

Fox Hall - Part 4, Chimneys and Fireplaces

By

Jim Melchor and Tom Newbern

The most notable feature of Fox Hall that a first-time visitor encounters is its two massive external chimneys, but there is far more to this early eighteenth-century brick house than its chimneys (Figs. 1 & 2, Fox Hall chimneys) (See the first article in this series, Fox Hall - Norfolk's Oldest House, *Part 1* on this website). These chimneys have double flues, originally serving fireplaces on each end of both floors of the house.



Figure 1



Figure 2

Fox Hall is a rare survivor in eastern Virginia, and being of brick construction has, in no small way, contributed to its survival. However, brick construction alone is no guarantee a building will survive. In the case of Fox Hall, it has been occupied, adapted, maintained, loved, and extensive resources have been expended on it over its almost three centuries of existence. These actions, along with its substantial brick construction, are the reasons it has survived. At present, Fox Hall is undergoing a major restoration campaign. Each part in this series of articles on the restoration of Fox Hall will address an aspect of this restoration process.

Substantial as they are, brick structures are not indestructible. They settle and crack, mortar joints are weathered or burned, and natural disasters inflict damage. Equally culpable are humans who alter period brickwork during changes to structures, and/or who further damage period brickwork trying to repair damage. The worst human degradation is demolition, either directly or through neglect. Despite past suggestions, the owners, to their credit, have steadfastly rejected the calls for removal of Fox Hall. They have preserved it.

Over its life so far, the brickwork at Fox Hall has suffered damage from all of these sources except demolition. During this current restoration program, the brickwork issues at Fox Hall have been addressed and most have been, or will be, corrected.

"Cheetah" Waller is arguably the best, working, historical-restoration mason in eastern Virginia and North Carolina. He and his crew (Anthony "Smoke" Haskett and Shakir Bullock), in consultation with mason, Jack Peet, his mentor, are the Fox Hall restoration project masons. Before discussing the individual masonry tasks here at Fox Hall, a comment must be made on the materials used. First and foremost, the mortar used in restoration here is hydrated hydraulic lime and local sand, **no Portland cement added**. Portland cement is considerably harder than lime mortar used in the original brickwork, and it has a different coefficient of expansion than lime mortar. It will damage early brick. Original bricks were reused as much as possible in restoring the house's masonry. The owner had a supply of reproduction bricks made that match the color and texture of the originals. When there were not enough of the original bricks or when they were too damaged to reuse, these reproduction bricks were interspersed with the originals.

For reference, Fox Hall faces north. The west chimney is seen in Fig. 1, the east in Fig. 2. The west chimney serves the kitchen fireplace, while the east chimney serves the hall.

West Chimney We shall begin with the exterior restoration of the west chimney. As can be seen in Fig. 3, this chimney has suffered some minor settlement resulting in a few cracks. In the past, some of these cracks have been "repaired" with Portland cement. This improper mortar

has been removed, and the affected joints have been tuck pointed with hydraulic lime mortar (Fig. 3, West chimney before restoration).



Figure 3

Before discussing further damage to the west chimney, observe in Fig. 3 that the two first-floor windows flanking the chimney are incorrect adaptations. The right window was altered in size in the nineteenth century. The left window is a twentieth-century piercing where

originally a window did not exist. Window restoration at Fox Hall will be discussed in detail in a subsequent article in this series.

Also, the two foundation vents seen in Fig. 3 are not original and will be closed by the project masons later in the restoration project. The original foundation vents at Fox Hall have already been discussed on this website in *Part 2* of this series by Tony Russell.

The most serious damage to the west chimney was burn-through of the fireplace back in the kitchen. This can be seen in Fig. 3, but it became most apparent when the kitchen fireplace was reopened, and the debris from collapsed sections of the fireplace and infill demolition was removed. Daylight could be seen through the back of the fireplace. Repairing this damage required considerable rebuilding of the chimney outside as well as rebuilding a portion of the fireplace inside (Fig. 4, Repair of west chimney).

Completed repair of the west chimney and tuck pointing of open mortar joints in the west endwall can be seen in Fig. 5 (Fig. 5, Completed west chimney and endwall masonry repairs).



Figure 4



Figure 5

The incorrect arched chimney cap on the west chimney will be removed later in the project (See Fig. 5).

As discussed in *Part 1* of this series of articles, the hall and kitchen at Fox Hall served in these functions late into the nineteenth century. There is no evidence that cooking and other domestic chores were conducted anywhere but in the original kitchen, not in a separate kitchen building or elsewhere in the house until the early twentieth-century addition was built. Consequently, the hall continued serving its function as a multipurpose room for socializing, dining, sleeping, business, etc.

The fireplaces in both rooms (each roughly seven feet wide) apparently remained open throughout this timeframe. Evidence for this is based on the nature of the infills and the modern types of the bricks and mortar used. Most of the materials date to the late nineteenth and early twentieth centuries.

Kitchen Fireplace To begin discussing the restoration of the kitchen fireplace, first take a look at the starting point (Fig. 6, Twentieth-century evolution of kitchen fireplace). By this time, the kitchen had become a fashionable but comfortable parlor or living room. Cooking, dining, and other household activities were relegated to the addition. The hall was variously used as sleeping quarters for the owners and, at times, as rental space.



Figure 6

To restore the original kitchen, this modern living room had to be cleared. The room was stripped to its bare walls, including the wall covering and plaster, and the fireplace infill was dismantled (Fig. 7, Stripped kitchen fireplace with infill rubble).



Figure 7

In Fig. 7, note the furring strips and sawn plaster lath from the late nineteenth century.

Once the rubble from the infills was removed and the damaged manteltree was stabilized, the shape and condition of the fireplace and its hearth could be ascertained (Fig. 8, Cleared fireplace).



Figure 8

The fireplace has rounded corners in the back, and its sand hearth originally was covered with pavers roughly five and one-half inches square, one of which can be seen, lower-center right, in Fig. 8. The back of the fireplace had suffered fire damage as noted in the west chimney discussion. The masons rebuilt this damaged area in conjunction with the repairs made to the exterior of the west chimney.

The twentieth-century tile hearth extension was removed (Fig. 9, Repaired fireplace back and removed hearth extension). Repairs to the floor in this area will be discussed in a subsequent article in this series.



Figure 9

A hole can be seen in the center of the manteltree (Fig. 10, Hole in manteltree). On the right side of this hole there is a brick header and on both sides a wood plank, an attempt by someone to repair/fill the hole. Obviously, based on the plaster lines, this attempted repair predates the plaster and lath (Fig. 11, Attempted repair to hole in manteltree).



Figure 10



Figure 11

Sometime in the past, prior to infilling the fireplace after it was no longer used for cooking, someone saw this large fireplace and thought it should accommodate a large fire. In fact, it was not designed for large fires. It was built to allow for access on three sides of a normal cooking fire. By building a large fire or multiple fires, the manteltree burned through. The purpose of a manteltree is to support the heavy brick load above a fireplace opening. This damage to the Fox Hall kitchen

manteltree resulted in a serious structural problem. Had not the heavy furring strips been nailed to this damaged timber and the fireplace infilled with masonry, the brick mass above the fireplace opening could have collapsed (See Fig.7). Fortunately, it did not.

Since the original fireplace has been reopened, a solution for taking the brick load off of the damaged manteltree was required. In this case, the manteltree was supported by steel column jacks, and the masons installed a heavy piece of four-inch angle iron above it (Fig. 12, Structural-steel repair in place). The charred back of the manteltree was covered with sheet copper to resist possible future fire damage. The hole was filled with vermiculite, closed with sheet copper, and surface coated with epoxy filler. A five-foot long piece of wrought-iron bar stock, two inches wide and three-eighths of an inch thick, was attached to the bottom of the manteltree to support its damaged middle section.



Figure 12

The front surface of its manteltree was hatched to form keys to accommodate a plaster finish. Since the brickwork of this endwall is being left un-plastered so that it can be studied, the decision was made to partially plaster the manteltree. A plaster finish was applied to give the visual effect of a plastered endwall. Subsequently, plaster has been partially removed to expose the original hatching for future study. Reproduction brick pavers, matching the originals, have been laid on the sand hearth. A mantel shelf was fabricated and installed to cover the structural steel (Fig. 13, Finished kitchen fireplace).



Figure 13

East Chimney The east chimney was in considerably worse condition than the west chimney. It had some serious settlement issues, likely beginning with its initial construction, circa 1725-30. These issues were exacerbated by unsound construction practices when its fireplace in the hall was modified and infilled beginning late in the nineteenth century. Also, numerous bricks and mortar joints in the east chimney had deteriorated, especially in the shoulders, and to add insult to injury, the east chimney was struck and damaged by a tree in a storm several years ago. All of this contributed to some separation of the chimney from the brick endwall of the house. Much of this damage had been covered with Portland cement in ill-advised repair efforts in the past. The east chimney and its fireplace were of immediate concern to the restoration team.

Similar to the west endwall, the east endwall also has two windows flanking the chimney at the first-floor level. However, on this end, both windows are original, though both were heavily altered in size in the nineteenth century. As previously noted, Fox Hall window restoration will be discussed in a subsequent article in this series.

Also on the east end of the house, there are two later foundation vents that will be closed by the masons as part of the restoration project.

Following are several photos showing various degraded areas of the east chimney along with photos of the restoration efforts addressing these

problem areas (Fig. 14, Weathered bricks on shoulder and tree damage to chimney cap).



Figure 14

The photo in Fig. 15 shows the extent of the deterioration of the shoulder brickwork and the separation of the chimney from the house (Fig. 15, Damage on north side of east chimney).



Figure 15

In restoring the north side of the east chimney, the masons had to remove damaged brickwork, stitch the chimney back into the house brickwork with new bricks, and restore the chimney to its original appearance (Fig. 16, Demolition before reattaching chimney) (Fig. 17, Chimney stitched back to house).



Figure 16



Figure 17

Figs. 18, 19, and 20 show the sequence of demolition of bad brickwork on the shoulder and repaving the shoulder of the chimney (Fig. 18, Initial demolition of shoulder paving) (Fig. 19, Progressive demolition and re-paving) (Fig. 20, Completion of restoration of north side of east chimney).



Figure 18



Figure 19



Figure 20

Similar, but less extensive, restoration work was required on the south side of the east chimney (Fig. 21, Before restoration) (Fig. 22, Stitching layout for reattaching chimney to house brickwork) (Fig. 23, Partial demolition of shoulder paving) (Fig. 24, Stitching and shoulder repaving done).



Figure 21



Figure 22



Figure 23



Figure 24

As seen in Fig. 14 and mentioned in its caption, the chimney cap of the east chimney suffered tree damage. The cap has been restored to its original configuration (Fig. 25, Restored east chimney cap). The cap of the west chimney will also be similarly restored in this project (See Fig. 5).



Figure 25

See Fig. 2 for a view of the east chimney as restored.

Hall Fireplace The hall fireplace was the most challenging work for the masons at Fox Hall. To determine the condition of the hall fireplace, all

plaster on the endwall and in front of the fireplace had to be removed, exposing the brickwork and fireplace infill (Fig. 26, Hall fireplace wall stripped of plaster). The wall above and to the right of the fireplace was irregular and bulging due to chimney settlement.



Figure 26

As can be seen in Fig. 26, the apparent sequence of events closing the hall fireplace was:

- 1) The original manteltree was removed resulting in collapse of the brickwork immediately above it. Alternatively, the brickwork above the

manteltree collapsed as a result of chimney settlement as did parts of the fireplace walls, and the manteltree was removed.

2) A much smaller and less structurally sound substitute manteltree replaced the original. A large timber, lightly charred on one side, likely was the original manteltree from the hall fireplace. It was discovered in the basement, but it unfortunately had been shortened several feet, possibly during its removal. This timber was reused from an earlier structure, as it has several stud notches on one edge (Figs. 27 & 28, Possible original hall manteltree).



Figure 27



Figure 28

- 3) The fireplace was infilled approximately one foot above and on each side.
- 4) Collapsed brickwork above the fireplace opening was grossly repaired.
- 5) Another infill, using redder bricks, further reduced the size of the fireplace opening about a foot across the top and along each side.
- 6) A final infill closed the fireplace completely. It was at this time the chimney above the closed fireplace was pierced for a stovepipe.

The challenge in restoring this fireplace was to determine how to remove the various campaigns of infill, replace the missing manteltree with a new one, and repair the damaged brickwork above the fireplace without catastrophic failure of the fireplace in the hall.

The sequence of restoring the hall fireplace follows:

- 1) The smaller replacement manteltree was braced with a column jack, the fireplace was partially opened by removing infill, infill rubble, and other fireplace brick debris. Restoration brickwork on the right side of the fireplace began (Fig.29, Initial opening of hall fireplace).



Figure 29

2) The masons devised an innovative structural support system to stabilize the brick above the fireplace while the fireplace opening was being rebuilt and in preparation of installing a new manteltree of proper size. This support system consisted of two wood needles, four inches square, penetrating the poorly-laid bricks above the substitute manteltree, and resting on two posts and two column jacks. There was serious concern at this point if this support system would hold and prevent a catastrophic failure (Fig. 30, Improvised support system). It worked!



Figure 30

3) Fig. 31, Newly fabricated manteltree for hall fireplace.



Figure 31

4) Figure 32, Masons preparing to set new manteltree in place in the hall fireplace. Note the failing brickwork.



Figure 32

5) Fig. 33, Manteltree is set and restoration work continues.



Figure 33

6) Restoration brickwork was also necessary inside the fireplace in the chimney above the manteltree (Fig. 34, New corbelled brickwork in chimney above manteltree).



Figure 34

7) Considerable restoration brickwork in the fireplace and fireplace endwall was needed to restore the hall fireplace, but it was accomplished successfully (Fig. 35, Completed hall fireplace brickwork).



Figure 35

8) As with the kitchen fireplace, the hall fireplace has rounded corners. In addition, several original pavers, the same as those found in the kitchen fireplace, were recovered from the hall fireplace, and reproduction pavers have been laid on the sand hearth in this fireplace as well (Fig. 36, Hearth paver).



Figure 36

9) As discussed in *Part I* of this series, Fox Hall is closely related to the nearby Lynnhaven House. Lynnhaven House was built on a hall-kitchen floorplan. Fox Hall also was originally designed on a hall-kitchen floorplan, but it was changed during construction to a hall-passage-kitchen floorplan.

The spacious hall at Fox Hall served as a multi-purpose room for socializing, dining, sleeping, and business until the late nineteenth-century addition was added. It was the most important center of activity in the house as well as the best appointed. Lynnhaven House was fitted

with a large bolection molding surrounding its hall fireplace. Unfortunately, this molding was damaged by fire, and it was discarded rather than being repaired during the restoration of the house. However, all was not lost. This bolection molding was documented in the HABS drawings of the house. Since the two houses are so closely related, it is not unreasonable to assume that Fox Hall also had a similar bolection molding surrounding its hall fireplace. An appropriate bolection was designed based on the one illustrated in the Lynnhaven House HABS drawings (Fig. 37, Design of Fox Hall bolection molding).

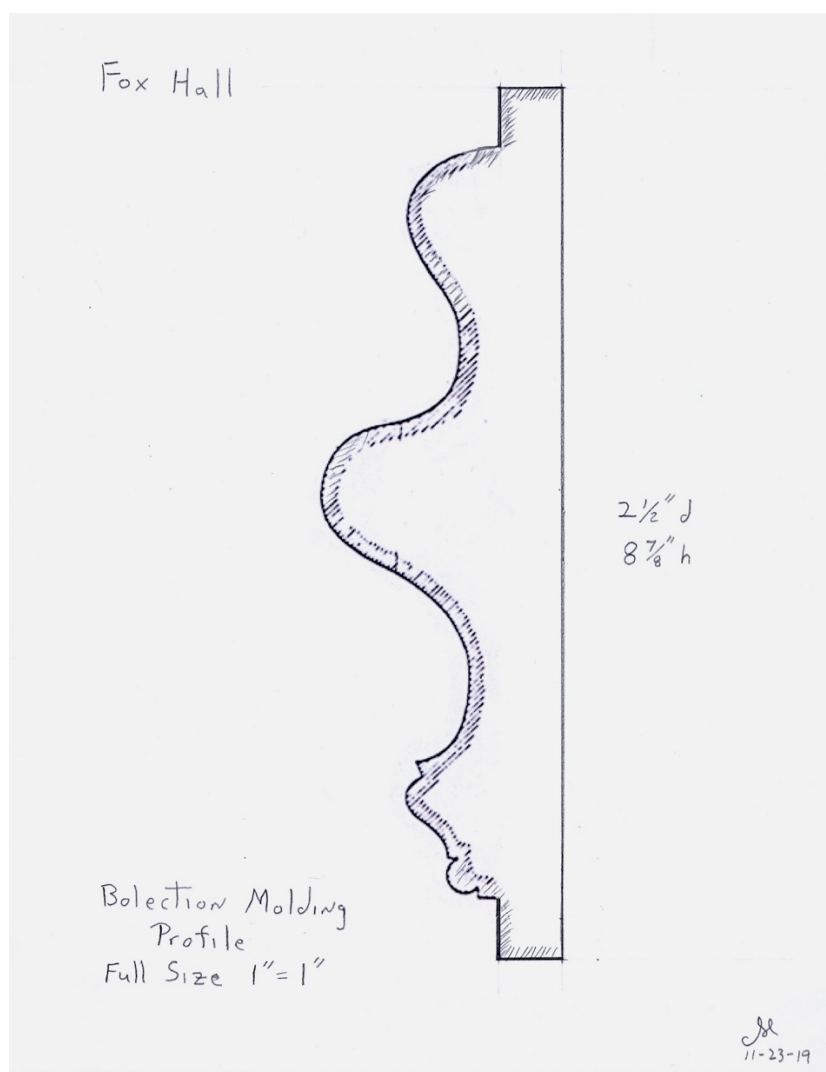


Figure 37

Yukon Lumber in Norfolk cut the knives and fabricated this molding, and the restoration-team carpenter, Tony Russell, very skillfully cut and fitted it to the fireplace opening (Fig. 38, Bolection molding installed).



Figure 38

10) Since the hall fireplace and end wall needed so much restoration (See Fig. 35), a management decision was made to re-plaster this wall as it would have been originally (Fig. 39, Restored hall fireplace).



Figure 39

As a reminder, additional articles in this series, documenting the restoration of Fox Hall, will be forthcoming as the individual restoration projects are completed. Measured drawings also will be published as part of this series.