National Park Service
U.S. Department of the Interior

Thomas Cole National Historic Site
Catskill, New York

Thomas Cole National Historic Site
Historic Structure Report

Volume II: Appendices

October 2019

(Cover) An undated historic view of the Thomas Cole House from the south. THCO Archives, Box 5, Folder 1.

THOMAS COLE NATIONAL HISTORIC SITE

THOMAS COLE HOUSE

HISTORIC STRUCTURE REPORT

PMIS 216977

VOLUME II

APPENDICES

JOHN G. WAITE ASSOCIATES, ARCHITECTS

384 BROADWAY, ALBANY, NY 12207 • 64 FULTON STREET, SUITE 402, NEW YORK, NY 10038

The architects thank the staff of the

THOMAS COLE NATIONAL HISTORIC SITE

and the National Park Service representatives from the

ROOSEVELT-VANDERBILT NATIONAL HISTORIC SITES

and the

NORTHEAST REGIONAL OFFICE

JOHN G. WAITE ASSOCIATES, ARCHITECTS PLLC

384 BROADWAY, ALBANY, NEW YORK 12207 - 64 FULTON STREET, SUITE 402, NEW YORK, NEW YORK 10038

John G. Waite, FAIA
Clay S. Palazzo, AIA
Douglas G. Bucher
Elyse DeRuzzio
Chelle M. Jenkins
Katherine A. Onufer, AIA
Matthew K. Scheidt, AIA
Edward A. Sehl

MT. IDA PRESS, LTD.

111 WASHINGTON AVE # 306, ALBANY, NY 12210

Diana S. Waite
Jane E. Trask

KOHLER RONAN, LLC

93 LAKE AVENUE, DANBURY, CT 06810 – 171 MADISON AVE., NEW YORK, NY 10016

Robert V. Hedman, P.E.

ARTIFEX, LTD.

2641 N CHARLES ST, BALTIMORE, MD 21218

Matthew J. Mosca

HISTORIC DESIGN, INC.

ROANOKE, VIRGINIA

Jean C. Dunbar

CONTENTS

VOLUME 1

PARTS 1 & 2

VOLUME II

APPENDICES

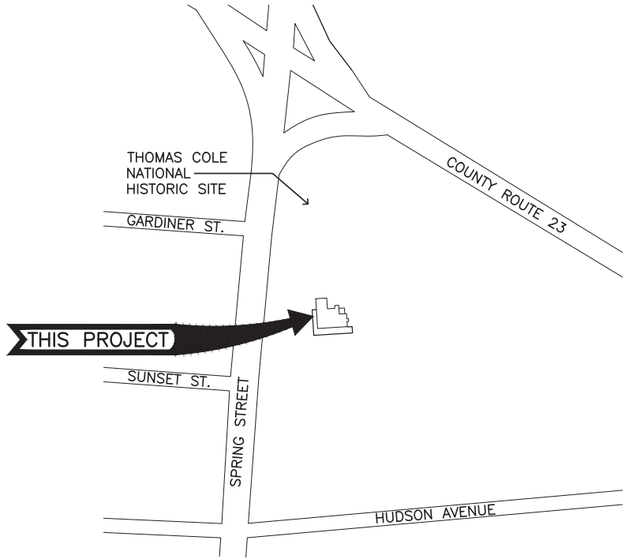
APPENDIX A

MEASURED DRAWINGS

John G. Waite Associates PLLC, 2019

THOMAS COLE HOUSE
THOMAS COLE NATIONAL HISTORIC SITE,
CATSKILL, NEW YORK

MEASURED DRAWINGS



DRAWING INDEX:

SHEET	SUB NO.	TITLE OF SHEET
1	T100	COVER SHEET
2	A100	BASEMENT PLAN
3	A101	FIRST FLOOR PLAN
4	A102	SECOND FLOOR PLAN
5	A103	ATTIC FLOOR PLAN
6	A104	ROOF PLAN
7	A201	SOUTH ELEVATION
8	A202	WEST ELEVATION
9	A203	NORTH ELEVATION
10	A204	EAST ELEVATION

100 0 100 200
SCALE OF FEET

ARCHITECT
JOHN G. WAITE ASSOCIATES, ARCHITECTS, PLLC
ALBANY, NY

10/11/19

Mark	Sheet	REVISION	Date	Initial

QUALITY DESIGN CERTIFICATION

- ☐ Prepared in Accordance with Design Development (Title I) _____ Drawing No.
  OR
- ☐ Variance from Design Development (Title I) Approved by Superintendent on _____ Date
  OR
- ☐ Construction Drawing Not Preceded by Design Development (Title I)

_____ Project Manager _____ Date

MEASURED DRAWINGS

UNITED STATES
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE
DENVER SERVICE CENTER

TITLE OF DRAWING
MEASURED DRAWINGS

LOCATION WITHIN PARK
THOMAS COLE HOUSE

NAME OF PARK
THOMAS COLE NATIONAL HISTORIC SITE

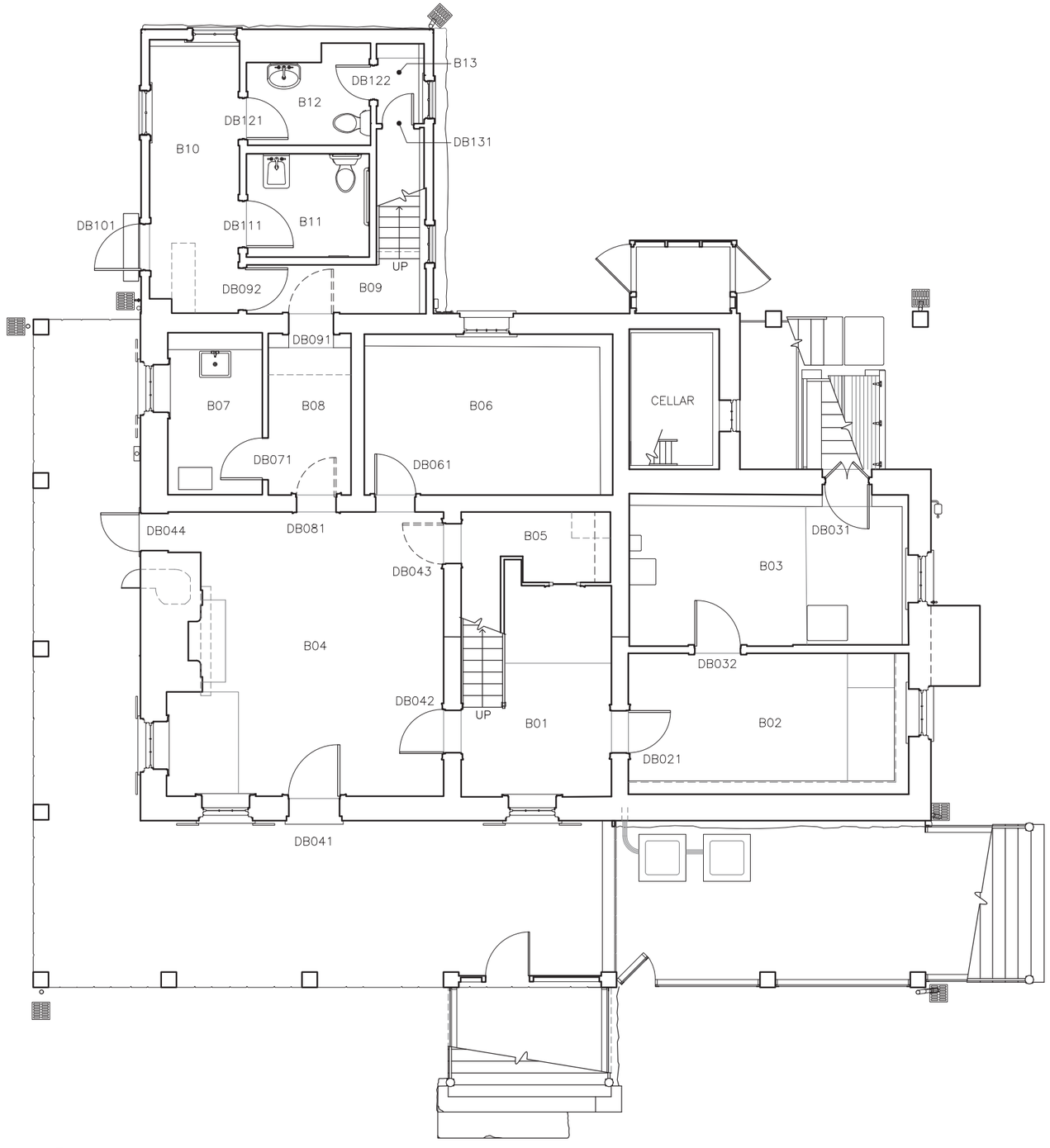
REGION: NER | COUNTY: GREEN | STATE: NEW YORK

DRAWING NO. —

PKG. NO. 216977

SHEET 1 OF 10

10/10/2019 11:25 ESEHL K:\PROJECTS\18FG127 – NPS THCO THOMAS COLE HOUSE HSR\03 MEASURED DRAWINGS\01 CAD\SHEETS\T00 COVER SHEET.DWG

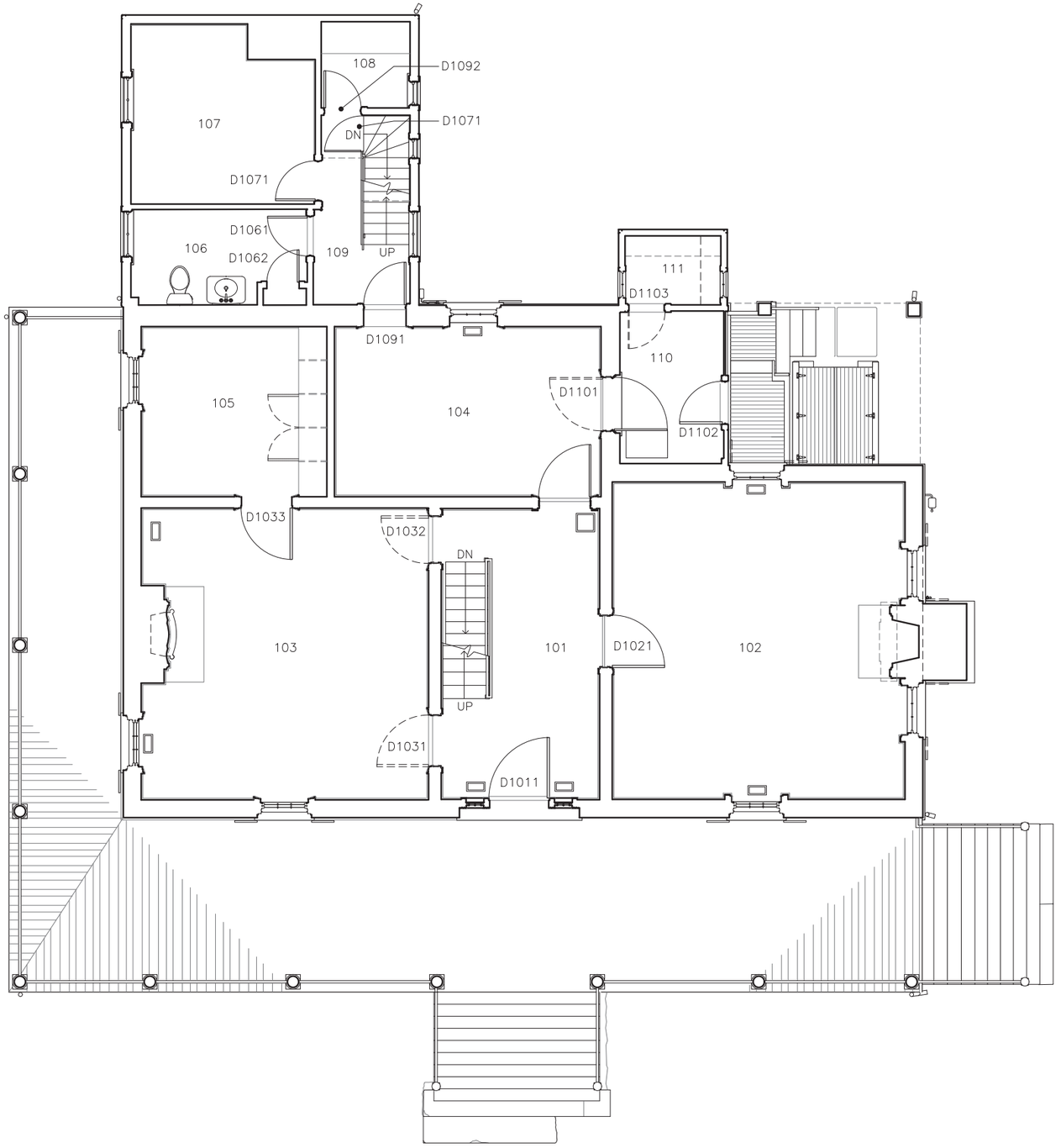


1 A100 BASEMENT FLOOR PLAN
SCALE (A)

SCALE (A) 4 0 4 8
SCALE OF FEET

DESIGNED: JGWA; DRAWN: JGWA; TECH. REVIEW: MKS; DATE: 10/11/19	SUB SHEET NO. A100	TITLE OF SHEET: MEASURED DRAWINGS THOMAS COLE HOUSE BASEMENT PLAN — THOMAS COLE NATIONAL HISTORIC SITE, CATSKILL, NEW YORK	DRAWING NO. — / — ; PMIS/PKG NO. 216977 ; SHEET 2 OF 10

10/10/19 ESEHL K:\PROJECTS\18F0127 - NPS THCO THOMAS COLE HOUSE HSR\03 MEASURED DRAWINGS\01 CAD\SHEETS\A100-BASEMENT PLAN.DWG

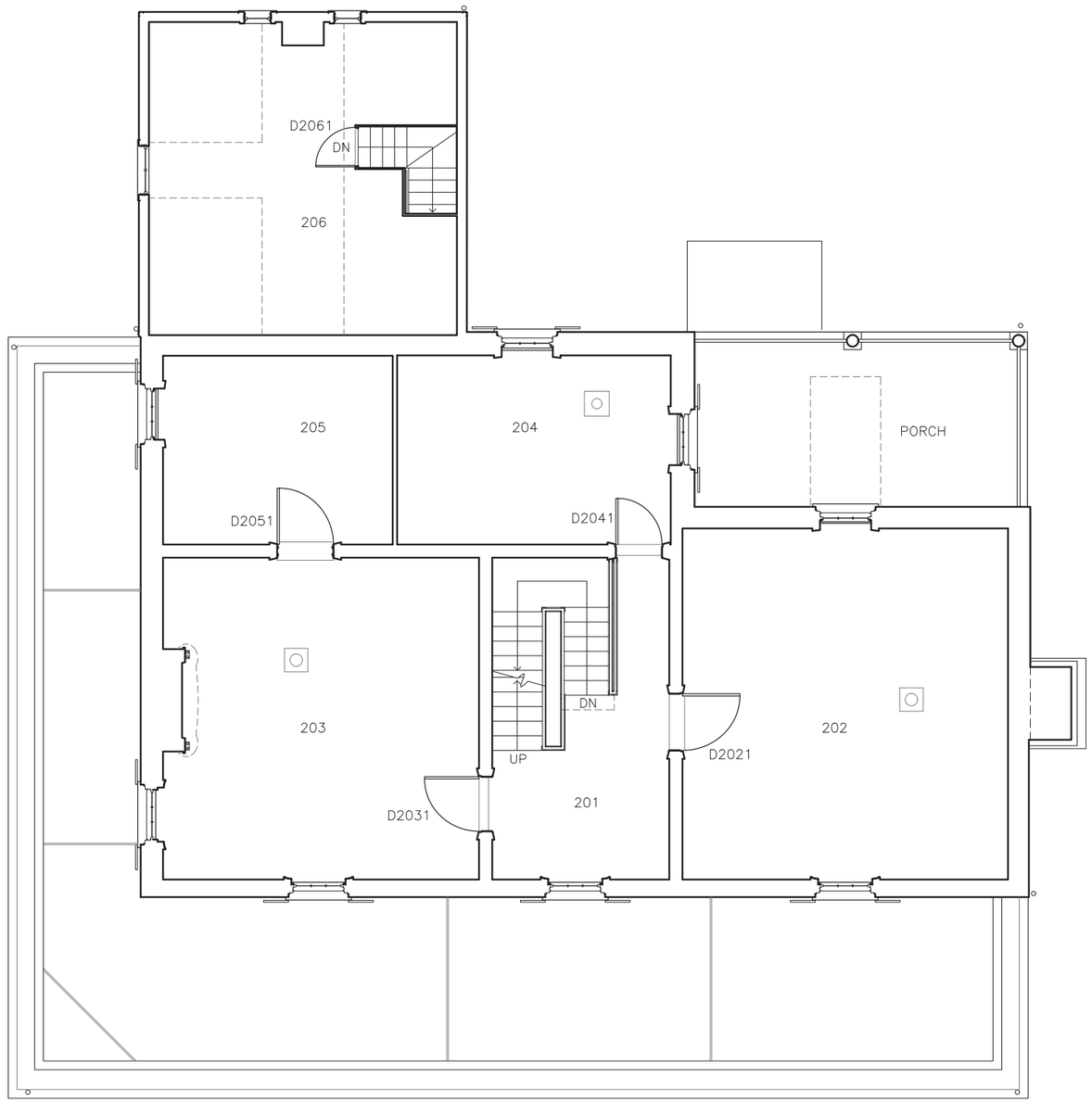


1 A101 FIRST FLOOR PLAN
SCALE A

SCALE A 4 0 4 8
SCALE OF FEET

DESIGNED: JGWA DRAWN: JGWA TECH. REVIEW: MKS DATE: 10/11/19	SUB SHEET NO. A101	TITLE OF SHEET MEASURED DRAWINGS THOMAS COLE HOUSE FIRST FLOOR PLAN THOMAS COLE NATIONAL HISTORIC SITE CATSKILL, NEW YORK	DRAWING NO. – PMIS/PKG NO. 216977 SHEET 3 OF 10

10/10/19 ESEHL K:\PROJECTS\18F0127 - NPS THCO THOMAS COLE HOUSE HSR\03 MEASURED DRAWINGS\01 CAD\SHEETS\A101 FIRST FLOOR PLAN.DWG

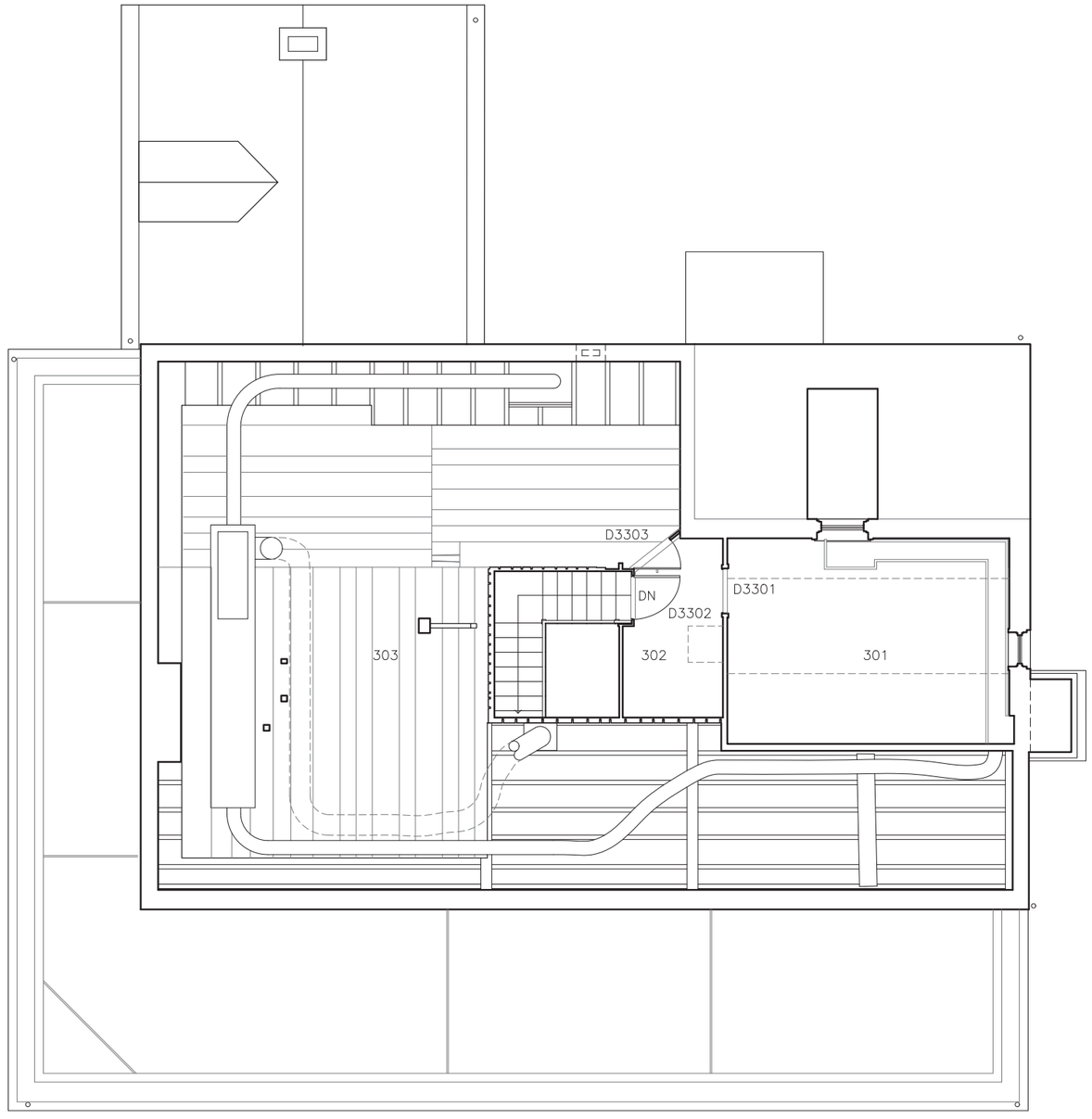


1 A102 SECOND FLOOR PLAN
SCALE A

SCALE A 4 0 4 8
SCALE OF FEET

DESIGNED: JGWA DRAWN: JGWA TECH. REVIEW: MKS DATE: 10/11/19	SUB SHEET NO. A102	TITLE OF SHEET MEASURED DRAWINGS THOMAS COLE HOUSE SECOND FLOOR PLAN THOMAS COLE NATIONAL HISTORIC SITE CATSKILL, NEW YORK	DRAWING NO. – PMIS/PKG NO. 216977 SHEET 4 OF 10

10/10/19 ESEHL K:\PROJECTS\18F0127 – NPS THCO THOMAS COLE HOUSE HSR\03 MEASURED DRAWINGS\01 CAD\SHEETS\A102 SECOND FLOOR PLAN.DWG

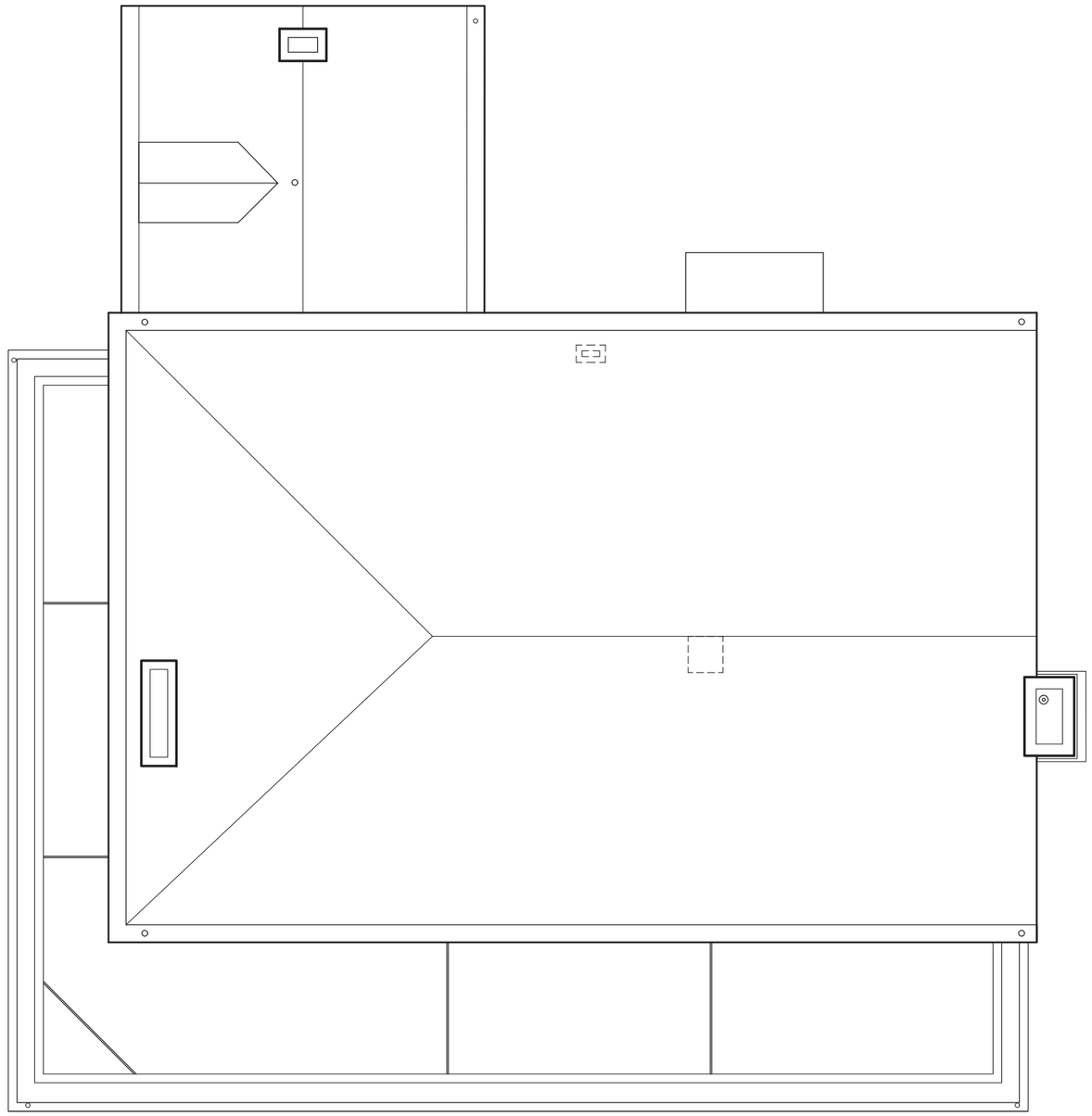


1 A103 THIRD FLOOR PLAN
SCALE (A)

SCALE (A) 4 0 4 8
SCALE OF FEET

DESIGNED: JGWA CADD JGWA TECH. REVIEW: MKS DATE: 10/11/19	SUB SHEET NO. A103	TITLE OF SHEET MEASURED DRAWINGS THOMAS COLE HOUSE ATTIC FLOOR PLAN THOMAS COLE NATIONAL HISTORIC SITE CATSKILL, NEW YORK	DRAWING NO. — PMIS/PKG NO. 216977 SHEET 5 OF 10

10/10/19 ESEHL K:\PROJECTS\18F0127 - NPS THCO THOMAS COLE HOUSE HSR\03 MEASURED DRAWINGS\01 CAD\SHEETS\A103 ATTIC FLOOR PLAN.DWG



1 A104 ROOF FLOOR PLAN
SCALE A

SCALE A 4 0 4 8
SCALE OF FEET

DESIGNED: JGWA CADD JGWA TECH. REVIEW: MKS DATE: 10/11/19	SUB SHEET NO. A104	TITLE OF SHEET MEASURED DRAWINGS THOMAS COLE HOUSE ROOF PLAN THOMAS COLE NATIONAL HISTORIC SITE CATSKILL, NEW YORK	DRAWING NO. — PMIS/PKG NO. 216977 SHEET 6 OF 10

10/10/19 ESEHL K:\PROJECTS\18F0127 - NPS THCO THOMAS COLE HOUSE HSR\03 MEASURED DRAWINGS\01 CAD\SHEETS\A104 ROOF PLAN.DWG

1 / A201 SOUTH ELEVATION
SCALE (B)

SCALE (A) 4 0 4 8
SCALE OF FEET

DESIGNED: JGWA / CADD / JGWA TECH. REVIEW: MKS DATE: 10/11/19	SUB SHEET NO. A201	TITLE OF SHEET MEASURED DRAWINGS THOMAS COLE HOUSE SOUTH ELEVATION THOMAS COLE NATIONAL HISTORIC SITE CATSKILL, NEW YORK	DRAWING NO. – PMIS/PKG NO. 216977 SHEET 7 OF 10

10/10/19 ESEHL K:\PROJECTS\18T0127 - NPS THCO THOMAS COLE HOUSE HSR\03 MEASURED DRAWINGS\01 CAD\SHEETS\A201 SOUTH ELEVATION.DWG

1 A202 WEST ELEVATION
SCALE (B)

SCALE (A) 4 0 4 8
SCALE OF FEET

DESIGNED: JGWA DRAWN: JGWA TECH. REVIEW: MKS DATE: 10/11/19	SUB SHEET NO. A202	TITLE OF SHEET MEASURED DRAWINGS THOMAS COLE HOUSE WEST ELEVATION THOMAS COLE NATIONAL HISTORIC SITE CATSKILL, NEW YORK	DRAWING NO. – PMIS/PKG NO. 216977 SHEET 8 OF 10

10/10/19 ESEHL K:\PROJECTS\18T0127 - NPS THCO THOMAS COLE HOUSE HSR\03 MEASURED DRAWINGS\01 CAD\SHEETS\A202 WEST ELEVATION.DWG

1 / A203 NORTH ELEVATION
SCALE (B)

SCALE (A) 4 0 4 8
SCALE OF FEET

DESIGNED: JGWA CADD: JGWA TECH. REVIEW: MKS DATE: 10/11/19	SUB SHEET NO. A203	TITLE OF SHEET MEASURED DRAWINGS THOMAS COLE HOUSE NORTH ELEVATION THOMAS COLE NATIONAL HISTORIC SITE CATSKILL, NEW YORK	DRAWING NO. — PMIS/PKG NO. 216977 SHEET 9 OF 10

10/10/19 ESEHL K:\PROJECTS\18FD127 - NPS THCO THOMAS COLE HOUSE HSR\03 MEASURED DRAWINGS\01 CAD\SHEETS\A200 NORTH ELEVATION.DWG

1 / A204 EAST ELEVATION
SCALE (B)

SCALE (A) 4 0 4 8
SCALE OF FEET

DESIGNED: JGWA CADD: JGWA TECH. REVIEW: MKS DATE: 10/11/19	SUB SHEET NO. A204	TITLE OF SHEET MEASURED DRAWINGS THOMAS COLE HOUSE EAST ELEVATION THOMAS COLE NATIONAL HISTORIC SITE CATSKILL, NEW YORK	DRAWING NO. — — PMIS/PKG NO. 216977 SHEET 10 OF 10

10/10/19 EDERUZZIO K:\PROJECTS\18F0127 - NPS THCO THOMAS COLE HOUSE HSR\03 MEASURED DRAWINGS\01 CAD\SHEETS\A204 EAST ELEVATION.DWG

APPENDIX B

MEP ASSESSMENT REPORT

Kohler Ronan LLC, August 29, 2019

Thomas Cole House
218 Spring St.
Catskill, NY 12414

MEP Assessment Report

August 29, 2019

KOHLER RONAN, LLC
CONSULTING ENGINEERS

93 Lake Avenue, Danbury, CT 06810
203.778.1017 F 203.778.1018

171 Madison Avenue, New York, NY 10016
212.695.2422 F 212.695.2423

Table of Contents

I. PURPOSE

The purpose of this report is to provide an overview of the existing Thomas Cole House building systems. This report will provide a description of the mechanical, electrical, plumbing systems, capacity, age and condition including opinion of useful life and recommendations.

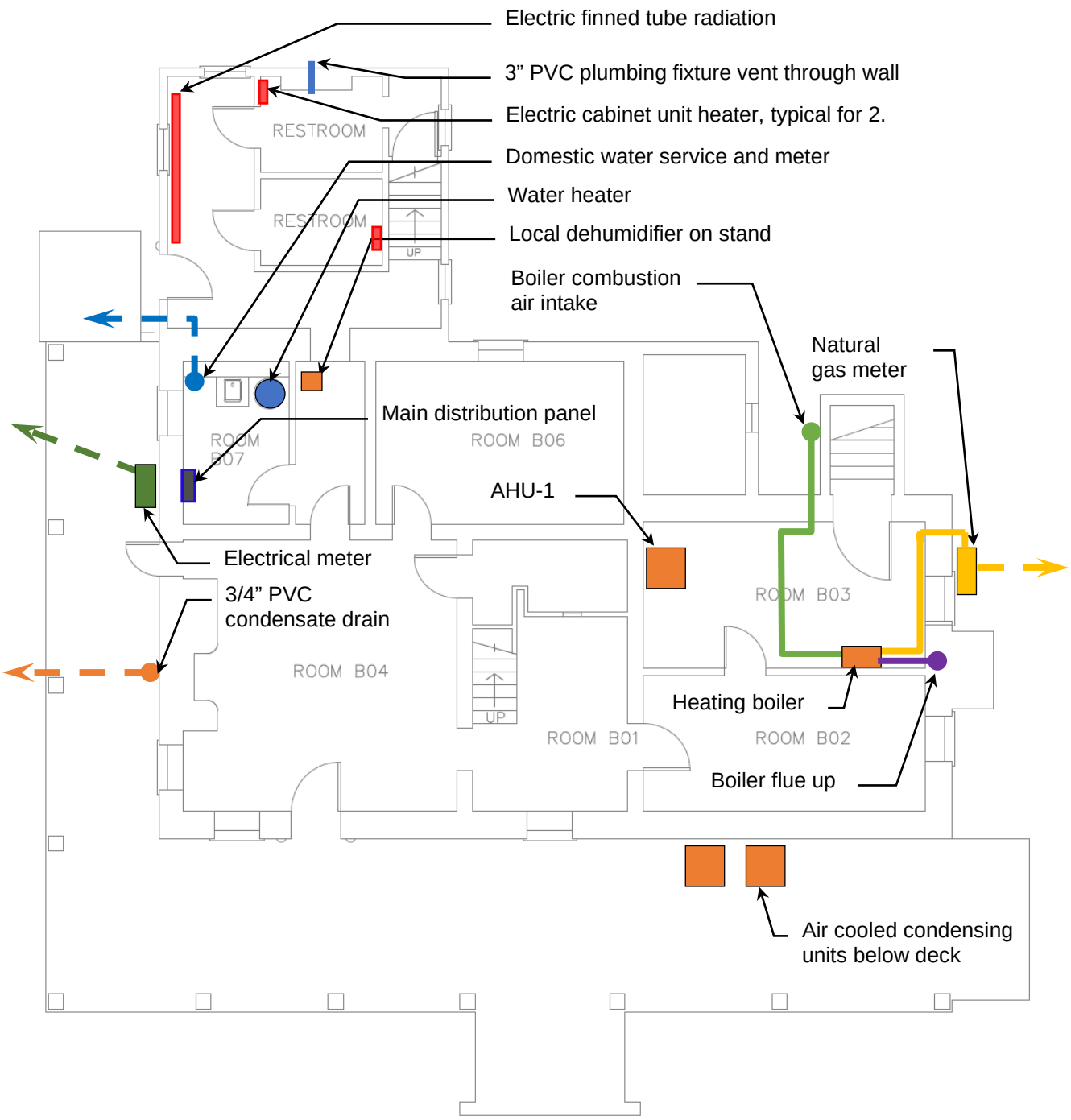
This report is based on:

1. Site visit to visually review existing conditions on September 11, 2018.
2. Review of the existing architectural floor plans
3. Review of Appelbaum and Himmelstein report titled “Cedar Grove, Thomas Grove National Historic Site Environmental Survey Report”’ not dated, assumed to be September 2011.
4. Review of Quantum Engineering Co. report titled “Thomas Cole National Historic Site Environmental and Fire Protection System Assessment” dated February 28, 2012
5. Marioff Mist System has been completed by Advanced Safety Systems, Inc., dated August 20, 2018
6. Site visit to review and discussion with Rich Rappleyea from Dimensions North on the work he has completed; on October 10, 2018.

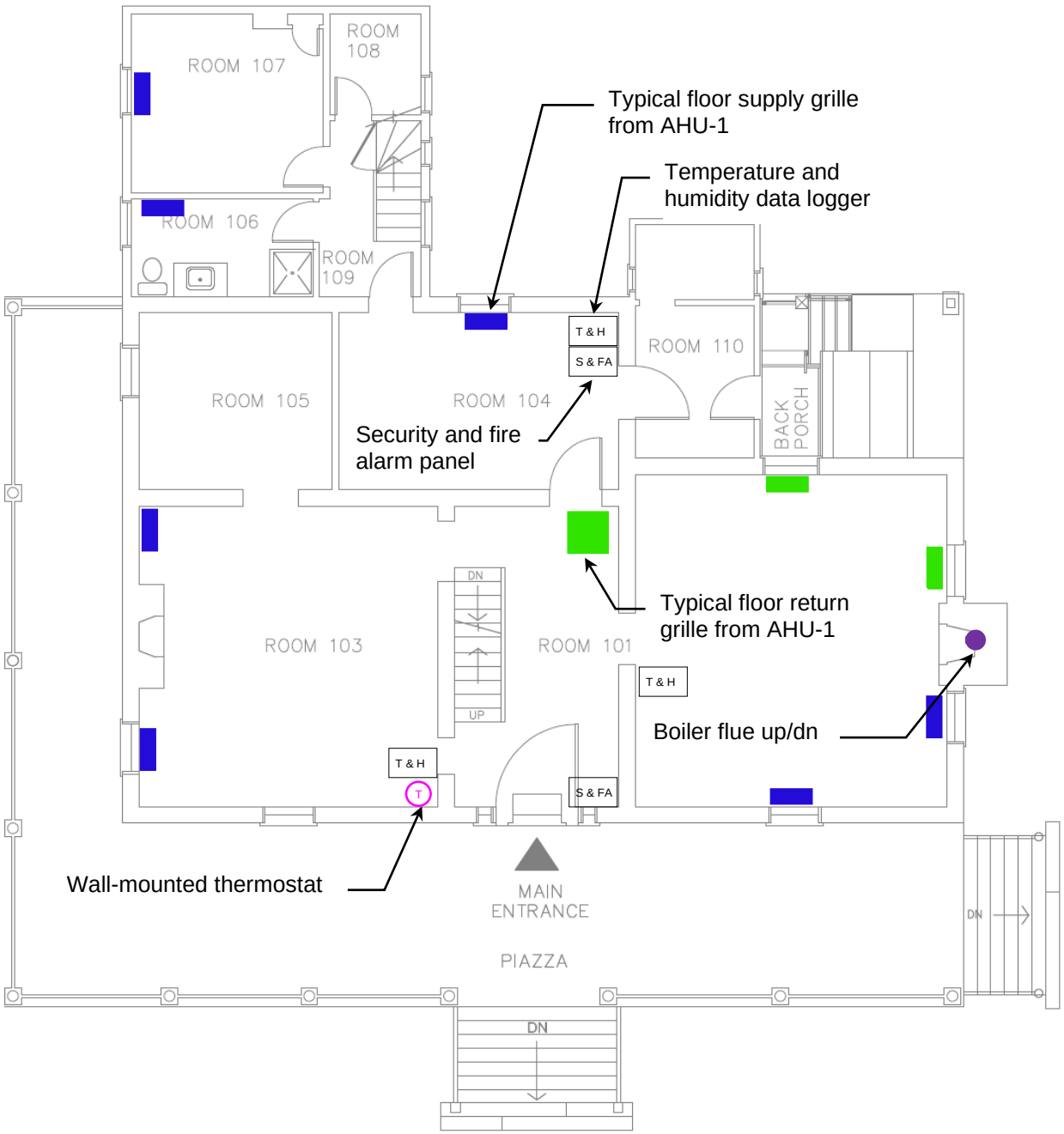
II. BUILDING INFORMATION & LAYOUT

The Thomas Cole House is a three-story building located on a 3.5-acre campus in Catskill New York between the Hudson River and Catskill Creek.

Building Location & Surrounding Buildings

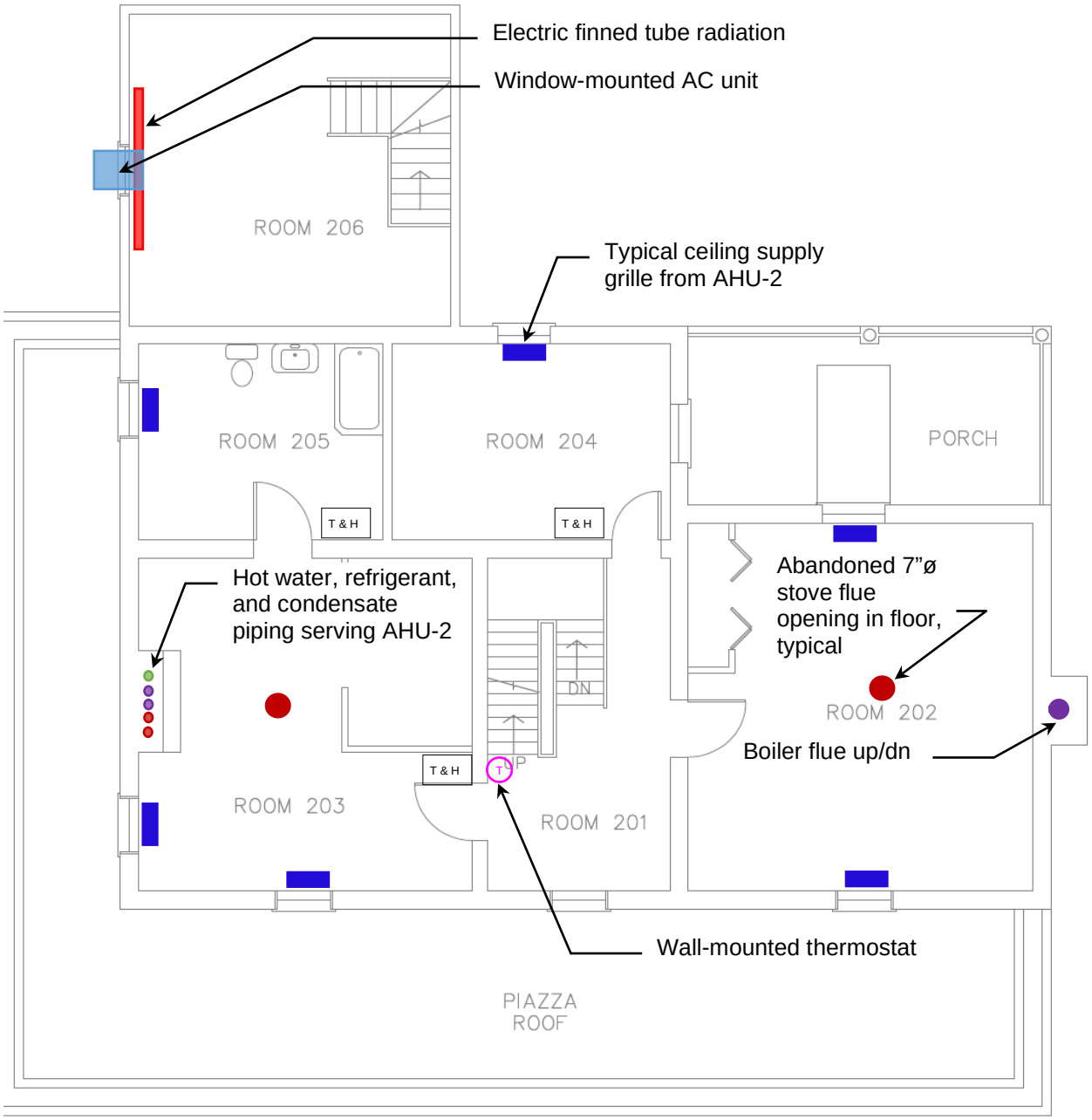


Basement Level

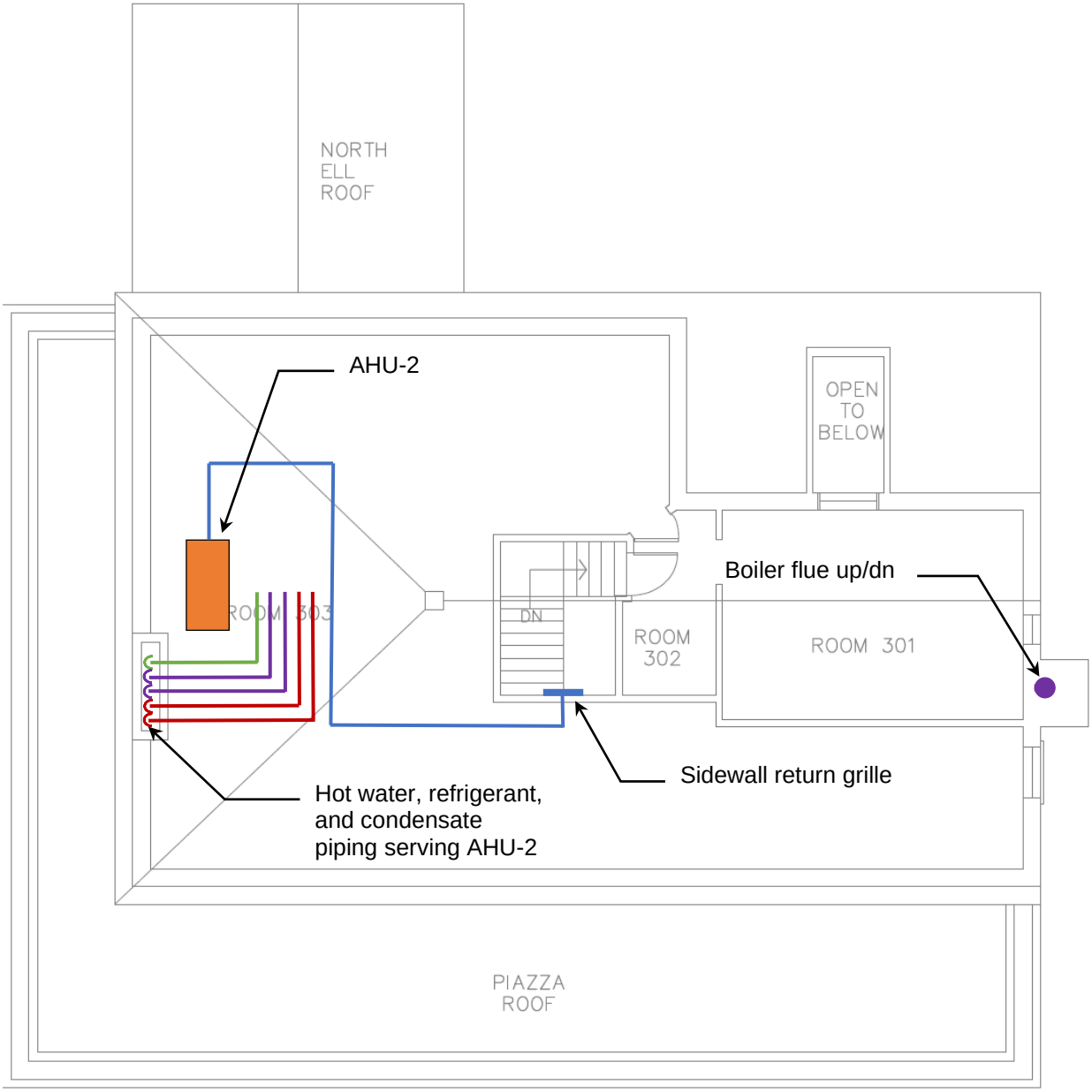


First Floor Level

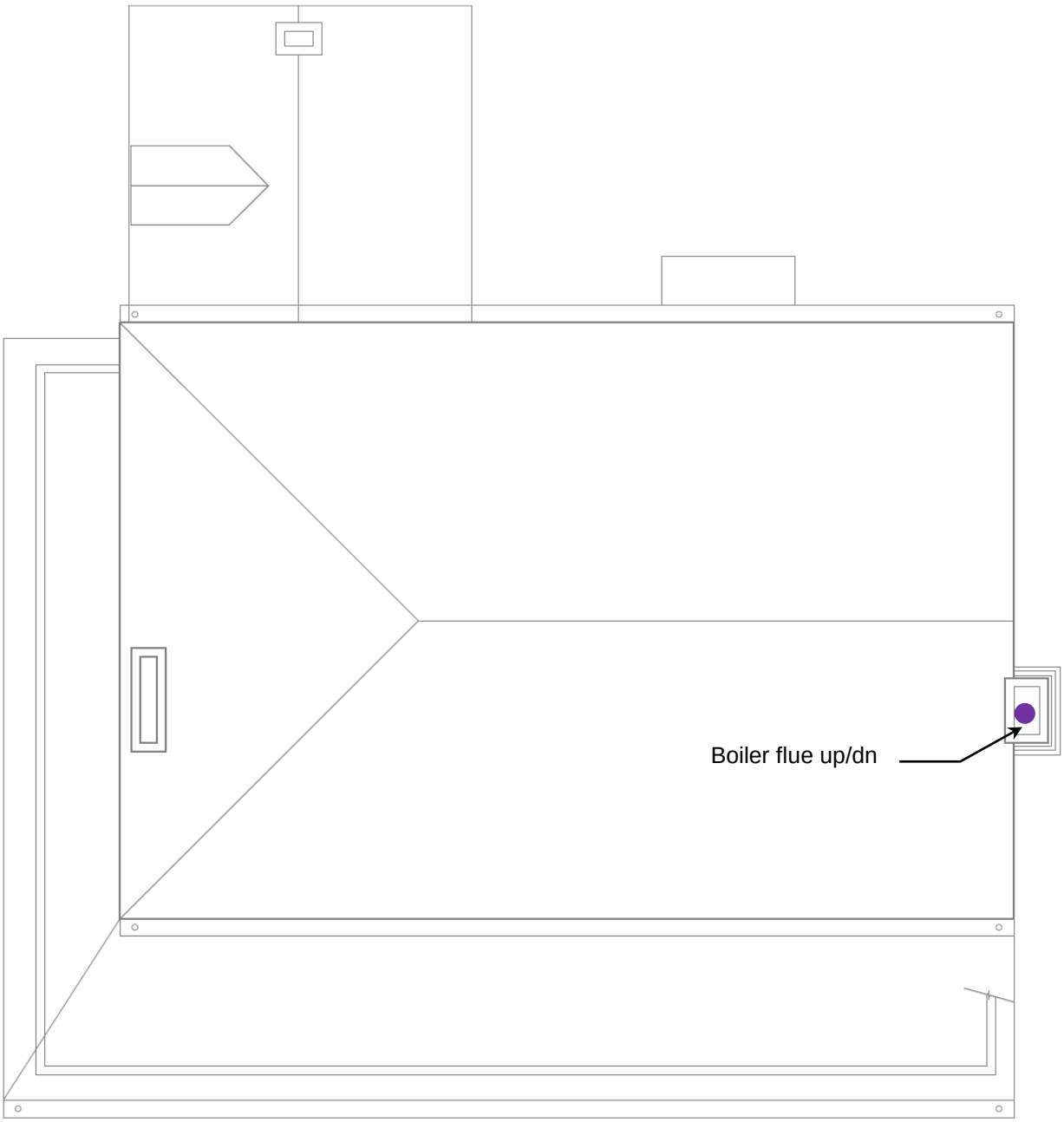
KOHLER RONAN



Second Floor Level



Third Floor Level



Roof

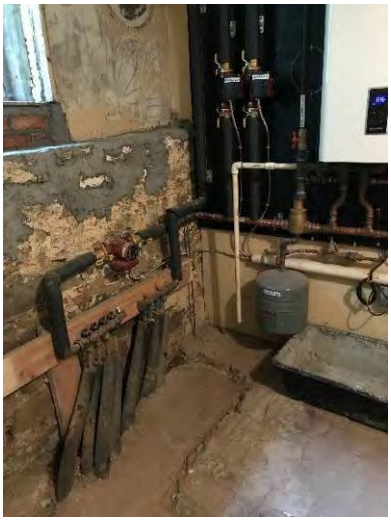
IV. MECHANICAL

Building heating and cooling

Boiler and Basement level heating

The Thomas Cole house heating hot water is provided by a natural gas fired condensing wall mounted boiler B-1, manufactured by Navien, model NCB-240 with a heating capacity of 112 MBH. The boiler is in the basement room B03 and was installed in 2016 along with additional HVAC upgrades and is in very good condition. The boiler provides hot water to three separate loops throughout the building in a reverse return piping configuration. Each loop has a Grundfos circulator to provide hot water out to the building. The first loop provides hot water to an air handling unit AHU-2 located in the attic serving the second floor. The second loop provides hot water to an air handling unit AHU-1 which serves the first floor. The third loop provides hot water to a radiant floor manifold with 4 PEX piping loops. The loops enter the floor in the boiler room and provide heating to the basement level. Additionally, the boiler has a 2" PVC combustion air intake routed to the exterior by the back porch off Room 102. The boiler 2" CPVC flue is routed directly out of the boiler into the base of the chimney. The flue piping is pitched back towards the boiler with a tee for condensate collection piped down to a separate condensate pump. The boiler and associated piping are installed neatly but the insulation is largely missing or incomplete.

Wall Mounted Condensing Boiler B-1 and Associated Piping



Basement Radiant Floor Supply and Return Manifolds

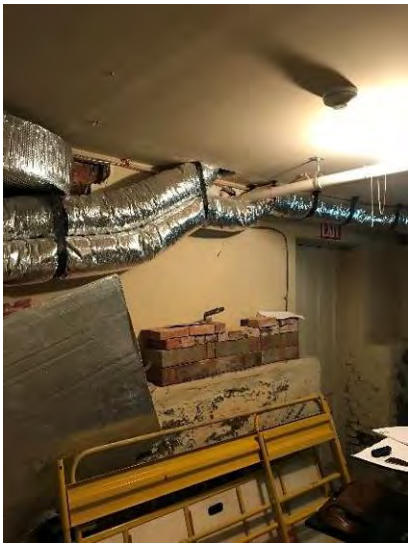
Hot Water Supply and Return PEX Piping

Air handling units and first / second floor heating and cooling

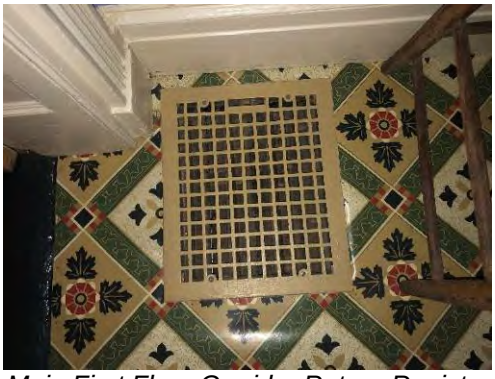
Located in B03 is AHU-1, a vertical air handling unit manufactured by First Company, model number 30HBXB-HW. AHU-1 has a nominal 2-ton expansion refrigerant coil for cooling with approximately 35 MBH heating capacity provided by a hot water heating coil, 625–1,000 cfm. AHU-1's condensing unit is located beneath the front porch.

AHU-1 serves the first floor through floor registers located below the windows with a large return floor register located in the main corridor. Air distribution is provided by a combination of sheet metal and flexible ductwork throughout the basement level ceiling. AHU-1 and the associated ductwork were also installed as a part of the 2016 HVAC upgrades and are in good condition. Flexible ductwork is poorly supported with polyethylene straps and kinked, which can contribute to poor performance. AHU-1 has an integral drain pan with a pitched 3/4" PVC pipe to a remote condensate pump. This condensate is discharged to the exterior through rubber tubing.

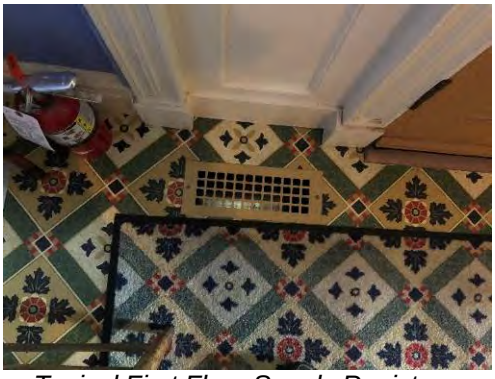
AHU-1 Serving the First Floor



Flexible Ductwork and Polyethylene Support Straps



Main First Floor Corridor Return Register



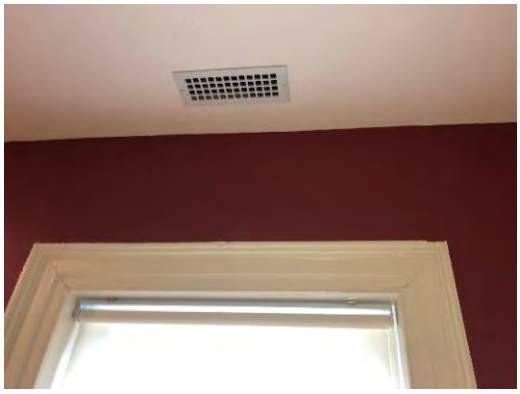
Typical First Floor Supply Register

AHU-2 is a horizontal floor mounted air handling unit located in the attic. AHU-2 is also manufactured by First Company, model number 30HBXB-HW. AHU-2 has a nominal 2-ton direct expansion refrigerant coil cooling capacity with approximately 35 MBH heating capacity provided by a hot water coil, 625–1,000 cfm. AHU-2's condensing unit located beneath the front porch.

AHU-2 serves the second floor through ceiling supply grilles located above the windows at the exterior walls. The return air is drawn into the corridor and back to the unit through a sidewall grille located in the stairwell. Ductwork is a combination of sheet metal and flexible duct. Rigid ductwork is supported by masonry blocks which rest on the attic floor. Flexible supply ductwork is not supported, but rests on the attic floor. Much of the insulation is damaged or missing entirely. Return ductwork is flexible and supported from the attic rafters by nylon straps. AHU-2 is also supported by masonry blocks which will transfer vibration and noise to the space below.

Horizontal Air Handling Unit AHU-2 Serving Second Floor

Second Floor Return Grille in Stairwell



Typical Second Floor Ceiling Supply Grille

Flexible Ductwork in Attic Space

Typical Wall Mounted Thermostat and Wall Mounted Humidity Sensor

ACCU-1 and ACCU-2 are nominal 2-ton condensing units, manufactured by HEIL heating and cooling products, model number N4A324GKN200. They serve AHU-1 and AHU-2 and provide cooling to the first and second floors. Both units utilize R410A refrigerant and operate on 208V / 1PH circuits. The condensing units were installed in 2016 along with the other HVAC upgrades. The units are mounted underneath the front porch on cement equipment pads. The units are new in quality but should be serviced more often to prevent the heat exchanger fins from being clogged and reducing performance. Currently the fins require cleaning.

Air Cooled Condensing Units Serving AHU-1 and AHU-2

Code deficiencies

1. Ductwork insulation is damaged or incomplete in many locations for both AHU-1 and AHU-2. (IECC)
2. Hot water piping insulation is damaged and incomplete in many locations. (IECC)

Recommendations

1. Remove all hot water piping insulation. Provide code compliant insulation throughout hot water system.
2. Remove flexible supply and return ductwork and replace with sheet metal ductwork. Remove nylon support straps and masonry support blocks and provide galvanized support straps.
3. Remove all refrigerant piping insulation. Replace with closed cell flexible elastomeric insulation. Fully insulate and seal suction and liquid lines from condensing unit connection to respective air handling unit.
4. Remove masonry blocks supporting AHU-2 and provide double neoprene isolation pads.

V. ELECTRICAL

Electric Service and Distribution

The electric service originates from a Central Hudson Gas & Electric Corporation overhead utility distribution system on Spring Street, west of the house. The underground service conductors enter the west side of the Thomas Cole House and terminate on a 200A main circuit breaker 120/240V 1 phase main distribution panelboard, located in a dedicated electrical/technology room B07 in the Basement level. The main distribution panelboard was installed during the 2003 basement renovation and appears to be in good condition. The service is metered at the main distribution panelboard via Central Hudson Gas & Electric Meter#73006339 located on the west façade of the house.

The main distribution panelboard contains forty positions with plug in circuit breakers energizing receptacles, lighting fixtures, fire/security alarm system and a 100A main lug only 120/240V 1 phase mechanical sub panelboard. The mechanical sub panelboard, located in room B03 in Basement level, contains twelve positions with seven plug in circuit breakers energizing mechanical equipment and associated maintenance receptacles. The remaining five positions are spares. The mechanical sub panelboard was installed in 2016 renovation and appears to be in good condition.

Utility Meter

Main Distribution Panelboard

Mechanical Sub-panel

Electrical Grounding on Water Service in room B03.

Wiring and Receptacles

The building wiring where exposed is in good condition with small pieces spliced in for repairs or modifications. The majority of the exposed raceway and wiring was installed during the 2006 and 2016 renovations. The quantity of receptacles throughout the facility does not meet the programming needs of the spaces. In order to compensate for the lack of receptacles, occupants have installed extension cords throughout the facility. The corresponding circuit breakers used to energize the additional extension cords is not confirmed for adequate capacity and load.

Most of the wiring is concealed within the walls and would require extensive demolition to confirm original wiring is not used thus requiring it be corrected.

Exposed conductors

Exterior GFCI duplex receptacle

Lighting Fixtures and Controls

The lighting in the building is a mixture of decorative fixtures, track lighting and utility fixtures with fluorescent lamping. The majority of the lighting fixtures were installed during the 2006 renovation. Emergency/egress lighting is not provided within the facility.

Non-illuminated exit signage was observed throughout the basement and 1st floor levels.

Simple switching and dimmer switches were observed to be the only means of lighting control in the facility. Occupancy detectors or vacancy controls were not observed in any spaces.

Exit Sign in room B03

Exterior photocell for site lighting under south deck

Fire Alarm System

The residential zone fire alarm system, manufactured by Honeywell, was installed in 2016 and is in good condition. The fire alarm system is maintained and tested by CIA Security. Two fire alarm key pads are in the main entrance room 101 and side entrance room 104 on the first floor. The house consists of a mixture of new and old technology. The basement and first floors have new wireless Vista 20P smoke detectors, installed during 2016 renovation, while the second and third floors have conventional smoke detectors, installed during early 2000s.

Fire Alarm key pad at main entrance

Code Deficiencies

1. The existing mechanical sub panelboard contains a duct and condensation pipe in the dedicated electrical space violating the provision of NEC 110.26(E).
2. The existing ductwork in room B03 on basement floor is blocking the exit sign for means of egress in violation of the International Building Code (IBC).
3. Two existing receptacles, one quad and one duplex, in room B07 are not GFCI as required by NEC 210.8(B)(5).
4. The exterior GFCI receptacle located next to the outside condensing unit under the south deck shall be provided with a complete weatherproof enclosure as required by NEC 406.9.
5. The existing ground of the main distribution panelboard on domestic water service is not electrically continuous as required by NEC 250.52(A)(1). Please note the bonding jumper should be downstream of the isolation valve.
6. Several exterior and interior raceway penetrations throughout the facility are not fire stopped as required by the IBC.
7. Exterior abandoned ROMEX in room B01 behind stairwell contains exposed conductors.

Recommendations

1. Relocate all mechanical ductwork and piping located within the dedicated electrical space above panelboards and switchboards as required by NEC 110.26(E).
2. Relocate existing mechanical ductwork blocking exit sign in room B03.
3. Replace existing receptacles in B07 with GFCI receptacles.
4. Provide new weather proof enclosure for existing GFCI receptacle under the south deck.
5. Disconnect and extend existing grounding conductor downstream of the isolation valve to provide electrically continuous grounding system.
6. Provide fire stopping for all raceway penetrations.
7. Repair or remove all exposed conductors in room B01.
8. Provide a new emergency lighting inverter system to energize new emergency LED lighting fixtures throughout the building.
9. Provide a new addressable fire alarm system to protect the facility via horn strobes, pull stations, heat detectors, tamper switches, flow switches and smoke detectors.
10. While not a code violation it is recommended to have the local manual switches replaced with automatic lighting control system for better energy usage.
11. While not a code violation, it is recommended to provide additional exit signs in public spaces to provide additional safety for the occupants.

12. It appears the lighting foot candle levels are inadequate in certain spaces and we recommend a foot candle study be performed. If additional foot candles are required, provide additional lighting fixtures.
13. Provide additional receptacles to avoid the use of extension cords.
14. Disconnect and extend existing site photocell device, located under south deck, to a more visible location for better functionality. The existing photocell location will not turn the site lighting fixture off on a sunny day as it is shielded from the sun.

VI. TECHNOLOGY

Telecommunications Service

The building's telecommunications service enters the north side of the Basement Level and is routed to the electrical/ technology room B07. Incoming copper cable enters on the south wall (50-pair voice termination block). The telecommunication service is estimated to be installed in the 1990s.

The electrical/technology room B07 houses all incoming telecom service circuits for the entire building. Verizon service is provided through copper cable. One copper termination block with a surge protection device and numerous smart jacks occupy the wall space behind the IT equipment rack. The Verizon service is estimated to be installed in the early 2000s. The room has poor cooling and is used as a storage space. Fire alarm panels sit on the west wall.

Information Technology Pathways and Spaces

The Main Distribution Frame (MDF) is located in the electrical/ technology room B07 on the Basement Level. The MDF consists of a 1-post IT equipment rack for all station cabling, data switch and audiovisual equipment. The station cabling enters the rack through the west wall. Station cable was observed to be a mixture of Category 5 and Category 5e unshielded twisted pair (UTP) while patch cords are draped along the front of the rack without wire management. One small uninterruptible power supply (UPS) sits on the filing cabinet adjacent to the IT equipment rack. The existing information technology equipment is estimated to be installed during the early 2000s. Cables are routed above drywall ceilings on each floor to the outlets in each area. A mixture of electrical conduit stub-ups and surface-mount plastic raceway was observed throughout the facility.

Main MDF

Intrusion Detection

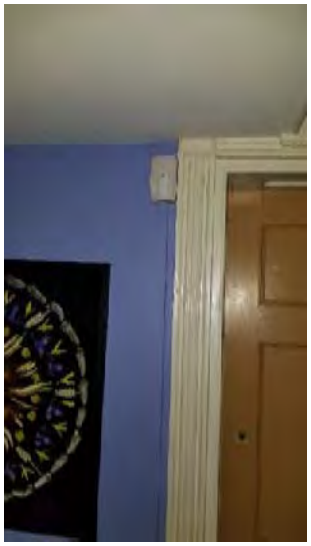
Intrusion (burglar) alarm keypads were observed at the following locations:

1. 1st Floor – Room 101 adjacent to the main entrance.
2. 1st Floor – Room 104 adjacent to the rear exit doors.

Motion sensors and door/window contacts are visible throughout the facility for protection. The intrusion detection system is estimated to be installed during the early 2000s.

Security Alarm Keypad

Security Alarm Keypad



Security Motion Sensor

CCTV Surveillance

Four (4) analog CCTV cameras supply the following views:

1. Front Entrance.
2. Room 103
3. Room 202
4. Room 205

The DVR supporting this system is installed on the filing cabinet adjacent to the IT equipment rack of the electrical/technology room B07 in Basement Level. The CCTV surveillance system is estimated to be installed in the 1990s.

CCTV Camera

Recommendations

1. Basement Electrical/Technology Room B07 - remove all unused copper telephone termination blocks and all other inactive telecommunications equipment. The patch cords on cabling rack should be re-supported by installing both vertical and horizontal wire managers. Review current equipment heat load and provide additional cooling as needed. Seal and firestop all wall penetrations where cables currently route to other spaces.
2. Any substantial demolition and renovation of this building should include a structured cabling system upgrade to a minimum level of Category 6 cable.
3. Further analysis of the intrusion detection system is needed in order to provide a recommendation. Interviews with the building Owner would be the first step in this process, in order to properly gather requirements.
4. Further analysis of the video surveillance system is needed to provide a recommendation. Interviews with the building Owner would be the first step in this process, in order to properly gather requirements. Additional cameras might be added to the system based on the need for additional views of the building front entrance or other interior areas. The system should be upgraded to an IP-based camera system utilizing power-over-ethernet and network video recorders (NVRs). This system upgrade would provide the Owner more advanced features and flexibility.

Domestic Water:
Domestic water enters the basement level on the west side, most likely fed from Spring Street. The 3/4" copper main enters a 5/8" water meter assembly located within room B07 in the basement.

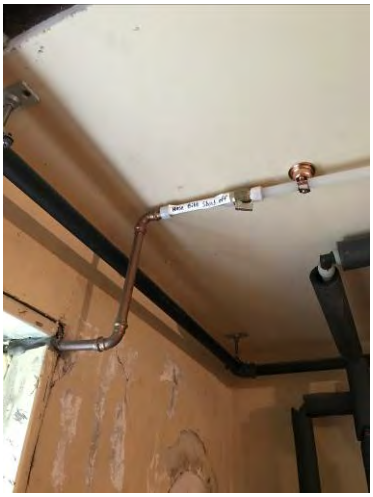
Water piping within the facility is predominately copper with wrought copper solder and pressure seal fittings, and cross-linked polyethylene (PEX). Several areas of the domestic water distribution were observed to be uninsulated. Water distribution piping appears to be in serviceable condition from visible observation at miscellaneous locations. The piping with the pressure seal fittings have been installed within the past 10 years.

Domestic hot water is generated by an electric water heater located within room B07 on the basement level. The water heater is manufactured by Rheem, model XE06P06PU20U0, is 6 gallons, 120v, single 2000w heating element. The heater was manufactured in 2014 and is in good working condition.

A storage shelf, debris, and mops were stored on top of the water heater.

Domestic Water Entrance

Water Meter



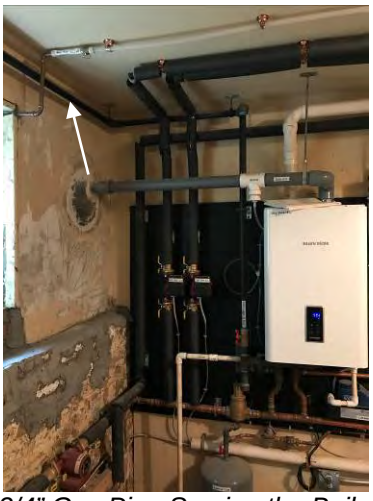
Copper and PEX Piping

Domestic Water Heater

Natural Gas:
The natural gas line was installed in 2014 and is routed from Hudson Avenue, north into the site where it splits and serves the House and the Visitor Center. The House's gas meter (Central Hudson Gas & Electric) is located at grade on the east side of the building. The 1" gas line leaving the meter enters the basement level through the masonry wall and transitions to a 3/4" pipe to serve the heating hot water boiler.

Gas Meter

Gas Line Entering Basement



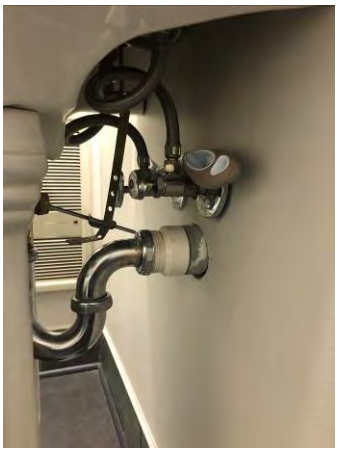
3/4" Gas Pipe Serving the Boiler

Sanitary:
The building utilizes a sanitary waste and vent system piped to plumbing fixtures. The building discharges by gravity to a main in the north yard. This main is shared with the adjacent Temple Israel building to the north. The building sanitary leaves below the basement floor. Sewer cleanouts are located on the west side.

Materials generally consist of PVC piping with glued joints. Much of the piping was concealed at the time of the site visit.

Sewer Cleanouts and vent

Sewer Cleanouts



Sink Connection to PVC

Storm Water:
The roof areas are pitched roof design and are serviced by exterior architectural gutters and leaders. The leaders discharge at grade to open grates connected to a below-grade storm water system.

Typical Copper Leader

Typical Leader Termination

Open Grate to Storm Water System

Plumbing Fixtures:
The building has gone through many different renovations over the years and there are many different styles and manufacturers of plumbing fixtures throughout. Generally, plumbing fixtures throughout the facility appear to be in working condition.

VIII. FIRE PROTECTION

The building is not protected by any type of sprinkler or fire suppression system. A design for a Marioff Mist System has been completed by Advanced Safety Systems, Inc., dated August 20, 2018.

APPENDIX C

HISTORIC PAINT FINISHES STUDY OF ROOMS: 104, 105, 201, 204, 205, 301 AND 302

Matthew J. Mosca, Historic Paint Finishes Specialist
Artifex, Ltd.

December 30, 2018

Thomas Cole National Historic Site
Catskill, New York
Ms. Elizabeth B. Jacks, Director

Historic Paint Finishes Study of Rooms: 104, 105, 201, 204, 205, 301 and 302
Conducted for the Historic Structures Report for

John G. Waite Associates, Architects PLLC
384 Broadway
Albany, New York 12207

By:
Matthew J. Mosca, Historic Paint Finishes Specialist
Artifex, Ltd.
2641 North Charles Street
Baltimore, Maryland 21218

Date: 30 December 2018

Table of Contents

Table of Contents

Program for Paint Research: Technical Program

Note: The following is the procedure that is generally followed for museum quality paint finish examination.

1. Collection of Materials:
For this project samples were collected from all characteristic locations of Rooms 104, 105, 201, 203, 204 and 205, 301 and 302, with certain additional elements of the Thomas Cole National Historic Site. Samples were collected with scalpels, X-acto knives and special diamond tipped cutting wheels for a Dremel tool.

Note: The focus period for this study is:

The Thomas Cole (1836-1848) period, based on the examination of the physical evidence.

Other finishes have been recorded with photomicrographs.

2. Exposure of Finishes:
On site exposure windows were made by cratering at specific locations and exposures for indication of painted decoration.

Exposure of wall decoration:

The exposure of the wall decorations was done with three different systems for removal of the over paint.

A: Mechanical: using scalpels and X-acto knives were used to remove the bulk of the over paint, including modern joint compound executed for the reopening of Cedar Grove.

B: Benzyl Alcohol: the last over-paint finish was removed with benzyl alcohol, applied with swabs and agitated until the paint was softened sufficiently to be removed. The viscosity of the benzyl alcohol was sufficient to keep the surface moist and active; thin plastic film was applied to prevent evaporation when necessary. dwell time was approximately 7 minutes before removal. Terry-cloth wipes and cotton tips were used for removal. The surface was neutralized with naphtha.

3. Stereoscopic and Polarized-light Microscopy, and Microchemistry:
All samples are examined in cross section and obliquely. When required, the sample may be mounted for thin cutting or polishing. These samples are mounted in Bio-plastic polymer resin. The samples are ground and polished for examination using top lighting. For this project, the first finish is recommended, however, the later dark finishes have also been identified and color matched for additional information.

Exposure to full-spectrum or part-spectrum light is used to help reduce the yellowing of oil media. Initial stereomicroscopy is accomplished using an Olympus SZ-1145 microscope. Polarized-light microscopy, when necessary, is also undertaken, using the Olympus BMAX-50 microscope. Polarized-light microscopy identifies pigments and media according to the McCrone Research Institute system of particle identification. In many cases the most important function of serious paint research is the identification of the actual pigments and media used through optical and chemical testing. Polarized-light microscopy was conducted on the original finish. Short wave UV was employed for bleaching of oil media, and oil penetrations for color clarity: this was limited to interior samples. The color matching used the Benjamin Moore Color System, providing excellent color matches for the early finishes.

All color standards have been read by the X-Rite SP62 Sphere spectrophotometer to provide CIE Lab coordinates, the universal means of expressing color in a three-dimensional color space, expressed numerically.

4. Photomicrographs:
A very important means of recording paint finish data is photomicrography: print photographs taken through the microscope of particularly informative samples. This allows for clear indications of the conditions seen under the microscope, and how the recommendations were achieved. The report includes photomicrographs that are annotated with information in the report. Many of the paint samples will be mounted in polymer resin for cross sectioning.

5. Report:
The report brings together all the aforementioned material in a comprehensible manner and includes color samples, photomicrographs, reconstructed finishes and any additional pertinent information, such as that from known documents. Spectrophotometric readings of color standards are also executed to provide all standards with CIE Lab and included in the report as indicated above.

6. Additional examination

Two samples that are from the post-Cole era were sent to Dr. Carol Heckman, Director of the Bowling Green State University Center for Microscopy for scanning electron microscopy. This was undertaken to augment the polarized light microscopy.

Additional examination in some rooms may be warranted. Refer to Recommendations at the end of the report.

Note Regarding accurate color rendering in Photomicrographs

The photomicrographs are a critical part of this study. They are presented to indicate the **conditions and sequences of paint layers.** Despite advances in rendering colors exactly using digital means, colors are not usually presented perfectly accurately in digital photomicrographs, just as they were not perfectly rendered on film. This may be exacerbated when a porous paint is mounted in polymer resin: the mounting medium can alter the appearance of the paint color.

Respectfully submitted this date:

Matthew J. Mosca
Historic Paint Finishes Specialist
Artifex, Ltd.

Introduction:

This study was undertaken to provide information pertaining to the finishes of the Thomas Cole period at Cedar Grove [1836-1848] as part of the Historic Structures Report undertaken by John G. Waite Associates, Architects. The scope, as finalized, included the following:

First Floor:

Room 104: Alexander Thomson's Room
Coat Hook Rail: Comparison with Door and Window frames
North Door to Addition: Comparison with original woodwork

Room 105: The Pantry

Second Floor:

Hall 201: including Hall staircase 2nd to 3rd floors

Room 203: Cole Sitting Room

Room 204: North Room

Room 205: Children's Room

Attic Room 301

Attic Room Antechamber 302

Additional: Hall 101
Coat Hook Rail: Comparison with original Door Frame, to the East Parlor
Door finish: search for a blue finish prepared with Artificial Ultramarine Blue pigment

The focus of the report is on the period of Thomas Cole's occupancy at Cedar Grove, from the time that he married into the family in 1836 until his sudden death in 1848.

Reading the report:

The report is organized numerically according to room. Each section begins with a summary of the findings. This is followed by photomicrographs of the important paint samples. Many of the photomicrographs are of mounted samples that have been cross sectioned and polished. Each of the photomicrographs is annotated, explaining the photomicrograph. This forms the basis of the report. Following the examination of the samples, there is a conclusion indicating recommendations for restoration.

The early history of Cedar Grove is documented in the report by Jean C. Dunbar: *Cedar Grove Furnishings Plan*, (copyright: June 7, 2010). Ms. Dunbar's advice has continued to be important in the examination of the finishes for the understanding Thomas Cole and his redecoration of Cedar Grove after he married into the family in 1836.

The results of the paint examination augment and compare with the earlier studies that have been conducted on the interior. A general breakdown of the eras of Cedar Grove may be organized as follows:

From Construction to ca. 1836

The woodwork was painted with lead white finishes, with the exception of the baseboard fascia in Room 105, that was painted with an early example of chrome green finish. This finish is seen on the Door to the East Parlor. It appears that the rooms were wallpapered. The Second Floor Hall appears to have been finished with lime whitewash. Note the lime whitewash was thinly applied, in a manner characteristic of house interiors: not as was done in outbuildings and barns.

From 1836-1848: The Thomas Cole period

This is the focus period for restoration. The woodwork was generally painted with a lead white finish, containing some varnish to retain gloss. The rooms were varied in their wall treatments:

Room 104: Alexander Thomson's Room: this room was decorated with an elaborate frieze, that may prove to be about 10-12" wide. The color of the room is a light red [red ochre] that might have been called *Pompeiian Red*. The decoration appears to be carried out in black and gray, primarily, and may include some elements with trompe-l'oiel shadows. Additional exposures will make it possible to restore this decoration. As in the case of the East and West Parlors, these decorations are believed to have been executed by Cole. The woodwork was painted with a lead white finish.

Room 105: The Pantry

This room was decorated with a Greek Key frieze on a light red ground, which had been exposed at the first restoration. The cabinet that is along the east wall may have been brought from another room, possibly ca. 1836.

Second Floor:

Hall 201: including Hall staircase 2nd to 3rd floors

This space appears to have continued the use of the artificial ultramarine blue throughout found on the first floor. Fragments of the color were discovered near the door to the Anteroom 302. The woodwork was painted white, with the treads in a light brown. It is possible that the stair risers were painted in the same finish as the treads before 1848. The Doors were painted white.

Room 203: Cole Sitting Room

This room continued the use of wallpaper throughout the Cole period: 1836-1848. The woodwork was repainted white.

Room 204: North Room

It is possible that this room was papered during the Cole period: 1836-1848. The room has a light brown finish that may have been applied by Cole prior to 1848. This will be curatorial decision. It is recommended that some additional exposures be done in this room, despite very heavy scraping that occurred later in the nineteenth century and at various times in the twentieth century.

Room 205: Children's Room

This room has an interesting tonal scheme of a moderate brownish gray on a lighter gray ground. Some additional exposures may be undertaken, though the precedent in the Parlors indicate frieze decorations without other decoration. The woodwork was painted white during the Cole era.

Attic Room 301 and Attic Room Antechamber 302

During the Cole period, all of the plaster surfaces would have had lime whitewash finishes, with the wood wall surfaces left unpainted. The window sash and sills, and the door frame of the door to the Staircase, were painted with a lead white finish.

The Post-Cole Period

According to tradition, the house remained very much the same until after the death of Maria Bartow Cole, Thomas Cole's widow in 1884. The rooms were redecorated, in some cases using distemper [water soluble] finishes for the wall surfaces. Room 204 may have been wallpapered after the Cole period as well.

The Hallway was scraped down aggressively and the walls painted with a series of light red finishes; in other rooms there are a number of yellow finishes: the yellow finishes may be associated with Cole descendant: Florence Cole Haswell. Following the "yellow period" the house was painted with blue finishes: the blue finishes are associated with Edith Cole Silberstein. Later finishes may date to the public ownership.

The presentation of the house, as it was known to Thomas Cole has made great strides with the principal first floor rooms. This study will make it possible to take further steps in the goal of restoring the interior of the Thomas Cole National Historic Site.

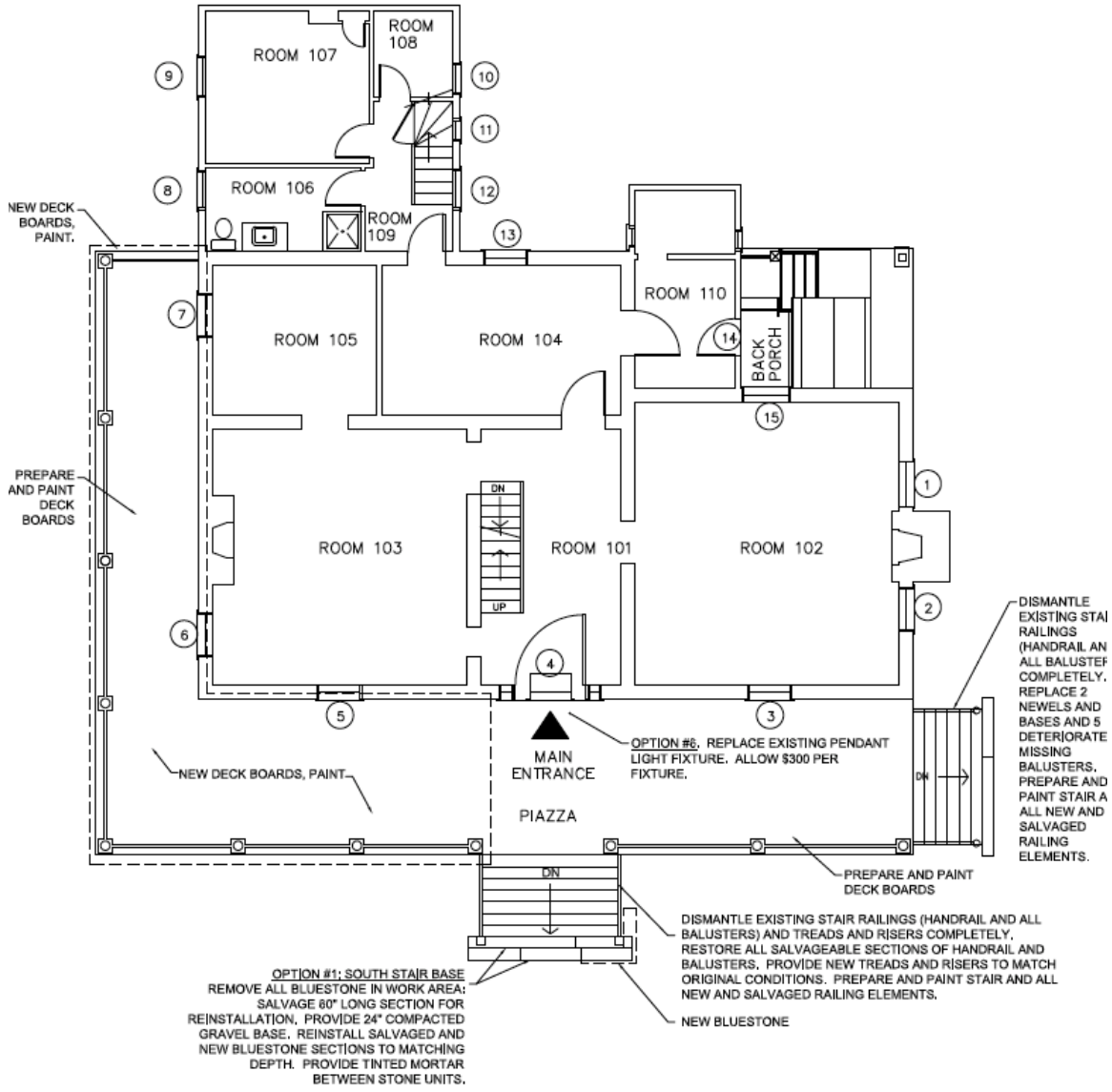
Note: Regarding The Floor Enamel Paints

Samples were taken from the floor enamel finishes and examined. Most of the sequence of paint finishes were prepared with traditional material: lead white and other lead compounds are present. Lead compounds were not removed from paint materials until 1978.

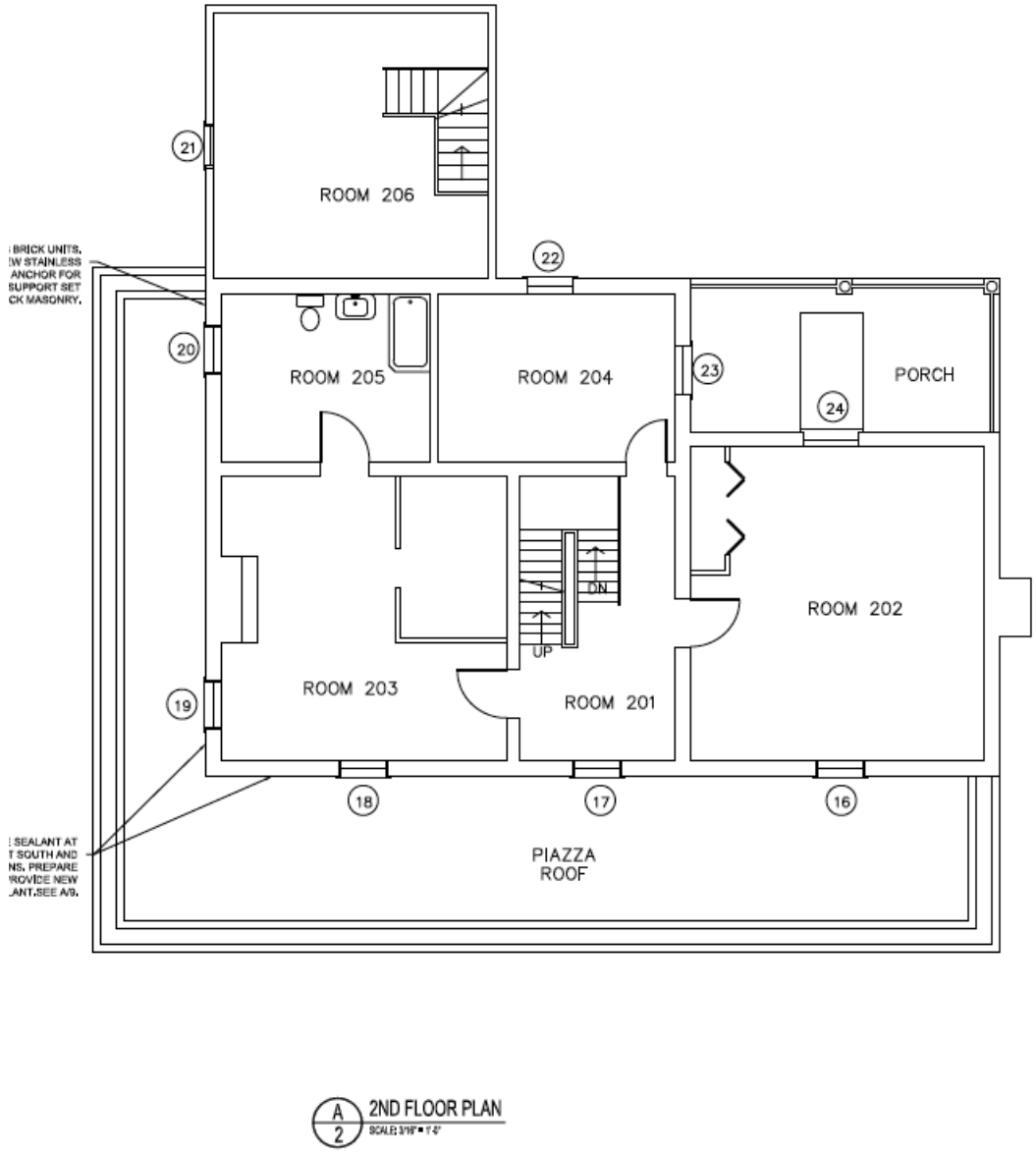
Historic Interiors consultant Jean Dunbar provided information on the floors: they were covered during the period before Thomas Cole came to Cedar Grove and continued to be covered during the Cole era. Thus: all of the floor enamels appear to be late in date: long after the Cole era, which ended in 1848. This can be ascertained by examining the floor in the Cole Sitting Room, Room 203.

The photograph above shows the floor in Room 203, the marks of a piece of furniture that was painted around during the earlier periods: the feet of this furniture piece sits on bare wood. It is likely that the painted floors began during the "Colonial Revival" period in the earlier twentieth century.

First Floor Plan

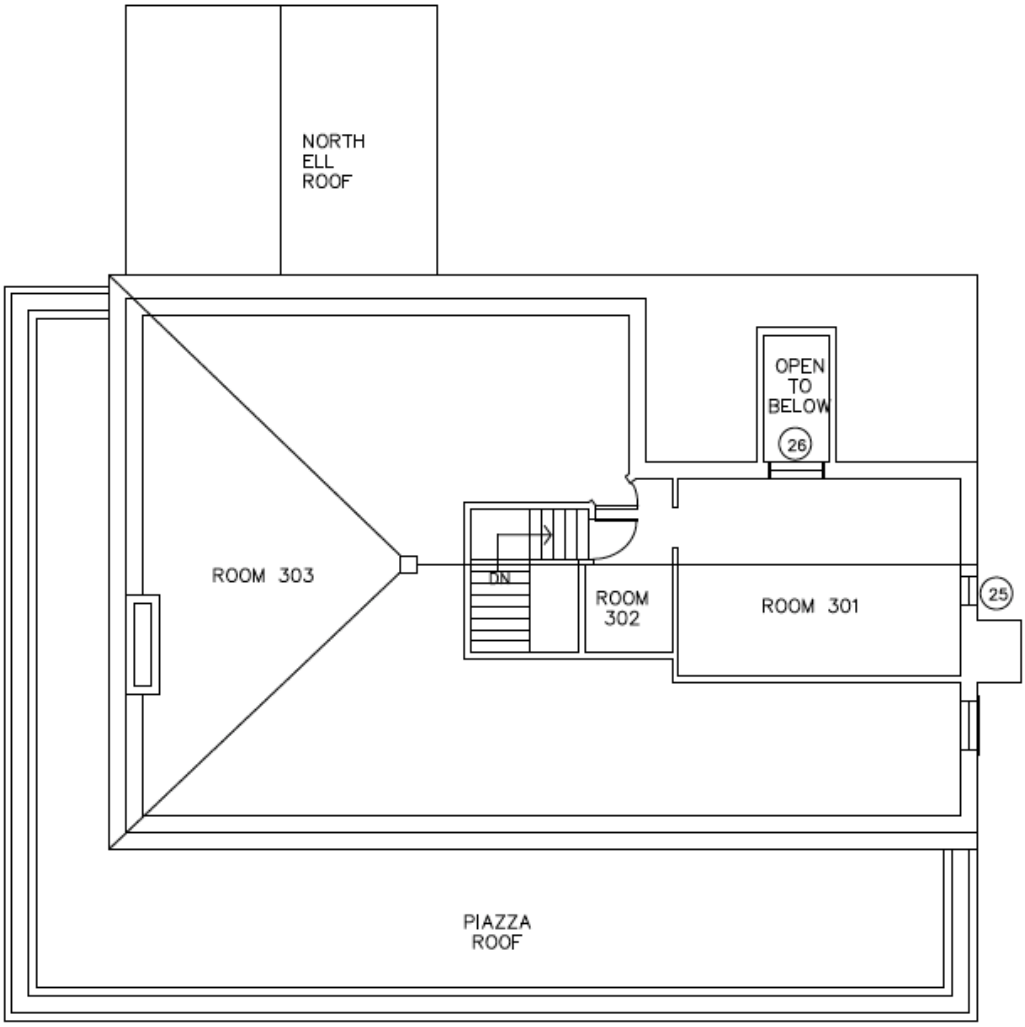


Second Floor Plan:



A/2 2ND FLOOR PLAN
SCALE: 3/16" = 1'-0"

Third Floor Plan:



B/2 3RD FLOOR PLAN
SCALE: 3/16" = 1'-0"

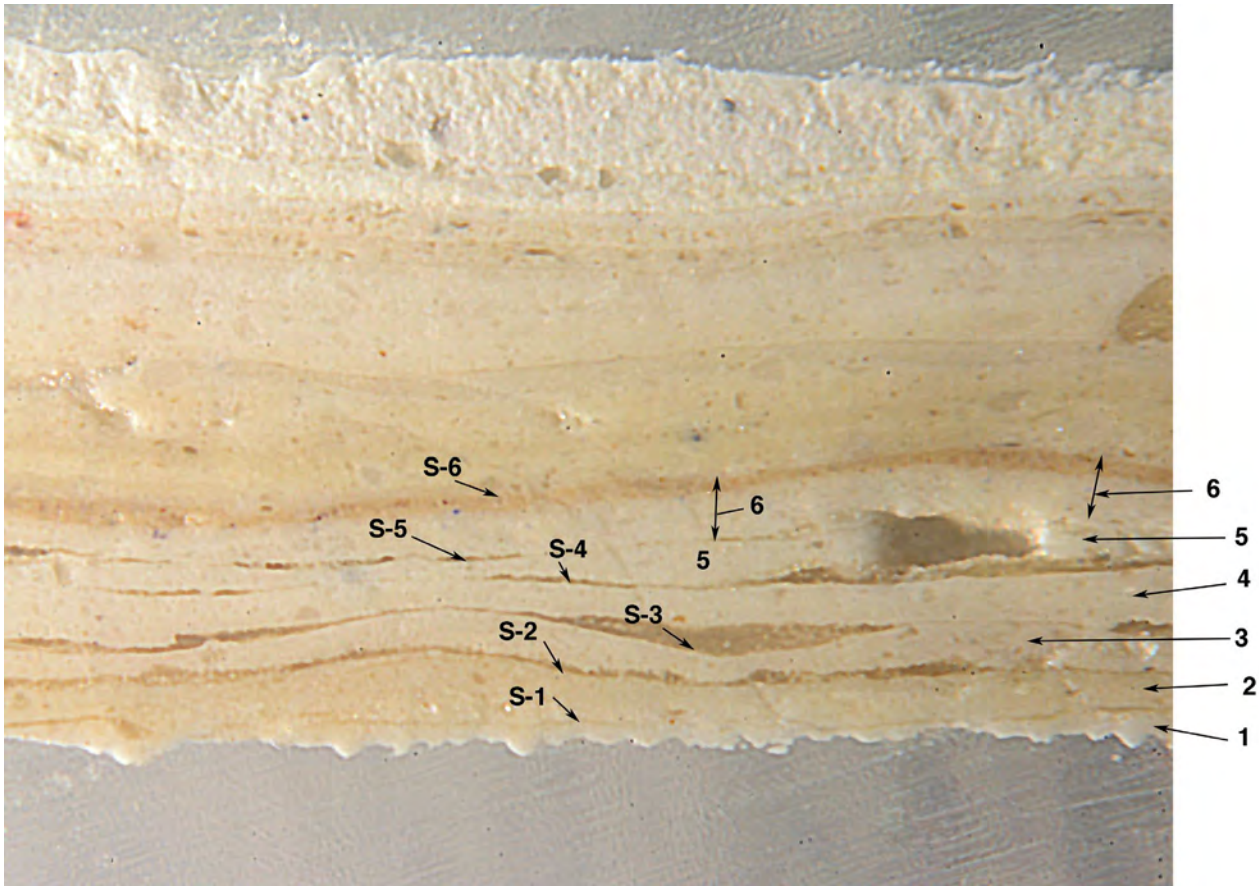
Entrance Hall: Room 101

Comparison of paint layers: The Door Frame of the Door to the East Parlor and the Pegboard

An interesting comparison may be made of the paint layers of the the Door Frame of the Door to the East Parlor and the Pegboard, in order to establish if the Pegboard was added to the wall. This relative dating may be based on the paint finish periods.

Sample 101-1: Door Frame, Door to the East Parlor

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.

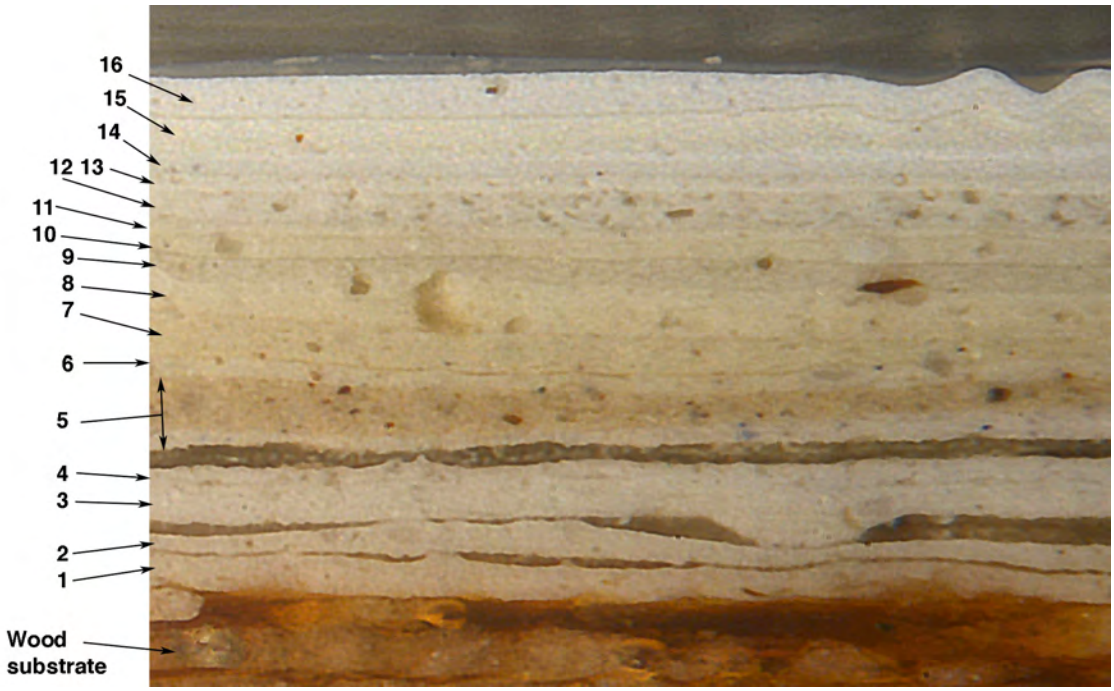


Note: the sample has been mounted in polymer resin, cut and polished to 8000 micron grit polishing cloth for additional examination. The paint accumulation has delaminated from the wood, however, the ridges of the first layer indicates the impression of the wood substrate. The critical layers for this study are the early finishes. Note that the light brown finish [6] is an excellent benchmark. These noted finishes are all prepared with lead white. The first finish [1] and the second finish [2] may both date to the pre-1836 Thompson period. It is estimated that finish 3 may be from the Cole period. Note also the distinct surface delamination planes at S-2, S-3 that indicate a longer exposure period. Finishes 4 and 5 may or may not be from the Cole period: this space appears to have been repainted more frequently than some of the other rooms. The surfaces of finishes 4 and 5 are also readily distinguished by the slight delamination of the succeeding finish in each case [S-4, S-5]. The sixth finish is prepared with a lead white ground and a light brown finish [6]. The later finishes are also seen in this cross section.

Comparison of paint layers: The Door Frame of the Door to the East Parlor and the Pegboard

An interesting comparison may be made of the paint layers of the the Door Frame of the Door to the East Parlor and the Pegboard, in order to establish if the Pegboard was added to the wall. This relative dating may be based on the paint finish periods.

Sample 101-2: Pegboard, East Wall, north of Door frame to the East Parlor
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: the sample has been mounted in polymer resin, cut and polished to 8000 micron grit polishing cloth for additional examination. The wood substrate is seen at the base of the sample, as noted. The first finish on **Sample 101-1: Door Frame, Door to the East Parlor** is not present, rather it appears that the first finish on this element is the *second finish* on the Door frame. This suggests that the Pegboard may have been added between the first and the second painting campaign, during the pre- 1836 period. It appears that this pegboard would have been in place in 1836 when Thomas Cole married into the family. Note that the light brown benchmark layer is Finish 5 on the pegboard. There is a large build up of paint finishes, a total of sixteen finishes!

Comparison of paint layers: Mounted samples, 3x opjective 30x total microscopic enlargement
Entry Hall 101: Pegboard

Entry Hall 101: Door Frame, Door to East Parlor

Note: The light brown finish is the key finish for this comparison: it is the fifth finish on the Pegboard, and the sixth finish on the Door Frame. This suggests that the Pegboard was added to the Entry Hall, early in the history of the house prior to Thomas Cole's arrival in 1836.

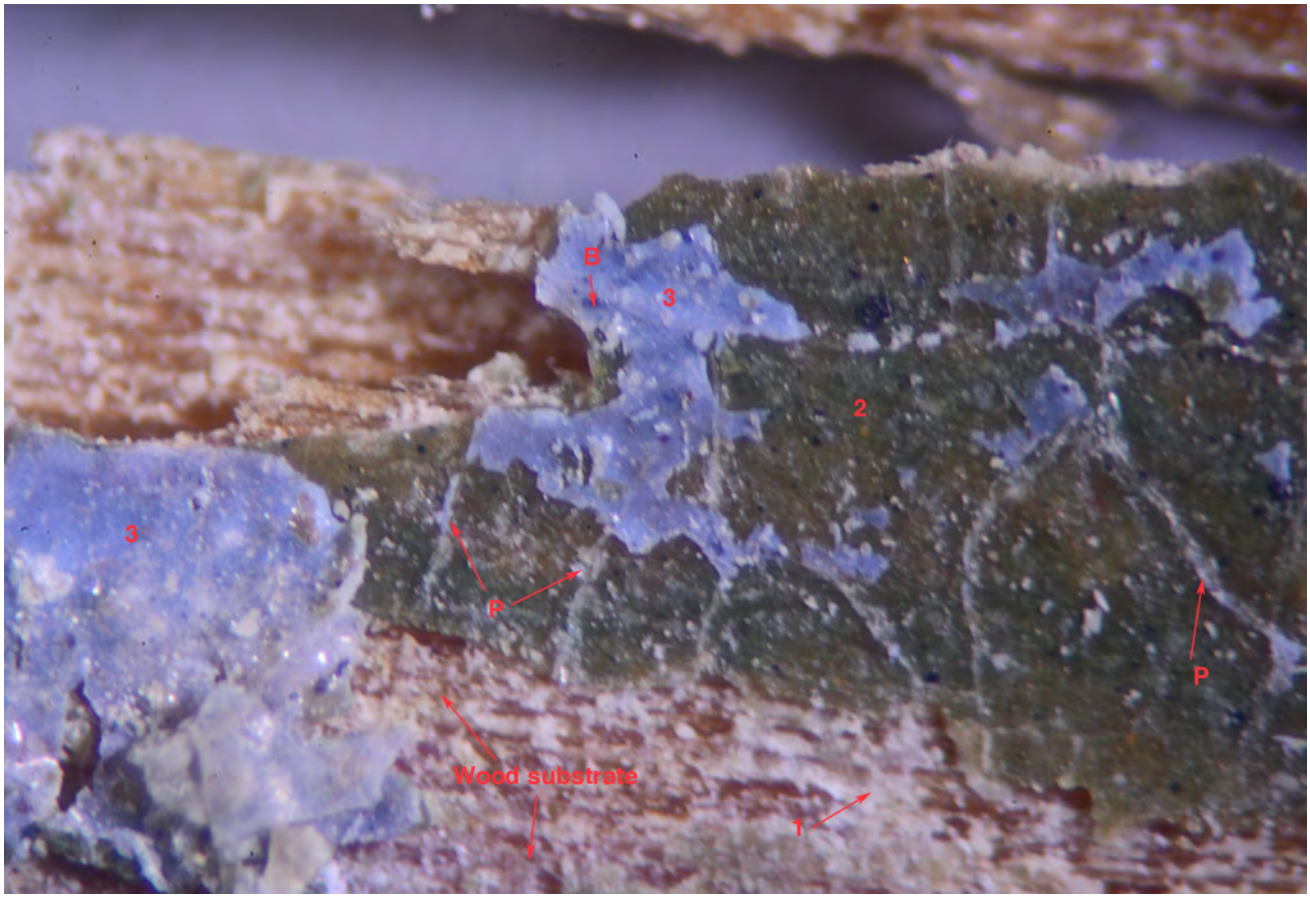
Entrance Hall 101: Searching for the Blue finish on the Doors

Note: Samples were collected from the corners of the Door to the East Parlor in an effort to find another area of a moderate blue enamel finish. This elusive finish was found in the first examination of the Entrance Hall, [Refer to Survival of a Cole period finish: Blue Sample: Door 2 (stile)**]**

Despite examination of many samples, all taken from the most likely location for the retention of paint [the lower corners of panels, at the molding] no additional evidence for this finish could be found.

Survival of a Cole period finish: Blue

Sample: Door 2 (stile)
Photomicrograph: Unmounted sample, Olympus SZ-1145 stereo microscope/ with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering



Note: The view of the sample is looking down onto the finish surface. The wood substrate is clearly seen and noted. The first finish is the thin, lead white layer (1), which would have been exposed for a period of time. The green finish is clearly seen (2), and this finish probably dates to the later Thompson period, perhaps ca. 1830. This may be surmised by the fact that the green appears to have been retained during the early Cole period. The presence of the chrome yellow is datable, and this pigment became available ca. 1815.

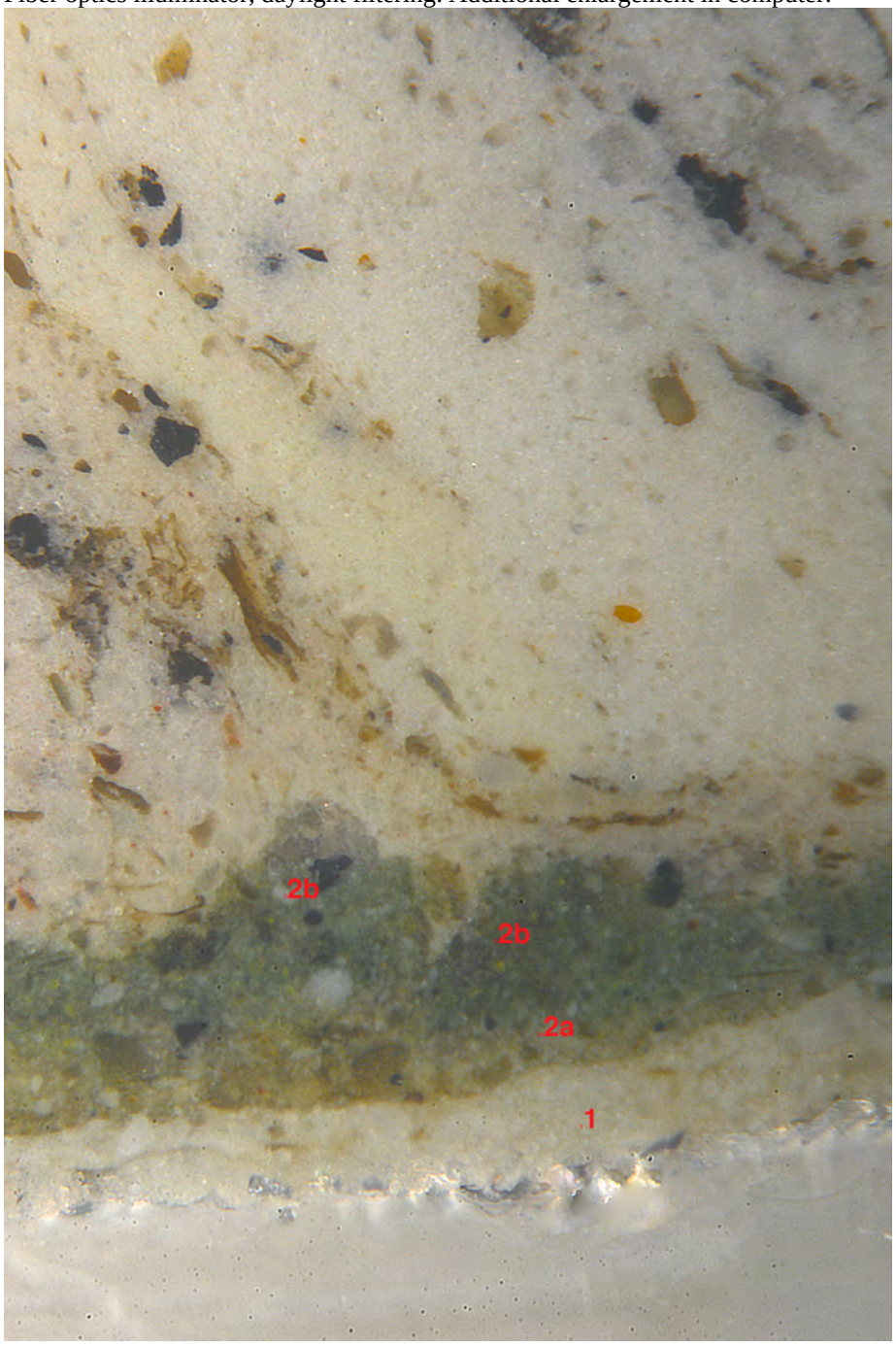
This sample showed the survival of a blue finish (3) that appears to date to the second Cole decoration. The light yellowish brown that is noted as layer 3 on the preceding cross section appears *after the blue finish.*

Note how the blue finish (prepared with artificial ultramarine blue and lead white) has penetrated into the cracks of the preceding green finish (2). This is a clear indication that the chrome green was exposed for a long period before being painted over, thus the cracks in the green finish, into which the blue paint penetrated (P). This would suggest that this blue finish would have been applied in the 1840's, very likely after Cole's return from his second trip to Italy. The blue finish was largely removed, prior to the application of the light yellowish brown finish. Note that the heavy

accumulation of surface particulate on the chrome green finish color (2) limited the adhesion of the blue finish. It may be difficult to find additional examples of this artificial ultramarine blue finish.

Samples from the Door to the East Parlor: Location A

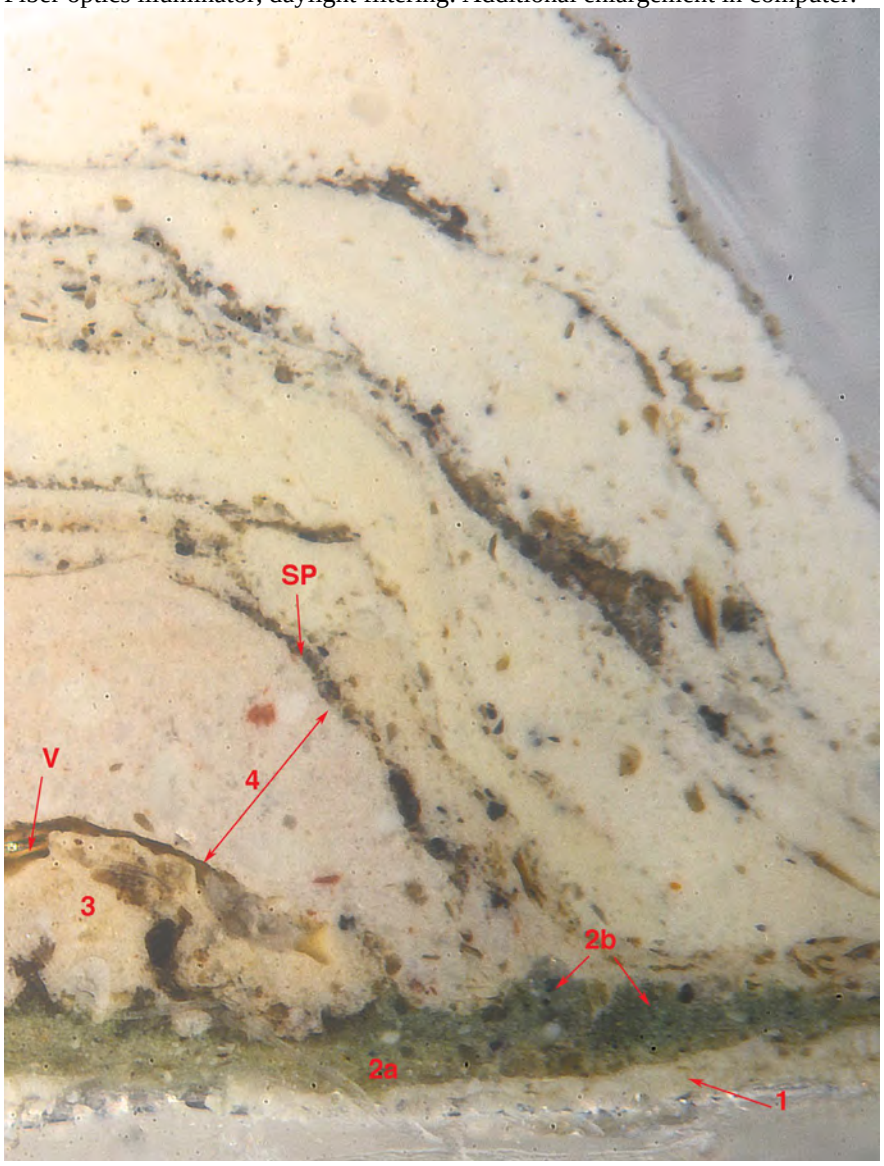
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 8000 micron grit polishing cloth for additional examination. The initial lead white layer 1, is seen at the base of the sample: the wood substrate has delaminated. This layer was exposed for a period of time: it is possible that the pigments for the chrome green finish [2a, 2b] were not immediately available. Note the layer 2b to the left: the chrome yellow has deteriorated and the paint toward the surface is a light blue. This is not the same as the separate blue finish seen in the photomicrograph above [Sample: Door 2 (stile)].

Samples from the Door to the East Parlor: Location A

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, (30x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.

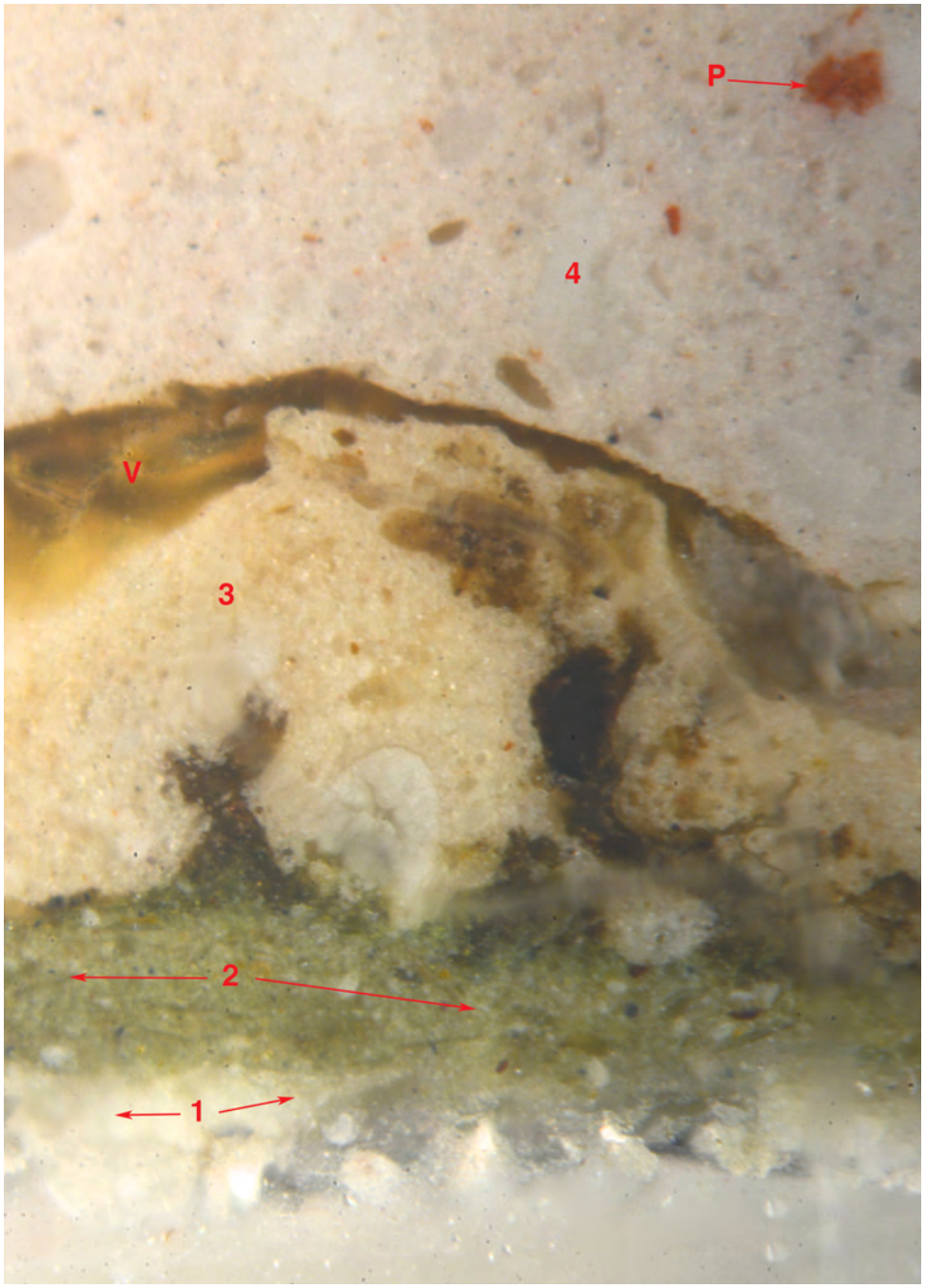


Note: The sample has been mounted in polymer resin, cut and polished to 8000 micron grit polishing cloth for additional examination. The initial lead white layer 1, is seen at the base of the sample: the wood substrate has delaminated. This layer was exposed for a period of time: it is followed by the chrome green finish, applied in two applications [2a, 2b]. This is followed by a light yellow ochre finish [3] that was varnished [v]. This is followed by a pale brownish pink finish, prepared with lead white and natural brown ochres.

Note the remarkable heavy surface particulate [SP, typical]: this appears to be soot and may relate to the use of stoves in the house, which have since been removed.

Samples from the Door to the East Parlor: Location A

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, (30x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 8000 micron grit polishing cloth for additional examination. The initial lead white layer 1, is seen at the base of the sample: the wood substrate has delaminated. The chrome green is clearly seen. Note the light yellow ochre finish [3] that may be from late in the Cole period. The next finish [4] is the pale brownish pink finish, which is likely to be from the post Cole redecoration. Note the red ochre pigment particle used to produce this color.

Conclusions regarding the Blue Finish

Despite looking extensively for a blue finish immediately following the chrome green finish, no additional example of this was found. It would be possible to reconstruct the paint color, based on the materials, though the limited amount of surviving paint material makes a reconstruction of the color that much more difficult.

The survival of the light yellow ochre color, under varnish may be a focus of additional examination. The fourth finish, the pale brownish pink probably relates to the redecoration following the death of Maria Bartow Cole in 1884.

Room 104: Alexander Thomson's Bedroom

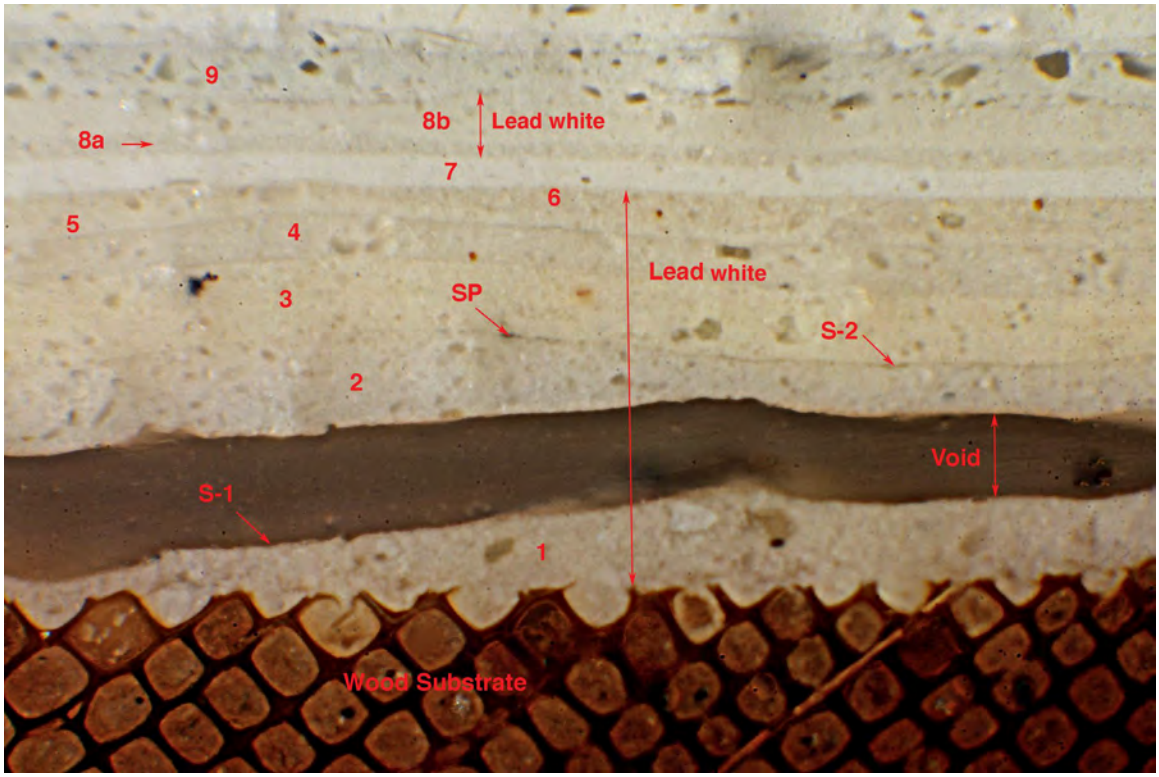
Summary:

This room, has been documented as the room in which Alexander Thomson died, and thus, it was assumed that it served as his bedroom. It was anticipated that the room would have continued the use of wallpaper from the period of construction until well after 1846, the year of Thomas Cole's death. It came as a surprise then, that the room possesses a wide frieze at the top of the wall which may prove to be approximately 12" wide. Room 104 has a new ceiling, which may be slightly dropped from the original ceiling plane; there is a modern cove molding at the edge of the ceiling. The condition of the painted frieze is somewhat damaged, however, better exposures will be possible.

The woodwork was painted lead white during the period from construction until after 1846. The Door on the North Wall was added at the time of the addition. This appears to follow the Thomas Cole period which ended in 1846 with his death.

The paint layers on the Door of the North Wall begin with the third finish of the original woodwork. This appears to comply with the family history of the house that the house interior retained the decorations of the Thomas Cole era until after the death of Maria Bartow Cole in 1884. After her death, the heirs redecorated the house. It is probable that all of the Cole painted decorative friezes were overpainted at that time.

Sample 104-1: Door Jamb Panel, Door to Room 101 Entrance Hall
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



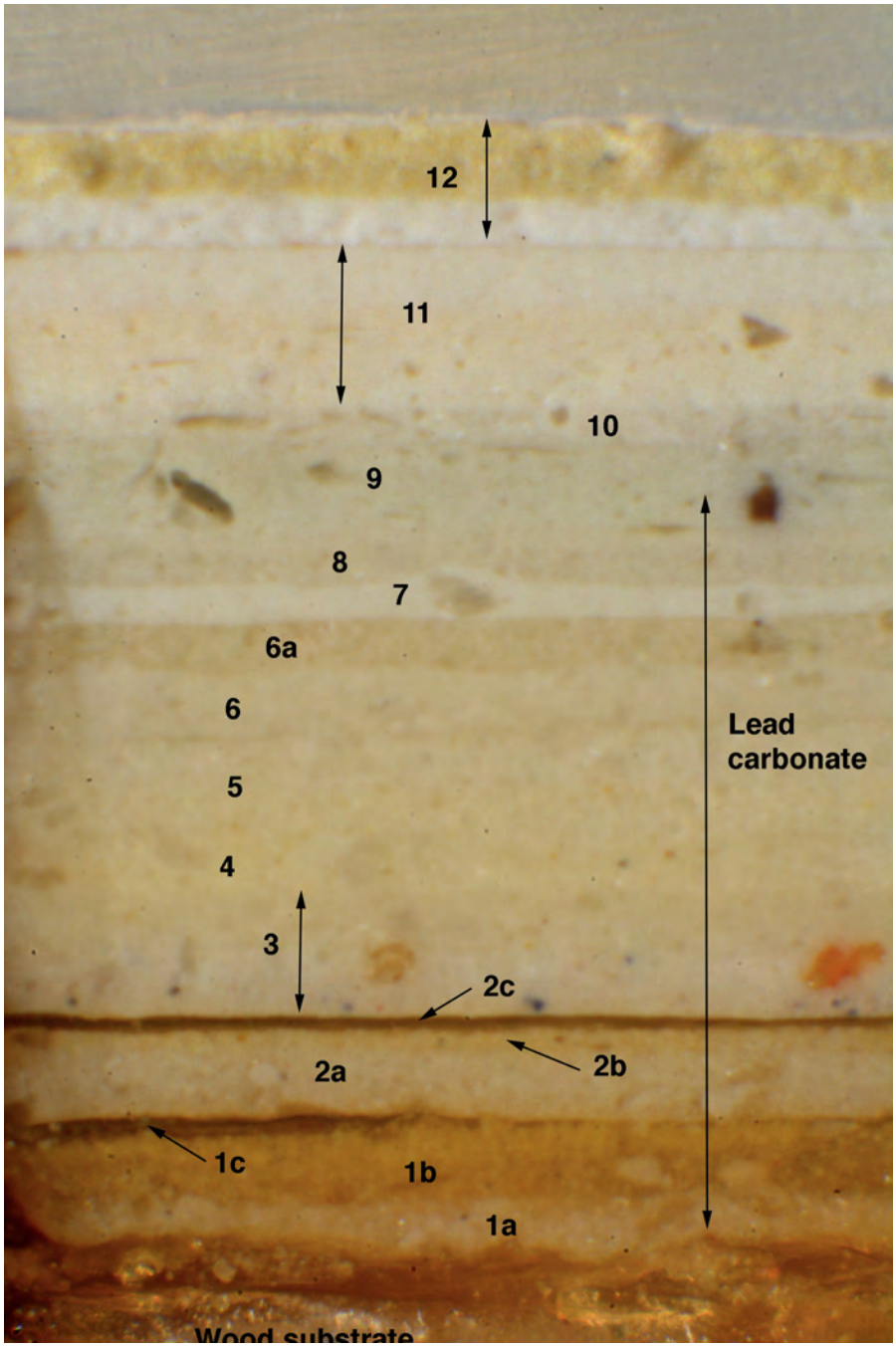
Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The substrate is seen at the base of the sample. The first finish is seen adhering to the sample. The first finish is lead white [basic lead carbonate] which was exposed from construction ca. 1815 until the repainting, *probably* during the Thomas Cole occupancy: ca. 1836-1848. That the second layer is poorly adhered to the first, thus delaminating and opening a void, suggests a long period of exposure. Finish 2 is most likely the finish exposed during the Cole era, however, it is certainly possible that the first finish was exposed well into the period of Cole occupancy. Note the sequence of lead white based finishes that follow the Cole era: layers 3, 4 and 5. This is characteristic.

Note: The same paint layering was observed on the following samples:

Sample 104-2: Door Frame, Door to Room 101
Sample 104-3: Window jamb, North wall
Sample 104-4: Window frame, Sill molding
Sample 104-5: Door Frame, East Wall, Door to Room 110
Sample 104-6: Door jamb, East Wall, Door to Room 110
Sample 104-7: Plinth Blocks
Sample 104-8: Window: panel construction below sill: rail

Sample 104-9: Stile, Door to Room 101 Entrance Hall

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.

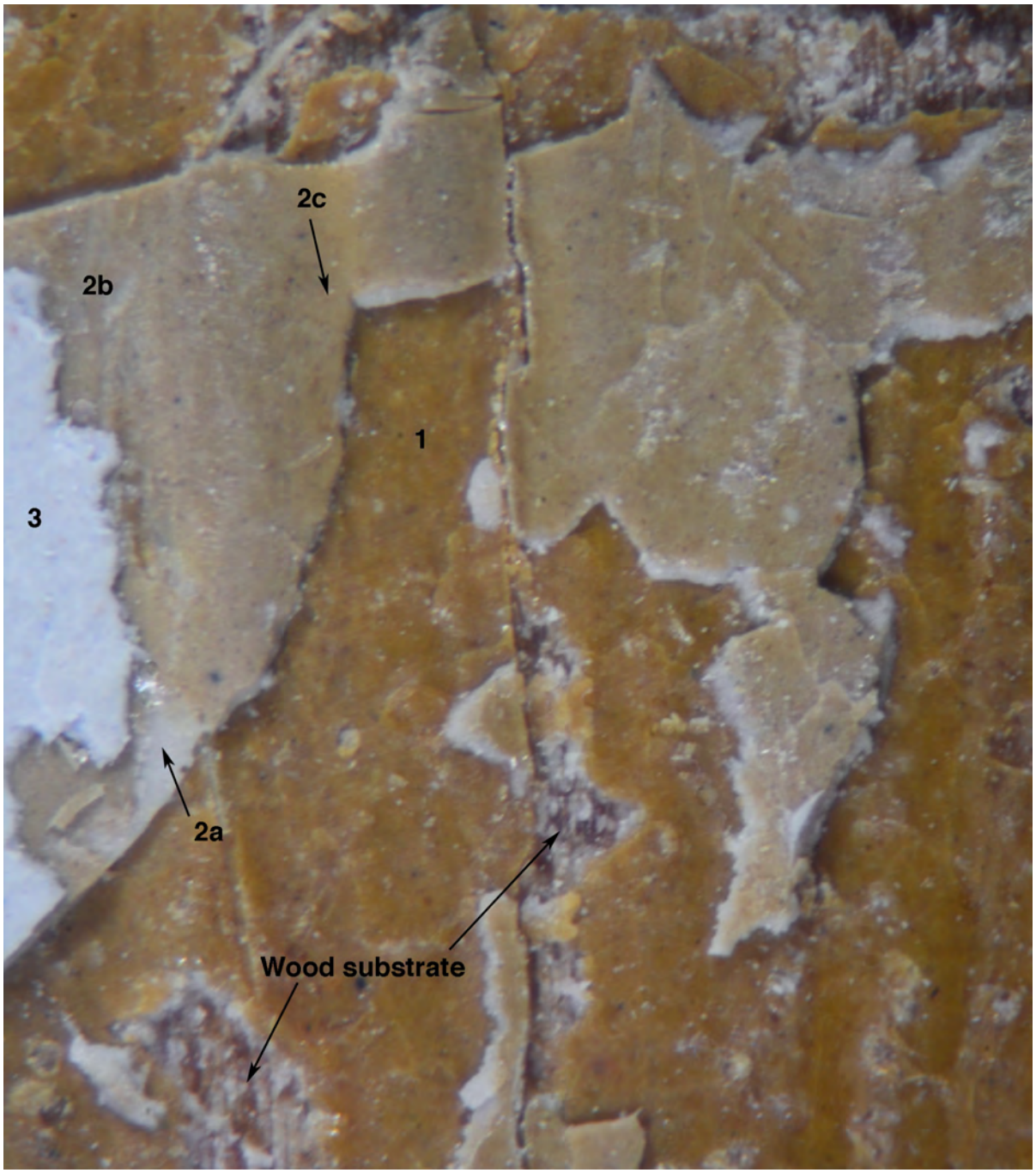


Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The first finish is the light graining finish seen on other doors opening from the Hall [Room side].

A long period of time elapsed between the first finish and the second finish. The second finish is clearly seen: there is a white undercoat [2a], with a warm brown [tan] finish, [2b]. There is a thin layer of the medium [2c] which has formed, and has discolored. Layers 3 through the first coat of Finish 10 were prepared with lead white as the basic pigment. The finish of Finish 10 and subsequent paint layers are all non-lead.

The Door is original to the room.

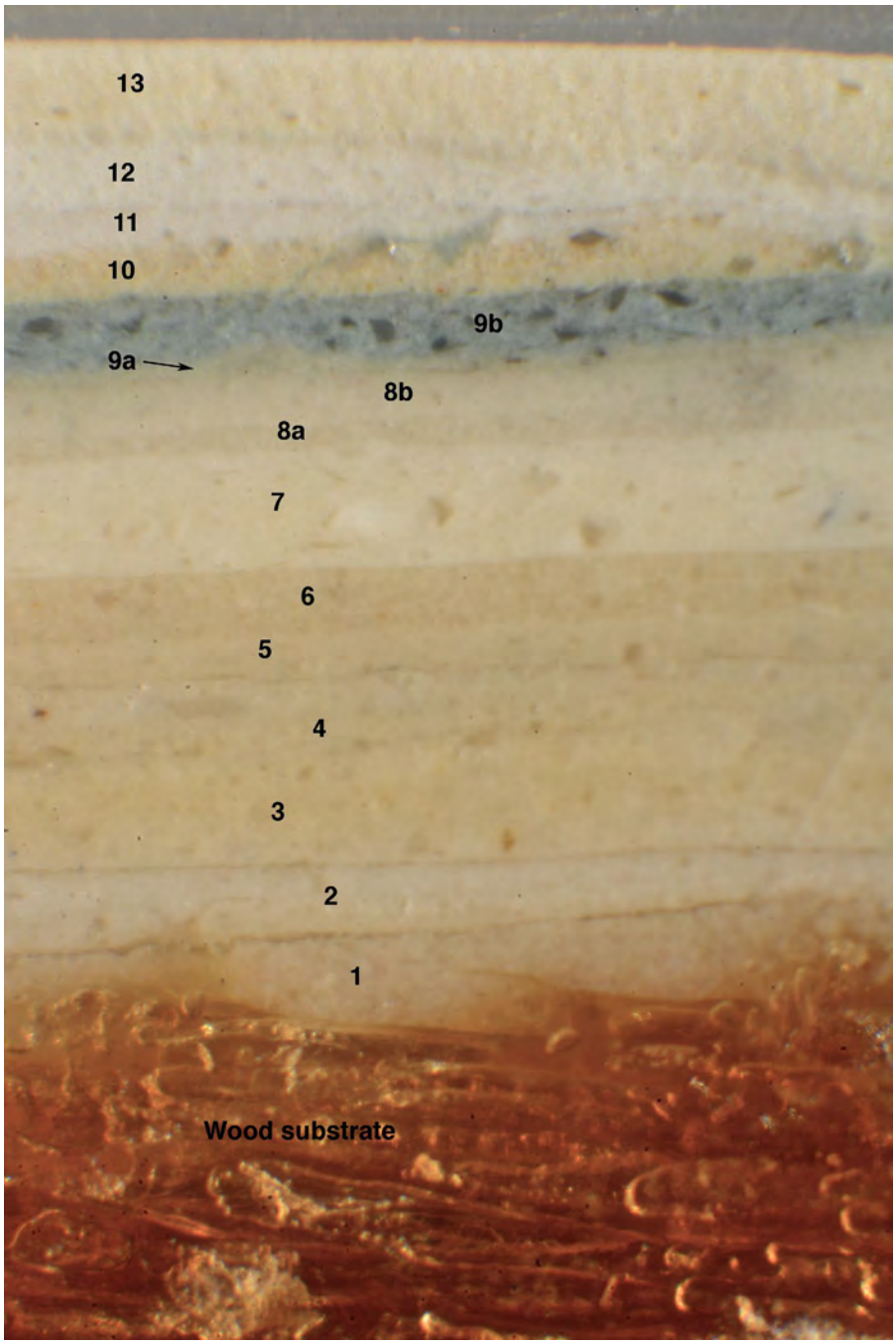
Sample 104-9: Door to Room 101, Stile Entrance Hall
Photomicrograph: Unmounted sample, Olympus SZ-1145 microscope, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering



Note: The view of the sample is looking down onto the finish surface. The wood substrate is clearly seen where the paint finishes have delaminated. The yellow ochre first finish is clearly seen: this is a light wood grain effect. The second finish is visible: the white undercoat [2a], light brown [tan, 2b] finish is clearly seen: note the areas where the medium accumulation is particularly evident [2c] showing the yellowing of the surface. In this

room, it appears that the door was overpainted during the Thomas Cole period. The second finish is much later in date and may post date the Cole period.

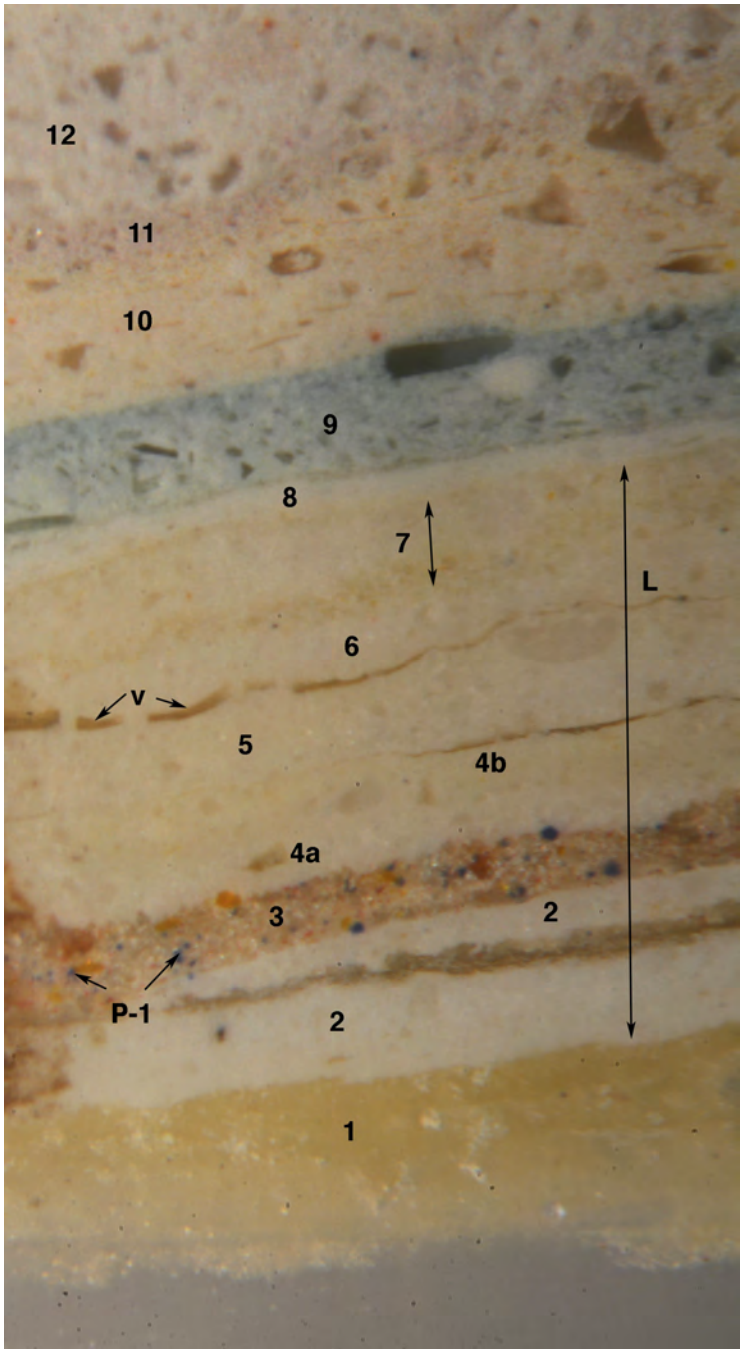
Sample 104-10: Window: panel below the window
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The wood substrate is seen at the base of the sample, and is noted. Finishes 1-8b are all typical of the room, indicating that the woodwork was monochromatic not only during the historic period of Cole's occupancy, but well into the twentieth century. Layers 1-7 were prepared with lead white as the base. During the early twentieth century the panel was painted with a moderate blue finish. Layers 8 through 13 are non-lead paint layers.

Sample 104-14: Pegboard

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron polishing cloth for additional examination. The first and third finishes are very interesting and are different from other woodwork of Room 104.

The first finish, 1 is non-lead: it is prepared with lime, in a casein emulsion that appears to have a small amount of drying oil added. This is unusual, but as a paint type it was becoming more common by ca. 1815 when Cedar Grove was construction. No other woodwork appears to have this paint layer: the initial finish on other woodwork is lead white in oil. The second finish is a lead white finish, which appears to be the finish of the Cole period, at least to begin. Layer 3, however, appears to be the finish applied when Thomas Cole painted the frieze: this is very similar to the first undercoat for the light red ground color of the room. Layer 3 may have been applied shortly after the application of layer 2. Note the presence of a small amount of artificial ultramarine blue [P-1]. This pigment which was used by Thomas Cole was first available in ca. 1826.

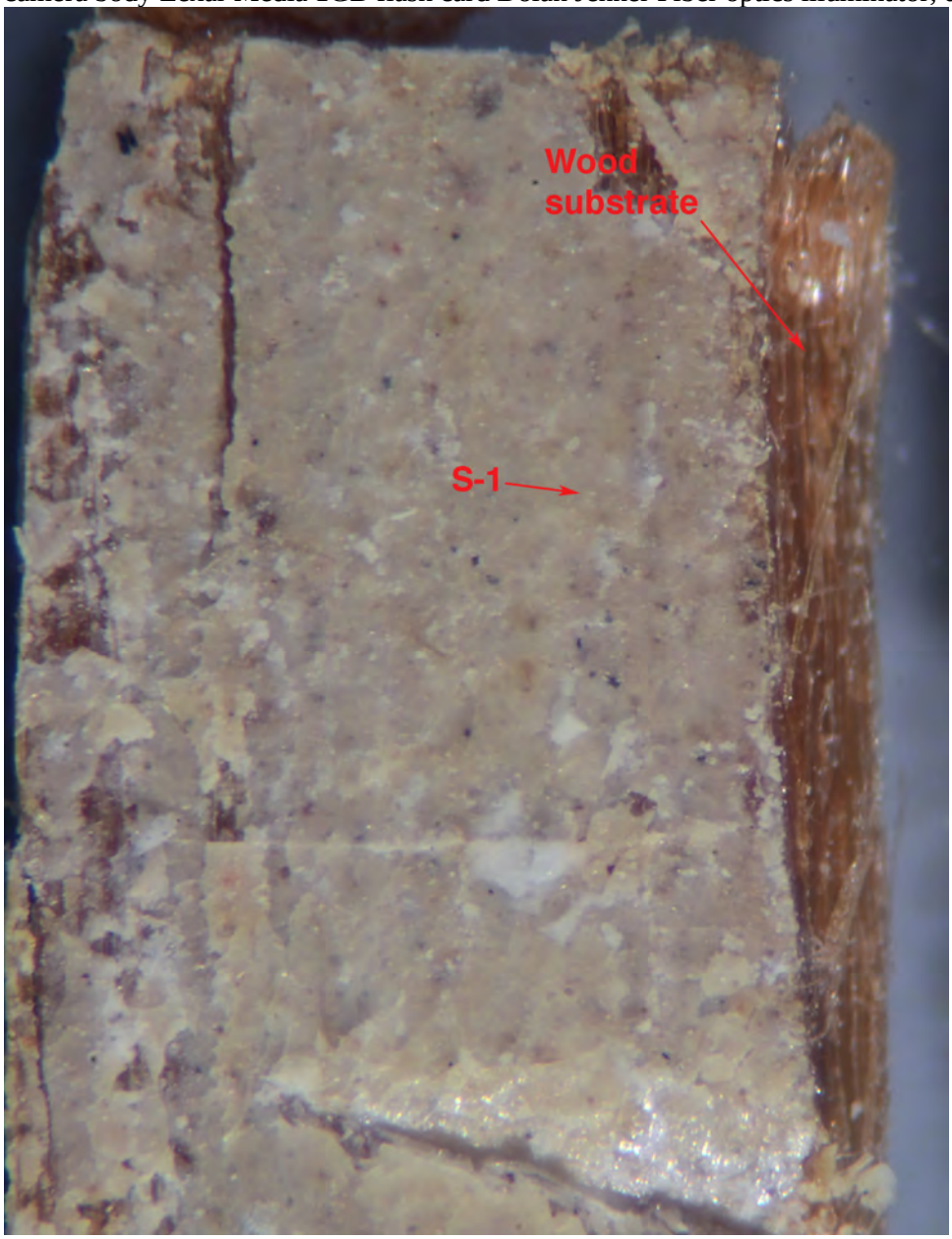
Finish 4 [4a and 4b] is also prepared with lead white. The fifth finish [5, shows a very thin varnish coating that would have increased the gloss level [v]/. Finishes 6 and 7 are also prepared with lead white pigment. These later finishes are most likely from the early twentieth century. The finish 8 is non-lead [appears to be titanium dioxide white base]. The colored finishes [9,10,11] appear to coordinate with the wall finishes.

Conclusion: The peg board appears to be an original feature of Room 104, though the first finish is not the same as the first finish of the other woodwork.

Sample 104-15: Door to exterior, East Wall

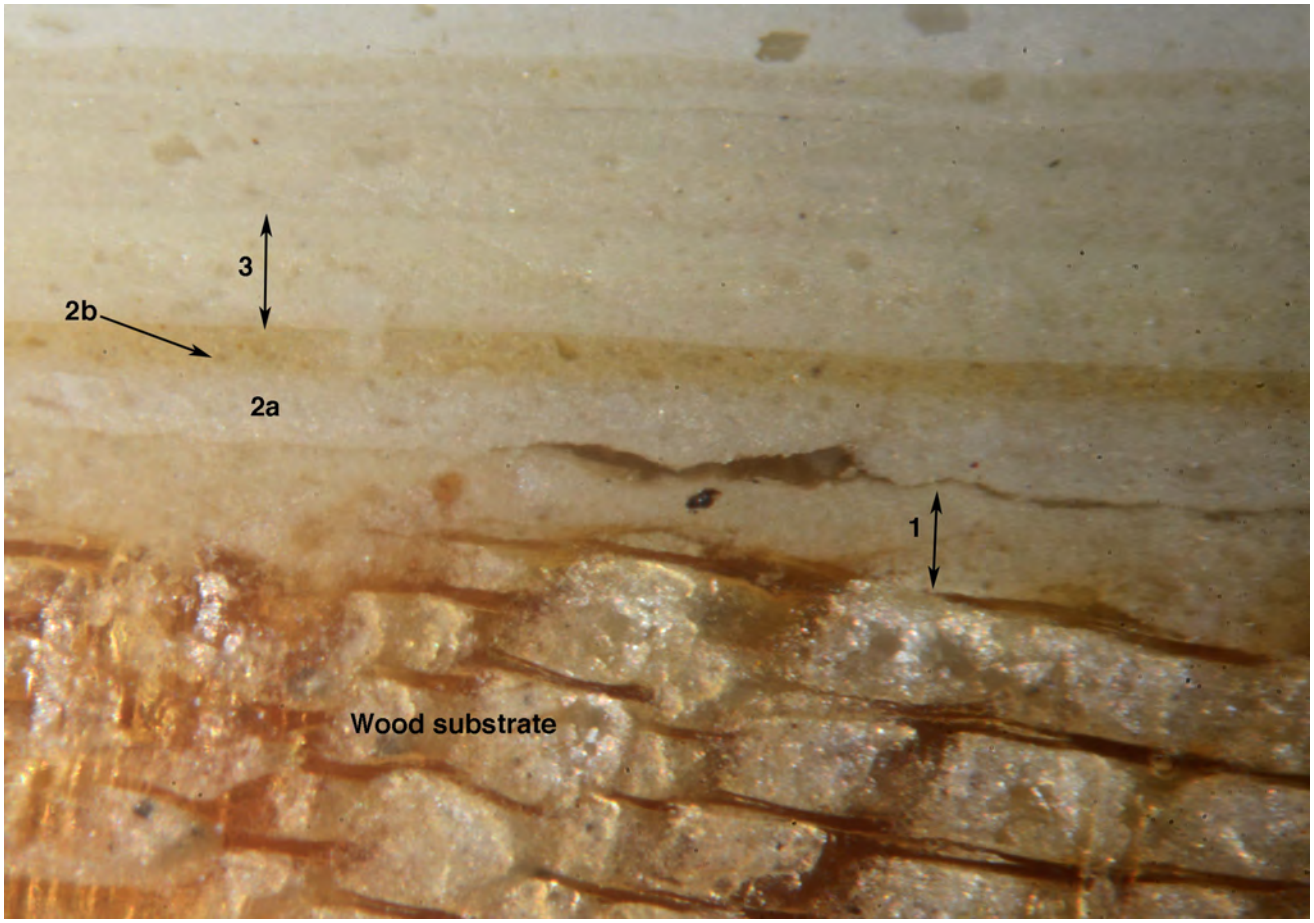
Note: This door has had considerable paint removal, however, the hinge stile retained all finishes. The Door to the exterior [porch] is an original feature of the house

Sample 104-15: Door to exterior, East Wall, Hinge stile First Finish
Photomicrograph: Unmounted sample, Olympus SZ-1145 microscope, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering



Note The view of the sample is looking down onto the finish surface of the sample. This shows the wood substrate and the first finish, [S-1]which remained exposed for a long period of time.

Sample 104-15: Door to exterior, East Wall, Hinge stile
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron polishing cloth for additional examination. The wood substrate is seen at the base of the sample. The first finish [1] is prepared with lead white, with some ochre tinting pigments.

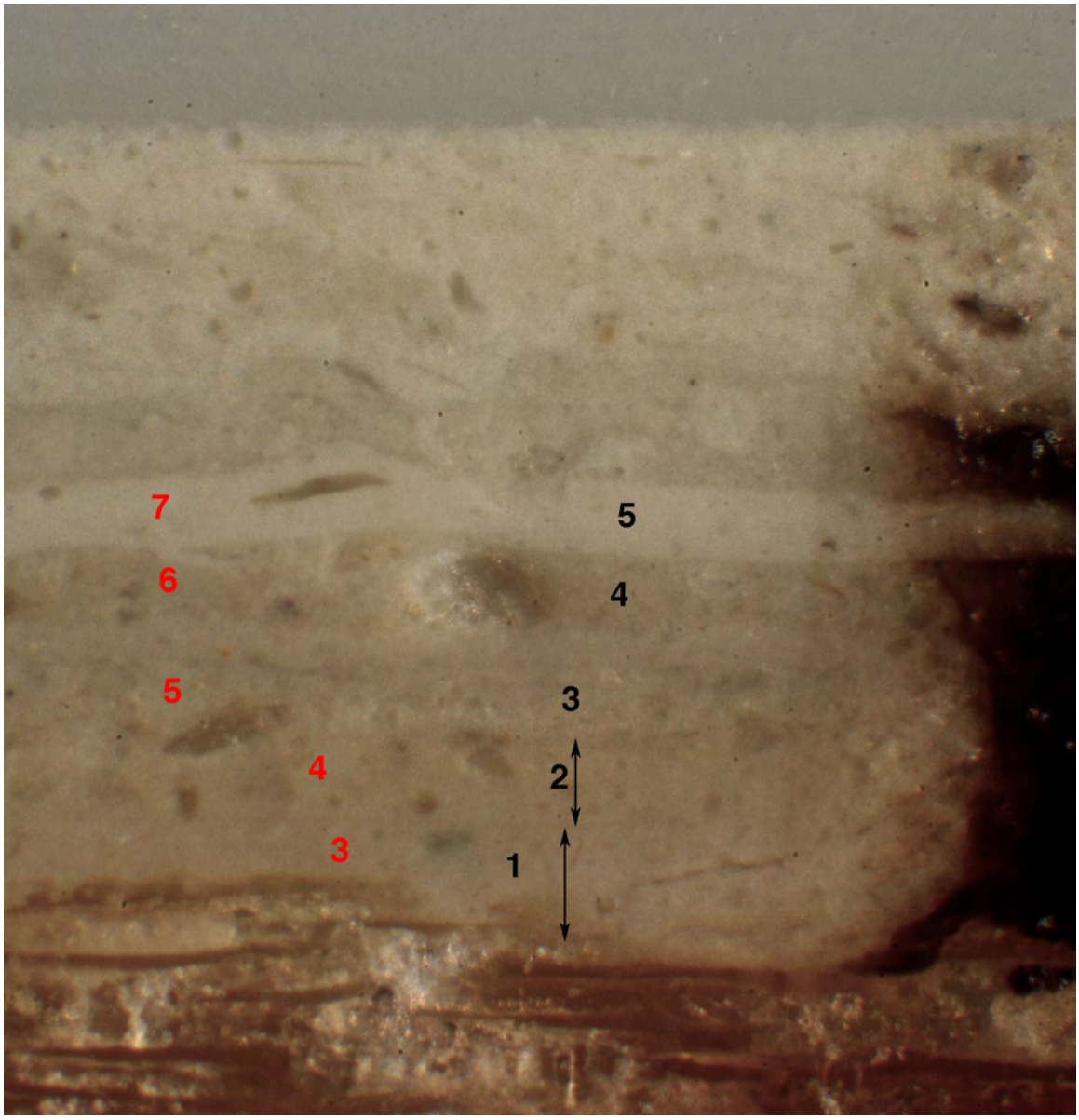
Note the delamination “crack” along the finish surface of the first finish: this indicates that the first finish on this surface was exposed for along period of time and that the later finishes did not adhere well. The second finish is made with two paint layers: first the typical lead white used during the Cole period [2a], the second a light brown prepared with lead white and natural ochres [2b]. This color has yellowed dramatically. This light brown may be from the end of the Cole period.

Room 104: North Wall, Door and Door Frame

Note: The door and door frame are not the same as the original doors and door frames seen on the south wall and the east wall. This door leads to the north ell, which is constructed of wood, as opposed to the masonry construction of the original house.

The cross section of the samples indicates that the first two paint finishes are missing from the door and door frame. The first two finishes are associated with the construction of the house, ca. 1815 and the Thomas Cole period 1836-1848. This indicates and supports the tradition that Maria Barstow Cole retained the decoration of the house as it was at the time of Thomas Cole's death in 1848 until her death in 1884. It appears that the north ell was added after that date, thus the addition of this door and door frame.

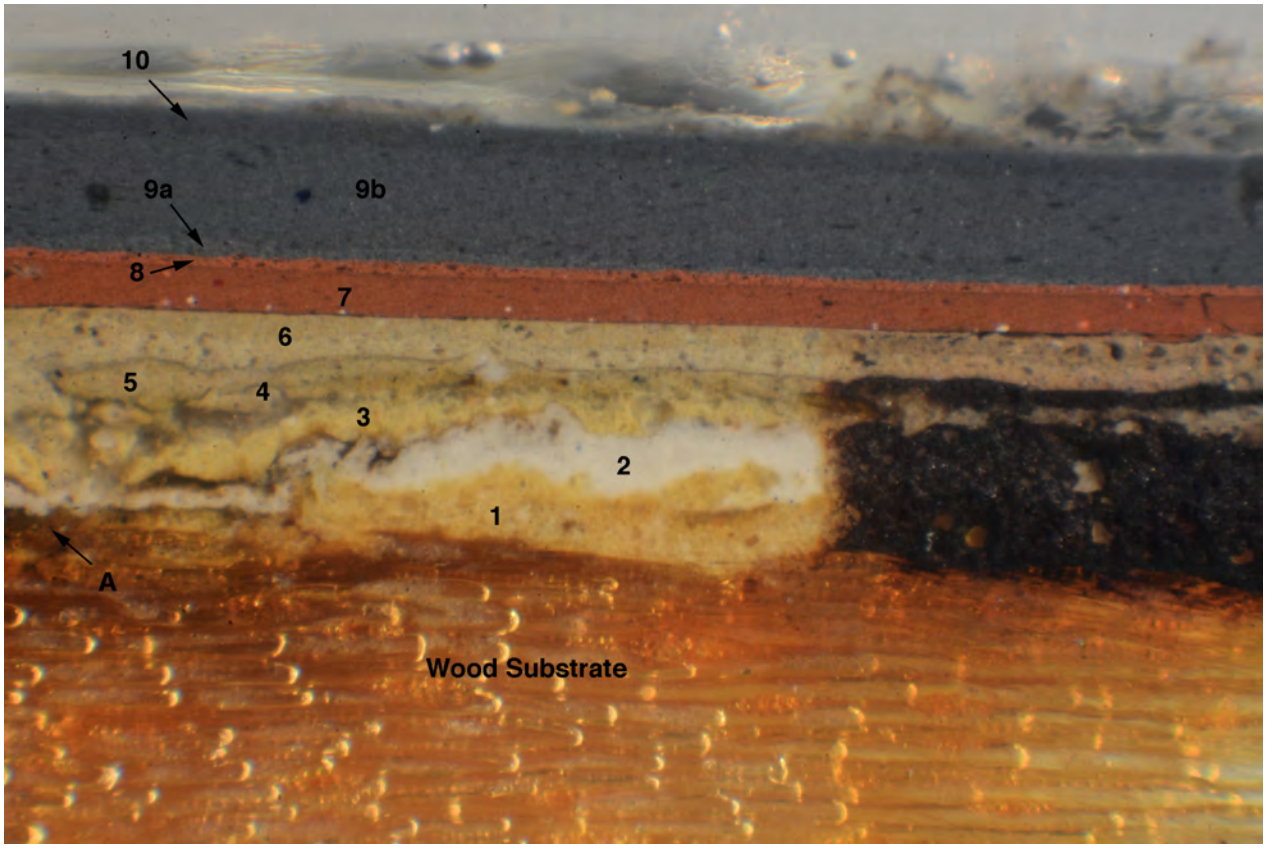
Sample 104-16: Door, Panel, North Wall
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The blackened area to the right has been exposed to a solution of sodium sulfide, which blackens the lead white component of the paint layers. The first layer [1] corresponds with the third finish on Sample 104-1: Door Frame of Door to Hall which is an original element [numbers shown in red]. This door and door frame are of a different design and have different molding profiles from the original woodwork.

Note: The same paint layering was observed on the following samples:
Sample 104-17: Door, Stile, North Wall
Sample 104-18: Door frame, North Wall

Sample 104-19: Floor boards, near north wall west of window frame
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.

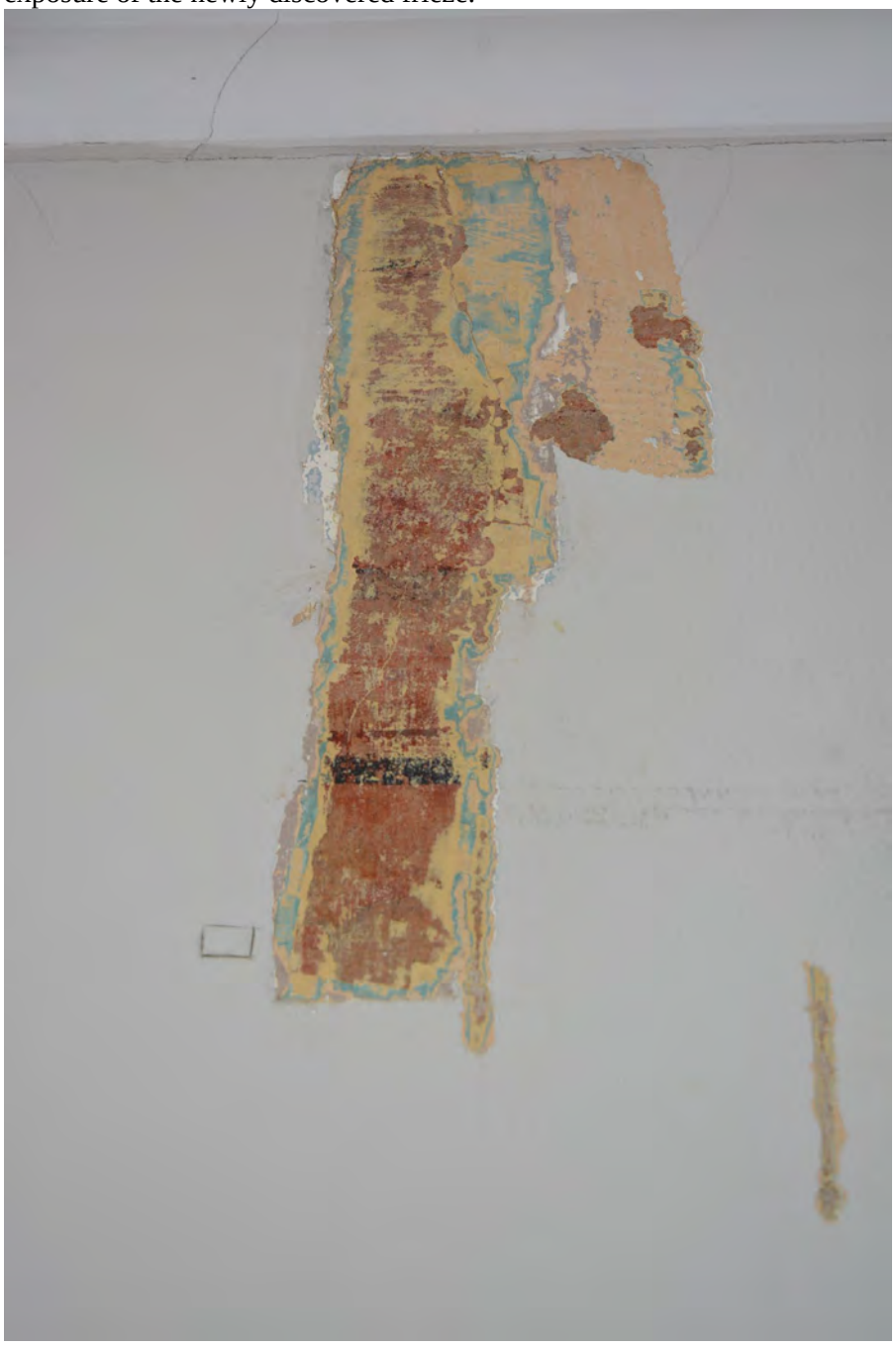


Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The blackened area to the right has been exposed to a solution of sodium sulfide, which blackens the lead white component of the paint layers. There appears to be some surface particulate under the paint layers, however, the early layers were made with lead based pigments.

According to Historic Interiors Consultant Jean Dunbar, the floor of Room 104 was carpeted. Considering that the evidence that the floor enamels post date the installation of the cast iron radiators, all of the floor enamels probably date to the early to mid twentieth century.

Room 104: Plaster Surfaces

The Ceiling: The ceiling of Room 104 is new, dating from the period of the restoration. It is supported by a modern cove molding at the wall. This is seen in the photograph below, showing the exposure of the newly discovered frieze.



Note the new ceiling and cove molding are from the restoration ca. 2000. The frieze appears to continue behind the ca. 2000 period ceiling, as in the West Parlor

The exposure shows the banding that is part of a wide frieze in this room.

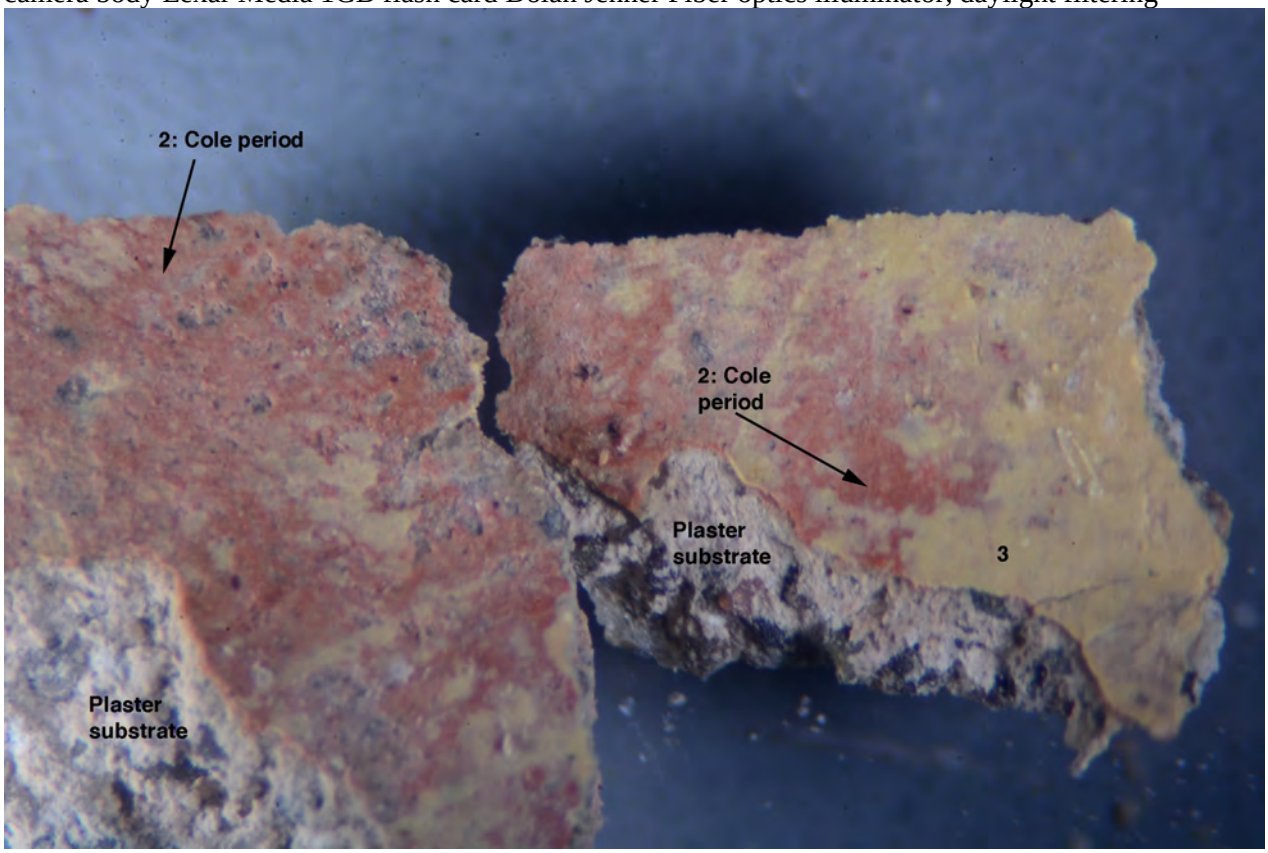
Room 104: Recovery of the Frieze

The recovery of the frieze will be possible and the frieze will be restorable. The exposures of the frieze will help to determine the color that should be used for the walls. Because this room has a wide frieze, the exposure of the frieze will determine which shade of red will be best for the restoration. A color standard of the red ochre ground may be used as a *study color:* to be altered slightly, if necessary, to meld with the exposure.

The conservation will indicate the appropriate wall color, that may be different from the wall color as it would have appeared originally.

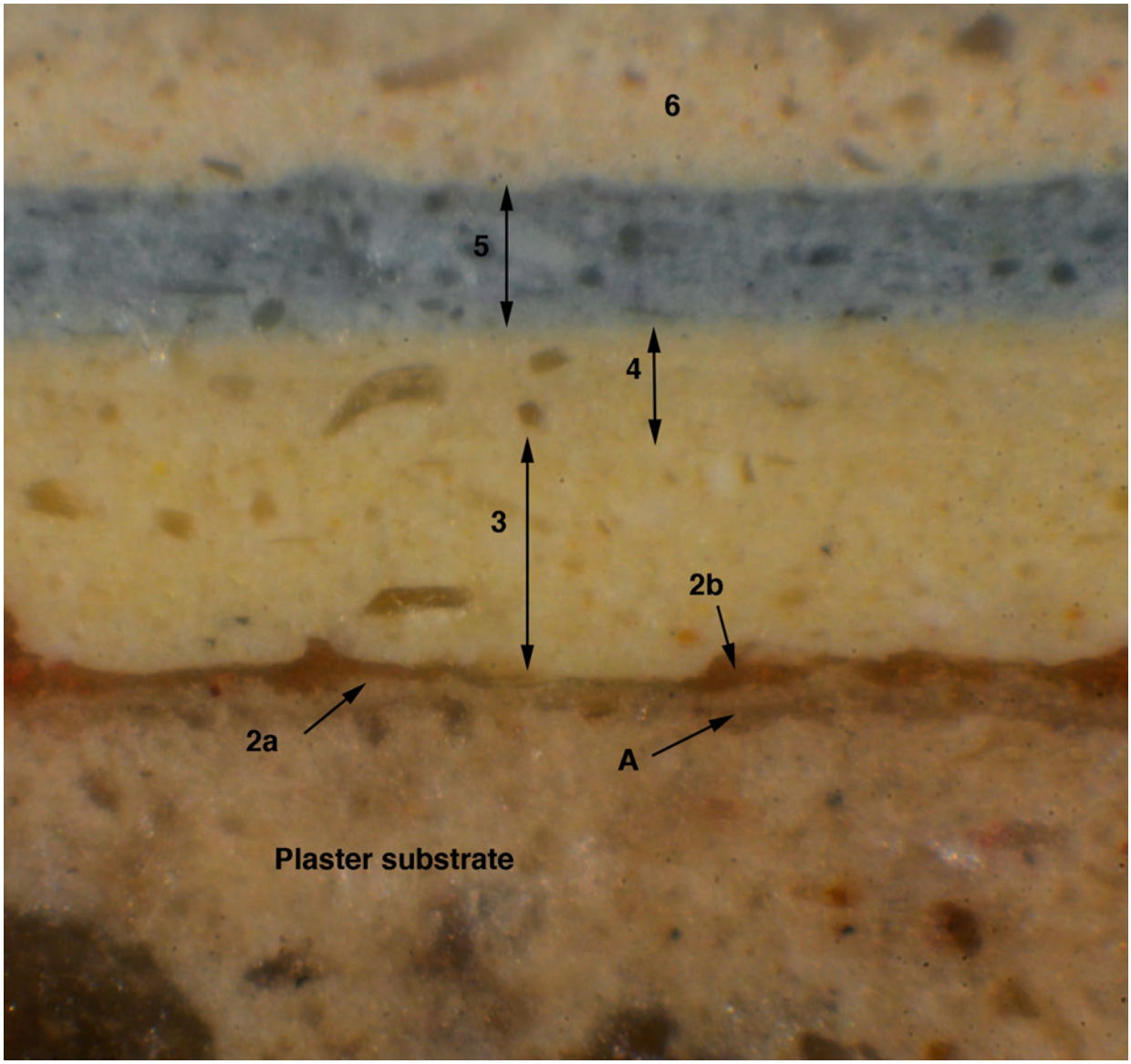
Samples from other wall locations, [i.e.: approximately 10" above the baseboard] appear to show a damaged surface, which appears to be confirmed by the damaged frieze over the window on the north wall and the exposure over the door on the south wall. Nonetheless, it is very likely that additional exposures will reveal the entire frieze pattern that will be restorable.

Sample 104- 20: Wall sample, 1'-0" below the modern cove molding
Photomicrograph: Unmounted sample, Olympus SZ-1145 microscope, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering



Note: The sample is viewed looking down onto the finish surface, from the side of the sample. The plaster substrate is clearly visible. Note the light red ground color, which is the Cole period color. It appears that this may not have been repainted after ca. 1884, but was repainted in the early twentieth century [3] with the light yellow finish.

Sample 104- 21: Wall sample, North Wall, 10" above the baseboard
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The plaster substrate is clearly seen at the base of the sample. There is a thin line of water soluble glue substrate [A] that may indicate that the walls were papered in ca. 1815. There is a thin light brown undercoat [2a] that supports the thin red ochre finish [2b]. The thickness is varied, which may indicate damage from later scraping and preparation for repainting. The third and fourth finish appear to be from the first half of the twentieth century [3 and 4]. The blue finish [5] is associated with Edith Cole Silberstein: these are twentieth century finishes.

Restoration, Finish Schedule for Room 104: Alexander Thomson's bedroom

Conservation:

The restoration of Room 104, Alexander Thomson's Bedroom will be predicated on the continuation of the exposure of the frieze, which, based on the other evidence, was painted by Thomas Cole. Because of the influence of the continued recovery of Roman period rooms at Pompeii, of which Cole was aware, may warrant additional exposure windows. An exposure window immediately above the baseboard and one approximately 1'-6" above the floor could be informative.

Ceiling: to be determined following removal of the present new ceiling

Walls: Following additional conservation of the frieze the red ochre of the walls will be matched on site.

Wall study color: Light Red Ochre: Special Standard M-fb49
Gloss level: flat

Restoration:

Woodwork:

All woodwork, except Doors:

White: Benjamin Moore OC-26 Gloss level: Semi-gloss

Door to Hall:

The first finish, with the graining was retained for a period of time, but appears to have been overpainted by the time of Thomas Cole's death in 1848.

Suggested finish: Light grayish brown Benjamin Moore 2110-40 ["Seaside sand"] Gloss level: Semi-gloss

Door to the Exterior [East wall]:
Light grayish brown Benjamin Moore 2110-40 ["Seaside sand"] Gloss level: Semi-gloss

North Door and Door Frame: This door was added in the later nineteenth century.
The first finish of this added door is very similar to the white of the Cole period. The paint has discolored due to changes in the oil medium.

First finish: post ca. 1884: White Benjamin Moore OC-9 Gloss level: Semi-gloss

Room 105: The Pantry

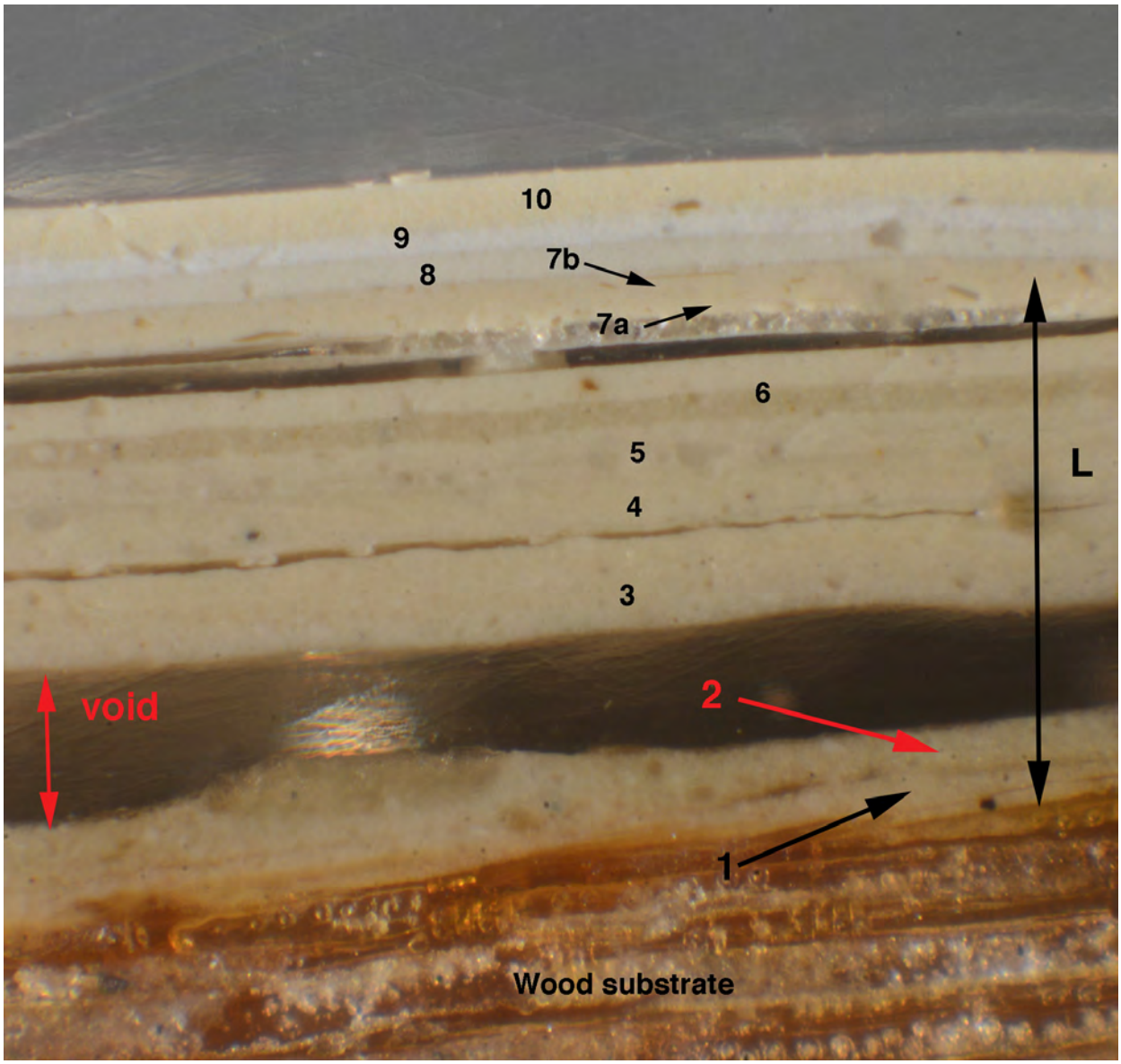
Summary:

This small room, connected to the West Parlor retains the remarkable Greek Key frieze that was painted on the light red ground. This Greek Key, seen below, in this room and the other exposed friezes were conceived and painted by Thomas Cole. The ceiling is modern drywall, and may be covering some inches of wall surface that could be part of decoration of the upper wall [frieze].

The other noteworthy feature of the room is the Cabinet, which is seen along the east wall of the room. The Cabinet shows an evolution, in that the doors to the cupboards were added. It is also possible that the Cabinet was originally in a different location and relocated to this room.

Examination of the Samples:

Sample 105-1: Window Frame
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.

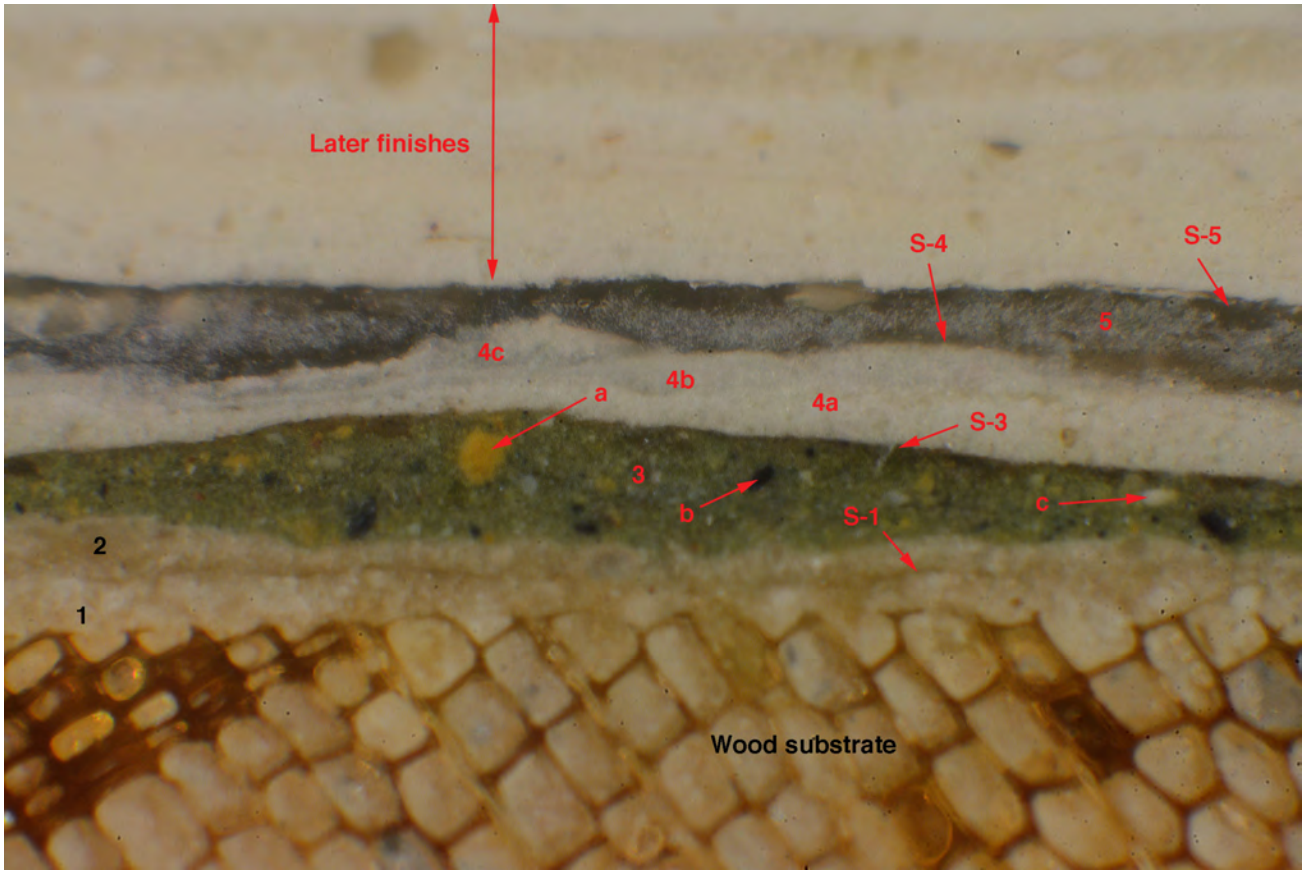


Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The wood substrate is seen at the base of the sample, as indicated. The first finish [1] is clearly shown: this is a lead white finish. The second finish, which is very similar, is also a lead white finish [2]. Note the void: this is due to the long period of exposure of the Cole period finish. Layers 3, 4, 5, 6 and 7a are all lead white layers. The lead white based layers continue into the twentieth century. Finishes 8, 9 and 10 would date to post-1950.

Note: The same paint finishes were observed on the following samples:

Sample 105-2: Window jamb
Sample 105-3: Window sash
Sample 105-4: Door Frame, Door to the West Parlor
Sample 105-5: Door Frame, jamb
Sample 105-6: Baseboard molding

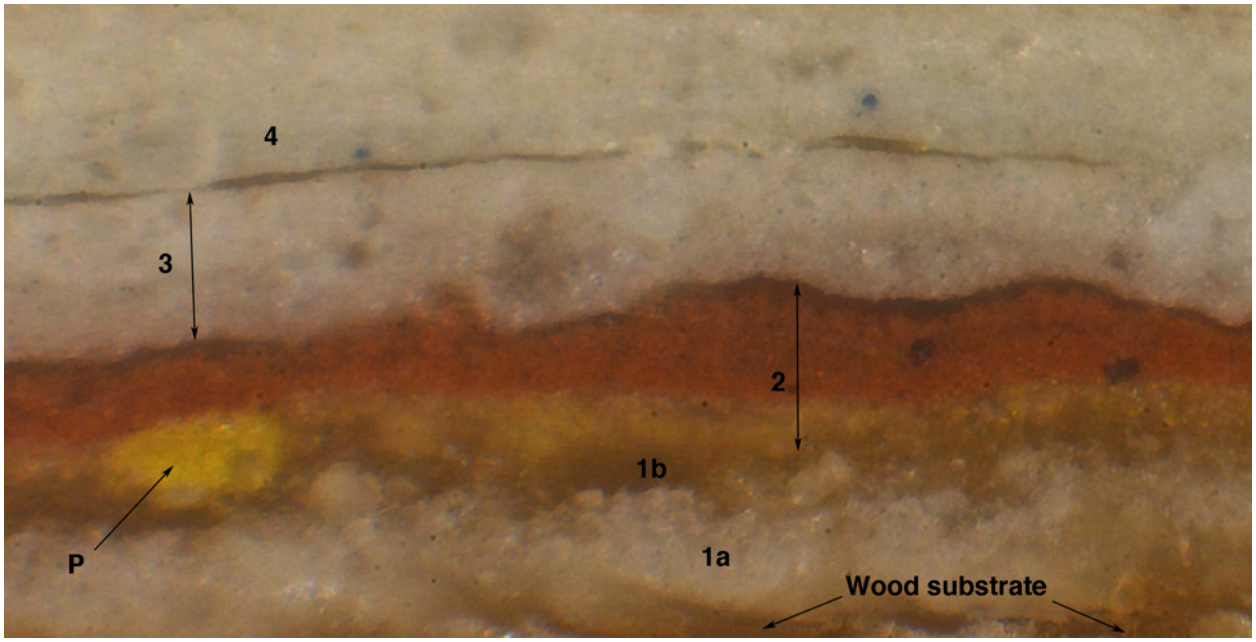
Sample 105-7: Baseboard fascia
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The wood substrate is seen at the base of the sample, as indicated. The first finish [1] is clearly shown: this is a lead white finish. The second layer [2] may have been exposed for a short period, but is more likely an undercoat for the distinctive chrome green finish: layer 3: note the brown oil/varnish at the surface of the chrome green finish [S-3] along with particulate. There are three thin lead white layers [4a, 4b, 4c] comprising the fourth finish. Based on the Hall Doors [101] and the Baseboard fascia of the West Parlor [Room 103] the chrome green finish dates to the Thomson period, pre-1836. The fourth finish may be the Cole period finish. This is followed by a dark gray finish, which is similar to a finish found during an earlier period on the Stair Risers. The dark gray may be considered for restoration as it may be within the Cole era: 1836-1848, however, the white finish, which is seen on most woodwork is the more likely finish.

Sample 105-8: Door to West Parlor, panel

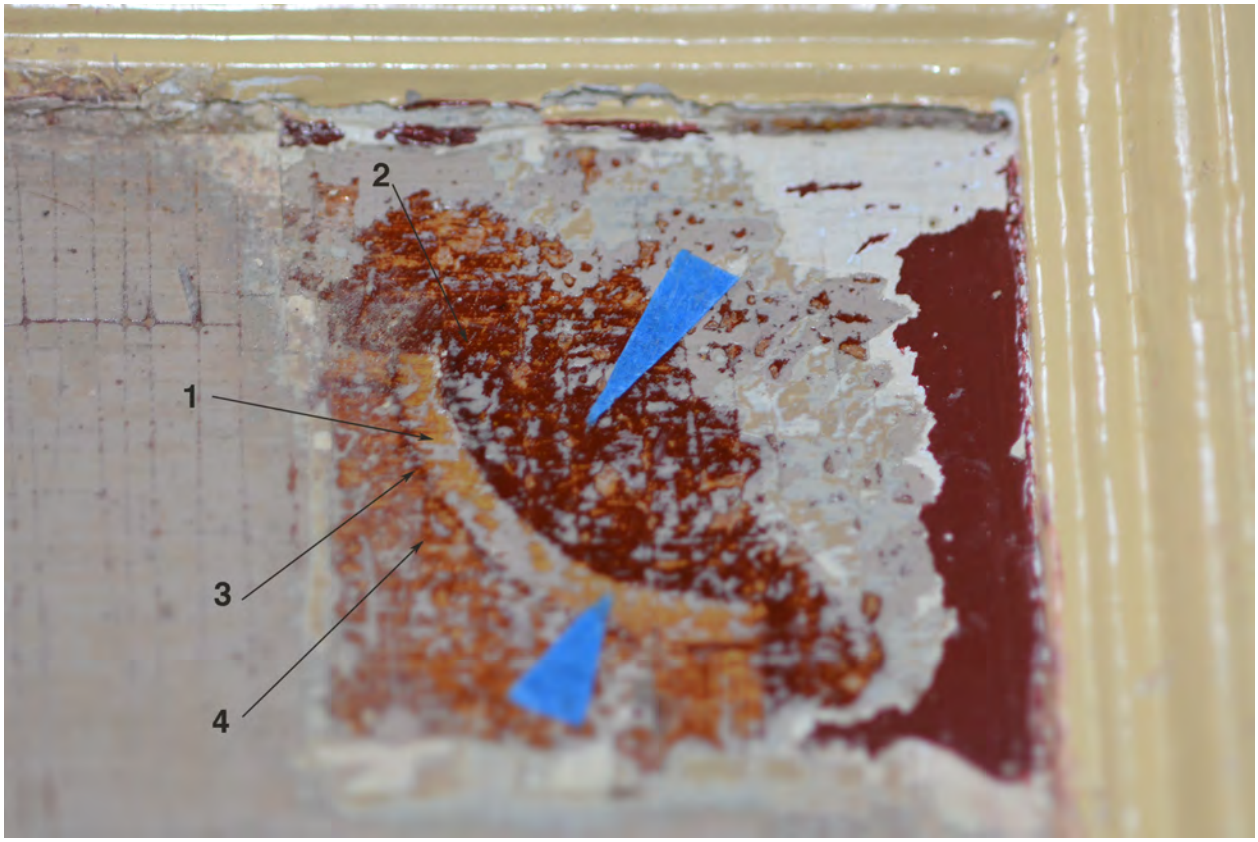
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished for additional examination. The wood substrate seen [slightly] at the base of the sample The first layer is a lead white primer/ ground coat (1). This is followed by a yellowish glaze layer (1b): this is the first finish for the door. There may have been a change in plan at this point, because the more elaborate finish was a achieved by the yellow ochre layer, red layer and the varnish coating [2]. This finish was exposed during the Cole period in this room.

Excerpted from the Report of March 2015: Exposure of the original finish of the Door Panel [West Parlor face of this door]

Door: On site photograph of corner of the panel



Note: The detail photograph above shows the grained inlay line detail (1), which has the white ground color. The wood effect is pale, like satinwood or maple. At a later date, a yellow ground was applied to the center section and under the corner and edge (2) that was ultimately painted with a red ochre finish. Note the red edge of the inlay line (3) and the center of the panel which also has the yellow ground and warm reddish brown grain. The center panel is entirely straight graining.

Plaster Surfaces:

The Wall plaster: Cole period finish with stencil exposed

Note: The exposure of the Cole period finish with the Greek Key decoration afforded the opportunity to take a reading of the colors for documentation. The surfaces indicated [A, B] were carefully cleared of the film of the later [white] paint so that a clean surface could be read with the X-Rite SP-62 Sphere Spectrophotometer, Designated observer 2 degrees, Illuminant C. Illuminant C is a mathematical representation of filtered tungsten halogen (daylight). The color temperature is 6770K, simulating CIE average daylight.

Spectrophotometer Readings:
Location A: Cole period: Light Red ground Room 105
CIE Lab coordinates Designated observer 2 degrees Illuminant C

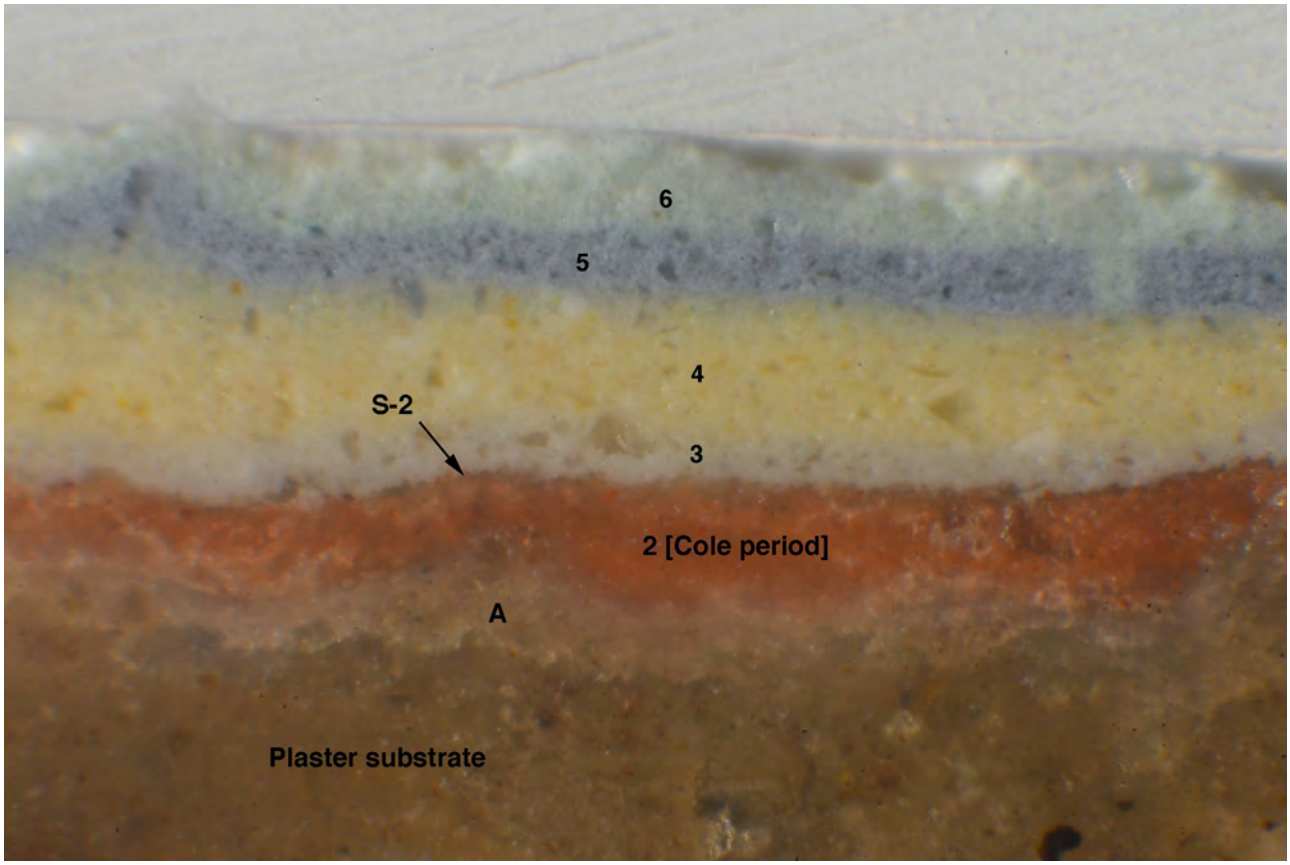
L* = 58.38 a* = +17.42 b* = +14.93
Munsell Conversion Number: 9.67R5.67/3.92

Location B: Cole period: Black Greek key finish
CIE Lab coordinates Designated observer 2 degrees Illuminant C

L* = 37.24 a* = +1.84 b* = +1.85
Munsell Conversion Number: 2.76YR3.62/0.43

Note: Locations A and B as indicated on site may be used for in-situ color matching of the finish.

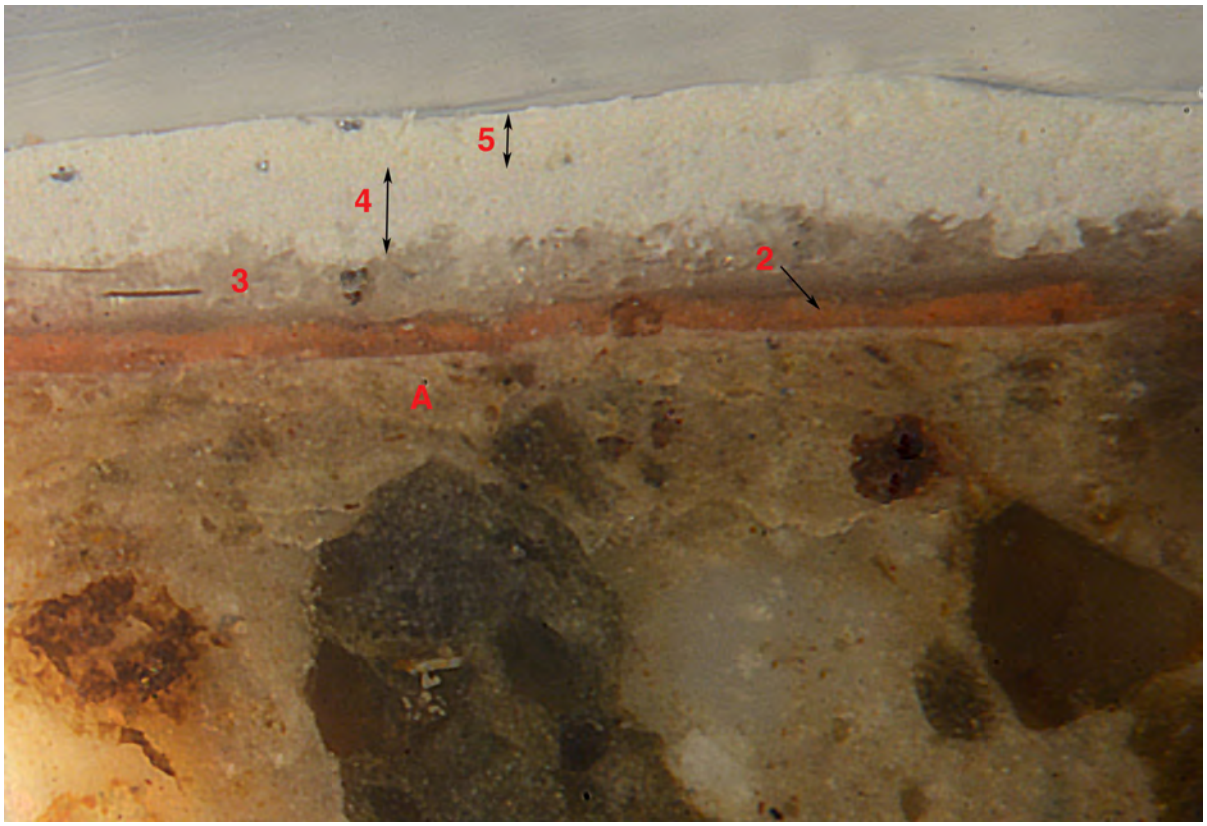
Sample 105-9: Plaster wall, from the East Wall
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin cut and polished to 8000 micron grit polishing cloth for additional examination. The plaster substrate is seen at the base of the sample. The initial layer is the light brown [pinkish] that appears as an undercoat/primer. The finish [2] is the red ochre color that is still retained near the top of the wall. The surface of the paint shows some particulate accumulation [S-2]: this is the Cole era finish. The next painting campaign has a white lead finish [3] which is followed in this location by a light yellow finish [4] that dates to the twentieth century. The blue finish [5] is associated with Edith Cole Silberstein: these are twentieth century finishes. The last finish is a light green [6]

Compare with the cross section from the South Wall: **Sample 105-10: Plaster wall, from the South wall, above the Door**

Sample 105-10: Plaster wall, from the South wall, above the Door
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin cut and polished to 8,000 micron grit polishing cloth for additional examination. The plaster substrate is seen at the base of the sample. The initial layer is the light brown [pinkish] that appears as an undercoat/primer [A]. The finish [2] is the red ochre color that is still retained near the top of the wall. The surface of the paint shows some particulate accumulation [S-2]: this is the Cole era finish.

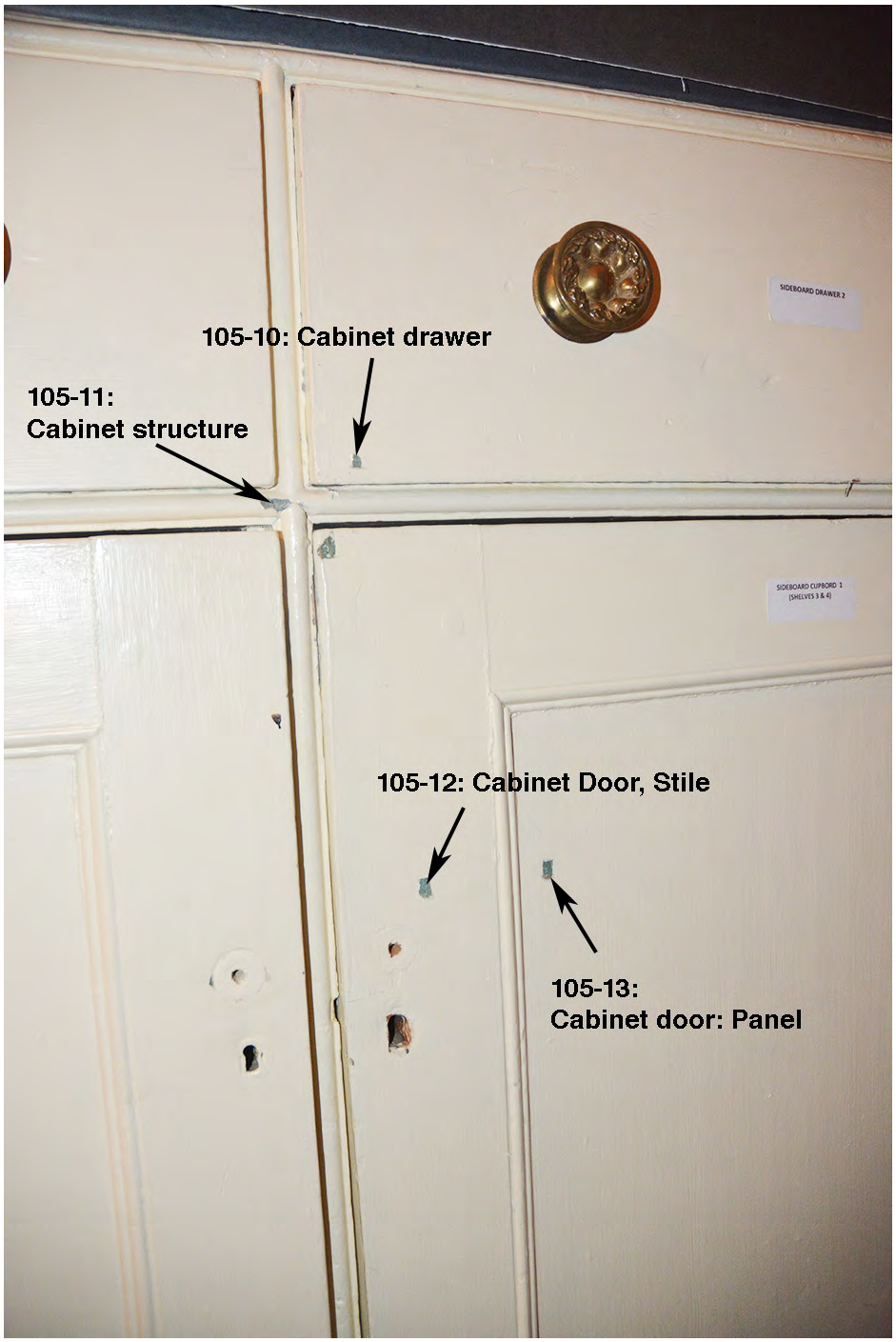
The remaining paint layers do not relate to the finishes on the east wall behind the Cabinet. The first is a white distemper finish [3]. There may have been a sequence of distemper finishes that have been removed, by washing down. Layers 4 and 5 are white latex acrylic finishes. This is an example of an area that must have been covered by something later removed.

Note regarding the Ceiling of Room 105:

The ceiling in Room 105 is a modern drywall ceiling, installed at the time of the 2000 restoration. This may important, if, as in the case of other drywall ceilings, it was dropped down some inches from the original ceiling plane. If this is true, it may be that there may be more decoration that extends up behind the present drywall ceiling.

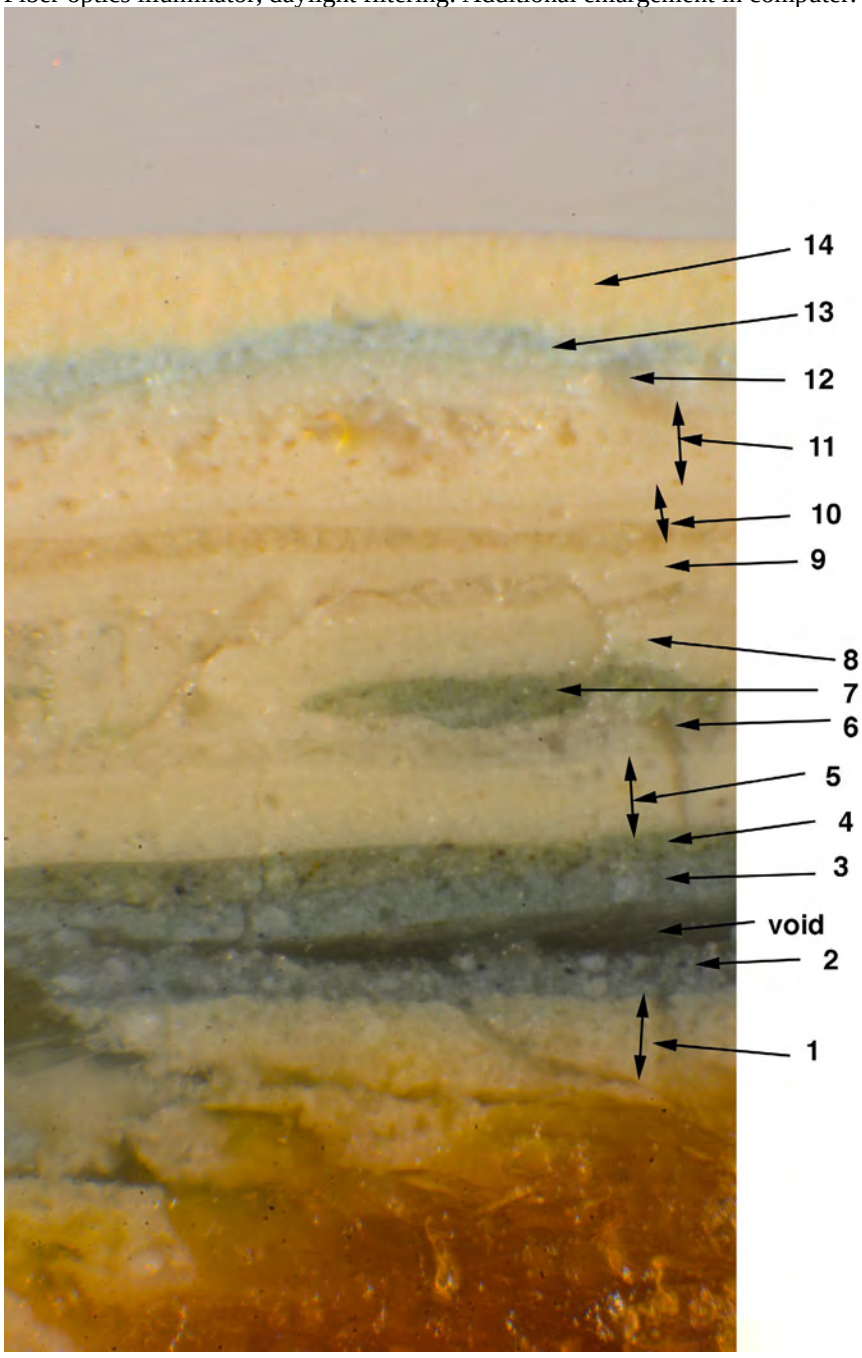
The Cabinet on the East Wall of Room 105

Samples were taken from a number of locations of this cabinet that runs along the east wall of the room. The construction is somewhat unusual in that the top is not a single board, but is interrupted by the vertical structure of the cabinet. The paint finishes indicate that the doors to the lower cupboards were added.



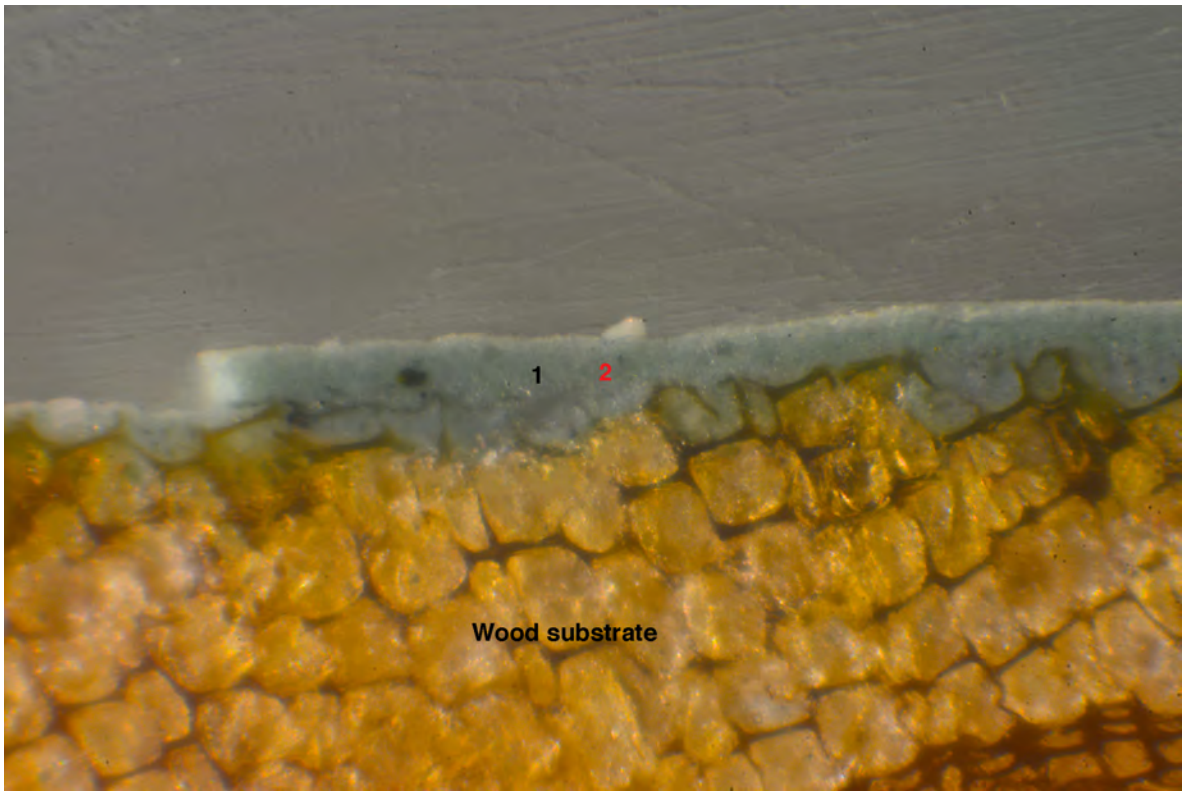
Sample 105-14: Cabinet: door stop installed for cabinet door
Sample 105-15: Lower cabinet interior

Sample 105-10: Cabinet drawer
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



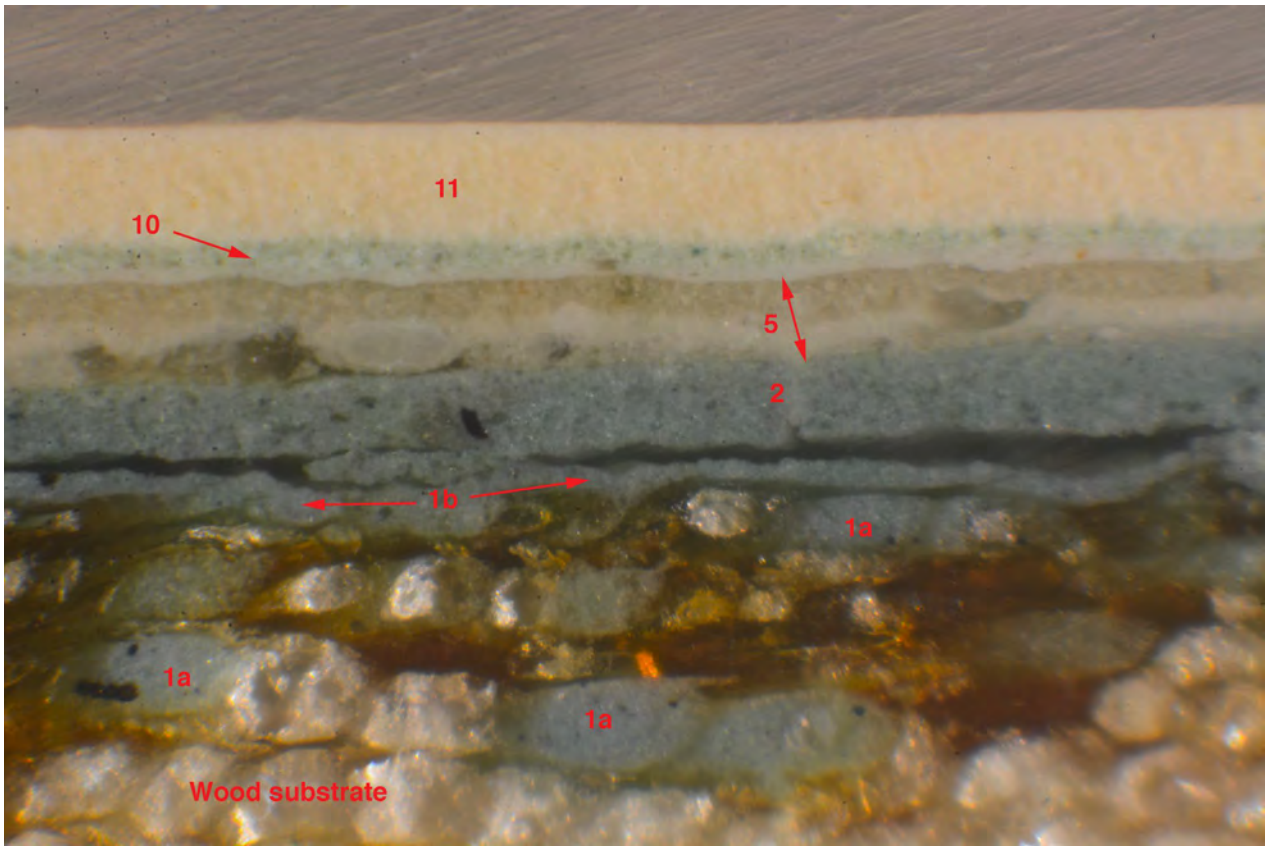
Note: The wood substrate is seen at the base of the sample, supporting the initial lead white finish [1]. The lead white finish is followed by two moderate blue finishes [2,3] that were prepared with lead white and prussian blue pigments in oil; note the void between the two blue paint finishes. This is followed by a third layer of the prussian blue: this may be a "touch up layer" and has faded somewhat. **Finish 4 may be the last application of the Thomson period, pre-1836.** Finish 5, prepared with lead white may be the Cole era, when the walls were finished with the red ochre finish and the black Greek Key was executed: this would be the finish period for restoration. Layers 6-8 may represent the same painting campaign, 7 appears to be a drop of green paint [!]. Layers 1 through 10 were prepared with lead white pigment. Finishes 11 to 14 are prepared with titanium dioxide white.

Sample 105-12: Cabinet Door
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The later finishes have been removed to permit this view. Note that the prussian blue color is the first finish [1, black] on this door, but is the second finish [2, red] on the drawer, Sample 105-10.

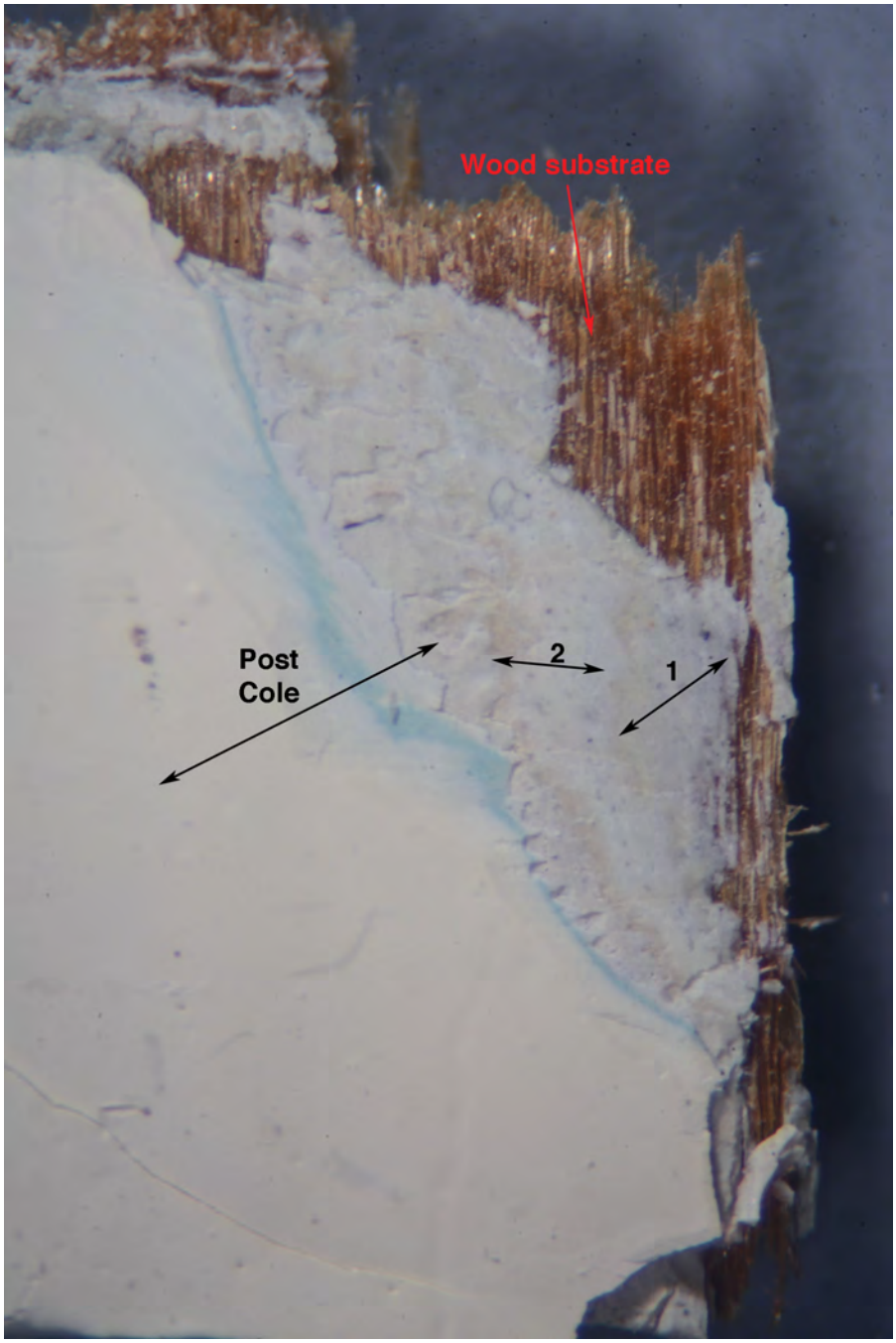
Sample 105-14: Cabinet: door stop installed for cabinet door
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, (100x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. As in the case of the door, the door stop that was installed at the same time as the door was painted with the prussian blue color as the first finish: note that the first application of the prussian blue color [1a, made with lead white and prussian blue] has penetrated into the wood. The second layer of this first application of the prussian blue color [1b] was the exposed finish. The second application of a prussian blue color [2] is clearly seen. This is followed by a white finish [5] prepared with two layers of lead white: the second is an enamel finish and appears translucent. This may be the Cole period finish.

Layers 10 and 11 are modern finishes, and appear to date to the period of public ownership.

Sample 105- 16: Shelf edge Shelf 7
Photomicrograph: Unmounted sample, Olympus SZ-1145 microscope, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering.



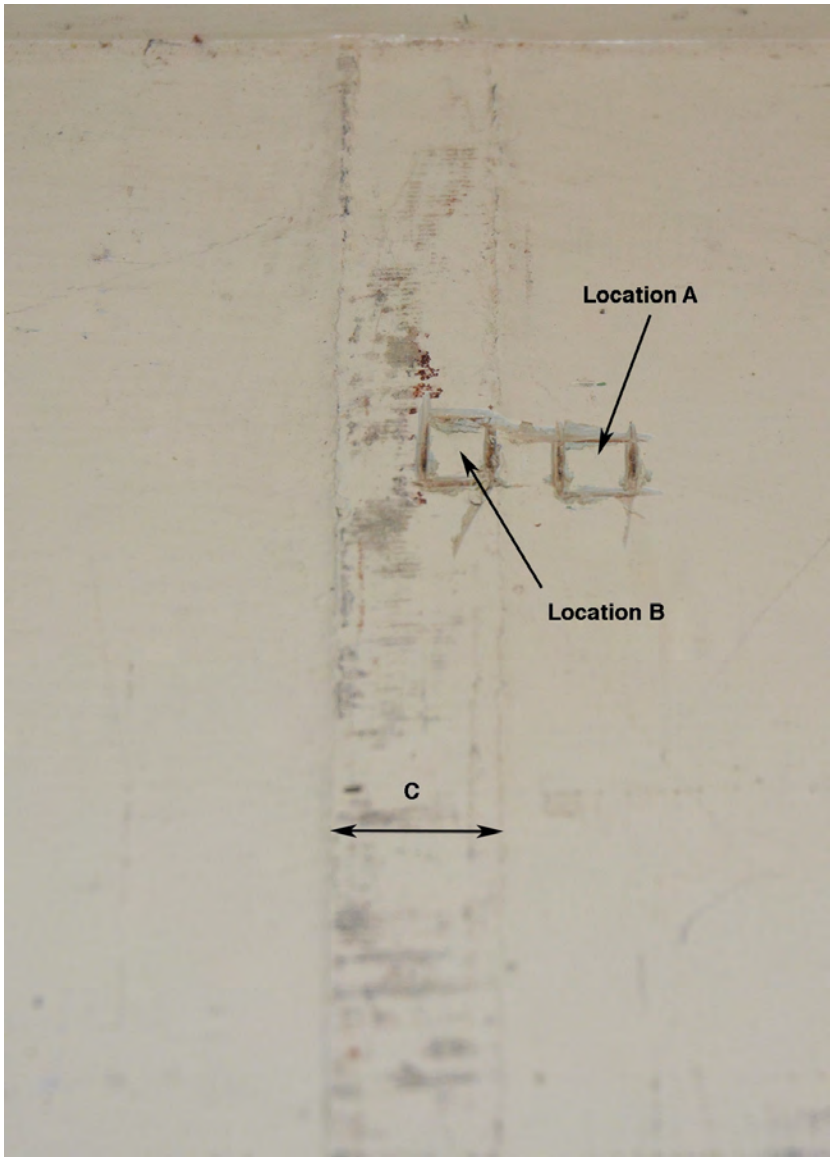
Note: The view of this sample is looking down onto the finish surface, the sample has been trimmed to permit this view. The wood substrate is clearly seen and noted. The diagonal slicing permits a wide view of the early finishes. The first finish [1] was prepared with lead white pigment and would date to the period of construction [presumably ca. 1815]. Note the slight discoloration of the finish surface. The second finish, [2] may be from the Cole period: it also is prepared with lead white. As in the case of the first finish, the second finish shows a distinct discoloration of the finish surface. The later finishes, which would post date the Cole era, i.e. after 1848 are also visible.

This sample indicates that when the frame, drawers and the cabinet doors were painted with the prussian blue color, the open shelving areas were painted with a lead white finish.

Sample 105- 17: Cabinet, open shelving side wall

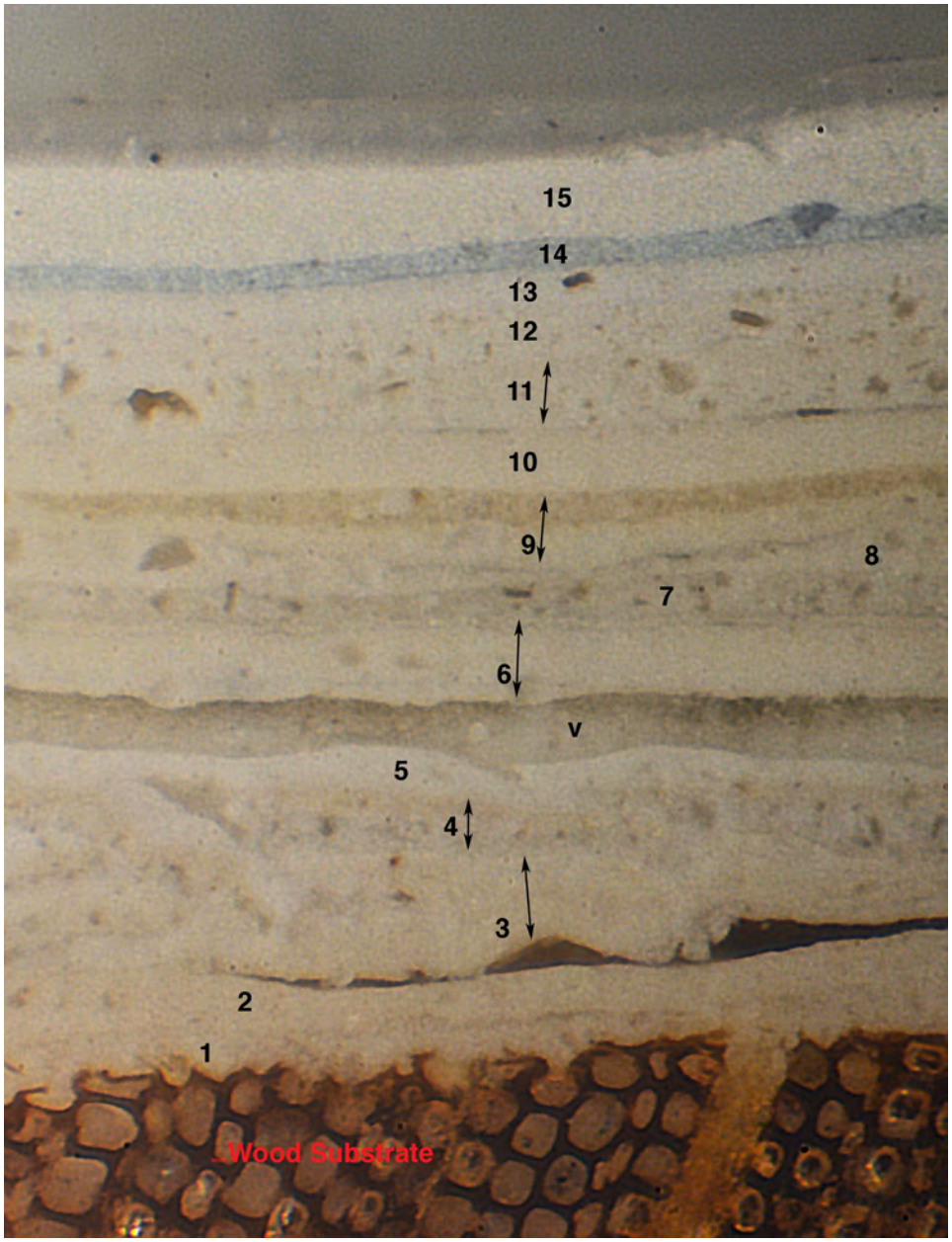
Note: The samples of these side walls show that these surfaces were painted with the same paint layers as observed on the top of the cabinet. Refer to Sample 105-18: Cabinet, top: Location A

Paint sample locations: Sample 105-18: Cabinet top, Location A and Sample 105-19, Location B [vertical support]



Note: Samples were taken from the flat top of the cabinet and the vertical element that interrupts the flat top.

Sample 105-18: Cabinet, top Location A
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, (30x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. Note that the top was painted with lead white finishes regardless of the prussian blue color applied to the drawers, frame and the doors. It may be that the fifth finish [white] is the Cole period finish. It is followed by a void [v, filled with mounting medium] that may coincide with the long period following the Cole period.

Layers 1-10 were prepared with lead white pigment.

Note: The same sequence of finishes are found on:

Sample 105-19: Cabinet, top Location B: vertical element, edge

Restoration of Room 105

This room may require some additional examinations before restoration should begin. The ceiling of this room is modern drywall, and may be dropped down from the original position of the ceiling. Since there is a Greek Key frieze, if the ceiling has been dropped, as in the case of West Parlor, there may be additional stencil decoration above the present ceiling. The comparative height of the ceiling in Room 105 and that of the restored West Parlor will disclose a discrepancy, if one exists.

The other issue is the Cabinet along the East Wall. The curious finding of the sequence of paint finishes *behind* the cabinet could be achieved if the cabinet was moved into the middle of the room when the room was repainted. The unusual paint finishes of the cabinet are also interesting. The cupboard doors were added at the time of the second finish period, when the front of the cabinet was painted a bright prussian blue color. This type of color was very popular in the eighteenth century and into the nineteenth century, but it is unlikely that it would have been exposed at the Cole period, when the room was painted the red ochre color. Since the following paint finish [and subsequent ones] were prepared with lead white, it appears that the later lead white finish would have been exposed during the Cole period. It is possible that Cabinet may have been moved into this room from another room, presumably by Cole in ca. 1836.

The baseboard fascia was also interesting: the fascia, or mopboard was painted chrome green matching the first finish of the doors in the Entry Hall, however, there is a distinct lead white finish that precedes the chrome green. The chrome green appears to have been overpainted by Cole, at the time of the red ochre wall finish.

Suggested finishes: Cole period

Woodwork:

All woodwork, except Door:

White: Benjamin Moore OC-26 Gloss level: Semi-gloss

Door to Hall:

The first finish, with the graining appears to have been retained during the Cole period. The graining finish, with its detailing should be restored on this side of the Door as well.

Wall Finish:

As in the case of Room 104, it may be that because of the Greek Revival and its back ground color, the restoration color may require some modification to meld with the aged background color, that is further altered by the retention of the white paint applied to the finish, as an undercoating for the later yellow finish.

Wall study color: Light Red Ochre: Special Standard M-fb49 Gloss level: flat

Cabinet: All surfaces:

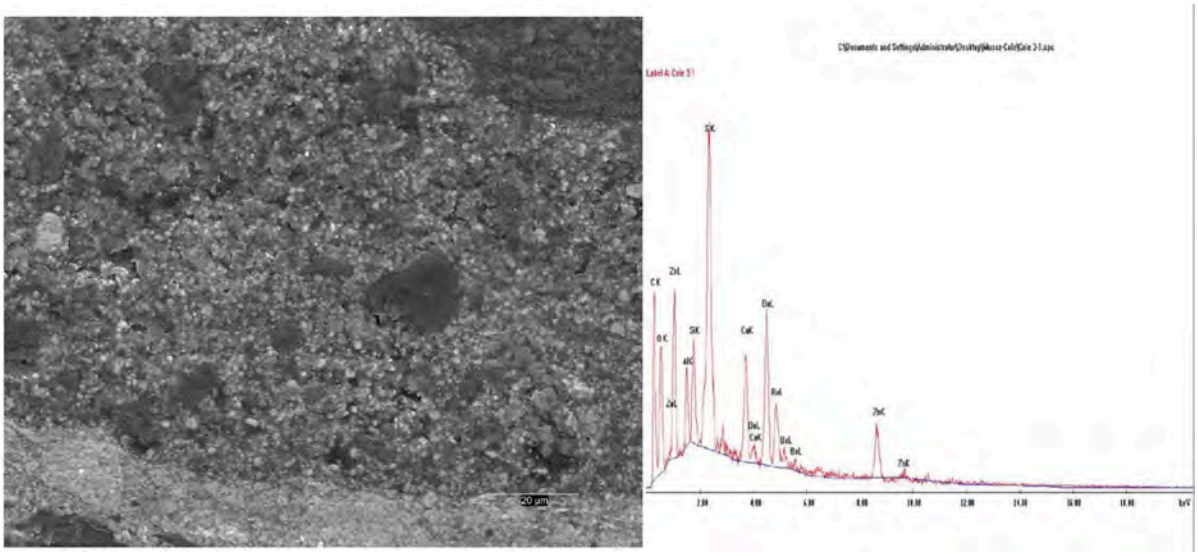
White: Benjamin Moore OC-26 Gloss level: Semi-gloss

Possible variant for the Baseboard fascia: The dark gray seen on this surface may date to late in the Cole period:

Dark gray: Benjamin Moore 1616 [“Stormy sky”] Gloss level: Semi-gloss

Scanning Electron Microscopy: Examination of the Light Yellow paint layer of Sample 105-9, layer 4

The mounted sample of Sample 105-9 was sent to Dr. Carol Heckman, Bowling Green State University Center for Microscopy for scanning electron microscopy. The results are shown below.

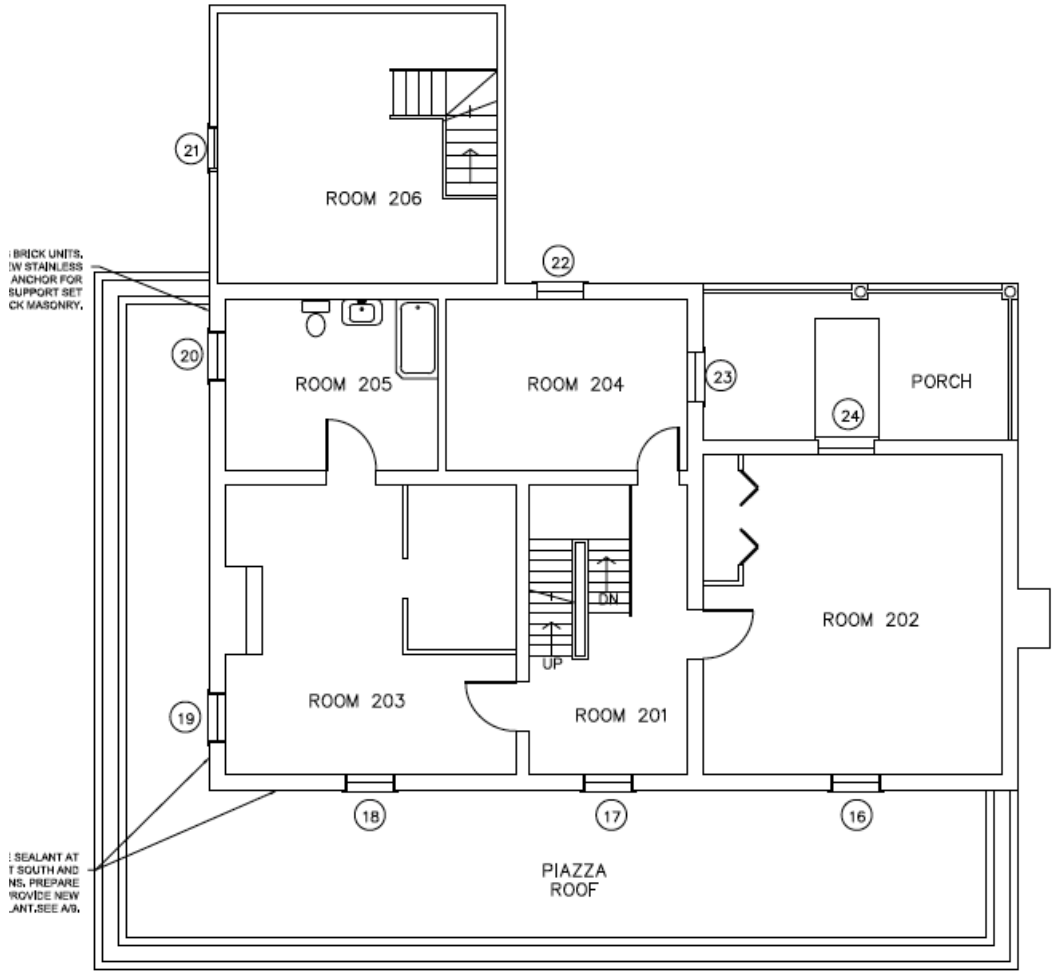


Elem	Wt %	Chem	K-Ratio	Z	A	F
C K	40.76	8.63	0.0890	1.0796	0.2023	1.0001
O K	12.59	2.00	0.0253	1.0613	0.1893	1.0002
AlK	2.17	0.20	0.0106	0.9879	0.4924	1.0029
SiK	2.96	0.27	0.0182	1.0166	0.5998	1.0040
S K	8.72	0.69	0.0689	1.0101	0.7785	1.0040
CaK	3.51	0.22	0.0332	0.9904	0.9344	1.0219
BaL	18.74	0.35	0.1517	0.7596	1.0615	1.0036
ZnK	10.55	0.41	0.0915	0.8761	0.9906	1.0000
Total	100.00					

The results show the presence of components associated with Lithopone, a white pigment first introduced in 1874 that was in very widely used for interior paint in the first half of the twentieth century[1]. While it is possible that this light yellow could have been used in the redecoration after ca. 1884, it is more likely to have been used in the early twentieth century, in a more "Colonial Revival" context.

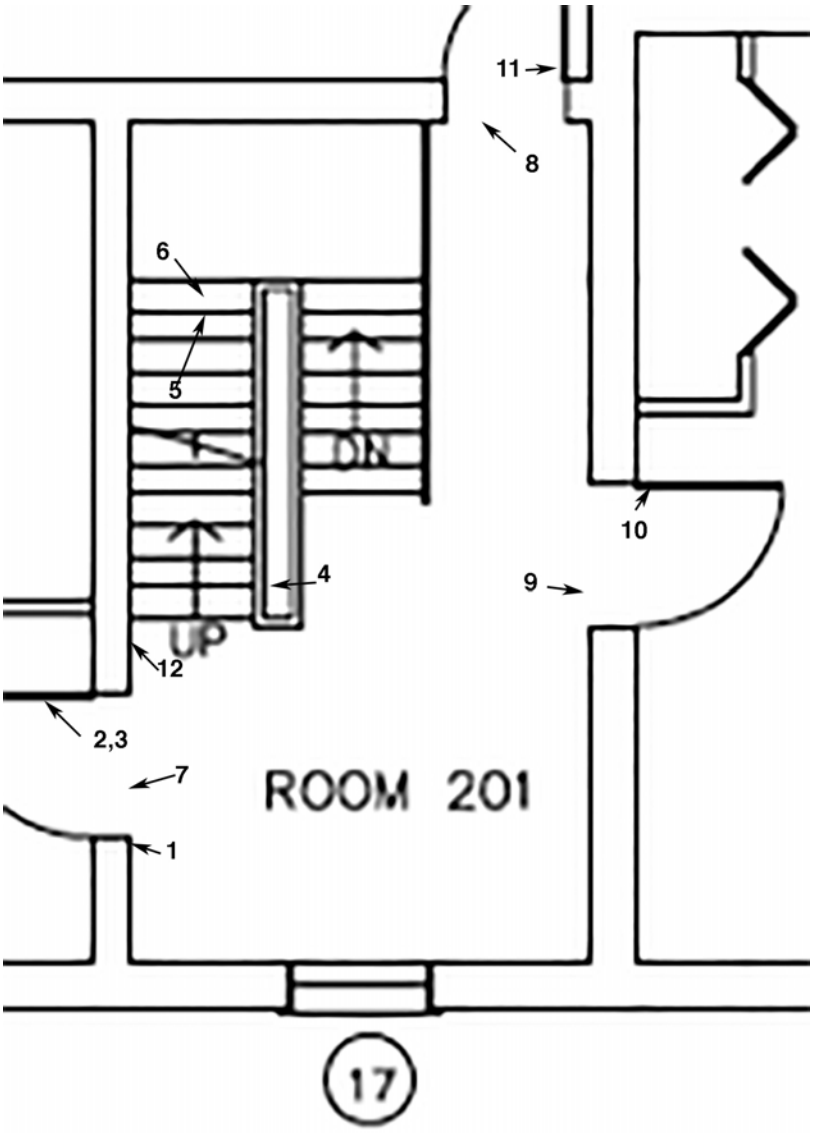
[1] Gettens and Stout*: Painting Materials*, 1942, D. Van Nostrand Company, Dover Publications reprint of 1966, page 125.

Second Floor Plan:



A/2 2ND FLOOR PLAN
SCALE: 3/16" = 1'-0"

Room 201: Second Floor Hall



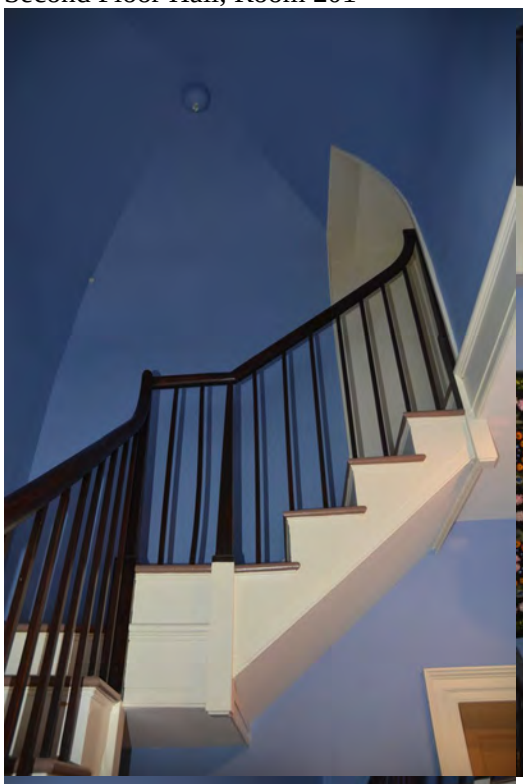
Room 201: The Hall

Sample 201-1: Door Frame, Door to Room 203
Sample 201-2: Door to Room 203, Stile
Sample 201-3: Door to Room 203, Panel
Sample 201-4: Stair case: Carriage
Sample 201-5: Stair, Riser
Sample 201-6: Tread
Sample 201-7: Wall: above Door frame, Door to 203
Sample 201-8: Wall: above Door frame, Door to 204
Sample 201-9: Wall: above Door frame, Door to 202
Sample 201-10: Door to Room 202, Stile
Sample 201-11: Door to Room 204, Stile
Sample 201-12: Baseboard
Sample 201-13: Plinth block, Door Frame of the Door to Room 203
Sample 201-14: Ceiling, above Door to 203
Sample 201-15: Window frame
Sample 201-16: Window sash

Samples from the Top of the Staircase

Sample 201-17: Door to Room 302
Sample 201-18: Plaster next to Door frame to Room 302

Second Floor Hall, Room 201



Summary:

Note: the Hall 201 was restored based on the findings for the first floor Hall 101. The examination of the paint samples were taken to identify the finishes for the second floor and the staircase up to the Door to Room 302.

As the examination of the paint samples indicate, the restoration of the Hall 201 colors are confirmed in this study, with the exception of the doors.

The woodwork:

The Door frame to Room 203 indicated the principal sequence of finishes for the Hall 201 woodwork: a series of white finishes. The first and second finish period [the latter is believed to be the Cole period] showed the characteristic lead white finish. The majority of the paint finishes in this room are lead white based [finishes 1-7]. The same finishes were found the doors [for all historic periods], the stair carriage, baseboards, plinth blocks, window frames, sash and plinth blocks.

The risers also have the first and second period white lead finishes, but there are intervening paintings of the risers that appear to have been done before the second finish. As a result the finishes do not align. During the Cole period it appears that the riser was first painted lead white [as it is seen at present] but was then repainted the same color as the tread. The light brown color seen on the tread, appears on the tread as the third finish, and relates to the tread color for the first floor hall and staircase.

The plaster walls

The plaster wall surfaces were very interesting. It appears that at early in the history of Cedar Grove, the walls of this hallway were lime whitewashed. Since this was a family area, the simplicity and low cost of lime whitewash may have sufficed.

The lime whitewash coatings were stabilized with a diluted oil coating that has turned yellow over time: the appearance of these layers is now yellow; they are reactive, however, with acid [HCl]. Following the stabilized lime coatings is the remains of a layer containing artificial ultramarine blue pigment. The dried oil stabilized would have hardened the lime whitewash, but still have permitted overpainting with a distemper, as there was sufficient “tooth” to the surface. On the wall adjacent to the Door frame of the Door to Room 302, the artificial ultramarine blue finish survives, though in damaged condition, as it appears to have been washed down prior to the repainting. What surviving evidence there is supports the present restoration.

The ceiling Hall 201

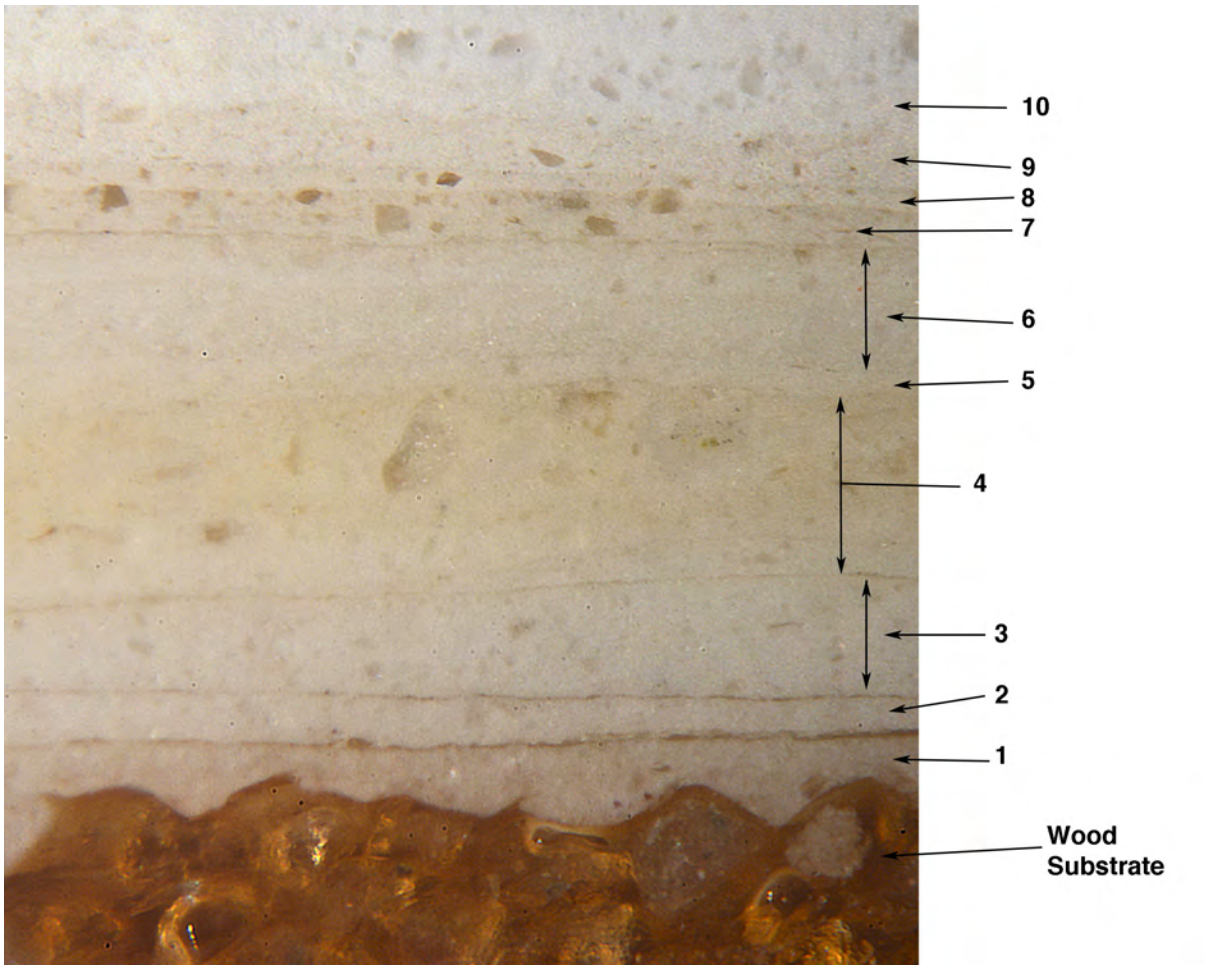
An excellent sample of early lime whitewash was found on the ceiling above the Door to Room 203. This is also characteristic and was found on the first floor Hall.

The Floor: The floor enamel would not have been present, according the Historic Interiors Consultant the Floor boards were not painted, but were covered.

Examination of the Samples:

Sample 201-1: Door Frame, Door to Room 203

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, (30x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.

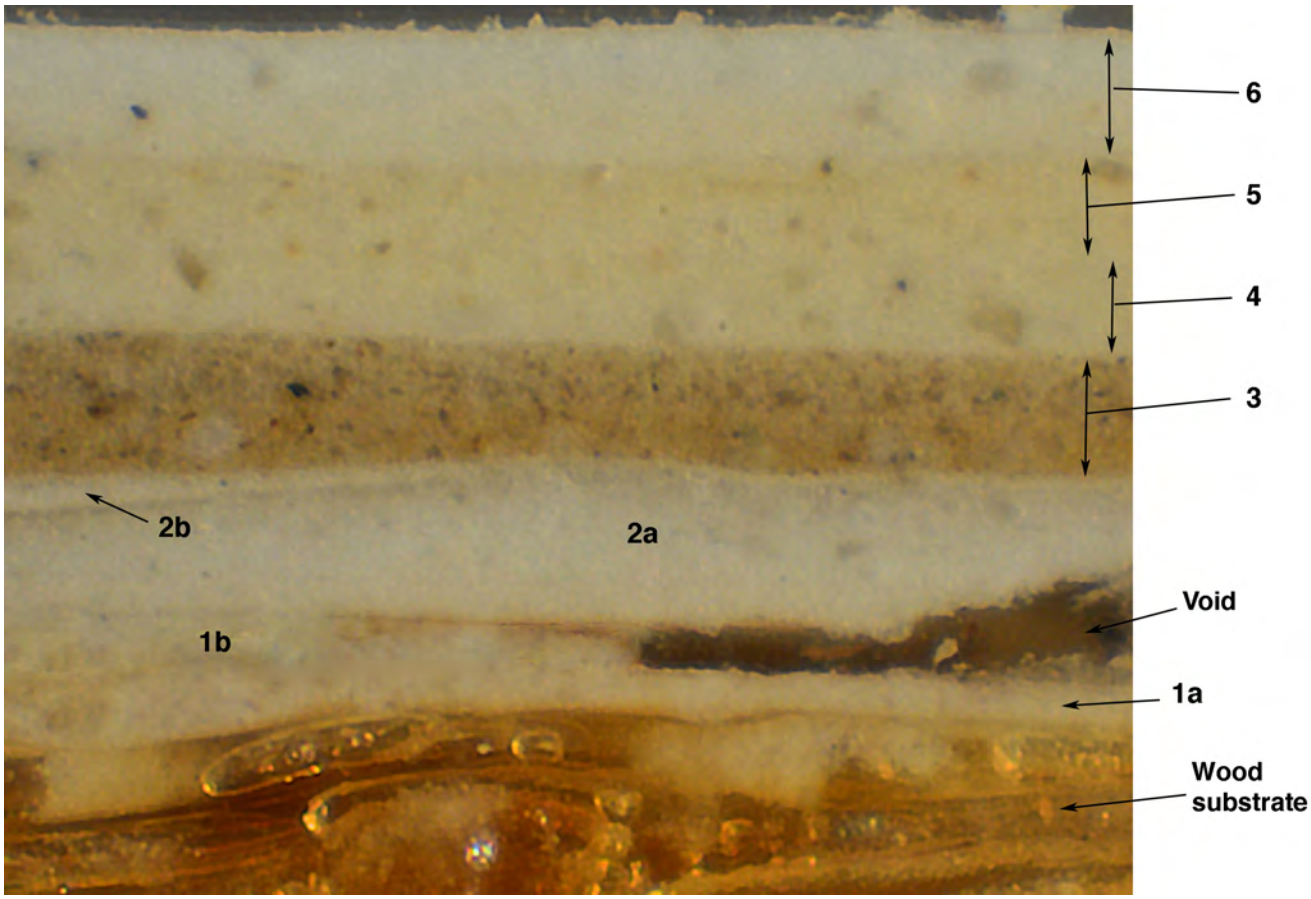


Note: The sample has been mounted in polymer resin, cut and polished to 8000 micron grit polishing cloth for additional examination. The wood substrate is seen at the base of the sample, and is indicated. The first finish [1] is clearly seen; this would date to construction. The second finish [2] probably dates to the Cole period redecoration. The third finish [3] may indicate the redecoration ca. 1884. All of these finishes were prepared with lead white pigment. Finishes 4, 5 and 6 are also prepared with lead white pigment. The last four finishes [7,8,9 and 10] were prepared with non-lead pigments, and indicate the mid-late twentieth century.

Note: The same sequence of finishes is seen on the following samples:
Sample 201-2: Door to Room 203, Stile [historic periods]
Sample 201-3: Door to Room 203, Panel [historic periods]
Sample 201-4: Stair case: Carriage
Sample 201-10: Door to Room 202, Stile
Sample 201-11: Door to Room 204, Stile
Sample 201-12: Baseboard
Sample 201-13: Plinth block, Door Frame of the Door to Room 203

Sample 201-15: Window frame
Sample 201-16: Window sash

Sample 201-5: Stair, Riser [Stair to third floor]
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, (30x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.

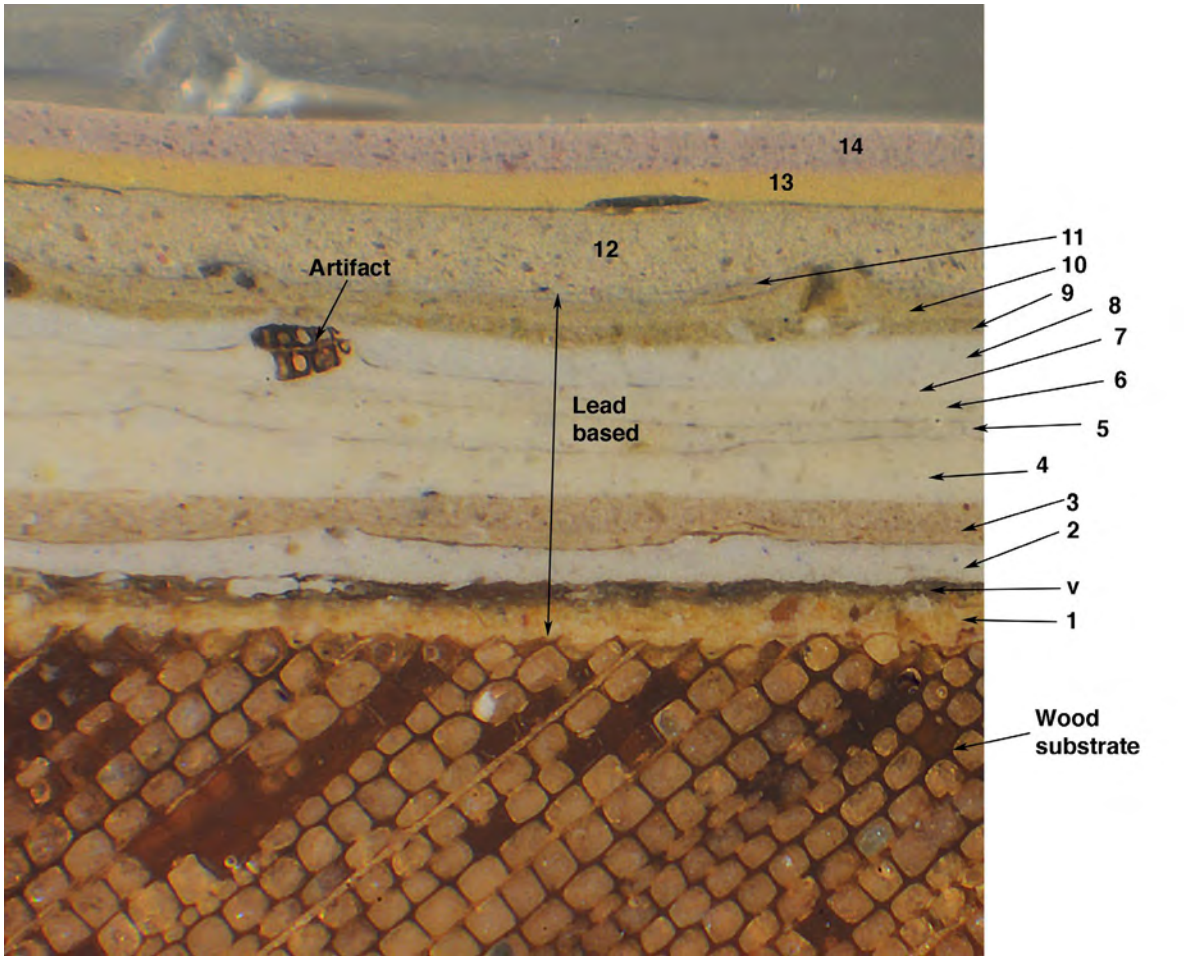


Note: The sample has been mounted in polymer resin, cut and polished to 8000 micron grit polishing cloth for additional examination. The wood substrate is seen at the base of the sample, and is indicated. The first finish comprised of two layers [1a, 1b] is clearly seen: this would date to construction. The second finish is also made of two layers of lead white paint [2a, 2b]. This is probably the first finish of the Cole period. The third finish is the light brown finish, which may be the second finish applied during the Cole period. The later finishes are also prepared with lead white base, and would date to the post-Cole period and later.

Finish 3: this light brown finish is also seen on the tread, as Finish 3 and was identified as the Cole period finish for the First Floor staircase to the Second floor tread. This may indeed be the appropriate finish for restoration.

Sample 201-6: Tread

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, (30x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.

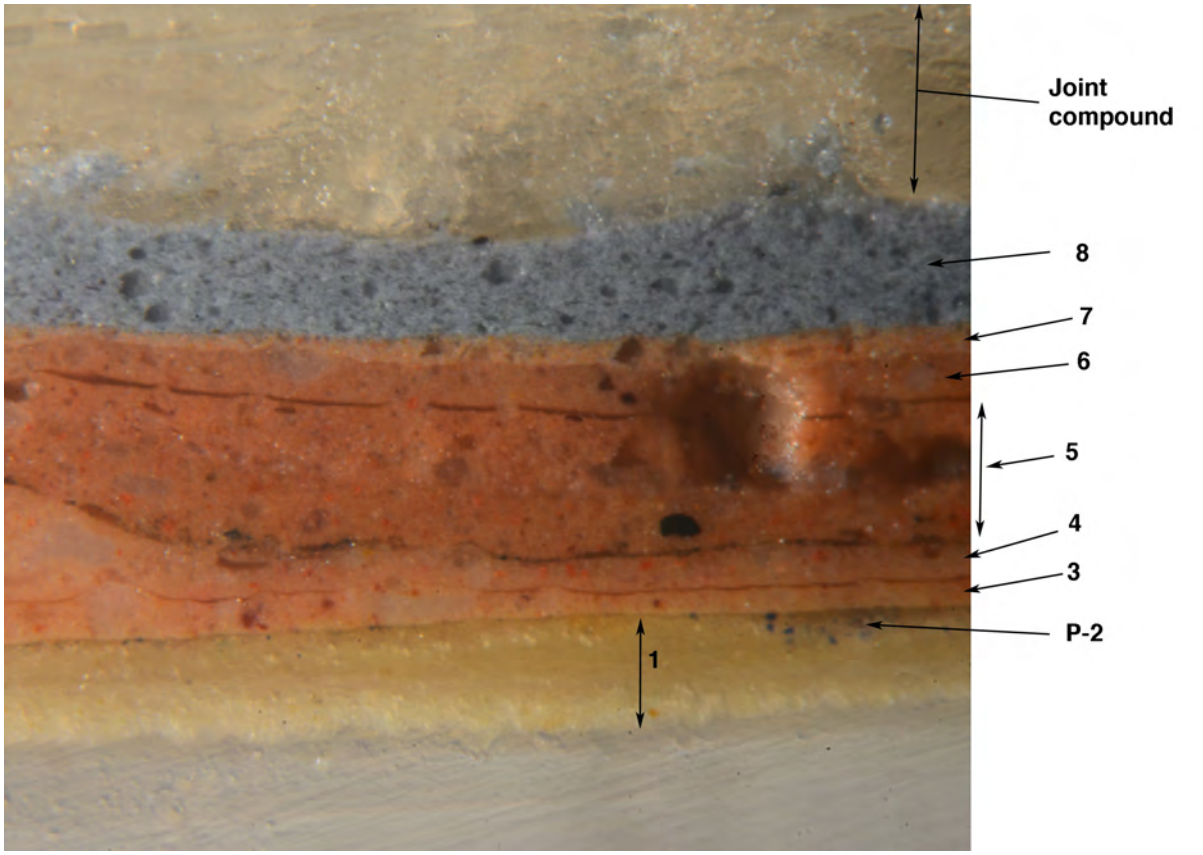


Note: The sample has been mounted in polymer resin, cut and polished to 8000 micron grit polishing cloth for additional examination. The wood substrate is seen at the base of the sample, and is indicated. The first finish [1] is clearly seen; this would date to construction: as on the first floor, a yellow ochre finish [1] that was later varnished [v]. The second finish [2, lead white] does appear to be the same lead white used elsewhere that dates to the Cole period. The light brown finish [3] is also likely to date to the Cole period. This color is also found on the first floor stair treads. Note the sequence of white finishes 4 through 7 that may date between 1848 and 1884. Note the wood fragment [artifact] caught in Finish 6. A series of tan- light brown finishes 9 through 11 probably date from ca. 1884 through the early 20th century. The layer 12 is non-lead, including titanium dioxide white. Finishes 12-14 are all non-lead.

Plaster Samples:

Note: The use of the artificial ultramarine pigment in a distemper medium that was found on the wall plaster of the first floor was an important discovery, since Thomas Cole was very interested in this pigment and had used it in his paintings. The examination of the plaster walls was undertaken to discover, if possible, the artificial ultramarine pigment finish on the second floor hall, 201 and to the Door to Room 302. The surfaces above the second floor door frames were particularly important since the comparable locations on the first floor yielded good samples.

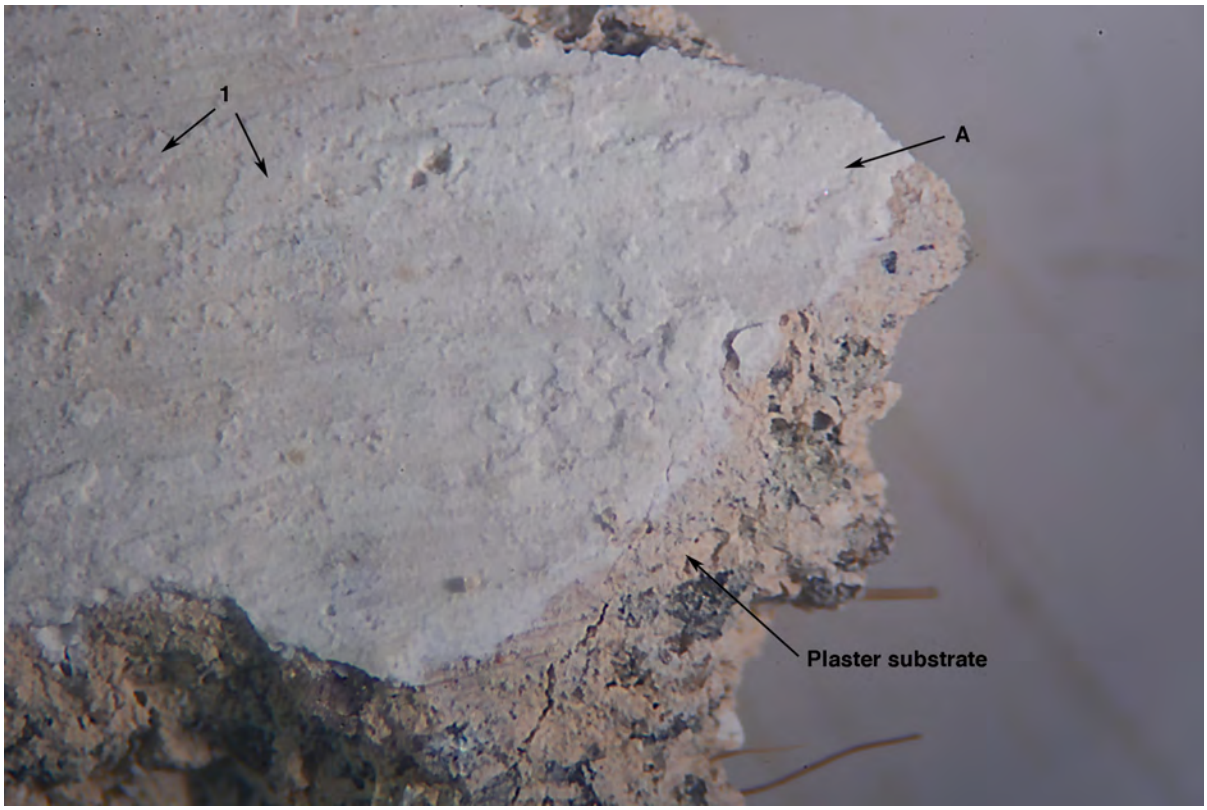
Sample 201-7: Wall: above Door frame, Door to 203
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, (30x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 8000 micron grit polishing cloth for additional examination. The plaster substrate has delaminated from the sample. The first layers [1] are actually lime whitewash layers that have been stabilized with a drying oil mixture that has yellowed. Note the remnants of a finish, and the pigment particles are artificial ultramarine blue [P-2] that supports that the artificial ultramarine blue was indeed used on the second floor. The sequence of the red finishes [3 through 7] are also seen on the first floor and it appears that these date to the redecoration following the death of Maria Bartow Cole in 1884. The preparation of the walls was very thorough, particularly on the first floor. This general red color was repeated well into the twentieth century. The blue finish [8] is associated with Edith Cole Silberstein. The joint compound, applied in 2000, completes the photomicrograph.

Note: the same layering as Sample 201-7: Wall: above Door frame, Door to 203 on the following samples:
Sample 201-8: Wall: above Door frame, Door to 204
Sample 201-9: Wall: above Door frame, Door to 202

Sample 201-14: Ceiling, above Door to 203
Photomicrograph: Unmounted sample, Olympus SZ-1145 microscope, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering.

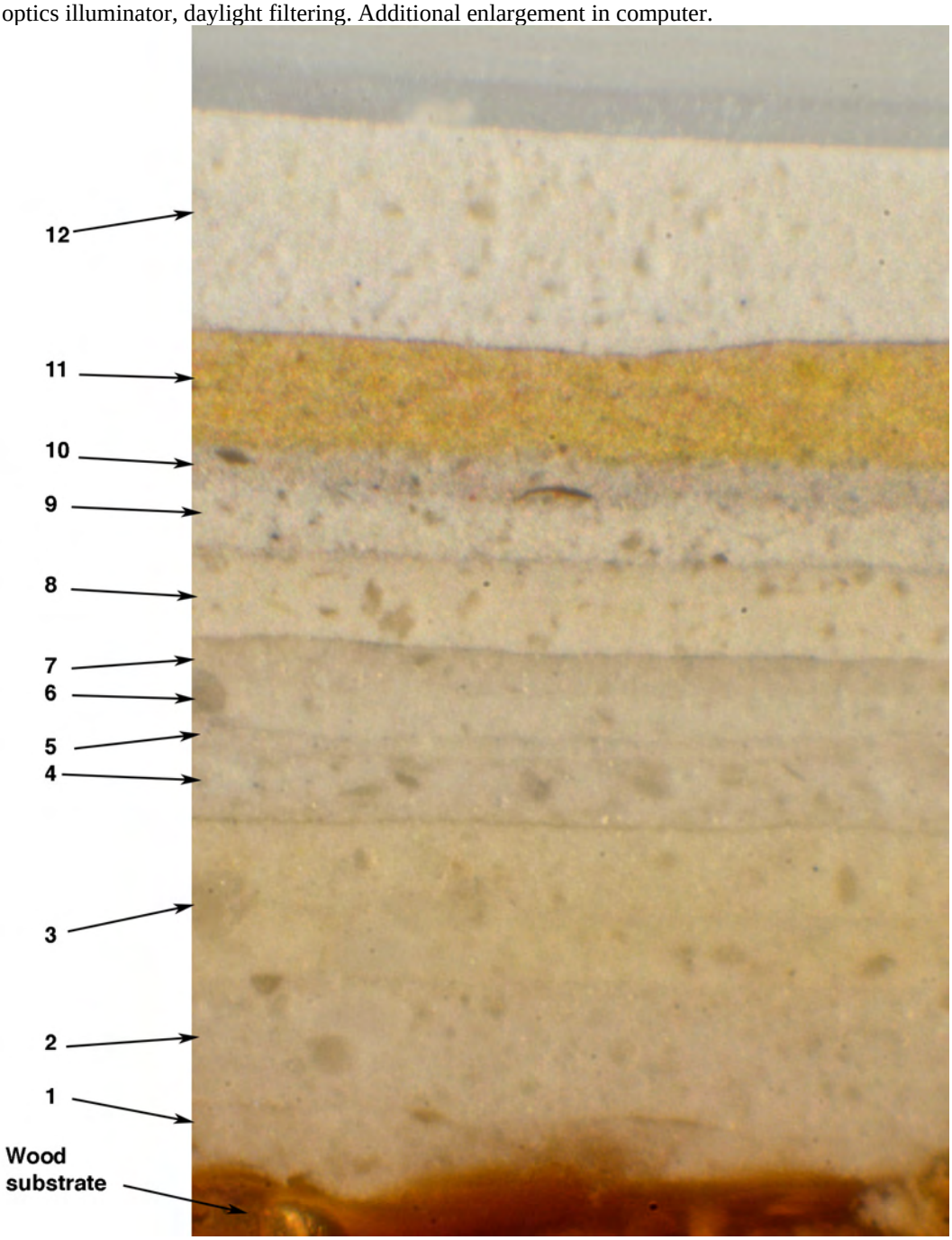


Note: The view of the sample is looking down onto the finish surface and the side of the sample. The plaster substrate, the characteristic sand-finish plaster, is clearly seen [note also the hog bristles]. Note the thin white lime finish plaster [A] that was at first exposed. Later, as necessary, the surface was lime whitewashed [1]. Later lime coating [ ] have delaminated. It is likely that a number of layers were removed during subsequent painting campaigns.

Samples from the Top of the Staircase

Sample 201-17: Door to Room 302

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, (30x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth for additional examination. The wood substrate is seen at the base of the sample. The first finish [1] clearly dates to the period of construction. The second finish [2] appears to date to the Cole period

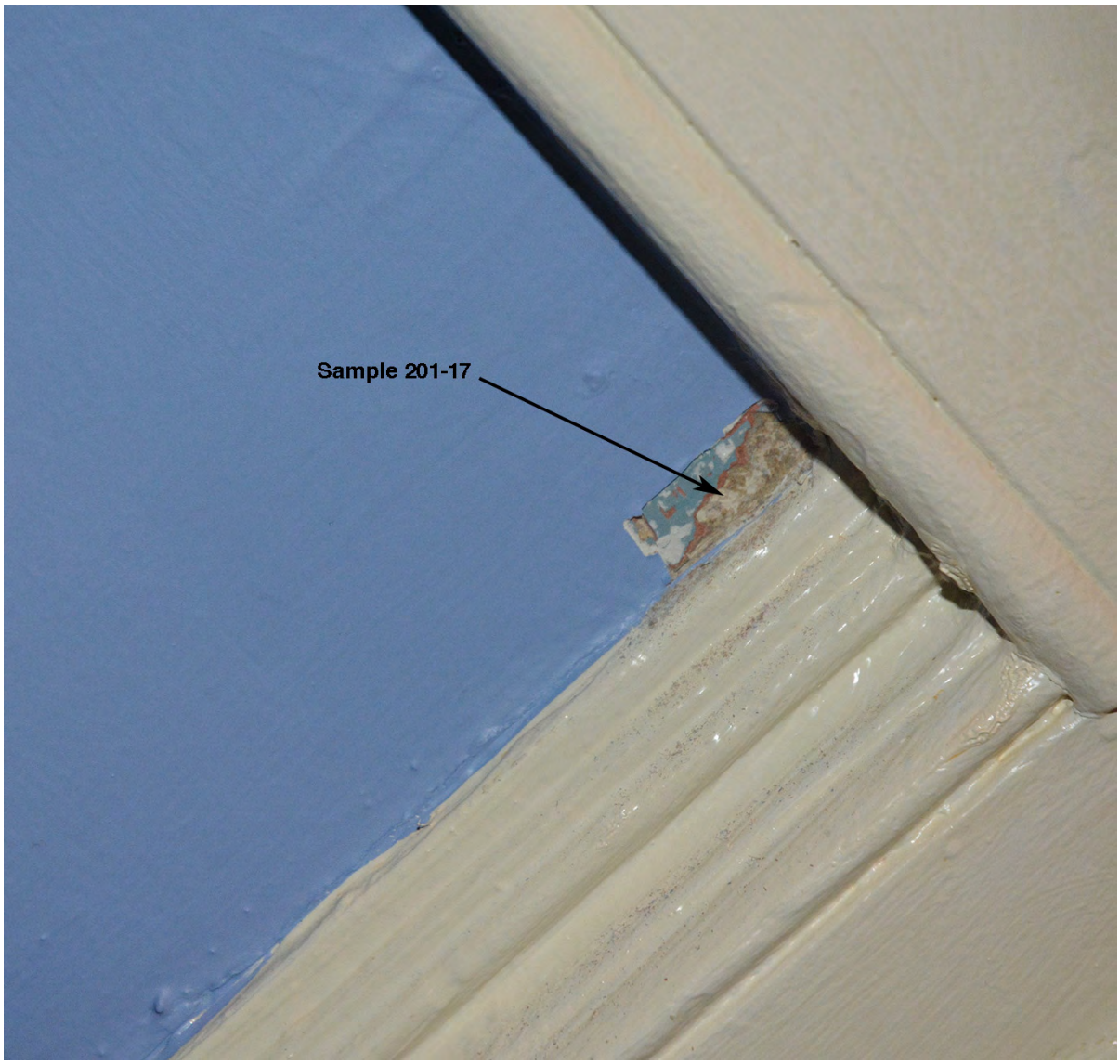
redecoration. There is a sequence of white finishes: finishes 1 through 7 were prepared with lead white finishes. Finishes 8 through 12 are from the twentieth century.

Note: the same paint sequence of paint finishes [except for Finish 11] is seen on: Sample 201-16: Door Frame, Door to Room 302

Plaster Sample:

Sample 201-18: Plaster next to Door frame to Room 302

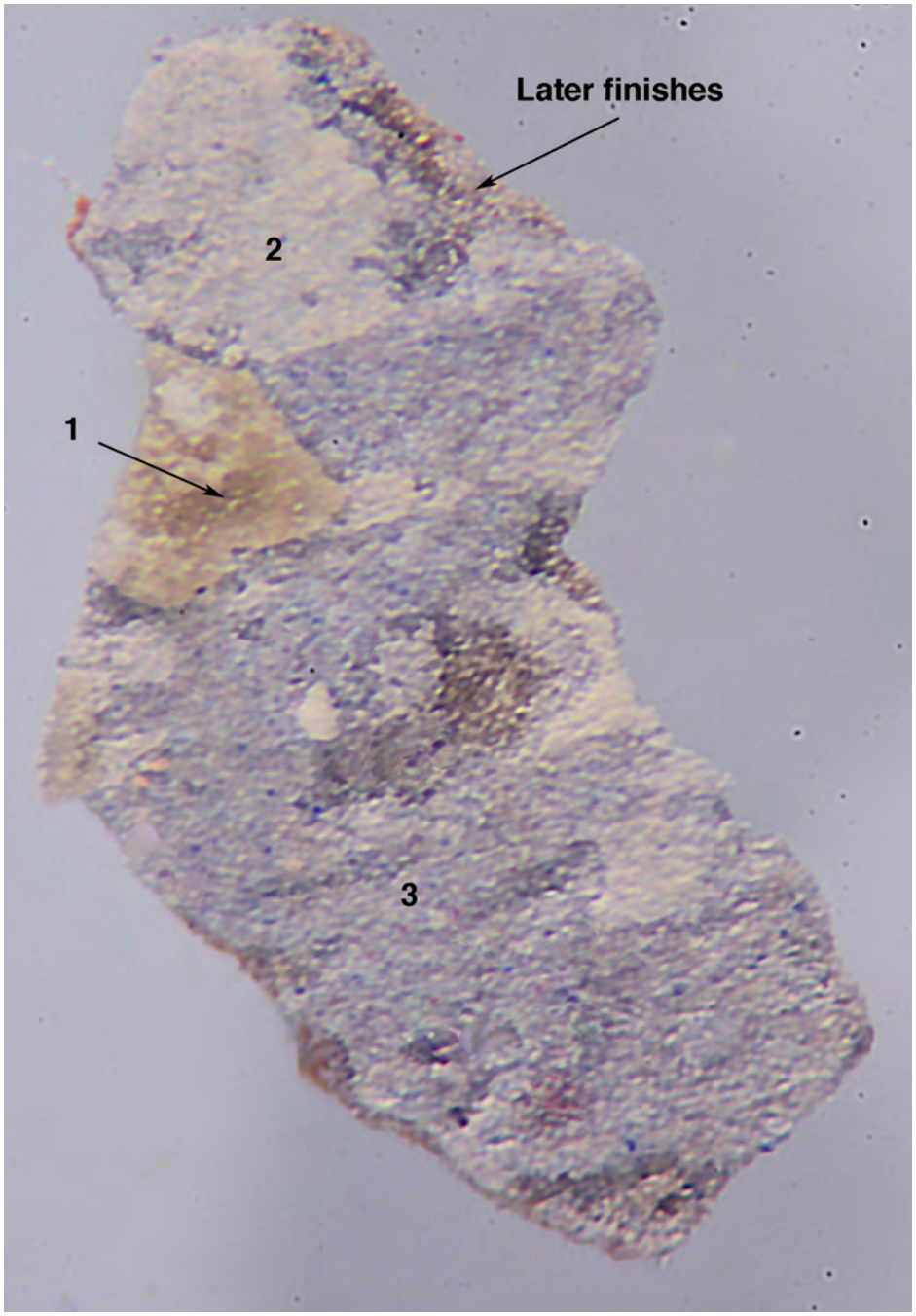
Location:



Note: The Sample 201-17 was extracted from this protected location near the corner of the baseboard on the staircase and the large angled door frame to Room 302. The later red finishes and the twentieth century blue finish are clearly visible.

Plaster Sample:

Sample 201-18: Plaster next to Door frame to Room 302



Note: The view of the sample is seen in reverse: it has been turned over to achieve this view. The lime coatings that were treated with the boiled oil treatment are clearly seen [1]: Note the later white fragments [2] and the light blue, prepared with artificial ultramarine blue pigment. This is the best surviving example. The later finishes are under the plane of finish 3.
This sample also indicates that the artificial ultramarine blue finish was carried up to the Door to Room 302.

Restoration of Hall 201 and Staircase to Attic level

The finishes that were implemented as an extension of the restoration of the Entry Hall 101 are confirmed in this report.

Ceiling: Special Standard Lime white Gloss level: flat
Note: An actual lime finish may be used: the suggested lime material is: St. Astier "Natural" available from
LimeWorks.us
P.O. Box 151
Milford Square, Pennsylvania 18935
(p) 215-536-6706 (f) 215-536-2281

Walls: Retain existing Artificial Ultramarine Blue Color finish: Refer to report of 19 March 2015

Light blue: Artificial Ultramarine Blue distemper
Special Standard: Mgl-54BB41/237
Gloss level: Flat

Woodwork:

All woodwork, except as noted:

White: Benjamin Moore OC-26 Gloss level: Semi-gloss

Note: the Doors of the Second floor Hall were also painted White: Benjamin Moore OC-26 Gloss level: Semi-gloss

Treads:
To be retained as painted:
Moderate pinkish brown
Special Standard: T. Cole Msw-6046 Gloss level: Semi-gloss

Risers: The risers may be painted the same color as the treads. It appears that this would have been done prior to 1848.

Moderate pinkish brown
Special Standard: T. Cole Msw-6046 Gloss level: Semi-gloss

Floor: Unpainted

Room 203: The Cole Sitting Room

Summary:

The Cole Sitting Room is very much intact in so far as the architectural features which are the same as they were when the house was constructed. The examination of the wall plaster shows a very curious condition that appears to date to close to the period of construction.

The plaster is a sand-finish plaster, which is associated with the use of wallpaper. This was a cost savings because the walls would not need a white finish plaster coat, since wallpaper could be applied directly to the sand finish coating; this permitted a considerable cost savings. [2] During the examination phase, it was noticed that some areas of the plaster were covered with a light brown lead white based paint. This was not a finish, however, in that it did not cover over the dark sand particles, as is shown in the photomicrographs. The reason for this intermittent paint is not known; perhaps it was used to level up the surface somewhat in anticipation of the wallpaper application.

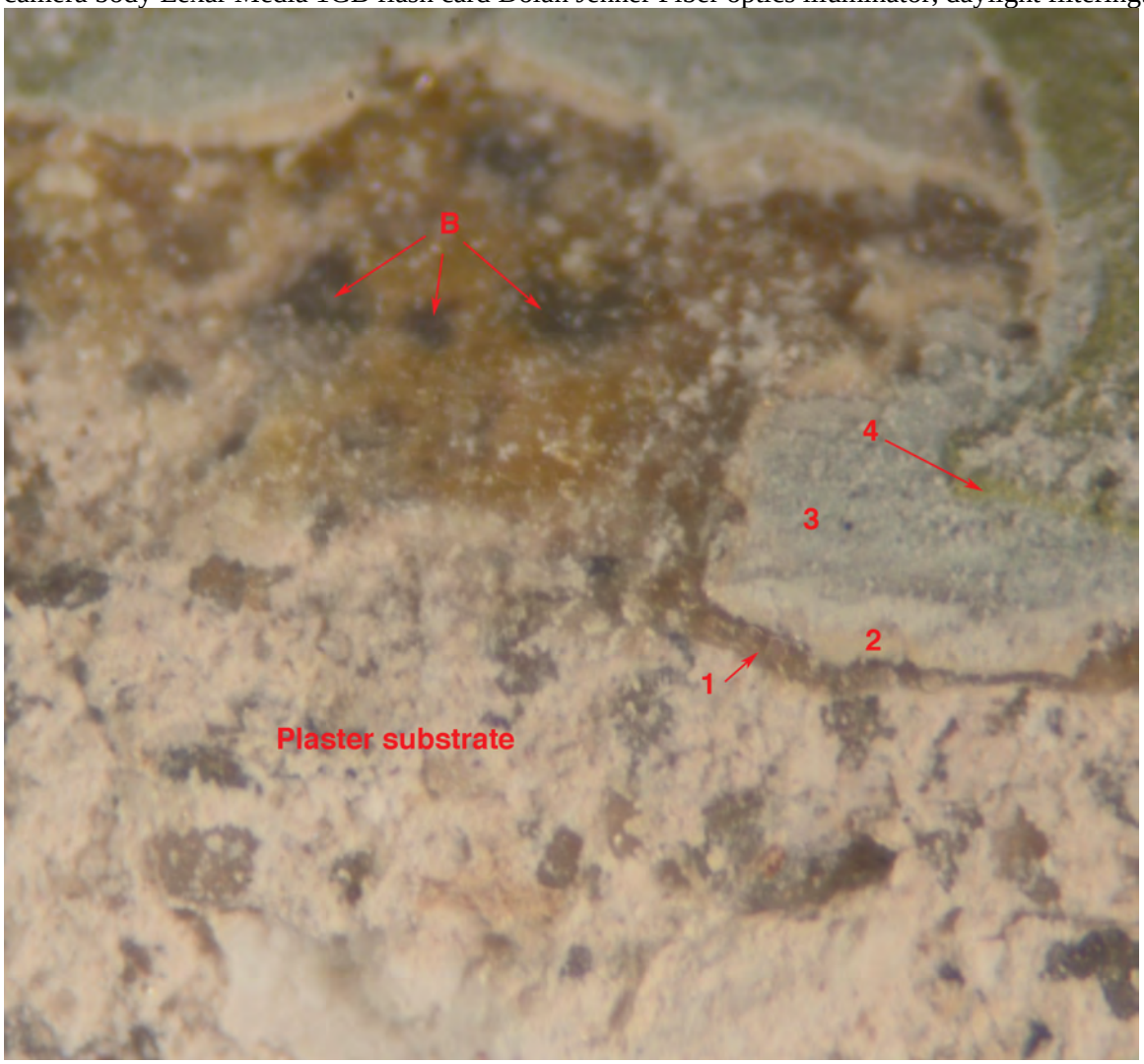
The surviving adhesive accumulation is clear indication that the walls of the room were wallpapered until after ca. 1884 [death of Maria Barstow Cole]. The ceiling of Room 203 was replaced during the restoration of 2000.

The woodwork shows the characteristic lead white finishes that are observed on woodwork elsewhere in the house. Examination of the baseboard fascias and the plinth blocks show that there was no marbling carried out at the time of construction or at any point thereafter.

[2] Catherine Lynn: Wallpapers in America W.W. Norton and Company Publisher
New York, New York 1980

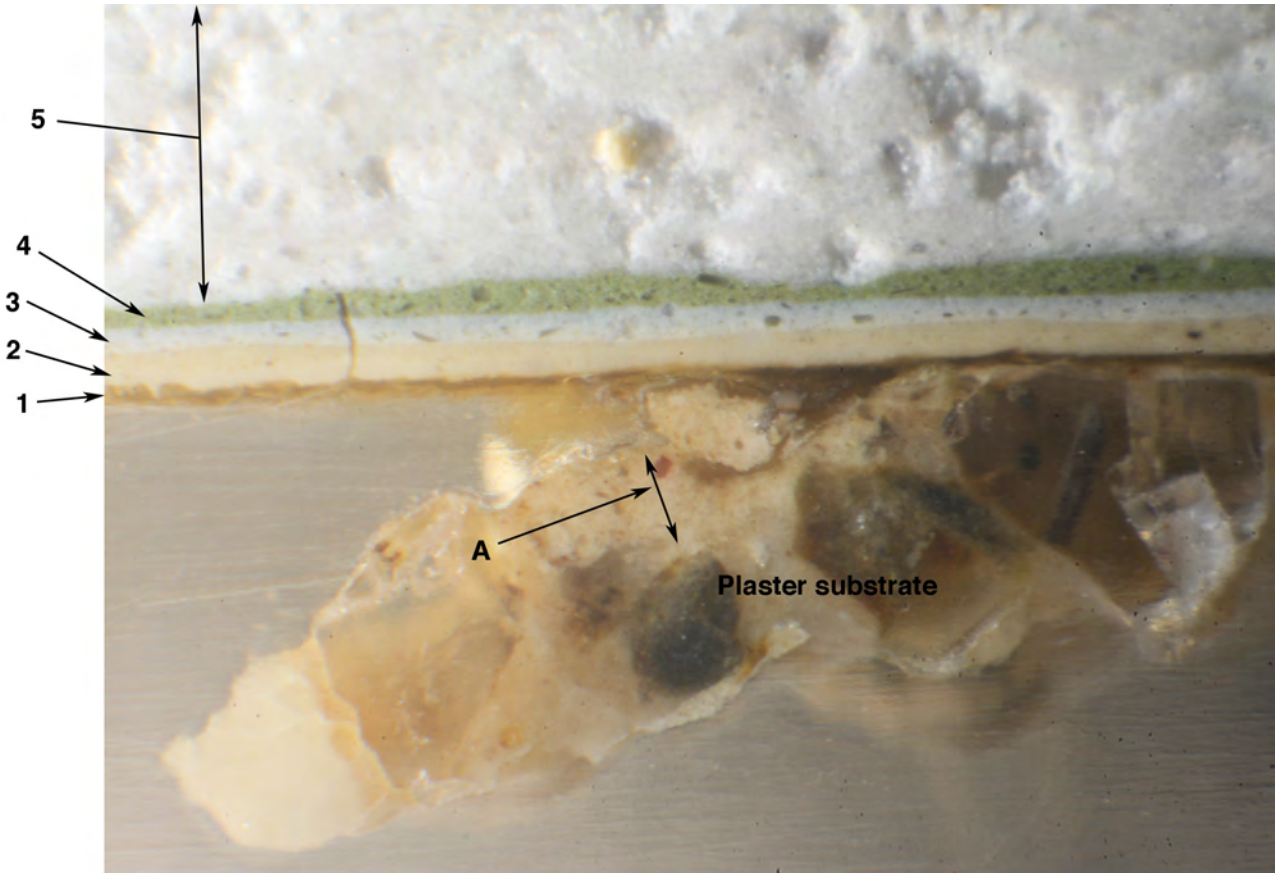
Examination of the Samples:

Sample 203-1: Wall plaster, above Door to Hall 201
Photomicrograph: Unmounted sample, Olympus SZ-1145 microscope, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering.



Note: This unmounted view of the wall plaster shows certain important features. The plaster substrate, which is characteristic of the original plaster of Cedar Grove is clearly seen: the overall color is a light brown, due to presence of clay. Note the dark small coarse sand particles. The surface of this plaster is covered with a transparent yellowish layer of adhesive, which may be associated with the use of wallpaper. Note that the dark small stones of the plaster substrate is visible immediately under the adhesive layer. The later, post Cole period paint layers are also seen [2, 3, 4]. Refer to the mounted cross section that follows this page.

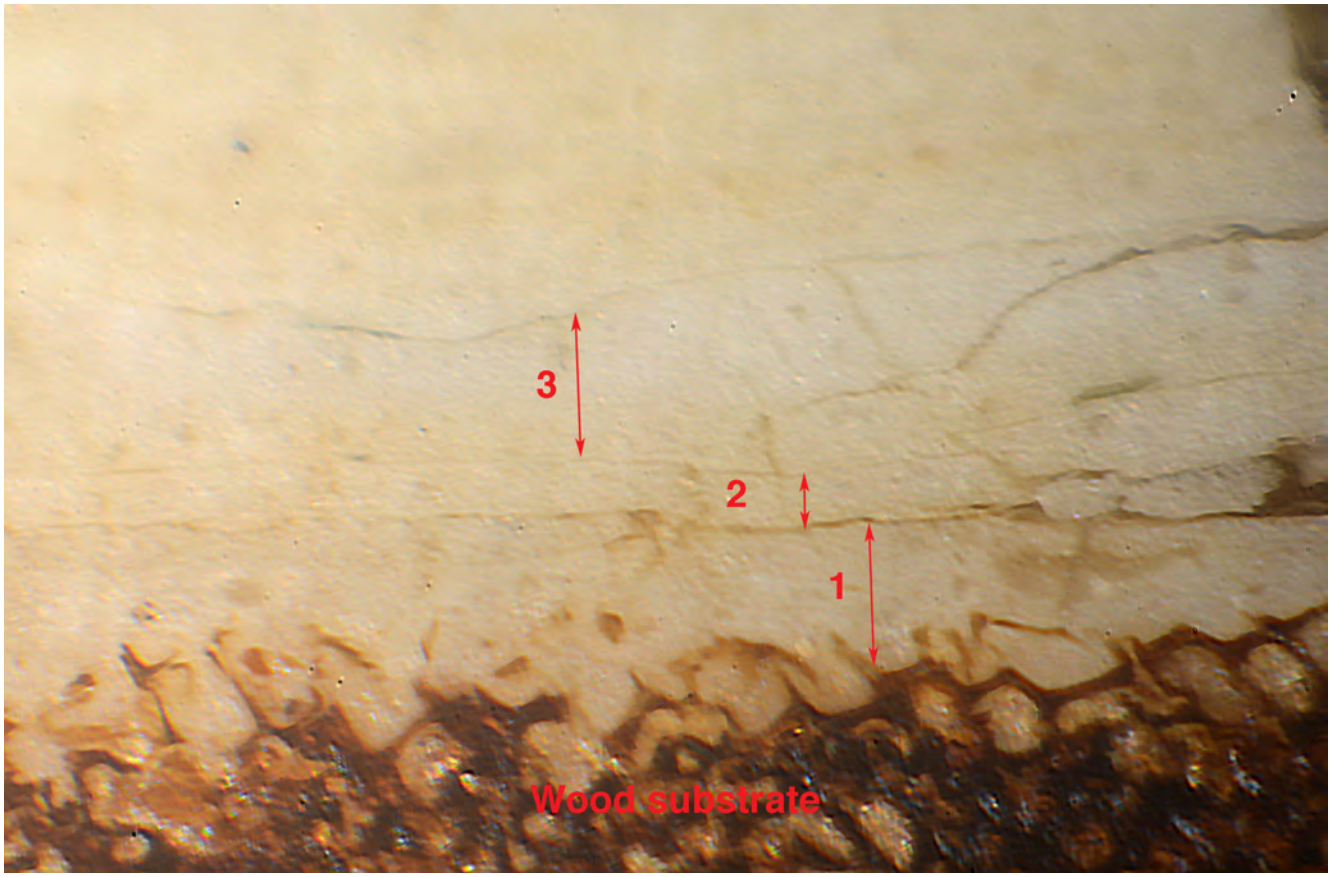
Sample 203-1: Wall plaster, above Door to Hall 201
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering



Note: This sample piece is from the same general area as the unmounted sample seen above. This piece was mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The plaster substrate is clearly seen and indicated. Note that there is a thin layer of a lead based light brown paint [A]! This coating precedes the application of the adhesive layer [1].

The adhesive for wallpaper is clearly seen, and heavily applied in this location. The yellowish white finish [2] is prepared with lead white and may date to after ca. 1884. The light blue [3] and green [4] finishes are from the twentieth century. The thick white coating is a modern joint compound.

Sample 203-2: Door Frame, Door to Hall [detail]
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering

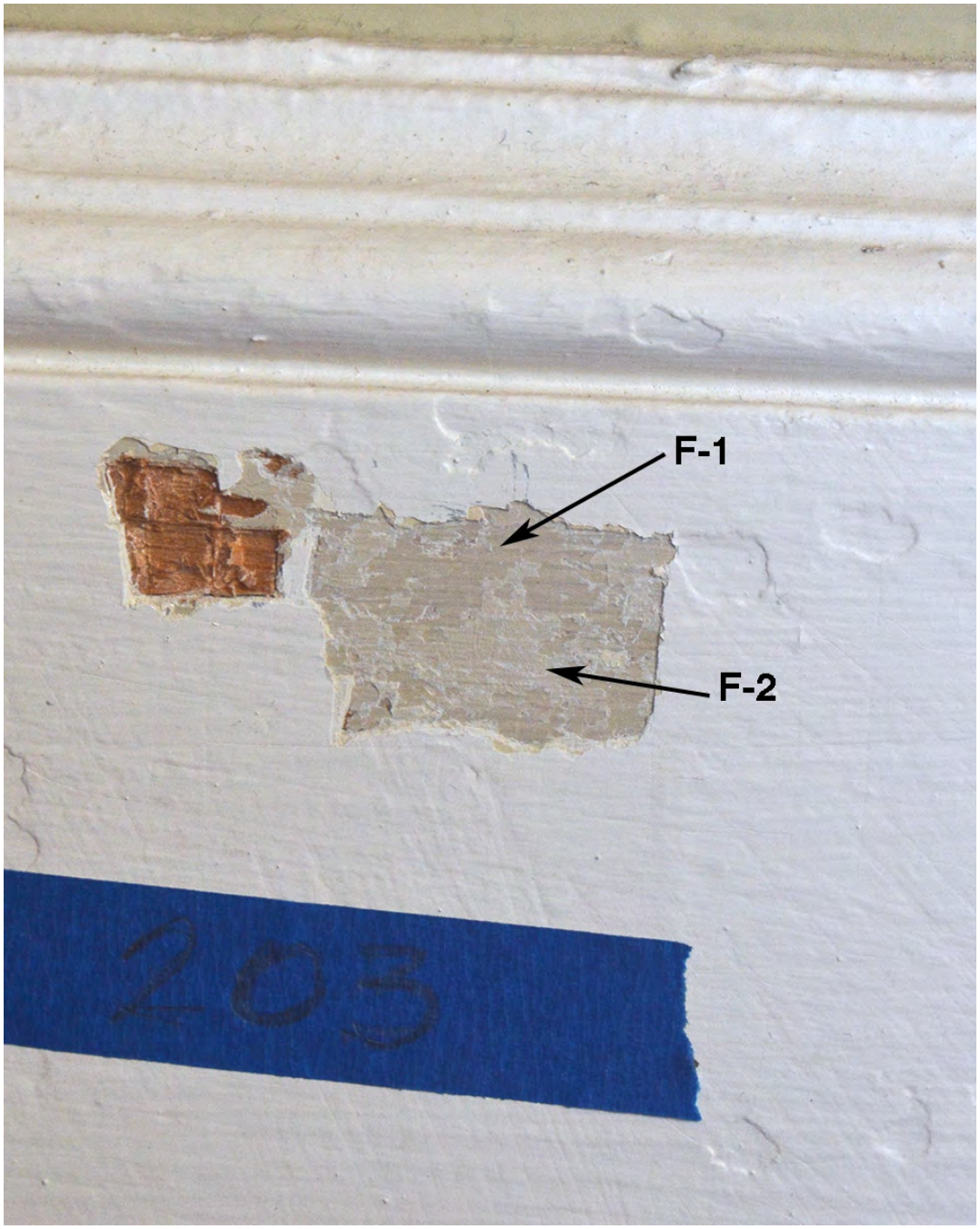


Note: The sample was mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen and indicated. The first finish [1] appears to have been prepared with three very thin layers of a lead white paint. The surface is clearly seen. The second finish is also prepared with lead white [2]: this would be the ca. 1836 Cole period painting. The third finish, which may date to post ca. 1884 is also visible. All of the paint layers observed are prepared with lead white as the basic pigment.

Note: The same paint sequence was observed on samples from the following locations:
Sample 203-3: Door to Hall, 201: Panel
Sample 203-4: Door to Hall, 201: Rail and Stile
Sample 203-5: Baseboard, Molding
Sample 203-6: Baseboard, Fascia

Sample 203-7: Window frame
Sample 203-8: Door frame, Door to Room 205
Sample 203-9: Door to Room 205

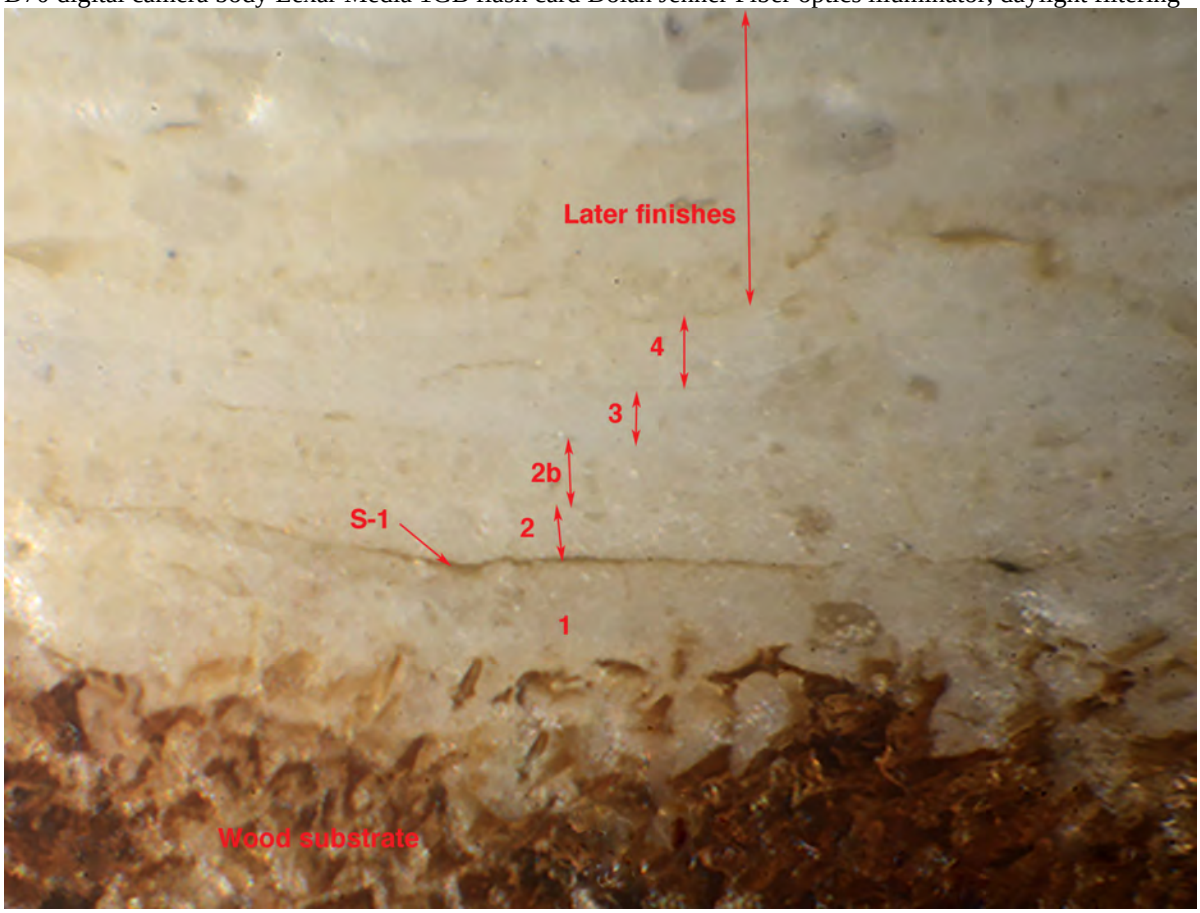
Baseboard:
On-site photograph



Note: The photograph above shows an exposure of the baseboard fascia exposing the first and the second finishes. There is no indication of any of the marbling that was found on the surface of the baseboard fascia of the East Parlor during the first finish period. This is characteristic of the second floor rooms.

Note regarding Samples from the Window Sash of Room 203:
Samples from the window sash showed extensive loss of paint layers. There is surviving early paint [lead white] which appears to indicate that the existing sash are early in date and were painted in a manner consistent with the other woodwork elements in the room.

Sample 203-10: Mantel plinth block
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering



Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The paint finishes are the same as seen on Sample 203-2: Door Frame, Door to Hall [detail]. The wood substrate is seen at the base of the sample and is so indicated. The first finish is clearly seen [1] the surface of this finish is distinctly seen [S-1]. The second finish [2] appears to be the finish applied for the redecoration carried out in ca. 1836. There is a "touch up" repainting on the plinth block [2b] that is not seen on the Sample 203-2: Door Frame, Door to Hall. The whiter finish, [3] and [4] are also clearly seen. Based on the paint sequence of the Wall plaster, finishes 3 and 4 date to the early twentieth century. All of these early finishes are prepared lead white pigment.

Note: The same paint layering was observed on, except for layer 2b:

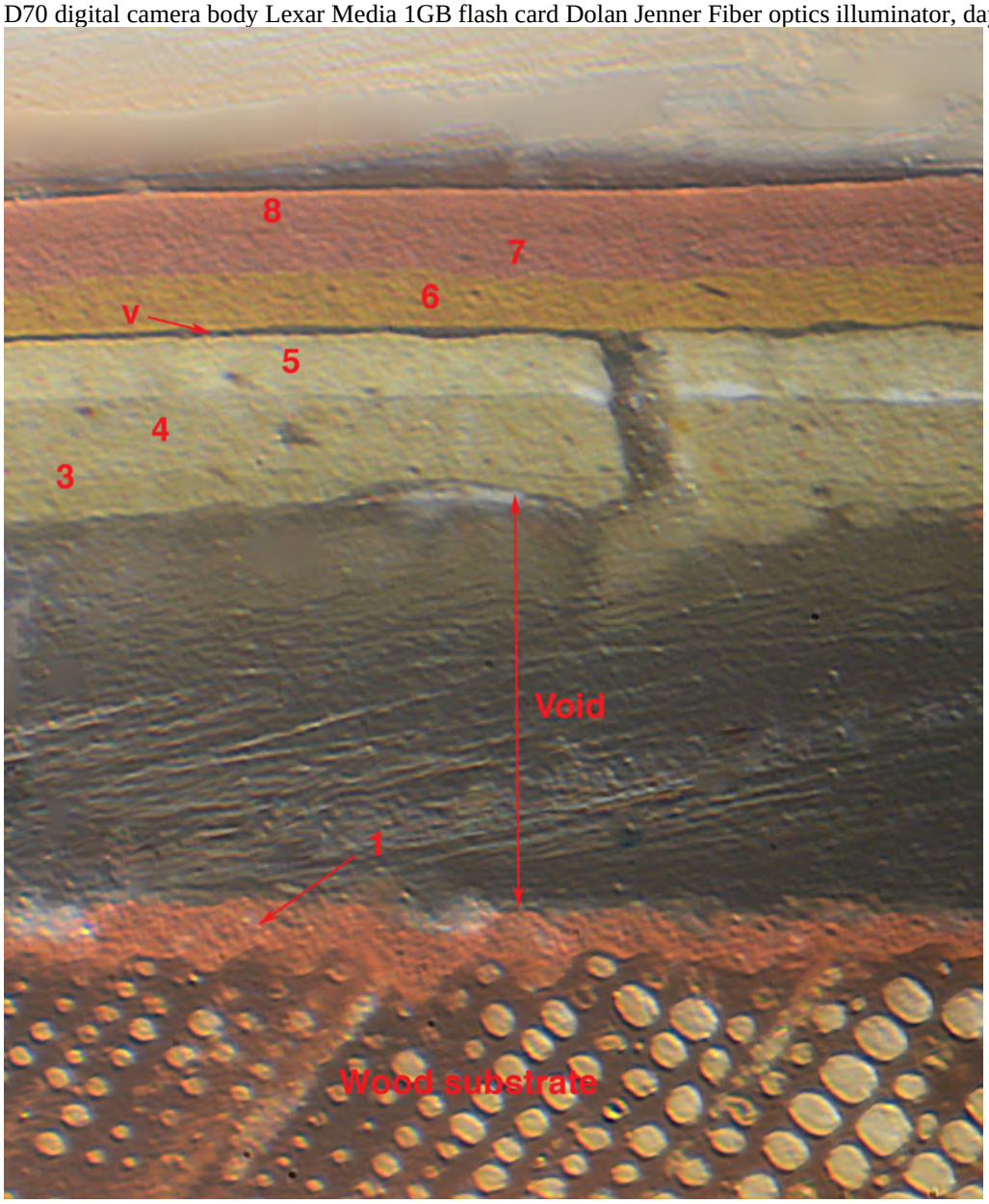
Sample 203-11: Mantel, body
Sample 203-12: Mantel small colonette
Sample 203-13: Mantel, shelf

Historic Interiors consultant Jean Dunbar provided information on the floors: they were covered during the period before Thomas Cole came to Cedar Grove and continued to be covered during the Cole era. Thus: all of the floor enamels appear to be late in date: long after the Cole era, which ended in 1848. This can be ascertained by examining the floor in the Cole Sitting Room, Room 203.

The photograph above shows the floor in Room 203, the marks of a piece of furniture that was painted around during the earlier periods: the feet of this furniture piece sits on bare wood. It is likely that the painted floors began during the "Colonial Revival" period in the earlier twentieth century.

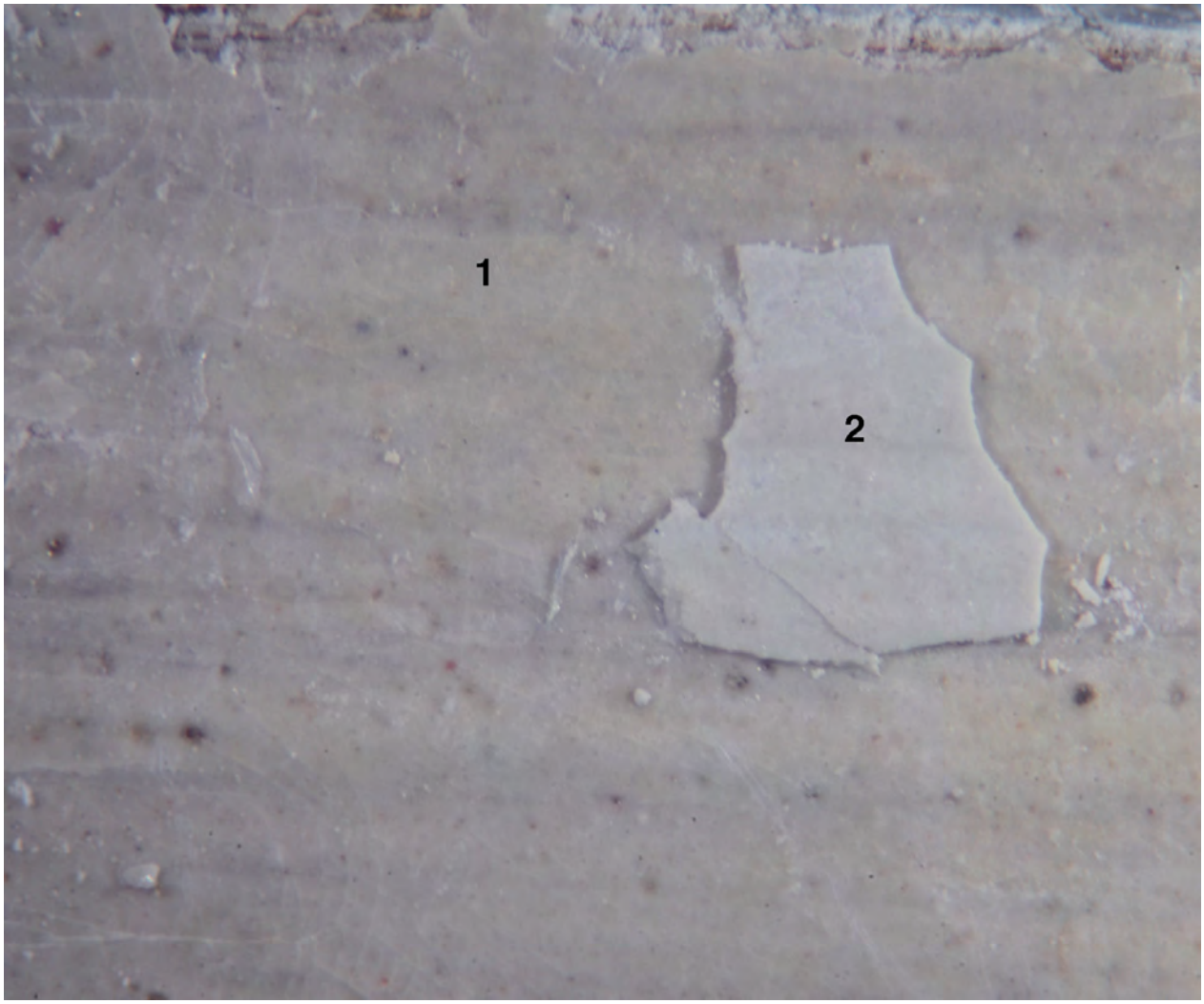
Sample 203-14: Floor Enamel

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering



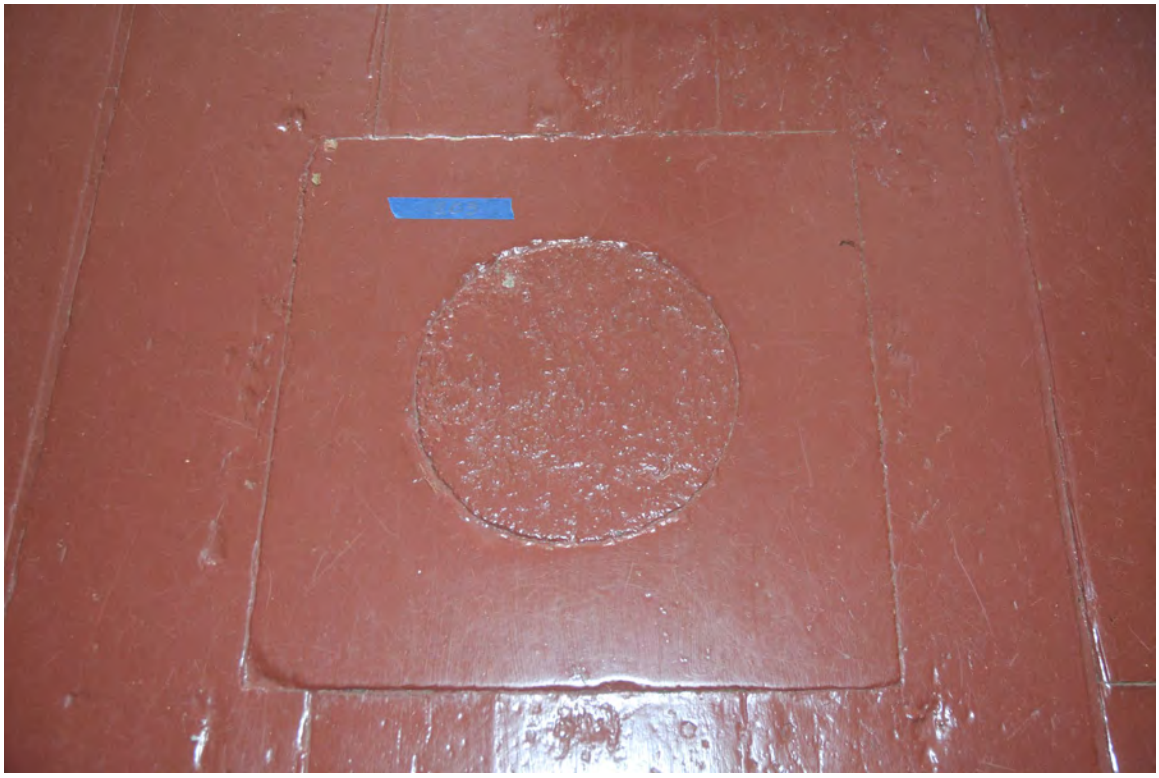
Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. While finishes 1-5 are prepared with lead components, all appear to date to after the Cole era: Room 203 was carpeted during the period, 1836-1848. The wood substrate is seen at the base of the sample. Note that the subsequent finishes are not well adhered and have delaminated, opening a void. The floor paint relating to layers 3, 4, and 5 are similar to the first two finishes in Room 204. A second void is visible. Modern floor finish enamels follow: layers 7 and 8 are matched to the first surviving red ochre finish enamel. At the earliest, these finishes would date to sometime after ca. 1884.

Sample 203-2: Door Frame, Door to Hall [detail]
Photomicrograph: Unmounted sample, Olympus SZ-1145 microscope, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering



Note: The sample is seen showing the finish surface of the sample. The paint layers have been removed, including most of the second finish. The first finish exposed shows the grain visible through the paint finish: this is due to chemical change in the paint that reduces the opacity of the lead white. The first finish [1] is clearly visible. The second finish, which is also made with lead white shows a slightly whiter and more opaque condition. This second finish will be restored, as it appears to date to the ca. 1836 period when Thomas Cole moved into the house.

Floor: Stone inset



Note: The stone inset, seen above, was originally unpainted: only twentieth century finishes are seen on the stone inset.

Restoration of Room 203: The Cole Sitting Room

The restoration of Room 203, the Cole Sitting Room will present the appearance during the Thomas Cole period, ca. 1836-1848. The second finish of the woodwork should be implemented.

Paint Sequence: Cole period finishes

Woodwork: all woodwork surfaces

Finish 2: ca. 1836: Cole period
White: Benjamin Moore OC-26 lead white Finish

Gloss level: Semi-gloss

The Ceiling:

The ceiling of Room 203 has been replaced, however, based on the examination of Room 204 and the Hall, 201 it is suggested that the ceiling of Room 203 should be painted to indicate lime whitewash:

Ceiling: Special Standard Lime white Gloss level: flat
Note: An actual lime finish may be used: the suggested lime material is: St. Astier "Natural" available from
LimeWorks.us
P.O. Box 151
Milford Square, Pennsylvania 18935
(p) 215-536-6706 (f) 215-536-2281

Walls:

The walls of Room 203 appear to have been papered. No paper fragments survive.

Floor: The floor would have been carpeted during the Thomas Cole period, in accord with the findings of Jean Dunbar, Historic Interiors Consultant. The stone inset would also have been unpainted.

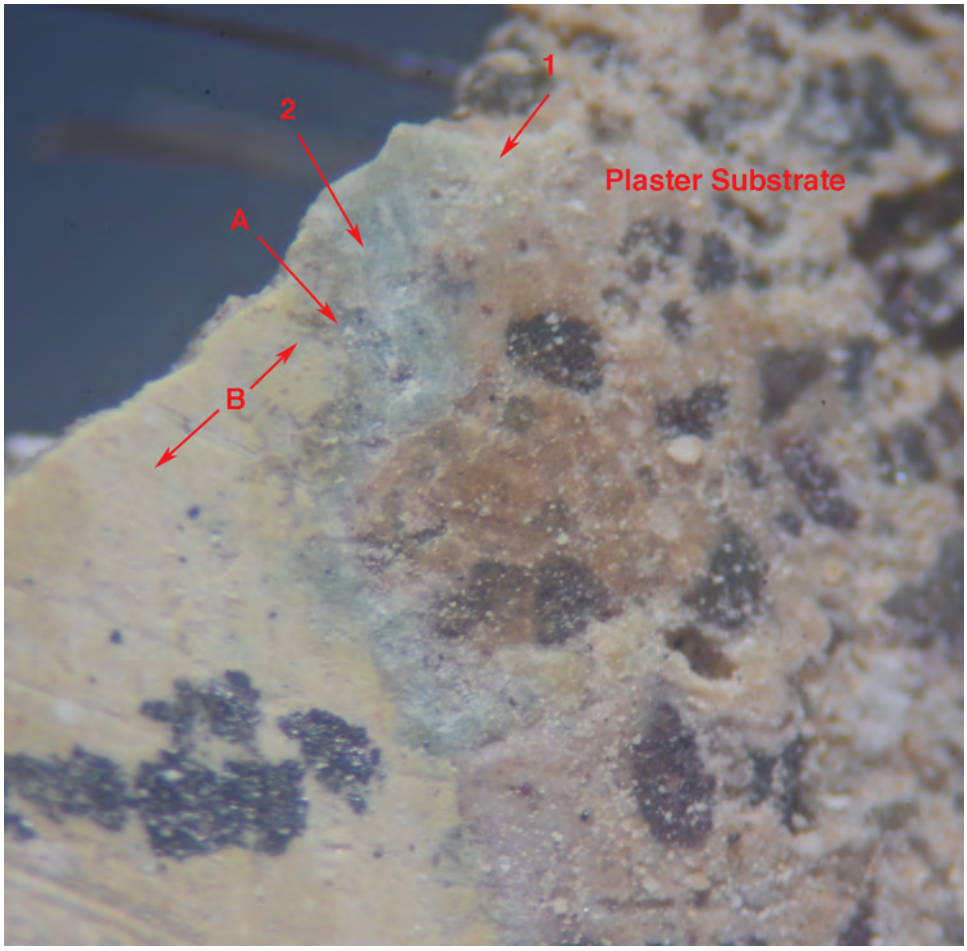
Room 204: The North Bedroom

Summary:

This small room indicated that not all of the rooms were wallpapered during the Thomson family period, prior to Thomas Cole's marriage to Maria Barstow. This room showed that lime whitewash finishes were used during the earliest period of the house. During the second application of the lime wash, the coating was tinted light blue using indigo.

The presence of these relatively friable coatings under later oil based paints made for poor adhesion of the oil paint, subject to removal by later scraping of the walls. Initial examination of the wall, with in situ magnification suggested that there was a light green line near the top of the wall. This was actually a fragment of the light blue lime coating that remained [Illustration 204-A].

Illustration 204-A

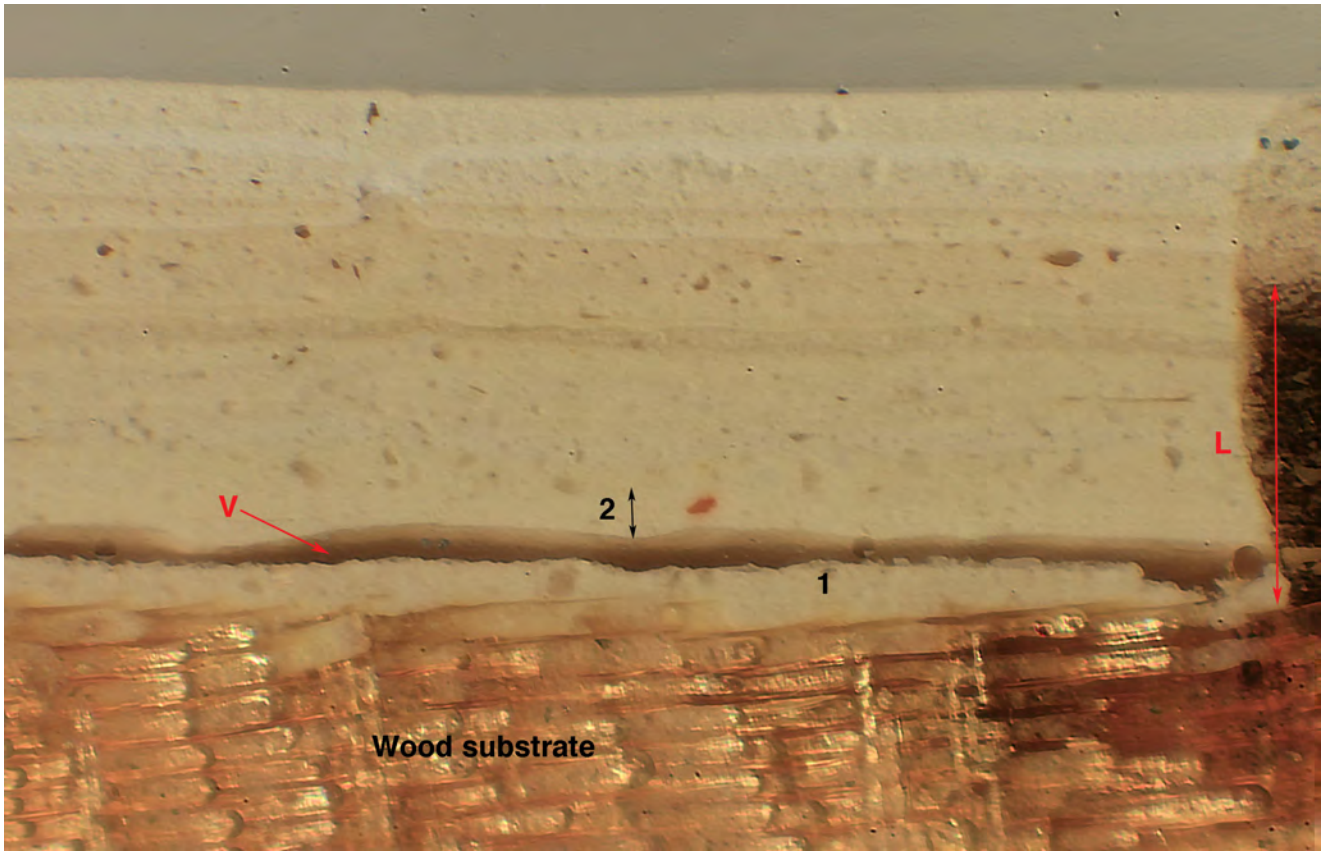


Note: The sample at the left is from approximately ¾" below the ceiling where the fragment of the light blue. The sand-plaster substrate is clearly seen and indicated. The first lime whitewash is visible [1], followed by the remarkable light blue lime wash [tinted with indigo]. The surface of the light blue has discolored, and has some surface particulate. The oil-based paint from the Thomas Cole period is not present. The light yellow finish, [B] may be from the extensive redecoration ca. 1884 or from the early twentieth century.

With the extensive removal of the wall and ceiling finishes because of the friable white wash, it appears that only the lower edges of the wall retain the Thomas Cole period finish. The woodwork shows the characteristic white finishes from construction to 1848.

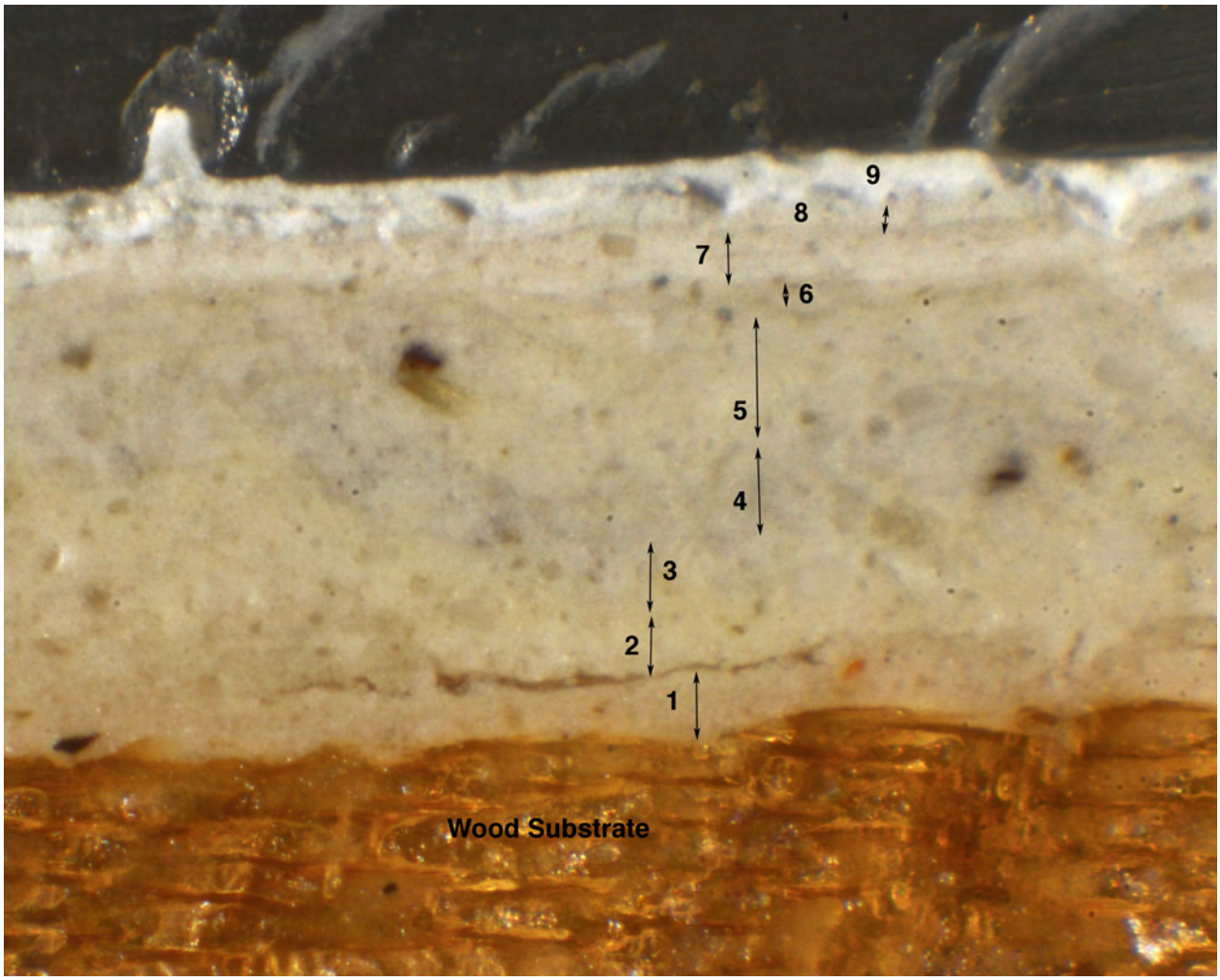
The ultraviolet light fluorescent microscopy view of the sample from the lower wall indicates that there is a thin layer of adhesive size following the lime whitewash layers. This is an interesting development: refer to Conclusion for Room 204.

Sample 204-1: Door Panel, Door to Room 101 Entrance Hall
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, (30x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: This sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The wood substrate is seen at the base of the sample as noted. The first finish, prepared with lead white is clearly seen: note the void that opened at the finish surface of the first finish [V]. This is followed by the second finish, also prepared with lead white: the second finish is believed to be that of the Cole period: ca. 1836. The later finishes are also visible: note the area that has been exposed to sodium sulfide solution at the right, which has blackened all of the lead white compounds. The use of lead appears to continue into the twentieth century.

Sample 204-2: Window frame, East Window [W 23]
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, (30x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.

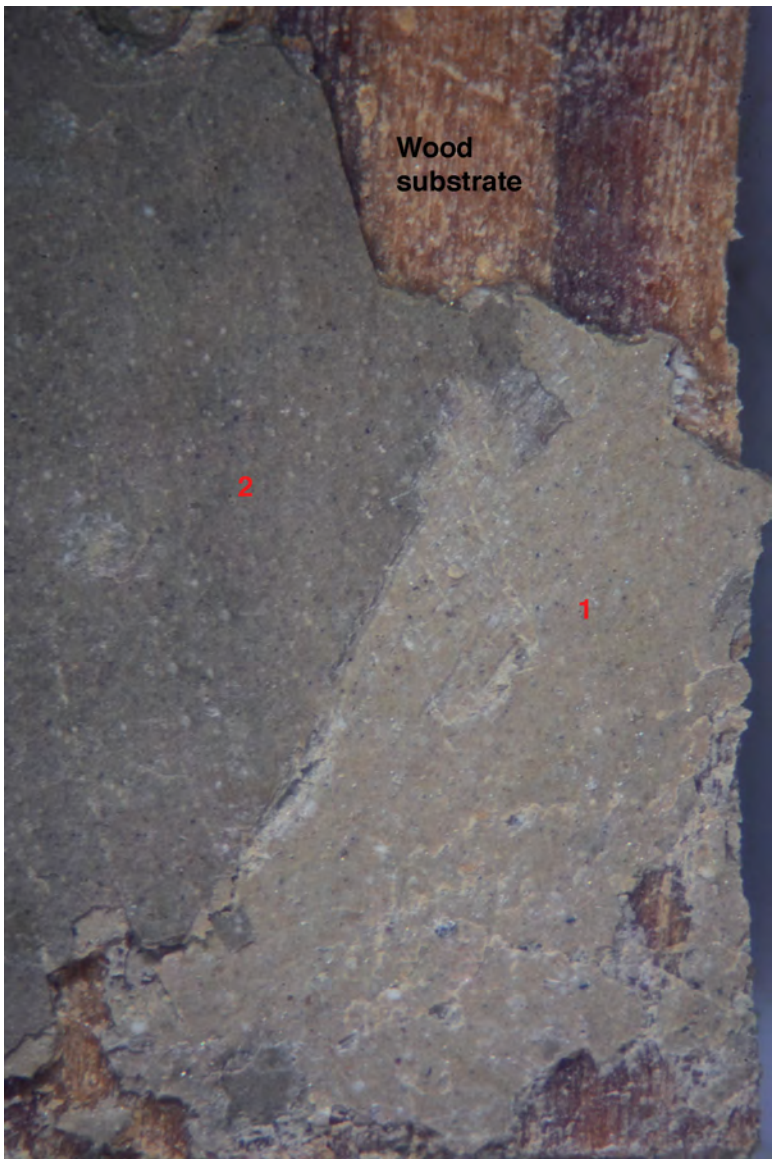


Note: This sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The wood substrate is seen at the base of the sample as noted. The first finish, prepared with lead white is clearly seen. This is followed by the second finish, also prepared with lead white: the second finish is believed to be from the Cole era, the redecoration of ca. 1836. The third finish probably dates to ca. 1884 following the death of Maria Barstow Cole. Later painting campaigns were carried out and a total of nine different finish periods appear on this sample.

Note: Samples from the following locations in Room 204 evinced the same paint layering as seen on: Sample 204-1: Door Panel, Door to Room 101 Entrance Hall, Sample 204-2: Window frame, East Window

Sample 204-3: Door, Rail and Stile
Sample 204-4: North Window frame [W22]
Sample 204-5: East Window, sash [Later finishes damaged on this sample]
Sample 204-6: Baseboard, fascia [mopboard]
Sample 204-7: Baseboard, molding
Sample 204-8: Plinth block, East Window frame

Sample 204-9: Floor Board: 2" from east wall, north of East window
Photomicrograph: Unmounted sample, Olympus SZ-1145 microscope, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering

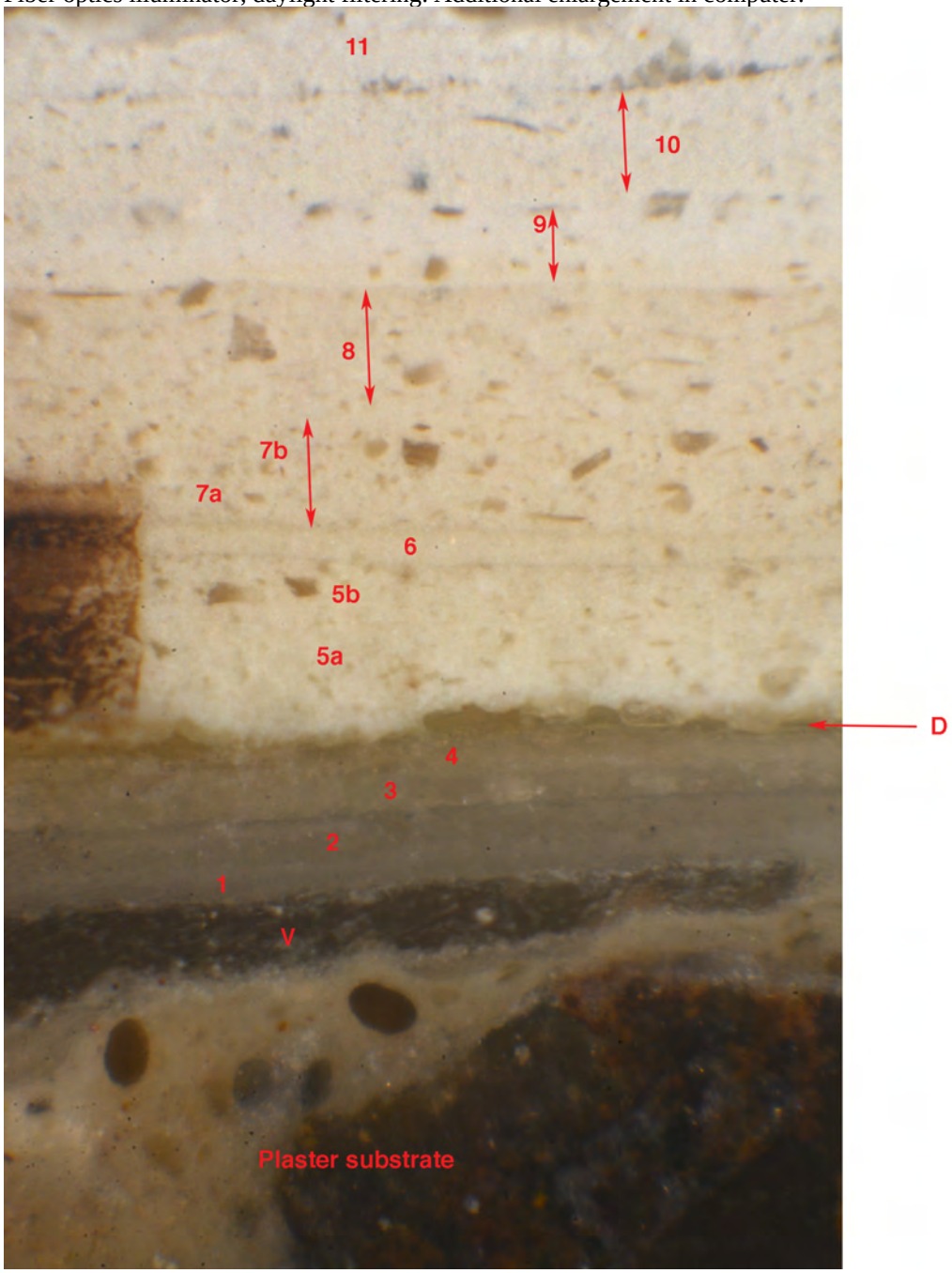


Note: During the historical period the floor of this room was carpeted, over the bare floor boards. The paint finishes, though prepared with lead compounds, date to after the historic period. Note that these finishes are contemporary with floor paint finishes 3, 4, and 5 in Room 203; these finishes are nearly certainly from the twentieth century.

Plaster Surfaces:

Sample 204-10: Ceiling 2" from the east wall

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, (30x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.

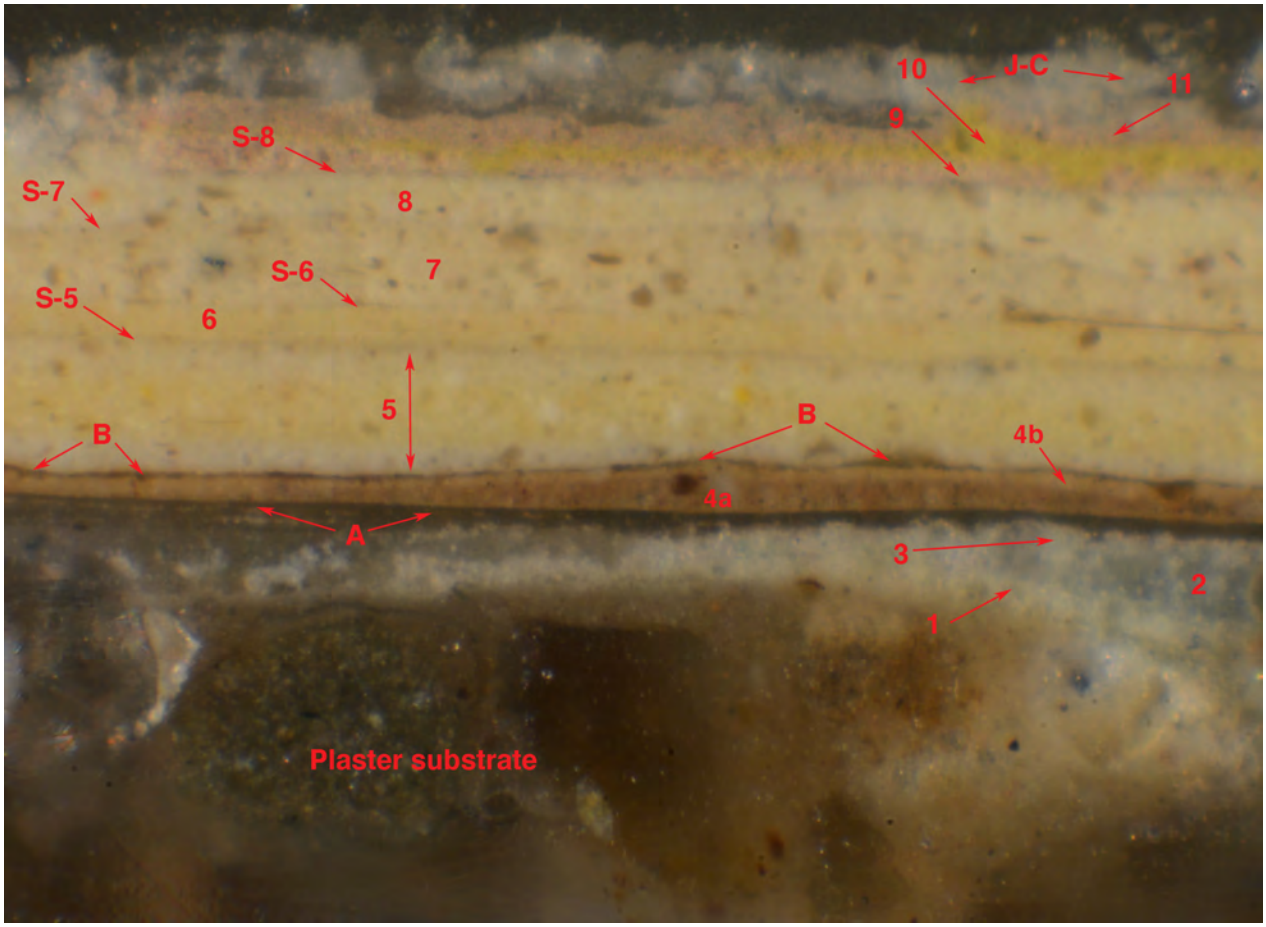


Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth. The plaster substrate is seen at the base of the sample and is indicated. There is a void separating the paint accumulation from the substrate [except for a few areas where the lime coating is still adhered to the substrate]. **The mounting medium has altered the appearance of the porous lime coatings.**

Layers 1-4 are lime whitewash coatings. There is a distinct delamination plane [D] observed where the lime whitewash coatings are followed by the oil based finishes. Note that there is also a glue size [adhesive] layer here, that may have been applied to stabilize the whitewash layers. It may also indicate the use of a ceiling paper. The fifth finish, 5 [5a, 5b] may be from ca. 1884 and the lime white finish 4 may be from the Cole period.

The heavy application of the fifth finish is not like the thin layers associated with the Cole period.

Sample 204-11: Wall plaster, at base of the East Wall
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, (30x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.

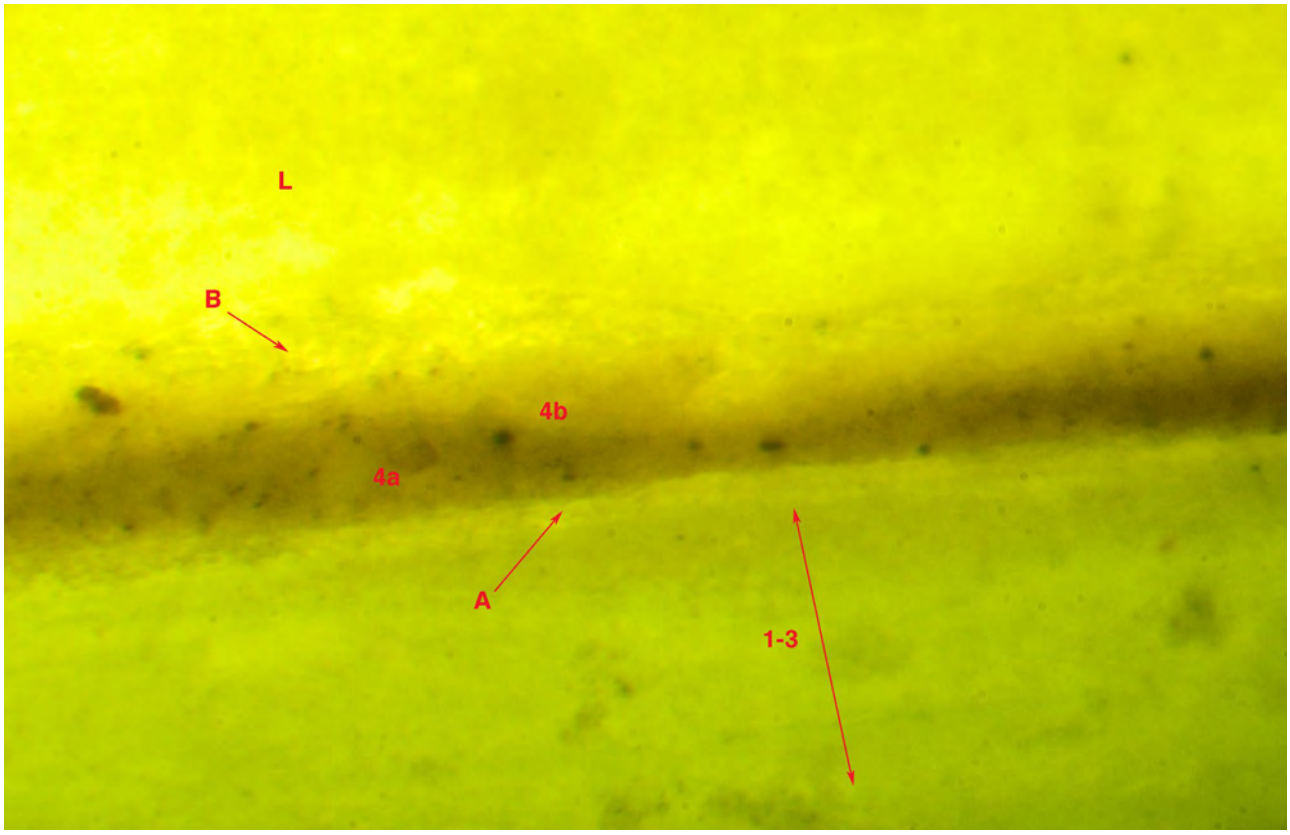


Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth. The plaster substrate is seen at the base of the sample and is indicated. The wall sample shows 3 lime coatings: note that the second, [2] is blue, tinted with indigo. The other lime coatings, 1 and 3 are white lime coatings. Note the thin adhesive layer [A] that may have been applied for the installation of wallpaper or may have been applied to stabilize the earlier lime coatings. If that is the case, it may be that the wallpaper was installed prior to ca. 1836.

The fourth finish [4a, 4b finish] may be the Cole period. This is a moderate grayish brown color: this color may be very significant [refer to: “The moderate grayish brown color of Room 204”] and would become very popular when brownstone becomes a principal building material. These colors, however, were very popular in the 1880’s. Of considerable importance, it the evidence of a second adhesive layer [water soluble] that follows the fourth finish. This indicates that the redecoration of Room 204 appears to have used wallpaper in ca. 1884 after the death of Maria Barstow Cole.

The yellow finish, [5] may be from the first half of the twentieth century. Note that the yellow finishes and light brown finishes are repeated. At the top of the sample are remnants of modern joint-compound [j-c] that was applied for the restoration in the year 2000.

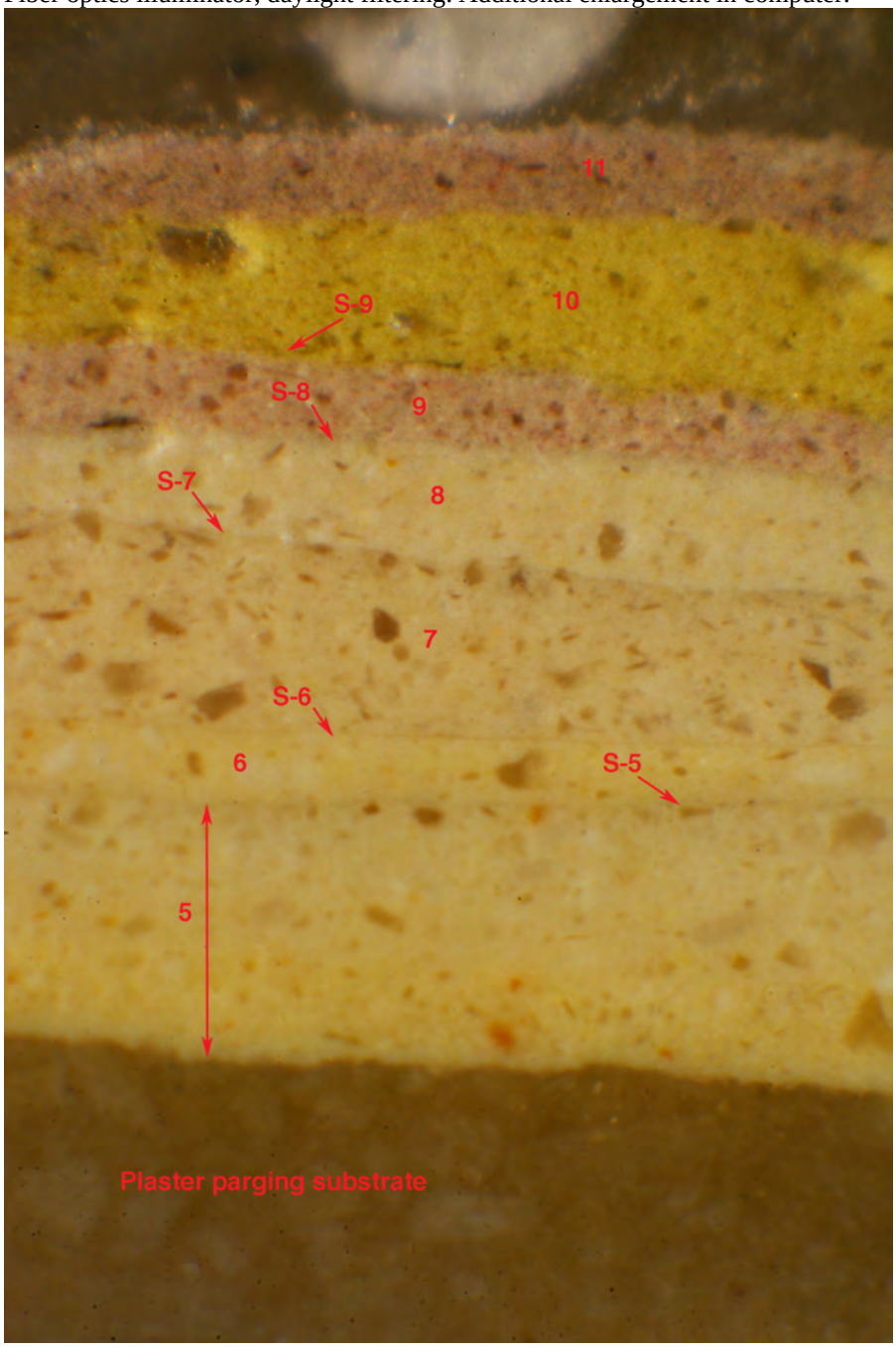
Sample 204-11: Wall plaster, at base of the East Wall
Photomicrograph: Unmounted sample, Olympus BMAX-50 polarized light microscope, with Nikon D70 digital camera body Lexar Media 1GB flash card. Ultraviolet light illumination, Olympus BX-FLA Reflected Light Fluorescence Attachment, U-MSWB B Excitation cube.



Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth. The plaster substrate is seen at the base of the sample and is indicated. The sample is viewed under ultraviolet light, as indicated. The initial lime coatings are clearly seen [1-3]. This is followed by the thin glue size that may have been applied as an adhesive for wallpaper, or as a stabilizing coating for the application of the oil based moderate brown finish [A]. The moderate grayish brown is clearly seen [4a, 4b]. The second layer of adhesive [B] is also visible.

Sample 204-12: Wall plaster, East Wall 4'-10" above floor

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, (30x total microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth. The plaster substrate is a white parging plaster that was applied for the redecoration ca. 1884. The sequence of finishes are numbered using the numbering from **Sample 204-11: Wall plaster, at base of the East Wall** and begins with the fifth finish is the overall sequence of paint finishes.

The sequence of finishes of Room 204: ca. 1815- early 20th Century

Plaster substrate [sand finish plaster, known to be used where wallpapers are the anticipated finish]

Ca. 1815
1. Lime whitewash first finish

2. Blue color: indigo tinted lime wash second finish

3. White lime whitewash third finish

4. Adhesive: glue size: for wallpaper ? [or possibly to stabilize the lime coatings in anticipation of the application of the oil based paint**, or possibly for wallpaper installation in 1836-1848**

5. Moderate-light brown oil base finish Cole: iron oxide pigment **[1836-1848]**

6. Adhesive: water soluble, indicating the installation of wallpaper post 1884

7. Light yellow paint finish: first half of the twentieth century.

Note: The appearance of adhesive following the lime coatings may indeed indicate wallpaper. The paper may have been installed before 1836 and retained after the Cole joined the family. Thus, it may be that the moderate grayish brown finish was applied later [ca. 1840?]

This room shows evidence for wallpapering following the Cole period. The sequence of later papers is clearly seen in the Attic spaces. Wallpaper was immensely popular from the late nineteenth century through the twentieth century. This places the light yellow in a later era, presumably the first half of the twentieth century.

The decisions for the wall treatment should be decided by the Curators and Interiors Consultant for the Thomas Cole NHS. The materials found do not provide a definitive answer.

Note: The moderate grayish brown wall color of Room 204

The wall color that has been found in Room 204 is prepared with an iron oxide pigment producing a color associated with the use of brownstone as a building material. Brownstone was becoming increasingly popular by 1840, and apparently was known to Thomas Cole. Cole was also capable as an architect, and would have known the latest trends in architecture as they appeared in New York City, which was clearly in the vanguard of style. The great arch that enframes the view of his famous painting "The Architect's Dream" of 1840 is painted as made of a brownstone, with a lighter brownish stone for the capital. The color for the walls of Room 204 is similar to both of these representations of stone.

Returning to the photomicrograph of the wall cross section, **Sample 204-11: Wall plaster, at base of the East Wall,** the fourth finish is prepared with two layers the first darker than the second, which is the finish color. The first layer is a near exact match to the darker brownstone color for the arch, seen at the left. It appears that Thomas Cole determined that the darker color was too dark for the room, and lightened the color. Both layers appear to have the same type of pigments.

Note also that wallpaper returned after the moderate grayish brown finish that would have been very common after 1884, the year of Maria Barstow Coles death.

Room 204: Restoration of the Cole period Finishes

Based on the examination of the finishes in Room 204 and the other Bedrooms, Room 203 and 205, the second finish on the woodwork may be considered the finish period that may be associated with Thomas Cole's period of occupancy, from 1836-1848. Because of the use of lime whitewash coatings during the Thomson period, which were renewed more frequently, the fourth finish period appears to be the finish color associated with Thomas Cole, particularly in view of its architectural association. The following finishes have been matched to the paint finishes surviving from that period.

Plaster Surfaces:

1. Ceiling: Special Standard Lime white Gloss level: flat
Note: An actual lime finish may be used: the suggested lime material is: St. Astier "Natural" available from
LimeWorks.us
P.O. Box 151
Milford Square, Pennsylvania 18935
(p) 215-536-6706 (f) 215-536-2281

2. Walls: The decisions for the wall treatment should be made by the Curators and Interiors Consultant for the Thomas Cole NHS. The materials found do not provide a definitive answer.

Wallpaper, as per glue size presence preceding the fourth finish
Or

Fourth finish:

Undercoat: Moderate brown Benjamin Moore 2097-40 ["Santa Fe tan"]
Finish: Moderate grayish brown Special Standard M-1/ sw6046 Gloss level: Eggshell

Note: The gloss level of the walls is based on the general decline of gloss in oil based paints, after about one year of exposure.

3. Woodwork: all woodwork elements:

White: Benjamin Moore OC-26 Gloss level: Semi-gloss

The woodwork finishes would have had some varnish component, and still retain some gloss even after nearly one-hundred and eighty years.

Scanning Electron Microscopy:
The Post-Cole period: Identification of the components of the light yellow paint layers

While the focus of attention in clearly the Cole period, it was hoped that additional examination of the following yellow paint finishes that play an important role on the interior of the house would provide a datable pigment, such as titanium dioxide white, first produced in ca. 1917.

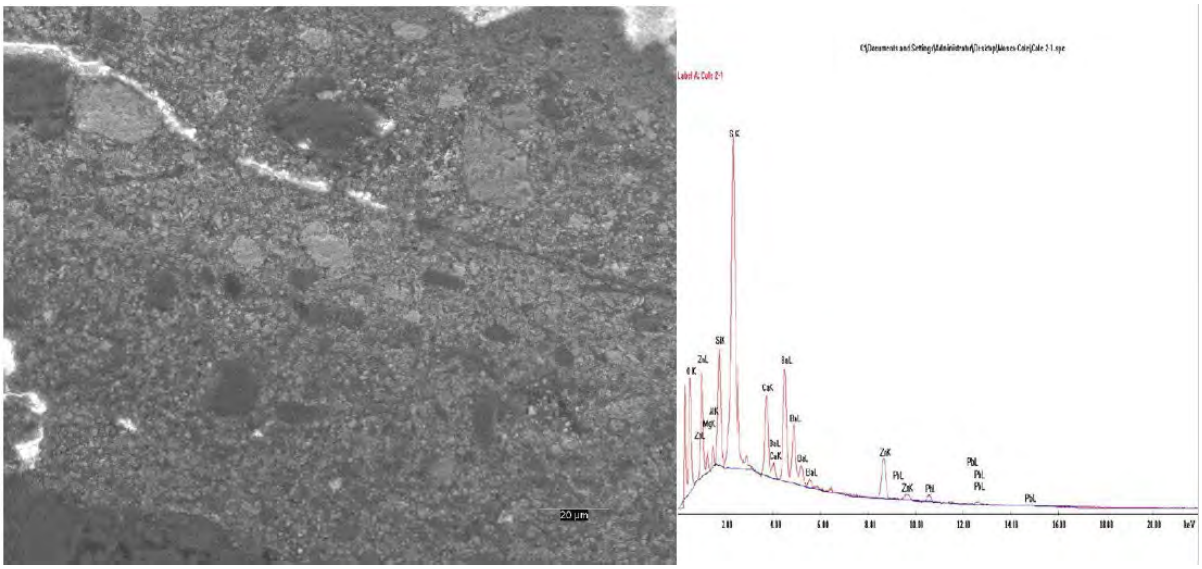
A mounted sample was sent for scanning electron microscopy that identified the pigments in the paint layer. The principal components were:

Oxygen: 17.12 % by weight
Sulfur: 16.75 % by weight
Barium: 26.12 % by weight
Zinc: 12.92% by weight
Lead: 13.31% by weight

This indicates Lithopone as the white pigment base. This pigment was first produced in ca. 1870, and became very significant in commercial production in the early twentieth century. Ms. Jean Dunbar, Historic Interiors Consultant, has pointed out that these light yellow colors are not normally associated with interiors of the ca. 1884 period: the period when the interior of Cedar Grove is believed to have been redecorated, following the death of Maria Barstow Cole. That lithopone is more associated with the early twentieth century supports Ms. Dunbar's thoughts that the lithopone based paint is later than ca. 1884.

Results of Scanning Electron Microscopy:

Sample 204-12: Wall plaster, East Wall 4'-10" above floor was sent to Dr. Carol Heckman, of the Electron Microscopy Core Facility [through Science Exchange], for identification of the elements of the paint material by Scanning Electron Microscopy. The results are indicated below.

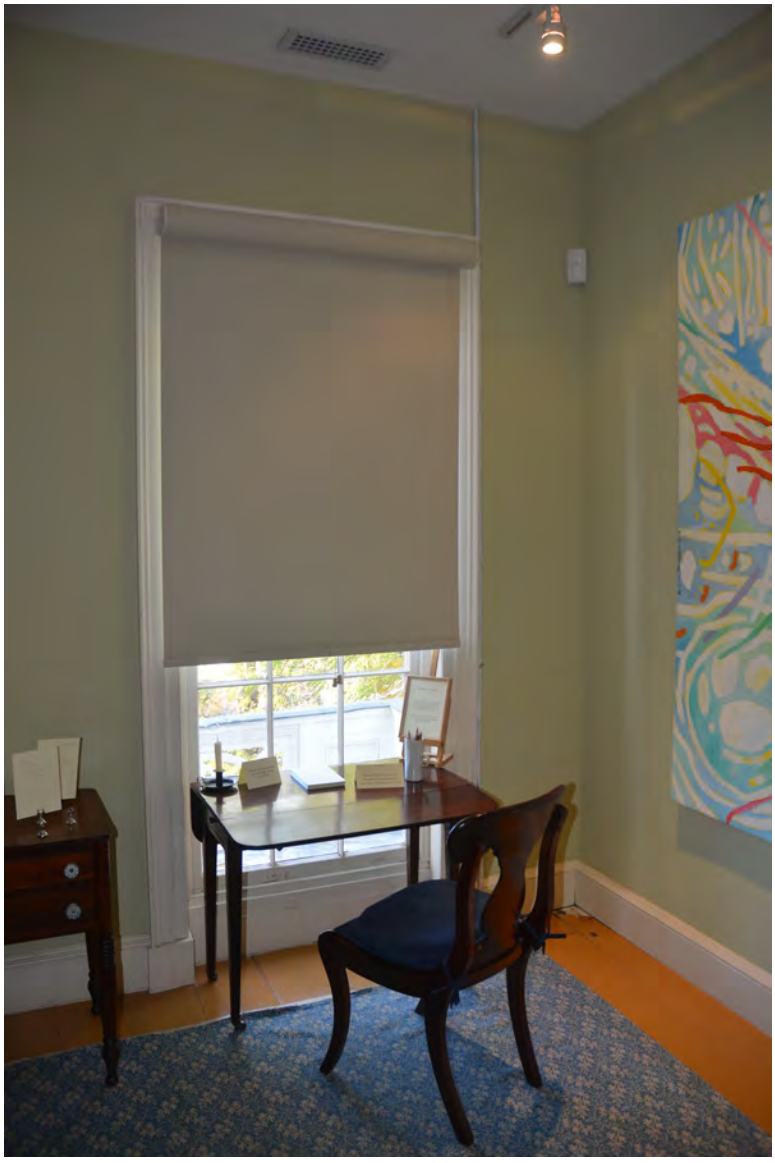


Elem	Wt %	Chem	K-Ratio	Z	A	F
O K	17.12	2.00	0.0438	1.1483	0.2228	1.0003
MgK	1.25	0.10	0.0042	1.1000	0.3027	1.0024
AlK	1.12	0.08	0.0047	1.0672	0.3908	1.0042
SiK	6.52	0.43	0.0359	1.0977	0.4999	1.0052
S K	16.75	0.98	0.1265	1.1134	0.6757	1.0036
CaK	4.89	0.23	0.0433	1.0780	0.8071	1.0167
BaL	26.12	0.36	0.2089	0.8283	0.9628	1.0026
ZnK	12.92	0.37	0.1228	0.9693	0.9696	1.0112
PbL	13.31	0.12	0.0972	0.7257	1.0070	1.0000
Total	100.00					

Note: The elemental identification is significant in that it indicates the presence of zinc and barium among the components along with a high percentage of sulfur. This indicates the presence of lithopone a white pigment composed of barium sulfate and zinc sulfide. Lithopone was first introduced in ca.1870 in England, however, it became very widely used for interior paints in the early twentieth century, reaching a peak of production in the 1920's. The yellow pigment appears to be a lead yellow: lead oxide.

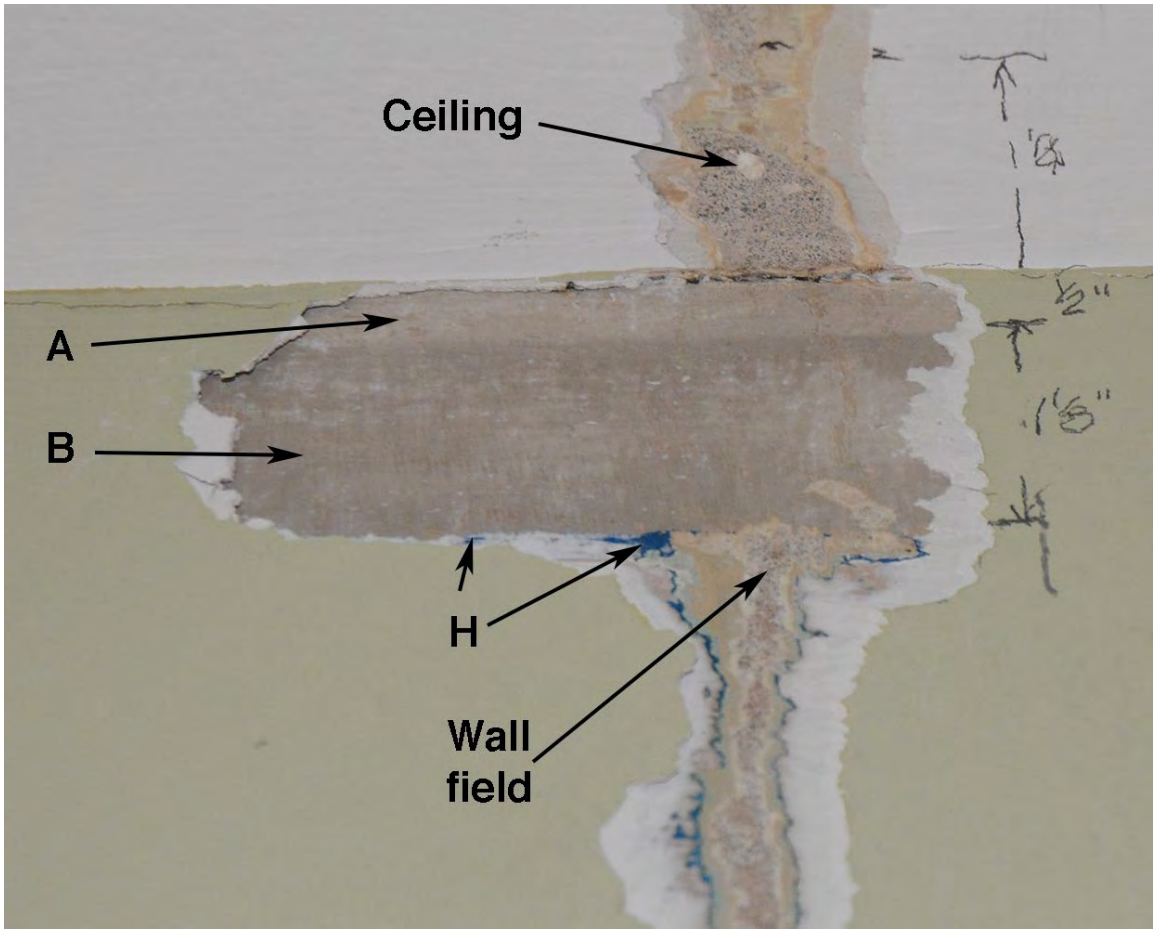
Room 205: The Children's Bedroom

This small room, which opens directly off of the Cole Sitting Room, Room 203. The room served as Cole's initial studio room. The room was



The examination of this room showed an interesting sequence on the walls. The sand-finish plaster would have been exposed for a period of time to cure and must have been uncoated. The first finish is a simple white lead paint finish that was exposed for a short period of time. There is a layer of glue adhesive on the surface, indicating wallpapering. This may be assumed to be during the pre-1836 period of the house. The wallpaper was then replaced with a painted finish, employing subtle warm gray finishes. There is a simple painted band found near the top of the wall during this period. This appears to be the painted finish for the Thomas Cole era at Cedar Grove, 1836-1848.

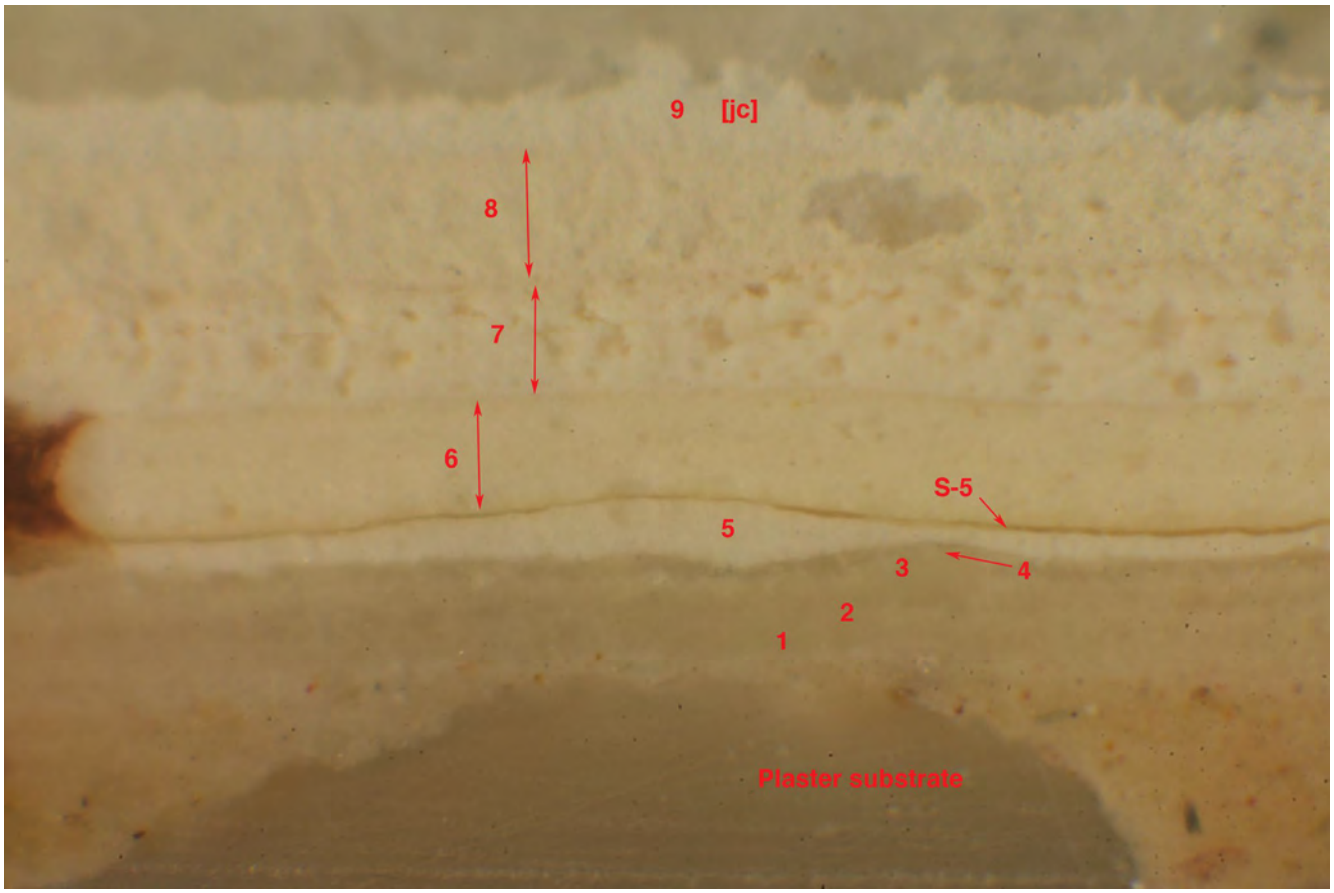
The room shows a painted band at the top of the wall which appears to be from the Cole period: ca. 1836-1848.



A large exposure was uncovered in this room, disclosing the Cole period finish. The ½" band, A, is the basic wall color which is articulated with a simple painted band, B, 1 1/8" in width. The color is a light brownish gray. Note that the later wall finishes retained exposure of this band: the deep blue finish, H, seen at the edge of the light brownish gray band does not continue up to the ceiling, nor do the later finishes Only after the re-parging with joint compound, [Restoration in the year 2000] does the band B get buried and over-coated. Much like the other rooms, the woodwork appears to have been painted with lead white finishes during the historic period.

Plaster Surfaces:

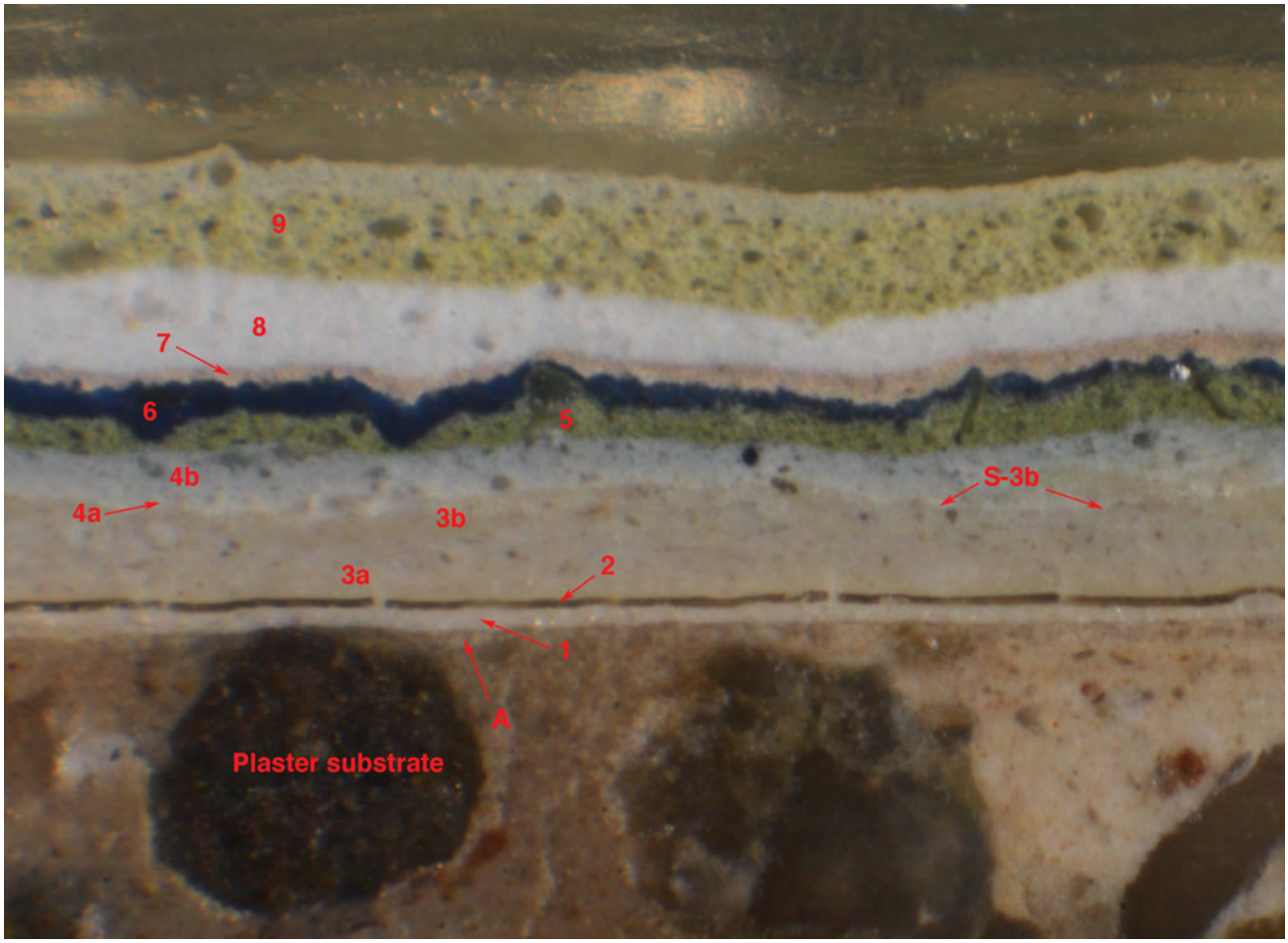
Sample 205-1: Ceiling
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, [100x total microscopic magnification] with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in the computer.



Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The plaster substrate is seen at the base of the sample. The first four layers are lime white applications: these are smooth lime coatings, however, they appear translucent due to the mounting medium. The last of the lime white applications may indicate the Cole period. Finishes 5 and 6 are oil bound paints, prepared with lead white pigment. Finishes 7 and 8 are relatively new: they are twentieth century finishes prepared with titanium dioxide white pigment, the principal white pigment used today. Layer 9 is actually joint compound, applied ca. 2000 for the restoration at that time.

Sample 205-2: Wall [south wall, west of Door to Room 203

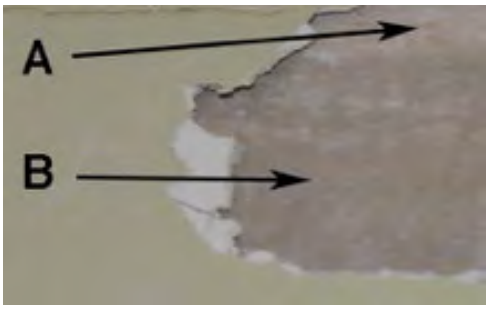
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, [100x total microscopic magnification] with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in the computer.



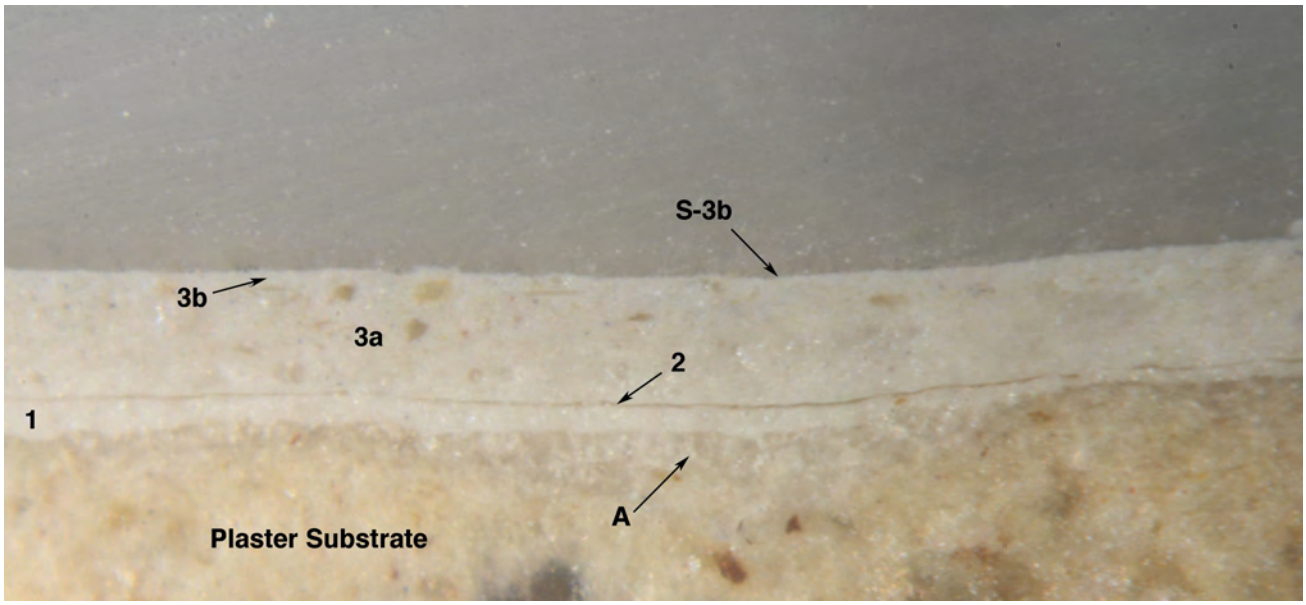
Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The plaster substrate is seen at the base of the sample and is indicated. On the surface of the plaster there is a thin application of an adhesive that probably indicates the use of wallpaper during the early period, 1815-1836 [A]. The remnants of the adhesive are better shown in subsequent photomicrographs [Refer to Sample 205-3, Location A]. The first layer [1] is a lead white layer, which is covered with a natural clear resin coating [2]. The purpose of this coating is not known, however, it would have made the surface glossy. Layers 3a and 3b are prepared with lead white pigment, with tinting pigments [natural ochres, carbon black]. The finish surface S-3b appears to be the Cole period finish, which was exposed.

Following the Cole period, there is a thin white [lead white] undercoat and a light blue finish coat [4b]: this may be from the twentieth century. Finishes 4b through 9 all appear to contain titanium dioxide white and are thus twentieth century.

Sample 205-3: Wall above Door to 203, Location A



Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, [100x total microscopic magnification] with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in the computer.

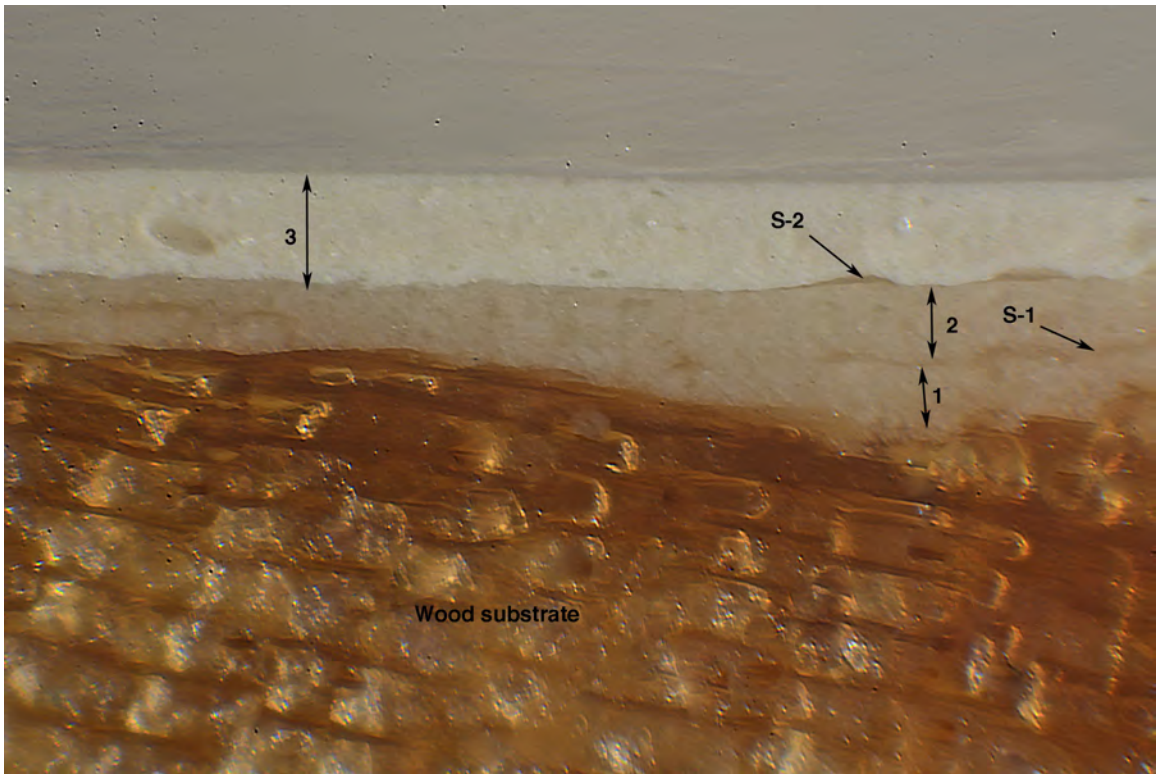


Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. This sample has had the post Cole era finishes removed. The plaster substrate is seen at the base of the sample. The thin remnant of adhesive is seen retained in a slight depression of the substrate [A]. The first layer is a lead white layer [1], which is covered with a very thin clear resin [2]. The layers 3a and 3b are lead white based and appear to be the Cole period applications. As indicated in the location illustration above, the surface of the wall has the grayish brown band on the surface [B].

Woodwork samples:

Sample 205-1: Door, Panel

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, [100x total microscopic magnification] with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in the computer.

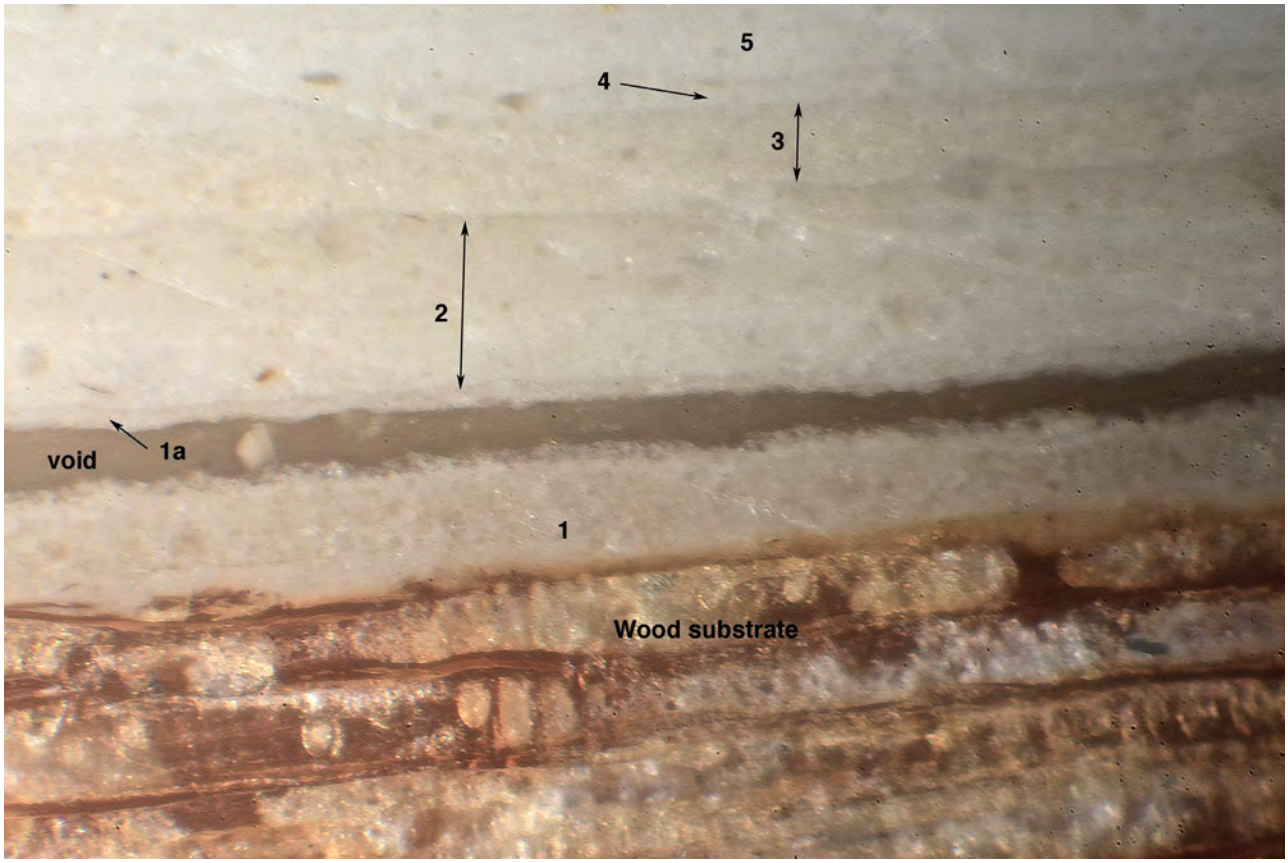


Note: The sample has been mounted in polymer resin, cut and polished to 10,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen at the base of the sample. There are three finishes observed. The first finish [1] is a lead white finish, note the finish surface [S-1] that is clearly seen. The second finish [2] is also seen: also prepared with lead white. The second finish S-2 is also visible. The last in the sequence is a twentieth century white finish, prepared with titanium dioxide white [3].

The relatively few layers seen on this sample is due to the extensive scraping or removal at the time of the third finish, which, may be ca. 1884 or post, following the concept that the redecoration of the house following Cole's death in 1848 did not happen until after Maria Barstow Cole's death in 1884. Some other samples showed far more finishes.

Sample: 205-2 : Door Frame

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective, [100x total microscopic magnification] with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in the computer.

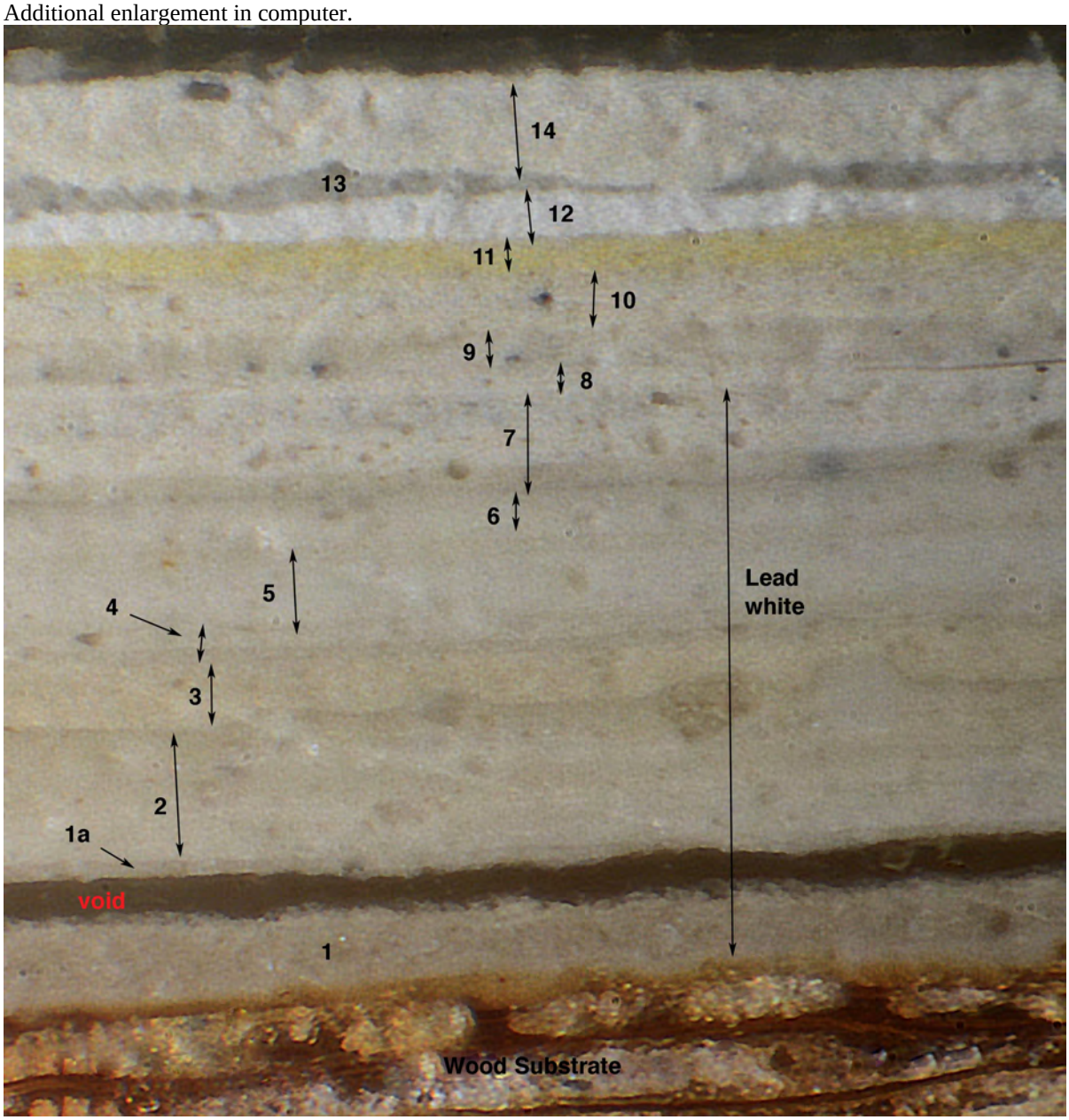


Note: The sample has been mounted in polymer resin, cut and polished to 8000 micron grit polishing cloth for additional examination. The wood substrate is seen at the base of the sample, as indicated. The first finish [1] is prepared with a lead white pigment. There is an additional coating that followed shortly after [1a] also made with lead white. Finish 2 appears to be the Cole period finish, created with three layers. The third finish may be from the Cole period as well. The later layers probably date to the post-Cole period. Layers 1-

Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen at the base of the sample. This sample shows a sequence of fourteen paint finishes. The first finish [1] is a lead white finish, note the finish 1a that appears to be a repair to the surface. Finish 2, which is most likely the Cole finish period 1836-1848 is clearly seen: it is built up, using three layers. Finishes 1- FILL IN are lead white based finishes.

Sample 205-3: Window Sash

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering. Additional enlargement in computer.



Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen at the base of the sample. This sample shows a sequence of fourteen paint finishes. The first finish [1] is a lead white finish, note the finish 1a that appears to be a repair to the surface. Finish 2, which is most likely the Cole finish period 1836-1848 is clearly seen: it is built up, using three layers. Finishes 1- 7 are lead white based finishes.

Note: The same historic paint finishes were found on the following samples:

Sample 205-4: Window frame
Sample 205-5: Window Frame, plinth block
Sample 205-6: Baseboard
Sample 205-7: Baseboard, molding
Sample 205-8: Window Sash
Sample 205-9: Door frame, plinth block

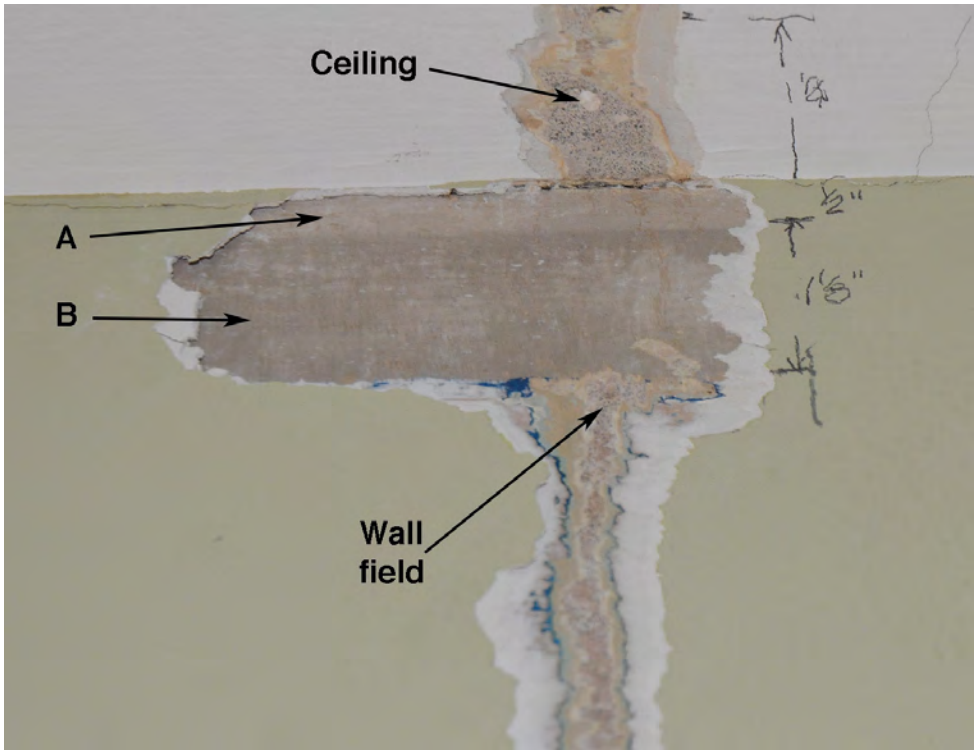
Restoration of Room 205

Conservation:

The discovery of the banding at the top of the wall suggests that it would be justified to explore for additional banding, possibly at the base of the wall, near the baseboard. There is no precedent for this, but is advisable.

In situ color matching: the Walls

This room provides a possibility of using in situ matching of the color, as was done for the West and East Parlor friezes. It is advised that this be done for Room 205. The exposed banding is in good condition in terms of color.



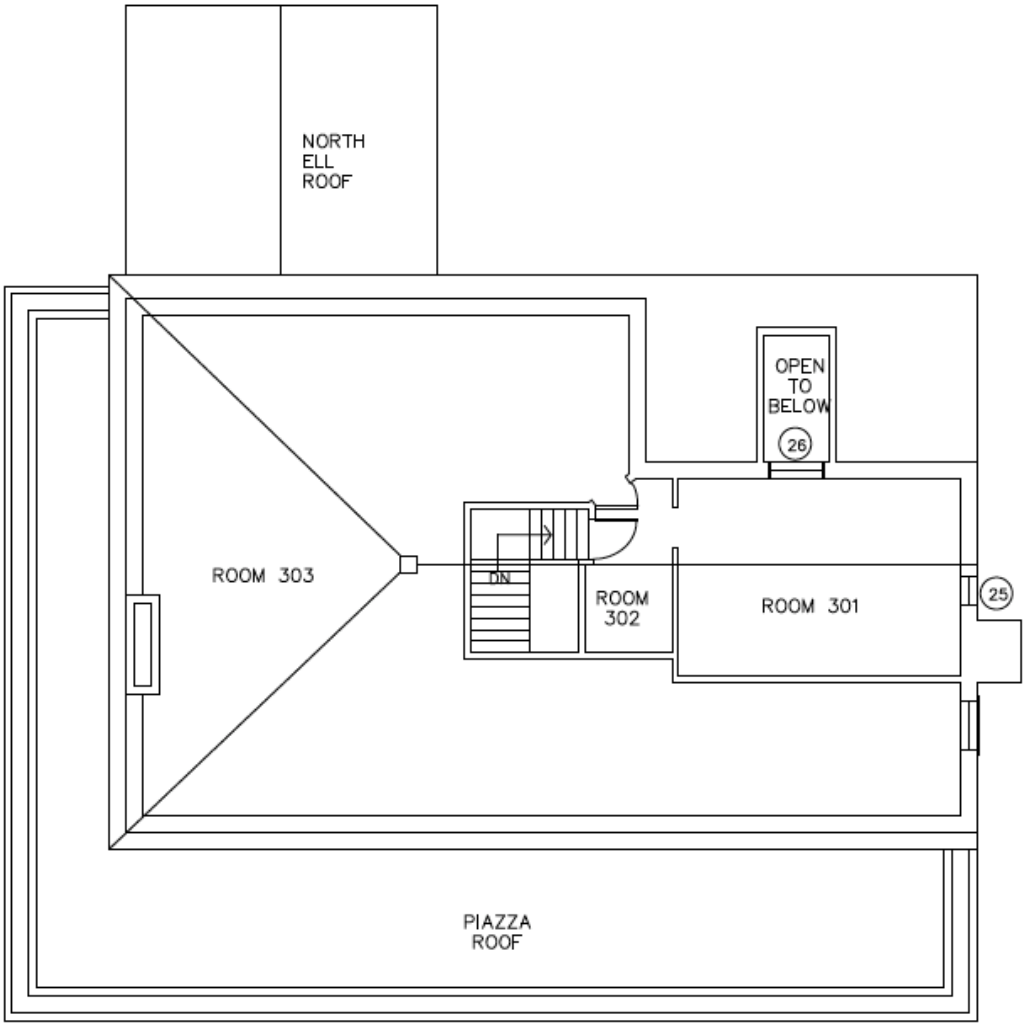
Plaster Surfaces:

2. Ceiling: Special Standard Lime white Gloss level: flat
Note: An actual lime finish may be used: the suggested lime material is: St. Astier “Natural” available from
LimeWorks.us
P.O. Box 151
Milford Square, Pennsylvania 18935
(p) 215-536-6706 (f) 215-536-2281

3. Woodwork: all woodwork elements:

White: Benjamin Moore OC-26 Gloss level: Semi-gloss The woodwork finishes would have had some varnish component, and still retain some gloss even after nearly one-hundred and eighty years.

Third Floor Plan:



B/2 3RD FLOOR PLAN
SCALE: 3/16" = 1'-0"

Attic Rooms: Attic Room 301 and Antechamber to Attic Room, Room 302

Summary:

The configuration of these two rooms, as indicated on the floor plan of the preceding page, appears to date to the construction of the house: the earlier board wall separating the two rooms may be perceived under the twentieth century renovations. Note the site photograph below:

The access opening for the new wiring discloses the original vertical board wall underneath the present wall [A] and that it is covered with a late wallpaper, made with pulp paper that has turned brown over time due to the acid content of the paper [B], augmented by contact with the wood. The present wall, C, encases the earlier wall: the detailing of this partition is characteristic of the rooms. The nails [D] are wire nails, indicative of later construction.

Indeed, both spaces appear to have been originally treated in a very simple manner with whitewashed plaster surfaces and unpainted board walls. The antechamber Room, 302 shows the sequence of "finishes":

Room 302 Illustration: South wall

Note: The earliest condition would be the unpainted vertical boards that have turned brown over time from the natural tannins. There is a curious mesh that was mounted on the boards [leaving an approximately 6" gap from the ceiling!] in preparation for the wallpapers [B]. There is a series of wallpapers, all appear to be from the later nineteenth century [C] followed by paint [D]. The canted ceiling is plaster and would have been whitewashed occasionally; it is now covered with paper that has been painted over.

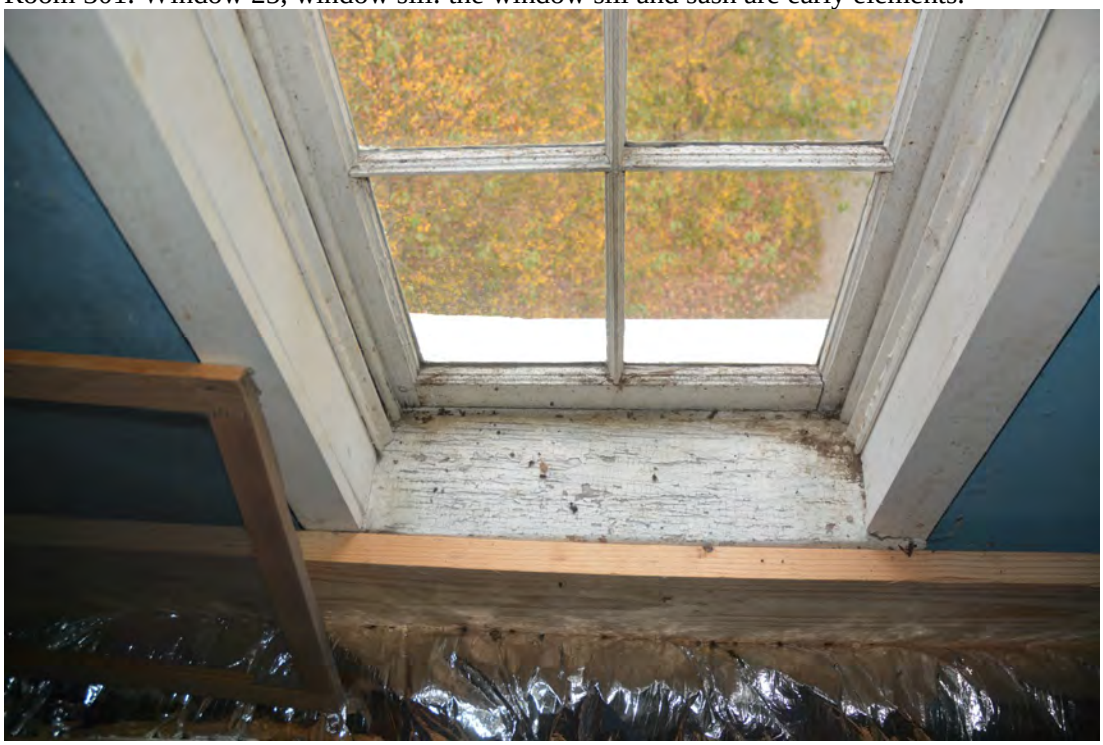
302: Door to the Attic [storage]

Note: The door to the attic storage was never painted or treated, and indicates the darkening of the wood is natural; the room side would have been the same during the Cole period.

301:General view

The canted ceiling is plaster with lime whitewash layers; it has been papered over.

Room 301: Window 25, window sill: the window sill and sash are early elements.



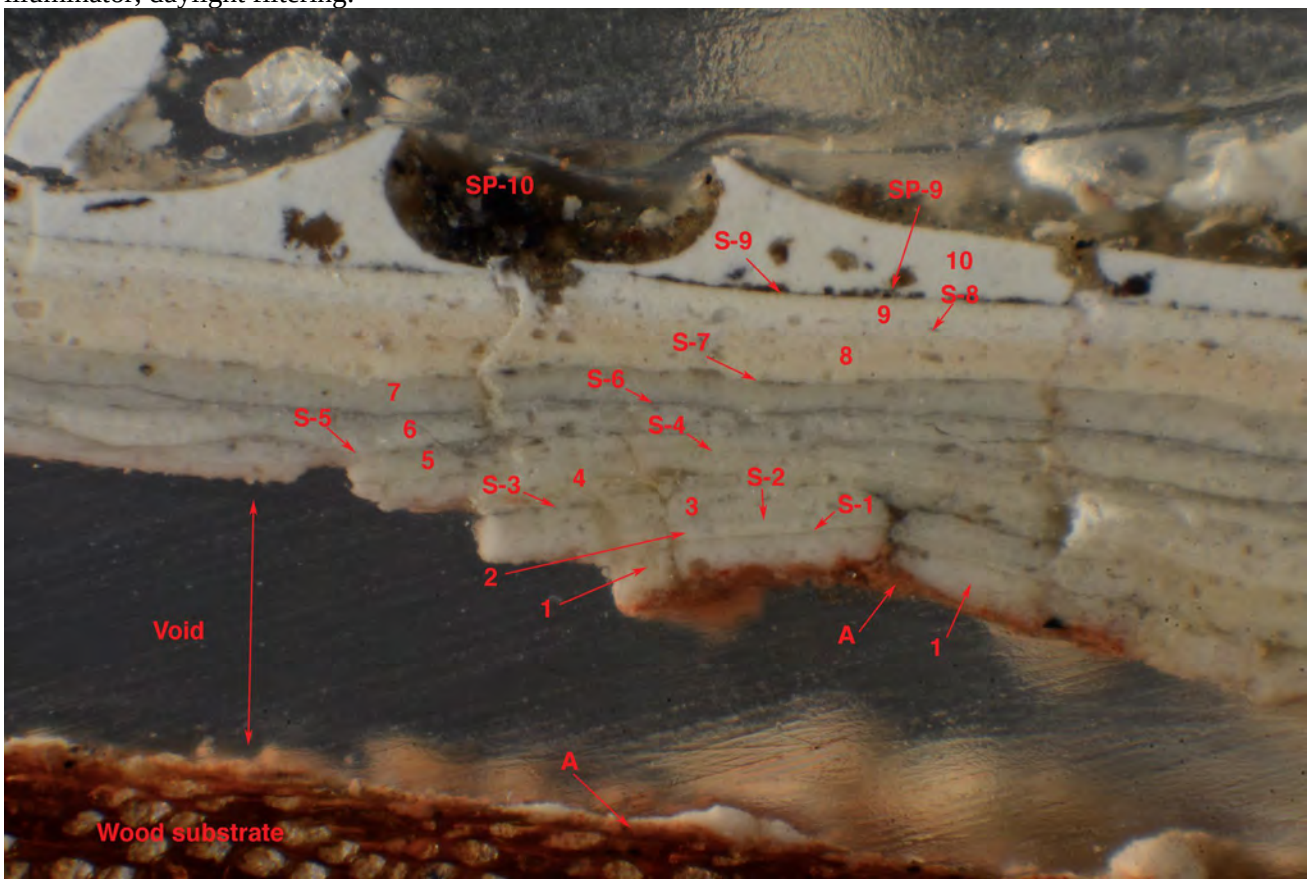
The examination of samples was also undertaken with the concept of providing relative dating information, if possible by the comparison of the paint finishes on the floor and baseboards at the east end and west end of Room 301. It was hoped that some record of the changes made to the east elevation chimney might be disclosed.

Room 301: Sample List:

Sample 301-1: East wall, Window W 25: Window sill
Sample 301-2: East wall, Window W 25: Window sash
Sample 301-3: North wall, Window 26, Sash
Sample 301-4: West wall, Baseboard
Sample 301-5: East wall, Baseboard: Near South-east Corner
Sample 301-6: East wall, Window frame of Window 25
Sample 301-7: North Wall, Window frame of Window 26
Sample 301-8: Door frame, doorway to 302
Sample 301-9: West end of floor, near west wall
Sample 301-10: East end of floor, near east wall
Sample 301-11: Plaster surface: Canted ceiling

Room 301:

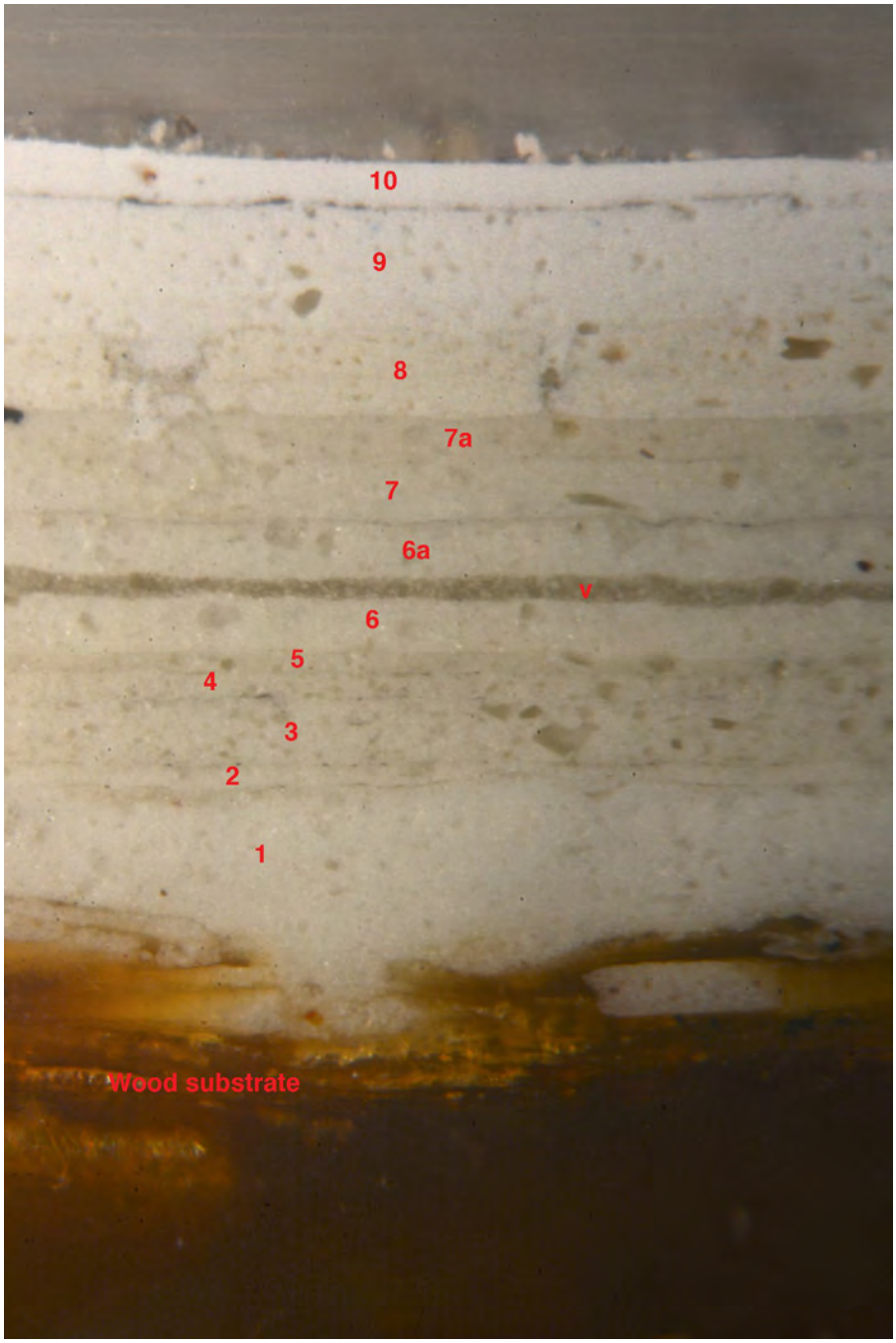
Sample 301-1: East wall, Window W 25: Window sill
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering.



Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen at the base of the sample. Note that this is one of the rare areas where a red ochre primer was used [A] under the original finish, which is a lead white [1]. The second finish [2] may be the finish of the Cole era, that is also prepared with a lead white pigment [2]. Note the sequence of lead white finishes, separated by distinct surface particulate accumulations on the surface of the paint layers. The surfaces are noted [S-1 through S-10]. The heavy surface particulate is particularly seen on finishes 9 and 10 [SP-9 and SP-10].

Finishes 1-7 were prepared with lead white pigment.

Sample 301-2: East wall, Window W 25: Window sash
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering.



Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen at the base of the sample. Unlike the sill, there is no initial red ochre primer. The first finish [1] appears to date to construction. The second finish may date to the Cole period. The paint sequence is essentially the same as that seen on **Sample 301-1: East wall, Window W 25: Window sill:** except that there are two additional "touch up" applications: 6a, and 7a. Finishes 1 through 7a are lead based finishes.

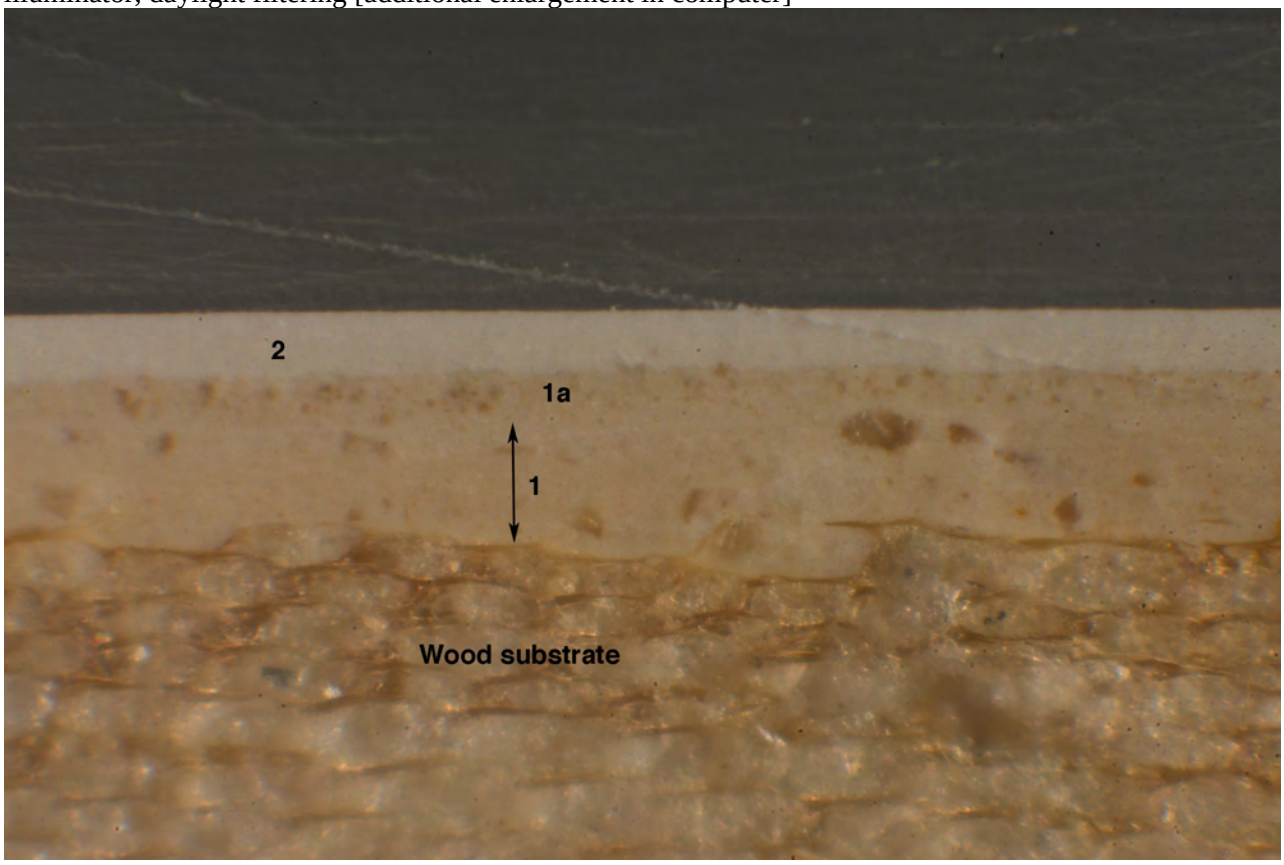
The last three finishes are from the twentieth century: finish 8 contains titanium dioxide white, first introduced in 1917.

Note: The same paint finishes were found on the following samples:

Sample 301-3: North wall, Window 26, Sash

Sample 302-3: Door frame: Door to the Stair case

Comparison of West and East Baseboards
Sample 301-4: West wall, Baseboard
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering [additional enlargement in computer]



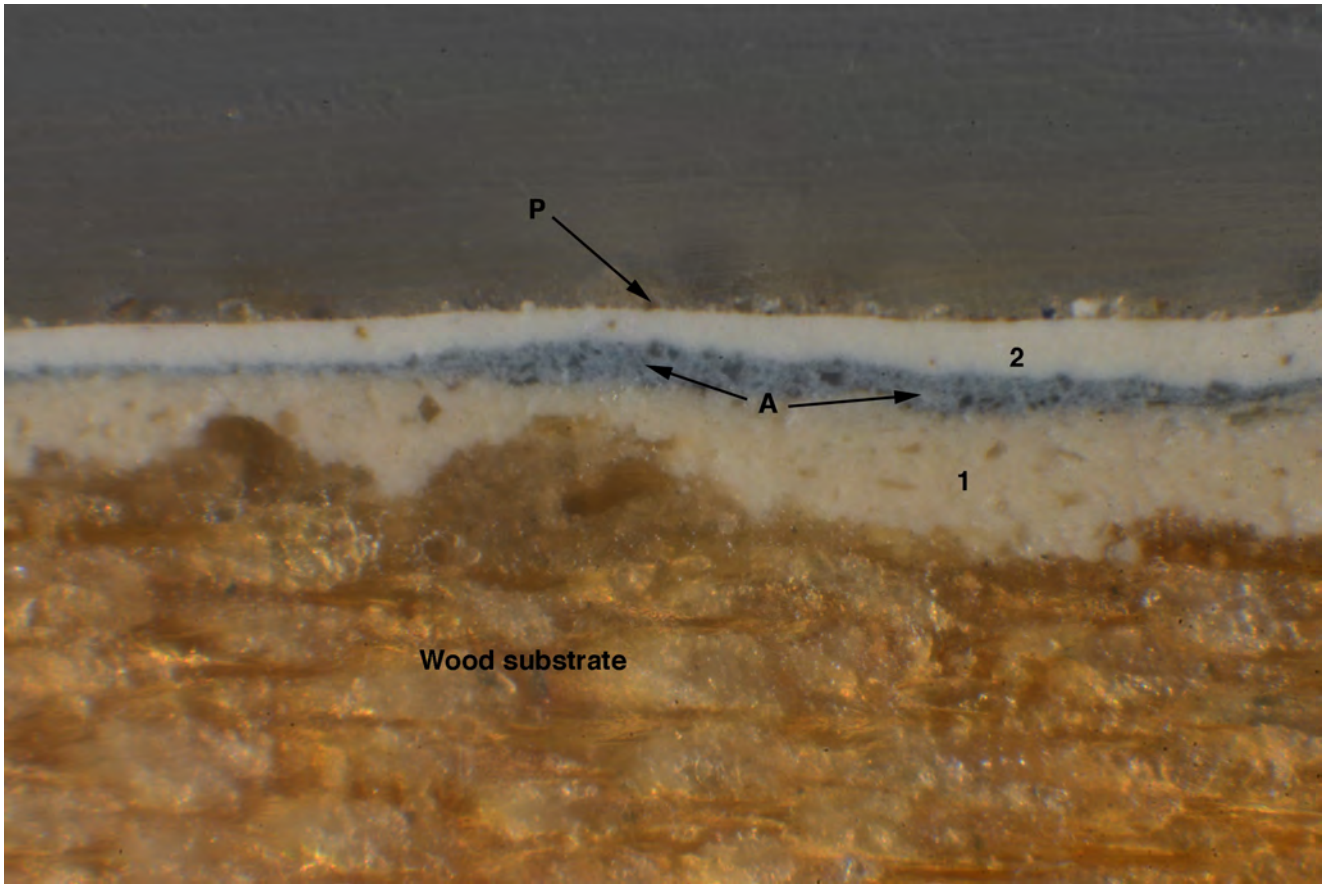
Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen at the base of the sample: note that the wood retains a white coloration. The first finish [1] is prepared with titanium dioxide white, indicating that the baseboard dates to the twentieth century. There is a "touch up layer" [1a] that was applied at a later date. The second white finish [2] is the last finish on this sample.

These layers would coincide with the Finishes 8 and 10 of Sample 301-2: East wall, Window W 25: Window sash

Note: the same paint layering was observed on the following samples:

Sample 301-6: East wall, Window frame of Window 25
Sample 301-7: North Wall, Window frame of Window 26
Sample 301-8: Door frame, doorway to 302

Sample 301-5: East wall, Baseboard: Near South-east Corner
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering [additional enlargement in computer]

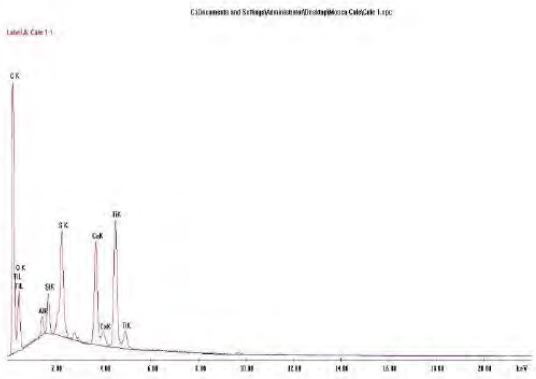


Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen at the base of the sample. The first finish [1] is prepared with titanium dioxide white, indicating that the baseboard dates to the twentieth century. The blue layer [A] is the blue from the adjacent wall that may have been applied in error to this return of the baseboard woodwork. The second white finish [2] is the last finish on this sample.

Finish 1 would coincide with the Finish 8 of Sample 301-2: East wall, Window W 25: Window sash.

Note: Comparisons indicate that the baseboards are contemporary and both date to the twentieth century since the first finish contains titanium dioxide white, which was not available until ca. 1917.

Results of Scanning Electron Microscopy:
Sample 301-4: West wall, Baseboard



Layer 1 Box indicates area of spectrum

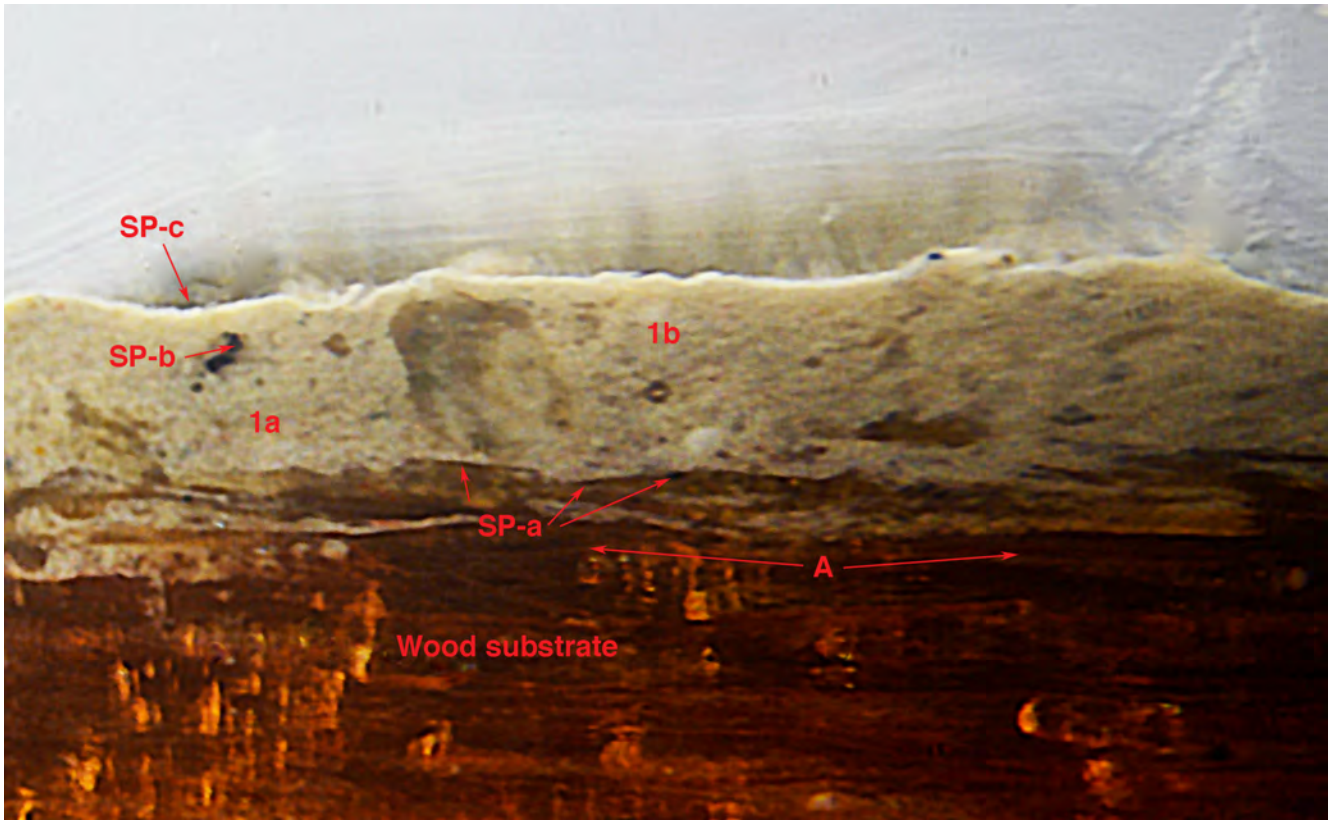
Elem	Wt %	Chem K-Ratio	Z	A	F
C K	63.56	12.02 0.2457	1.0265	0.3765	1.0002
O K	14.08	2.00 0.0189	1.0093	0.1326	1.0001
AlK	0.67	0.06 0.0047	0.9403	0.7325	1.0029
SiK	1.39	0.11 0.0113	0.9678	0.8376	1.0044
S K	4.18	0.30 0.0382	0.9492	0.9557	1.0072
CaK	5.71	0.32 0.0556	0.9379	1.0120	1.0253
TiK	10.41	0.49 0.0893	0.8564	1.0016	1.0000
Total	100.00				

Note: The most significant element identified in the spectrum examined is titanium. For this project, the presence of titanium is a clearly datable reference point: titanium dioxide white was first available in ca. 1917, and was not in common commercial use until some years thereafter. The presence of calcium [5.71 wt%] and sulfur [4.18 wt%] indicates a commercial product for house painting.[3]

[3] Gettens and Stout: *Painting Materials,* 1942, D. Van Nostrand Company, Inc 1966 reprint, Dover Publications, New York, New York: page 161

Comparison of samples from the Floor

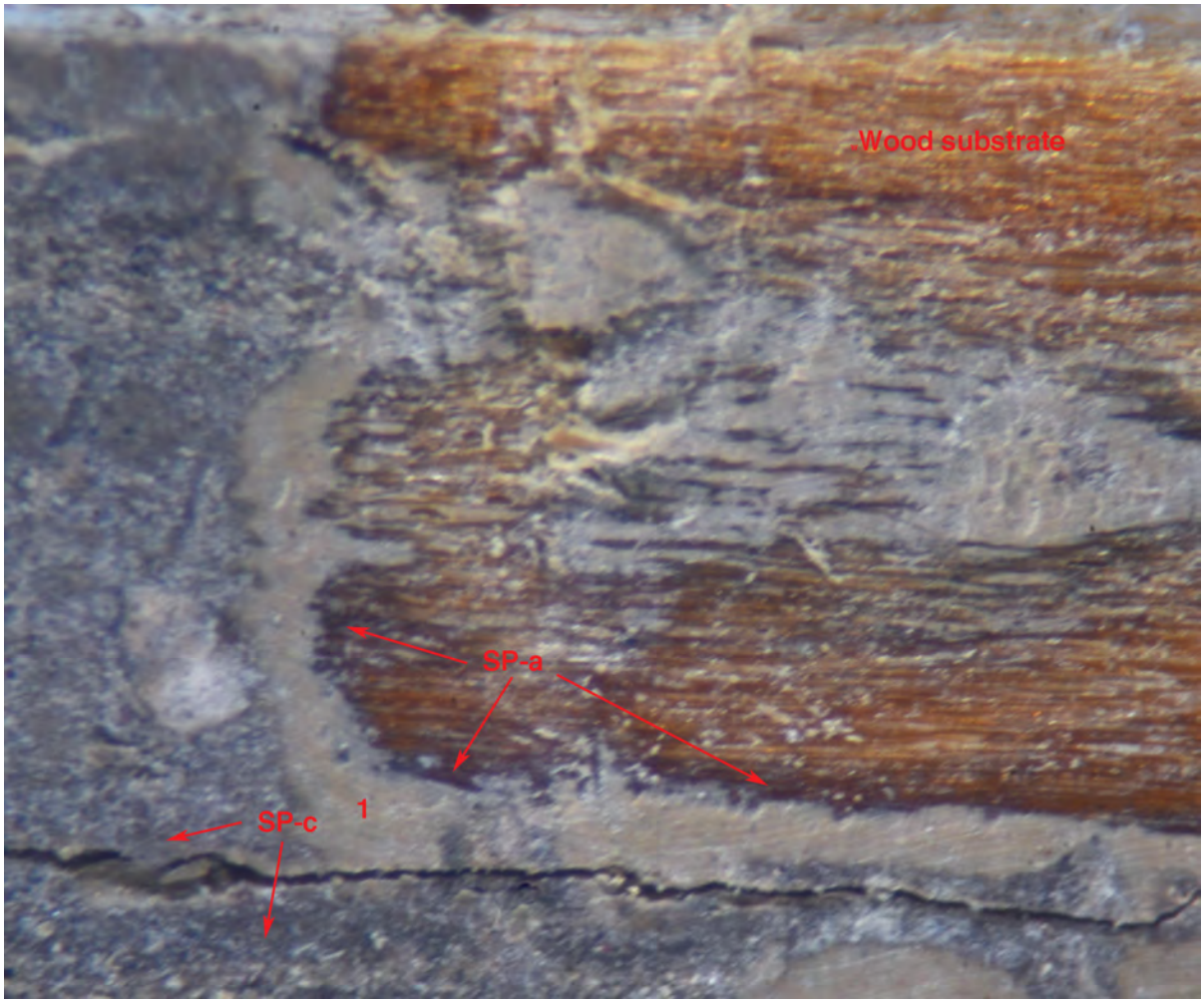
Sample 301-9: West end of floor, near west wall
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering [additional enlargement in computer]



Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen at the base of the sample. Note the dark color of the wood [A] and the presence of surface particulate [SP-a] that is imbedded into the surface of the wood indicating a [long] period of unpainted condition. There is one paint finish, prepared with two layers of a moderate-light yellowish grayish color paint. Note that some of the copious surface particulate that had accumulated on the wood boards was swept up into the paint [SP-b]. Additional surface particulate is seen on the surface of the paint [SP-c].

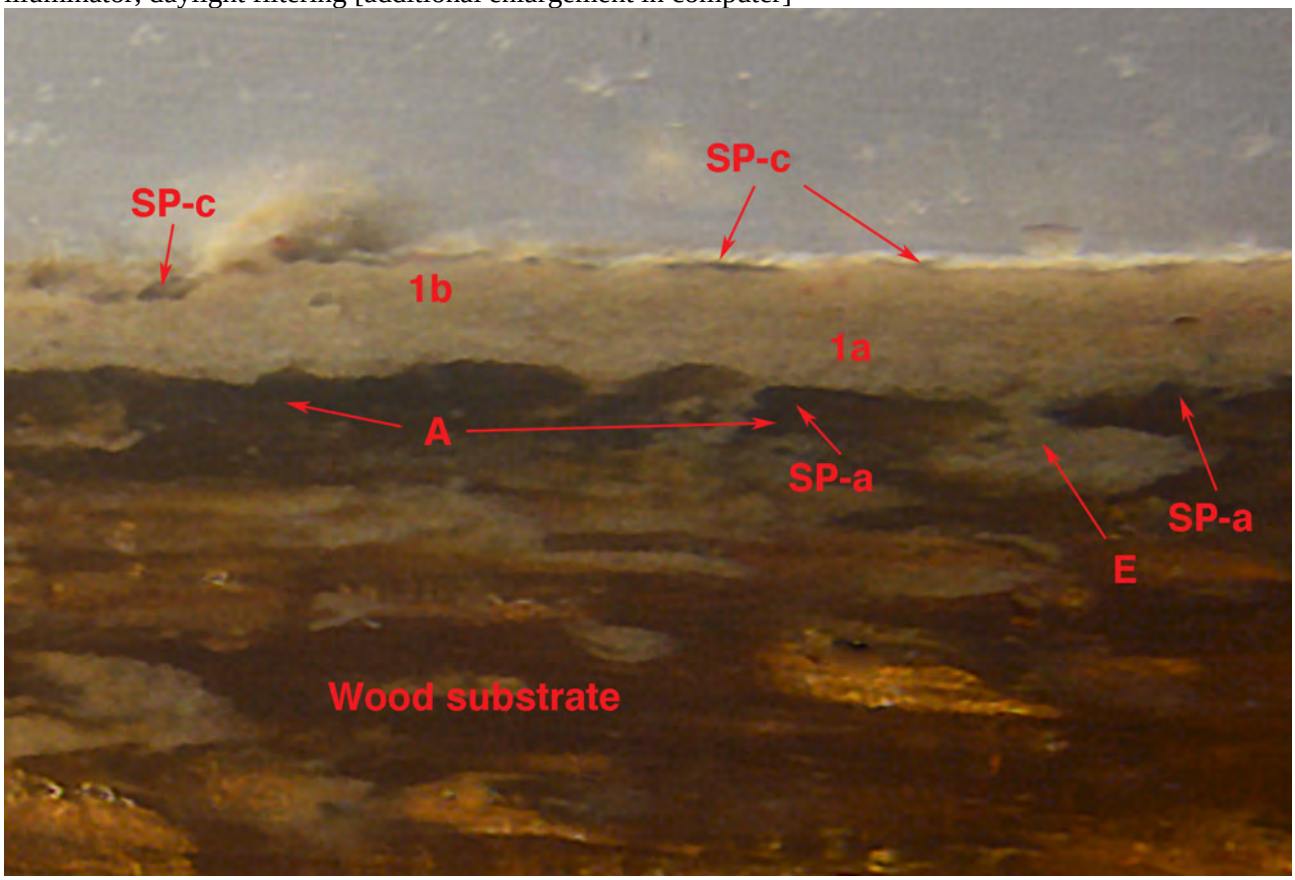
This paint is prepared with titanium dioxide white base and is thus from the twentieth century.

Sample 301-10: East end of floor, near east wall
Photomicrograph: Unmounted sample, Olympus SZ-1145 microscope, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering



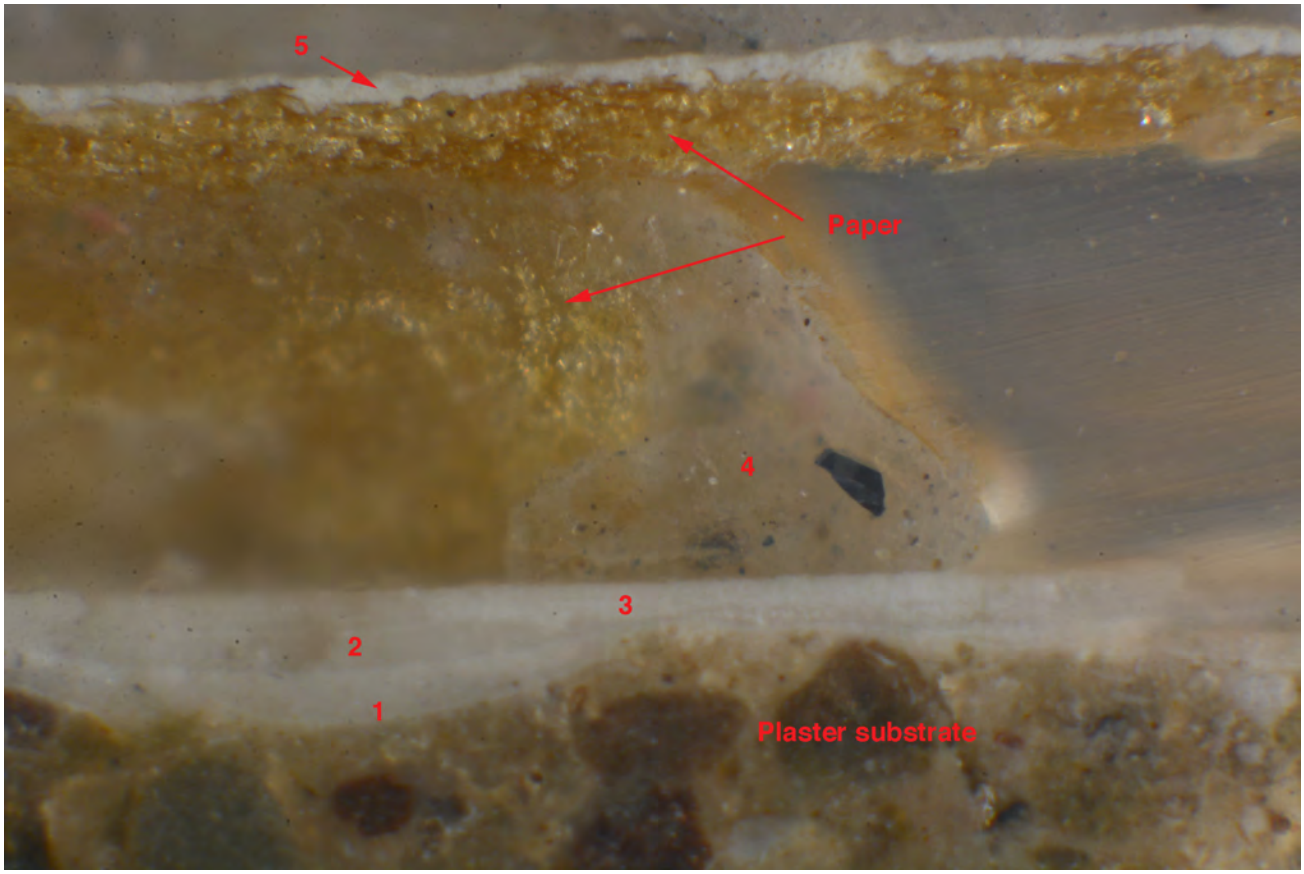
Note: The view of the sample is looking down onto the finish surface. The sample has been shaved, using a micro-scalpel to permit this view. The wood substrate is clearly seen and noted. The surface of the wood is darkened with surface particulate [SP-a; appears to be soot]. The single paint finish: the same moderate-light yellowish grayish color paint seen at the west end of the room. There is a heavy accumulation of particulate on the surface of the paint [SP-c]: and discoloration of the surface.

Sample 301-10: East end of floor, near east wall
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering [additional enlargement in computer]



Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen at the base of the sample. Note the dark color of the wood [A] and the presence of surface particulate [SP-a] that is imbedded into the surface of the wood indicating a [long] period of unpainted condition. Note that the surface of the floor board is not smooth, but, rough from wear prior to the application of paint [E]. The floor paint, the moderate-light yellowish grayish color paint was applied in two coats [1a, 1b], is titanium dioxide white based paint, from the twentieth century.

Sample 301-11: Plaster surface: Canted ceiling
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering [additional enlargement in computer]



Note: The sample has been mounted in polymer resin, cut and polished to 8000 micron grit polishing cloth. The plaster substrate [sand finish plaster] is clearly seen at the base of the sample: note the sand particles within the plaster matrix. There are three lime white layers of lime white wash coating [1, 2, 3]. There is a glue layer [4] that was applied in order to adhere the paper, which is noted. There is a thin white layer on the surface [5]. The paper application dates to the twentieth century.

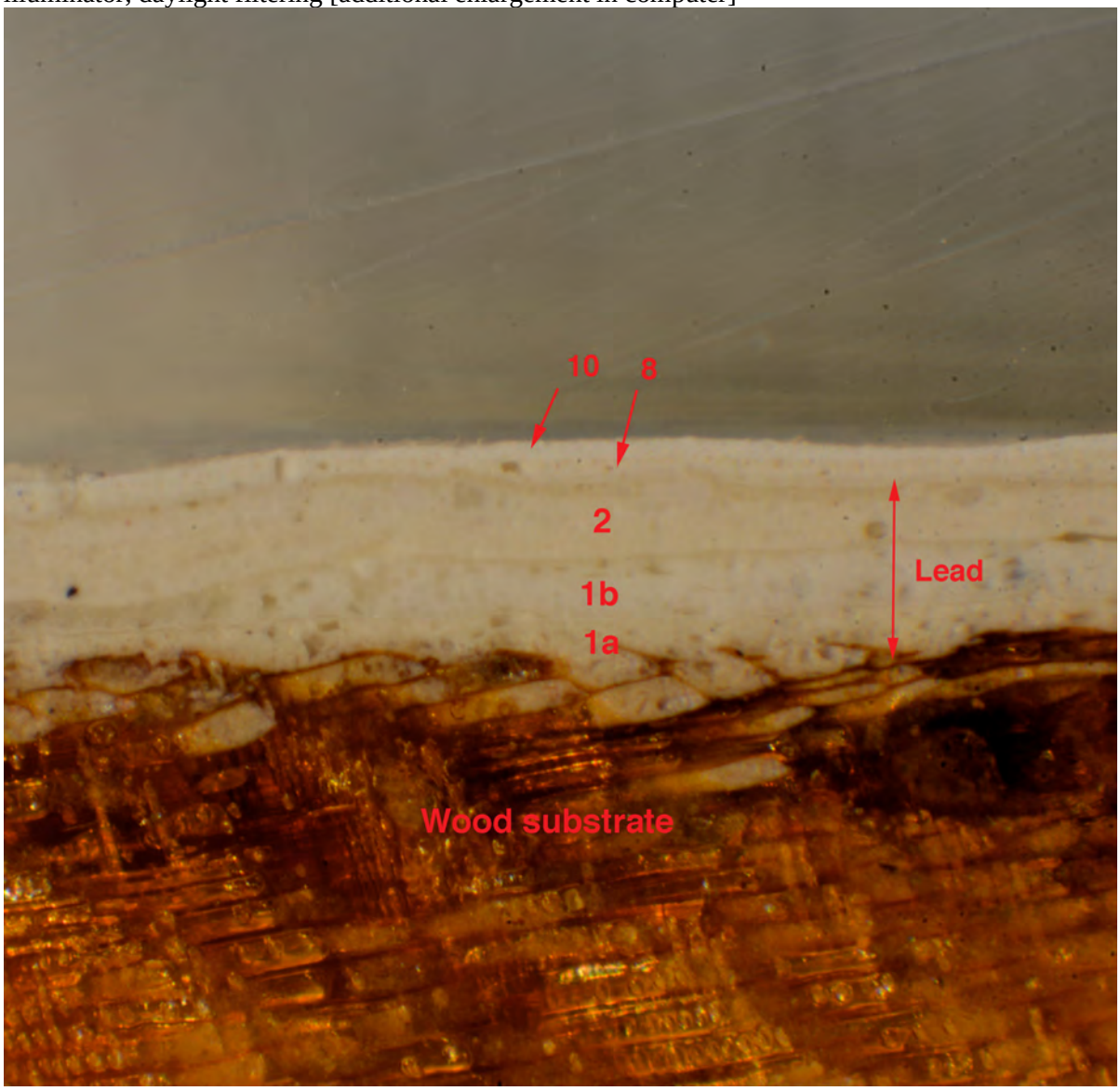
Note: The same conditions and early finishes were found on the following sample:

Sample 302-11: Plaster surface: Canted ceiling

Room 302:

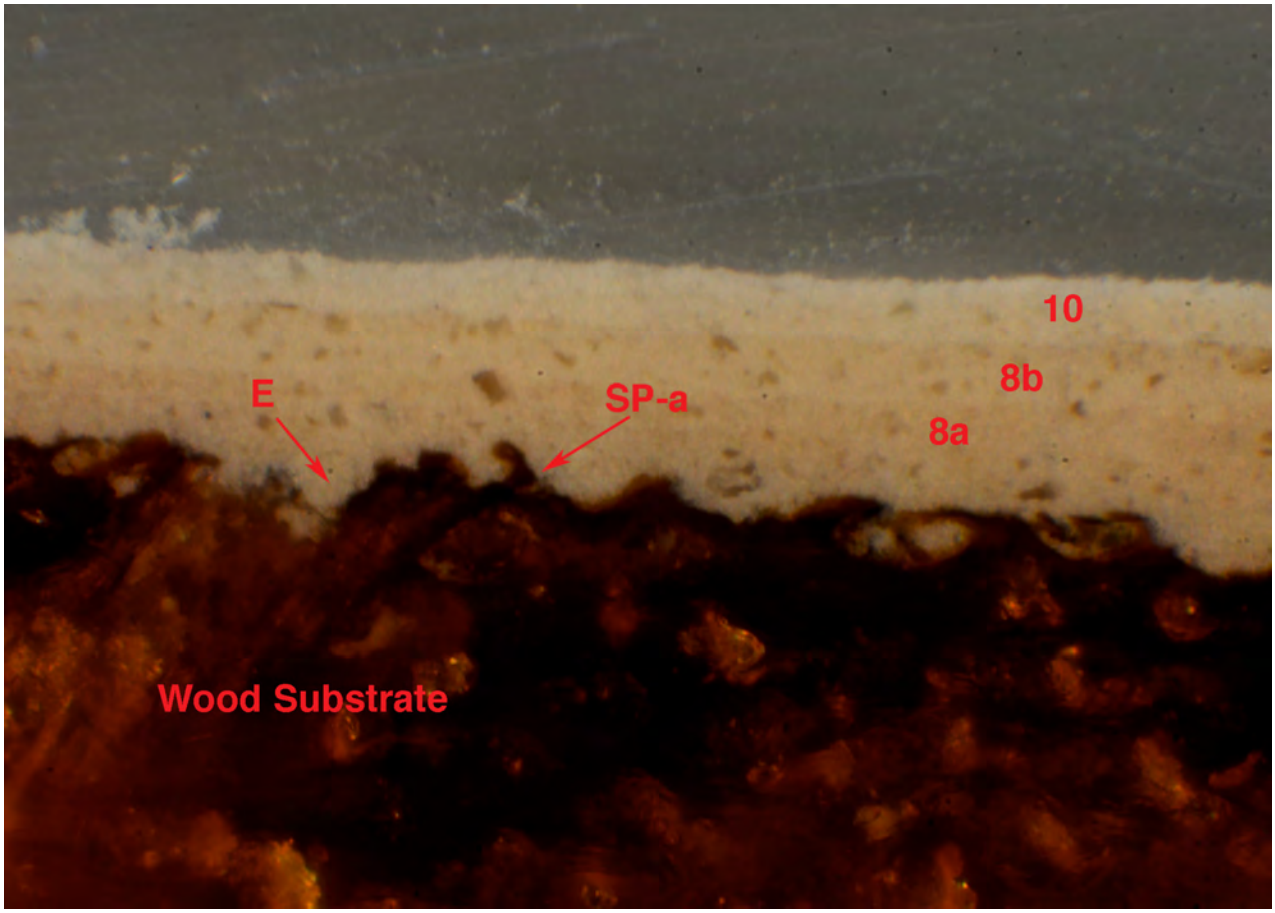
Antechamber to Attic Room 301

Sample 302-1: Door to Stair; Rail
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering [additional enlargement in computer]



Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen at the base of the sample as noted. The wood is dark and may have been left unpainted for a long period of time. There are two lead finishes, which probably post date the Cole era. The last two layers relate to the late finishes seen on Sample 301-1: East wall, Window W 25: Window sill.

Sample 302-2: Door to Attic [storage]
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering [additional enlargement in computer]

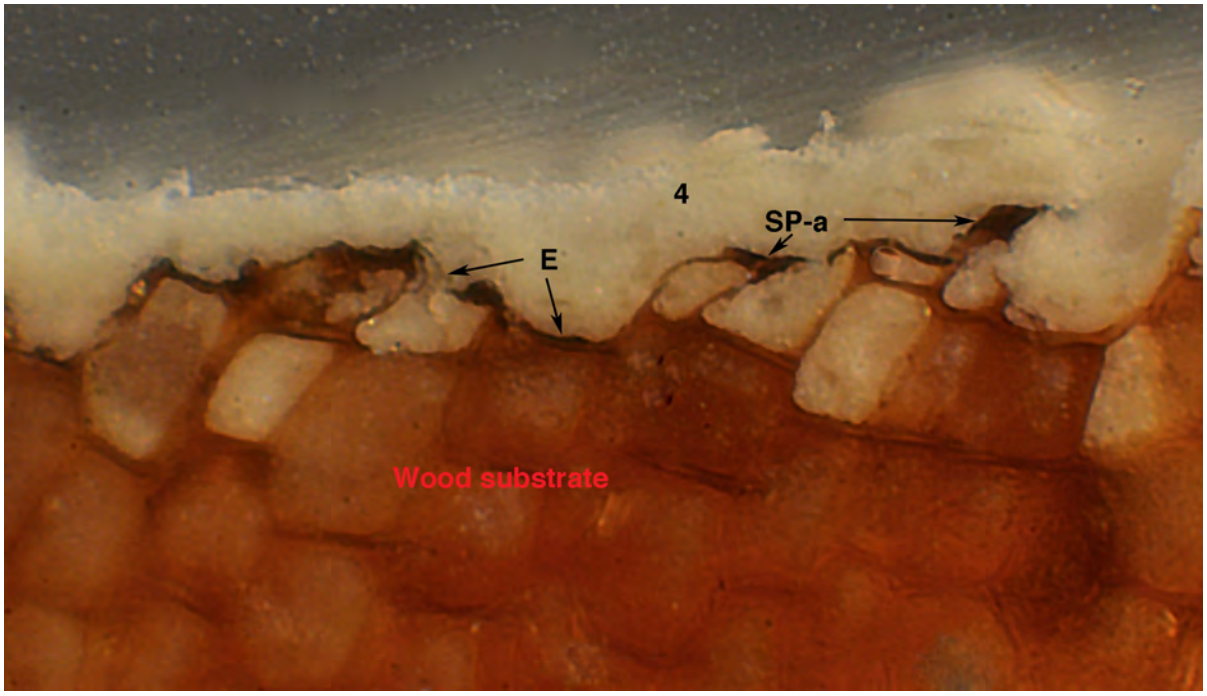


Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen at the base of the sample as noted. The wood is dark and was left unpainted for a long period of time. The surface of the wood is rough [E] and darkened from exposure and surface particulate [SP-a]. The paint layers are later and are not lead based; these paint layers relate to the late finishes on Sample 301-1: East wall, Window W 25: Window sill.

Sample 302-3: Door frame: Door to the Stair case

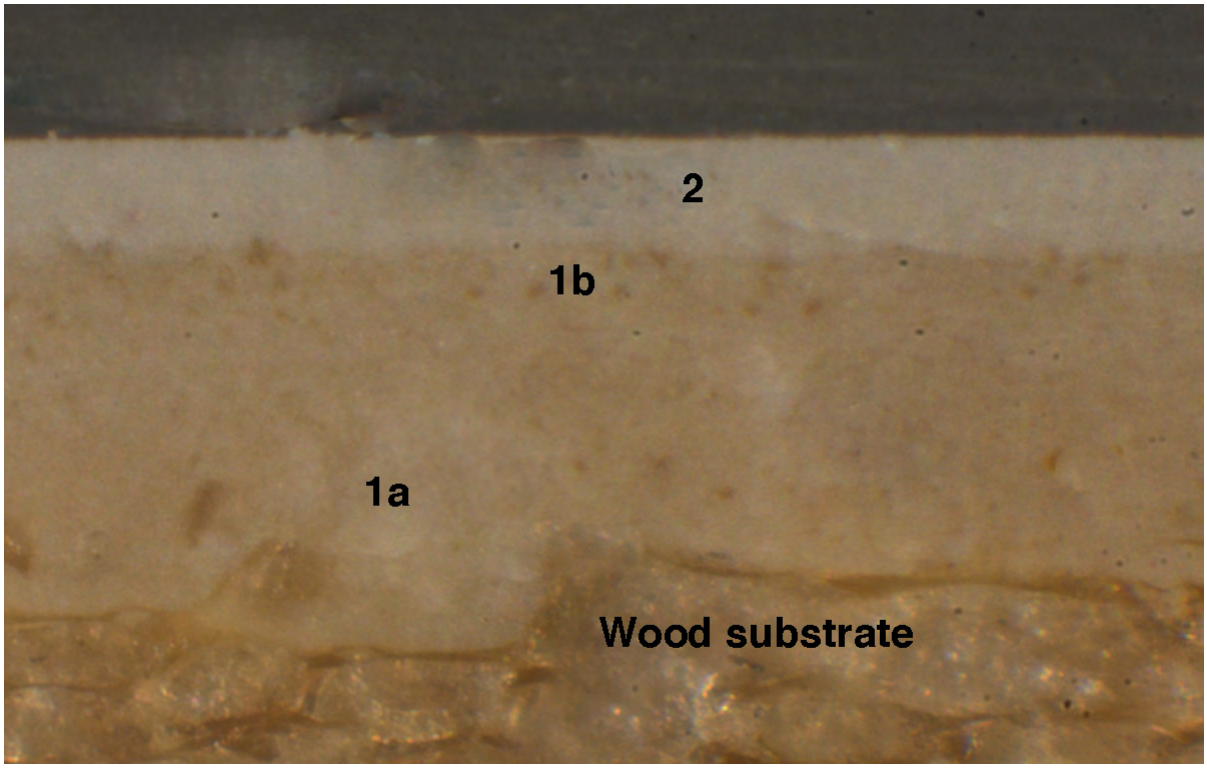
Note: This door frame [beaded] shows the same paint layering as seen on sample: **Sample 301-2: East wall, Window W 25: Window sash**

Sample 302-4: Door Frame, doorway to Room 301, Lintel
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering [additional enlargement in computer]



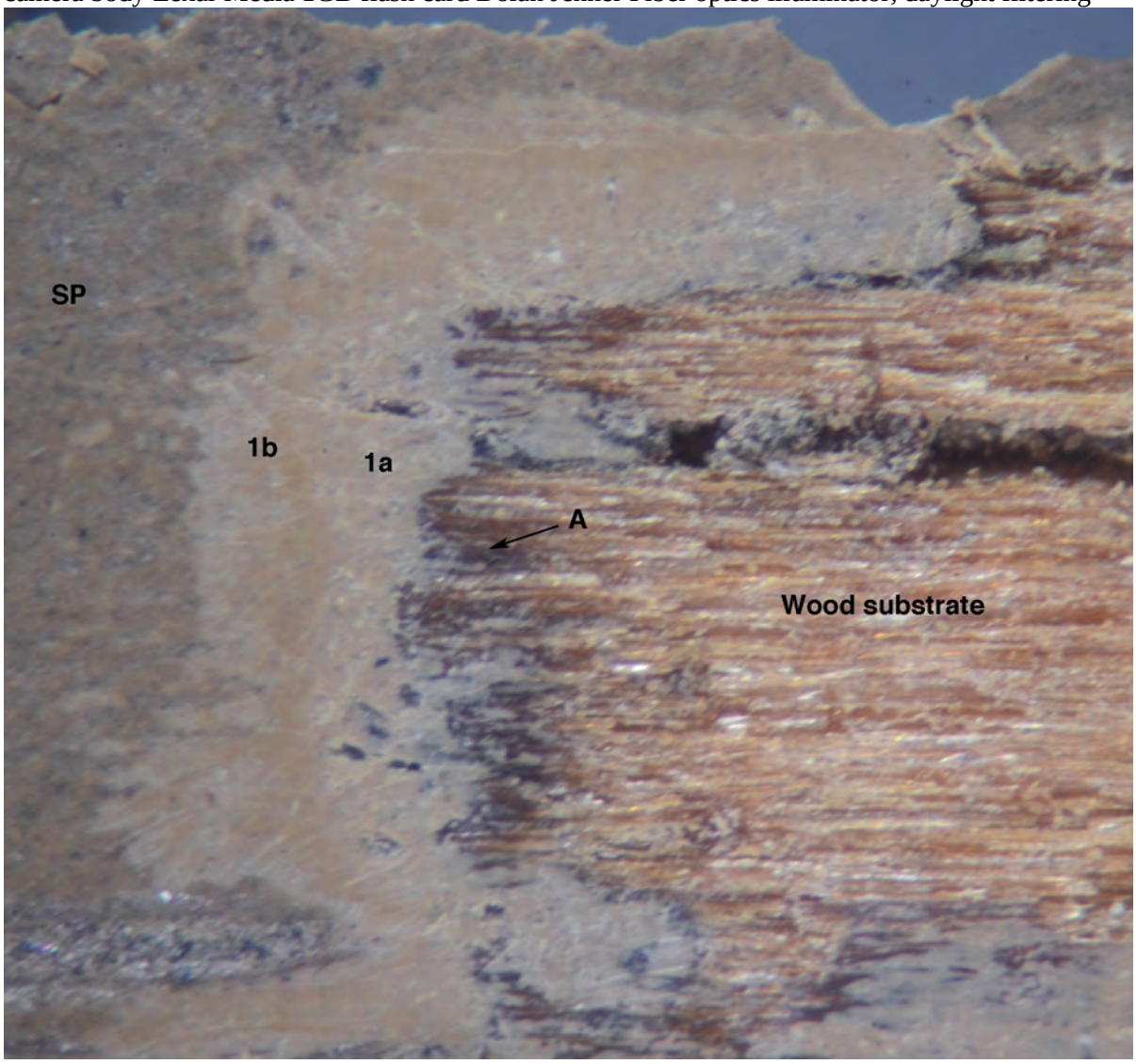
Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen at the base of the sample as noted. The wood is dark and was left unpainted for a long period of time. The surface of the wood is rough from exposure [E] and shows the application of paint from Finish 4, noted that is seen on the benchmark: **Sample 301-2: East wall, Window W 25: Window sash.** During the Cole period, this element would have been unpainted.

Sample 302-5: Baseboard, East wall
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 3x objective, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering [additional enlargement in computer]



Note: The sample has been mounted in polymer resin, cut and polished to 8,000 micron grit polishing cloth for additional examination. The wood substrate is clearly seen at the base of the sample as noted. The surface of the wood is white in color, suggesting a recent date. There are two non-lead finishes: the first is comprised of two layers [1a, 1b] that appears to be contemporary with Finish 8 on Sample 301-2: East wall, Window W 25: Window sash. The last layer [2] appears to be contemporary with Finish 10 on the benchmark layer, Sample 301-2: East wall, Window W 25: Window sash.

Sample 302-6: Floor board, 6" from the south wall
Photomicrograph: Unmounted sample, Olympus SZ-1145 microscope, with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering



Note: The view of the sample is looking down onto the finish surface. The sample has been cut to present this view. The wood substrate is clearly seen and identified. The surface of the wood is darkened by exposure and surface particulate [A]. The paint layers [1a, 1b] comprise the same moderate-light yellowish grey floor paint that is seen in Room 301. The surface of the paint is very discolored and covered with surface particulate [SP].

Plaster: Canted ceiling: Sample 302-7: Plaster surface: Canted ceiling
The canted ceiling in Room 302 shows the same layering as seen on the sample from the plaster ceiling in Room 301 Refer to: **Sample 301-11: Plaster surface: Canted ceiling**

Restoration of Rooms 301 and 302

Because of the location of Room 301 and 302 at the top of a long staircase, and the lack of a second means of egress, these rooms will probably never be restored to their appearance during the Cole period. In addition, any restoration would require the deconstruction of the twentieth century renovation, with removal of the baseboards, door frames and window frames.

The finishes would have been limited to the window sash and sills, Windows 25 and 26 and the beaded door frame around the Door to the Staircase. Other woodwork would have been left unpainted. The plaster surfaces were occasionally coated with lime whitewash. The floors were not painted.

Early finishes:

Plaster surfaces:

2. Ceiling: Special Standard Lime white Gloss level: flat
Note: An actual lime finish may be used: the suggested lime material is: St. Astier “Natural” available from
LimeWorks.us
P.O. Box 151
Milford Square, Pennsylvania 18935
(p) 215-536-6706 (f) 215-536-2281

Woodwork:

Window Sash: Window 25, Window 26
Window Sills: Window 25, Window 26
Door Frame: Door to Staircase

White: Benjamin Moore OC-26 Gloss level: Semi-gloss

Other wood surfaces:

Unpainted wood: during the Cole period
Wallpaper during the later period

Additional Examination

Room 104:

The major undertaking ahead will be the additional exposure and restoration of the frieze decoration in Room 104. Some additional exposures [i.e. at the base of the wall, at approximate chair rail level] may also be warranted.

Room 105:

Questions remain about the cabinet along the east wall: it may be that further examination including careful removal from its present location might disclose more information as to when it was moved into the room, or if it was an original feature.

Room 204:

If the curatorial decision is to implement the painted finish for the walls, additional exploration might disclose some type of painted decoration such as a frieze or banding.

Room 205:

Some additional exploration of banding at the base of the wall might yield results, though no evidence has been found to date.

Color standards: CIE Lab coordinates, Hunter Lab

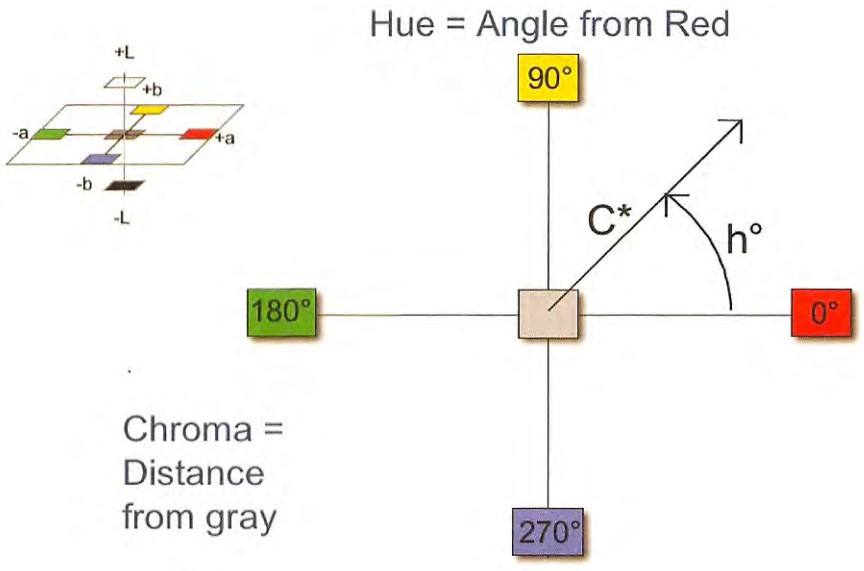
CIE is the abbreviation for the *Commission Internationale de l'Eclairage* the French title for the International Commission on Illumination, which devised the CIE Lab system in 1931. It is devoted to standardization in illumination and related areas that include color.

The spectrophotometer registers color standards into a system of measuring color devised in 1931 known as CIE Lab (pronounced See-lab). CIE Lab is a uniform (opponent color scale) *color space* in which colors are located within a three-dimensional rectangular coordinate system. The three dimensions are Lightness (L*), redness/greenness (a*) and yellowness/blueness (b*). CIE Lab is part of current CIE recommendations.

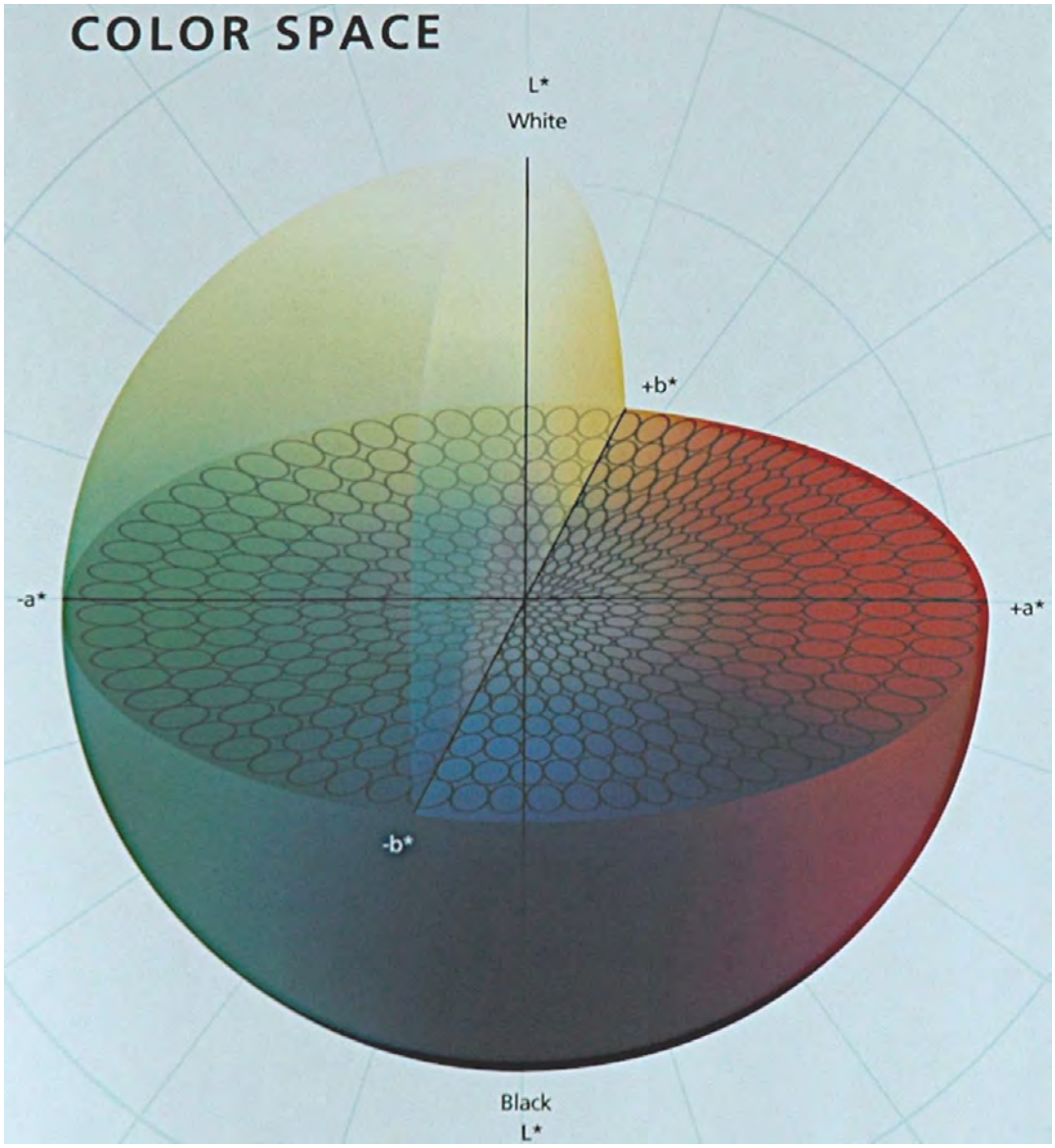
Using the spectrophotometer makes it possible to give any and all colors reference points for future reference.

In addition to the CIE Lab coordinates, the Hunter Lab numbers are also provided. These are based on developments undertaken by Richard Sewall Hunter (1909-1991) who developed a different means of identifying color. The Hunter color space was an effort to regularize the color space: the L axis represents lightness/darkness, with absolute white at 100 and absolute black at 0. Note the drawing below that shows the means of locating any color within the Hunter color space.

On the L* a* b* color model, where a* and b* are zero (point where the axes cross), the color is gray. Gray is without chroma (i.e.: saturation of color) and has undefined hue. Moving out from gray in any direction, the color increases in chromatic strength. Hue becomes defined by the angle of departure, as noted below, from a+ that is set at 0 degrees. The distance moving out from the L axis is C* ; the angle of departure is h degrees.



All of the Spectrophotometric readings are done with the X-Rite SP-62 Sphere Spectrophotometer, Designated observer 2 degrees, Illuminant C. Illuminant C is a mathematical representation of filtered tungsten halogen (daylight). The color temperature is 6770K, simulating CIE average daylight.



The Munsell Color System remains one of the most recognized systems of color notation. Each color standard is provided with a Munsell Color Conversion Number as well as the CIE Lab and the Hunter Lab designations.

Color Standards:

White: Benjamin Moore OC-26

CIE Lab coordinates
Designated observer 2 degrees
Illuminant C

L* = 89.30 a* = -0.59 b* = 4.14

Hunter Lab:
L* = 89.30 C*= 4.19 h degrees = 98.11

Munsell Conversion Number: 4.54Y8.82/0.51

Color Standards:
Light Red Ochre Special Standard M-fb49

CIE Lab coordinates
Designated observer 2 degrees
Illuminant C

L* = 55.93 a* = 20.25 b* = 17.75

Hunter Lab:
L* = 55.93 C*= 26.93 h degrees = 41.24

Munsell Conversion Number: 9.22R5.43/5.34

Color Standards:
Light grayish brown: Benjamin Moore 2110-40 ["Seaside sand"]

CIE Lab coordinates
Designated observer 2 degrees
Illuminant C

L* = 66.94 a* = 5.76 b* = 7.90

Hunter Lab:
L* = 66.94 C*= 9.78 h degrees = 53.91

Munsell Conversion Number: 2.92YR6.53/1.87

Color Standards:
White [yellowish]: Benjamin Moore OC-9

CIE Lab coordinates
Designated observer 2 degrees
Illuminant C

L* = 88.49 a* = -0.92 b* = 7.73

Hunter Lab:
L* = 88.49 C*= 7.79 h degrees = 96.77

Munsell Conversion Number: 4.14Y8.73/0.96

Color Standards:

Lime White: Special Standard Lime white OC-65
CIE Lab coordinates
Designated observer 2 degrees
Illuminant C

L* = 94.34 a* = -0.53 b* = 1.58

Hunter Lab:
L* = 94.34 C*= 1.67 h degrees = 108.63

Munsell Conversion Number: 0.02GY9.53/0.18

Color Standards:
Special Standard: Moderate Pinkish Brown T.Cole Msw-6046
CIE Lab coordinates
Designated observer 2 degrees
Illuminant C

L* = 59.40 a* = 7.41 b* = 10.98

Hunter Lab:
L* = 59.40 C*= 13.25 h degrees = 55.98

Munsell Conversion Number: 3.64YR5.77/2.41

Color Standards:
Dark Gray: Benjamin Moore 1616
CIE Lab coordinates
Designated observer 2 degrees
Illuminant C

L* = 43.50 a* = -0.09 b* = -1.99

Hunter Lab:
L* = 43.50 C*= 2.00 h degrees = 267.55

Munsell Conversion Number: 3.39PB4.22/0.48

Color Standards:
Moderate grayish brown: Special Standard Cole 204/sw6046M-1
CIE Lab coordinates
Designated observer 2 degrees
Illuminant C

L* = 67.09 a* = 5.70 b* = 9.55

Hunter Lab:
L* = 67.09 C*= 11.12 h degrees = 59.17

Munsell Conversion Number: 4.30YR6.54/2.02

APPENDIX D

THOMAS THEODORE THOMSON, PROBATE INVENTORY, AUG. 23, 1821

Thomas Cole National Historic Site Archives, Box 7, Folder 4

Thomas Thomson inventory 1821

A True & Perfect Inventory of all the Goods, Chattels & Credits of Thomas I. Thomson, late of Fishkill Deceased, Taken in the Presence of James S. Pierce, a Creditor & Alfred Barlow, a Legatee of said Thomas I. Thomson the 23d day of August in the year 1821.

50 Fowls	-	4.	44
3 Bee hives	.16	1.	
5 Hogs	-	22.	50
13 Yearlings & 3 year old	-	40.	00
2 Calves	-	2.	50
1 Span bay Horses	-	200.	00.
1 Arabian horse	-	35	00
1 old white horse	-	40.	00
1 Stag	-	20	00
2 patent ploughs	.40	10.	00
1 Bottel	-	15.	00
3 Harrows $15. $8. & $4.	-	27.	00
1 old wood Sleigh	-	8.	00
6 pr Trace Chains	.71	5.	25
1 Lumber wagon	-	25	
1 do do	-	50	00
1 pleasure do	-	125	00.
1 Phaeton or Carriage	-	300.	00
1 Chair & Harness	-	50.	
1 sett plated Harness	-	60.	
1 pleasure Sleigh	-	35.	00.
1 sett common harness	-	16	
harness & parts of harness	-	20.	00.
3 old bridles & 1 saddle	-	3	
6 axes & hatchets	-	3.	75
2 Cradles	-	2	
4 Scythes & Snaths	-	5.	00.
12 pr horse shoes	.24	3.	75.
3 old hay forks	.24		75
55 bush Barley	.44	27	50
2 Doz bags Tow & linen	.24	6.	00.
2 or 3 robes 16 f. 1 buffaloe robe 24.	-	5.	00.
1 Grind Stone & crank	.16	2.	
forward	$	1175	44

Thom. Cole 4. 1821. 1

Forward 1175.495		1175.	44
10 Cows, give milk,	$13	130.	00
Cash on hand		11.	00
1 Piano Forte		250.	00
1 Tea Case with 2 Tins		130.	00
1 Set rush bottomed chairs & settee		42	00
1 Tea Table		7	00
1 writing do		10	00
1 Looking Glass		45	00
1 Parlour Stove & pipe		50	00
1 Carpet with border		54	00
1 Hair bottomed Stool		3	00
1 pr plated Candlesticks		4	00
1 do Snuffers & Tray		2	00
1 Set Chess men & board		4	00
1 Hat		2	
1 pr dining Tables		30.	00
1 Stand		4	
1 Set bamboo chairs		18	00
2 Maps		1/2	
1 old Carpet		9	00
1 book Case		15	
Johnsons Dictionary			50
2 Vol. Gazetteer	16/	4.	00
1 Quaker Bible			75
2 Vol. Halcyon Luminary		2	
1 Dining Set		45	
1 Set French china		25	00
1 Set tumblers & wine Glasses		7	
2 pr cut Decanters		16	00
1 Lot common Crockery 14 00		18.	00
3 Short post Bedsteads		15	
4 wash Stands		12	
1 Toilet Table		1.	50
1 Carpet 36 Yds	4/	18	
1 Dressing Glass		3.	
1 Counter pin		10	00
2 Common bed room carpets		10.	50
1 Set bombazett Bed Curtains		15	00
1 work robe common		5	
14 3/4 Yds carpeting			
10 1/2 do do			
3/2 do do	28 3/4 Yds	1/	57 50.

Thomas Thomson inventory 1821

+

14 Yds striped silk	5/.	8.	75
6 Camb.c Hdkfs	3/.	2	25
1 strip'd morning gown		1.	50
1 Drab coat 1 pr pantaloons		2	
mixt pantaloons & Vest		4	00
1 flannel morning gown	12/.	1	50
1 pr light mixt pantaloons worn		4	
1 bottle Green coat		15	
3 pr white pantaloons		3	
2 pr old pantaloons & short jacket		3.	
3 cotton coverings	32/.	12	
13 pr worsted stockings	3/.	4.	87
5 pr Draws	5/.	3	13
2 flannel wrappers	~~4~~		75
6 p cotton Draws	4/	3	
4 Vests	12/.	6	
10 Do Jane	2/.	2	50
9 pr pantaloons	4/.	4.	50
1 Black coat		10	
1 Dressing Table		3	
1 pr Silk stockings		1.	50
5 Yds Cotton -		1.	37
1 frock coat		10	
1 Scotch plaid cloak		4	
6 pr shoes - 12/. 2 pr boots 8/. old,		3.	50
1 old straw & 1 old wool Hat. -			75
1 pr spurs			75
1 buck skin wrapper	+	3	
+ 3 Trunks		9	
1 Travelling bag			50
1 Doz baskets		3	
25 ps Tin	2/.	6	25
1 marble milk Table		8	
1 portable cupboard		6	
1 marble wash hand bason		8	
Lot of crockery in cellar & Kitchen		1.	50
1 cooking stove & pipe		45	
1 Tin oven 6/. stone pots 24/.		4	50
1 Large brass kettle 40/. — —		5	
3 & small pieces iron ware -	2/.		75
2 pr irons 6/. 6 old barrels 6/.		1.	50
6 Tubs 6/. 28 lb white lead 32/.		4.	75
1 oil bbl with some oil		1	
Ashes & Lime		10	
120 lb Wool	3/6	50.	
forward	$	2639	56

4 Bbls Soap $10	1 bbl Shad $8.	Sundries	$	2	39. 50
15 bus Corn					18.
2 bbl Sons			3/		5. 62
21 Shoats			32/		8.
2½ bbls Herring			9/		23. 62
1 Cutting box			38/		8. 75
1 Running mill					3
12 bus Ground Barley					15
2 Saddles $8. & $6			4/		4 00
2 Table Cloths					12
1 Sett Tea Trays			26/		6
8 Doz bottles					3.
9 Old Ben Tick			6/		4. 00
2 Gal Lisbon wine			3/		3. 37
4 do Brandy			12/		3
2 do do			11/		5. 50
2 do Gin			11/		2 75
3 do Jamaica Rum			4/6		1. 12
4 Demijohns -			21/		3. 37
5 bottles wine			8/		4
1 small Table Cloth					2 75
1 Britania Tea pot					1. 50
4 brass Candlesticks					4
2 Doz Knives & forks					3.
1 do Silver Tea spoons					4. 50
1 do do Table do					5
1 Silver Soup spoon					25
Hay estimated at 40 Tons			56/		2 80
Barley from 2 acres estimated at 60 bus.					37
Oats in the sheaf do		40 bus 6ch			19
Rye from 2 acres do		20 do	3/3		8. 13
Wheat from 2 do do		12 do	8/4		12
Ston unthrashed 3/3 do		100 lb	10		10
40 Sheep			8/		40
At Broome 1 Bed Stead					5.
8 Wood bottom'd chairs			12/		12
6 rush do		do	8/		6
6 Kitchen do		do	5/		3. 75
1 rocking do					2
1 small looking Glass			12/		2. 50
1 Stand			8/		2. 25
2 Trunks			20/		5. 00
36 Yds Dimity			24/		9.
16 do cotton Goods			32/		4. 00
2 pr small blankets			28/		7
35 Yds Cotton Goods			20 24/		7
7 do Linen			24/		1. 75
1 Trunk			30/		2 50
50 Yds Calico			24/		12. 50
8 Shawls			41/		4

20 Yds Dimity Twist	11/	3.	12
	11/		8
3 pr Morocco Shoes	5/	1.	87

Thomas Thomson inventory 1821

36 Yds Dimity	20/	5.	00
16 do Cotton Goods	2/	9.	
2 pr small blankets	3/	14.	00
35 Yds Cotton Goods	2 6/	7	
7 do Linen	20 2/	7	
1 Trunk	2/	1.	75
50 Yds Calico	30/	2.	50
8 Shawls	2/	12.	50
	2/	4	

20 Yds Dimity Twist	4/6	3.	12
3 pr Morocco Shoes	7/		87
3 do Brass candlesticks	5/	1.	87
2 do Steel Snuffers	6/	2	25
10 1/4 Yds Drab Broad cloth		2	
1 1/2 do Gray do do	16/	20	50
1 3/4 do Black do do	32/	5	
1 3/4 do Blue do do	32/	6	
2 3/4 do Flannel	16/	3.	50
1 3/4 do Gray Cloth	2/6		87
12. 2 Gall. Kettles & pots	40/	8.	75
1. 12. do do	6/	9	
2 Bake pans	16/	2	
4 Skillets	10/	2.	50
3 small iron basons	4/6		75
3. 18 Gall Cauldrons	2/		75
1. 40 do do	24/	9	
1 saw mill screw		8	
9 Neck Yokes		2.	50
1 saw	14/	4.	50
1 Cwt. 3/4 in square iron		3	
1. 40. Gall Cauldron		10.	
1 Musket & equipments		12	
50 lbs iron		8	
	&	3	
29 in augurs	8	1.	52
Carpenters tools		17	
2 Crow bars	12/	3.	00
1 pr Iron wedges		1	
4 Axes new & old		2.	50
3 Hoes 9/ 2 Sledges 14/		2.	87
5 Oxe chains 75 lbs		6.	75
1 Spade & Stove		1.	25
1 patent plough		5.	50
2 Scythes	4/	1.	
1 Harrow & 1 Sett Teeth		2.	25
Glass & Pitchers		2	50
Forward	$	3498	66

	Forward	£	3498.	11
12th Wool		3/	4.	50
Kitchen furniture			6.	50
Crockery, Tin pans &c			30.	12
2pr fine dogs				75
1 Brass Mortle			5	
1/2 doz Knives & forks with carver			2	
15 Yds Tow Cloth		2/	3.	75
1 doz Spoons		12/	1.	50
1 Cart			25	
1 Waggon			8	
1 Sleigh			1	
1 Harrow			5	00
1 plough				50
1 fanning mill			15	
1 Ox Yoke			1.	50
4 rakes 4/ 2 Hay forks 6/			1.	25
1 corn fan			1	
2 Yoke oxen old		£30	60	
1 ox 3 years old		25	25	
7 Cows		15	91	
2 Yearlings		5	10	
3. Hogs 300lb		2/c	7.	50
1 Hand Saw			2	
1 Hammer				50
1/2 do saw mill files 3/ 1 wrench 5/			1	37
1 common mill bar 10/ 1 do extra 10/			2.	50
1 Skillet 4/ 1 Tin Lantern 6/ 1 Glass do 4/			1.	62
1 Gallon Jug 2/ 1 pad Lock 4/				75
1 scraper 4/ 2 Table cloths 14/			1.	00
102,046 feet sawed timber { Boards & Joist - - -		24/	30h. 13	
Docket 10 pr ct.			30. 61	275. 52

1 skillet 4/ 1 Tin Lan[illegible] 1 pail Locks 4/ | | 7.00
1 Gallon Jug 2/. 1 pair 2 Table cloths 16/
1 scraper, 4/ of
102.046 feet sawed timber } 24/3 | 306.13 | 275 | 52
Boards & joist
[illegible] [illegible] | 30.61 | |

	125	
Catskill } 1 bay Horse		
1 Link stand with sand box	1	
2 wood saws	3	
Amount car.d down	$4230.	90.

James Pierce

Credits & Stock

Six shares being Three fourths of the Catskill Ferry		
1 Share bou.t off Garret Abeel ~ $1125.00		
3 do do of Henry Van Gordon ~ 3600.00		
2 do do of Garret Abeel ~ 2400.00	7125.	00
Stock in the Greene County Bank with interest due thereon 1st July Last.	11865.	73
Samuel Dentons Note / Int. to 23. Aug. 1821	3594.	38
Bal.e of an a/c due from Wm. Radcliff as pr. his a/c rend.d in Sept. 1817. with the interest to 23.d August. 1821.	706.	73
Bal.e of an a/c due from John Graham & Co. New York with the Int. to 10. August. 1821	2547.	84
Mark Spencers Note with Int to 23.d Aug. 1821.	54.	40
Jared Days Note dated Dec. 27. 1820 with Interest from date payable in Time	41.	82
Receipts of the Ferry to 1st July last $ 120.84 3/4 of which is	90.	63
	$ 26026.	53
Amount of personal property brought down	4230.	90
Total Amount.	$ 30,257.	43

Greene County ss

Be it Remembered that on the Nineteenth
day of September One Thousand Right hundred
& twenty one before me Darrance Kirtland
Surrogate of the said County personally came
John A Thompson administrator of the Goods
Chattels & Credits of Thomas J Thompson deceased
& being by me first duly Sworn made oath that
the within Inventory is Just & True a Copy where
of is this day returned & Filed in my office

Darrance Kirtland

No 2.

Inventory

Inventory of
Property of
Thomas J Thompson late of Athens
deceased 1821

Inventory of the
Personal property of
the Estate of Doc Thomas
Thomson Dec'd

APPENDIX E

INVENTORY OF JOHN ALEXANDER THOMSON'S ESTATE, 1846

Thomas Cole National Historic Site Archives, Box 7, Folder 8

John A Thomson inv 1849

Inventory of the Personal Property of John A. Thomson Deceased

		$	cts	$	cts
	in the Sitting Room				
1	Carpet $25 2 Tables Each $5	35	..		
1	Stove & Pipe $8	8	..		
1	Looking Glass 3.	3	..		
24	Chairs 4/- 1 Arm Chair $5	17	..	$98	..
1	Rocking Chair 6/. 2 Settees 12/	3	75		
24	Rush Bottom Chairs 4/	12	..		
40	Volumes Books 2/. Book Case $4	19	..		
	Iron Shovel & Tongues 2/	..	25		
	in Pantry				
	Glass & China $5. 1 Solar Lamp $3	8	..		
9	Glass & Brass Lamps is 4/		75		
2	Plated Candle Sticks & C. Snuffers 16/	2	..		
3	Brass Ditto 2/- Matting on Floore 4/	1	25	21	..
	Sundry Tubs & Canisters is 24/	3	..		
	Map N.Y. $5 Map U.S. $1	6	..		
	in the Hall				
1	Stove & Pipe $4. Oil Cloth $4	8	..		
	Hat Stand 16/ Spy Glass Stand 2/	2	25		
3	Bells is 4/	..	50		
	East Room			31	75
1	Carpet $5 1 Mirror $5	10	..		
1	Stand 8/ 2 Tables & Cloths 16/ Each	5	..		
1	Desk & Ink Stand $6	6	..		
	Mr Thomsons Room				
1	Wash Stand Bowls & Pitcher $2	2	..		
1	Wardrobe 40/ 2 Tables 8/. 24/	7	..		
1	Carpet 32/. 2 L. Glasses 4/ Each	5	..		
	Brushes &c in Drawer 4/	..	50		
	Wearing apparel & 2 Carpet bags $25	25	..		
1	Bedstead Bedding & Curtains $10	10	..	72	..
	in Pack Tools & Baskets $5	5	..		
1	Chair 2/ 1 Small Dressing Case &c $10	10	25		
	Stair Carpet & Rods 16/	2	..		
	Matting in the Hall up Stairs 2/	..	25		
	Wardrobe $3	3	..		
				$222	**75**

Cole Archives

Box 7 Folder 8

Thom-Cole 8.1846.3

John A Thomson inv 1849

Amount Brought Over $222 — 75

Girles Room				
Matting 8/ Carpet 16/	$ 3	,,		
2 Looking Glasses is 16/ 1 R. Chair 2/	2	25		
1 Wash Stand 1 High Back Chair 2/	,,	50	48	,,
3 Beds & Beding 2 at $15 – 1 at $10	40	,,		
1 Table 2/ 1 Wardrobe 16/	2	25		
North Room				
1 Bed & Beding & Curtains $20	20	,,		
1 Carpet & Border $4	4	,,		
1 Wardrobe 16/ 1 Mirror 16/ 1 Table 8/	5	,,	31	,,
1 Stand 4/ 1 Arm Chair 4/ 4 Pitchers 2 Bowles 8/	2	,,		
Mr Coles Room				
1 Carpet 40/ 1 Settee 8/ 1 Bed Sted 8/	7	.		
1 Cot 8/ 1 Looking Glass 4/ 1 Table 2/	1	75		
1 Arm Chair 8/ 1 Desk 16/	3	,,	12	25
Stair Carpet & Rods 4/		50		
Garret Bedroom				
Matting on Floor 8/ 2 Tables & Wash Stand 12/	2	50		
1 L. Glass 2/ 1 Lounge 4/ 2 Chairs Each 4/	1	75		
3 Trunks & 2 Maps 8/ 1 Table 1/ Bed & Bed Sted 8/	2	12		
8 Table Cloths is 24/ 7 pr. R. Blankets 8/ pr.	10	,,	41	37
20 pr Sheets & 12 pr Pillow Cases 4/-	16	,,		
4 Morseles Quilts 8/ 24 Towels 1/ 12 Napkins	8	50		
Stair Carpet 4/	,,	50		
Foot of the Stairs				
1 Cot Bed & Curtains $4	4	,,		
1 Table 2/ 1 Matt on Floore 2/	,,	50		
Basement Story — 1 Stove & Pipe $3	3	,,		
1 Crum Cloth 8/ 2 High Chairs 4/	2	,,		
1 High Table 4/ 1 Dining Table 8/	1	50	16	50
1 Table in the Porch 4/ 1 Mirror 4/	1	,,		
3 pr Stilyards is 16/	2	,,		
in adjoining Room				
1 Bed & Bed Stead 16/ Close Trunk 4/	2	50		
Kitchen				
1 Cooking Stove & furniture $5	5	,,		
3 Tables, Sink & Washing Bench is $2	2	,,		
Kitchen Crockery 4/		50	14	25
Tin Ware & Pails 8/	1	,,		
6 flat Irons & Wash Tubs is 16/	2	,,		
5 Chairs & Clothesframe is 4/	,,	50		
3 Brass Kettles is 24/ Chopping Board 2/	3	25		
			$386	12

Amount Bro...

4 Candle Molds 2/ 1 C...
2 Wooden Bowls 2/ 2 Pot...
1 Gridiron 1 Ice Freezer...
1 Spider 3 Clothes Ba...
4 Stone Pots 1/ 1 Butt...

Kitchen C...

12 Doz Bottles 4/ 1 Cu...
Knives & forks is $3...
18 Silver Tea Spoons 4/ 2 B...
1 Castor 16/ Sugar Tongs...

2 Lumber Sleighs 16/ 3 ...
2 Iron Kettles in Hay House...
1 Ox Yoke 16/ 2 Cha...
1 Wagon Shoe 8/ Wagon...
1 ,, not finished...
1 Hearse 1 Horse Wagon $1...
1 Lumber Wagon $20 – 2 ...
3 Crowbars 8/ 2 Sledges 6/...
2 1 Horse Harness $3 – 1 – 2...
1 Grind Stone 24/ 1 Fa...
1 Cut Box

in Store...

8 Empty Barrels 1/ 3 Empty...
4½ Bbls Vinegar 24/ – 1 ...
2 Dung forks 2 Shovels 2 Spa...
1 Scythe & Snath 8/ 2 ...
3 B. Saws 4/ 3 H. Saws...
1 Small Broad Axe 6/ Small...
2 Grain Boxes 16/ C. Cu...
1 Adze 2/ 6 Augers 2/...
2 Small Saws 1/ 4 ...
3 Small Kegs 2/ 1 Sh...
1 Large Bench 4/ 3 Str...
1 Shaving Knife 4/...
Apples in Store...
Boards & Timber ab...
Old Stove & Andir...
Rope & Table...
75 Bushel Potatoes...
1 pr Oxen
1 Mare Old...
1 Cow

…Over			$222 — 75	
…oom				
…1/	$ 3	"		
…hair 2/	2	25		
…hair 2/	"	50	48	"
…$10	40	"		
…	2	25		
…				
…$20	20	"		
…$4	4	"		
…able 8/	5	"	31	"
… 2 Bowls 8/	2	"		
…				
…tead 8/	7	"		
…able 2/	1	75		
…1/	3	"	12	25
…4/		50		
…droom				
…ble & Wash Stand 12/	2	50		
…s Each 4/	1	75		
… Bed & Bedstead 8/	2	12		
…ets 8/ 1/6	10	"	41	37
…sses 4/ -	16	"		
… 12 Napkins	8	50		
…4/	"	50		
…Stairs				
…$4	4	"		
…one 2/	"	50		
…tove & Pipe $3	3	"		
…s 4/	2	"		
…e 8/	1	50	16	50
…ror 4/	1	"		
…	2	"		
…om				
…k 4/	2	50		
…$5	5	"		
… is $2	2	"		
…4/		50	14	25
…8/	1	"		
…s 16/	2	"		
…4/	"	50		
…rd 2/	2	25		
	$386	12		

Amount brought up			$386	12
4 Candle Molds 2/ 1 Churn 4/ $	1	50		
2 Wooden Bowls 2/ 2 Pots 2/ 1 Bake Pans 8/	1	50		
1 Gridiron 1 Ice Freezer & Fire Tongues 8/	1	"	5	75
1 Spider 3 Clove Baskets 2/ -	1	"		
4 Stone Pots 1/ 1 Butter Tray 2/	"	75		
Kitchen Pantry				
12 Doz Bottles 4/ 1 Cupboard 8/	7	"		
Knives & Forks is $3. 1 Doz L. Silver Spoons $12	15	"	38	"
18 Silver Tea Spoons 4/ 2 Butter Knives 4/	10	"		
1 Castor 16/ Sugar Tongs 8/ Soup Spoon 24/	6	"		
2 Lumber Sleighs 16/ 3 Ploughs 8/	7	"		
2 Iron Mills in Hay House 8/ 1 Lumber Wagon $20	22	"		
1 Ox yoke 16/ 2 Chains 8/	4	"		
1 Wagon Shoe 8/ Wagons in W. House $10	11	"		
1 " not finished $8. 1 Pleasure Wagon $10	18	"		
1 Pleasure 1 Horse Wagon $16. 1 Sleigh $5	21	"	179	50
1 Lumber Wagon $20. 2 Carts $20 Each	60	"		
3 Crowbars 8/ 2 Sledges 6/. 2 Cradles 8/	6	50		
2 1 Horse Harness $3. 1-2 Horse Harness $5	18	"		
1 Grind Stone 24/ 1 Fanning Mill $8	11	"		
1 Cut Box $8	8	"		
in Store House				
8 Empty Barrels 1/ 3 Empty Hhds 4/	2	50		
4½ Bbl Vinegar 24/ - 1 Corn Drag 8/	14	50		
2 D. fork 2 Shovels 2 Spades 2 Axes is 8/	1	"		
1 Scythe Snath 8/ 2 Drags $5 Each	11	"		
3 B. Saws 4/ 3 H. Saws 4/ 3 J. Plane 2/	3	75		
1 Small Kiosk 6/ Small Tools & Chests 16/	2	75		
2 Grain Boxes 16/ C. Cut Saw 8/	5	"		
1 Adze 2/ 6 Augers 2/. 1 Square 2/	2	"		
2 Small Saws 1/ 4 Gimlets 3 -	"	38		
3 Small Kegs 2/ 1 Shaving Horse 4/	1	25	172	38
1 Large Bench 4/ 3 Strings Bells 4/	2	"		
1 Shaving Knife 4/ 2 B. Robes 4/	1	50		
Apples in Store House $8	8	"		
Boards & Timber about the yards -	10	"		
Old Stove & Andirons in Store	2	"		
Rope & Tackle Blocks .. $2	2	"		
75 Bushel Potatoes 2/	18	75		
1 pr Oxen $65 - $65 "				
1 Mare Old - 5 5 "	84	"		
1 Cow 14 14				
			$781	75

HSR T…

Correspondence	Box 1:
Photographs	Box 2
Photographic Prints	Box 3
Photographs of Cedar Grove & Vicinity	Box 5
Photographs (small) of Cedar Grove	Box 6
Financial & Estate Records	Box 7

Ove…

Amount Brought Over $781 75

Property on the Farm not Divided on half belonging to the Estate of John A Thomson – as follows –

7	Cows	$12	$84	½ is	42 "		
3	2 year Old Heifers	8 –	24	"	12 "		
2	Calves	2.50 –	5	"	2 50		
1	Bull	10	10	"	5 "		
1	fat Heifer	15	15	"	7 50		
6	Store Hogs	3 –	18	"	9 "	289	87
6	fat Hogs	10	60	"	30 "		
50	Tons Hay	5	250	"	125 "		
175	Bu Oats	25/100 –	43.75 –	"	21 87		
50	Bu Barley	40/100 –	20	"	10 "		
50	Bu Rye	50/100 –	25	"	12 50		
50	Bu Corn	50/100 –	25	"	12 50		
						1071	62

L. Kiersted }
J. J. Haight } Appraisers

Inventory of Personal Estate J A Thomson

E. Harvey —

Estate J. A. Thomson

18 Jany 1849 —

from Decr 1/48 to Jany 1/49

John A Thomson inv 1849

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under US administration.

TCH 662 165012 **OCTOBER 2019**

National Park Service
U.S. Department of the Interior

Thomas Cole National Historic Site
Catskill, New York