task force (likely on the way to other resources of more interest) but were not involved in quarrying behavior. It is possible, at least, that these group members bided their time in other ancillary activities which required spokeshaves, graters, and cutting tools. The scenario would be true at the associated reduction station as well, although the time frame would be of longer duration.

Another social nuance would come into play. With the band level economy organized around reciprocity (Service 1962), the necessity of male bonding becomes fundamental. As Service (1962:11) put it, "A frequent aspect of men's work is its collaborative or social character." Under such a system, one gains favor and status not only through exchange but also through one's interpersonal relationships with other band members. This in turn may depend on engaging in activities which are not immediately self-beneficial but contribute to group cohesion. With regard to quarrying, personal relations dictate one's presence at an activity of little interest only in order to reinforce group relations. And at a locale of little interest, other activities may fill the gaps which have little to do with mining.

Regional Perspective

The Horse Heaven Road Complex has been identified as a quarry and quarry reduction station utilized during the Savannah River time period. It was occupied for short periods of time by an all male task force group. As a Late Archaic band-level society of primarily hunters and gatherers, the visitation to the sites for the replenishing of their quartzite lithic tool kits was associated with a larger scale seasonal round. Due to the limited nature of the activities carried out at the complex, it was used by a small group fissioning off from a larger encampment, a base camp. As the drainages from Iron Mountain in this area flow to the north, the base

camp sites were likely along Cripple Creek, a tributary of the New River. Access to the upland HHR complex sites could be gained by ascending Henley Hollow or by moving upslope from the East Fork of Dry Run. Ridgetops leading to the quarry and reduction station could also be reached through any number of smaller hollows. As the Cripple Creek drainage lies along the Ridge and Valley and Blue Ridge (plus Unaka) interface, a wide variety of micro-environments lie in catchment proximity. This offers further support for a base camp association.

Several larger sites have been recorded in the environs of the Speedwell community in easy travel distance to the HHR Complex. Four recorded sites in proximity contain Savannah River components and are found within four miles of the HHR Complex. These sites are of added interest as the Late Archaic broadspears collected have a near equal distribution of points manufactured from quartzite and rhyolite. Rhyolite is found on the southern side of Iron Mountain to the west in the igneous Mount Rogers Formation. While it is possible that the different lithics were utilized during different intervals of the Late Archaic, it is more likely that the lithics were refurbished when in proximity to whatever stone source. The almost entire lack of rhyolite at the HHR Complex is supportive of both the short-term nature of the occupation and the limited nature of on-site activities.

The presence of Mount Rogers Formation rhyolite in the Cripple Creek Valley points to regional ties along the New and/or Holston Rivers. With the New River, the rhyolite could move into the area either along the river itself or over Iron Mountain through numerous lower saddles. Movement from Cripple Creek from the Holston River would have followed the South Fork drainages into the Rye Valley area. As the New River flows north into the Kanawha / Ohio drainage and the Holston flows southwest into the Tennessee River drainage, the Native American groups in the Cripple Creek area would have access to both cultural regions.

Conclusion

The Horse Heaven Road Complex in Wythe County, Virginia, gives unique insight into a high elevation Blue Ridge quartzite quarry and reduction station. Isolated in time to the Late Archaic Savannah River Period (2500 – 1200 BCE), the on-site activities meet the definitions of quarry and reduction station but also exhibit unanticipated functions. For example, the reduction sequence final goals include the production of complete points. In addition, other tool types (e.g. graters, spokeshaves, and cutting tools) suggest other site functions, perhaps wood-working. All in all, the complex refines our knowledge of these two site types, at least for a single time period and artifact type.

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Select Glossary

Biface – A stone artifact which is produced by the reduction of flakes from both sides.

Bifacial Reduction – The technique of removing flakes from both sides of an artifact.

Biface Early Stage – A core early in the initial stage of production.

Biface, Thinning Stage 1 and 2 – Cores which are in the thinning process, primarily with soft hammer reduction.

Biface, Final Stage – Late in the reduction process where edges are straightened through pressure flaking.

Chopper – A stone tool with limited flaking coming to a sharp, yet blunt edge, used in chopping wood or other material.

Core – A large stone which is the original material to be made into a tool. It is the initial phase of production.

Cortex – The exterior patina of a stone cobble which is removed in stone tool production. It is often indicative of the initial phases of reduction.

Cutting Tool or Knife – A sharp edge stone tool used in a cutting function.

Drill – A stone tool used in the production of holes in softer material. It is identified through twisting wear patterns.

End Scraper – A stone tool with a uniaxially prepared edge used in scraping softer material. The working edge is at one edge of the long dimension.

Flake, Primary - Flakes associated with the first stages of shaping and initial thinning of a core often produced by hard hammer (but not always).

Flake, Secondary – Flakes associated with thinning stages of reduction primarily produced by soft hammer (but not always).

Flake, Tertiary – Final stage of tool production where small flakes are removed from tools by pressure in straightening and sharpening blade edges.

Graver – A stone tool which comes to a point that is used to perforate, score, or etch a softer surface.

Hard Hammer – The use of a stone-on-stone technique, striking a core with a hammerstone.

Lithic – Relating to stone.

Minimum Number of Individuals (MNI)– A common method in archaeology which determines the least number of specimens which can account for all the artifacts of a particular category. Here, MNI is used to calculate the number of flakes based on the presence of the proximal flake / point of impact / striking platform. This eliminates portions of broken flake fragments (medial and distal pieces) from the total and, hence, gives a true count of flakes recovered.

Piece esquille or Wedge – A stone tool used for a prying function.

Pot Lid - A flake which 'pops' off a cryptocrystalline (glass-like) lithic which is the result of heating. This is usually interpreted as a small deposit of water which expands during the heating process and drives off the flake. Pot lids can be identified as small flakes with no striking platform. Heating of some of the stones results in improved knapping qualities and often color changes (e.g. black chert to grey, amber jasper to red). Often, a pot lid is an incidental result of a lithic fired inadvertently (as with the Site 44WY0040 example).

Pressure Flaking – Flake removal using direct force from an antler tip, pushing off small flakes.

Side Scraper – A stone tool with a unifacially prepared edge used in scraping softer material. The working edge is at one edge of the short dimension.

Soft Hammer – A ‘soft’ billet or baton, usually of antler (or wood) which is used as a precursor during the thinning stage.

Spall – A large, sometimes irregular, core of the parent material to be reduced in bifacial reduction.

Spokeshave – A notched tool used in rounding bone or wood. It is often identified through wear polish or micro-flaking on a crescent-shaped notch.

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