

THE EXCAVATION OF AN 18TH CENTURY DUTCH YELLOW BRICK FIREBOX AND CHIMNEY STACK IN ANNE ARUNDEL COUNTY, MARYLAND

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Abstract

During the Spring of 1993, archeological salvage excavations were conducted at Mordecai Hammond's Addition (18AN943), a circa 1720 domestic dwelling in Anne Arundel County, Maryland. These excavations revealed evidence of a chimney that had been built utilizing an unusual combination of English Standard-sized red bricks, and small, yellow bricks presumably imported from Holland.

The yellow bricks from this locality are of a small, hard, highly-fired variety known as "klinkers." Such bricks are frequently recovered from Dutch colonial contexts of the 17th and 18th centuries throughout the world. In Maryland and Virginia, yellow bricks have traditionally been seen as temporal markers for the 17th century, usually dating to before the 1680s. Since no evidence of salvage or reuse was evident on the bricks from 18AN943, the possible importation of these bricks into the Chesapeake region as late as 1720, together with documentary evidence of even later use, might force a reevaluation of their temporal utility.

At Mordecai Hammond's Addition these yellow klinkers were employed along with red (presumably local) bricks in combinations which were both functional and decorative. Particularly significant was the preservation of specific construction details concerning the yellow klinker firebox and chimney stack, for which no American colonial analogies are known.

Introduction

In early March of 1993, Mr. Anthony Rezendes reported the existence of a threatened archeological site to the Anne Arundel County Office of Planning and Zoning. The site had once been part of an agricultural field farmed by his grandfather, Mr. Adam Crist. During this period, artifacts were routinely collected by Mr. Rezendes.

The collection that had been assembled consisted of a wide assortment of domestic artifacts predominantly dating to the second and third quarters of the 18th century. In addition, a number of small yellow

bricks had been removed from the site and were being used for a variety of purposes such as edging for flower borders and planters (see Figure 1).

It was learned that the locality in question was situated in an approved subdivision actively undergoing development, and that it was slated for destruction in the near future. Permission was obtained from the Mandarin Construction Company for the county to conduct salvage excavations within the limited time-frame available. In order to accomplish this, a group of volunteers, led by the principal author, the Anne Arundel County Archaeologist, conducted test excavations between March and May, 1993.

This paper is intended to detail the discovery of highly unusual masonry techniques utilizing a combination of red and yellow brick.

Setting

Mordecai Hammond's Addition is located within the western shore drainage of the Chesapeake Bay. It is situated near two relict springheads feeding into Mill Creek, a tributary of the Magothy River (see Figure 2). The site sits on a fairly flat surface at an elevation of approximately 65 feet above mean sea level. The soils at this locality are Evesboro loamy sand, which is highly acidic and excessively drained. They are suited for a variety of agricultural purposes, particularly truck farming, and are capable of producing good tobacco crops (Kirby and Matthews 1973: 26).

The location of this 18th century structure is virtually on the ridge of the Broadneck Peninsula, between the Magothy and Severn Rivers. Despite the site's fairly early date, this type of ridgetop setting is more related to 18th century settlement patterns than to those of the 17th century, when access to deep water was a primary concern.

Excavations

The remains of Mordecai Hammond's Addition were located in an agricultural field. Having lain fallow for a number of years, surface visibility over the site was very poor. However, a series of shovel test

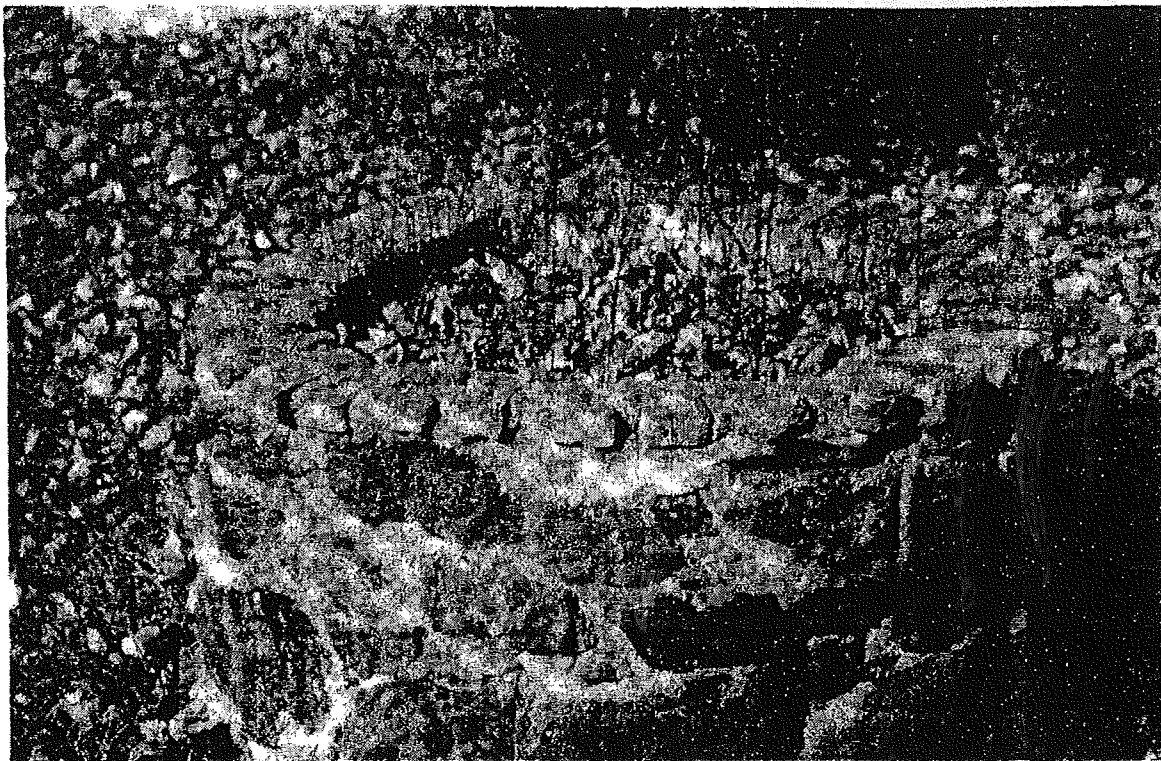


FIGURE 1. Dutch yellow klinkers utilized in the construction of a "wishing well" planter.

pits and probes placed over the reported location of the site quickly established the existence of a heavy brick concentration which was interpreted as the remains of a chimney fall.

At this point in the investigation, an intriguing phenomenon was noted which was to be confirmed at the conclusion of the excavations. Once the dimensions of the site were determined, it could be seen that a specific and exclusive vegetative cover of Wire Grass (*Cynodon dactylon*) had grown to almost exactly outline the building location (see Figure 3). This tough grass, with an extensive root system, obviously was attracted to the extremely low pH derived from the extensive amounts of mortar and plaster introduced into the soil. The pH variability between the area of the chimney fall and the rest of the field would have been in particularly sharp contrast due to the high acidity noted previously for Evesboro soils.

After the establishment of a grid over the site, excavations were begun utilizing 5 x 5-foot and 5 x 2.5-foot units. Excavations were continued until a total of 637 square feet over the site had been excavated to sterile soils. All plowzone soil over the structure was screened for artifacts (Figure 4). The excavation strategy was oriented to salvaging architectural information relating to the structure and chimney. In addition to

the area over what is presumed to be the main plantation house, a single 25-foot trench was excavated to the south in order to confirm the location of a suspected outbuilding which had been initially located through probing. Although a foundation was located, time constraints did not permit the exploration of this structure, nor of any of the several other outbuildings which predictably would have existed on a plantation of this period.

Architecture

Given the emergency salvage nature of the excavations at Mordecai Hammond's Addition, a major research goal was the determination of architectural information relating to the structure which had incorporated yellow Dutch bricks in its construction.

The resultant archeological evidence indicates that the Period I building was a 16 x 24-foot structure, with sills laid on native ironstone foundations, and possessing a chimney on one end. There is some evidence suggesting a single interior partition, but this would have divided the ground floor into two rooms, an unheated room 16' x 14' and a heated one 16' x 10', which is not a predictable plan. Sometime later, the Period II addition added an 8-foot unheated room or

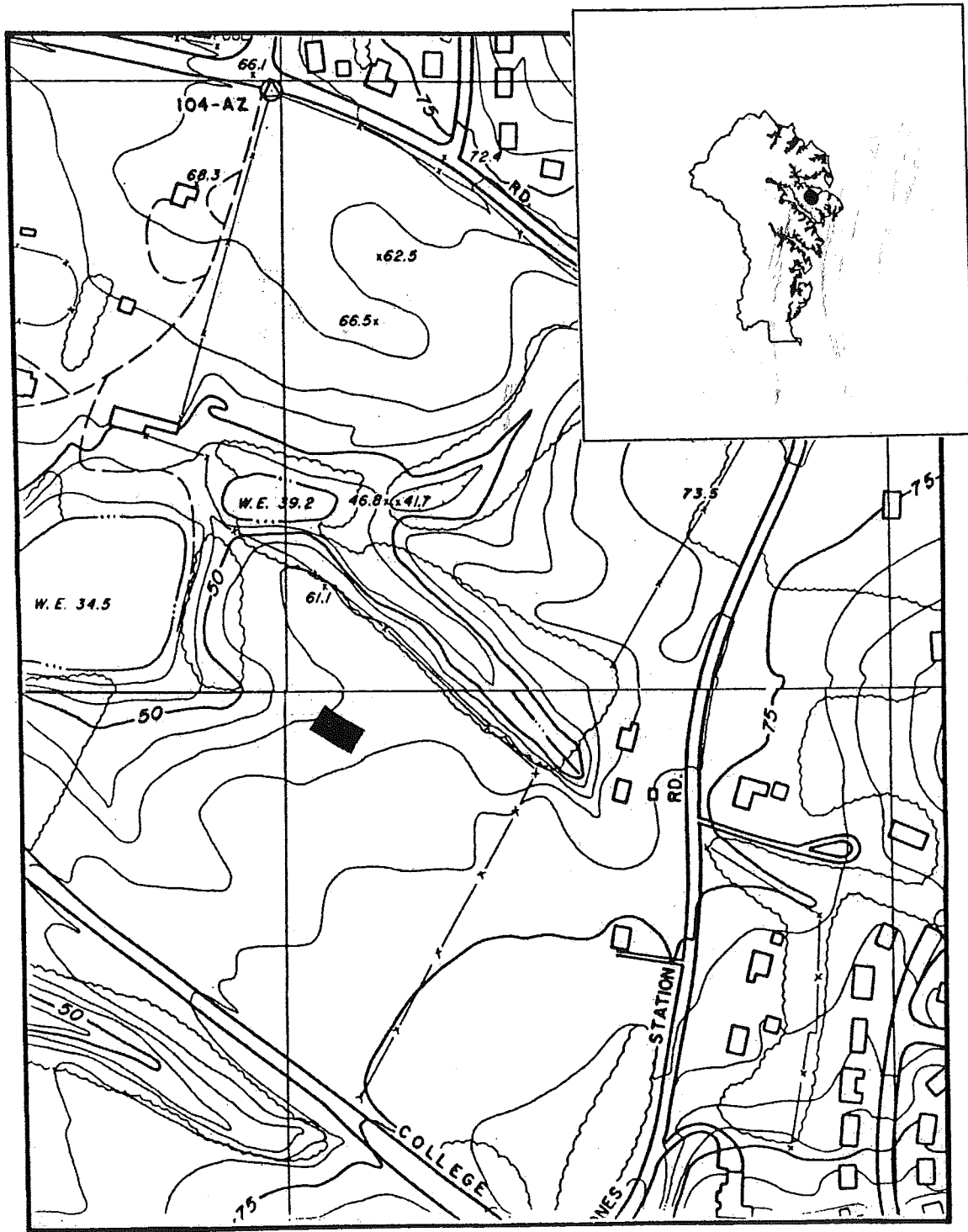


FIGURE 2. Topographic location of Mordecai Hammond's Addition.

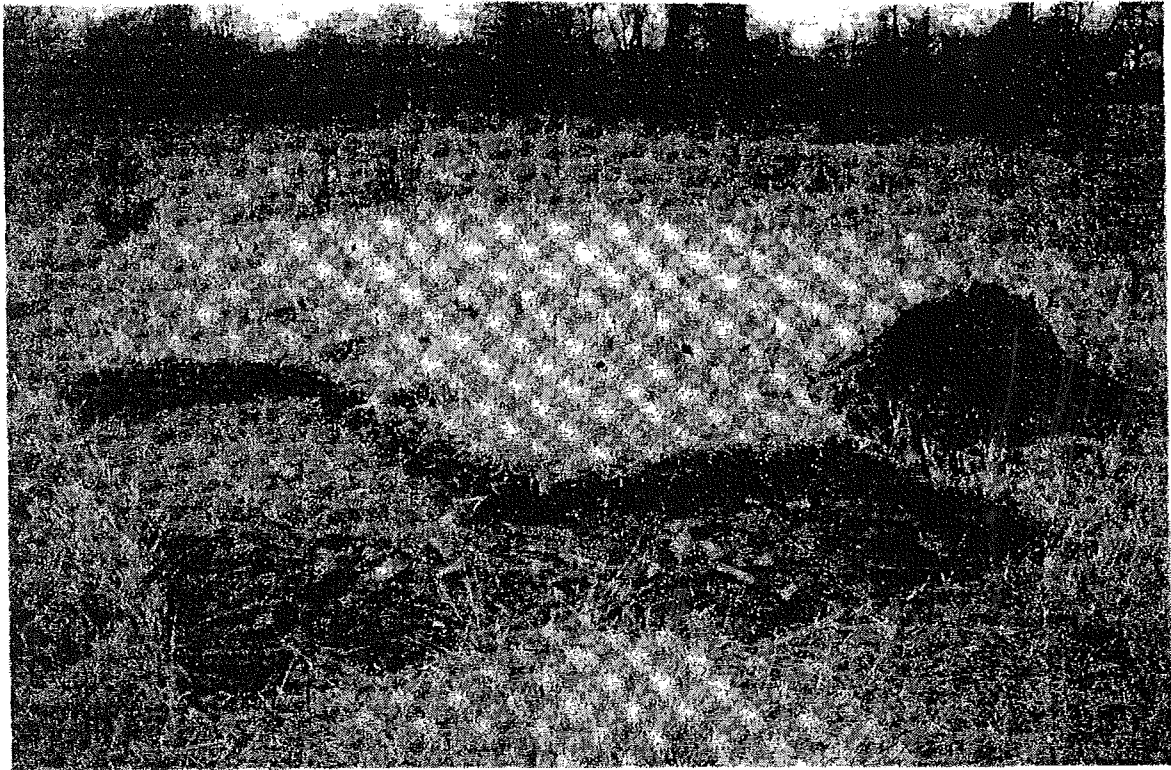


FIGURE 3. Early excavations showing site outlined in Wire Grass.

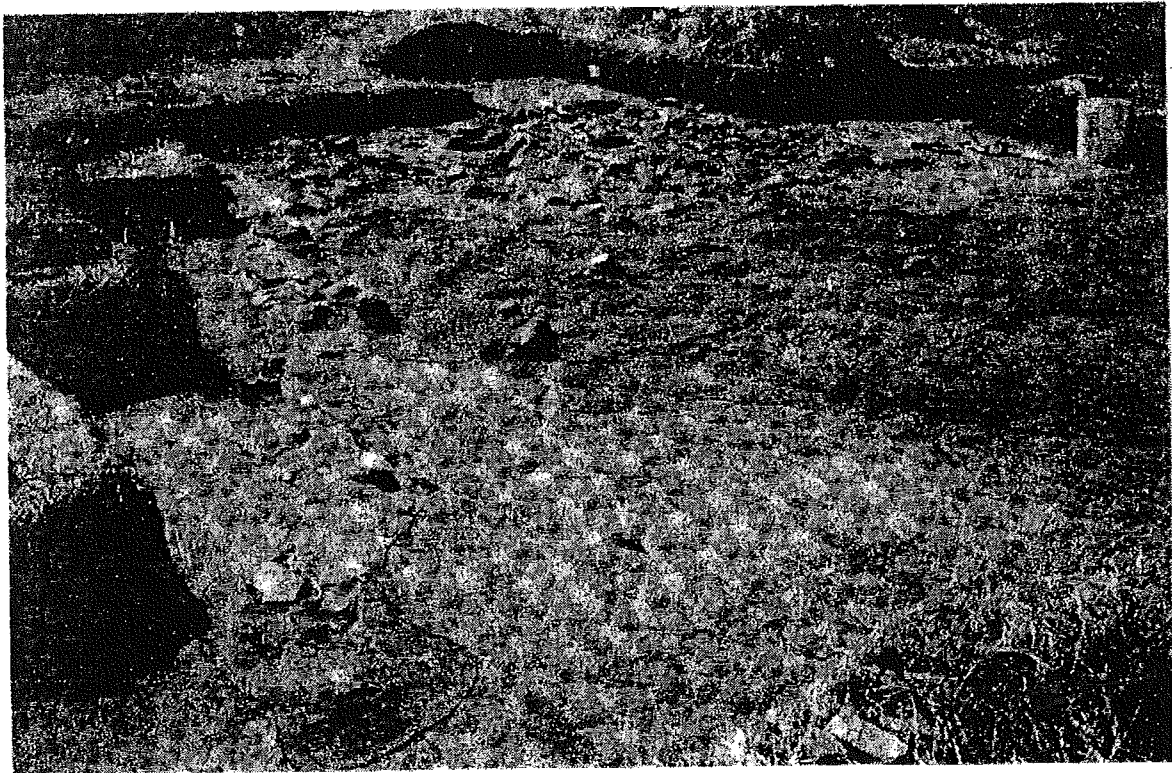


FIGURE 4. View of excavations showing foundation wall and firebox rubble (top center).

shed to the western gable end, creating a 16 x 32-foot structure. A small storage pit was dug beneath the floor boards inside the addition, which evidences a probable 2-foot spacing for floor joists (see Figure 5). This pit intruded into an enigmatic post hole which had once stood in a central position outside the west gable of the Period I structure.

Besides an abundance of red and yellow brick and mortar, recovered architectural artifacts consisted of hand wrought nails in a variety of sizes, window glass from sash windows (without lead comes), and perhaps a key. Ample evidence was also recovered to indicate that an interior white-washed plaster had been laid over split lath in at least the Period I section of the structure. The nails which were recovered were of sizes appropriate for lathing, siding, roofing, and structural support. Their numbers were sufficient to

leave little doubt that the building was a frame structure with wooden siding and roofing. No evidence was found to indicate that nogging was practiced in either daub or brick.

Dating

The remainder of the artifactual materials recovered at 18AN943 comprised a fairly typical domestic assemblage. Ceramics, buttons, iron hardware, bottle glass, and (in surprisingly low numbers) tobacco pipes were found in the course of excavations. A thorough analysis of these materials will be the subject of a later report. The various components of the ceramic assemblage are listed in Table 1, however, as these comprise the major source of chronological information for dating the structure.

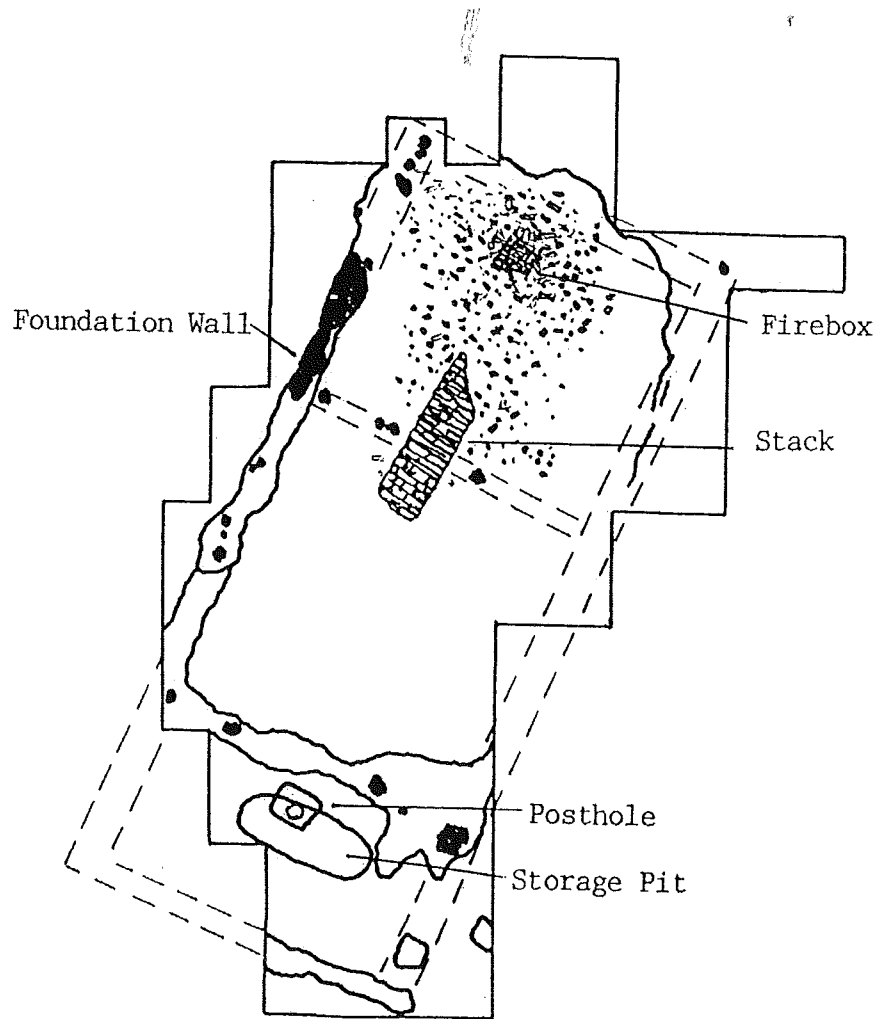


FIGURE 5. Excavated floorplan of principal structure at Mordecai Hammond's Addition (18AN943).

TABLE 1. Diagnostic ceramics from Mordecai Hammond's Addition.

CERAMIC TYPE	DATE RANGE	MEDIAN
Underglazed Blue Chinese Porcelain	1660-1880	1730
Nottingham Stoneware	1700-1810	1755
British Stoneware	1690-1775	1733
Westerwald Stoneware	1700-1775	1738
Molded White Saltglaze Stoneware	1740-1765	1753
Scratch Blue Saltglaze Stoneware	1744-1775	1760
White Saltglaze Stoneware	1720-1805	1763
Slip-Dipped White Saltglaze	1715-1775	1745
Combed Yellow Slipware	1670-1795	1733
Iberian Storage Jars	1745-1780	1763
Buckley Ware	1720-1775	1746
Decorated Delftware	1600-1802	1700
Yellow Creamware	1762-1780	1771

Ownership

The artifactual evidence recovered from Mordecai Hammond's Addition indicates that the most likely occupation period ran from circa 1720 to circa 1780. This would clearly place the construction of the building during the land tenure of Mordecai Hammond between 1710 and 1746. Since Mordecai was only 15 years old when he inherited the parcel in 1710, his marriage in 1719 may represent the actual construction date. After Mordecai's death in 1746 (see Figure 6), the property remained in the hands of his descendents until 1810 through matrilineal lines. Although documentary evidence indicates the presence of a 16 x 30-foot structure during the 1798 tax, artifactual evidence would fit more closely with a circa 1780 demise for the particular 16 x 32-foot building under investigation.

Bricks

The recovery of small, yellow bricks from colonial sites in the New World has been the subject of a number of scholarly papers, most notably Sopko's (1982) work at Albany, New York. They are also commonly encountered on Dutch shipwrecks of the 17th and 18th centuries virtually around the globe (e.g., Green 1973; Price and Muckelroy 1977).

These bricks occur in two basic size categories. The larger size bricks, averaging 8.5 to 9 inches in length, have been recovered at a number of Maryland

sites including St. John's in St. Mary's City (Stone 1974) and Notley Hall (Pogue 1981), while the smaller size bricks (averaging 6.5 to 7.5 inches in length) have been recovered at Chancellor's Point in Maryland (Pogue 1981:8, 77), the Printz site in Delaware (Becker 1977), Virginia (Noël Hume 1970; Loth 1974), and New York (Sopko 1982). Examples originating from shipwrecks are of the smaller size where they were utilized for galley construction or ballast.

The Dutch evidently conceptualized two different uses for the two sizes of yellow brick. In the construction of the van Rensselaer house (1659), the larger "moppen" were specified for walls, while the smaller, harder "klinkers" were intended for chimney construction (Van Lear 1932:171, 223). At Notley Hall in St. Mary's County, Maryland, moppen were used as a foundation support and (reused) as nogging in the still standing structure (Pogue 1981). Apparently the small, durable klinkers were most often utilized as paving bricks in the Old World, and in one documentary example "Dutch Bricks" were still in use for this purpose as late as 1764 (*Maryland Gazette*). Sopko (1982:36) notes that, at Albany, klinkers were evidently restricted for use in hearth bases or fireboxes, a function stressed by Ware in 1756. With the exception of their decorative use in the stack, this was their purpose at Mordecai Hammond's Addition.

The yellow bricks recovered from Mordecai Hammond's Addition are all of the small, klinker variety. Their average dimensions of 6" x 2.75" x 1.25"

To be LET,

By the Subscriber, for a Term not exceeding three Years, the late Dwelling House and Plantation of Mr. *Mordecai Hammond*, deceased, situated on the North Side of *Savanna River*; with or without a good Water Mill. Any Person, inclining to rent the same, may be inform'd of the Conditions, by applying to

JEMIMA ROBINSON.

TO BE SOLD BY PUBLIC VENDUE,

On Friday the 24th of April next, in the City of Annapolis,

A CHOICE parcel of Negroes, consisting of Men, Women and Children; (which lately belonged to Mr. *Mordecai Hammond*, deceased), among whom are Nine very good Sawyers.

WILLIAM COCKEY,
JOHN D. SWINEY.

FIGURE 6. After the death of Mordecai Hammond, advertisements in the *Maryland Gazette* (1746) announce the leasing of his plantation, and the sale of his slaves.

are actually slightly smaller than other reported measurements. The only reference to bricks with these dimensions comes from Neve's 1726 builders guide, where he states that he has been told that Dutch or Flemish bricks measure 6.25" x 2.5" x 1.25" or 6" x 3" x 1", but that "as for my own part, I never measured any of them" (Neve 1726:40).

Both Sopko (1982:37) and Becker (1977:114) mention the application of a red stain to yellow moppen bricks to make them blend when used in combination with red, English Standard-sized bricks. At Mordecai Hammond's Addition, however, not only were the small yellow bricks not colored in this manner, they were actually utilized in a decorative fashion that highlighted their distinctiveness.

Very few of the red bricks from Mordecai Hammond's Addition were hard enough to have survived the chimney's destruction and subsequent plowing in an intact form. They may also have been subject

to more intensive robbing than the yellow varieties at the site. The average dimensions of the red bricks were 8.25" x 3.5" x 2.5", which is roughly the equivalent of the standard for brick sizes of this period. The condition of the red bricks ranged from a very soft, salmon type to highly-fired specimens covered on one or more faces with a vitreous glaze. This range of brick consistency is obtainable from a single, low-temperature firing, depending on where a given brick was in the kiln. Since suitable clays for brick manufacturing are abundant in the region, it is assumed these red bricks are of local derivation.

Although based on slight evidence, there is no indication that the glazed bricks were selected for use in any decorative fashion. In fact, the placement of glazed ends towards the interior section of the chimney stack might be taken to indicate a negative selection was at work.

Excavation of the Chimney

The Firebox

After the removal of a shallow and irregular plowzone, the remains of the chimney fall presented a generally disturbed and jumbled appearance with the exception of an enigmatic pattern of yellow klinkers which was presumed to be related to the firebox (see Figure 7). It was not until the bricks in this area were being disassembled and removed that the construction technique utilized for the firebox was revealed.

Courses of large red brick stretchers were found to be alternating with courses of yellow bricks, laid on their edges in a row-lock course (see Figure 8). A sandy, white oyster shell mortar was generously applied to create a joint averaging nearly an inch in thickness. These joints were carefully scribed, confirming the external, visible side of the construction (Figure 9).

Laying 6-inch yellow bricks lengthwise across the 3.5-inch width of the red bricks meant that approximately 2.5 inches of the yellow row-lock course would have projected into the interior side of the firebox in almost a shelf-like fashion. A flat interior surface was then created by mortaring yellow bricks on their stretcher edges into the spaces provided by these

"shelves" (see Figure 10). In this fashion the entire interior of the firebox was faced with hard yellow bricks which acted as firebricks. The interior was then parged, the sooty remnants of which can be partially seen in Figure 11.

Since only one corner of the firebox survived, and (as will be discussed) the nature and dimensions of the chimney base remain a mystery, the exact dimensions of the box remains unknown. In addition, no evidence was recovered bearing on the nature of the firebox flooring. Unless a large flat stone or other construction was utilized and later salvaged, the assumption is that yellow bricks were somehow involved.

The Chimney Stack

As the disassembly of the brick rubble continued outward from the firebox, other articulated bricks began to be revealed. As this masonry was uncovered it proved to be a partially intact side of the fallen chimney stack (Figure 12).

Approximately seven feet comprising parts of 26 courses had remained articulated after falling towards the interior of the structure. Given that this occurred, it is surmised that the chimney had outlived the wooden section of the building, since the interior framing did not appear to disrupt its fall. Interestingly,



FIGURE 7. Firebox pattern as first revealed in excavations.



FIGURE 8. Reconstruction of the exterior of the firebox (lacking mortar and scribing).

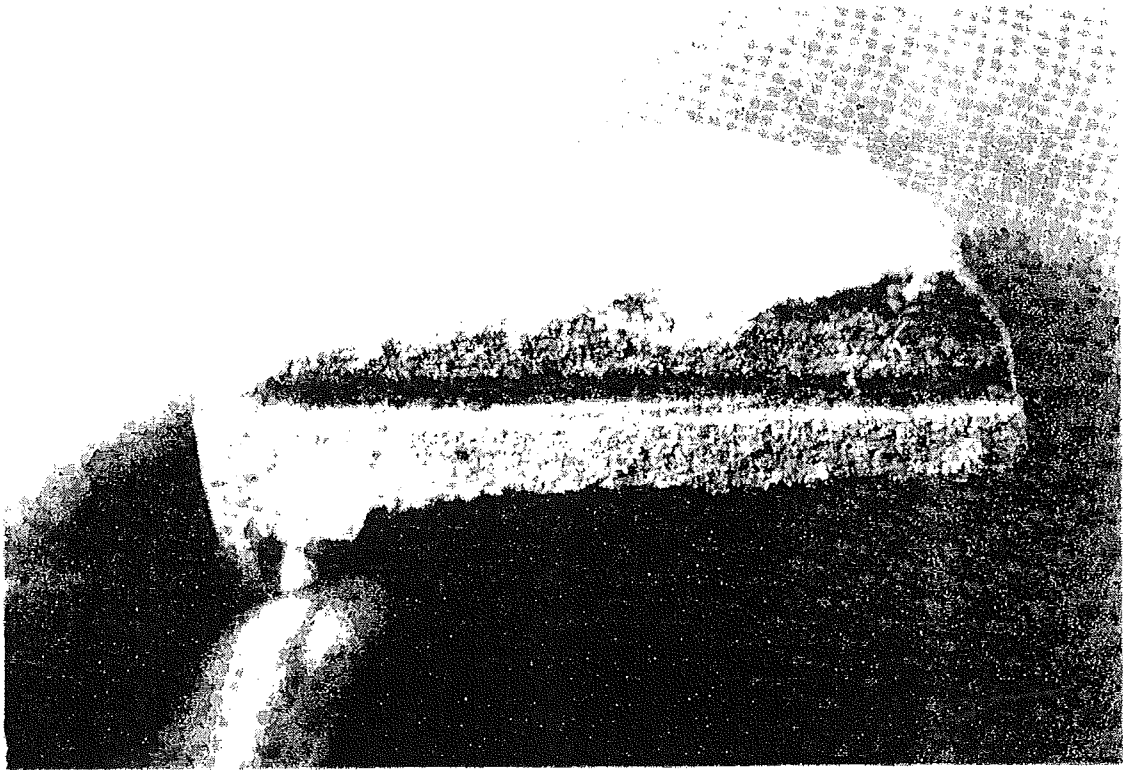


FIGURE 9. Scribed mortar joints from chimney exterior.



FIGURE 10. Reconstruction of the interior of the firebox (lacking mortar and parging).

while the stack fell towards the interior, the fire box fell in the opposite direction, away from the structure. Assumedly this involved a two step process, and it is conjectured that the latter event may have occurred as part of an attempt to return the site to agricultural purposes.

The construction of the stack is depicted in Figure 13. Each course was made by first laying two red brick stretchers, then a half yellow brick on edge as a "queen closer," followed by a red brick header which formed the turn to the next side of the stack. This sequence was then reversed for the following course. The end result was a square stack with external dimension of about 24 inches square, and internal dimensions of 17 inches square. The visual effect of this bonding pattern was that one small yellow brick closer appeared on alternating sides of the stack at each course (see Figure 13).

This bonding pattern continued for approximately half of the stack section which had remained articulated after hitting the ground. Then, about three feet from the apparent top of the chimney, a fragment of a broken red brick appeared as a substitute for a yellow closer. On the following course, no closer was present at all, but the gap was spanned by a 2-inch thick section of mortar. The same was true on the re-

maining courses except that the amount of mortar was reduced to the standard 1-inch thickness. The net effect of abandoning the use of a yellow closer was to reduce the size of the chimney stack's aperture to about 15 inches square (22 inches externally).

As was the case with the firebox, the authors could discover no known analogies for this form of masonry construction. Unlike the firebox, the use of yellow bricks as closers (which might better be termed "Dutch closers") appears to have been purely decorative in intent. That this technique was discontinued for the topmost few feet is enigmatic, unless perhaps the supply of yellow klinkers had simply been exhausted.

The stack possessed no visible "cap" of any kind, although it is possible that one may have existed which did not survive.

The Chimney Base

Although neither the chimney stack nor the firebox were constructed with techniques for which analogies could be found, perhaps the most enigmatic aspect of the masonry chimney was the nature of its base. The only evidence bearing on this question was found underneath the last course of yellow bricks, where four red bricks were found mortared together,



FIGURE 11. Articulated firebox interior during excavation.

and four more were found to be turning the corner of the chimney. These eight bricks produced an L-shaped pier-like effect (see Figure 14). Clearly this construction by itself would have been insufficient to provide support for the chimney.

After removal of the fallen chimney bricks, a careful search was initiated under and around the firebox for evidence of a chimney base. In one of the most puzzling developments of the investigation, no evidence of any masonry or stone base could be discovered, nor was any trench located where one could have originally been placed. Similarly, no post holes or other features were found which could provide evidence of the nature of the chimney's support. In essence, we are forced to conclude that whatever supported the chimney was of such a nature that it left no visible remains. Given that the articulated stack sec-

tion had fallen in the opposite direction from the still-articulated firebox, there is no way to readily conclude that a substantial chimney base had once existed but was not preserved.

Since the base of a masonry chimney must be fairly massive, we are left with speculation as to what its nature might have been. At this point the only theory which can be advanced would involve some kind of ground-laid timber beams sitting between the L-shaped brick "piers," the interior of which may have been filled with earth or sand. Perhaps the gable-end sill for the main structure was somehow incorporated into this conjectural support system. Since no known analogies exist for this type of chimney support, it must remain in the realm of pure speculation.

Speculations

The purpose of this paper was almost purely descriptive in nature, centering on the unusual masonry techniques which were encountered. It is hoped that more can be learned when and if analogies or documentary evidence for this type of construction are found to further illuminate the significance of this find. Until this happens, we are left with a nearly limitless range of speculative options, but almost no firm conclusions.

Could this unusual technique have been the product of a skilled mason working with unfamiliar materials, or does the elegance of this functional and decorative design imply prior knowledge? Since Dutch yellow bricks had apparently been out of general use in Maryland for perhaps two generations, would prior knowledge imply knowledge obtained from the Old World or Dutch colonies? If this was the case, was this type of construction once more common in the area and simply no other examples have been preserved as standing structures or excavated as archeological sites?

There is currently no evidence bearing on these questions that derives from the knowledge that the structure under study was built by Mordecai Hammond. Although he did own a ship, Hammond's livelihood was clearly based on the lumber industry, and there is no documentary evidence to suggest any Dutch connection. In addition, no other Dutch artifacts such as pipes, ceramics, or roofing tiles were recovered during the excavation of the site.

Conclusions

The salvage excavations undertaken at Mordecai Hammond's Addition (18AN943) resulted in a number of significant findings.

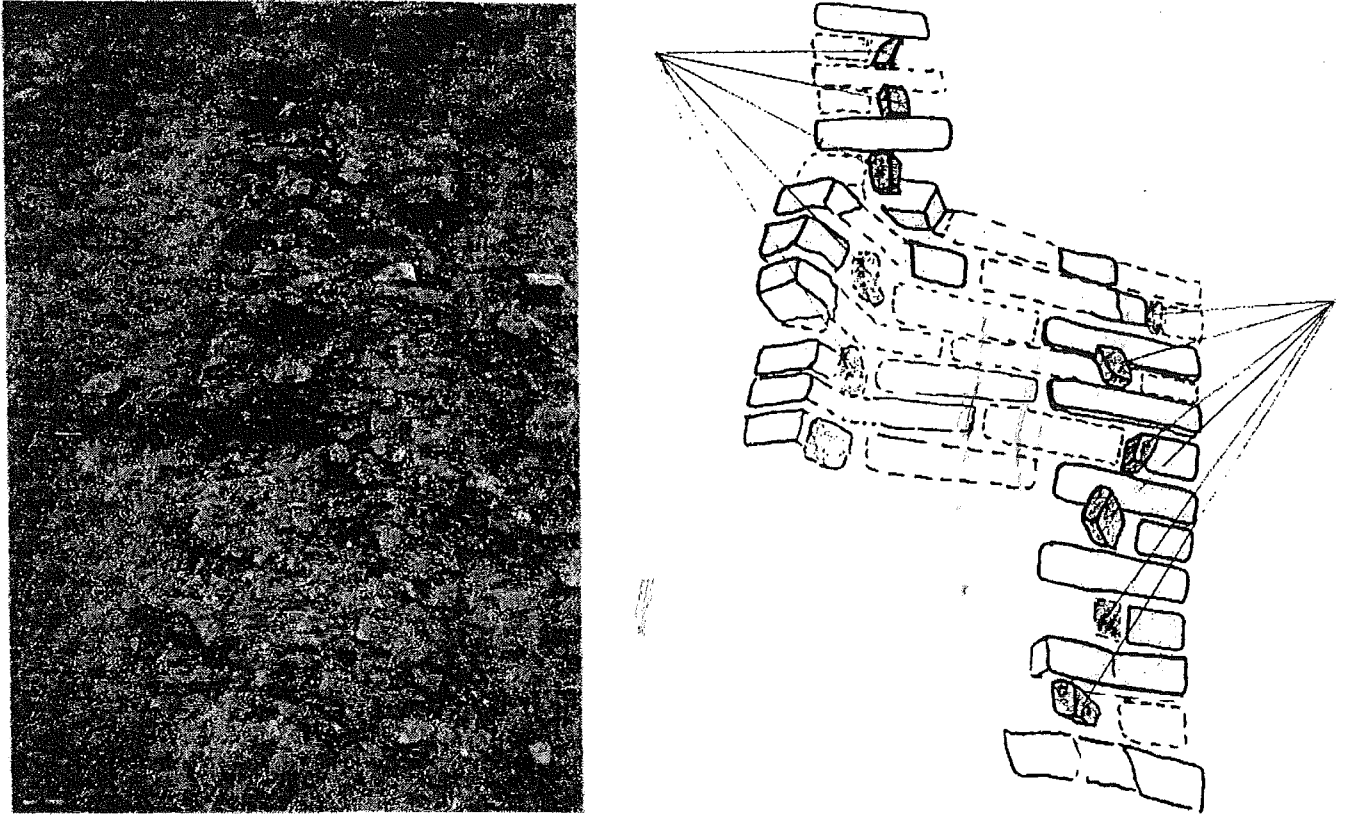


FIGURE 12. Articulated chimney stack as excavated, and diagram highlighting position of Dutch closers.

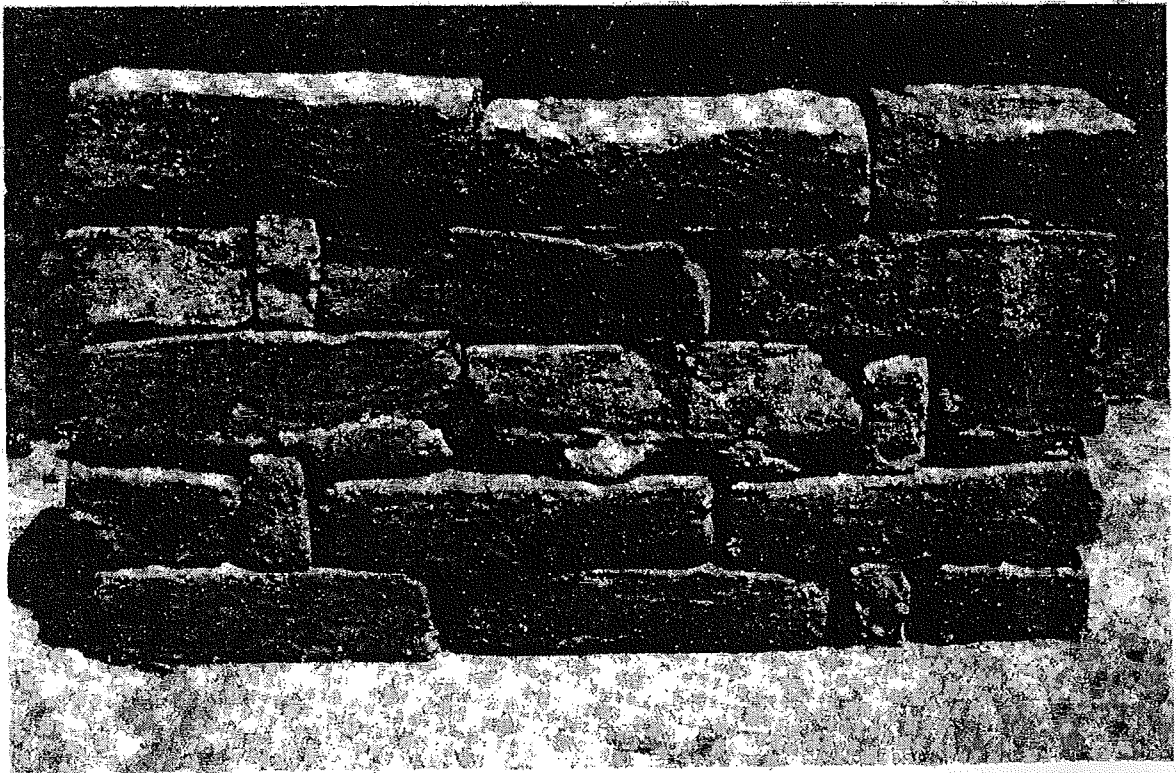


FIGURE 13. Reconstructed chimney stack, showing position of Dutch closers (lacking mortar).

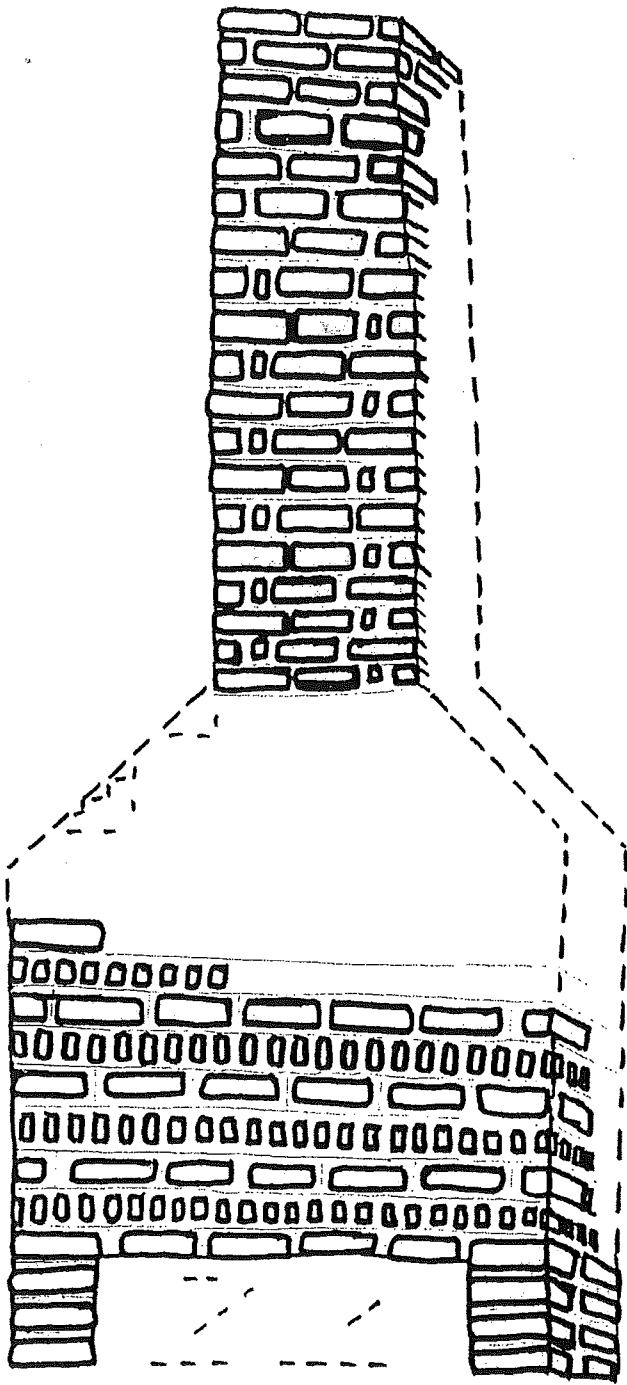


FIGURE 14. Hypothetical chimney reconstruction (note piers).

The fact that Dutch yellow bricks are being utilized at all in a circa 1720 context is somewhat surprising since most current researchers in the Chesapeake consider them to be 17th century diagnostics. Despite intensive scrutiny, however, no evidence could be found to indicate that these bricks had seen prior use. The use of these klinkers at 18AN943 must, therefore, either be attributed to a late example of Dutch importation, or else represents the late utilization of a long-held supply. As stated previously, documentary evidence exists for their continued use on the Patuxent River in Maryland as late as 1764 (although this does not represent a construction date), and the Frances Tavern in New York still contains yellow moppen bricks which were assumedly laid in circa 1719. Since Dutch ships obviously plied their world trade throughout the 18th century carrying yellow bricks as ballast or for galley stove construction, their occasional appearance in later contexts should perhaps not be so surprising.

Clearly the most important finding at Mordecai Hammond's Addition was the discovery of what at the moment appears to be a unique form of masonry construction involving a combination of Dutch yellow and local red bricks. This apparent uniqueness applies equally to both the firebox and chimney stack. To this might be added the enigmatic nature of the chimney base, since we are forced to conclude that it must have been some very unusual form which left no archeologically visible evidence of its nature.

The application of these durable, klinker bricks at this site was for both decorative and functional purposes. Given that Dutch yellow brick fireboxes were once a relatively common phenomenon on the colonial landscape, this first discovery of an articulated example is highly significant.

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