



**Vanderbilt Mansion National Historic Site  
Conservation of Interior Stonework  
May-June 2005**

Northeast Museum Services Center  
Collections Conservation Branch

CRBIB # 406464  
VAMA 03762  
382/133787

# Vanderbilt Mansion National Historic Site

## Conservation of Interior Stonework 2005

### Conservation Assessment and Treatment Reports

INTERIOR ARCHITECTURAL STONE CONSERVATION NEEDS ASSESSMENT

TRIP REPORT, ROSECLIFF MANOR

DINING ROOM FIREPLACE: WEST MANTEL

DINING ROOM FIREPLACE: EAST MANTEL

DRAWING ROOM FIREPLACE MANTEL

BALUSTRADE

VAMA #849 MARBLE COLUMN

CLEANING PROTOCOL FOR MARBLE

IMAGES OF ON-SITE TREATMENT IN PROGRESS

PREPARED BY: MARGARET BREUKER

NORTHEAST MUSEUM SERVICES CENTER  
COLLECTIONS CONSERVATION BRANCH

# **Vanderbilt Mansion National Historic Site Interior Architectural Stone Conservation Needs Assessment**

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## ***Preliminary Report***

Object Conservators Brigid Sullivan Lopez and Margaret Breuker of the Northeast Museum Services Center, Collections Conservation Branch, traveled to Vanderbilt Mansion NHS on April 4<sup>th</sup> and 5<sup>th</sup>, 2005 to assess the treatment needs of the interior architectural stonework, particularly the fireplace mantels.

## **Background**

A major concern of the Park involved soot deposits on the interior stonework generated by the operation of the heating system. Soot deposits have been a chronic problem in the mansion, as well as soot “puff backs” beginning in 1990, and again after boiler replacements in 2003-04. Interior walls coverings, stone architectural elements, furnishings and stored objects have all suffered from soot accumulation. This has been a long standing problem at the mansion, prompting recovery work by private object and textile conservation firms, Museum Services Center Conservators, and Park personnel.

Tom Branchick, a paintings conservator, and various other conservators from the Williamstown Art Conservation Center in Williamstown, MA performed site visits in 1995/96, examining architectural surfaces, paintings and frames, furniture, wallpaper, framed paper, and objects. Concerning stonework, he reported moderate soot levels and conducted cleaning tests using methyl cellulose and water poultices on the dining room fireplace mantels, the columns in the second floor balustrade, and the marble statuary in the grand staircase niches. He reports that the East Mantel had been previously cleaned two seams up from the floor on the proper right side. Various cleaning tests were also preformed on Mr. Vanderbilt’s fireplace mantel, especially the front proper left side, presumably using methyl cellulose and water poultices.

In January of 2006, ducts from the HVAC system will be thoroughly cleaned and the Park is hopeful that these efforts will further reduce soot accumulation in the mansion.

## **Trip Report**

NMSC Conservators first met with the Park’s Chief Curator, Anne Jordan, to discuss the history of the soot accumulation in the mansion, and project goals for treatment in the summer of 2005. This meeting was followed by a room by room examination of the interior stonework, discussing particular concerns of the Park based on visually prominent features and areas of heavy traffic. After this general walk-through, NMSC conservators returned to those rooms where stonework required significant conservation treatment and conducted detailed examinations using visual assessment and cleaning tests and photographically documented the existing conditions. These rooms included the Entrance Reception Hall, Dining Room, Grand Staircase, and Mr. Vanderbilt’s Bedroom.

Fireplace mantels and stonework in other rooms of the Mansion were either in good condition, or required basic treatment that could be easily executed by Park Staff. This

report discusses the stonework of every room examined by NMSC Conservators, followed by general recommendations and finally a treatment proposal for work to be executed in the summer of 2005 by NMSC Conservators.

## FIRST FLOOR

### **Reception Hall**

#### Mosaic Floor:

The floor is considerably stained with a disfiguring yellow tone, possibly from previous cleaning and/or waxing. Several areas of loose grout have resulted in detachment and loss of mosaic tiles. The Park inquired about applying a coating onto the floor to prevent loss of tiles.



The floor appears lighter under furniture, suggesting a yellowed floor coating.



Grout is becoming loose, dislodging tiles in some areas.

#### Recommendations:

A coating application to the floor should be avoided due to loose grout and tiles. Floor coatings will not be effective if there are any loose elements below the coating. A specialist in floor tile installation should be employed to correct areas of the floor where loose and failed grout has resulted in tile losses. The floor should be re-grouted and tiles replaced in problem areas. This should be addressed before any coating is considered. Buildings Conservation Branch architects should be consulted for coating options.

#### Green Marble Pilasters:

Twenty-four marble pilasters line the walls for the Reception Hall. The pilasters appear to have a yellowish-green tone, and have a curious matte and shiny surface. A yellow/green pigment can be seen in the recessed veining of the marble. This pigment is soluble in water and does not fluoresce, indicating little or no binder to the pigment.

The pilasters have numerous historic painted infills that fluoresce a light green/blue color, suggesting a hide glue or wax component. The fills have some losses, and the toning is soluble in water and acetone. All of the pilasters have some surface soot.

Recommendations:

The yellow/green tone to the pilasters and matte and shiny surface appearance may be due to an historic finishing technique. Because no solvents tested thus far (water, acetone, ethanol, benzene, xylene, methyl ethyl ketone) appeared to alter the matte/shiny appearance, and no overall fluorescence was detected, it is possible that this appearance is a result of surface finishing and not an applied coating. While there are losses to some of the fills, the overall aesthetic appearance of the pilasters is not greatly altered, nor is stability affected. The pilasters should be cleaned of soot only with great care due to the water solubility of the overall toning. NMSC conservators should conduct further tests to determine the cleaning method for the pilasters.



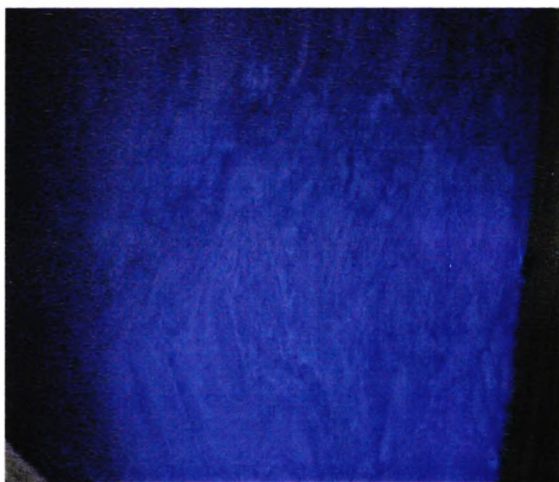
**Yellow/green surface appearance.**



**Matte and shiny appearance of surface in raking light.**



**Detail of painted fill, and green pigment in recesses and veins.**



**Pilaster under ultraviolet light showing no overall fluorescence.**

### Marble Architectural Door Moldings in Entryway

See attached "Cleaning Protocol for Marble in the Vanderbilt Mansion", prepared by Margaret Breuker, NMSC, CCB, June, 2005.

### Central Fireplace Mantel:

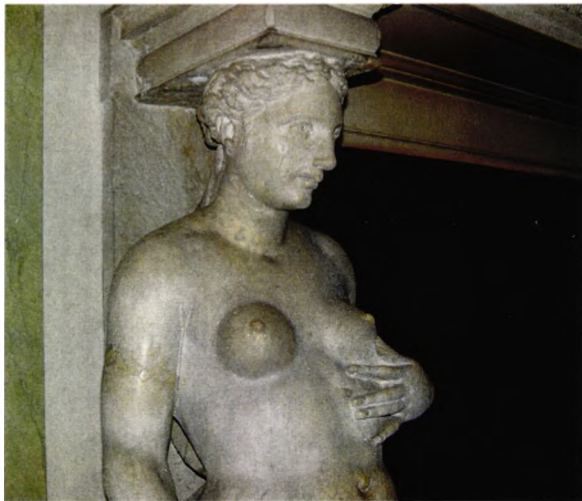
The central fireplace mantel is a highly decorative white marble fireplace mantel consisting of two Caryatids on either side, surrounded by a marble entablature. The frieze depicts mythical Greek iconography and flowers, and consists of a heavily grey-veined marble.

The Caryatids appear to be composites, created from several different pieces, some possibly antique and some contemporary to the creation of the piece. There are fills on each one, especially the proper right caryatid. This caryatid has several fills on the neck and right arm at the upper arm to below the hand with some plaster and toning throughout. The proper left caryatid has obvious joins at the nose tip, nipples, and hands. Both caryatids are a dark grey color, possessing heavy soot deposits. The remaining areas of the mantel are also covered with a layer of grey soot, especially on the upper planes. The frieze element appears much darker grey than the rest of the entablature, perhaps due to the natural color of the stone and an intentional design consideration.

Cleaning tests were conducted on the caryatids and various areas of the entablature. A vinyl eraser did little to remove soot deposits, as did pure spring water, acetone, and ethanol. Saliva removed some soot, but a 3% ammonium citrate/water solution was most successful, exposing white marble below, especially as dwell time was increased. Ultra Violet light examination exposed areas of infills, toning, and joins on the caryatids.



**Caryatid Fireplace Mantel.**



**Proper right caryatid.**



**Detail neck infill and join on proper right caryatid.**



**Detail of inpainting on neck (yellow area) of proper right caryatid under ultraviolet light examination.**



**Join and fill at upper arm.**



**Proper left caryatid.**



**Detail of soot accumulation and cleaning test areas, water first, then 3% ammonium citrate, on proper left caryatid left arm.**



**Detail of frieze that is darker grey than surrounding white marble of entablature of fireplace mantel.**



**Cleaning test on white marble surround using 3% ammonium citrate and water solution.**

#### **Recommendations:**

Soot on the mantel can be cleaned using the lowest effective percentage of ammonium citrate (<3%), wiped onto the surface using cotton pads and cleared with spring water. Due to the composite nature of the caryatids which resulted in considerable filling and toning, cleaning the surface would result in an overall irregular appearance. Toning and perhaps infilling would have to be redone, and additional toning may be necessary to achieve visual integration of composite elements. The curator should examine the possibility that the frieze element was meant to be darker grey in color than the rest of the entablature. Original design drawings or notes may provide clues to the original visual intent.

**Treatment time estimate for central fireplace mantel:**

The time estimate for the cleaning of the mantel and aesthetic integration of previous repairs/joins of caryatids is 80 hours or 10 conservation days.

**Marble Statue Busts:**

Two marble busts placed on yellow and red marble bases adorn the west side of the Reception Hall. They are now disfigured with dirt and soot.



**Marble bust. of a hooded man.**



**Marble bust of female figure.**

**Recommendations:**

The busts can be cleaned of soot using a vinyl eraser or the lowest effective percentage of ammonium citrate (<3%), wiped onto the surface using cotton pads and cleared with spring water.

**Treatment time estimate for two marble busts:**

The time estimate for cleaning two marble busts in the Reception Hall is 40 NMSC Conservator hours for each bust, for a total estimate of 80 conservation hours.

Deborah Miller cleaned the northwest white marble French Door moldings with dibasic ammonium citrate and water. This removed surface soot and now appears to be much cleaner.

## Dining Room

There are two elaborately carved, floor to ceiling fireplace mantels on the east and west of the north wall of the dining room. Each mantel consists of marble fireplace surrounds that are composed of several sections, above are two elaborately carved frieze panels side by side, and a large panel at the top with a stone shield on marble with dramatic orange and red veining. Each mantel has a filtered HVAC vent to the proper left side. Each mantel consists of different pieces, and the two were not initially created as a pair.



West Mantel



East Mantel

*East Mantel:* Largely consists of relatively dense beige/grey marble, with some orange veining. After visual and ultraviolet examination of the two central panels, it was determined that these areas consist of molded plaster, toned to match the surrounding marble. Close examination of the previously cleaned, proper left Griffin shows some remaining grey/brown toning in recesses of the Griffin's hair and legs.

Previous cleaning tests using ammonium citrate in 1996/97 are apparent on the proper left Griffin, the upper proper left cherub, the proper left side panels, and the proper right, bottom two panels. There are two areas of regularly shaped, rectangular patches of white, powdery accretions on the underside of the first horizontal mantel piece. It is unclear if these are due to previous testing or are natural carbonate accretions from the marble.

There are heavy overall soot deposits on all surfaces, especially the horizontal planes and areas near the vent. There are dark, paint-like streaks on the far proper left wall panel directly beside the vent. This streak-like stain does not fluoresce under ultraviolet light

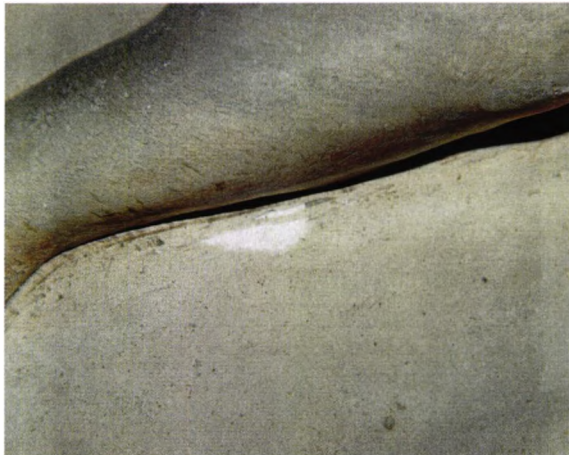
and is water soluble. The upper most portions of both mantels with the orange and red veining were not examined due to height inaccessibility.



**Proper right side of mantel showing previous cleaning of side panels.**



**Proper left side of mantel showing dark, paint-like streak pattern.**



**Nick in panel exposing white plaster below.**



**White, powdery accretions on underside of mantel.**



**Proper left side of plaster panel showing previous cleaning of Griffin, and NMSC cleaning tests on half of central leaf.**



**Detail of central leaf showing dirt and clean, toned surface.**

*West Mantel:* Consists of a beige/grey marble with some orange veining. This mantel does not appear to have any previous test cleaning patches. There is heavy overall surface soot, especially on the upper planes. There is a plaster fill on the front, decorative molding of the fireplace surround with what appears to be gold paint.



**Proper right side of mantel showing areas cleaning using an ammonium citrate/water solution.**



**Gold painted plaster fill.**

### Recommendations:

After removing soot from the plaster panels of the East Mantel, it is clear that these areas are meant to have the same warm beige tone of the clean surrounding marble. Due to the solubility of the toning layer of these panels, soot should be carefully removed using cotton pads dampened with spring water tamped on the surface to lift surface soot, taking care to not remove intentional toning. Some surface soot may remain after cleaning, but the majority would have been removed, leaving a brighter, antiqued appearance to the mantel and not a bright white, raw appearance. All marble areas of the East Mantel can be cleaned using the lowest effective percentage of ammonium citrate (<3%), wiped onto the surface using cotton pads and cleared with spring water.

Solvent testing on the West Mantel determined that spring water did very little to remove surface soot. Only a 3% ammonium citrate/water solution on a cotton pad was satisfactory in removing the soot from the stone surface. The West Mantel should be cleaned using the lowest effective percentage of ammonium citrate (<3%), wiped onto the surface using cotton pads and cleared with spring water. The gold-painted fill should be removed, refilled and toned to match the surrounding, clean stone.

### **Treatment time estimate for the East and West Dining Room Fireplace mantels:**

Both mantels should be cleaned at the same time, and frequently examined for consistency not only between different panels of the same mantel, but between both the East and West Mantels. These two mantels could be cleaned by NMSC conservators in the summer of 2005. The time estimate is 160 hours or 20 days. A team of one NMSC conservator, and two skilled preservation workers could complete the project in approximately four weeks.

### Living Room

The mantel pieces in the living room are highly polished dense colored marbles and are in excellent condition. There is some light surface soot covering the mantels. The mantels can be cleaned by wiping with spring water and minimal Orvus Detergent on cotton pads.



**Southeast fireplace mantel.**

One of the two serpentine column capitals was dislodged during transport and is kept in Park storage. The capital had previously fallen off and was repaired by a conservator using a pin and grout. The Park would like the capital to be replaced onto the top of the serpentine column.



**Column missing capital.**



**Capital on one of the serpentine columns.**

**Recommendations:**

The stone capital should be re-applied to the top of the column by using the grout provided by the previous conservator by conservators from NMSC.

**Treatment time estimate for serpentine capital:**

One NMSC Conservator for 4 hours.

**Drawing Room**

This elaborate mantel piece is composed of highly polished, dense marble, needing only minimal wiping with spring water on cotton pads, taking care to not touch bronze areas. Bronze areas may require waxing if they begin to oxidize in the future.



**Marble mantel with decorative bronze elements.**

### **Mr. Vanderbilt's Study**

This mantel consists of sandstone or highly fired terracotta blocks. There is minimal surface soiling on the proud elements, allowing better viewing of the highly carved surface. Soiling can be removed using water on cotton pads, but the mantel does not need to be cleaned at this time.



**Carved block fireplace mantel in Mr. Vanderbilt's study.**

### **Grand Staircase**

The Grand Staircase was initially examined by Peggy Albee of the Historic Architecture Program in July 15-17, 1998, and the draft HSR prepared by Albee provides a highly detailed technical description of the staircase. Located in the northwest corner of the central block of the house, the stairway consists of limestone steps with a wrought-iron balustrade and deep red-colored velvet railing. The walls have a beige/grey paint finish with brown/grey toning, and niches, filled with white marble statuary, are built into the two rounded corners of the two western landings and into the northeast corner of the second-story stair hall. The walls are adorned with decorative floral shapes, egg-and-dart, and bead-and-reel patterns. According to the 1998 examination report, the decorative elements, panels, and baseboards may consist of plaster and compo with textured paint or Keene's cement. Chair rail moldings opposite the metal railing appear to be limestone.

Five white marble statues adorn the niches. However, due to furnace puff backs and recycled soot within the mansion are now visibly dirty.

The floor of the first story stair hall consists of marble of various colors laid in a geometric pattern. Currently, a red carpet covers the floor and stairs. Peggy Albee's examination report states that the existence of the decorative pattern in the marble flooring suggests that the space was originally designed to be exposed and uncarpeted.

Underneath the red carpeting, especially on the landings, the marble flooring and limestone stairs appear much cleaner than the exposed areas. There is also tape residue

from attempts to secure the carpet. The Park has expressed a desire to remove the red carpeting, therefore requiring both the tape residue and soiling to be removed. A dense, decorative marble urn is set below the stair on the first floor.



**Five marble statues on Grand Staircase niches.**





**Limestone stair showing surface soiling.**



**Tape residue below red carpet.**



**Decorative marble urn.**

#### Recommendations:

The marble statues can be cleaned by NMSC conservators using vinyl erasers or using the lowest effective percentage of ammonium citrate (<3%), wiped onto the surface using cotton pads and cleared with spring water.

Once the red carpet has been removed, the floors, stairs and stone chair rail moldings can be cleaned with either the lowest effective percentage of ammonium citrate (<3%), wiped onto the surface using cotton pads and cleared with spring water, or a soft toothbrush and Orvus™ detergent in water. Tape residue can be removed using solvents such as Bestine™, a heptane based solvent used for removing rubber cements. Park staff can be trained by NMSC conservator to execute this work.

The decorative marble urn is in excellent condition, but can be wiped to clean using cotton pads and spring water.

**Treatment time estimate for the cleaning of marble statues:**

Approximately 40 conservation hours for each bust and 60 for each standing statue, for a total estimate of 260 hours.

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| <b>SECOND FLOOR</b> |
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**Second Floor Balustrade**

The balustrade consists of white marble posts and wide, flat white marble railing. People leaning on the railing during tours and the placement of potted plants have resulted in considerable surface grime and staining.



Staining on balustrade.



Cleaning test of balustrade showing removal of surface soiling with ammonium citrate and water.

**Recommendations:**

Cleaning tests indicated that both dilute ammonium citrate solution and Orvus™ detergent and water were effective in removing most surface soiling. The posts were unstained and require no treatment at this time. NMSC Conservators can train Park staff to execute the cleaning of the balustrade.

**Mr. Vanderbilt's Bedroom**

Areas of previous cleaning tests are visible on the proper left side of the mantel in Mr. Vanderbilt's bedroom. The mantel is disfigured with soot overall and past breaks and old fill repairs are visible on the proper left side where a section of metal armature is exposed. Orange/brown toning is visible in the recesses of the egg and dart molding although the toning does not fluoresce under ultraviolet light examination, suggesting little or no binders are present.



**Mr. Vanderbilt's Bedroom fireplace mantel.**



**Gilded decorative elements and previous cleaning tests are apparent.**



**Detail showing water soluble toning on egg and dart pattern.**



**Previous break and repair on proper left side.**

**Recommendations:**

The mantel is very dirty and should be cleaned by an NMSC Conservator using the lowest effective percentage of an ammonium citrate (<3%) / water solution, wiped onto the surface using cotton pads and cleared with spring water. Exposed and corroded armature iron should be stabilized and previous failed and disfigured repairs removed and redone with improved toning for visual integration with surrounding marble.

**Treatment time estimate for Mr. Vanderbilt's Bedroom fireplace mantel:**

The time estimate for treatment is 120 conservation hours.

### **Mrs. Vanderbilt's Bedroom**

Mrs. Vanderbilt's Bedroom fireplace mantel consists of a dense, highly polished marble that is in excellent condition. Park staff can clean off surface soot using spring water on cotton pads.



**Mrs. Vanderbilt's fireplace mantel.**

### **Guest Rooms**

Fireplaces in the guest rooms consist of painted white wooden fireplace mantels with highly polished marble surrounds. They appear to be in excellent condition and Park staff can clean off surface soot using spring water on cotton pads.



**Guest room fireplace showing wooden mantel and marble surrounds.**

## THIRD FLOOR

Fireplaces in all bedrooms on the third floor consist of painted white wooden fireplace mantels with highly polished marble surrounds. They appear to be in excellent condition, and Park staff can clean of surface soot using spring water on cotton pads.



**Third Floor fireplace mantel.**

### **Conservation Project Recommendations:**

Surfaces requiring conservation by a professional conservator include the following: the entryway fireplace mantel (estimate 80 hours), two marble busts in the entryway (estimate 80 hours), the dining room fireplace mantels (estimate 160 hours), the serpentine column capital from the living room (4 hours), Mr. Vanderbilt's Bedroom fireplace mantel (estimate 120 hours), and the cleaning of five marble statues in the niches of the grand staircase (estimate 260 hours).

Cleaning the fireplace mantels in the dining room as well as the grand entryway, and the marble statues in the Grand Staircase, would provide maximum visual impact for visitors to the mansion in the immediate future.

Surfaces that can be safely cleaned by Park staff are: all highly polished marble fireplace mantels, white marble wall moldings, and the balustrade railing. NMSC Conservators can train museum technicians at the Park, or Park housekeeping specialists in the manner recommended in the above sections.

After the cleaning of furnace ductwork in January of 2006, it is hoped that soot levels can be reduced in the mansion as a whole. Once these areas are cleaned of current soot levels, routine housekeeping procedures can be employed to keep surfaces at benchmark levels.

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Margaret D. Breuker  
Conservator, Northeast Museum Services Center  
April 20, 2005

## **Trip Report**

**Rosecliff Manor, Newport, Rhode Island, May 2005**

**Margaret Breuker and Carol Warner, Northeast Museum Services Center,  
Collections Conservation Branch**

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In preparation for the treatment of the East and West Mantel pieces in the Vanderbilt Mansion, Hyde Park, New York, NMSC/CCB Conservators Margaret Breuker and Carol Warner traveled to Rosecliff Manor in Newport, Rhode Island to examine the mantelpiece in the Reception Room and other stone finishes. The Rosecliff mantel is described in the NPS Historic Resource Study Draft as being identical to the West Mantelpiece in the Dining Room of the Vanderbilt Mansion, Hyde Park, New York (See Albee, Peggy A., Molly Berger, Elliot Foulds, Nina Gray, and Pamela Herrick. *Historic Resource Study for Vanderbilt Mansion National Historic Site*. DRAFT. Boston, MA: U.S. Department of the Interior, National Park Service, Northeast Museum Services Division, 2000, p. 17).

The Vanderbilt mantelpieces suffered from heavy soot accumulation which obscured their intended appearance. Additionally, the NPS HRS Draft for the Vanderbilt Mansion gave an account by Daisy Van Alen Bruguere that stated, "...the mantels were painted because Frederick (Vanderbilt) did not like the way they looked" (Ch. 3, p. 17). This suggests that there may have been an intentional toning to the Vanderbilt fireplace mantels.

Because the original appearance of the Vanderbilt mantelpieces was in question, examining historically relevant marble finishes present in the Newport Mansions, especially Rosecliff, was necessary. After a telephone conversation with Paul Miller, Curator of The Preservation Society of Newport County, it was clear that the Rosecliff mantelpiece was in good condition possessing an historic patina.

The Reception Room mantelpiece at Rosecliff was known to be a copy of an antique stone fireplace mantel. It was made by Duveen in Paris via a mothermold of the original, and installed into the mansion in 1903 (Figure 1). Paul Miller states that plaster copies of original mantel pieces were common in Gilded Age interiors. The speed with which these mansions were erected, as well as European advances in faux finishes, proved plaster casting preferable to the slow process of stone carving.

Upon examination, the Rosecliff mantelpiece consists of painted and toned plaster. The fireplace surround has a light beige surface toning, while the frieze panels and top portion has a painted, opaque tan coating. Paul Miller stated that the original surface coating consists of the light beige toning, and the opaque, tan paint was applied at a later date.

Unlike the mantelpieces at the Vanderbilt Mansion, the top portion was plain plaster with no added shields or medallions. The frieze panels are similar to the West Mantel architecturally, two front and two side pictorial scenes divided by pilasters, columns and

figures. The Rosecliff fireplace surround also has a frieze molding with several columns and pilasters on either side of the fireplace (Figure 2).

Paul Miller believes that most of the interior stone elements in Gilded Age Mansions were toned to appear as antique. Surfaces were buffed with rags coated in wax. After visual examination of many stone elements in several mansions at Newport, it was clear that a beige to light brown, antiqued surface was the intended appearance (Figures 3 a, b, c and Figure 4). This was apparent on architectural door surrounds and wall surfaces, as well as decorative fireplace mantels.

\*During the treatment of the mantelpieces at the Vanderbilt Mansion, it was noted that the toning on the white marble elements did not behave as a pigmented wax. Benzine, a common organic solvent that solublizes wax, did not remove this coating, and the coating did not fluoresce under ultraviolet light. This toning is only soluble in saliva or a 1% ammonium citrate poultice left to dwell for approximately 1 minute.

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Margaret Breuker  
May, 2005



**Figure 1. The mantelpiece in the Reception Room of Rosecliff Manor.**



**Figure 2. The West Mantelpiece at Vanderbilt Mansion after treatment.**



**Figures 3 a,b,c. Details of the original toned plaster surface of the Rosecliff fireplace surround.**



**Figure 4. Details of a toned mantelpiece in the Marble House.**



**TREATMENT REPORT**  
**VAMA Dining Room Fireplace: West Mantel**

**Description** : Dining Room Fireplace Mantel  
**Material** : Marble  
**Date** : 05/16/2005  
**Park** : Vanderbilt National Historic Site  
**Curator** : Anne Jordan, (845) 229-9116,  
Frank Futral 229-7770.



**DESCRIPTION:**

On the northwest side of the dining room of the Vanderbilt Mansion is an intricately carved marble fireplace mantel (Figure 1). The Historic Resource Study Draft states that the mantel was acquired by Stanford White of the architecture firm McKim, Mead and White, NYC (See Albee, Peggy A., Molly Berger, Elliot Foulds, Nina Gray, and Pamela Herrick. *Historic Resource Study for Vanderbilt Mansion National Historic Site*. DRAFT. Boston, MA: U.S. Department of the Interior, National Park Service, Northeast Museum Services Division, 2000). He purchased the mantel from either Bardini in Florence or Heilbronner in Paris (HRS Draft, Ch. 3, p. 17). The mantel consists of two top panels of brecciated grey and red/orange marble. These panels have a central grey marble shield flanked by two plaster medallions; a figure of a bull representing the astrological symbol of Taurus on the proper right, and two figures representing the astrological symbol of Gemini on the proper left. Where the mantel extends from the wall above the frieze panels is a relatively shallow layer of roughly applied plaster over metal mesh.

Below this top panel are four beige marble panels with deeply carved scenes depicting love and pregnancy. The proper right side panel depicts a male and female figure dressed in the Greek style with putti/cupids above. The proper right front panel scenes consist of these same figures with animals, trees and vegetation. The proper left front panel appears to depict a wedding scene, while the proper left side panel depicts the woman as pregnant (Figures 2 a & b). Both side panels have carved pilasters with the dates "1539" carved into the relief (Figure 3). There are drill holes plugged with plaster for attachment in various areas of the frieze panels.

The bottom of the mantel consists of a highly carved beige marble fireplace surround. The sides of the mantel have highly detailed carved columns in an ivy motif and the entire mantle is surrounded by flat, white marble panels.

This mantel is described in the HRS Draft, p. 17 as being identical to a mantel in the Reception Room of Rosecliff in Newport, RI. After a visit to this site, it can be determined that the West Mantel at the Vanderbilt Mansion has some basic stylistic similarities to the mantel at Rosecliff, but is largely different (See Rosecliff Trip Report, CCB, NMSC, Margaret Breuker, May 2005). The Rosecliff mantel consists of plaster, a copy of an original stone piece. The West Mantel is carved entirely of marble, and the appearance of the date 1539 on either side of the frieze panel is strong evidence that at least this section of the fireplace mantel dates to the 16<sup>th</sup> century. Furthermore, while both the Rosecliff mantel and the Vanderbilt West Mantel are similar

architecturally, the carved relief of the Rosecliff mantel is much less intricate than the West Mantel at the Vanderbilt Mansion.

#### **CONDITION:**

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There is heavy soot accumulation on the entire mantelpiece due to soot from the vent on the proper right side of the mantel. Soot deposits have been a chronic problem in the mansion, as well as soot "puff backs" beginning in 1990, and again after boiler replacements in 2003-04.

**Top Panel:** This area has the heaviest soot accumulation of the entire mantel piece (Figure 4). Two detached chips that spalled off due to the oxidation/expansion of iron pins in the white marble surround were found resting on the top the grey marble shield. The plaster medallions have a light brown coating that fluoresces a light green/blue color under ultraviolet light, possibly indicating a hide glue. These have suffered surface losses to the toned coating from soot deposition, resulting in a spotty white/grey appearance in many areas. The central shield has an overall irregular tone, and has been previously repaired at the bottom and the proper left top protruding areas. There is a large dark brown stain at the bottom of the shield (Figure 5).

The highly veined grey marble panels have historic fills of pigmented wax visible under ultraviolet light examination.

**Frieze Panel:** The frieze panel has heavy soot accumulation, especially on the proud horizontal planes (Figures 6 a & b). There is evidence of green paint/pigment in the recesses of the background of the carved figures of frieze panels, as well as the mantel surrounds, possibly suggesting that these panels were originally painted (Figures 7 a & b). Brown colored oil is visible in the deep recesses of the carving, as verified by ultraviolet light, especially in the leaves of the trees (Figure 8). Solvent tests revealed green paint is soluble in acetone, saliva, and Stoddard's solvent.

**Fireplace Surround:** The proper right side of the surround has heavy, oily soot accumulation, while the proper left side has somewhat less. Various chips and cracks are present, especially near the floor. There is a plaster fill on the front, rounded edge molding of the fireplace surround coated with what appears to be bronze paint (Figures 9 a & b).

**Flat Surrounding Panels and Sides:** Three flat, rectangular panels border and create each side of the entire mantelpiece. They consist of a polished white marble. There is heavy soot accumulation on these panels, especially the bottom proper right side, near the vent. There are various cracks and losses also on this panel with some losses.

#### **TREATMENT :**

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**Top Panel:** This area was cleaned mainly using spring water on cotton pads. The plaster medallions were cleaned using a 1% ammonium citrate solution applied on cotton pads and rinsed with spring water. After cleaning, the medallions had a very spotty appearance (Figures 10, a & b). A barrier coat of 3% Acryloid B-72™ (ethylmethacrylate and methyl acrylate copolymer) in acetone was applied, and the areas were toned using Golden™ acrylic paints.

**Frieze Panel:** The frieze panel consists of a beige marble with black flecks. This area was cleaned with spring water on soft stencil brushes and cotton swabs.

**Flat Surrounding Panels and Sides:** After no more soot could be removed with spring water and cotton pads, it was apparent that there was a brown/grey toning layer as shown by streaky brush marks and accumulation of the toning in the gaps between the flat surrounds and the mantelpiece (Figure 11). Furthermore, an account by Daisy Van Alen Bruguere states, "...the mantels were painted because Frederick did not like the way they looked." (HRS Draft, Ch. 3, p. 17). The toning varies in darkness and color, the upper most portions of the front and sides being more grey/brown than brown/grey. It is most likely that these areas, being whiter than the carved marble areas, were toned to give a more congruous appearance to the mantel (Figure 12).

At first, this coloration was thought to be a toned wax as Paul Miller, Curator of The Preservation Society of Newport County, believes was the case on the stonework in the mansions at Newport, RI. However, benzine, a common organic solvent that solublizes wax, did not remove this coating, and the coating did not fluoresce under ultraviolet light. This toning is only soluble in saliva or a 1% ammonium citrate poultice left to dwell for approximately 1 minute. Streaky and spotty areas of the surround panels, especially the lowest panel of the proper left side, were reduced by tamping the areas with cotton pads slightly dampened with 1% ammonium citrate in water and rinsed with spring water (Figures 13 a & b). The seam between the top and middle panel of the proper left side has some loss to the toning, revealing the white marble below. This area was toned using Golden acrylic paints. The proper right, bottom flat panel has various cracks and one loose chip that was readhered using 30% Acryloid B-72 in acetone (Figure 14).

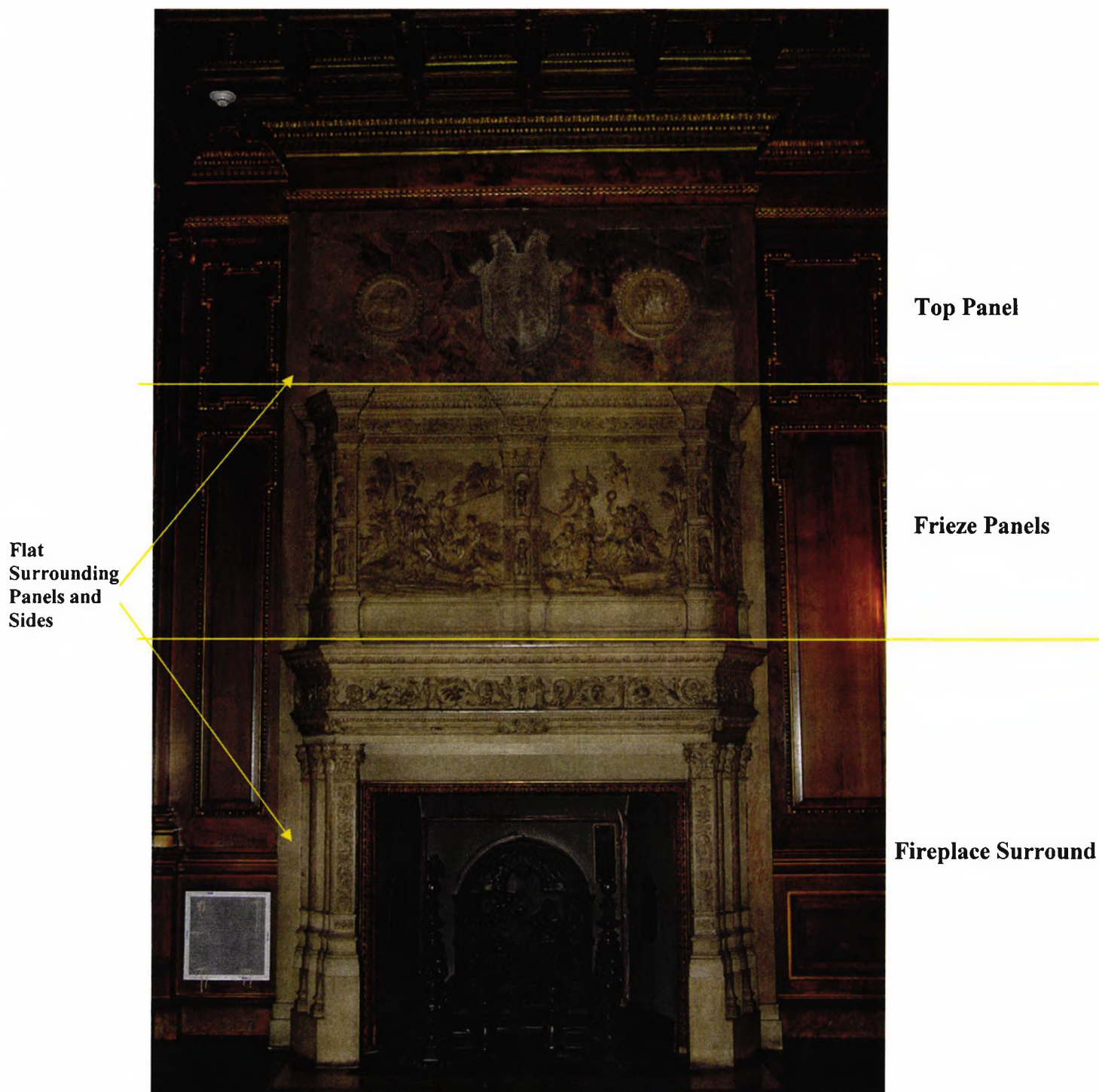
**Fireplace Surround:** The fireplace surround also has evidence of an intentional toning on the flat white marble areas, similar to the surrounding flat panels and sides (Figure 15). The carved areas show no evidence of toning. This surround was first cleaned of overall soot with spring water and soft stencil brushes. Remaining soot, especially on the high plains, was removed using 1% ammonium citrate/water on the upper most portions of the surround applied with cotton pads and rinsed with water. On the lower portions of the surround, a 2% ammonium citrate/water solution was used and finally a 3% ammonium citrate/water solution used in areas nearest to the floor.

The plaster fill on the front, rounded edge molding of the fireplace surround was removed and a new fill was created using Liquitex Acrylic Modeling Paste™, and toned to integrate with the surrounding marble using Golden Acrylic paints. Saliva on cotton swabs were used in recesses of all areas of the fireplace mantel.

**TREATMENT HOURS:** 140 hrs.

Treatment by: CCB Conservator Margaret Breuker, and Park staff member, Tara McGill

Prepared by: \_\_\_\_\_ Date \_\_\_\_\_  
Margaret Breuker, CCB Conservator



**Figure 1. West Mantel before treatment**



**Figure 2 a & b. The front frieze panels after treatment. The proper right scene appears to depict a courtship scene while the proper left shows a wedding scene.**



**Figure 3. Date carved into side of frieze panel.**



**Figure 4. Detail of dirt on top panel near bottom.**

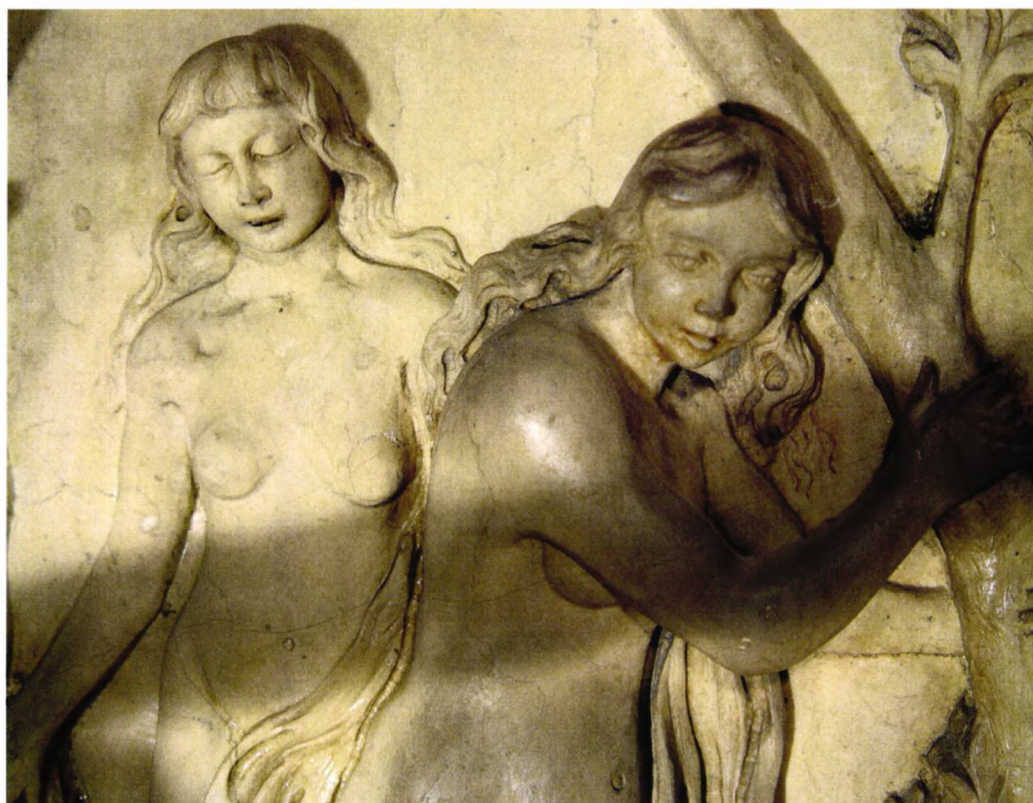


**Figures 5 a & b. Detail of shield before treatment with dark brown stain in lower p. right corner and after cleaning and toning with acrylic paints.**





**Figure 6. Details of the figures on frieze panels during cleaning.**





**Figure 7 a & b. Evidence of green paint is visible in the recesses of the carved figures of the frieze panel.**





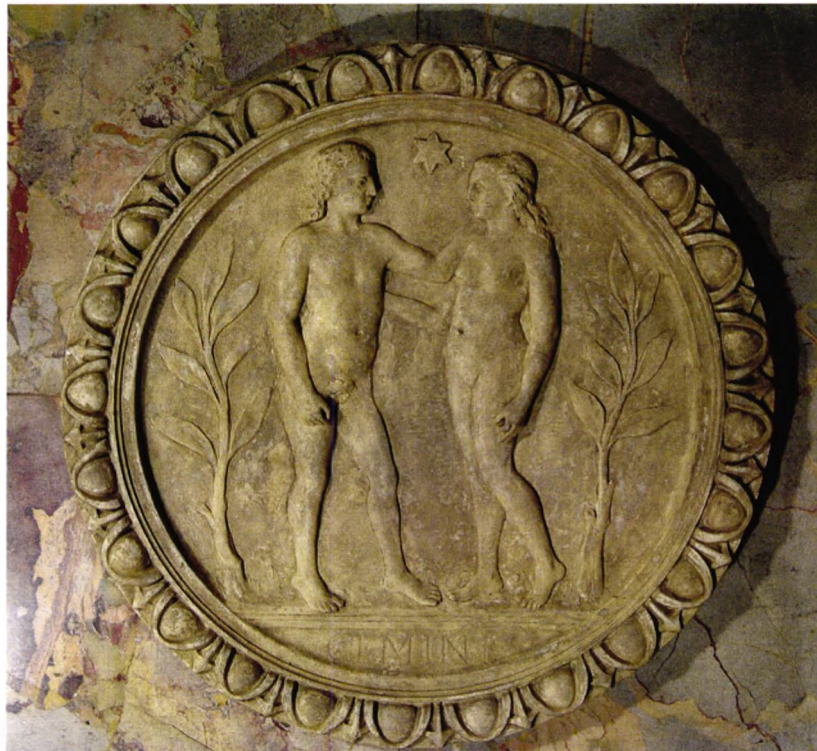
**Figure 8. Brown colored oil residue is also apparent in the drapery and tree recesses of the frieze panel.**



**Figures 9 a & b. Gold painted fill before and after treatment with new plaster fill toned using acrylic paints.**



**Figure 10 a & b. Spotty appearance of Gemini medallion due to surface coating loss before treatment and after cleaning and toning with acrylic paints.**





**Figure 11. Accumulated brown toning is apparent in the gaps between the flat marble panels and the fireplace surround.**



**Figure 12. Side flat panel showing streaks in toning application and light marble below.**



**Figures 13 a & b. Streaky/drippy areas were reduced using 1% ammonium citrate and water on cotton swabs.**



**Figure 14. Various cracks are apparent, and chips were repaired at the bottom proper right of the side panels.**



**Figure 15. Toning was also apparent on the fireplace surround. The natural, white color of the marble can be seen between the molding and inset piece.**



**The West Fireplace Mantel before and after treatment.**

**TREATMENT REPORT**  
**VAMA Dining Room Fireplace: East Mantel**

**Description** : Dining Room Fireplace Mantel  
**Material** : Marble  
**Date** : 05/16/2005  
**Park** : Vanderbilt National Historic Site  
**Curator** : Anne Jordan, (845) 229-9116,  
Frank Futral 229-7770.



**DESCRIPTION:**

On the northeast side of the dining room of the Vanderbilt Mansion is a marble and plaster fireplace mantel (Figure 1). The Historic Resource Study Draft states that the mantel was acquired by Stanford White of the architecture firm McKim, Mead and White, NYC (Albee, Peggy A., Molly Berger, Elliot Foulds, Nina Gray, and Pamela Herrick. *Historic Resource Study for Vanderbilt Mansion National Historic Site*. DRAFT. Boston, MA: U.S. Department of the Interior, National Park Service, Northeast Museum Services Division, 2000). He purchased the mantel from either Bardini in Florence or Heilbronner in Paris (HRS Draft, Ch. 3, p. 17). The mantel consists of two top panels of brecciated grey and red/orange marble. These panels have a central grey marble shield flanked by two plaster medallions; a figure of a crab representing the astrological symbol of Cancer on the proper right, and a ram representing the astrological symbol of Aries on the proper left. On the vertical plane, where the mantel extends from the wall above the frieze panels, is a relatively shallow layer of roughly applied plaster over metal mesh (Figure 2).

Below this top panel is an acanthus leaf molding followed by a frieze with a rinceau of acanthus leaves. In the center sits a putto carved almost in the round playing a mandolin (Figures 3 a & b). Below the fascia are two beige-toned plaster panels. The proper right front panel depicts flowing acanthus leaves with a central female figure and two lower male figures. The proper front panel depicts a central shield held by two putti at the top and two griffins at the bottom (Figures 4 a & b). The frieze panels are flanked by elaborately carved marble pilasters with acanthus leaves and decorative architectural elements. On either side of the panels are deeply carved vases topped by fluted columns with ionic capitals.

The fireplace surround of the mantel consists of highly carved light beige marble depicting wildlife and human figures. The top and sides and the entire mantel is surrounded by flat, white marble panels.

**CONDITION:**

There is heavy overall soot accumulation on the entire mantelpiece due to soot from the vent on the proper left side of the mantel near the floor. Soot deposits have been a chronic problem in the mansion, as well as soot "puff backs" beginning in 1990, and again after boiler replacements in 2003-04.

**Top Panel:** This area has the heaviest soot accumulation of the entire mantel piece (Figure 5). The plaster medallions have a light brown coating that fluoresces a light green/blue color under ultraviolet light, possibly indicating hide glue. These have suffered surface losses to the toned coating from soot

deposition, especially the ram figure, resulting in a spotty white/grey appearance in many areas. The central shield has a regular, overall tone, and has the letters "Z" and "M" on either side below the meander and on the lower scrolls (Figure 6). There is evidence of letters that were ground down near the center between the "Z" and "M" (Figure 7).

Red paint is apparent in the carved grooves of the shield (Figure 8). There is evidence of previous grey/brown toning on the shield near historic chips and losses. The highly veined grey marble panels have historic fills of pigmented wax visible under ultraviolet light examination.

**Frieze Panel:** The frieze panel has heavy soot accumulation, especially on the proud horizontal planes (Figures 9 a & b). The proper left panel has previous cleaning attempts on the proper left putto and griffin resulting in a light, raw plaster appearance (Figures 10 a & b).

**Fireplace Surround:** The proper left side of the surround has heavy, oily soot accumulation while the proper right side has somewhat less. There are two areas of regularly shaped, rectangular patches of white, powdery accretions on the underside of the mantelpiece (Figure 11). It is unclear if these are due to previous testing or are natural carbonate accretions from the marble.

**Flat Surrounding Panels and Sides:** The two lower, proper right side panels have been previously cleaned (Figure 12). The proper left, bottom front panel has a brown/grey streaky/drip pattern (Figure 13), with various previous cleaning attempts to the adjacent side panel. The proper left side panels have heavy soot accumulation and various small cracks throughout.

#### **TREATMENT:**

Overall, most areas of the fireplace mantel were first cleaned using spring water on cotton pads and then selectively cleaned using appropriate concentrations (1%-3%) of ammonium citrate solution as well as saliva on cotton swabs.

**Top Panel:** This area was cleaned primarily using spring water on cotton pads. The plaster medallions were cleaned using a 1% ammonium citrate solution applied on cotton pads and rinsed with spring water. After cleaning, the medallions had a very spotty appearance (Figures 14 a & b). A barrier coat of 3% Acryloid B-72™ (ethylmethacrylate and methyl acrylate copolymer) in acetone was applied, and the areas were toned using Golden™ acrylic paints. The ground down area on the shield between the "Z" and "M" was also toned using Golden acrylic paints.

**Frieze Panel:** The acanthus leaf molding and frieze were cleaned using spring water on cotton pads and swabs. Most marble areas were further cleaned using 1% ammonium citrate and spring water on cotton swabs, followed by rinsing with spring water. In the recesses of the carved acanthus leaf molding is a yellow-orange paint/coating residue. This area appears very rough and worn, similar to a surface that has been severely pitted. It is possible that this area was once gilded (Figure 15). The deeply carved putto was cleaned with both 1% ammonium citrate and spring water and saliva on cotton swabs. Cleaning revealed that there were several repairs to the putto. There were at least two, if not three pieces (big toe, etc.) that appeared to have been previously readhered.

The toned plaster frieze panel was cleaned with spring water on cotton pads and saliva on cotton swabs. Select areas received additional cleaning with 1% ammonium citrate on cotton pads. A barrier

coat of 3% Acryloid B-72 in acetone was applied to the proper left putto and griffin which were then toned to better integrate with the original toned plaster appearance (Figure 16).

During cleaning, a small piece of marble chipped off of the central marble pilaster. This was readhered using 20% Acryloid B-72 in acetone. The marble vases and columns on either side of the mantel were cleaned using soft stencil brushes and cotton swabs with 1% - 2 % ammonium citrate in spring water and rinsed.

**Fireplace Surround:** Portions of the proper left side of the frieze panel and fireplace surround showed a dried crust that is most likely remnant from a previous cleaning. The clear, translucent appearance and rubbery texture suggests that it may be dried methyl cellulose gel or poultice material.

The soot on the marble fireplace surround was more intractable than other areas of the mantel. Therefore, some areas of the surround were cleaned with 1% ammonium citrate and water, and others, especially on the high plains, were cleaned using 2% ammonium citrate and spring water and rinsed.

**Flat Surrounding Panels and Sides:** After no more soot could be removed with spring water and cotton pads on the flat marble panels, it was apparent that there was a brown/grey toning layer as shown by streaky brush marks. Furthermore, an account by Daisy Van Alen Bruguere states, "...the mantels were painted because Frederick did not like the way they looked." (HRS Draft, Ch. 3, p. 17). The toning varies in darkness and color, the upper most portions of the front and sides being more grey/brown than brown/grey. It is most likely that these areas, being whiter than the carved marble areas, were toned to give a more congruous appearance to the mantel.

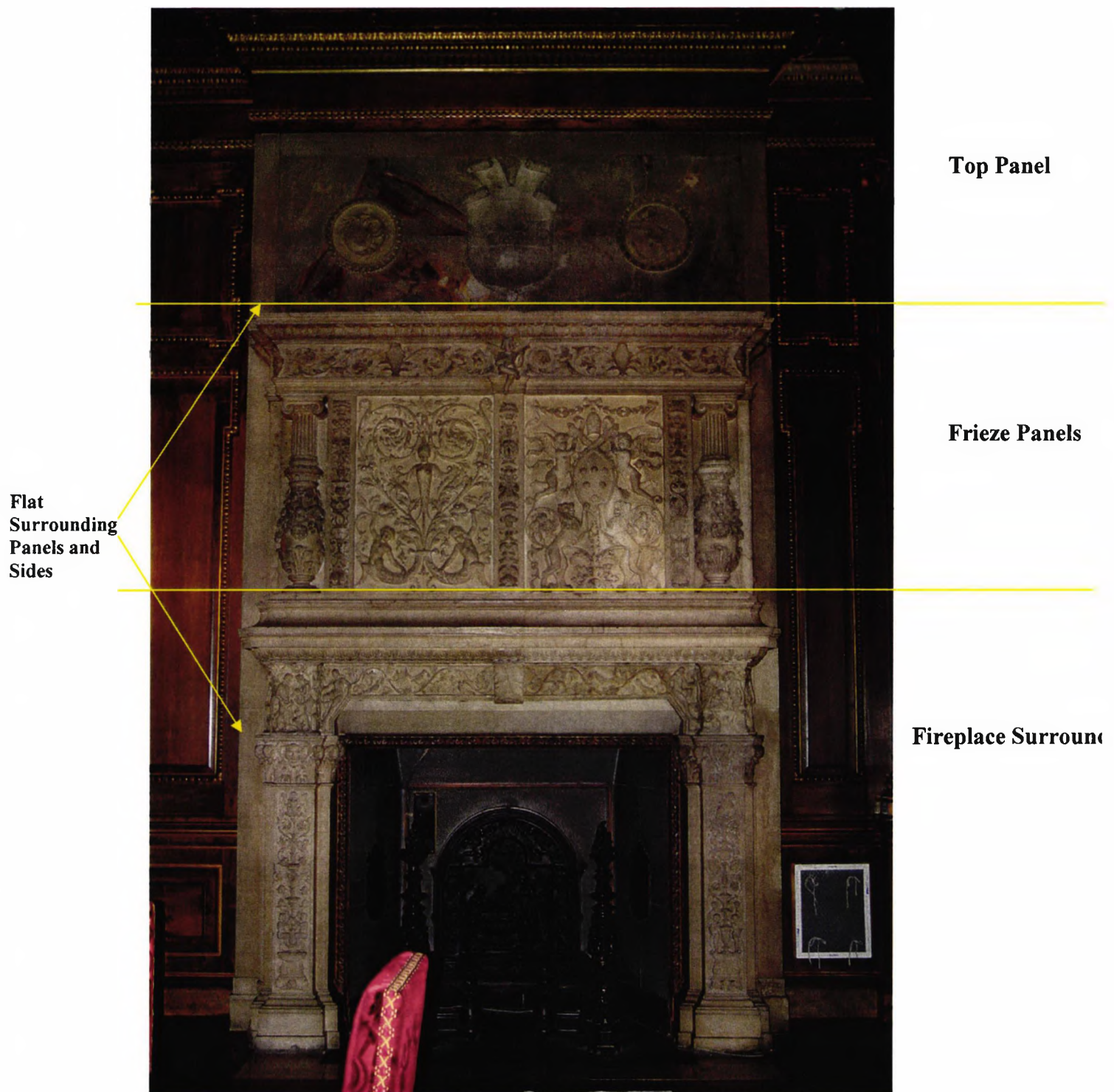
At first, this coloration was thought to be a toned wax as Paul Miller, Curator of The Preservation Society of Newport County, believes was the case on the stonework in the mansions at Newport, RI. However, benzine, a common organic solvent that solublizes wax, did not remove this coating, and the coating did not fluoresce under ultraviolet light. This toning is only soluble in saliva or a 1% ammonium citrate poultice left to dwell for approximately 1 minute. Streaky and spotty areas of the surround panels, especially the lowest panel of the proper left side, were reduced by tamping the areas with cotton pads slightly dampened with 1% ammonium citrate in water and rinsed with spring water

\*All areas on the proper left side of the mantel had considerably more soot accumulation than the opposite side due to their proximity to the vent.

**TREATMENT HOURS:** 140 hrs.

Treatment by: Contract Conservator Rachael Perkins Arenstein, CCB Conservator Margaret Breuker, and Park staff member, Tara McGill

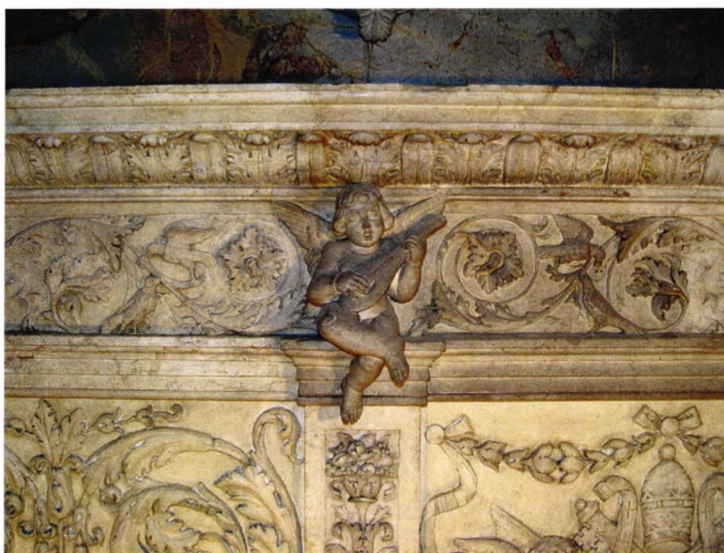
Prepared by \_\_\_\_\_ Date \_\_\_\_\_  
Margaret Breuker, CCB Conservator



**Figure 1. East Mantel before treatment**



**Figure 2. The top of the fascia and frieze panel consists of plaster/cement over metal mesh.**



**Figures 3 a & b. Half cleaned frieze with rinceau of acanthus leaves and detail of carved putto before treatment.**





**Figures 4 a & b. The plaster frieze panels after treatment.**



**Figure 5. Detail of soot on top panel partially cleaned.**



**Figure 6. Detail of shield before cleaning showing central meander and the letters “Z” and “M”.**



**Figure 7. Detail of ground down letters near center of shield.**



**Figure 8. Detail of partially cleaned shield showing red paint in recesses.**



**Figures 9 a & b. Details of the frieze panels and putto during cleaning.**



**Figures 10 a & b. Previous cleaning attempts to the proper left putto and griffin resulted in a light, raw plaster appearance.**



**Figure 11. White, powdery accretion on the underside of the mantelpiece.**



**Figure 12. The two lower, proper right side panels had been previously cleaned.**



**Figure 13. Streaky/drip pattern of brown taping on lower proper left front panel.**



**Figures 14 a & b. Spotty appearance of Aries medallion due to surface coating loss during treatment, and after cleaning and toning with acrylic paints.**





**Figure 15. Yellow paint/coating residue in recesses of abraded acanthus leaf molding.**



**Figure 16. Detail of proper left plaster frieze panel after cleaning and toning of putto and griffin.**



**The East Mantel before and after treatment.**

**TREATMENT REPORT**  
**VAMA Drawing Room Fireplace Mantel**

**Description** : Drawing Room Fireplace Mantel  
**Catalogue #** : No #  
**Material** : red/white/purple marble  
**Date** : 6/29/05  
**Park** : Vanderbilt Mansion National Historic Site  
**Curator** : Anne Jordan, (845) 229-9116, Frank Futral  
(845) 229-7770.



**DESCRIPTION:**

A highly polished purple, red and white brecciated marble fireplace mantel with bronze decorative human figures on either side flanking a central ribbon/drapery element.

**CONDITION:**

There is minimal surface soot on the marble. The decorative bronze elements appear to be in good condition.

**TREATMENT:**

- The fireplace mantel was cleaned by wiping with cotton pads slightly dampened with spring water. Care was taken to avoid the bronze elements of the mantel.

Treatment by: \_\_\_\_\_ Date: \_\_\_\_\_  
Rachael Perkins Arenstein, Contract Conservator



**The fireplace mantel before treatment.**



**The fireplace mantel after treatment.**

**TREATMENT REPORT**  
**VAMA Balustrade**

**Description** : 2<sup>nd</sup> Floor Balustrade  
**Catalogue #** : No #  
**Material** : White marble  
**Date** : 6/29/05  
**Park** : Vanderbilt Mansion National Historic Site  
**Curator** : Anne Jordan, (845) 229-9116, Frank Futral,  
(845) 229-7770.



**DESCRIPTION:**

The top of a white marble balustrade on the 2<sup>nd</sup> floor of the Vanderbilt Mansion.

**CONDITION:**

The balustrade has accumulated dirt/lipids and water staining due to use. In previous years, the Park placed potted plants on the railing which has left water ring stains. Visitors frequently lean on the railing leaving dirt and lipids from hands and arms.

**TREATMENT:**

- The top of the balustrade was cleaned using Orvus™ detergent and spring water applied using soft stencil and tooth brushes.
- After brushing to remove dirt, the area was rinsed using plain spring water.
- During the cleaning of the balustrade, a visitor had a nosebleed on the railing, resulting in two spots of blood approximately the size of a quarter. These were cleaned by rolling cotton swabs dampened with spring water.
- A section of the dirty balustrade was left for Park Interpreters to discuss on tours. It can be removed by Park staff at the preference of Park Curators.

Treatment by: Margaret D. Breuker, NMSC/CCB Conservator; Rachael Perkins Arenstein, Contract Conservator; and Park Staff Debborah Miller and Lucille Momme.

Prepared by: \_\_\_\_\_ Date: \_\_\_\_\_  
Margaret Breuker, CCB Conservator



**The top of the balustrade before treatment showing dirt and lipids from visitors.**



**During cleaning of balustrade showing significant dirt removal as well as plant vase/water staining.**



**Detail of blood stain from visitor nose bleed.**



**One narrow strip was left during cleaning for visitor interpretation.**



**Park staff Deborah Miller and Lucille Momme and Contract Conservator Rachael Perkins Arenstein cleaning the balustrade.**



**The balustrade after treatment.**

**TREATMENT REPORT**  
**VAMA #849 Marble Column**

**Description** : Marble Column  
**Catalogue #** : VAMA 849  
**Material** : White and black marble  
**Date** : 6/29/05  
**Park** : Vanderbilt Mansion National Historic Site  
**Curator** : Anne Jordan, Chief Curator (845) 229-9116



**DESCRIPTION:**

A black marble serpentine column with a white marble capital and base. The white marble base is set on a black painted concrete base/platform. One of a set of two.

**CONDITION:**

The capital was detached from the column. The capital had originally fallen off of the capital during transportation of the column to the Nassau County Museum of Art. Jerry Jiritano of Fine Art Conservation, Inc, repaired the column by placing a stainless steel pin in the capital that fits into a hole in the column. The pin was secured to the capital using an acrylic grout, and the capital was readhered to the column using the same acrylic grout (See Fine Art Conservation Treatment Report, 1999). During transportation back to the Park in February, 1999, the capital detached from the column once again, the repair failing at the same location.

**TREATMENT:**

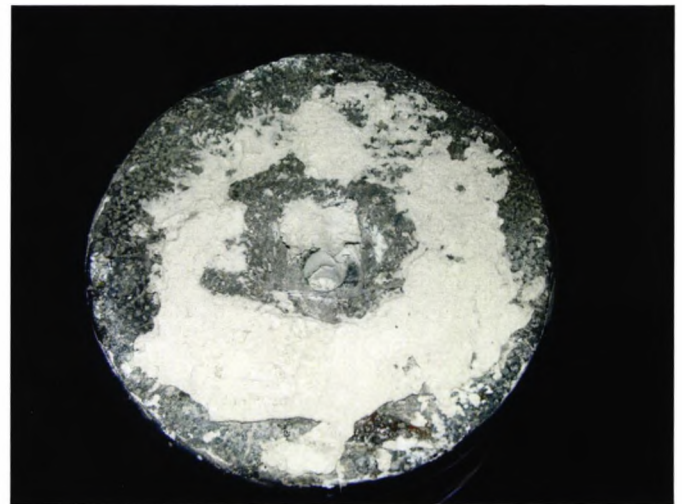
- Old acrylic grout was removed from both the capital and the column surfaces using a scalpel, chisel and rubber mallet. The grout surrounding the stainless steel pin was not removed as it held the pin in place.
- 3% Acryloid B-72 (ethyl methacrylate, ethyl acrylate copolymer) in acetone was used as a barrier coat on both the cleaned column surface and the capital.
- "Premixed Tile Grout" (limestone, acrylic copolymer, and water by Custom Building Products, 800-272-8786), was placed into the hole and approximately 1 inch from the edge of the column and the capital was placed back on top of the column.

Treatment by: \_\_\_\_\_  
Margaret D. Breuker, CCB Conservator

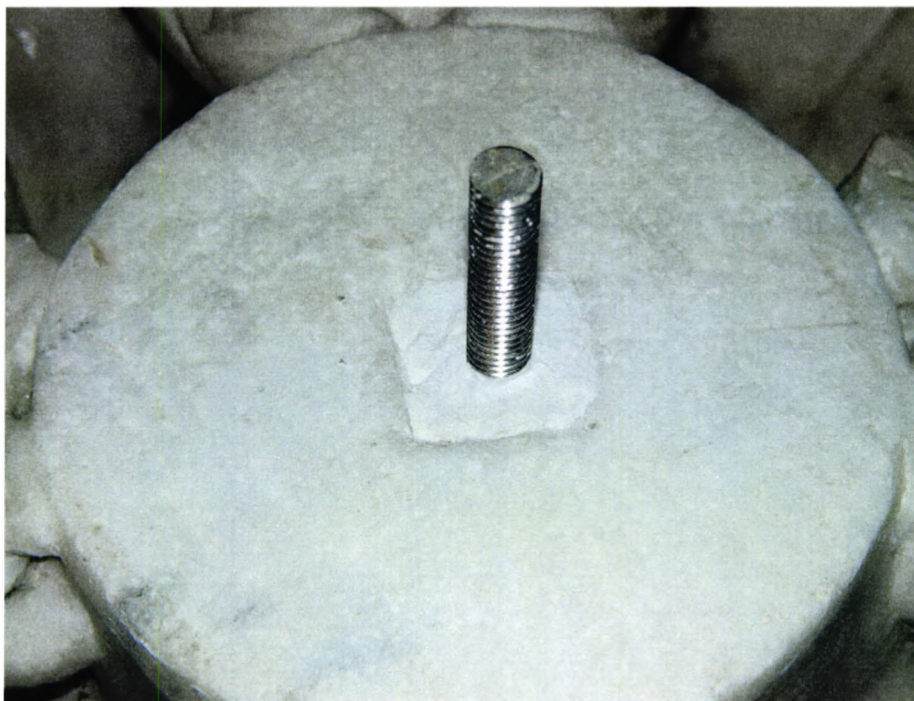
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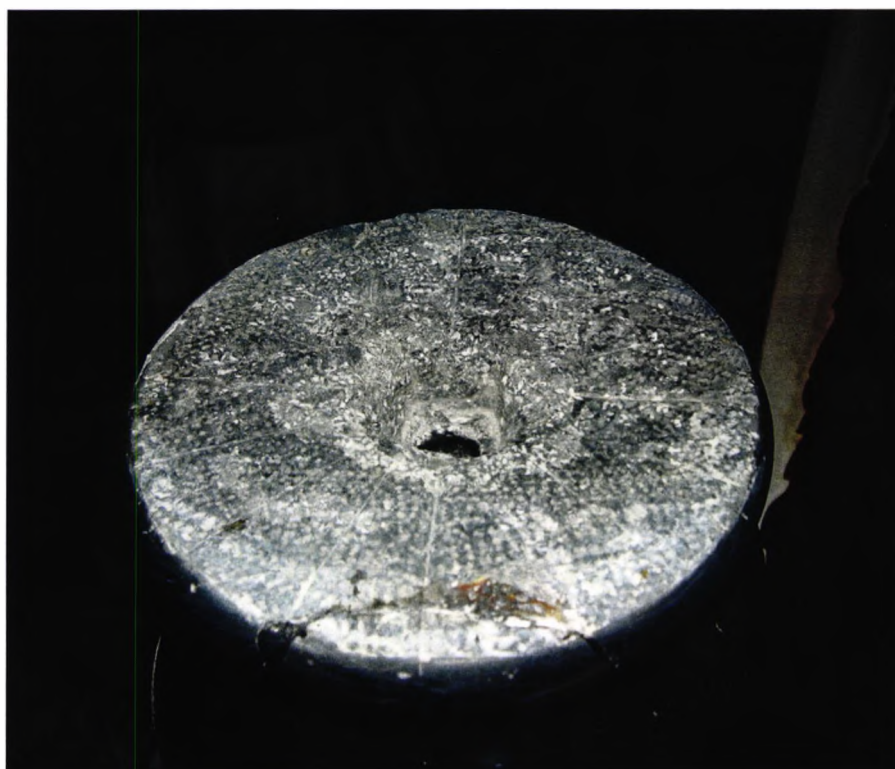
**Before treatment: the column without the capital.**



**The capital and column before treatment showing acrylic grout residue.**



**Detail of capital after grout was removed, and stainless steel pin inserted during previous treatment. Note grout left surrounding pin.**



**Cleaned column surface showing hole for pin.**



**Pre-mixed tile grout applied to surface and filling hole of column.**



**Park staff and CCB conservator raising capital on top of column.**



**The column and capital after treatment.**



**Detail of newly placed capital on top of column.**

## **Cleaning Protocol for Marble in the Vanderbilt Mansion**

Prepared by Margaret Breuker, Northeast Museum Services Center, Collections  
Conservation Branch, June, 2005

While many stone architectural elements with sculptural detail and previous repairs require treatment by a conservator, some areas of the mansion can be safely cleaned by Park staff. These areas are: the white marble trim moldings in the Reception Hall and Entryway, all highly polished marble fireplace mantels, and the ceramic sinks and tubs in the bathrooms.

### **Supplies Needed:**

- ✓ Spring water.
- ✓ Orvus™ Detergent (a neutral, non-ionic detergent available from Talas (212) 219-0770, [www.talasonline.com](http://www.talasonline.com), Item # TCD092001, 1 lb., \$9.75).
- ✓ Stencil Brushes or toothbrushes.
- ✓ Cotton pads (ABDick Multigraphics, 800-422-3616, [www.abdick.com](http://www.abdick.com), Item #4-4931).
- ✓ 1% ammonium citrate and spring water solution. Several bottles of 1%, 2%, and 3% ammonium citrate/spring water solutions have been prepared by NMSC/CCB Conservator, Margaret Breuker, and have been left with the Park. If the Park should run out of 1% solution, then 5g. of ammonium citrate powder can be dissolved into 495 ml. of spring water (remember to take into account the weight of the container holding the ammonium citrate powder on the scale).

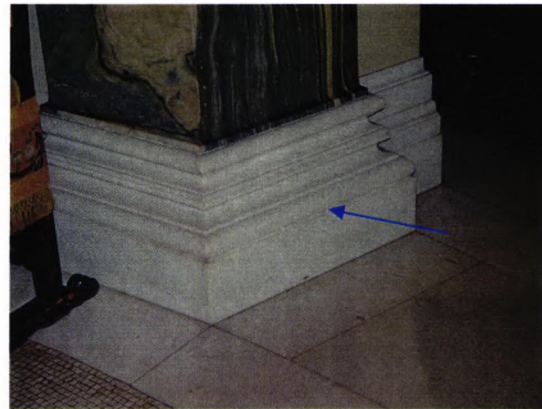
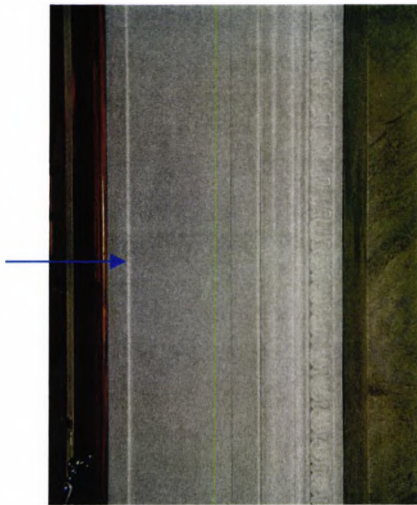


The Orvus™ detergent solution works well on regular surface dirt and oily dirt from visitor contact. The ammonium citrate solution works best on soot. Park staff can use the following Protocol in order to clean the areas described above:

- Debbie had previously cleaned the Northwest white marble exterior door surround with most likely a 3% ammonium citrate solution. She has since cleaned the Southwest exterior surround; however, because she used a higher concentration of ammonium citrate solution on the other surround, the Southwest surround does not visually match the Northwest door surround. Therefore, it is recommended that Debbie use a 3% ammonium citrate/ spring water solution on this surround to better match the Northwest surround. Clearing this solution with spring water is essential, and should be done as cleaning progresses. Stencil brushes can be used

to apply the solution, as well as the water rinse. The door surround should be wiped with cotton pads to dry.

- All other areas of white marble trim (interior door surrounds and baseboards) can be cleaned using Orvus™ detergent and water. A small amount (1 drop) of Orvus should be added to spring water and applied to the marble using the stencil brushes in a circular motion. The area should be wiped with a cotton pad (two pads together work best) and then rinsed with spring water and dried using a clean cotton pad. Areas of heavy dirt may be cleaned again using the 1% ammonium citrate solution, applied in the same manner as the Orvus/water solution, and thoroughly rinsed and dried. The 2% and 3% solutions should not be used unless the stain is especially noticeable.

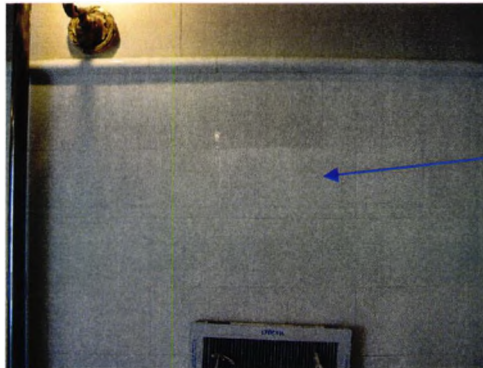


**Door surround of ladies Drawing Room with bottom half cleaned using Orvus™ detergent and spring water applied on a stencil brush. Baseboard in Reception Hall cleaned in the same manner.**

- Highly polished, colored marble found on tabletops and fireplace mantels throughout the mansion can be cleaned using cotton pads slightly dampened with spring water. The polished surface of this marble makes it easy to clean using minimal effort.



- The ceramic wall tiles and tubs in the bathrooms can be cleaned in the same manner as the highly polished marble surfaces: use a cotton pad slightly dampened with water, followed by drying with a clean cotton pad.



Area of cleaned tile.

- Finally, avoid cleaning any areas that appear to have unusual coatings or stains. The columns and adjacent pilasters in the Dining Room and the pilasters in the reception Hall are examples of this. NMSC/CCB Conservators can address these concerns at a later date.



Detail of brown streaks on column.

Routine maintenance using a brush and vacuum should be sufficient after the cleaning methods described above are completed.



**Park staff member Tara McGill cleaning sections of the West Mantelpiece.**





**Contract Conservator Rachael Perkins Arenstein during treatment of the East Mantelpiece.**





**NMSC CCB Conservator Margaret Breuker working on scaffolding erected at the East Mantelpiece.**





**Park staff enjoying a successful column capital placement.**



**Deborah Miller and Lucille Momme cleaning the balustrade while visitors tour the Mansion.**