



WILTON
1425 Twiggs Ferry Road
Hartfield, VA 23071

Treatment Report:
Conservation and Selective Painting of Interior Finishes

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Introduction

Wilton is a brick plantation house that was built in 1763 by William Churchill. Located along the Pi-ankatank river in Hartfield VA, the original estate boundaries extended to 6000 acres and it was used for the production of tobacco. The current configuration of the property is roughly 25 acres containing the house and two outbuildings: a wood and brick cabin to the south and a wooden two-room slave quarters/kitchen to the east of the house. The house, outbuildings and grounds have recently come under the ownership of Stephen Foster who is in the process of rehabilitating¹ the house, grounds and slave quarters to be used as a private residence.²

The house footprint, interior floor plan and finishes have survived with very little intervention. Post historic alterations include; replacement of all windows and exterior doors in the 1980's, and a first floor bathroom installation sometime in the 20th century. Other interior alterations include two neoclassical fireplace surrounds; one in the dining room and one in the master bedroom chamber.

In May of 2012 Susan Buck PhD, microscopist, conducted paint analysis of extant finishes on the plaster walls and interior and exterior wooden elements of the house to better understand the chronology of paint layers and their physical characteristics. In the resulting *Cross-Section Paint Analysis Report* of July 30, 2012, Buck found that the presenting painted finishes on the interior were unusual in that they were applied very early and largely unchanged. The painted finishes on the second floor were found to be original to the construction of the house (1763) and first floor finishes date to the first quarter of the 19th century.³

On August 3, 2012, the author of this report met with Stephen Foster at Wilton to review the existing conditions of the painted surfaces and discuss potential treatment options. During this meeting, Mr. Foster conveyed his appreciation for the important nature of the finishes and questioned the possibility of treating the extant finishes in a manner producing minimal or no change to their distinctive character. To help visualize an 18th century house with very early finishes, Mr. Foster and the author of this report travelled to Drayton Hall (SC) to review the large scale cleaning and stabilization treatments carried out there, and the visual impact of those treatments on the presenting paint layers.⁴ The overall purpose was to develop a treatment philosophy for Wilton and determine the level of cleaning, inpainting, infilling and stabilization which would satisfy Mr. Foster's aesthetic goals, as well as the preservation needs of the finishes.

The agreed upon objectives for treatment were to preserve all extant historic finishes on the woodwork and select areas of plaster; retain the existing visual narrative of the paint layers by leaving signs of wear, UV damage and human intervention (i.e. hand oils, friction wear, partial painting campaigns); remove surface dirt and grime, where possible, that distort the texture and hue. Compromised painted surfaces would be stabilized to a degree that would mitigate further damage without physical/noticeable change to the appearance. Inpainting would be limited to damage caused by vandalism, substandard fills and repairs. New window elements would be painted a lighter sympathetic color to distinguish them from the historic paint layers. For aesthetic continuity, the new architectural elements that replaced missing historic fabric such as doors, dutchman, moldings, and baseboards would be integrated by faux painting. Examples of untreated historic fabric that retain historic finishes would be left for future study where possible.

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- 1 *Rehabilitation* as defined by the Department of Interiors Standards acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character
 - 2 Stephen Foster
 - 3 Susan L. Buck, Ph.D. *Cross-section Paint Microscopy Report*, Oct. 10, 2012, p.18
 - 4 see-Susan L.Buck, Christine Thompson and Richard Wolbers, *Drayton Hall Testing for Paint Consolidation*, Nov. 15, 2001

The scope of work outlined in this report was executed by the author of this report and Nicole Seguin, conservation technician, and were limited to the conservation/preservation of the historic painted finishes, faux painting of new elements, sympathetic color schedules, and limewash application to newly applied plaster. The structural, carpentry, and masonry restoration were conducted by Charles Rackley, restoration contractor, and his crew and noted throughout this report with “(CR)”. Floor board prep, paint removal, cleaning and selective painting of window sashes was executed by the owner Stephen Foster. The following report will address the treatments by room/area starting with the first floor south wing.

South West Paneled Room

Existing Conditions

The Southwest Paneled Room is located on the south wing of the house and west of the south passage. This room is the most elaborate of the house and was likely used for formal gatherings. The room consists of floor to ceiling wood panels with cornice, chair rail and baseboard and has had little or no maintenance or intervention to the painted finishes with the exception of the window sashes. Although the presenting finish is not an accurate representation of when the paint was originally applied, it should be noted that the unadulterated and complete nature of the finishes in this room is rare-and an important example of early American interior painting.

The paint analysis by Susan Buck Ph.D., found that two generations/layers of paint were applied to the woodwork. The first was an oil bound off-white or cream that was applied to the entire room, then the second generation is light blue-gray.⁵ The closet door interiors have a second generation faux woodgraining that was (is) contemporary with the blue-gray and the only decorative painting found in the house. The overall condition of the paint layers was fair with over 80-90% of the blue-gray paint extant. A consistent layer of surface dirt and grime had accumulated on all the surfaces which affected the color, adding a grayish tone, and dulling the sheen.

The stability of the paint layers varied from area to area, but all remained flat, with minimal flaking or cupping of the paint layers. Missing paint or paint that had naturally delaminated was limited to the grain of the wood where the density and resin content was highest-most evident when the material was wetted during cleaning (fig.7). The most prominent degradation was in the form of blanching which appeared as a whitish particulate on the surface that lightened the overall color. This condition existed on all the woodwork to varying degrees, but most severe where the paint had been exposed to direct sunlight and/or excessive moisture. The window bays, shutters and most of the north wall panels were areas most affected and appeared chalky and could be disturbed by hand rubbing with pressure. Other damage included-graffiti in pencil, gouges, ink spatter, scraping, and common wear around door knobs and frames (fig.2-3). An application of a transparent oily material was applied (by hand) to roughly 50% of the east wall that extended roughly 8' from the baseboard (fig.4). It was also applied to the northeast panel below the chair rail on the north wall and the lower half of the eastern panels on the south wall. This application was sporadically applied, collected a higher degree of surface dirt and saturated the color of the paint. The interior of the closet doors were faux wood grained in a naive or “county” manner with a burnt-orange base coat and burnt sienna glaze for the figure of the grain. The finish on the doors had accumulated a higher degree of surface dirt and grime than the wall panels, obscuring the wood graining detail (fig.8). Roughly 5% of the faux finish was missing from the south door and 20% missing from the north door. The interior walls of the closet were the original brown-coat plaster with limewash finish. Approximately 90% of the limewash was gone and the remaining brown-coat friable and sandy.

Much of the wood and paint showed signs of an inactive powder-post beetle infestation in the form of pin holes which were noted to be more abundant in the cornice area.⁶ The cornice and upper regions of

5 Susan L. Buck, Ph.D. *Cross-section Paint Microscopy Report*, Oct. 10, 2012, pp.16-22

6 Conversations with Charles Rackley, February, 2013; -the beetle infestation appeared to be inactive

the panels exhibited white drip marks or lime staining from water infiltrating from the ceiling edge (fig.1). The cornice was roughly 80% intact with 90 of the dentil elements missing. The source of the moisture at the north wall that was from the north side exterior masonry.⁷ The prolonged water infiltration resulted in termite infestation/damage which compromised the structural integrity of the panelled wall.⁸ The wood supports at floor level were completely compromised, causing the wall to sag at the center (roughly 2.5”) forcing the panels to shift out of place (fig.1&5). Although it was recommended that the north wall be taken down for assessment and consolidation, the decision



Fig.1 North wall with missing dentils and staining



Fig.2 East wall surface damage

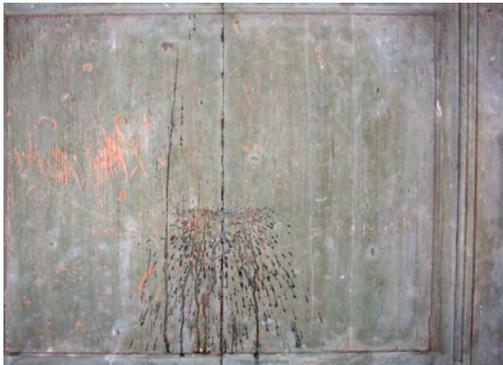


Fig.3 South wall ink spatter



Fig.4 Paneled room, east wall staining

was made to install supports behind the panels and reattach to provide stability. This stabilization was executed by Charles Rackley and assisted by the author of this report before any treatment to painted surface commenced. More details of the stabilization and attachment points can be found in appendix B, attached to this report. The historic plastered ceiling was compromised beyond repair and removed before the assessment(CR).⁹

Treatment – Historic Fabric

Cleaning tests were conducted at various locations in the room to determine the appropriate cleaning methodologies and establish an understanding of the physical characteristics (color/texture/gloss level) of the surviving paint without the dirt and grime. The sensitivity of the paint to cleaning methods varied greatly from area to area. Areas that were exposed to direct sunlight (UV rays) and moisture (water infiltration)were under-bound, chalky and very sensitive to dry cleaning methods. Other areas

7 Ibid., February, 2013;

8 Conversations with Stephen Foster February 2013;-The termite infestation was treated by an exterminator

9 Conversations with Charles Rackley, February, 2013



Fig.5 West wall before treatment



Fig.6. West wall before treatment

less exposed to the elements were sensitive to aqueous solutions but not solvents. Some of the paint layers were completely stable and dirt and grime could be removed with water with chelating agents added. The aqueous and solvent cleaning was effective at removing much of the surface dirt and grime, brightening the appearance and enhancing the color. It also brought out a slight sheen to the finish that could be seen in raking light.¹⁰

All of the painted woodwork was first brush-vacuumed, and then, where possible, dry-cleaned with Dirt Eraser sponges. This treatment effectively removed loose surface dirt and debris and slightly brightened the overall appearance of the paint (fig.7). Because the cleaning protocol changed from area to area, the following diagram was created to better illustrate their specific locations. Also included in the diagram is the locations and materials used for the stabilization, inpainting and faux painting of new elements.



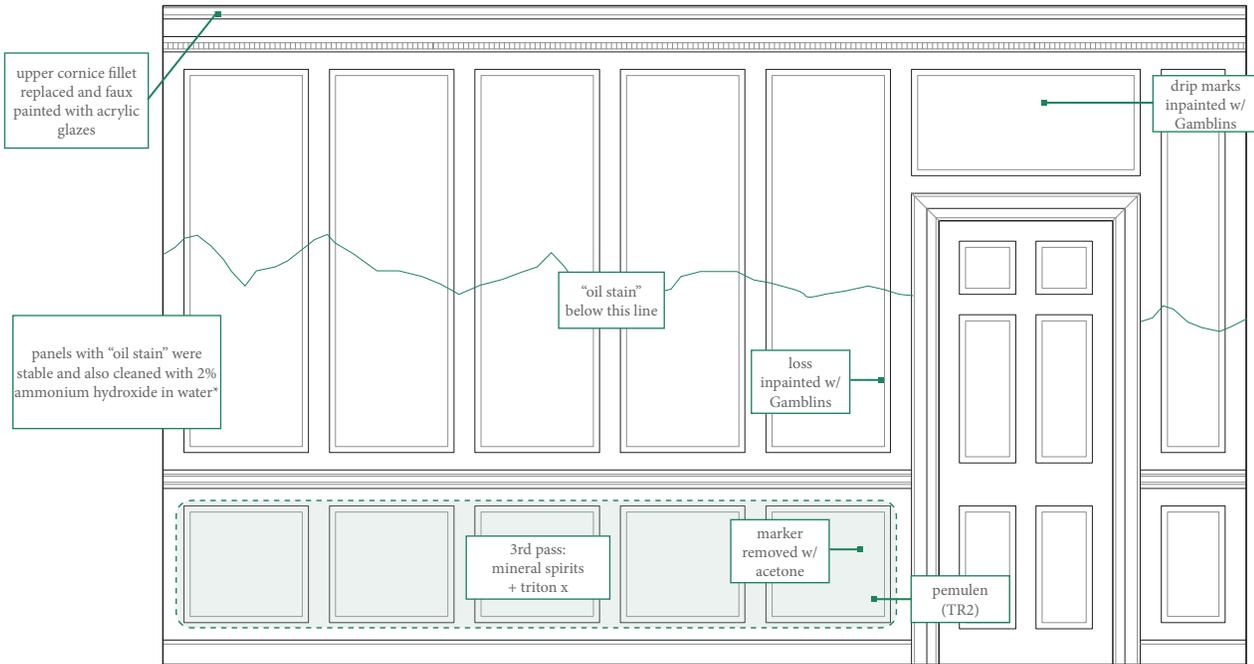
Fig.7 Cleaning with mineral spirits



Fig.7 Cleaning with mineral spirits

10 The original painted finish, hand ground in linseed oil, would have had a much higher gloss.

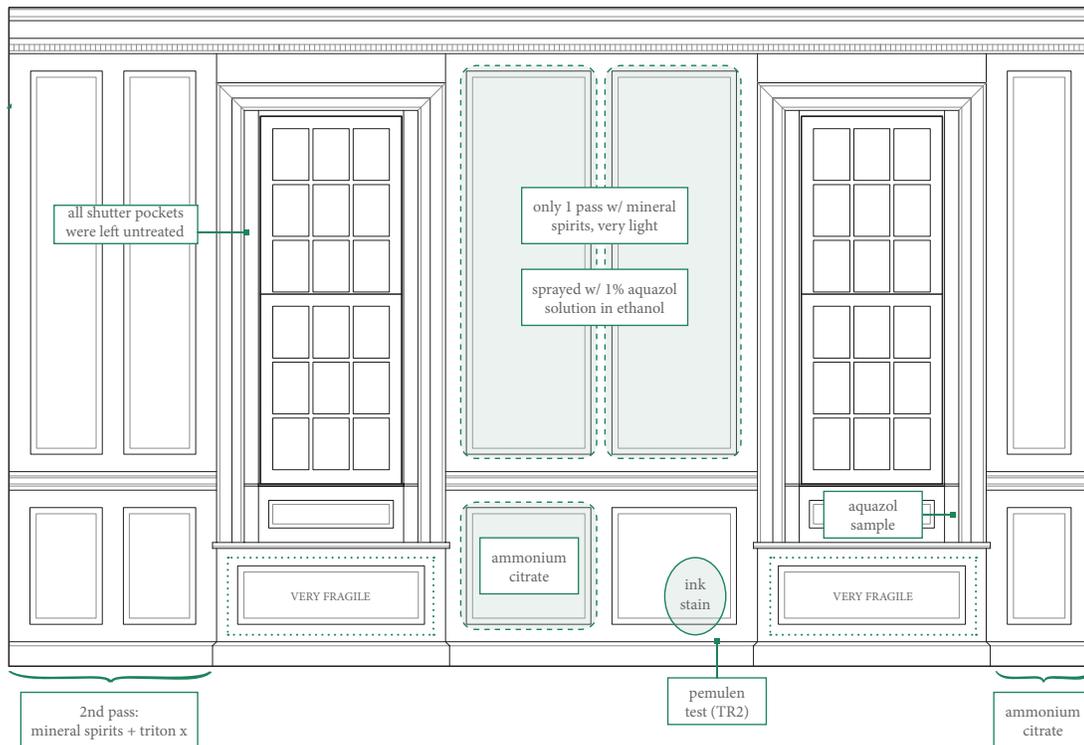
EAST WALL



Entire wall vacuumed; one pass mineral spirits w/ webrils, 2nd pass mineral spirits + triton x, cleared w/ mineral spirits; selective use of acetone and ammonium hydroxide to mitigate stains. Baseboard cleaned w/ ammonium citrate and cleared w/ water

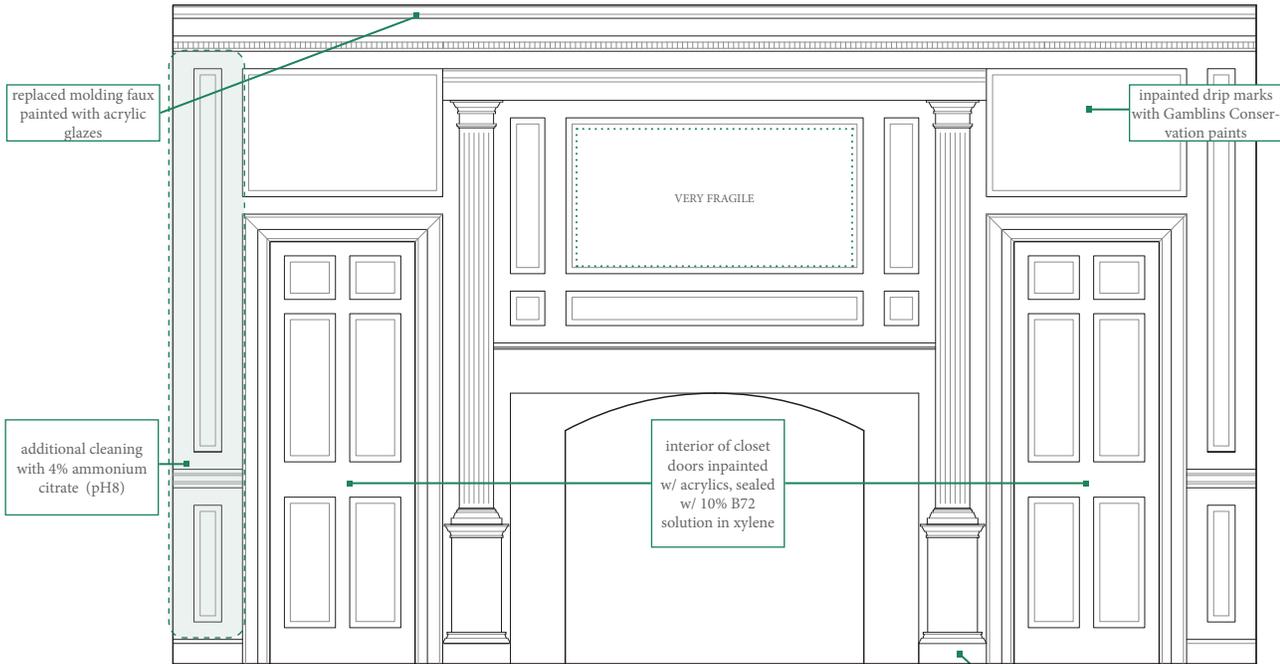
*Not all of the "oil stain" was removed. Testing found that 1% Sodium Hydroxide in water was effective at removing the "oil stain", but the high pH and noted color shift deterred its use.

SOUTH WALL



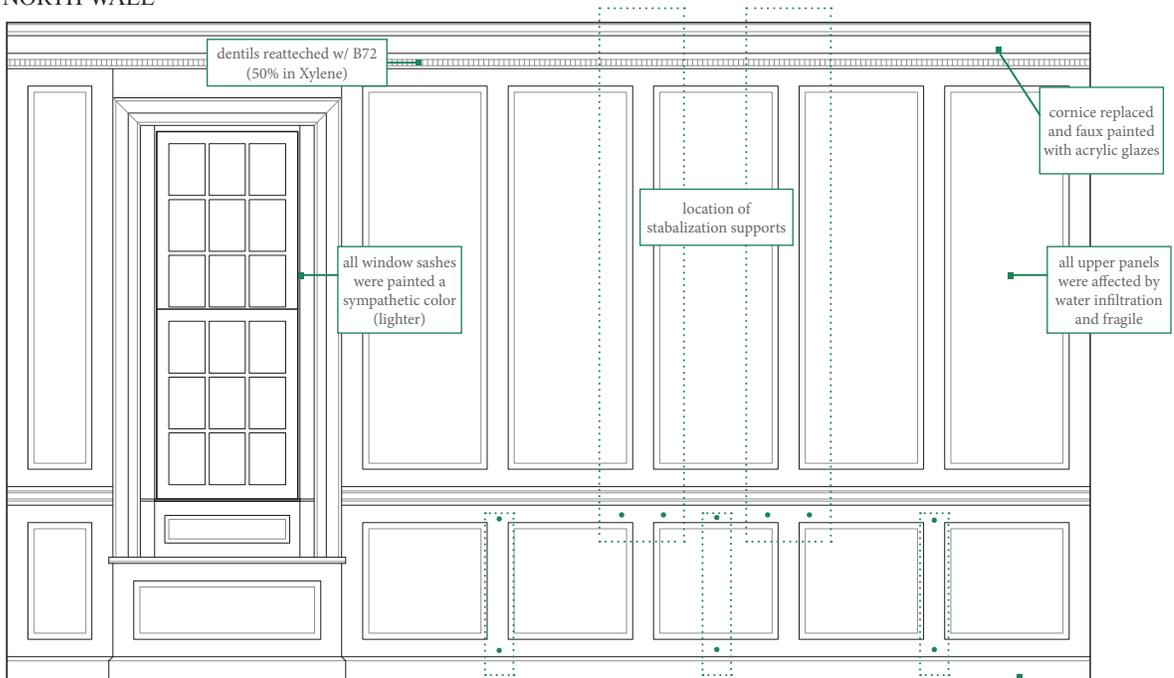
Entire wall vacuumed; one pass mineral spirits w/ webrils. Baseboard cleaned w/ ammonium citrate and cleared w/ water

WEST WALL



Entire wall vacuumed; one pass mineral spirits w/ webrils, selective cleaning w/ mineral spirits and ethanol. Baseboard cleaned w/ ammonium citrate and cleared w/ water

NORTH WALL



Entire wall vacuumed; lightly dry-cleaned w/ dirt erasers, consolidated w/ 1% aquazol solution in ethanol; Baseboard cleaned w/ ammonium citrate and cleared w/ water



Fig.8 Closet door BT

Fig.9 Closet door AT



Fig.10 West wall after treatment

The areas that were scratched down to the wood -in the upper panel of the east wall just to the north of the doorway and the center vertical stile of the south wall, were inpainted with Gamblin Conservation Paints (soluble in isopropyl alcohol). Attempts to clean or remove the ink-like spatter (fig.3), located south wall center lower right panel, were unsuccessful and also inpainted with Gamblin Conservation Paints. Two areas of water staining (white streaking), above the door in the east wall and above the north closet door in the west wall, were also inpainted. All other damage and natural paint loss was left as is after stabilizing.

A number of the missing dentils in the cornice were located and reattached using adhesive-strength B-72 (50% solution in xylene). Approximately 60 dentils are still missing (mostly from the north wall), exposing bare wood where they once were.

The decision was made to restore the faux wood graining finish on the interior of the closet doors. After brush-vacuuming and dry-cleaning, they were cleaned with cotton batting and a 4% ammonium citrate solution (pH 8), then cleared with mineral spirits. A 5% B-72 solution in xylene was then sprayed on to consolidate the historic paint. The doors were inpainted to fill in the areas of loss, and then sprayed with another coat of 5% B-72. The plaster walls in the closets were brush-vacuumed and then left as is.

There were multiple dutchmen installations throughout the room including the entire upper cornice on the north wall, lengths of the door frame in the east wall, select pieces around the latches in the closet doors, pieces in the plinth block north of the fireplace and the baseboard below the north window. All areas were aesthetically integrated with the surrounding surfaces using acrylic paints and glazes.

Treatment – New Material

The windows (sashes) were painted a sympathetic, custom color, mixed with water and calcium carbonate to provide a flat finish.

The sheetrock ceiling had been skimmed coated with Virginia Limeworks lime-based plaster (CR). Two coats of Bright White limewash from Virginia Lime Works were applied to the plaster ceiling to mitigate the tool marks created during the final plastering and provide a consistent sheen.



Fig.11 South passage looking north before treatment



Fig.12 South passage looking south before treatment

South Passage

Existing Conditions

The South Passage was used as a main entrance with two flanking rooms on either side leading to the Center Stairs and rooms north. The passage consists of a cornice, peg rail, chair rail, door frames and baseboard. The dimensions of this passage are not original to the constructed floor plan. Originally this passage was wider to the west by approximately 3.5'. Efforts to determine the approximate date of the walls movement include the work of Edward A. Chappell, Colonial Williamsburg Director of Architectural and Archaeological Research, and Susan Buck, Ph.D. microscopist. Mr. Chappell found that the nail heads and trim moldings on the east wall date to 1820-30, while the other architectural elements and hardware date to the period of construction. The paint analysis found inconsistencies in the comparative paint stratigraphy in the east and west wall wooden elements and that the paint used on the east side wall are consistent with pigments available after 1825.¹¹ The paint analysis found a total of five layers of paint on the woodwork with a blue-green color presenting.¹² The baseboards, like the Southwest Room are painted black. The exterior door in the south wall was not original and painted white with new trim added (fig.12). The painted finishes on the cornice were fragile, and retained a significant amount of brown residue from the ceiling demolition (fig.13). The top fillet of the molding (adjacent to the ceiling) had no evidence of historic paint suggesting that the original plaster ceiling had been lower than the current ceiling. The door jambs, peg rail and chair rail finishes were 80% extant and stable to the touch. The arch in the north wall (to the stairs) was missing roughly 40% of the green finish with a red-brown paint showing through. This arch also had several large patches of a pinkish, epoxy-like material used to fill holes (fig.14). The baseboards retained roughly 70% of the original finish



Fig.13 Cornice before treatment



Fig.14 Archway fills detail



Fig.15 During cleaning

11 Susan L. Buck, Ph.D. *Cross-section Paint Microscopy Report*, Oct. 10, 2012, p..24

12 *Ibid*, p..24

but were fragile to the touch and the color distorted from heavy layers of dirt and grime. The walls are/were stable plaster with many generations of unpigmented (white) limewashes applied.¹³ The plaster on the center panels (between the picture and chair rails) on the east and west walls were removed to the lathe to treat existing mold growth (fig.12). The historic plastered ceiling was compromised beyond repair and also removed and replaced with sheetrock before the assessment.

Treatment – Historic Fabric

The historic fabric was first brush-vacuumed, then dry-cleaned with Dirt Eraser sponges. The majority of the paint on the cornice was sensitive to water and cleaned with cotton batting, mineral spirits and ethanol (for heavily soiled areas). This treatment effectively removed the chalking, brightened the overall color and recovered a significant sheen in the finish. The top fillet of the cornice was toned to match the surrounding cornice with Golden acrylics and acrylic glaze. The peg rail and chair rails on the west wall were cleaned with cotton batting, distilled water and a 4% ammonium citrate solution (pH of 8). The peg rail and chair rail on the east wall had less paint layers and reacted differently than the surrounding woodwork.¹⁴ These were cleaned with cotton batting and mineral spirits. The door frames in the east and west walls were cleaned with cotton batting and a 4% ammonium citrate solution (pH 8), cleared with mineral spirits. The edges of both frames were missing most of their historic paint due to recent plaster work and were toned to match surrounding woodwork with Golden acrylics. The arch in the north wall was cleaned with cotton batting, saliva, deionized water and ethanol in select areas (fig.15). The fills (which appeared to be epoxy) were removed with a scalpel, then inpainted with Golden MSA Inpaints (soluble in acetone). All baseboard finish was water soluble and cleaned with Webril and mineral spirits. A 5% B-72 solution in xylene was then brushed onto the baseboards to stabilize the paint layer (fig.16).



Fig.16 South Passage north view



Fig.17 South Passage south view

- 13 Susan L. Buck, Ph.D. *Cross-section Paint Microscopy Report*, Oct. 10, 2012, p.29
- 14 The wall and woodwork post-date the period of construction. Paint layers were water soluble

Treatment – New Material

The historic transom from the front door was found in the cabin and studied for evidence of extant paint. Blue-green paint was found in the details of the mullions, suggesting that the transom and likely the door was painted the same color as the other wooden elements in the south passage. The new door frame, door and transom were all prepped and primed, then faux-painted to match the historic trim. A black baseboard line was carried through the bottom of the door, plinth block and frame. Historic evidence for this treatment was found on the entrance door and closet doors in the SW paneled room as well as other moldings and plinth blocks in the south and stair passages (fig.17).

One coat of Bright White limewash from Virginia Lime Works was applied to all plaster walls in a straight, vertical direction to match the original application. This application mitigated tool marks that were visible in raking light and provided a consistent sheen.

Southeast Red Room

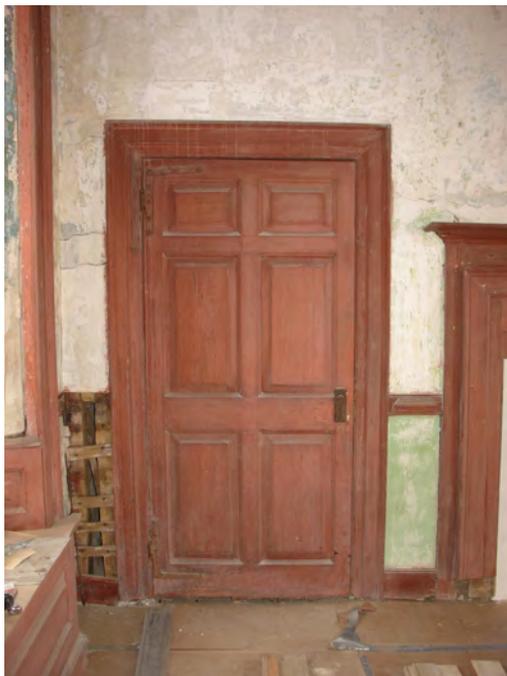


Fig.18 SE room east wall before treatment



Fig.19 SE room north wall before treatment

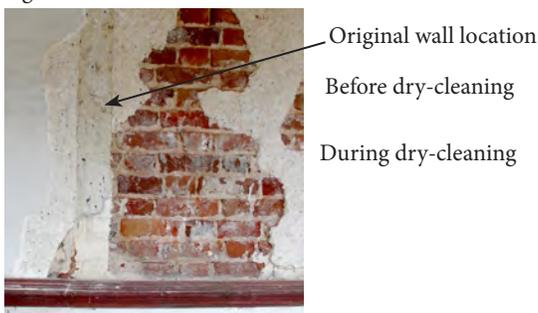


Fig.20 SE room north wall



Fig.21 SE room baseboard during treatment

Existing Conditions

The Southeast Room is located on the east side of the South Passage. The dimensions of this room are not original to the constructed floor plan. The west wall of this room is the same east wall of the South Passage that moved sometime in the first half of the 19th century. Further evidence that the west wall was moved westward approximately 3.5' to expand this room was seen in the floor boards, ceiling joists and ghosting on the plaster on the north wall -apparent when the plaster was removed (fig.20).

The plaster walls exhibited significant planar distortion in the east wall, above the fireplace, and considerable problems with delaminating plaster on the north and west walls. The finishes on the plaster walls presented as a palimpsest -or inconsistent mixture of historic finishes that were predominantly light green and yellow in color. The north wall had a history of water infiltration resulting in unusual staining, deep green and yellow in color, that appeared to be absorbed into the plaster (fig.19).

Paint analysis found that the walls were originally finished with limewash-up to 9 layers-with later campaigns of green and yellow paint.¹⁵

The presenting color on all the woodwork in the room was deep red, with the exception of the window sashes which were painted white (fig18-19). The analysis also indicated that the woodwork had five layers/generations of paint. The first was red-brown on all the woodwork except the baseboards which were originally black.¹⁶ The presenting paint layer on the woodwork was water-stained and blanched, and had accumulated a heavy layer of surface dirt and grime that distorted both, the color and texture of the paint. The effect of the whitish film over the deep red was a dull, pinkish-gray color. The north wall window seat had evidence of termite damage on the west side of the lower panel. The panel below the southeast window had evidence of water infiltration in the form of drips, lime staining and pigment loss. The paint on the shutters (which were down at the time) was very chalky, unstable and much lighter in color. Similar conditions existed on southeast door and north window seat. Other woodwork finishes were relatively stable.

Treatment – Historic Fabric

The historic fabric was first brush-vacuumed, then dry-cleaned with Dirt Eraser sponges and Mars erasers. This treatment effectively removed surface dirt and debris and altered the chalky appearance somewhat, but a significant amount of grime remained. After reassessment, the decision was made to further clean the surfaces with a slightly damp PVOH sponge and deionized water. The sponge was pulled in broad, even strokes and frequently rinsed in clean deionized water. This was repeated until no dirt was observed on the sponge.¹⁷ This treatment unified the finish and brightened the overall color (fig.22).

Areas that were sensitive to the aqueous cleaning-where pigment was noted on the sponge, included all the shutters (exteriors) and south door, were dry cleaned only and then consolidated with 1% Aquazol 500 in ethanol sprayed onto the surface.

The termite damage on the west corner of the north window was consolidated and filled with Abatron Wood Consolidate and Epoxy (CR) and inpainted to match the historic fabric using Goldens Acrylics. Select areas of discolored historic fills on the chair rail, window seats and fireplace were inpainted with Gamblins (soluble in isopropyl alcohol) to match surrounding material.

The windows were painted a sympathetic, custom color, mixed with water and calcium carbonate to provide a flat finish.

The door installed in the entryway is original to the house but not in this location. This door was found with other miscellaneous architectural pieces in the cabin and on-site investigations found that the remnant finishes on the door are consistent with the current Center Stair and Dining Room finishes. The door was first dry cleaned with Wishab sponges and then PVOH sponges slightly dampened with water

15 Susan L. Buck, Ph.D. *Cross-section Paint Microscopy Report*, Oct. 10, 2012, pp.12-15

16 Ibid, pp.. 6-12

17 This treatment was halted if pigment was observed on the sponge.



Fig. 22 SE room, east wall after treatment (fig.23).



Fig.23 SE room west wall after treatment

All the walls in this room were skim-coated with traditional lime based materials (CR). During finish (vener) plastering, the applied finish plaster consistently failed on the north wall. This was determined to be a historic water infiltration issue that resulted in the removal of roughly 60% of the historic plaster to the masonry substrate.¹⁸ This wall was re-plastered with three coat system using traditional lime-based materials (CR). No limewashes were applied to the plaster.

Center Stairs

Existing Conditions

The center stair area is the hub of the house and has two doors of access to the outside, a closet under the stairs, stairway and entry into the dining room and south passage.

Most of the plaster in the first floor level of the center stairs was in fair condition. Roughly 75% was intact and appeared stable. The extant plaster walls retained multiple layers of limewash with color ranges of white, off-white and pinkish gray. Roughly 20% of the historic plaster on the north wall was missing, exposing the lathe, but the south wall above chair rail was in excellent condition. The ceiling was compromised beyond repair and removed before the assessment.

The presenting paint layer on the woodwork was a light blue-green, (more blue than the south passage and lighter than the paneled room), with a red-brown color showing through in many areas. The presenting layer of paint is the second layer/generation, the first being the red-brown found in the South Passage and Southeast Room.¹⁹

The paint layers on the woodwork had accumulated a significant amount of dirt and grime, was chalky in appearance, and inconsistent in color. The stability of the remaining paint layers varied from area to area, but remained flat, with minimal flaking or cupping of the paint layers. The most prominent form of degradation was in the form of blanching which appeared as a whitish particulate on the surface that lightened the overall color (fig.24). The panels beneath the upper stairs and beneath the middle landing were under bound and could be removed, in part, by hand wiping (fig.25). The panels on the lower stair presented as mostly red-brown, with traces of the blue-green paint in the molding recesses. The east panel presented as dark brown with an obvious coating applied (fig.27). The exterior east and west doors were not original, and were painted white (fig.24). The closet door under the stairs was missing with a

18 Conversations with Charles Rackley October, 2013

19 Susan L. Buck, Ph.D. *Cross-section Paint Microscopy Report*, Oct. 10, 2012, p. 31

rod for a curtain in its place.

The cornice was heavily soiled and appeared chalky white and the top fillet of the cornice (adjacent to the ceiling) had no evidence of historic paint. A section of cornice on the west wall (roughly 30" long) was badly rotted from water infiltration (fig.26). The arch in the south wall contained many of the same discolored fills as were in the South Passage arch. The east leg of the arch exhibited fewer paint layers than the rest of the trim throughout the room, indicating it was replaced at some point in time. Most of the blue-green paint on the chair rails was missing, with the original red-brown showing. The paint on



Fig.24 Center Stairs east view before treatment



Fig.25 Center stairs conditions before treatment

the baseboards was the original black, very fragile and missing roughly 20% of the color exposing the bare wood.

The spindles, balustrade and brackets of the staircase had only one generation of red tinted shellac applied. Most of this original finish at the lower staircase was missing and presented as a dirty, matte brown, but the middle landing and upper stairs retained some of the reddish finish. The risers and runs of the stairs and stair baseboard had no extant finish.

Treatment – Historic Fabric

All historic fabric was brush-vacuumed, then all but the ceiling panels below the stairs were dry-cleaned with Dirt Eraser sponges. The majority of the paint on the cornice was sensitive to water and wet-cleaned with cotton batting and mineral spirits. Some of the more heavily soiled areas were additionally cleaned with cotton batting and ethanol. The top fillet of the cornice (missing finish) was toned to match with Golden acrylics. The east leg of the arch in the south wall was cleaned with cotton batting and mineral spirits. The remainder of the arch was cleaned with cotton batting, saliva, and cotton batting and deionized water. Shellac had been applied to the west side of the arch which was partially removed



Fig.26 Center stairs west wall cornice with water damage and heavy soiling



Fig.27 Stair panel before treatment



Fig.28 Panel during solvent tests

with ethanol, then toned with Golden acrylics and glaze. The chair rails were cleaned with cotton batting and distilled water. All baseboards were water soluble and lightly cleaned with cotton batting and mineral spirits. A solution of 5% B-72 in xylene was then brushed onto the baseboards to stabilize the finish. The paint on the panels beneath the upper and middle stairs was extremely fragile and brush vacuumed only, then lightly sprayed with a 1% Aquazol 500 solution in ethanol. After curing and review, the surface was still sensitive to the touch and a second spray application of the Aquazol 500 was applied. This slightly saturated the color, but was effective in consolidating the degraded paint surface to where no paint particles could be wiped off by hand.

The panels on the lower stair were cleaned with cotton batting and mineral spirits. Solvent tests found that the darker brown panel had a layer of shellac applied (fig.27). This was removed with cotton batting slightly dampened with ethanol(fig.28). The shellac could not be removed completely without negatively affecting the extant historic paint layers, therefore the panel presents as slightly darker than the surrounding material (fig.29).

The entire staircase and all the architectural elements were brush-vacuumed. The balustrade and spindles along the upstairs landing and upper stair retained the original pigmented shellac and was very sensitive to both aqueous and solvent solutions. These areas were dry-cleaned with Dirt Eraser sponges and Absorene Putty. The balustrade and spindles along the middle landing still retained some of the original finish on the east side, which was cleaned in the same manner as the upper stairs. This cleaning method effectively removed the surface dirt and restored the red tones of the shellac and even some of the original sheen. The spindles and balustrade on the west along the middle landing and the lower stair that had no extant finish were cleaned with cotton batting, deionized water and mineral spirits. This lightened the wood somewhat, but remained very matte and dry looking. The baseboard along the stairs and all treads and risers has no extant finish remaining and were brush-vacuumed, dry-cleaned with Dirt Eraser sponges and wet-cleaned with PVOH sponges and deionized water. This effectively removed the surface dirt giving the wood a warmer tone.



Fig.29 Center stairs west view after treatment



Fig.30 East view after treatment

Treatment – New Material

New frames were installed around all doors and doorways, with the exception of the arched entrance to the South Passage. A Dutchman was fabricated to replace the 30” section of cornice in the west wall that was water damaged. Evidence on the door found in the cabin (currently in the SE room) indicated that the doors and doorframes in this room were painted the same blue-green as the other woodwork. All new pieces were prepped and primed, then faux-painted to match the historic trim (fig.29-30). A black baseboard line was carried through the bottom of the new doors, plinth blocks and frames. The decision to include this distinct element on the new doors was based on the historic evidence found on the entrance door and closet doors in the Southwest paneled room as well as other moldings and plinth blocks in the South Passage and Center Stairs.

Given the excellent condition of the plaster on the south wall above the chair rail, the decision was made to leave it exposed and untreated as a record of the historic fabric and finishes. All other walls in this area were skim-coated with traditional lime-based materials (CR). Two coats of Bright White limewash from Virginia Limeworks were applied to all other plaster walls. This application mitigated tool marks that were visible in raking light and provided a consistent sheen.

Dining Room

Existing Conditions

The Dining Room is located north of the Center Stairs and south of the Kitchen Passage. The room includes three floor-to-ceiling windows elements, a south entrance to the Center Stair, and two doorways flanking the fireplace on the north wall. The east door is an entrance to the kitchen passage, the west door is an entrance to a post historic powder room. Although the floor plan is original to construction, the architectural elements in this room are the most adulterated of all the first floor rooms. The cornice and windows surrounds were the only elements that were original to the period of construction. The three door frames and neoclassical fireplace surround were added later.²⁰ All of the baseboards and doors were missing, but the hardware (hinges) remained. The window sashes (new) were painted white. The plaster walls were skim coated with traditional lime-based plaster and the ceiling replaced by sheetrock before the assessment (CR). The south wall had been problematic for plaster adhesion and removed to the lath and replastered with a traditional three coat lime based system (CR).

²⁰ Conversations with Charles Rackley-The profile of the door jambs were not consistent with the other elements in the room or the house, and the wire nails date to the early 20th century.



Fig.31 Dining room north wall before treatment



Fig.32 West wall before treatment

The paint analysis found that woodwork was painted three times—originally red-brown, followed by a layer of gray paint, then an incomplete light blue gray on the lower half of the west window surround (fig.32).²¹ The finishes in this room presented as dark and very inconsistent. The most distracting and certainly the most perplexing inconsistency in the room was/is the half painted window surround and shutters on the west side. The finishes on the cornice and upper regions of the window surround were much darker than the lower woodwork finishes and different in texture.²² This blackish layer was unusual in that it was heaviest on the window soffit panels and other downward facing elements, as though it were an accumulation of soot (from smoke) or other atmospheric materials and not painted. The post historic fireplace surround was painted black and the post historic door frames stained red-brown (fig.31). Although the historic finishes were inconsistent with much of the red-brown layer showing through, the finishes in this room were stable.²³

Because of the inconsistencies of the finishes and the abundance of post historic material installed in this room, determining a cohesive finish schedule was challenging. Ultimately, the decision was made to work with the extant finishes on the historic materials, leaving the inconsistencies as part of the historic narrative. The post historic materials that did not match (1920's door jambs) would have a reversible protective barrier applied and then faux painted to generally match the overall hue and texture of the extant historic finishes (brown/black). The new material replacing missing elements (doors and baseboard) would also be faux painted to generally match the surrounding elements. The window sashes would have a lighter, sympathetic color applied to distinguish them from the historic material and be consistent with all the windows in the house.

Treatment – Historic Fabric

The historic fabric was first brush-vacuumed, then dry-cleaned with Dirt Eraser sponges. The cornice and window soffit (black) had a heavier layer of soot and grime than the lower areas and was cleaned with cotton Webril and a 4% ammonium citrate solution (pH 8), cleared with mineral spirits. This was repeated until no dirt was observed on the Webril. Additional cleaning was required on some areas with a Webril dampened with ethanol. The lower window surrounds were cleaned with cotton Webril

21 Susan L. Buck, Ph.D. *Cross-section Paint Microscopy Report*, Oct. 10, 2012, p. 34

22 The paint analysis did not include the cornice or upper regions of the windows

23 The blackish layer was rough in texture, well adhered and very stable.

and mineral spirits with 1% triton XL 80N, then cleared with mineral spirits. The window seats were heavily soiled, with a lot of surface dirt. They were cleaned with Webril and de-ionized water, then a 4% ammonium citrate solution (pH of 8), and finally cleared with mineral spirits. The cleaning of the historic paint was effective at removing the whitish haze associated with surface dirt and also enhanced the contrast between the presenting layers.

Treatment – Post-Historic Material

The fireplace surround and door frames were brush-vacuumed and dry-cleaned with Dirt Eraser sponges. The fireplace surround was then cleaned with 4% ammonium citrate (pH 8), and cleared with mineral spirits (fig.33). The edges adjacent to the wall were toned with Golden acrylics to match surrounding material. The door frames were brushed with a 5% B-72 solution in xylene, then painted with Golden acrylics and a series of acrylic glazes to match the historic trim.



Fig.33 Cleaning tests on mantel

Treatment – New Material

Two new doors for the north wall and all new baseboards were fabricated for this room. They were prepped and primed, then faux-painted to match the historic trim and fireplace surround (fig.34-35). The widows were painted a sympathetic, custom color, mixed with water and calcium carbonate to provide a flat finish.

Two coats of Bright White limewash from Virginia Lime Works were applied to all plaster walls in a vertical application to match the original. This application mitigated tool marks that were visible in raking light and provided a consistent sheen.



Fig.34 Dining room north wall after treatment



Fig.35 South west corner after treatment

Powder Room- off Dining Room

Existing Conditions

The powder room had been added sometime in the mid to late 20th century. The east wall exhibited efflorescence and sugaring of the plaster, due to water infiltration. The window shutters were the only historic architectural elements in the room.

Treatment – Historic Fabric

The shutters were first brush-vacuumed, then dry-cleaned with Dirt Eraser sponges, then cleaned with PVOH sponges in deionized water. The sponge was pulled in broad, even strokes and frequently rinsed in clean deionized water. This was repeated until no dirt was observed on the sponge.

Treatment – New Material

A new door frame in the south wall was fabricated for this room (CR). This frame was prepped and primed, then faux-painted to match the historic trim from the dining room.

The widow was painted the same sympathetic, custom color, mixed with water and calcium carbonate that was used for the dining room windows.

Vestibule between Dining Room and Kitchen

Existing Conditions

The Vestibule is a small passage connecting the Dining Room and Kitchen with an exterior door leading to the east. The door frames in the north and south walls were post-historic, with the same hardware and finish as those found in the dining room. The exterior door in the east wall was not original and was painted white and surrounding frame new. No historic baseboards were in this room.

Treatment – Post-Historic Material

The door frames were brush-vacuumed and dry-cleaned with Dirt Eraser sponges. A reversible protective barrier of 5% B-72 in xylene was applied, then faux-painted with Golden acrylics and glaze to match the frames in the dining room. The door was prepped, primed and painted black.

Treatment – New Material

The new door frame in the east wall, and new baseboards were prepped and faux-painted to match the surrounding trim.

Kitchen

Existing Conditions

The Kitchen had very little historic fabric remaining. The baseboard were missing and the historic plaster ceiling had been replaced with sheetrock at the time of the assessment. The door frames in the south wall were post-historic, with the same hardware and finish as those found in the dining room and vestibule.

Treatment – Post-Historic Material

The door frames were brush-vacuumed and dry-cleaned with Dirt Eraser sponges. A reversible protective barrier of 5% B-72 in xylene was applied, then faux-painted with Golden acrylics and glaze to match the frames in the Dining Room and Vestibule.

Treatment – New Material

A new door was fabricated for the pantry in the west side of the south wall, along with new baseboards (CR). They were prepped and faux-painted to match the surrounding trim. No limewash was applied to the plaster.

Master Bathroom

Existing Conditions

The Master Bathroom is the furthest room to the north on the second floor and contains three windows, chair rail, baseboard and fireplace.

The plaster conditions on the west wall were poor with extensive cracking and many areas missing plaster and exposing the wood lathe substrate. The plaster had evidence of multiple layers of unpigmented (white) limewashes that included graffiti in pencil on the east wall (fig.36).

This wall was eventually skim coated with traditional lime based finish plaster (CR).²⁴The ceiling, north and east walls had been replaced with sheetrock before the assessments (CR). The wood was in poor condition with cracking, checking, paint spatter and holes from insect and rodent infestation. Approximately half of the baseboard were at some point replaced and did not match the surrounding profiles.

The paint analysis found that the woodwork in this room was gray. Distinguished from all the other woodwork and doors on the second floor which were painted red-brown. This was the first and only paint ever applied to this room.²⁵Over 95% of the original paint layer was missing on the wooden elements with only remnants visible on the window seat surround (fig. 37).

Treatment – Historic Fabric

The historic fabric was first brush-vacuumed, then dry-cleaned with Dirt Eraser sponges. Aqueous cleaning included PVOH sponges slightly dampened in deionized water. The sponge was pulled in broad, even strokes and frequently rinsed in clean deionized water. This was repeated until no dirt was observed on the sponge. The window seats required additional cleaning with 4% ammonium citrate (pH 8) and deionized water with Webril and then cleared with mineral spirits. This process was repeated until no more dirt was visible on the Webril on clearing. Given the lack of surviving finishes in this room and the modern fixtures scheduled to be installed, the decision was made to paint/tone the wood on the chair rails, door frame and baseboards, with a semi transparent color based on the historic color found in the paint analysis. The window seats with extant historic paint would be cleaned only and left as is. Woodwork to be painted had an application of 5% B-72 in xylene, a revers-



Fig.36 Easty wall conditions



Fig.37 North wall after treatment



Fig.38 East wall after treatment

24 Graffiti was documented before replastering

25 Susan L. Buck, Ph.D. *Cross-section Paint Microscopy Report*, Oct. 10, 2012, p. 49

ible, protective barrier brushed on--then a tinted semi-transparent acrylic glaze was applied.²⁶

Treatment – New Material

All new woodwork replacing the missing and dutchman were distressed and toned to match surrounding material. The windows and window surrounds were primed and painted white. Two coats of limewash were applied to the ceiling to mitigate tool marks and provide a consistent sheen (fig.38). This room was fitted with plumbing fixtures and the west wall window seat sacrificed for a wall mounted toilet. The wood removed to fit the toilet was reproposed to construct the surround.

Master Bedroom

Existing Conditions

The Master Bedroom is located between the Master Bathroom and the Upstairs Landing. The room includes three window surrounds with seat, three doors, chair rail, baseboard and a post historic neoclassical fireplace surround.²⁷

The historic plaster conditions in this room were similar to the Master Bath in that it was applied thin, exhibited cracking and was missing in many places exposing the wood lathe. The ceiling, south and west wall had been replaced with sheetrock before the assessment. The woodwork was 90% intact and the conditions varied from area to area. The baseboards exhibited the most damage in the form of deep gouges, cracks, and substandard dutchman installations on the south wall. The west window was missing the trim on the south side of the window opening. The presenting paint layer appeared chalky, and inconsistent but was stable to the touch. The layers of surface dirt and debris distorted the color to a mottled red-gray. The doors on the north side had been previously cleaned (partially) and the finish blached and streaky (fig. 39-40). The east door on the north side had a rectangular box drawn in magic marker on the center right panel and pencil marks throughout. The fireplace surround was missing roughly 60% of the black paint exposing the wood substrate.

The shutters for this room were extremely dirty with surface debris from insect nesting, mold growth



Fig.39 NW view before treatment



Fig.41 North wall after treatment

North wall after treatment

26 The gray specified in the *Cross-section Paint Microscopy Report* (Benjamin Moore #2130-40 “Black Pepper”) was lightened to better match the marble fixtures in the room

27 Conversations with Stephen Foster-June 2013.

and grime.²⁸ The finishes facing the exterior did not survive and retained only traces of a green paint in the lower corners.²⁹ The closet door interior was unfinished. Paint analysis found that the red-brown presenting paint is the first and only paint applied to the woodwork.³⁰

Treatment – Historic Fabric

The sensitivity of the paint to cleaning methodologies varied from area to area. All the painted woodwork was first brush-vacuumed then dry-cleaned with Dirt Eraser sponges. This was effective at removing surface dirt and debris but did not remove the embedded dirt and grime. Testing found that the doors and chair rail were sensitive to aqueous solutions, but repeated applications with mineral spirits with 1% Triton-XL 80N on a Webril was effective at removing more surface grime. This process was repeated until no dirt or pigment was noted on the Webril-then cleared with mineral spirits. Although some of the streaking remained, (most prominently on the closet door), the cleaning provided a more consistent finish with much deeper hues of red. The baseboards were sensitive to both aqueous and solvent cleaning and were dry-cleaned only. The closet door interior and window seats that were missing all finish were cleaned with PVOH sponges slightly dampened with deionized water. This was repeated and frequent rinsing in clean water. Additional cleaning with 4% ammonium citrate (pH8) on a Webril and cleared with mineral spirits effectively removed surface dirt and grime build-up, revealing the wood grain.

The magic marker on the northeast door was mitigated in part with xylene on cotton batting, but had to be inpainted with Gamblins inpaints (soluble in isopropyl alcohol) to cover and match surrounding material. The edges of the window trim molding, next to the walls, were missing finish as a result of plaster demolition. These areas were toned with acrylic glaze to match surrounding material. The northeast door and all baseboards were sprayed with Aquazol 500 to stabilize the under-bound finish.

The shutters were cleaned with PVOH sponges and deionized water. This was repeated until no dirt was observed on the sponge and was effective at removing the substantial surface debris. Additional cleaning included ammonium citrate (pH8) and deionized water applied with Webril, repeated until no dirt was observed on the Webril and halted if pigment began to be removed. The entire shutter was then cleared with mineral spirits on a Webril (fig.42).

Treatment – Post-Historic Material

The fireplace surround was effectively cleaned with 4% ammonium citrate (pH 8) and cleared with deionized water.



Fig.42 Shutter before and after treatment

28 All the second floor shutters had been stored in the cabin for an extended period of time-accumulating much more surface dirt and grime than the other woodwork in the house
29 Evidence of green paint was found on many of the 2nd floor shutters (exteriors) suggesting a deliberate attempt to unify the exterior when closed.
30 Susan L. Buck, Ph.D. *Cross-section Paint Microscopy Report*, Oct. 10, 2012, p. 45

Treatment – New Material

The new molding installed on the west window (south side) was prepped and faux-painted to match the surrounding trim (CR). The widows were painted a sympathetic, custom color, mixed with water and calcium carbonate to provide a flat finish. Two coats of bright white limewash from Virginia Lime Works were applied to the ceiling to mitigate the tool marks created during the final plastering and provide a consistent sheen.

Second Floor North/South Passage
Existing Conditions

The North/South Passage (landing) is at the top of the stairs and connects the north and south bedroom chambers. This passage includes a west window, two doors, three door frames, chair rail and baseboard.

The historic plaster exhibited cracking and was missing in many places exposing the wood lathe. The plaster ceiling, north and west wall above the chair rail had been compromised beyond repair and replaced with sheetrock before the assessment (CR).³¹ The sheetrock and the extant historic walls were skim-coated with traditional lime-based plaster (CR).



Fig.43 Southwest corner before treatment



Fig.44 West wall chair rail during treatment

All the original woodwork was extant and finished the same as the Master Bedroom. Damage to the wood included gouges, cracking and a large hole cut into the lower panel of the south door. The painted finish on the woodwork was approximately 80% extant, original to construction and relatively stable. The window seat and surround had the least amount of surviving paint from the expected human interaction. The finish appeared chalky and blanched with construction related damage such as plaster residue, spatter and watermarks from the recent plaster removal (fig. 43). The doors, and door frames had a significant buildup of grime from hand oils around the door knob area that presented as glossy black.

Treatment – Historic Fabric

All paint layers in this room were relatively stable, but sensitive to aqueous solutions. The historic fabric was first brush-vacuumed, then dry-cleaned with Dirt Eraser sponges. Mineral spirits with 1% Triton-XL 80 N on a Webril was effective at removing most of the plaster residue and additional surface grime (fig. 44). Deionized water on a Webril removed heavy deposits of plaster residue from the top of the baseboard and chair rail. The window seat were cleaned with PVOH sponges and deionized water, repeated with frequent rinsing until no dirt was observed on the sponge. The edges of the window trim molding, next to the walls, were missing finish as a result of the recent plaster removal. These areas were toned with acrylic glaze to match surrounding material.

31 Conversations with Charles Rackley, June 2013

Treatment – New Material

A dutchman was fabricated and installed in the hole in the lower left panel on the south door (CR). The new wood was primed and faux painted with acrylics to match the surrounding finish. The widows were painted a the same sympathetic, custom color, mixed with water and calcium carbonate as in the Master Bedroom. Two coats of Bright White limewash from Virginia Lime Works were applied to the north and west walls to mitigate the tool marks created during the final plastering.

Second Floor South Wing/Changes to the Historic Floor plan

The original south wing floor plan was a two-over-two room layout with large central passage that provided access to the flanking rooms, center stairs and rooms north. The second floor passage included a south window (directly above the front door), and two doors to the chamber rooms, also on the south end. During this rehabilitation this passage was partitioned to install two bathrooms and a hallway to service the chamber rooms.

Southwest Chamber

Existing Conditions

The Southwest Chamber includes an entrance vestibule, two doors, three windows with seats, chair rail, baseboard and fireplace. The historic plaster conditions in this room were similar to all second floor walls in that it was applied thin, exhibited cracking and was missing in many places, exposing the wood lathe. The ceiling, north wall and most of the south wall (west) had been replaced with sheet-rock before the assessment (CR). The east wall had a traditional three coat plaster system applied to the existing lathe (CR). The west wall plaster was in fair condition with approximately one quarter of the finish plaster compromised and skim coated with traditional lime plaster (CR). This wall retained evidence of multiple applications of unpigmented (white) limewashes. The woodwork was 90% intact with the exception of the door frame leading north which was framed with new wood trim (CR). The finishes on the woodwork were relatively stable with the exception of the baseboards, which were sensitive to aqueous solutions. The finish on the east door, facing the room, was in excellent condition, stable to the touch and 95% extant. The unusual condition of the paint on this door suggests that it was open much of its life and not exposed to direct sunlight, and a great example of the unadulterated red-brown color. Paint analysis found that the red-brown presenting paint is the first and only paint applied to the woodwork.³²



Fig.45 South window after treatment

Treatment – Historic Fabric

The historic fabric was first brush-vacuumed, then dry-cleaned with Dirt Eraser sponges. The chair rails, door frames, north door and window seats were cleaned with PVOH sponge slightly dampened with deionized water, repeated with frequent rinsing until no dirt was seen on the sponge. The window seats and exteriors of the shutters, required an additional cleaning with 4% ammonium citrate (pH8) and deionized water applied with Webril, repeated until no dirt was observed on the Webril and then cleared with mineral spirits. The baseboards were cleaned with mineral spirits and Webril and then sprayed with 1% Aquazol 500 in Ethanol to stabilize the finish. The east door was only lightly dry cleaned with Wishab sponges.

32 Susan L. Buck, Ph.D. *Cross-section Paint Microscopy Report*, Oct. 10, 2012, p. 37

Treatment – New Material

The widows were painted the same sympathetic, custom color, mixed with water and calcium carbonate, as the stair landing and master bedroom windows. The north entrance door frame and vestibule baseboard (both new) were primed and faux painted to match surrounding trim color and texture. Two coats of Bright White limewash from Virginia Lime Works were applied to the ceiling and east wall to mitigate the tool marks created during the final plastering and provide a consistent sheen.

Southwest Chamber Bathroom

Existing Conditions

The Southwest Chamber Bathroom was installed on the south end of the original passage and is accessed by the original entrance door to the Southwest Chamber. The rehabilitation utilized all the extant historic woodwork including a window seat, two doors (the east door inoperative), and baseboards on the west, south and east wall. This woodwork was painted the same red-brown as the other rooms on the second floor and was the first and only paint applied.³³ Damage to the wood included gouges, cracking and a holes in the baseboard that appears to be from insect and rodent infestation. The painted finish on the woodwork was approximately 80% extant and relatively stable. The window seat and surround had the least amount of surviving paint from the expected human interaction. The finish presented as chalky and blanched, with plaster residue and spatter from the recent plaster work. The plaster on ceiling had been replaced with sheetrock and the south, east and west walls were re-plastered with a traditional three coat plaster system before the assessment (CR).

Treatment – Historic Fabric

The historic fabric was first brush-vacuumed, then dry-cleaned with Dirt Eraser sponges. The chair rails, west door, west door frames and baseboards were cleaned with mineral spirits and Triton XL 80N on Webril and cleared with mineral spirits. This was repeated until no evidence of dirt could be seen on the Webril. The window seat and exterior of the shutters were cleaned with PVOH sponges dampened with deionized water. Then additional cleaning where necessary with 4% ammonium citrate (pH8) and deionized water applied with Webril, repeated until no dirt was observed on the Webril and then cleared with mineral spirits. The east door and door frame were sensitive to aqueous solutions and only dry cleaned. This door was located very close to the installed bathtub and particularly susceptible to water. In order to mitigate potential damage, the door and frame were sprayed with 5% B-72 in xylene. This saturated the finish somewhat and appeared slightly darker. This treatment should not to be considered “water proof”, and efforts should be made to keep the door and door frame dry while using the bath.

Treatment – New Material

The widow sashes were painted the same custom paint and color as the Southwest Chamber, second floor North/South Passage and Master Bedroom windows. The baseboard on the north wall (new) was primed and faux painted to match surrounding trim color and texture.

Southeast Chamber

Existing Conditions

The Southeast Chamber includes two doors, three windows with seats, chair rail, baseboard and fireplace. The only extant historic plaster in the room during the time of the assessment was the east wall and fireplace. This plaster was stable but exhibited cracking and surface degradation in the form of sugaring and flaking. Evidence of water infiltration, in the form of efflorescence and staining were

33 Susan L. Buck, Ph.D. *Cross-section Paint Microscopy Report*, Oct. 10, 2012, p. 40



Fig. 46 Southeast Chamber/SE view before treatment



Fig. 47 SW corner before treatment

noted on the north side. The fragments of a surviving finish on the plaster appeared to be multiple layers of unpigmented (white) limewash (fig. 46). Approximately 50% of the historic woodwork was missing during the time of the assessment. The surviving woodwork included the south door and door frame, window seats, and all of the baseboard. The condition of the wood was fair with the expected checking and splintering found throughout the house. The finish was the same red-brown paint found in other second floor rooms and is the first and only paint applied to the woodwork.³⁴ The conditions of the paint varied with the most fragile finishes on the window seat surrounds and baseboards where approximately 30% had been worn away (fig.47). The paint on the baseboard appeared inconsistent and blanching and included construction related damage such as plaster residue, spatter and watermarks from the recent plaster removal. The paint on the south door was in good condition, stable to the touch, and 95% extant. Suggesting that, like the door in the Southwest Chamber, it had been open much of its life and not in contact with direct sunlight. The finish presented darker, with an inconsistent, whitish film covering the surface. The door and door frame had a buildup of hand oil grime around the knob area that presented as glossy black (fig. 48). New elements included the north door and frame, chair rail, window seat moldings, and closet doors flanking the fireplace.

Treatment – Historic Fabric

The sensitivity of the paint to the tested cleaning methodologies varied. All the painted woodwork was first



Fig. 48 SW door before treatment



Fig. 49 SW door after treatment

brush-vacuumed then dry-cleaned with Dirt Eraser sponges. This was effective at removing surface dirt and debris but did not remove the embedded dirt and grime. Testing found that the door and window seat finishes were relatively stable and not sensitive to aqueous solutions. These elements were cleaned

34 Susan L. Buck, Ph.D. *Cross-section Paint Microscopy Report*, Oct. 10, 2012, p. 36

with PVOH Sponges dampened with deionized water. This process was repeated with frequent rinsing until no dirt (or pigment) was observed on the sponge. Additional cleaning on the black hand oil grime around the door knob was necessary, and effectively removed with mineral spirits and cotton batting. The baseboards, which were sensitive to aqueous cleaning methods, were cleaned with mineral spirits applied with Webril. The window seats that were void of finish were cleaned with PVOH sponges slightly dampened with deionized water. This was repeated and frequent rinsing in clean water. Additional cleaning with 4% ammonium citrate (pH8) on a Webril and cleared with mineral spirits effectively removed surface dirt and grime build-up, revealing the wood grain.

Treatment – New Material

The fabricated elements in this room included a door and frame (north), window seat trim moldings, all of the chair rail and two large closet doors and frames (CR). With over half of the woodwork in this room fabricated, the aforementioned protocol for finishing new material was reassessed.³⁵ The decision was made to distinguish the new material from the old but add depth to the finish with a glaze. The glaze provided a mottling that was more sympathetic to the historic finish and help unify the finishes in the room.

All new material (and windows) were first primed with tinted latex primer, holes were filled with Modostuc filler and sanded smooth, then painted with custom color mixed flat latex base, and finally glazed with tinted dead-flat acrylic varnish. The glaze was first brushed on and pounced off with brush (fig.50).

Two coats of Bright White limewash from Virginia Lime Works were applied to the ceiling and east wall to mitigate the tool marks created during the final plastering and provide a consistent sheen.



Fig.50 East wall after treatment with glaze applied to doors

South Wing Passage with Closet

Existing Conditions

The South Wing Passage was created to access the Southeast Chamber and the Southeast Chamber Bathroom. This passage includes three doors and frames, baseboard and chair rail. The doors access the linen closet on the north wall, Bathroom to the south and Southeast Chamber.

The only historic fabric in this passage is at the west wall and includes chair rail and baseboard. All other material beyond that point is new. The red-brown painted finish on the chair rail, baseboard and entrance frame was approximately 80% extant. The paint was stable but sensitive to aqueous cleaning methods.

35 See introduction ,pp. 2

Treatment – Historic Fabric

The painted woodwork was first brush-vacuumed then dry-cleaned with soft (orange) Wishab sponges. This was effective at removing surface dirt and debris but did not remove the embedded grime. Mineral spirits with 1% Triton XL 80N applied to a Webril was effective at removing more surface dirt than dry cleaning only, but some pigment was observed on the Webril while using this cleaning method on the baseboards. The edges of the vertical trim moldings were missing finish as a result of plaster restoration. These areas were toned with acrylic glaze to match surrounding material.

Treatment – New Material

All new woodwork and doors in this passage were finished with the same methods and materials as the Southeast Chamber room.

Southeast Chamber Bathroom

All walls and woodwork in this room were new. Finishes on the door frame, door and baseboards in this room were finished with the same methods and materials as the Southeast Chamber room.

Recommendations

The damage and inconsistencies apparent in the painted surface at Wilton are the result of prolonged and/or concentrated exposure to moisture and light. Both ultraviolet (UV) and visible light radiation chemically alter paint over time. The rate at which paints fade (pigment particles become fugitive) varies depending on the type of pigment used and the length and intensity of exposure to UV and natural light. Limiting the UV and natural light entering the interior will prolong the stability and preserve the physical characteristics of the paint. This can be achieved by keeping the shutters closed when possible and applying a UV blocking film to all the window panes. Llumar N1020 (by CPFilms) is a cost effective, commercial window film that was found in recent studies to sustain a 97% UV absorption rate.³⁶ This particular film is neutral in color and would not change the appearance of the window glass.

The water related damage to the paint is the result of moisture migrating through the exterior masonry (capillary action) and is evident on north walls and woodwork in the south wing. To address this problem the exterior masonry has been re-pointed and rain gutters installed on both north facing walls (CR). Additional gutters installed on the south side of the house would help negate the moisture related damage on the window seats in the Southeast Room and the center panels on the south wall in the Southwest Room. The moisture in the wood substrate also attracts insect infestation which has already caused considerable damage to the back of the panels in the Southwest Panelled Room. Periodic monitoring of the affected area for signs of active infestation coupled with ongoing treatments specified by professional exterminators are recommended.

The introduction of air conditioning to Wilton will help keep a constant interior relative humidity (RH) and temperature, which will relieve paint stress associated with extreme fluctuations. However, with extreme temperature and humidity differentials between the interior and exterior, associated with air conditioning in the south, the potential for condensation forming somewhere in or on the wall rises.³⁷ In general, the RH should be kept between 37% and 53% (most museums are set at 45%) and temperature between 66° and 74°F.³⁸ Careful monitoring of the painted finishes for signs of condensation or unusual surface conditions (crazing, flaking) is recommended during the hot, humid months and adjustments made within the aforementioned parameters to find the optimum setting.

Periodic cleaning of surface debris and dust should be carried out on a regular basis following the scheduled of maintenance plan attached to this document.

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- 36 Colleen Boye, Frank Preusser, and Terry Schaeffer; *UV-Blocking Window Films for Use in Museums—Revisited* WAAC Newsletter Volume 32 Number 1 January 2010; and- *Aging Properties of Select UV-Blocking Window Films*; WAAC Newsletter Volume 33 Number 1 January 2011
- 37 see- Sharon C. Park, AIA; *Holding the Line: Controlling Unwanted Moisture in Historic Buildings*, Preservation Briefs 39, National Park Service; also see William Rose; *Effects of Climate Control on the Museum Building Envelope*; JAIC 1994, Volume 33, Number 2, Article 11 (pp. 199 to 210)
- 38 Marion F. Mecklenburg; *Determining the Acceptable Ranges of Relative Humidity And Temperature in Museums and Galleries*; Smithsonian Museum Conservation Institute. 2007; pg 54

Appendix A

Southwest Panelled Room/North Wall Stabilization/Support Attachment Locations

Termite damage caused the north wall to sag approximately 2.5" at its center, this compromised the stability of the entire wall panel system. Stabilization efforts were made by Charles Rackley and the author of this report on February 12-13, 2013.

The second floor Southwest Chamber, directly above the wall was used as an access point to lift the panels back into place. Two 3-ton lever block ratchet hoists were suspended from the roof joists and nylon straps slipped through the back of the panels and looped around the front to provide the lift (fig.1). While gradually hoisting the panels into their former position, temporary block supports were inserted under the wall at baseboard level to distribute the weight.

Once in place, two 6'x1' pieces of 3/4" pressure treated plywood were lowered into the gap between the masonry and back of the panel to reach the chair rail. The plywood was secured with stainless steel screws through the front just below the chair rail, and then suspended from angle iron installed between floor joists with threaded steel and bolts. These supports were designed to be adjustable in the event that future alterations become necessary. Three additional "leg" supports were added at the floor level to distribute the weight and were attached to the stile and rail of the lower panels. The two dislodged panels were then set back into position and secured to the wall with wedges. A Dutchman of 1-2" was added to the bottom of the baseboard to compensate for the resulting gap once the wall was lifted.

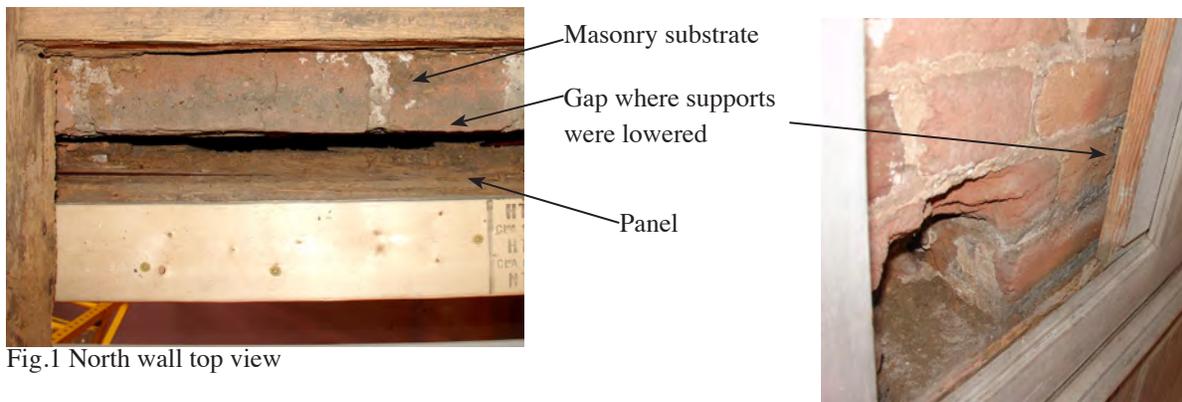
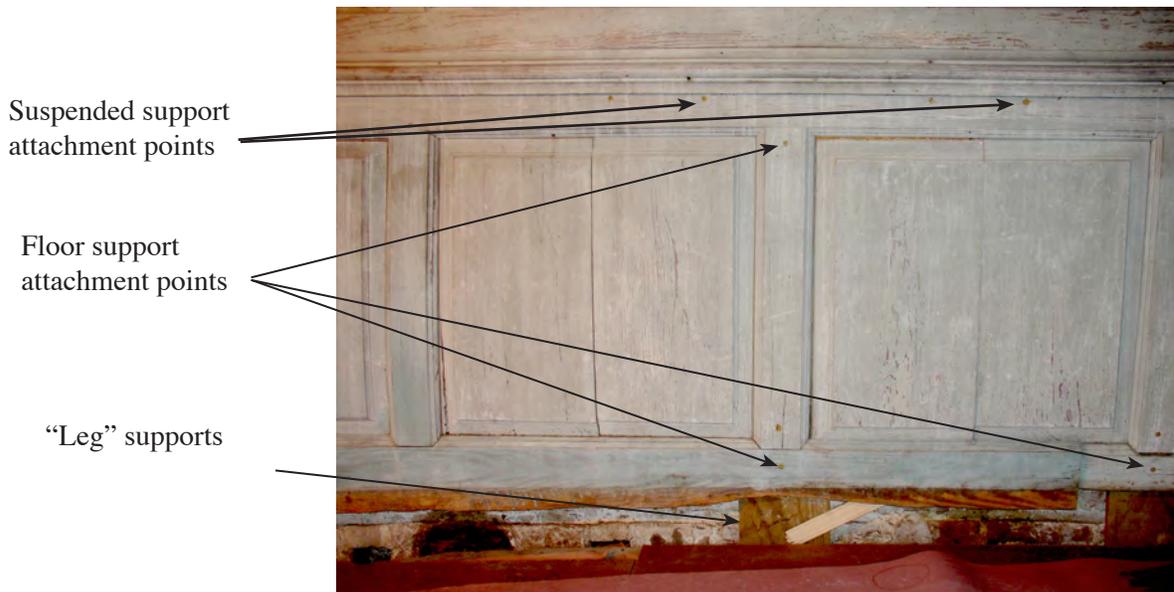


Fig.1 North wall top view



Southwest Panelled Room, north wall attachment locations

Appendix B

Schedule of Maintenance

The interior historic painted finishes applied to the woodwork at Wilton date from the mid 18th century to the early 19th century. The unadulterated and complete nature of the finishes throughout the house are rare-and an important example of early American interior painting. This document was created to help keep the surfaces free of debris (cobwebs, insects, degrading plaster particles) and surface dust that naturally accumulate.¹

Many of the painted surfaces are fragile and sensitive to aqueous solutions. All the painted woodwork at Wilton can be cleaned with non-abrasive, dry cleaning methods only. Do not place potted plants, vases or any vessel with water on the painted wooden elements. Any treatment to alter the appearance, remove overpaint or further stabilize painted historic fabric should be executed by a conservator familiar with historic painted surfaces and the prior treatments outlined in this report (Treatment Report 2013). Scheduled cleaning routines should include careful inspection of the painted woodwork. Any changes noted in the painted finish such as color shifts, texture changes, delaminating or flaking paint, pigment particles (on the floor), condensation, mold growth, should be brought to the attention of the owner and the author of this report.

Surface Dirt Removal From Painted Surfaces

Commercial cleaning products used on the painted surfaces at Wilton may cause irreparable damage or complete loss of the finish.

Recommended Cleaning Methods:

<i>Feather Dusting</i>	To remove surface dust, cobwebs and related material on a regular basis-wiped across surface
<i>Brush Vacuuming</i>	To remove loose surface dirt, plaster particles and heavy dust accumulation; with a soft natural bristled brush held in one hand and the vacuum end held in the other. The brush sweeps the debris and dirt into the vacuum nozzle.
<i>Dry-Cleaning</i>	To remove heavier dirt build that does not move with brush vacuuming, primarily vertical surfaces and ledges that accumulate settling dirt and soot. Use a non-abrasive sponge (made of vulcanized rubber) or tack cloth- lightly wiped across surface, closely monitoring of the cloth or sponge for pigment coming off.

Particularly sensitive areas that should not be cleaned with anything but a feather duster include :

- SW Panelled Room-north wall panels
- SW Panelled Room-south wall center panels above chair rail
- Center Stairs ceiling panels
- SE Red Room -All shutters and southwest closet door

¹ Additional recommendations for cleaning material other than the painted woodwork can be found at: Minnesota Historical Society; *Historic Housekeeping Handbook*, 2000

Recommended Cleaning Materials:

- Feather Duster
- Hepa-vacuum
- Natural bristles brushes
- Dirt Erasers (dry cleaning sponge) by Absorbene
- Tack cloth
- Viva paper towels (glass cleaning)

All material painted with a sympathetic color such as window sashes can be brush vacuumed with a *Hepa-Vac* vacuum with soft brush attachment. The window glass can be cleaned with a mixture of distilled water 50% and isopropyl alcohol 50% and a few drops of ammonia, sprayed onto a clean cloth or Viva paper towel and wiped on the glass. Avoid getting the aqueous solution onto the painted wood.

Attic stock of all paints used on the post-historic material at Wilton have been left on-site in the Center Stair closet. These paints are custom mixed and should be stirred thoroughly before use.

Materials

Dirt Eraser dry cleaning sponges can be found at:

Talas Conservation Materials
330 Morgan Ave, Brooklyn, NY 11211 | <http://www.talasonline.com>
(212) 219-0770