

**Paint Investigation
Aiken-Rhett House
Charleston, South Carolina
REVISED DRAFT
Kitchen/Laundry and Stable
Interior Paints**

For: Winslow W. Hastie
Director of Preservation and Museums
Historic Charleston Foundation
40 East Bay Street
Charleston, South Carolina 29401

Conservator: Susan L. Buck, Ph.D.
303 Griffin Avenue
Williamsburg, VA 23185

Date: January 2, 2013

South End of Kitchen/Laundry Building



Purpose:

The goal of this project is to expand on the paint analysis and documentation work conducted as part of my 2003 dissertation research to answer specific questions posed by the architectural historians studying the outbuildings for a Historic Structure Report (HSR).¹ This is an opportunity to use cross-section microscopy analysis as an archaeological tool to identify original elements and to comparatively date later

¹ Susan L. Buck, "The Aiken-Rhett House: A Comparative Architectural Paint Study." Ph. D. diss., Univ. of Delaware, 2003.

alterations to both buildings. At the conclusion of the analysis, selected early paints will be matched for documentation, where desired, using a colorimeter/microscope.

Procedures:

The site meeting to revisit the interiors of the outbuildings and to review the new discoveries made by architectural historians Willie Graham, Orlando Ridout V, and Carl R. Lounsbury took place March 1 through March 4, 2012. The project goals were discussed with Winslow Hastie and the architectural historians prior to beginning the investigation, and the sample locations were thoroughly reviewed during the sampling process. Many of the sample sites in both buildings were marked with blue tape by Ridout and Graham, as these were areas where it was felt that paint analysis might help with comparative dating. Only a few of the samples removed during this site visit were from locations studied earlier as part of my dissertation work. Virtually all the surfaces sampled as part of this current investigation were intended to establish comparative paint chronologies to help date different elements and to understand the evolution of each room. 125 samples were removed during this three and one half-day site visit, and then this list was winnowed down to the most critical 86 samples (with the help of Willie Graham) to meet HCF budget and time constraints.

A second site visit was undertaken on November 8, 2012 to review the sample findings and to re-sample two key areas in the kitchen chamber (K201) to refine the findings for the curtain hanging block and to take a new sample from the picture hanging hook on the west wall of that room for comparative dating.

All the potential sampling surfaces were first reviewed on-site with a 10X illuminated loupe (Dermlite DL 100) and a 30X monocular microscope. The samples were removed with a microscapel and placed in labeled baggies. All sample locations were photographed and recorded. At the lab the samples containing the paint flakes and substrates were screened at 45X magnification to identify the most promising samples for cross-section analysis. These samples (about 300 microns in size) were removed and cast into polyester resin cubes for permanent mounting. The cubes were ground and polished for cross-section microscopy analysis and photography. The sample preparation methods and analytical procedures are described in the reference section of this report.

The cast samples were analyzed with a Nikon Eclipse 80i epi-fluorescence microscope equipped with an EXFO X-Cite 120 Fluorescence Illumination System fiberoptic halogen light source and a polarizing light base using SPOT Advanced software (v. 4.6) for digital image capture and Adobe Photoshop CS for digital image management. Digital images of the best representative cross-sections are included in this report. Please note that the colors in the digital images are affected by the variability of color capture and printing, and do not accurately represent the actual colors.

Part I – Kitchen/Laundry Building

Background:

The paints remaining on the interior of the first and second floors of the kitchen/laundry building were studied intensively as part of my dissertation research. One important discovery at that time was that certain types of paints and pigments used during identifiable periods of expansion and redecoration in the main house were also used in the kitchen/laundry building during the same periods. This use of presumably leftover paint materials is significant as it helped in dating specific coatings in this outbuilding, but it was equally interesting to find that the painted decorations in the kitchen/laundry building differed markedly in terms of color usage and patterns. Another important finding was that in any given period of repainting prior to the Civil War, the second-floor chambers were generally painted different colors, perhaps to suit the occupants of each room. This evidence is described in chapter 7 of my dissertation, and the relevant key findings (such as faux finishes, brilliant wall colors, and paints dating to the twentieth century) will be noted in the descriptions of each kitchen/laundry building room in this section of this report.²

A synopsis of my dissertation findings can be found in an article entitled “How paint archaeology and analysis helped to decipher the Aiken-Rhett House and its outbuildings”, in *Paint Research in Building Conservation*, edited by Bregnhoi, Hughes, Lindblom, Olstad and Verweij. The book, published in 2006 by Archetype, contains the proceedings of a conference on architectural paint research held in Copenhagen in 2005. Relevant images from my Powerpoint presentation for that conference are used as illustrations in this report.

The first phase of investigation and sampling for this building conducted for my dissertation took place prior to the current intensive investigation for the HSR, but at the time, the insights and observations of Lounsbury, Ridout and Graham, as well as architect Glenn Keyes and architectural conservator Richard Marks, helped to clarify the evolution of the building and guide the selection of sample locations. That said, the primary intent of this first phase of dissertation research was to identify and document the surviving paints and to establish relationships with the paints in the house. This second phase of research builds on the findings of the dissertation research and focuses on using the key comparative cross-sections from each space for paint archaeology.

Room K101 First-floor Kitchen:

In the first phase of dissertation research, paint analysis revealed that up to 19 generations of unpigmented and pigmented limewashes remaining on the south wall of K101. The evidence suggests that during the rental period from 1818 to 1833 (Period I) the kitchen was initially left with bare brown coat plaster and varnished woodwork. The first deep yellow pigmented limewash on the south wall coincides with Period II (1836), when William Aiken Jr. acquired the property and expanded this building. This deep yellow

² See Buck, “The Aiken-Rhett House: A Comparative Architectural Paint Study”, pp. 386-407.

limewash was found as the first coating layer on the Period II north partition wall between the kitchen (room K101) and laundry (room K102). Period II is also when the woodwork in room K101 was first painted with a cream-colored oil-bound paint similar to the finish coating found on the woodwork in the house during the same period. The first phase of analysis also suggested that the plaster above the stew stove begins at generation 6 of 19 on the walls.³

The following PowerPoint image of sample K101-15 from the south wall shows the many and varied limewashes on top of the dirty brown coat plaster substrate. In the first phase of analysis the cross-sections were all photographed with a 35mm camera and the color prints were used as references for comparing the coatings found on different areas of plaster and woodwork. In this current research all the sample images have been captured digitally with a more powerful microscope.



The first phase of analysis for the dissertation found that 15 generations of paint remain on the woodwork room K101. The original woodwork paint on the windows was identified as a reddish stain with an oil-resin varnish, followed by an off-white paint in generation 2.⁴ The coatings on the west wall pegrail were found to begin in generation

³ Ibid., 336.

⁴ Buck, diss. 333.

2, compared to the paint on the south wall door surround, which lines up with generation 7 on the woodwork. The paints on the cupboard in the southwest corner begin quite late at generation 11, and the paint on the south wall door begins at generation 12. All of these initial findings are factored into addressing the new questions raised by the physical study of this room being conducted by Ridout, Graham and Lounsbury.

The second phase of investigations on-site suggests there was a faux-painted dark gray or black wainscot after Period II, as remnants of the dark gray wash can be seen at wainscot level on the north wall. This was not found during the first phase of paint analysis, although there are multiple generations of black-pigmented washes used to create faux-painted black wainscoting in the second-floor passage.

Southwest Corner of Room K101



The primary questions posed by Ridout, Graham and Lounsbury related to the Period III installation of the stew stove, the changes made to the room when the north partition wall was created in Period II, the dating of selected window elements, including the wooden bars believed to be Period I, and the installation of gas and water pipes. Eighteen samples were removed from relevant elements, and thirteen samples were analyzed in cross-section. The findings are discussed and illustrated in this section of the report. The paint histories on the peg rails and boards supporting the gas and water pipes are discussed in the context of the plaster wall paints as these elements were painted with limewashes, not with oil-bound woodwork paints.

Room K101 Kitchen Phase II Cross-section Sample Locations

K101-II-1. West wall, south door, original door reveal, left side about 4' to confirm Period I woodwork chronology.

K101-II-2. North wall, south door, later door in Period II partition wall, left side, about 4' up.

K101-II-3. West wall, south door, later glazed door, left stile about 4' up. For comparative dating of door.

K101-II-5. East wall, plaster above later installation of stew stove, 1858 plaster on circular sawn lath, for comparative dating. Should be comparable to K101-15. Used super glue to keep layers in context.

K101-II-6. North wall, pegrail, 3' from northeast corner. Should be comparable to K101-4.

K101-II-7. North wall, wide board about 3' from northeast corner.

K101-II-8. East wall, 1858 infill right of stew stove (location of former fireplace). Used super glue to hold friable limewash layers together.

K101-II-11. West wall, center window, lower bar across window to establish if this is Period I.

K101-II-12. West wall, later window sash, use chronology to establish relative dating.

K101-II-14. Water pipe support board, above south wall door, just below ceiling level, starts with deep red wash on top of wood.

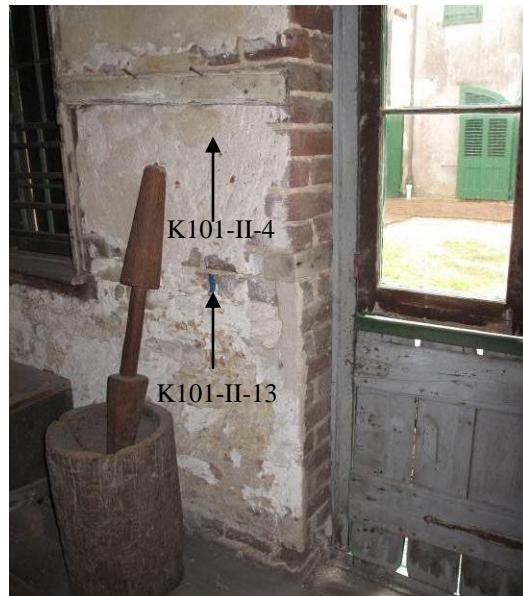
K101-II-15. Pegrail, south wall, just above door, starts with deep red wash on top of wood.

K101-II-16. Board just above pegrail used to support gas pipe and later to support water pipe, on south wall just above door.

K101-II-17. Paint on gas pipe, south wall, above door (surface is corroded).

K101-II-18. West wall, paint on gas pipe just above opening where water pipe dropped down.

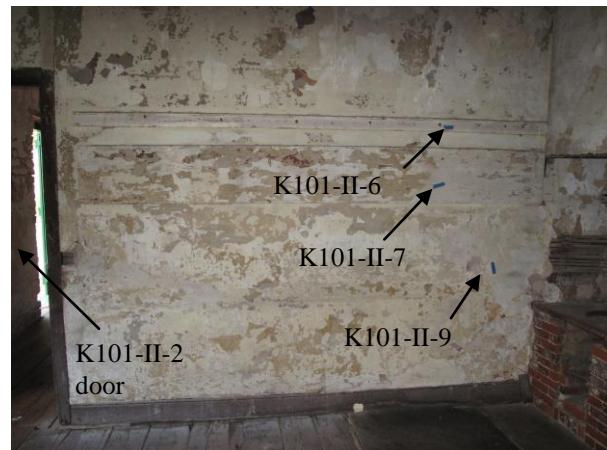
K101 West Wall



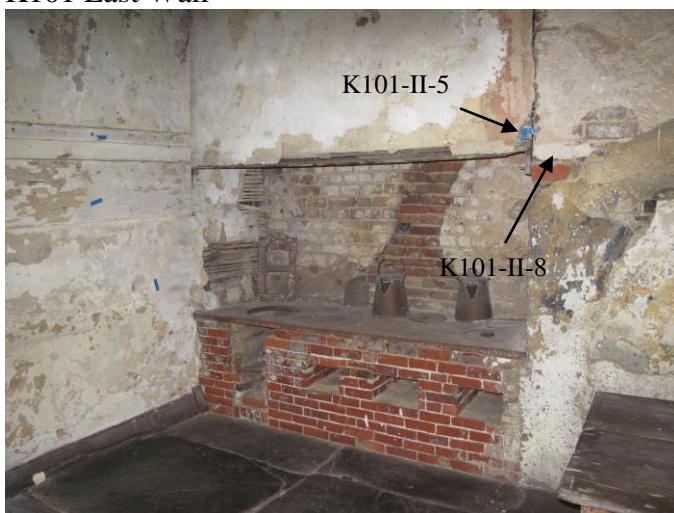
K101 West Wall



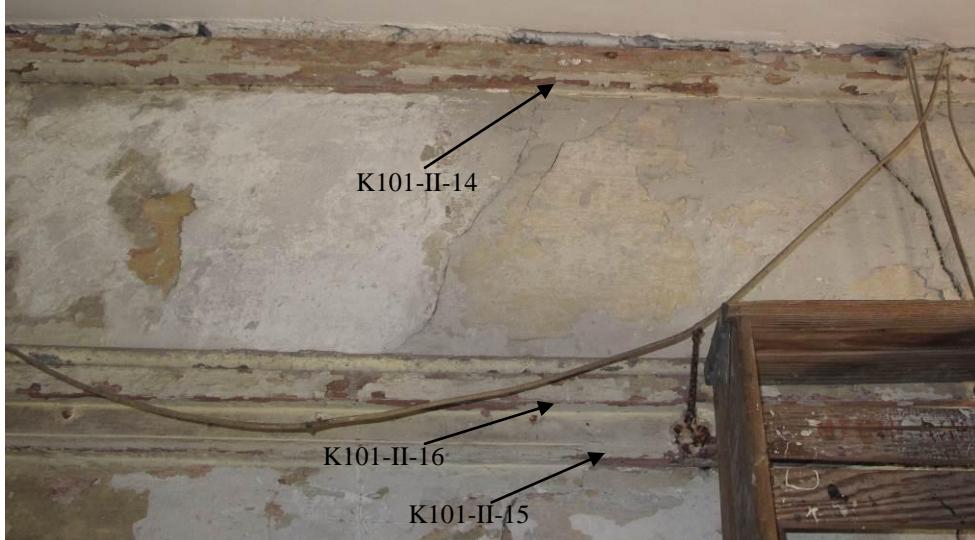
North Wall



K101 East Wall



K101 South Wall. Sampling for gas and water pipe comparative dating.



K101 West wall, paint on gas pipe just above opening where water pipe dropped down.

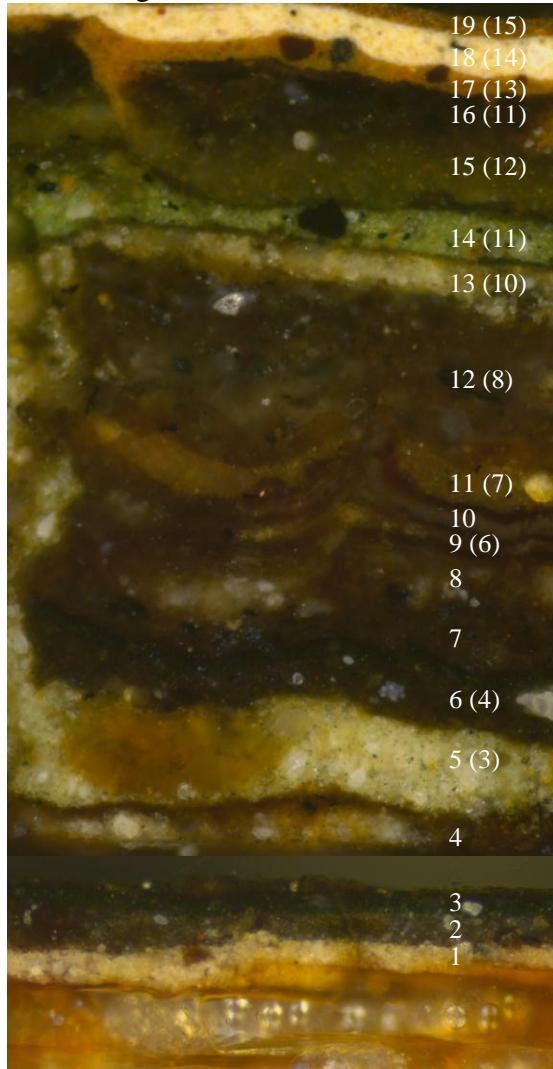


K101 Woodwork.

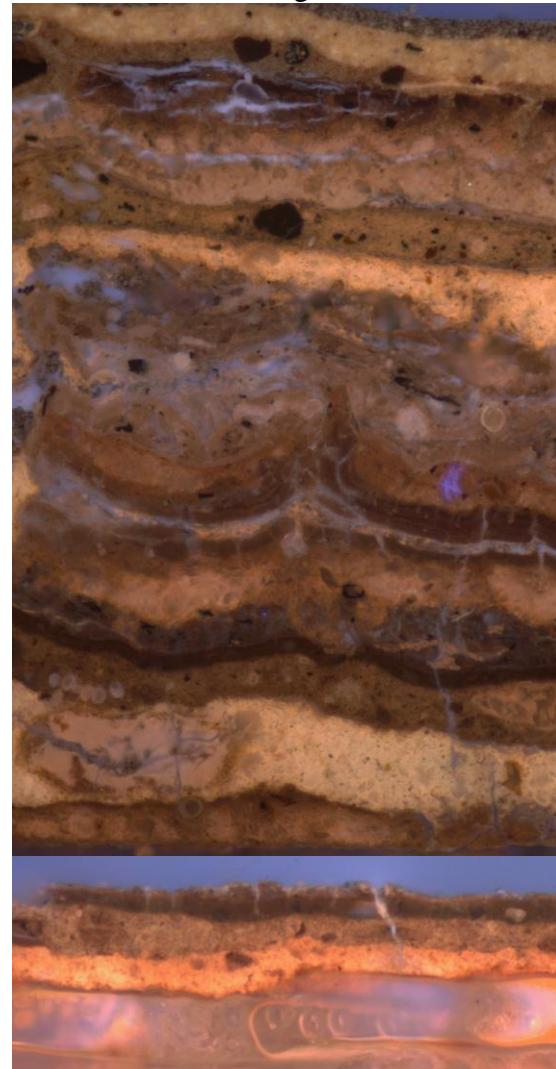
The most complete woodwork sample in K101 was found to be K01-II-11 from the lower bar across the center window, which is believed to be original. This cross-section has 19 generations of paint, compared to the 15 generations of paint identified during the dissertation research. There are 21 generations of paint on the woodwork in this room, including the most recent green found only on the window sash (K101-II-12). Cross-section K101-II-11 provides an almost complete stratigraphy for comparisons of original and later woodwork. The coatings are degraded and uneven, due to weathering and grime, but the sequence can be readily deciphered, beginning with the first layer of light tannish or cream-colored paint on top of the wood. The wood substrate is not grimy or darkened, suggesting that the first paint was applied in Period I. The layers are identified by generation in the photomicrograph below, with the earlier designations for the generations noted in parentheses. A chart comparing the paints found on each sampled section of woodwork follows.

Sample K101-II-11. West wall, center window, lower bar across.

Visible Light 200X



Ultraviolet Light 200X



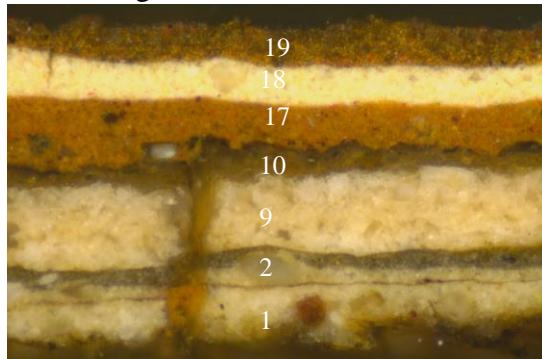
Kitchen K101 Comparative Woodwork Paint Chronology

Generation	Coating	K101-II-1 W. wall, S. door reveal	K101-II-2 N. wall door	K101-II-3 W. wall S. later glazed door	K101-II-11 W. wall, center window bar	K101-II-12 W. wall, later sash
21.	Green					x
20.	Light gray		x			x
19.	Modern red- brown	x	x	x	x	
18.	Off-white	x	x	x	x	
17.	Red-brown	x	x	x	x	
16.	Blackish- green		x		x	
15.	Dark resinous green		x	x	x	
14.	Medium green		x	x	x	
13.	Pale gray- green		x	x	x	
12.	Gray				x	x
11.	Brown with resinous coating				x	
10. Possibly Period III	Brown with resinous coating	x	x	Brown on off-white primer containing zinc white	x	x
9.	Brown resinous coating	Off-white	Off-white		x	Off-white
8.	Gray paint		x		x	Cream
7.	Brown paint		Tan paint		x	Cream
6.	Black paint				x	
5.	Tannish- gray paint		x		x	
4. Likely Period II	Tan paint with resinous coating		Pigmented varnish		x	
3.	Dark green resinous coating				x	
2.	Dark gray oil paint	x on cream primer			x	
1. Period I	Tan or cream oil paint	x			x	
1.	Shellac in wood				x	

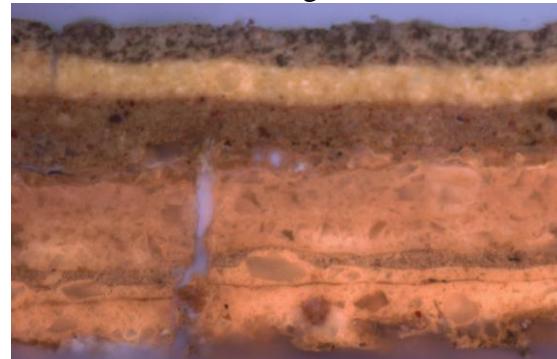
Comparisons of the paints on the original south door reveal (K101-II-1) show that it was originally painted the same tan as the window bar, followed by dark gray on top of an off-white primer. This cross-section is missing generations 3 through 8 and 11 through 16, likely because of flaking and abrasion (see below).

Sample K101-II-1. West wall, south door, original door reveal, left side about 4' to confirm Period I woodwork chronology.

Visible Light 200X



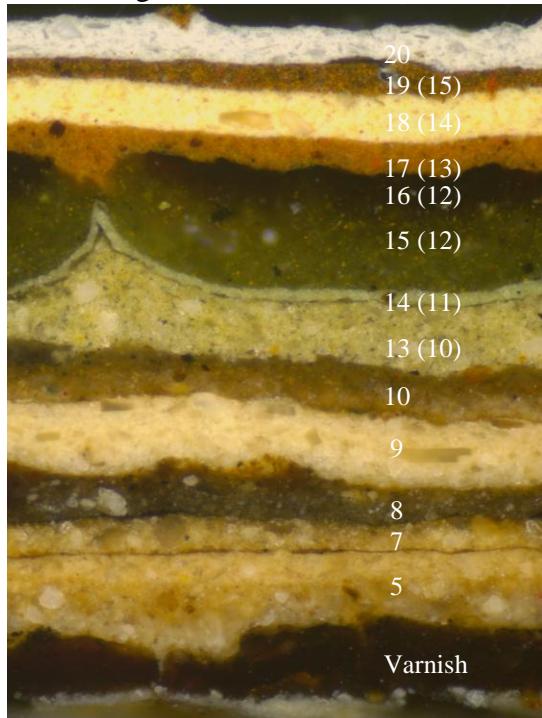
Ultraviolet Light 200X



By comparison, the paints on the door in the Period II partition wall begin with a darkened pigmented varnish coating that seems to line up with generation 4. This suggests that the kitchen woodwork was repainted twice before William Aiken, Jr. expanded the building to the south in Period II. The layer identification in parentheses below relate to the earlier identification of the paint generations.

Sample K101-II-2. North wall, south door, later door in Period II partition wall, left side.

Visible Light 200X

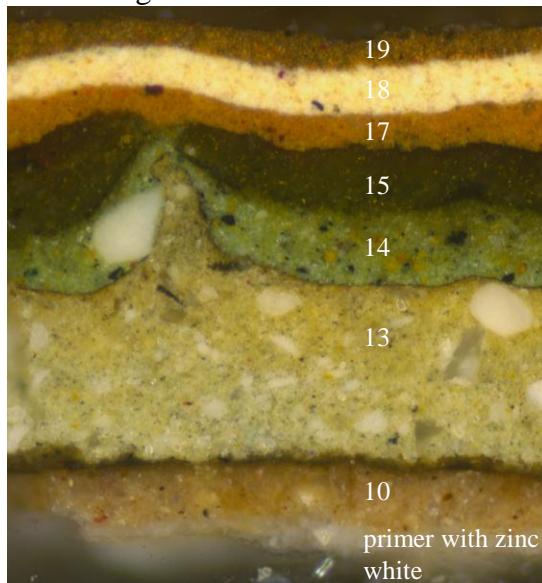


Ultraviolet Light 200X

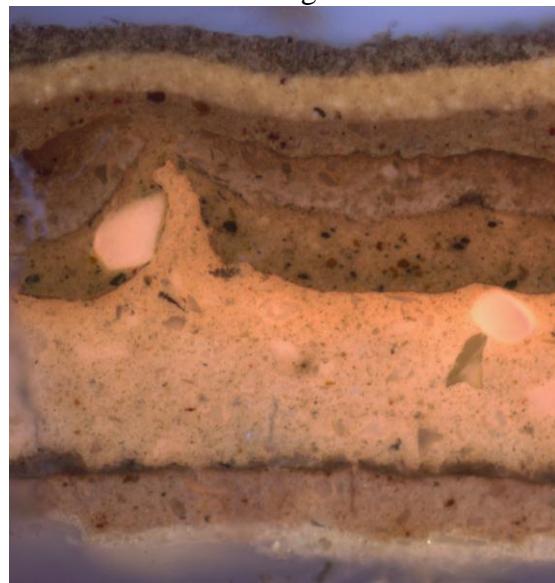


The paint sequence on the later glazed door on the west wall (K101-II-3) begins at generation 10, and this first coating consists of a brown paint on an off-white primer that contains the pigment zinc white. The presence of zinc white indicates this door could not have been installed before about 1845 when zinc white became commercially available. This door was likely installed considerably after 1845 as generation 4 seems to indicate Period II in the coating stratigraphy.

Sample K101-II-3. West wall, south door, later glazed door, left stile about 4' up.
Visible Light 200X



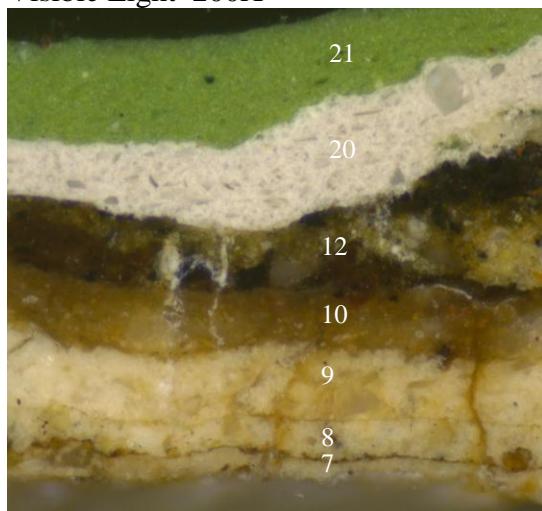
Ultraviolet Light 200X



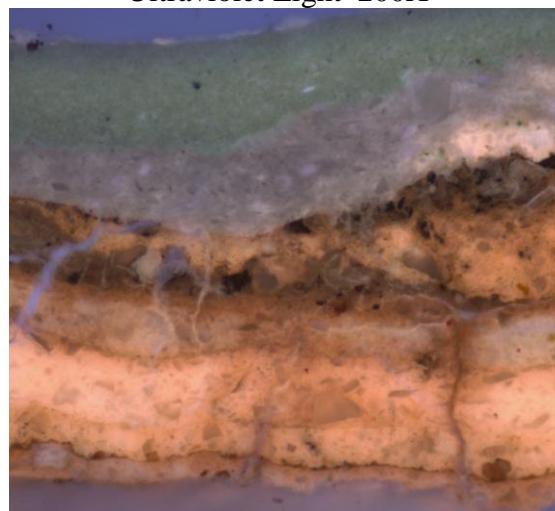
Not surprisingly, the window sash paints are more degraded and disrupted than the other coatings, but the stratigraphy in sample K101-II-12 from a later window sash seems to begin with generation 7, a cream color. The sash was initially painted with lighter colors than the rest of the woodwork.

Sample K101-II-12. West wall, later window sash.

Visible Light 200X



Ultraviolet Light 200X

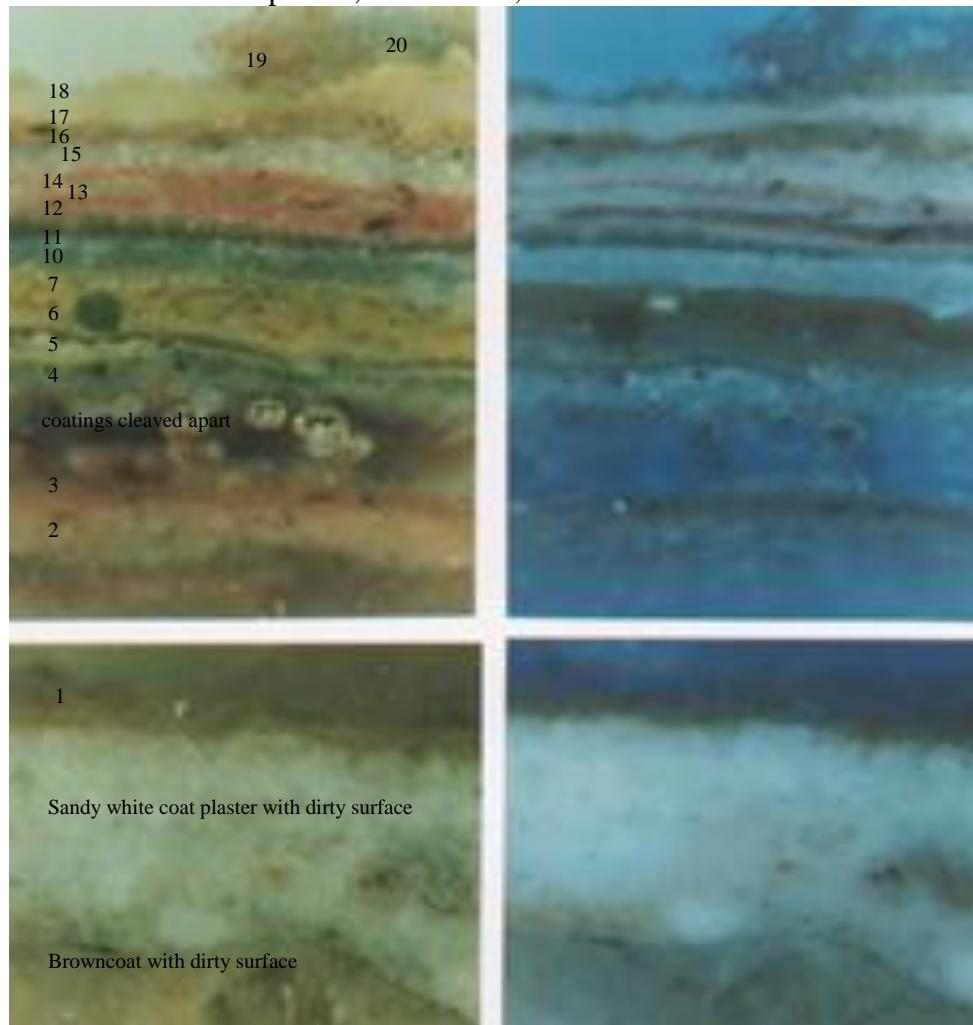


K101 Plaster, Wall Boards, and Pipes.

The comparative paint histories found on the pegrail, the board set into the north wall, and the pipes are included in this section of the report because these elements were generally painted to match the plaster walls. Thus, there are many pigmented and unpigmented limewash layers on the inset wooden elements that can be correlated with the original and later wall plaster coatings. It is definitely more difficult to align the chalky limewash coatings because in many areas these fragile layers have simply flaked away.

In the first phase of research 19 generations of limewash were found on top of a sandy white coat plaster that seemed to have been applied during Period I, although the presence of soot on the brown coat of plaster indicated the walls had initially been left unpainted. The most complete plaster sample found in both phases of research in room K101 is still sample K101-1 with 20 coating generations (see below). A few unpigmented limewashes missing in this sample were found in other cross-sections and this evidence was used to reconstruct the full wall paint chronology to identify 23 generations of paint. A table showing the comparative stratigraphies is on page 14.

K101-1. South wall plaster, left of door, above chair board level.



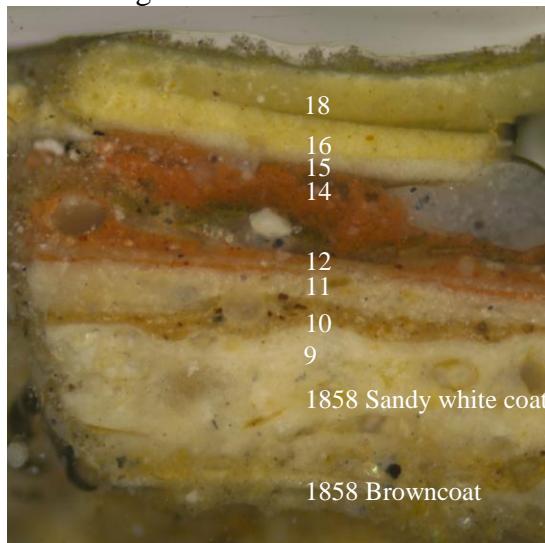
Kitchen K101 Comparative Wall Plaster Limewash Chronology

Generation	Coating	K101-II-5 above 1858 stew stove	K101-II-6 N. wall pegrail	K101-II-7 N. wall wide board	K101-II-8 E. wall 1858 infill	K101-II-14 S. wall water pipe board	K101-II-15 S. wall pegrail	K101-II-16 S. wall gas pipe board	K101-II-17 S. wall gas pipe
21-23.	Opaque off-white paints				x	x		x	x
20.	Grayish-white wash								
19.	Pale pink wash					x			x
18.	Pale yellow wash	x			x	x	x	x	x
17.	Unpigmented limewash				x	x	x	x	x
16.	Dark yellow paint	x			x	x	x	x	x
15.	Unpigmented limewash	x			x	x	x	x	x
14. Installation of water pipe	Deep orange paint	x			x	x	x	x	x
13.	Unpigmented limewash	x					x	x	x
12.	Deep orange wash	x					x		
11.	Unpigmented limewash	x		x			x	x	x
10.	Pale gray wash	Tannish wash					x		x
9. Installation of gas pipe	Unpigmented limewash	x		Yellow wash					x
8.	Unpigmented limewash			x					
7.	Bright yellow wash			x					
6. Likely Period III	Bright yellow wash				x				
5.	Unpigmented limewash								
4.	Grayish wash								
3.	Deep orange-pink wash		x	Pale orange					
2.	Pale orange-pink wash		Unpigmented wash	Unpigmented/gray wash					
1. Likely Period II	Deep yellow wash		x (remnant)						
Period I Substrate	Dirty white coat								
Period I Substrate	Dirty browncoat								

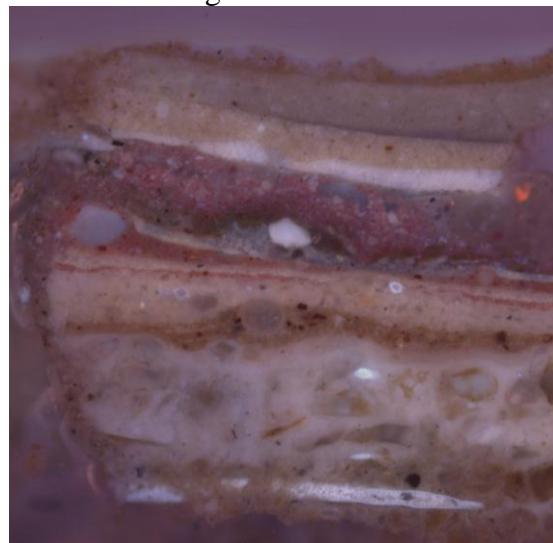
The two samples taken from the 1858 infill above and to the right of the stew stove have disrupted paint stratigraphies, but the sequence of coatings in sample K101-II-5 from the circular sawn lath begins at generation 9 when compared to the full chronology of coatings. This unpigmented limewash layer is just slightly later then the findings from the first analysis which indicated the coatings above the stew stove could be aligned with a yellow wash that is generation 6 in the reconstructed wall paint chronology. However, there are fragments of this yellow wash at the bottom of the cross-section K101-II-8 from the infill to the right of the stew stove (see below).

Sample K101-II-5. East wall, plaster above later installation of stew stove, 1858 plaster on circular sawn lath, for comparative dating.

Visible Light 100X

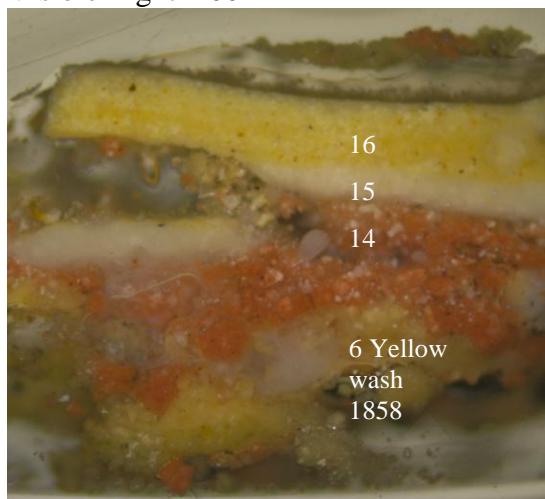


Ultraviolet Light 100X

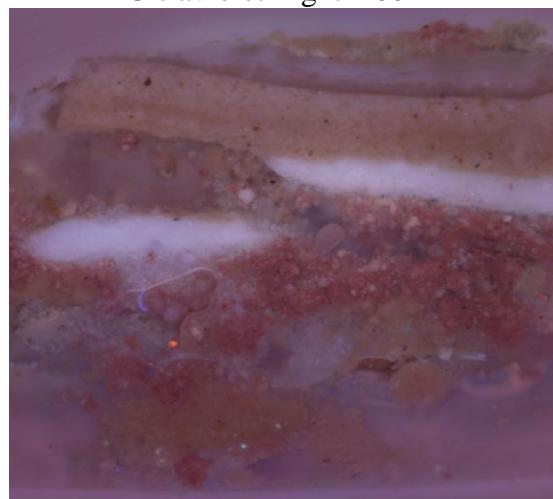


Sample K101-II-8. East wall, 1858 infill right of stew stove (location of former fireplace).

Visible Light 100X



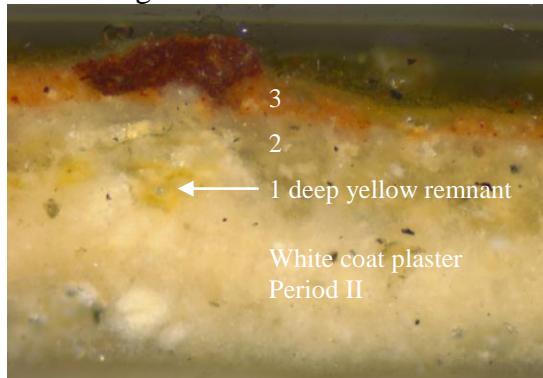
Ultraviolet Light 100X



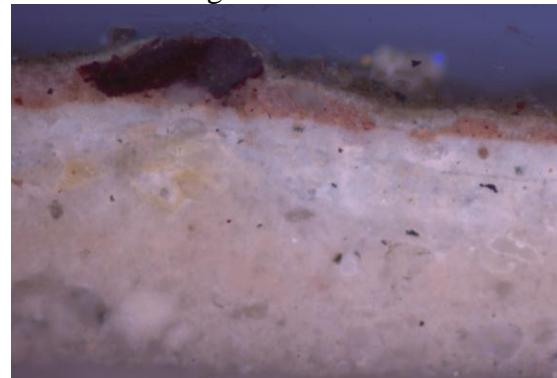
The coatings on the north wall pegrail (K101-II-6) and the wide board below the pegrail (K101-II-7) seem to have consistent early chronologies. The first layer is a thin uneven layer of plaster, suggesting that the first white coat was accidentally applied over these wooden elements. There is a fragment of the Period II yellow limewash on the pegrail, followed by a unpigmented limewash on both elements which can be aligned with generation 2 in the limewash chronology. There is a dark gray wash on top of the unpigmented limewash on the wide board, suggesting that a dark gray-painted wainscot which extended on top of the wide board was created in generation 2. The third generation in both samples is an orange-pink pigmented limewash. The later washes cleaved off the pegrail, but the sequence of coatings on the wide board suggests there may have been a dark gray wainscot in generation 2. This means that the faux wainscot extended quite high on the wall at this point. The comparative cross-sections suggest that the first layer on the Period II north wall was an unpigmented limewash, followed by a deep orange-pink wash that was also found on the Period I south wall.

Sample K101-II-6. North wall, pegrail, 3' from northeast corner.

Visible Light 200X

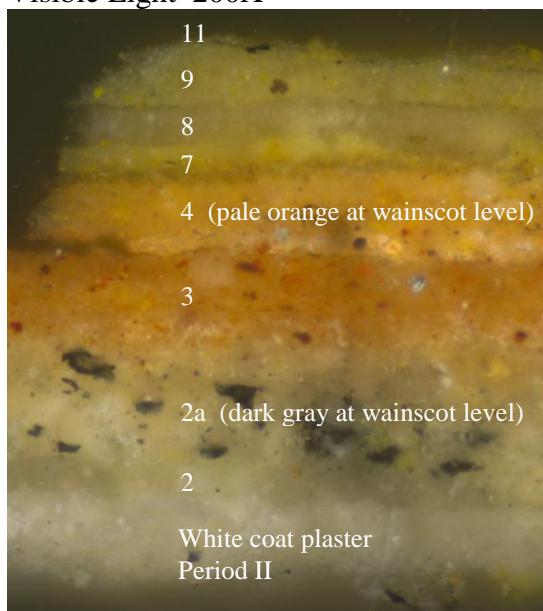


Ultraviolet Light 200X



Sample K101-II-7. North wall, wide board about 3' from northeast corner.

Visible Light 200X

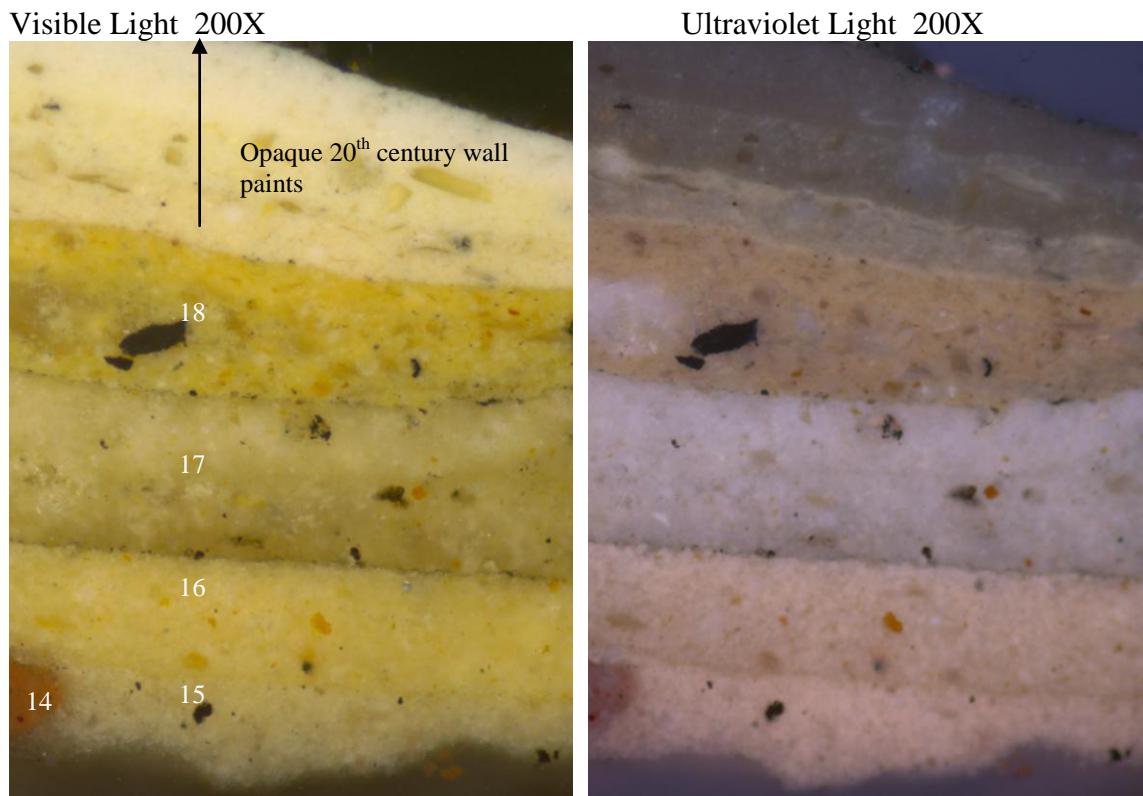


Ultraviolet Light 200X

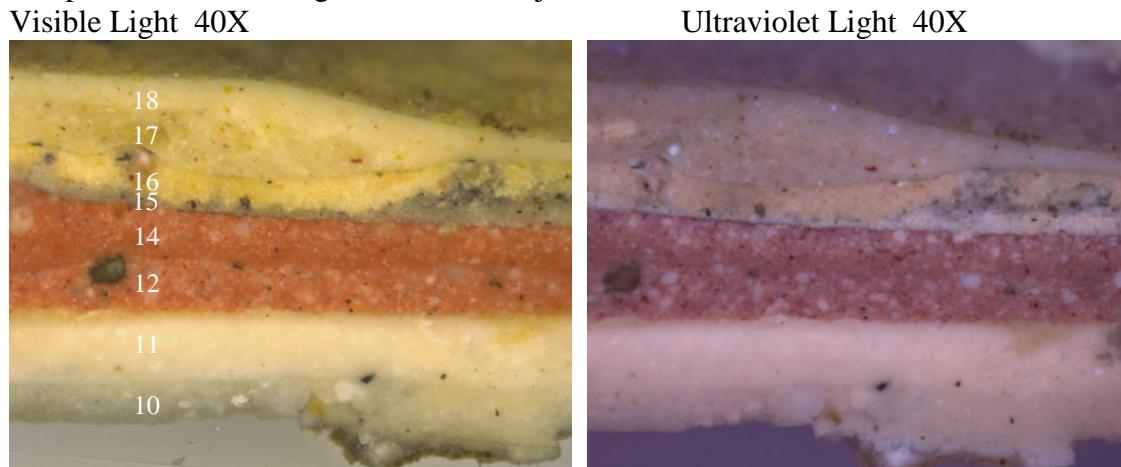


The coating history on the support board for the water pipe (K101-II-14) begins quite late, at generation 14, a deep pinkish-orange opaque paint. When the paints on the south wall pegrail (K101-II-15) are compared to the full sequence of south wall plaster paints (K101-1) and the north wall pegrail (K101-II-6), it appears that the earliest coatings may have cleaved away from the water pipe. The paints on the south wall pegrail begin at generation 10, a pale gray limewash, suggesting either the earliest layers were lost, or this pegrail was installed considerably later.

Sample K101-II-14. Water pipe support board, above south wall door, just below ceiling level.



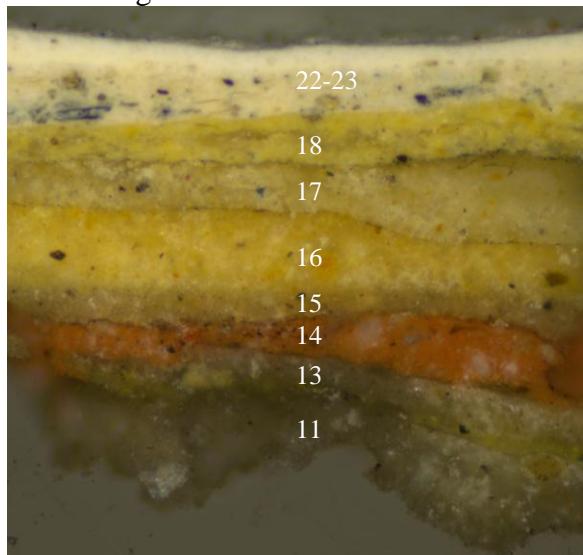
Sample K101-II-15. Pegrail, south wall, just above door.



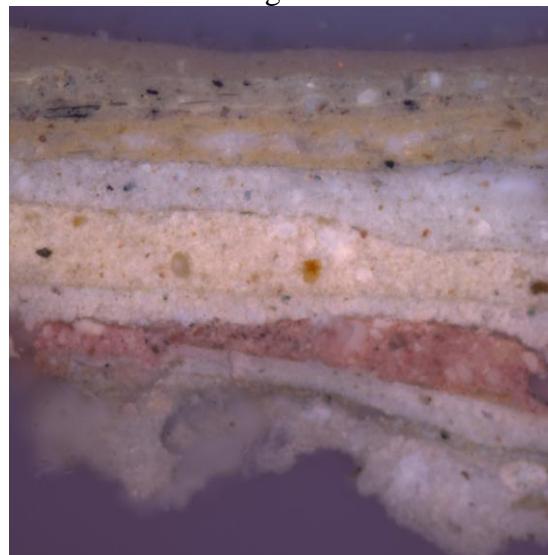
The coatings on the elements associated with the gas pipe are somewhat difficult to interpret because of the corrosion on the gas pipe (K101-II-17) and the paint loss on the support board for the pipe (K101-II-16). However, the evidence does suggest that the gas pipe was installed as early as generation 9 (a degraded unpigmented limewash) as that is the first layer in the cross-section from the gas pipe. The first layer on the board supporting the gas pipe is generation 11, so it is possible that several early washes are missing on this board as most likely the board and the gas pipe were painted simultaneously.

Sample K101-II-16. Board just above pegrail used to support gas pipe and later to support water pipe, on south wall just above door.

Visible Light 40X

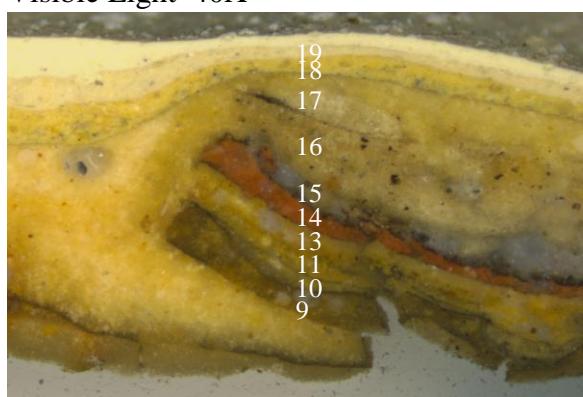


Ultraviolet Light 100X

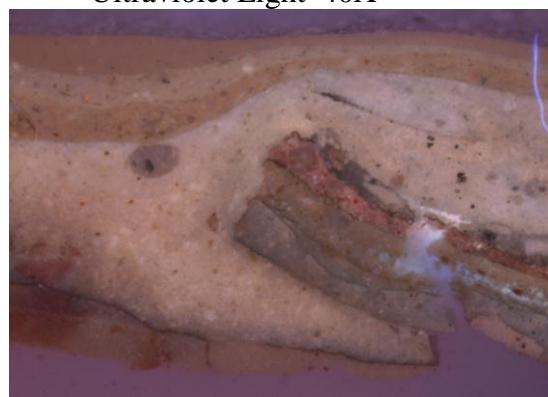


Sample K101-II-17. Paint on gas pipe, south wall, above door (surface is corroded).

Visible Light 40X



Ultraviolet Light 40X



Room K102 First-Floor:

During the first phase of dissertation research, this room, believed at the time to be a second kitchen, was only sampled on a limited basis. The evidence in the first group of samples showed that the first layer on the south partition wall of this room was a deep yellow-pigmented limewash which lined up with the first pigmented yellow limewash coating layer on the south wall of the kitchen (room 101). The earlier findings identified this yellow limewash as the Period II coating. However, this new group of plaster samples suggests that the Period II limewash in room K102 was a pinkish-orange limewash, although there are many later yellow limewashes as well. Twelve samples were taken from this room to help sort out the chronologies for the plaster and for the woodwork related the closet on the east wall, the pegrails, the Period II south partition wall elements, and the alterations to the two-part board door on the south wall.

Seven samples from different areas of woodwork and three plaster samples from this room were analyzed in cross-section. The paints on the closet are described with the wall plaster samples as this wooden enclosure was generally painted to match the plaster walls.

Room K102 Phase II Cross-section Sample Locations.

K102-II-1. East wall, SE corner, wooden surround for closet in northeast corner. Period II installation. Sampled to establish chronology for Period II woodwork.

K102-II-3. South wall, SE corner, just right of enclosed shelving unit, plaster should have full Period II chronology.

K102-II-4. South wall, SE corner, within below level of shelf.

K102-II-5. South wall pegrail, just left of door opening, at lower bead molding. For comparative chronology on pegrails in this building.

K102-II-6. South wall door architrave, left side, about 5' up, (has blackened charred surface) at exising hole.

K102-II-7. South wall, Period II baseboard, just left of door, for comparison with baseboard believed to be Period I on north wall.

K102-II-8. North wall, Period I baseboard, just right of door opening, to identify original paint and for comparison with Period II baseboard.

K102-II-9. North wall, short pegrail, lower edge. For comparative dating.

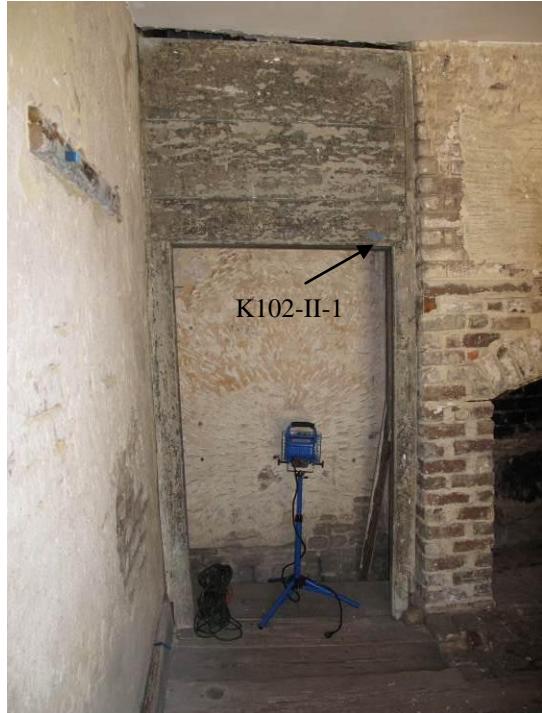
K102-II-10. North wall, Period II door opening, left side, about 4' up.

K102-II-11. South wall, upper door of two-part board door, on batten. Can paint tell when this was cut apart?

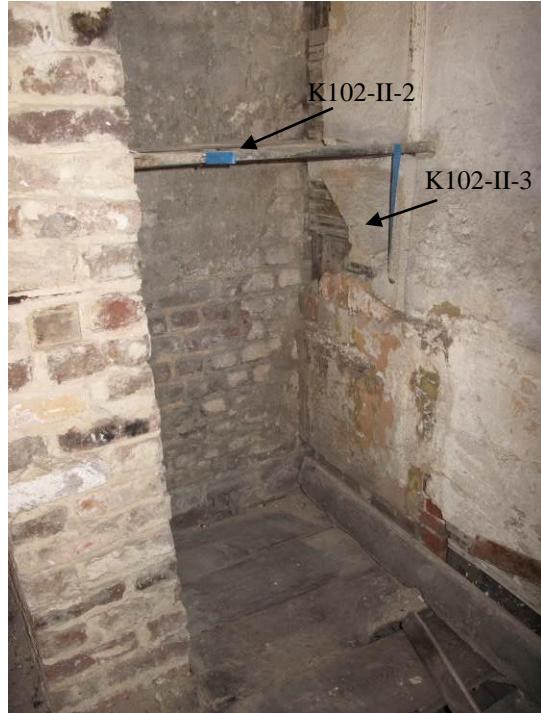
K102-II-12. South wall, bottom door of two-part board door, on later batten (only two paint generations).

Sample Locations

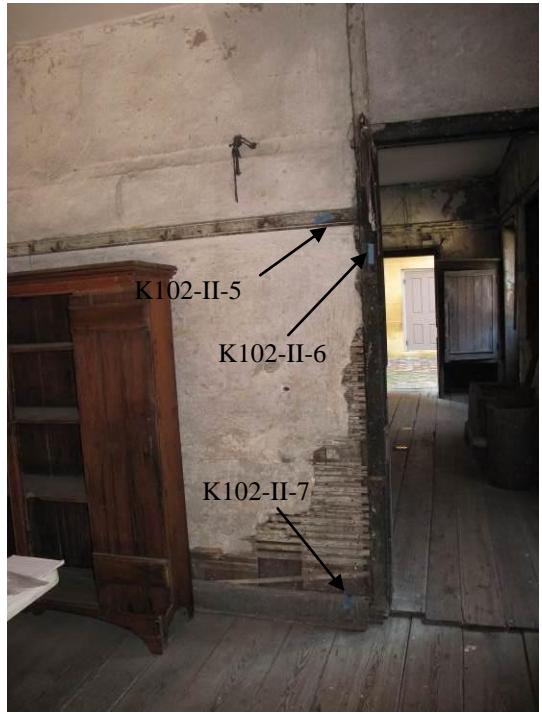
East Wall



Southeast Corner



South Wall



North Wall



K102 South Wall



K102 Woodwork

Comparative analysis of samples from the woodwork, including the Period II closet woodwork, Period I and II baseboards, and one door suggest that these elements were not always painted to match each other during each repainting. The woodwork paint evidence in this space is also more fragmentary than in the kitchen (room K101).

However, it is possible to relate the woodwork paints in this room with those found in the most complete woodwork sample from room K101 to help comparatively date some of the changes. The following chart shows how the layers in the K102 woodwork samples compare to K101.

Kitchen K101 Woodwork Paints Compared to K102

Generation Paint in K101-II-11	K102-II-5 S. wall pegrail	K101-II-6 S. wall door architrave	K102-II-7 S. wall Period II baseboard	K102-II-8 N. wall Period I baseboard	K102-10. N. wall Period II door opening	K102-II-11. S. wall, upper part of board door
19. Modern red-brown		x				
18. Off- white						
17. Red- brown		x				
16. Blackish- green	Cream color					
15. Dark resinous green	Deep yellow	x		x		
14. Medium green	x			x	x	x
13. Pale gray-green	Dark gray- green					
12. Gray						
11. Brown & varnish				x	x	x
10. Brown & varnish Possible Period III					x	
9. Brown resinous coating				x		
8. Gray paint						Gray-green (first layer on later batten)
7. Brown paint					Tan	
6. Black paint						
5. Tannish- gray paint	Gray		Brown with varnish	Brown with varnish	Tan with varnish	Brown with varnish
4. Likely Period II Tan paint & resinous coating	Cream color		Light brown on cream primer	Light brown on cream primer		
3. Dark green resinous coating						
2. Dark gray oil paint						
1. Period I Tan oil paint						
1. Shellac						

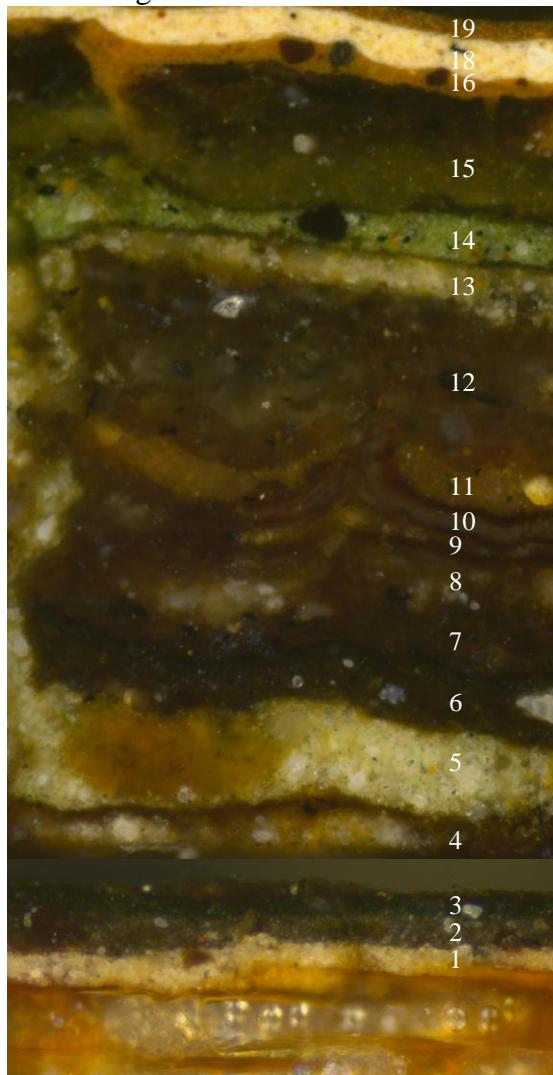
K102 Baseboards. Because many of the sampled areas of woodwork have distinctly different paint histories, the stratigraphy on each type of element will be described separately, beginning with the Period I and II baseboards. The most complete sample is K102-II-8 from a section of baseboard from the north wall believed to be Period I. This cross-section has only seven generations of paint, compared with 23 generations found on the woodwork in K101, indicating this room was repainted with far less frequency. The first paint layer is a cream-colored base coat with a darker tan resinous finish layer that can be aligned with generation 4 in K101-II-8. This is followed by a red-brown paint that corresponds to generation 5 on the K101 woodwork.

A comparison of the paints found in cross-sections K101-II-11 from the center window bar and K102-II-8 from the north wall baseboard shows how the paints line up. It is important to note that the earliest paints in K102-II-8 and K102-II-7 from a section of Period II baseboard are the same. The combined evidence suggests that the north wall baseboard was not installed and painted until Period II.

Comparison of K101-II-11 with K102-II-8

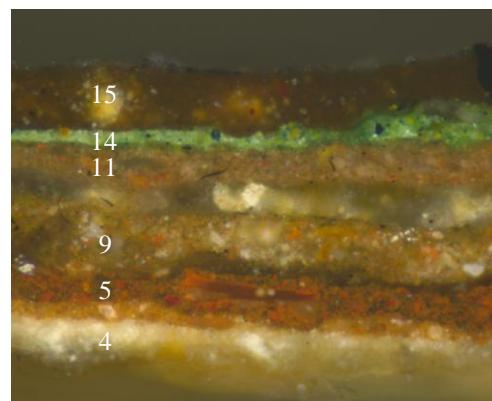
Sample K101-II-11. Center window,
lower bar across.

Visible Light 200X



Sample K102-II-8. North wall baseboard.

Visible Light 200X

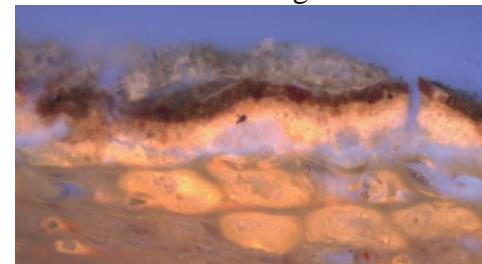


Sample K102-II-7. South wall, Period II baseboard, just left of door, for comparison with baseboard believed to be Period I on north wall.

Visible Light 200X



Ultraviolet Light 200X

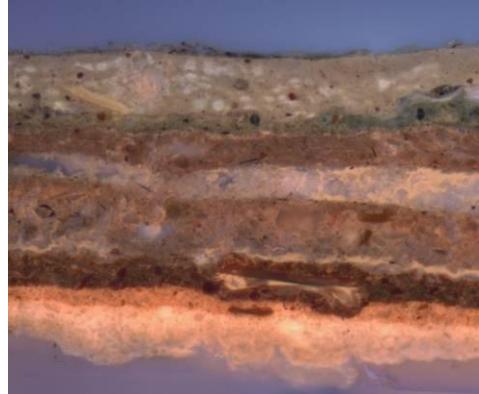


Sample K102-II-8. North wall, Period I baseboard, just right of door opening, to identify original paint and for comparison with Period II baseboard.

Visible Light 200X



Ultraviolet Light 200X



K102 Pegrail. Two sections of pegrail on the north and south walls were sampled for comparison with other pegrails in the building. The first obvious difference is that the pegrail on the south wall (K102-II-5) was painted with oil-bound paints like the other trim elements, while the paints on the pegrail on the north wall (K102-II-9) were painted with a combination of limewashes and now damaged oil-bound paints. So it is possible to compare the chronology on the south wall pegrail with the other woodwork in this room, but not with the original south wall pegrail in room K101, because that pegrail was coated with limewashes like the plaster walls.

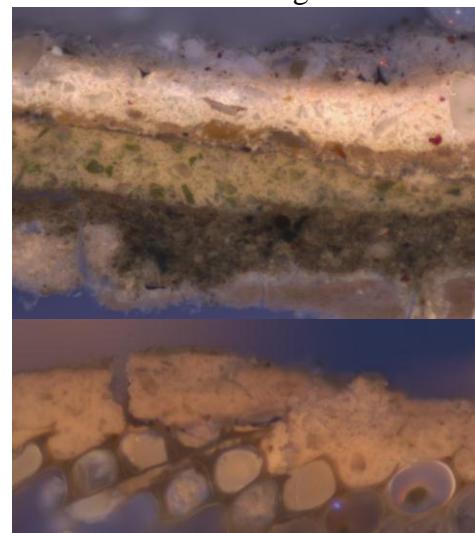
In sample K102-II-5 from the south wall pegrail, the first layer is a tan or cream-colored paint, like the first paint layer observed in the K102 baseboard samples. The second generation is light gray that may line up with generation 5 in room K101. This is followed by a dark green paint that may be generation 13, and a green paint that is generation 14 in the K101 woodwork chronology. The two subsequent layers, a dark yellow and a cream color were not found on K102 baseboards, or on the woodwork in room K101.

Sample K102-II-5. South wall pegrail, just left of door opening, at lower bead molding. For comparative chronology on pegrails in this building.

Visible Light 200X



Ultraviolet Light 200X

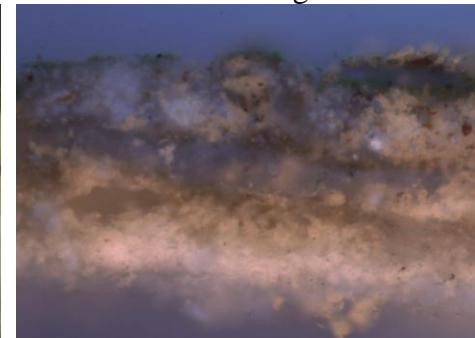


Sample K102-II-9. North wall, short pegrail, lower edge. For comparative dating.

Visible Light 200X

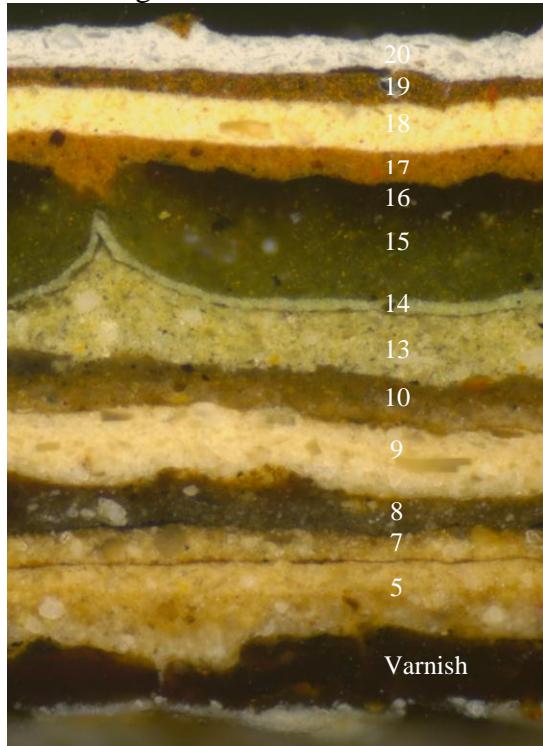


Ultraviolet Light 200X

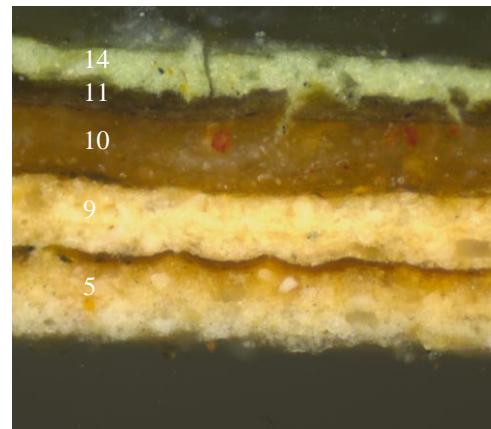


K102 Period II Door Architrave. The paints on the Period II door opening on the north wall in sample K102-II-10 begin with generation 5, when compared to the K101 woodwork stratigraphy. This is just one generation later than the tan paint found as the Period II coating on the central window bar. The paint history on the north wall door opening confirms that this room was repainted less frequently than K101 as the early paints consist of generations 5, 7, 10, 11 and 14. This architrave may have originally been left unpainted. A comparison of K101-II-2 and K102-II-10 is shown below.

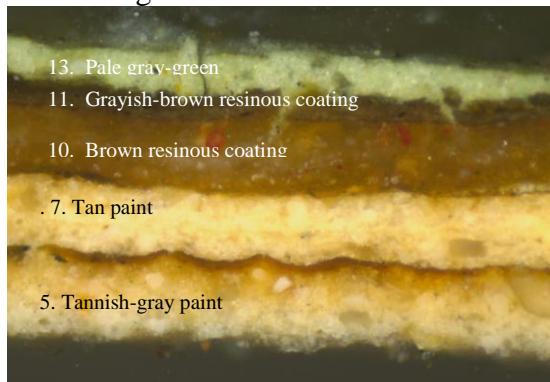
Sample K101-II-2. North wall,
later door in Period II partition wall, left side.
Visible Light 200X



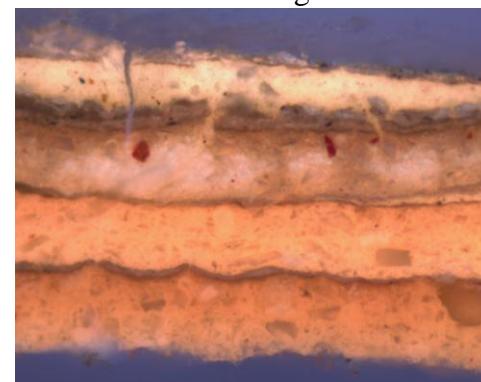
K102-II-10. North wall, Period II
door opening.
Visible Light 200X



Sample K102-II-10. North wall, Period II door opening, left side, about 4' up.
Visible Light 200X



Ultraviolet Light 200X



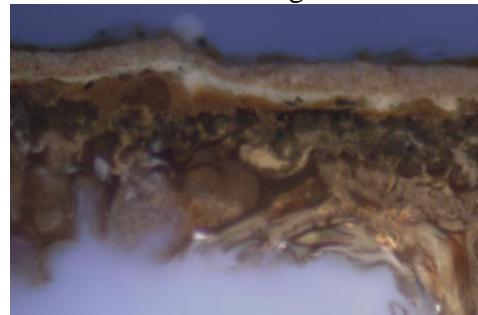
Sample K102-II-6 from the south wall door architrave contains very little evidence. The wood substrate is blackened, as if from charring, although there seem to be remnants of cream-colored paint trapped in the wood. The paints can only confidently be lined up with generations 15 through 19 on the woodwork in room K101. The paint evidence cannot help to date this door opening.

Sample K102-II-6. South wall door architrave, left side, about 5' up, (has blackened charred surface) at existing hole.

Visible Light 200X



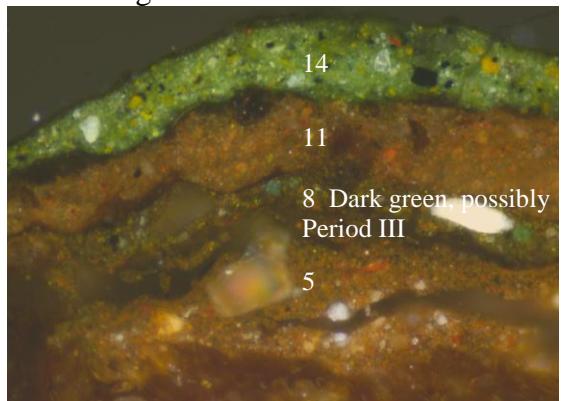
Ultraviolet Light 200X



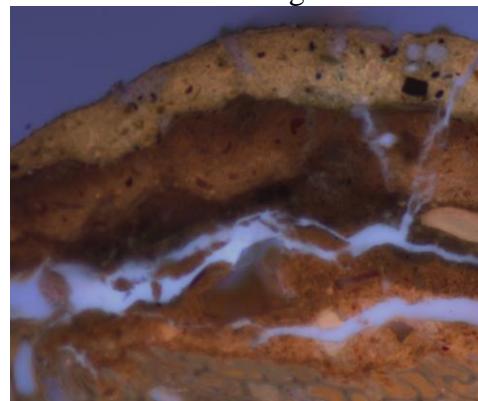
K102 Period II South Wall Door. The two-part door is secured with a later batten on the bottom section, and Graham was interested in whether the comparative paint histories could help identify when the solid door was cut apart and the later batten added to the lower section. The first layer in sample K102-II-11 from the original upper door batten begins with the brown paint with a varnish coating that aligns with generation 5 in the woodwork chronology from K101. The paint on the later lower batten (K102-II-12) begins at generation 8. This change could have occurred before Period III as Period II was found to be generation 4.

Sample K102-II-11. South wall, upper door of two-part board door, on batten.

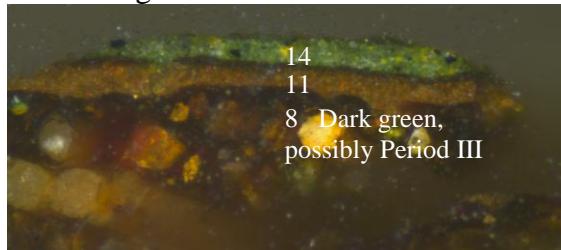
Visible Light 200X



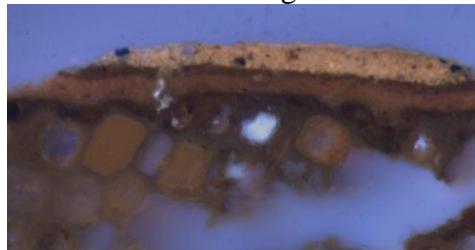
Ultraviolet Light 200X



Sample K102-II-12. South wall, bottom door of two-part board door, on later batten
Visible Light 200X



Ultraviolet Light 200X



K102 Plaster and Closet Enclosure. Comparative paint analysis suggests that the closet was originally limewashed, beginning with a yellow-pigmented limewash which can be aligned with generation 6 on the Period II partition wall (K102-II-3), although the evidence is quite fragmentary. The most recent coatings are relatively clean unpigmented limewashes. The closet may have been installed soon after the expansion of the building in Period II.

Sample K102-II-1. East wall, SE corner, wooden surround for closet in northeast corner.
Period II installation. Sampled to establish chronology for Period II woodwork.

Visible Light 100X



Ultraviolet Light 100X



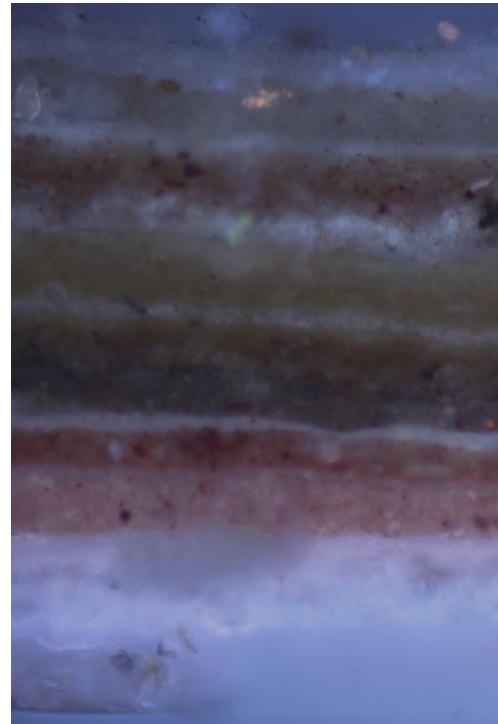
The limewashes on the walls in this room are similar in terms of colors, but the coatings do not line up with wall paint stratigraphy in room K101. This suggests that the two rooms were repainted at different times, or were often different colors during a given period of repainting. Sample K102-II-3 from the south wall has the best representative paint chronology with at least 11 generations of paint. The sequence begins with two generations of pinkish-orange pigmented limewash, followed by an unpigmented limewash and then two yellow limewashes. The coating chronologies in sample K102-II-3 from adjacent to the shelving in the southeast corner, and sample K102-II-4 from the plaster within and below the shelving, are the same from generation 1 through 11. This indicates the wall inside the shelving was treated in the same manner as the Period II wall, at least until the eleventh wall paint coating.

Sample K102-II-3. South wall, SE corner, just right of enclosed shelving unit, plaster should have full Period II chronology.

Visible Light 100X

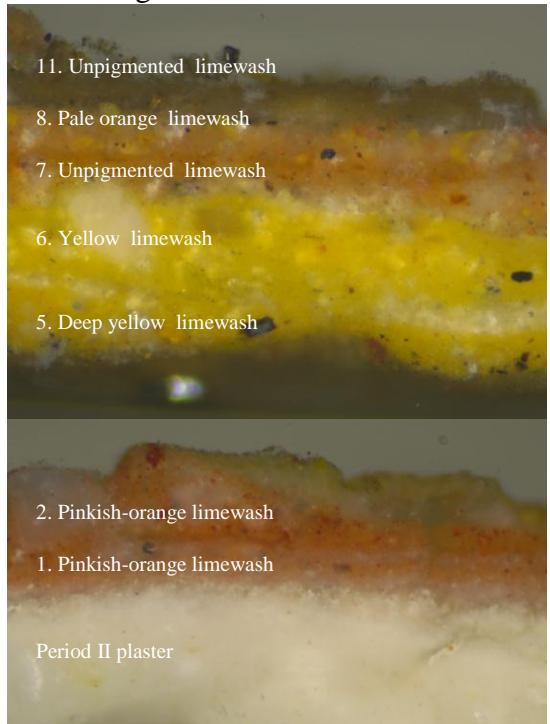


Ultraviolet Light 100X

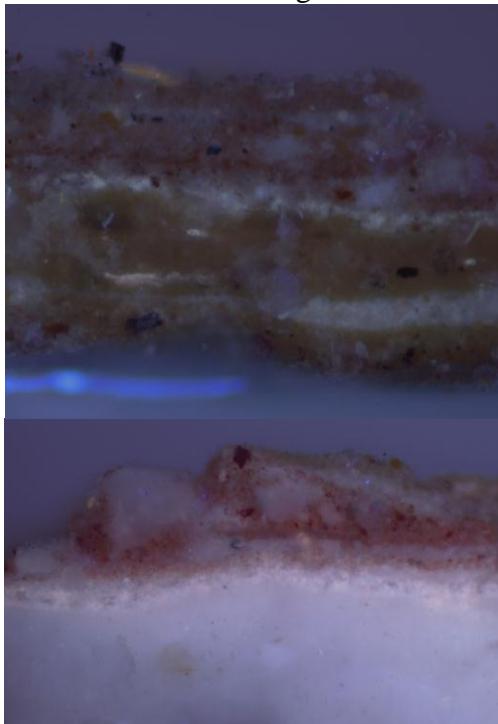


Sample K102-II-4. South wall, SE corner, within and below level of shelf.

Visible Light 100X



Ultraviolet Light 100X



Room K103 First-Floor Stair Passage:

The Period II stair passage was not included in the first phase of paint research, so the eight samples taken from this space provide completely new information. The staircase was sampled to hopefully determine where it was moved from, in addition to learning more about the later wide board extending from the landing to the second floor (used in place of former balusters). There is no obvious sign of pigmented washes on the stair passage walls, but pigmented limewashes were found in one cross-section, and evidence for an early faux black-painted wainscot was observed in the southwest corner of the vestibule. One exciting discovery during the site visit in March was the Period I plaster which can be seen below the level of the stair landing on the south wall. This is believed to be a wall from the original Period I privy. Five samples were taken from the staircase woodwork and three samples were taken from different areas of plaster.

Ghost of former Vertical Support for Stair Railing



K103 Stair Passage Phase II Cross-section Sample Locations

K103-II-1. Staircase, exposed light-colored paint on south side, Period I paint?, where vertical support had been secured.

K103-II-2. Staircase, full paint chronology just left of ghost on south side of staircase.

K103-II-3. Staircase, newel post, is this Period I? Where might this have come from?

K103-II-4. Staircase, added wide board in the middle used in place of former balusters, about 5' up. For comparative chronology.

K103-II-5. South wall, area of Period I plaster trapped below level of landing, which must have been from original privy.

K103-II-6. East wall, riser just below stair landing.

K103-II-7. North wall, at stair landing, coarse early plaster, at wainscot level. Is this Period II?

K103-II-8. North wall, smoother, later plaster, just left of K103-II-7.

K103 Sample Locations

K103 East Wall



K103 Staircase



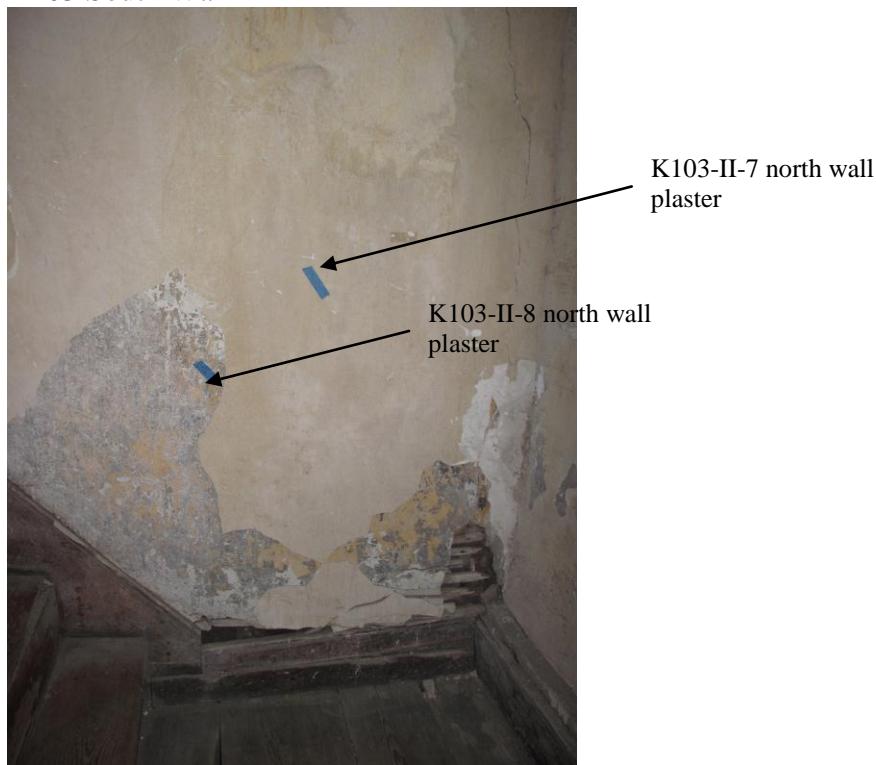
K103 South Wall Below Level of Landing



South Wall Black Wainscot



K103 South Wall



K103 Staircase Woodwork.

The paints on the woodwork are difficult to sort out because they all have different coating sequences, perhaps because the staircase elements were moved from different areas of the Period I building, or elements were added to the Period I staircase when it was moved to its present location in Period II.

The comparative evidence shows there is only one thin layer of cream-colored paint on top of the wood in sample in K103-II-1 from the “ghost” for a former vertical support on the south side of the stair. By comparison, there are three generations of paint adjacent to the ghost, beginning with a thicker layer of coarse cream-colored paint, followed by a dull translucent gray paint, and then the current red-brown (K103-II-2). Perhaps the staircase was painted once with a primer of cream-colored paint before the now missing vertical support was installed, then after the vertical support was installed another layer of the same cream-colored paint was applied. When the staircase was moved in Period II the vertical support was removed, and the stair carriage and newel post were repainted with translucent gray paint. Considerably later, all the stair elements were coated with the current red-brown paint (which lines up with generation 19 in K101).

When the first coarse cream-colored paint on the stair is compared to the original, but degraded, cream-colored paint on the bar for the central window in K101 they seem to be the same. This suggests the newel post and the upper run of this staircase were part of the Period I kitchen building. A comparison of the two cross-sections follows.

Sample K103-II-3. Staircase, newel post
Visible Light 200X



K101-II-11. West wall center window bar.
Visible Light 200X

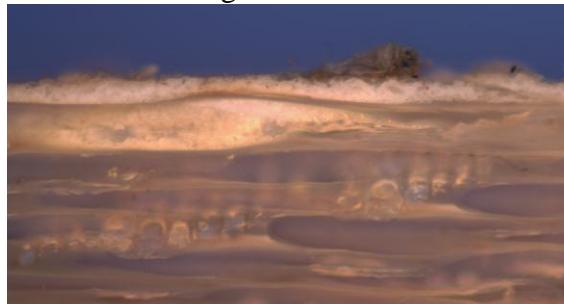


Sample K103-II-1. Staircase, exposed light-colored paint on south side, Period I paint?,
where vertical support had been secured.

Visible Light 200X



Ultraviolet Light 200X

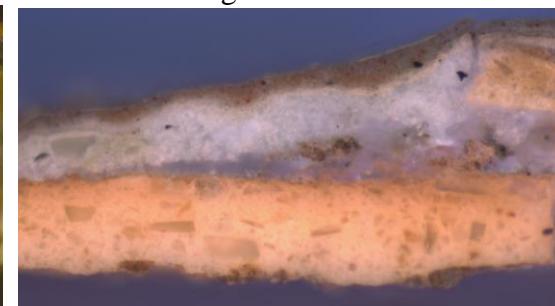


Sample K103-II-2. Staircase, full paint chronology just left of ghost on south side of
staircase.

Visible Light 200X



Ultraviolet Light 200X

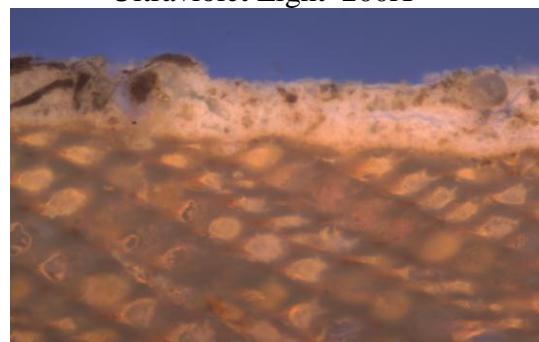


Sample K103-II-3. Staircase, newel post, is this Period I.

Visible Light 200X



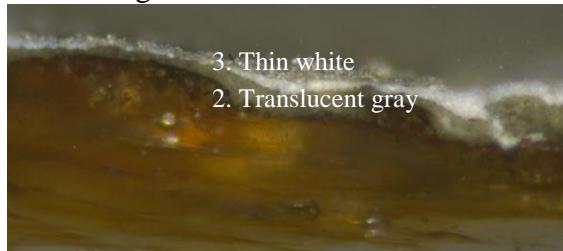
Ultraviolet Light 200X



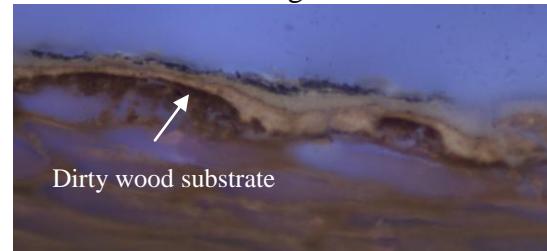
When the paints on the later wide board that replaced the balusters on the upper run of the staircase are compared to the full paint chronology in K103-II-2, it is apparent that it was not initially painted as the wood substrate is quite dirty. The first layer on top of the dirty wood is the translucent gray paint that was found as the second generation on the staircase.

Sample K103-II-4. Staircase, added wide board in the middle used in place of former balusters, about 5' up. For comparative chronology.

Visible Light 200X



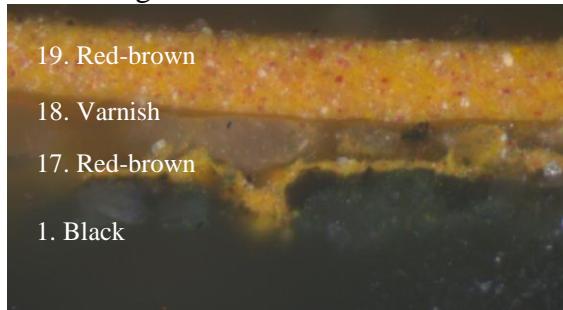
Ultraviolet Light 200X



The paint evidence on the risers shows that they were originally painted black. The first black paint is very degraded and fragmentary. This black paint is followed by a red-brown paint that lines up with generation 17 in K101, then a varnish coating, and then the most recent red-brown paint. The first black paint on the risers was not found elsewhere on the staircase or on other areas of woodwork, so it is not possible to comparatively date the installation of the lower run of the stairs using the paint histories.

Sample K103-II-6. East wall, riser just below stair landing.

Visible Light 200X



Ultraviolet Light 200X

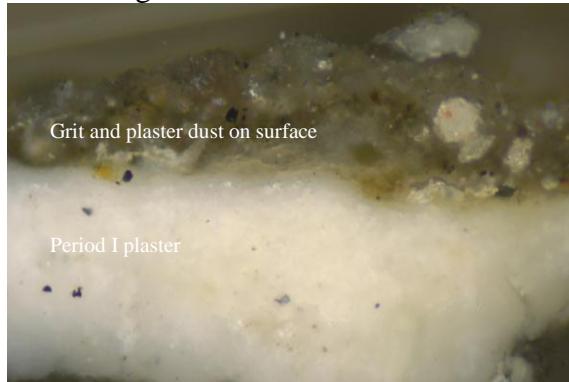


K103 Wall Plaster.

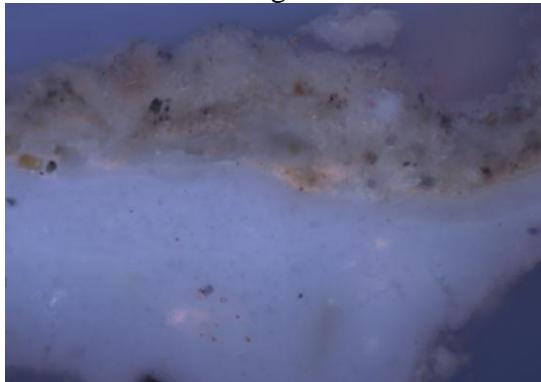
Three samples were taken from different areas of plaster in the stairhall, and they all represent different periods and materials. One sample was taken from the trapped Period I plaster below the stair landing, believed to have been part of the wall of the original privy. The cross-section K103-II-1 consists only of a white coat of plaster and a thick layer of attached grit and plaster dust. There are no limewashes on this plaster in this area, so it appears this privy interior was never painted or limewashed.

Sample K103-II-5. South wall, area of Period I plaster trapped below level of landing, which must have been from original privy.

Visible Light 100X



Ultraviolet Light 100X



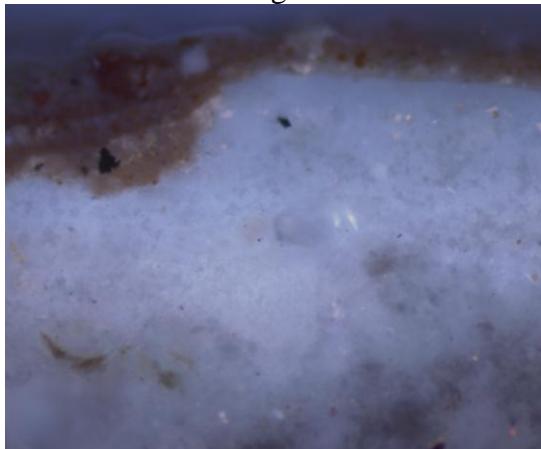
One plaster sample was taken at wainscot level at the stair landing to determine whether it might be early. The first coating on the sandy white coat is a deep yellow limewash, followed by a pinkish-orange limewash. These early pigmented limewashes closely resemble the initial two generations of pigmented limewashes on the Period II plaster in K101, helping to confirm that this is Period II plaster.

Sample K103-II-7. North wall, at stair landing, coarse early plaster, at wainscot level.

Visible Light 100X



Ultraviolet Light 200X



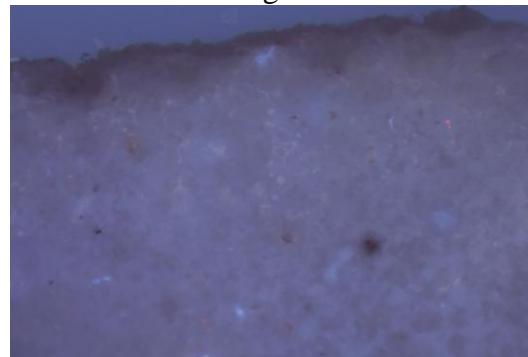
One sample was taken to the left of sample K103-II-7, on an area of smoother plaster on the north wall marked by Graham for analysis. The plaster substrate in this sample is a modern gypsum plaster with one thin layer on nonfluorescent, opaque, off-white paint. This area of plaster likely represents repairs done by The Charleston Museum or Historic Charleston Foundation.

Sample K103-II-8. North wall, smoother, later plaster, just left of K103-II-7.

Visible Light 200X



Ultraviolet Light 200X



Room K104 First-floor North Room:

The north room on the first floor of the kitchen/laundry building was not examined during the dissertation research as it was being used as a workshop space and was too difficult to decipher and sample. After discussions with Graham, six samples were taken from different areas of plaster in this room to help understand the coatings relating to the Period II plaster, the 1858 infill after the current door opening was created, and the paint coatings related to the location of the former board used to support the water pipe. It was hoped that they would provide insight into when the water source was changed to a cistern in the back of the building. Five of the six samples were cast for analysis.

K104 North Wall



K104 Phase II Cross-section Analysis Sample Locations

K104-II-1. North wall, plaster infill possibly from 1858, just left of door which was cut in later.

K104-II-3. South wall, southeast corner, at crack about 4' up.

K104-II-4. West wall, left of window, narrow white band at top of wall where water pipe support board was positioned.

K104-II-5. West wall, left of window, yellow wash on wall over former position of water pipe support board, above window.

K104-II-6. West wall, yellow-painted wall just below K204-II-4.

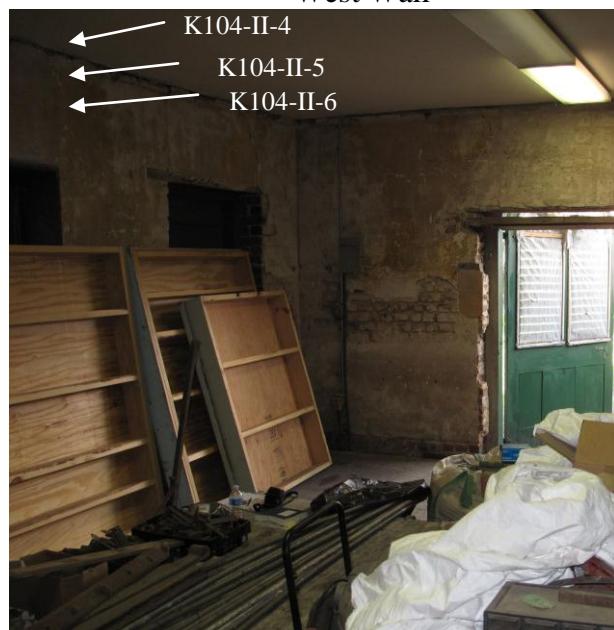
K104 North Wall



K104 South Wall



West Wall



K104 West Wall



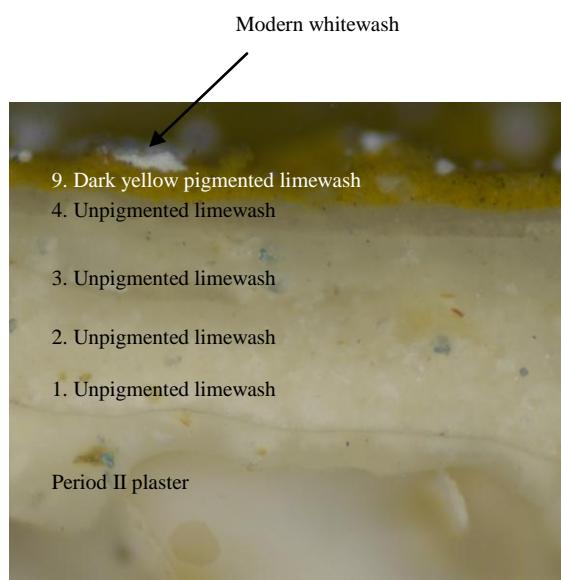
K104 Plaster.

The most complete sample of washes on the Period II plaster was found in sample K104-II-3 from the south wall. There are ten generations of coatings on the plaster, beginning with four generations of unpigmented limewash. These unpigmented washes are followed by two generations of distinctive yellow-pigmented limewashes, then alternating unpigmented limewashes and pigmented orange and dark yellow-pigmented limewashes. When the sample taken from near the west wall where a yellow wash has overlapped the ghost of the former support board (K104-II-5) is compared to K104-II-3, it is apparent that the coating sequence consists of generations 1 through 4, plus generation 9. A sample taken from the narrow white band at the very top of the west wall where the water pipe support board was located consists of only generations 1 through 4. A comparison of samples K104-II-3 and K104-II-5 is shown below.

K104-II-3. South wall, southeast corner, at crack about 4' up.
Visible Light 100X



K104-II-5. Yellow wash on wall over former position of water pipe support board.
Visible Light 100X



The other samples also have helpful comparative coating sequences. Sample K104-II-1 was taken from the edge of the hard plaster infill to the left of the north wall door opening. There are remnants of an unpigmented limewash layer below the hard brown plaster, and there is a layer of deep yellow-pigmented limewash on its surface. This suggests that the door opening was altered sometime after the first limewash was applied to the wall plaster, and it was coated over with a deep yellow limewash in either generation 9 or 10.

The narrow white band at the top of the west wall was sampled to see when the water pipe support board was installed in the coating chronology. The evidence in sample K104-II-4 shows that four generations of unpigmented limewash were applied to the plaster before the support board was installed. Sample K104-II-5 was taken just below the white band where K104-II-4 taken, in an area where a layer of yellow has overlapped. This chronology consists of generations 1 through 4, ending with one layer of dark yellow-pigmented limewash. The comparative limewash chronologies are shown in the chart below.

K104 Comparative Limewash Layers

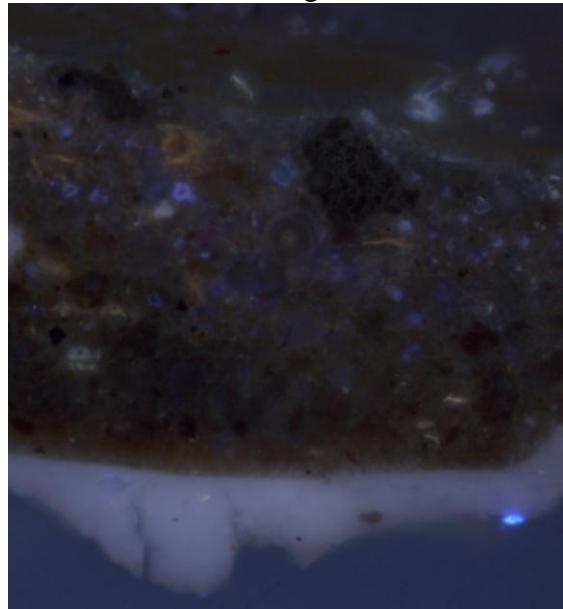
Generation	Layer	K104-II-1. N. wall plaster infill	K104-II-3. S. wall, SE corner	K104-II-4. W. wall, behind water pipe board	K104-II-5. W. wall, yellow wash over position of water pipe board	K104-II-6. W. wall below K104-II-5
11.	Modern whitewash		x		x	
10.	Dark yellow limewash		x			x
9.	Dark yellow limewash	x	x		x	x
8.	Orange limewash		x			
7.	Unpigmented limewash		x			
6.	Yellow limewash		x			
5.	Yellow limewash	Hard brown plaster	x			x
4.	Unpigmented limewash	x	x	x	x	
3.	Unpigmented limewash		x	x	x	
2.	Unpigmented limewash		x	x	x	
1.	Unpigmented limewash		x	x	x	
Sandy white plaster			x	x	x	X (2 white plasters)

Sample K104-II-1. North wall, plaster infill possibly from 1858, just left of door which was cut in later, much harder plaster.

Visible Light 100X



Ultraviolet Light 100X



Sample K104-II-3. South wall, southeast corner, at crack about 4' up.

Visible Light 100X

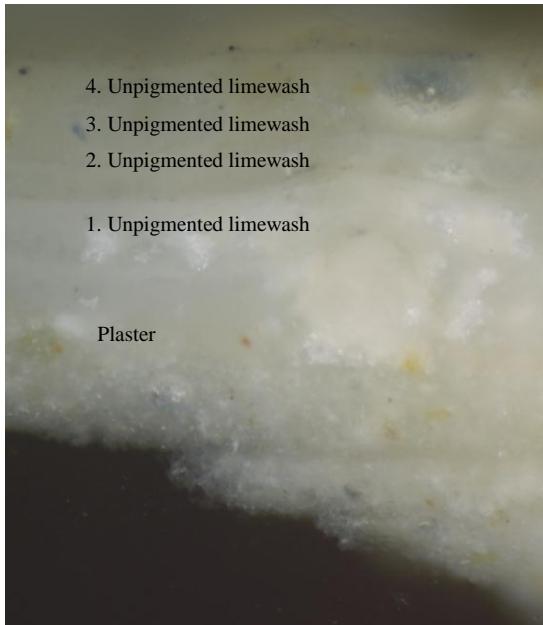


Ultraviolet Light 100X

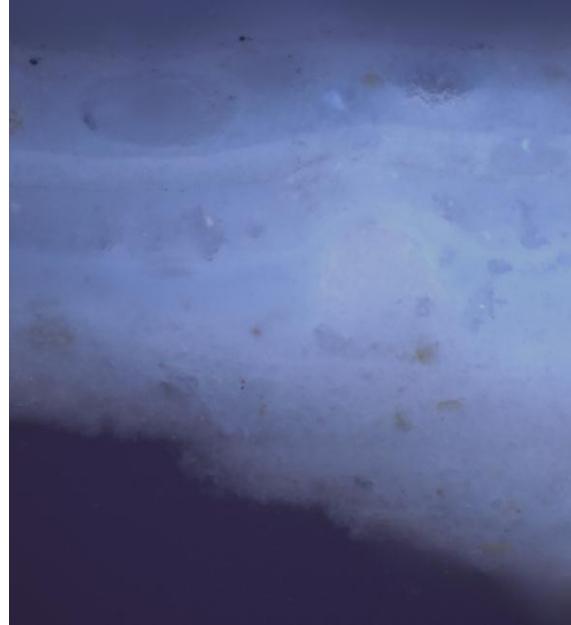


K104-II-4. West wall, left of window, narrow white band at top of wall where water pipe support board was positioned.

Visible Light 200X



Ultraviolet Light 200X

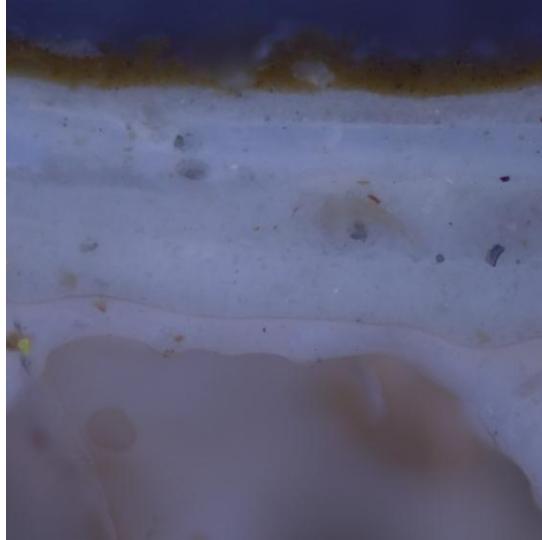


Sample K104-II-5. West wall, left of window, yellow wash on wall at former position of water pipe support board, above window.

Visible Light 100X

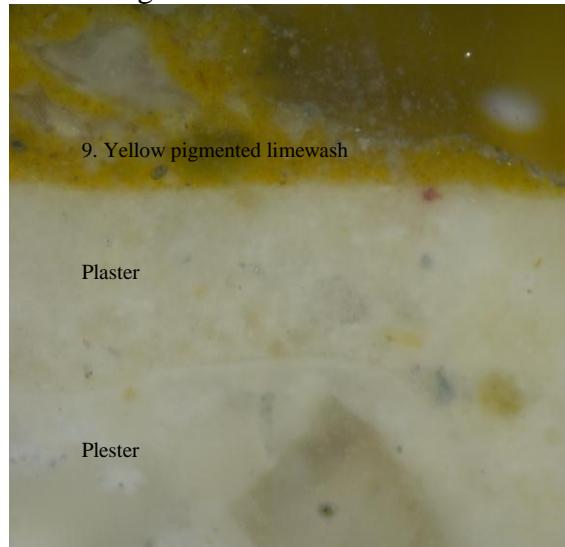


Ultraviolet Light 100X

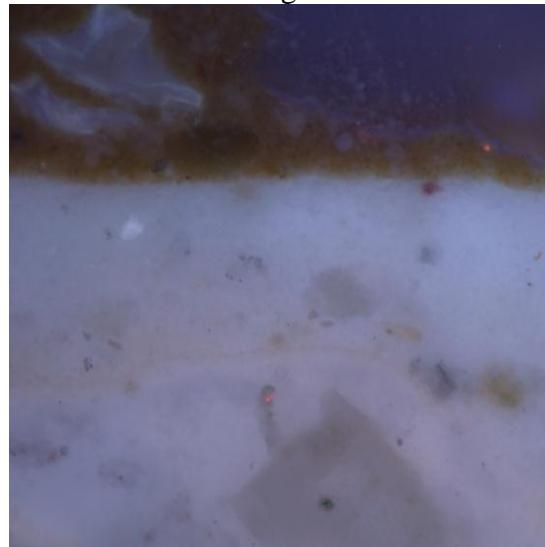


Sample K104-II-6. West wall, yellow-painted wall just below K204-II-5.

Visible Light 100X



Ultraviolet Light 100X



Room K201 Second-floor South Chamber:

One of the extraordinary findings from the dissertation research for this room was a blue limewash colored with synthetic ultramarine, a pigment commercially produced after 1828.⁵ This pigment was also found on the walls of the double drawing room below the 1858 wallpaper and it was used as part of the 1858 decorative paint scheme for the ceiling rosettes in the double drawing room.⁶ This was a comparatively expensive blue pigment in the mid-nineteenth century, yet it was used in a pigmented limewash that may date to Period III.⁷ (See below.)

Comparative Paint Sequences on the Plaster in the Kitchen Chamber

- **Polarized light microscopy helped to confirm the presence of artificial ultramarine in the ninth generation wash on the Period I plaster. This relates to the use of artificial ultramarine in decorative paints in the house in Periods II and III.**



As part of the dissertation research, the paints on the Period I woodwork in the main house (K203-6) were compared with paints on the kitchen window trim (K201-9). The results showed that the Period II oil-bound, cream-colored trim paints in the two buildings are very similar in color and composition.⁸ The eight generations of oil-bound trim paint found on the stile of the upper fixed sash on one west wall window are shown in the photomicrograph on page 45. This room was sampled again to answer questions

⁵ Buck, diss., 322.

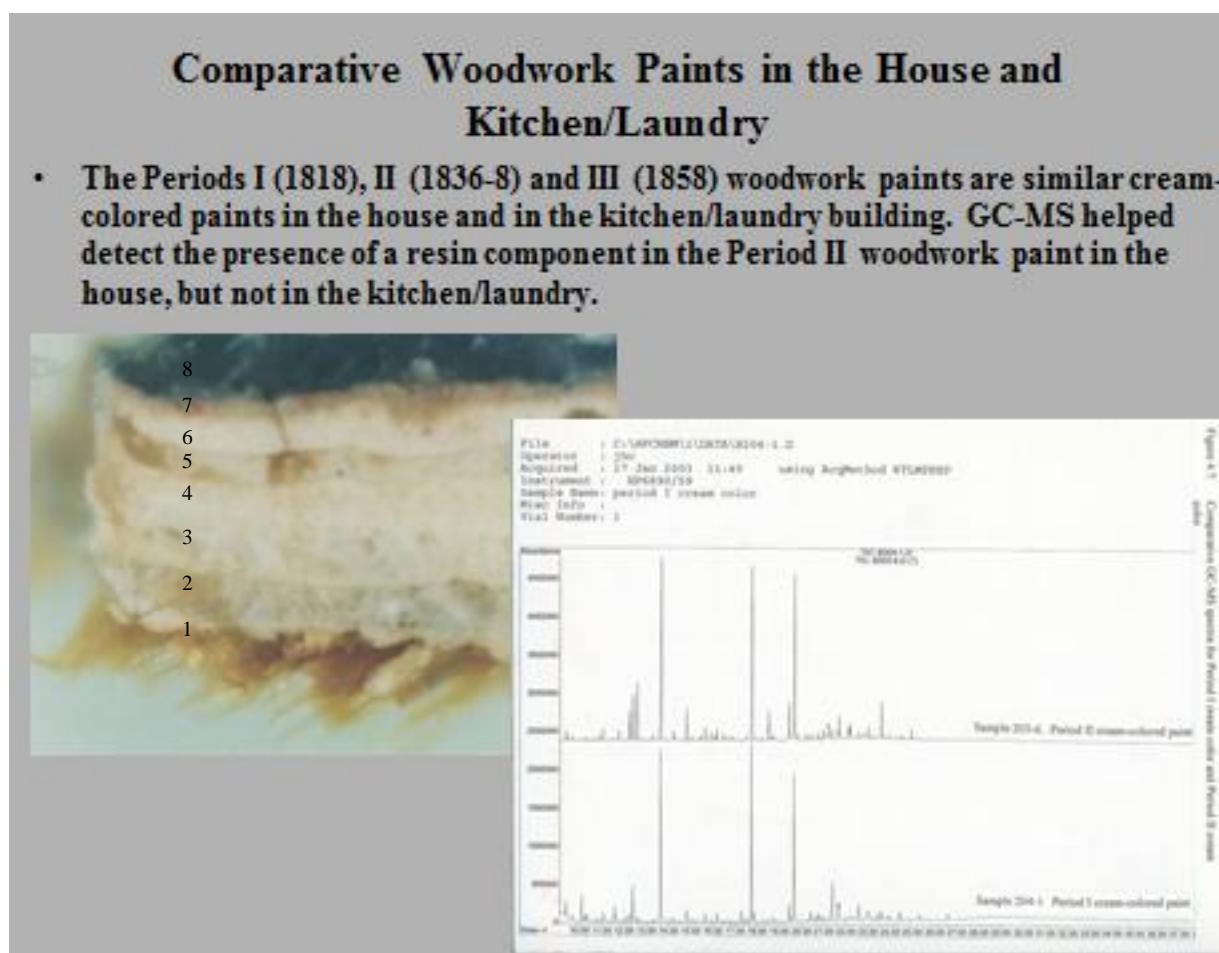
⁶ Ibid., 323.

⁷ Ibid., 325.

⁸ Ibid., 324.

about the original location for the mantel, to better understand the installation of the wooden curtain support, to better understand window alterations, and to explore whether there might have been a faux-painted mantel in the room before the wooden mantel was installed. Overall, the first and second phases of analysis confirm that this room had cream-colored trim elements from Period I to the 20th century, and that the wall colors consistently varied over time.

The mantel was analyzed during the first phase of research (samples K201-3 and K201-12) and the results could not answer the question of where this Period mantel was moved from as the early cream-colored paints are so similar to those found in the main house. When the paints on the Period I mantel in the Servant's Hall (G08) were analyzed, the results suggested it might have originally been installed in one of the second-floor chambers.⁹ But the K201 mantel paints are not so readily distinguishable.



⁹ Buck, diss., 315.

K201 West Wall



Room K201 Phase II Cross-section Sample Locations

K201-II-1. Architrave for fireplace, Period I element from house (check sample K201-3 from earlier research).

K201-II-2. West wall, north window, wooden support for curtain hanger, northwest corner. This goes in before the blue wash on the walls.

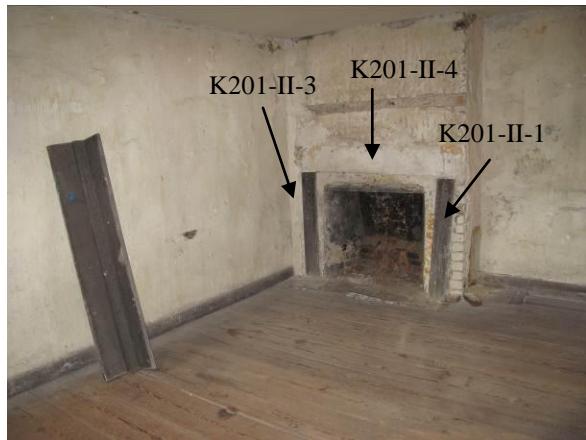
K201-II-3. East wall, exposed plaster left of fireplace where the blue paint is visible on the second generation of plaster.

K201-II-4. East wall, seems to be coarse Period I plaster behind position of later mantel shelf. Could there have been a faux painted mantel in this room that predates the wooden mantel?

K201-II-5. Window muntin, top rail, south window (later window as the windows here were not originally glazed).

K201-II-6. West wall, south window, rail between transom and glazed window, is this an earlier element?

K201 Northeast Corner



K201 Northwest Corner Curtain Support



West Wall



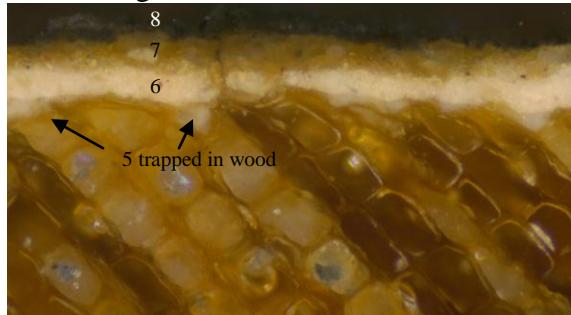
K201 Woodwork.

When sample K201-II-6, from the Period I fixed window on the west wall, is compared to K102-6 (from the first round of analysis) the sequence is the same, with six generations of cream-colored oil-bound paint, followed by a light brown paint and then the most recent dark brown layer on the surface. Sample K201-II-5 from the top rail of the later glazed window shows that the paint history starts at generation 5 (trapped in the wood). The cream-colored layer in generation 5 has a characteristic sparkly appearance in reflected ultraviolet light, indicative of the presence of zinc white, which was commercially available after about 1845.¹⁰ This evidence shows that the window trim was cream-colored, like the main house, in Period I, and continued to be painted with cream-colored paints into the late nineteenth or early twentieth century.

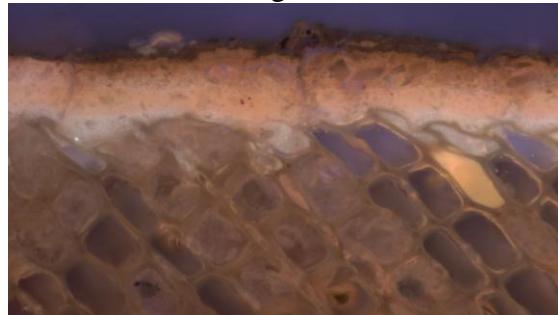
¹⁰ Travers, zinc white study, 2011. The presence of zinc was confirmed with PLM and SEM-EDS as part of the dissertation research.

Sample K201-II-5. Window muntin, top rail, south window (later window as the windows here were not originally glazed).

Visible Light 200X



Ultraviolet Light 200X

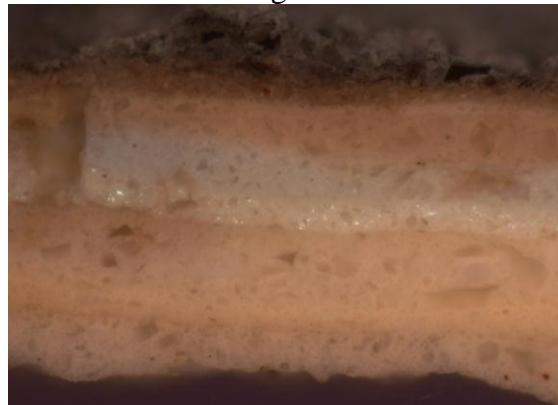


Sample K201-II-6. West wall, south window, rail between transom and glazed window, is this an earlier element?

Visible Light 200X



Ultraviolet Light 200X

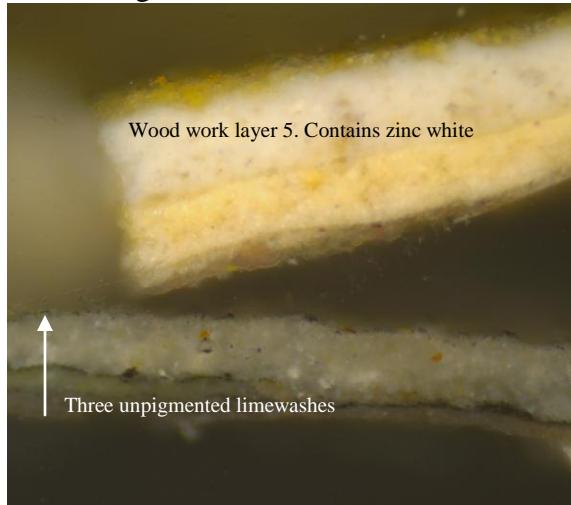


Examination of the wooden curtain support showed that the blue-pigmented limewash on the walls was brushed over earlier limewashes, as well as over oil-bound paints. In cross-section K201-II-2 the initial coatings consist of a sequence of unpigmented limewashes with dirt trapped between each layer. The samples fractured apart, but a separate flake suggests that these initial limewashes are followed by a cream-colored woodwork paint and then an off-white woodwork paint that contains zinc white which can be aligned with generation 5 in the woodwork paint sequence.

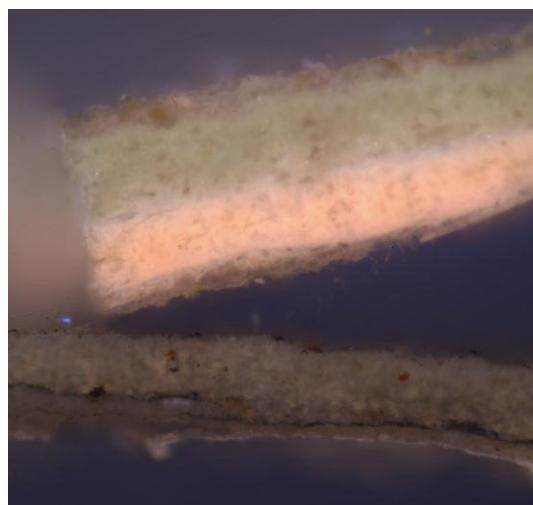
The wooden curtain support was re-sampled during the November 2012 site visit to clarify the paint history. Because of its position directly above the door architrave this curtain hanger has been coated with wall paints and woodwork paints. Several cross-sections were examined to confirm the paint sequence on this element. In one cross-section the first layer is the blue-pigmented limewash found as generation 9 on the walls. This is the layer pigmented with synthetic ultramarine that was found to be related to the 1858 redecoration of the double drawing. This blue limewash is followed by the same cream-colored and off-white woodwork paints found in the other plaster samples. In the second cross-section the blue limewash seems to have been applied on top of the three initial unpigmented limewashes. This blue-pigmented limewash above the unpigmented limewashes confirms the curtain hanger was likely installed between Period II and III.

Sample K201-II-2. West wall, north window, wooden support for curtain hanger, northwest corner. Paints separated apart.

Visible Light 200X

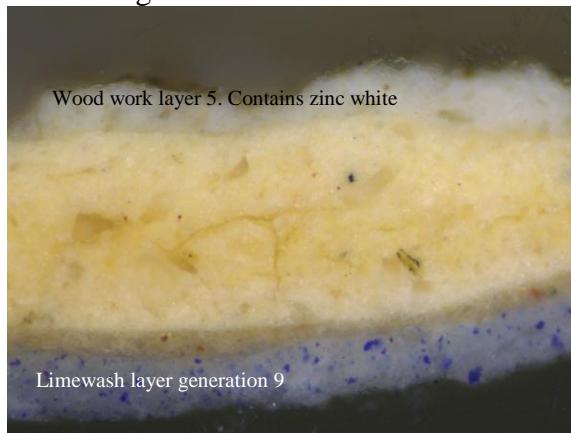


Ultraviolet 200X

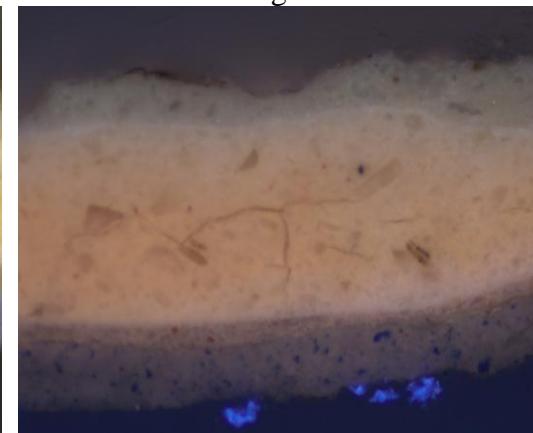


Sample K201-II-2. Curtain support in northwest corner re-sampled.

Visible Light 200X



Ultraviolet Light 200X



K201 Plaster.

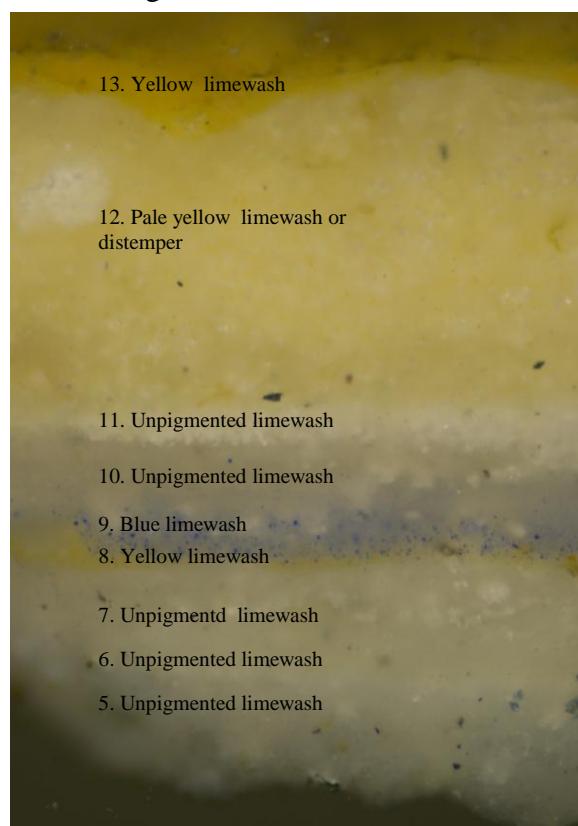
The dissertation analysis identified 13 generations of limewash on the Period I plaster on the south wall below chair board level (sample K201-2) in the kitchen chamber, with the blue-pigmented limewash in generation 9.¹¹ In this cross-section there are two dark gray limewashes in generations 5 and 7, suggesting that these were times when there was a dark faux-painted wainscot on the walls. The walls above the painted wainscot in generations 5 and 7 were unpigmented limewashes (see samples K201-2 and K201-II-3 below). The color differences in the photomicrographs relate to slight differences in illumination, color printing, and color capture.

A comparison of these two cross-sections with sample K201-II-4, taken from behind the location of the later mantel shelf, suggests that there could have been an early faux-

¹¹ Buck, diss., 321-325, 364.

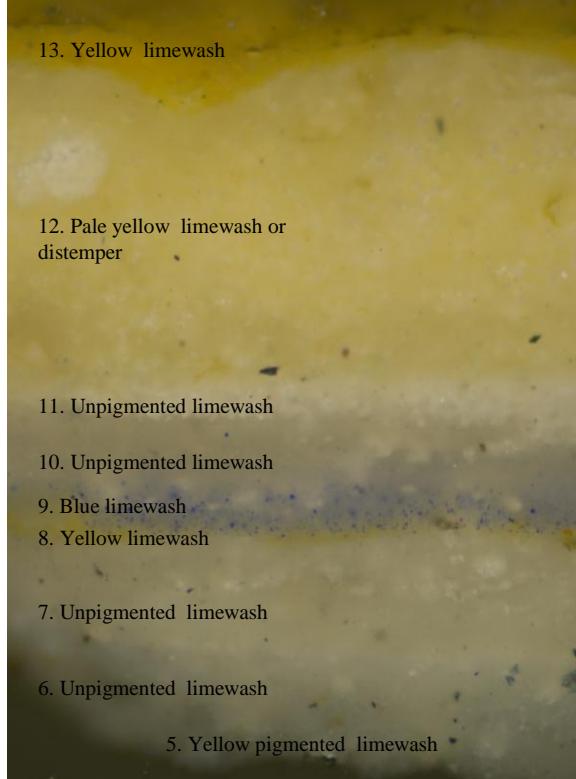
painted mantel in the third generation as there is a thick, dark gray-pigmented limewash or distemper paint layer here that was not found on other areas of Period I wall plaster. This dark gray paint is followed by a thick, cream-colored, oil-bound paint found on the woodwork as generation 6.

K201-2. South wall, below chairboard level. K201-II-3. East wall, left of fireplace
Visible Light 100X Visible Light 100X

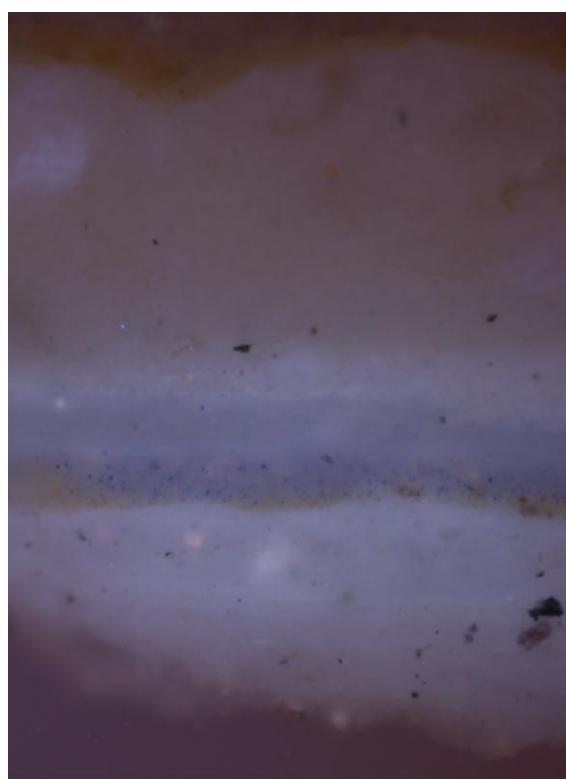


Sample K201-II-3. East wall, exposed plaster left of fireplace where the blue paint is visible on the second generation of plaster.

Visible Light 100X



Ultraviolet Light 100X

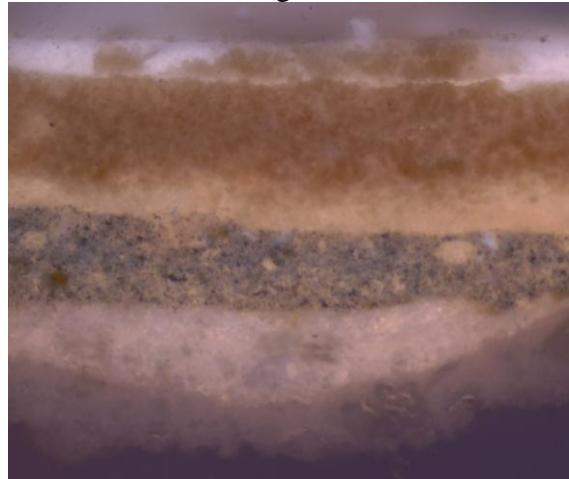


Sample K201-II-4. East wall, seems to be coarse Period I plaster behind position of later mantel shelf.

Visible Light 200X



Ultraviolet Light 200X

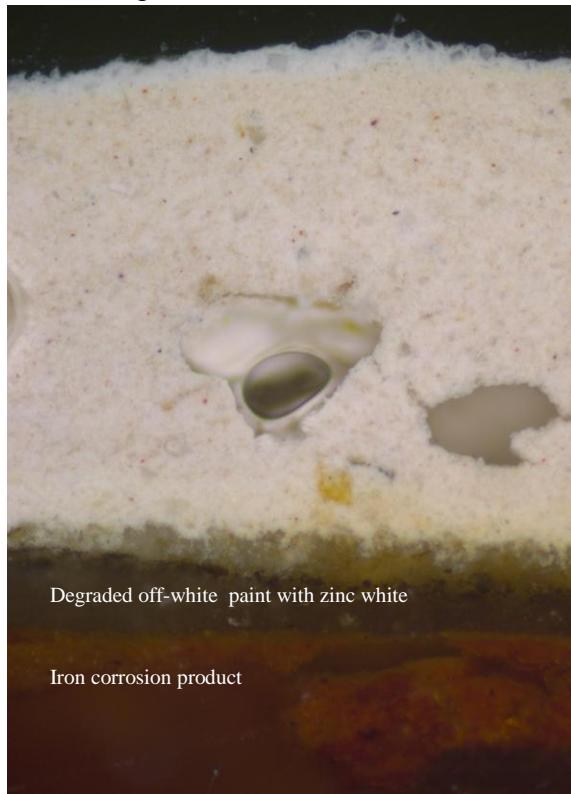


K201 Picture Hook.

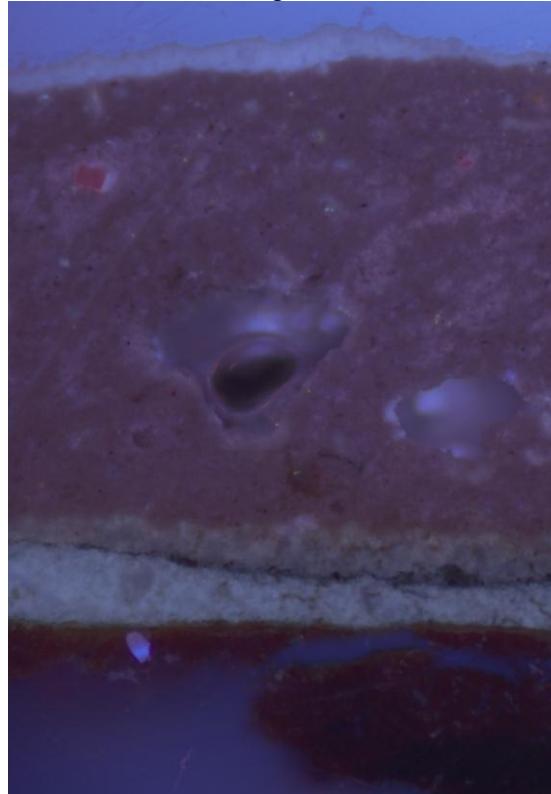
The iron substrate of the picture hook is quite corroded, so the earliest coatings are likely missing. The first wall paint layer directly on top of the reddish corrosion product is a degraded off-white paint that contains zinc white. This paint layer may be generation 5 on the woodwork, but the evidence is too fragmentary to be certain about dating the installation of this picture hook. It is possible that this hook was not originally painted, which is what allowed such a thick layer of corrosion to accumulate on top of the iron substrate.

Sample K201-II-7. Picture hook on west wall (iron substrate is corroded).

Visible Light 200X



Ultraviolet Light 200X



Room K202 Middle South Chamber:

One key finding in room K202 during the first phase of dissertation research was that the original Period I plaster survives below later lath on the north wall in the east corner. There was only one layer of limewash on top of this original coarse plaster.¹² A faux-painted black wainscot and mantel were created directly on top of the Period II plaster, and the outlines are still discernible because this room was repainted far less frequently than K201. One additional sample was taken of the black-painted wainscot on the Period II west partition wall for documentation, and three samples were taken from the window, door trim and door on the west partition wall to establish their paint chronologies.

Room K202 East Wall



Room K202 Middle South Chamber Phase II Cross-section Sample Locations

K202-II-1. Plaster with yellow wash on Period II west partition wall, about 4 ½' up.

Yellow paint on top of black-painted wainscot.

K202-II-2. West partition wall, window left of door, window frame, right side, about 4' up to establish chronology.

K202-II-3. West partition wall, window left of door, window sash, upper right corner. Establish chronology, possible earlier window.

K202-II-4. West wall board door, left board above bolt.

¹² Buck, diss., 326.

K202 Southwest Corner



K202 West Wall

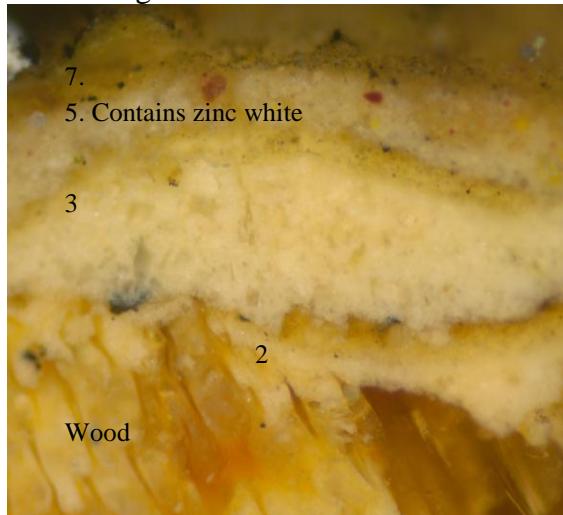


K202 Woodwork.

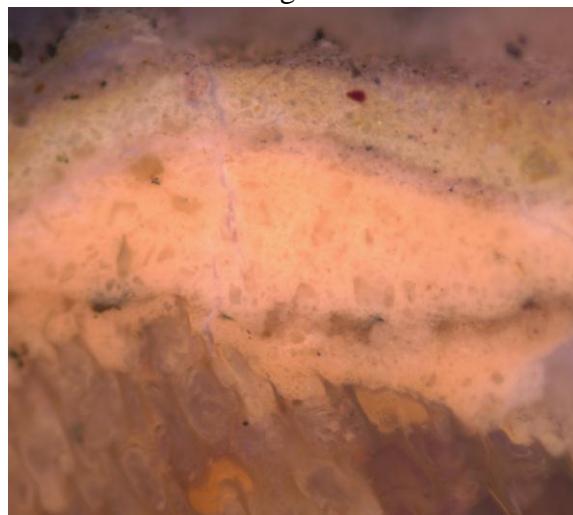
The two samples from the window frame and upper sash have related paint chronologies (K201-II-2 and K201-II-3, respectively). There are only four generations of paint on the window trim and sash, beginning with a cream-colored paint and associated varnish that line up with generation 2 on the Period I fixed window in room K201. The balance of the paints on the window relates to generations 3, 5 and 7 on the K201 woodwork.

Sample K202-II-2. West partition wall, window left of door, window frame, right side, about 4' up to establish chronology.

Visible Light 200X



Ultraviolet Light 200X

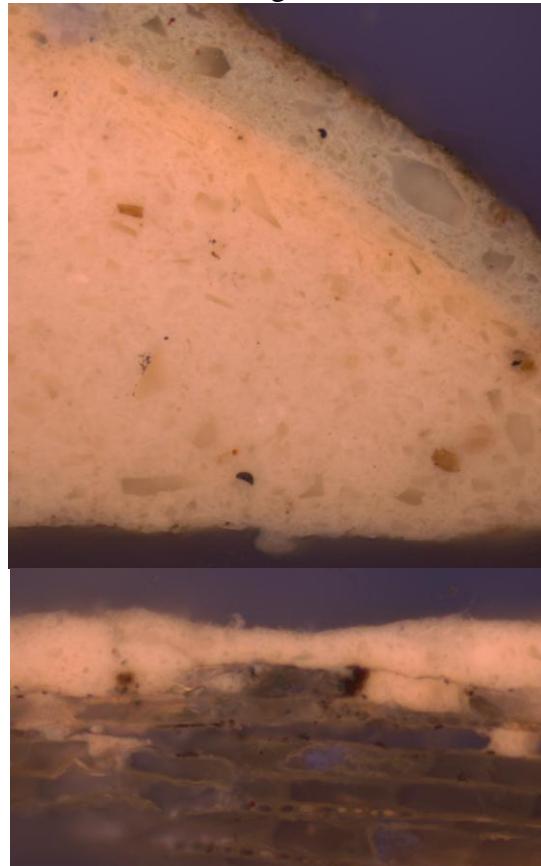


Sample K202-II-3. West partition wall, window left of door, window sash, upper right corner. Establish chronology, possible earlier window.

Visible Light 200X



Ultraviolet Light 200X



There are only two generations of coatings on the board door. The first layer on top of the wood is a thin pigmented resinous layer, likely a densely pigmented brown varnish. This is followed by a degraded layer of shellac. A similar brown-pigmented varnish was found as the only coating on the risers for the main stair in the stable (sample S202-II-1).

S202-1. Stair riser, just below top step.

Ultraviolet Light 200X



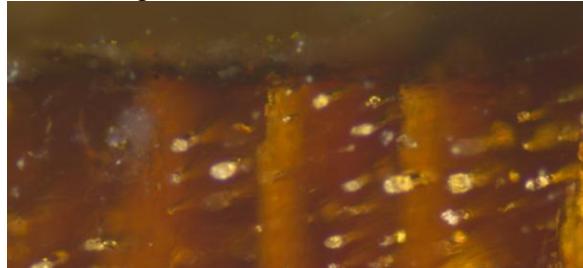
Sample K202-II-4. West wall board door.

Ultraviolet Light 200X



Sample K202-II-4. West wall board door, left board above bolt.

Visible Light 200X



Ultraviolet Light 200X



K202 Wall Plaster.

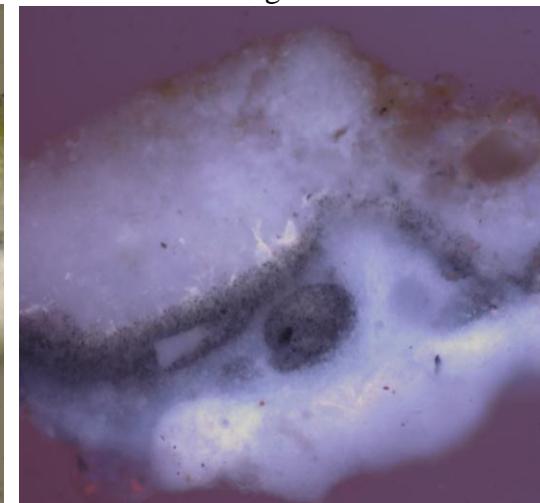
The layers in sample K202-II-1 from the plaster are somewhat disrupted, but they confirm that there is one layer of unpigmented limewash on top of the Period II plaster, followed by the dark gray limewash used to create the faux-painted wainscot. There is one more unpigmented limewash on top of the dark gray limewash. The uppermost yellow-pigmented limewash is the current yellow color on the walls. It is likely that the walls in this room have not been repainted since the Period III or just slightly later, given the paucity of wall coatings.

Sample K202-II-1. Plaster with yellow wash on Period II west partition wall, about 4 ½' up. Yellow paint on top of black-painted wainscot.

Visible Light 100X

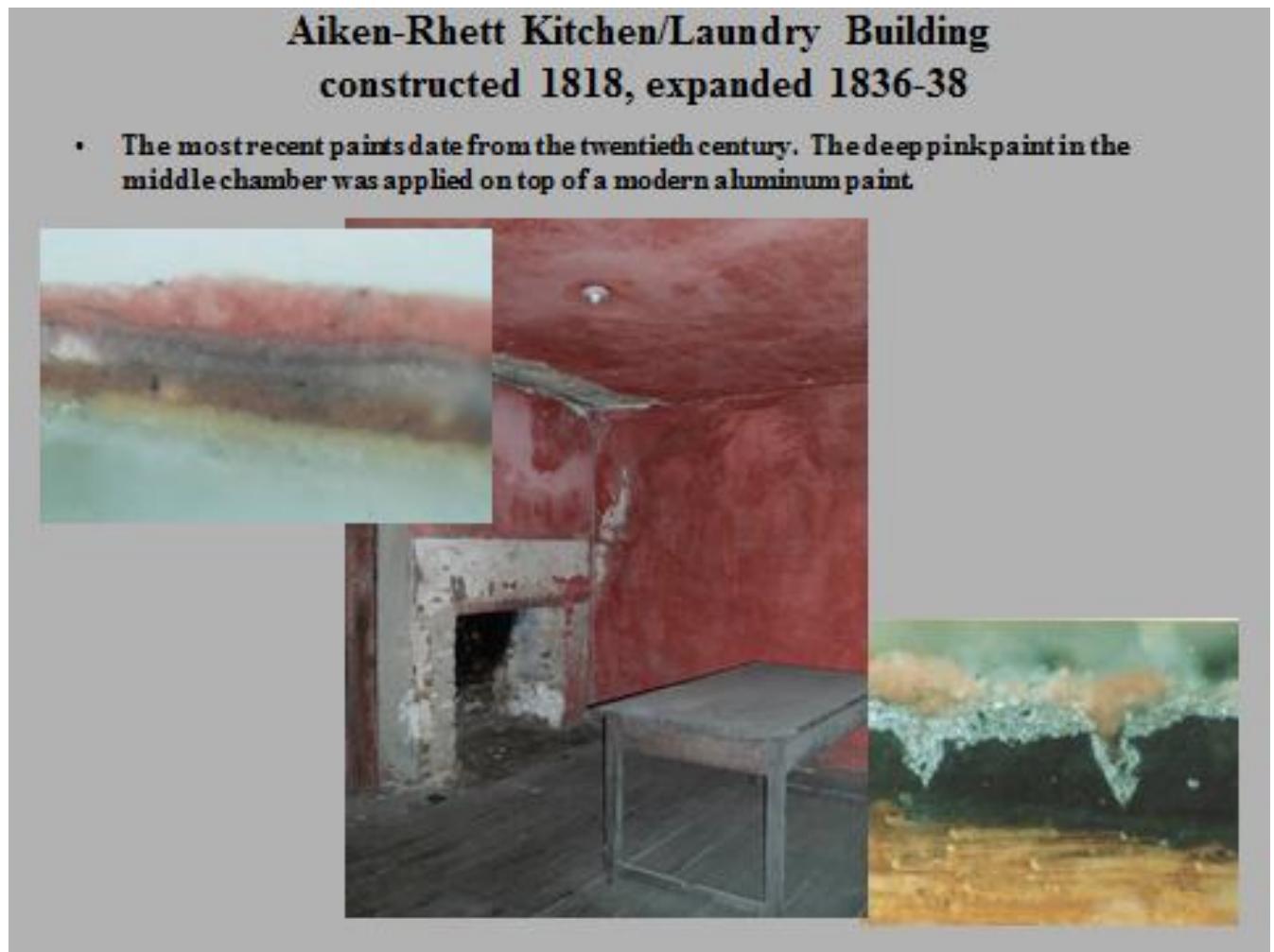


Ultraviolet Light 200X



Room K203 Middle Chamber:

The middle room on the second floor is the darkest of all the chambers, with two small rob windows on the north and west walls, and dark pink paint on the ceilings and walls. The first phase of analysis showed that the current opaque pink paint was applied in the twentieth century as it is on top of a metallic aluminum powder paint layer on the mantel (see below). The mantel was originally painted black at least twice, and these paints became deeply fissured and damaged before the silvery aluminum paint was applied.



For this phase of research one sample was taken from an 1850s ceiling plaster repair on circular sawn lath for comparative dating. One sample was taken from a crude curtain support on the north wall window, and one sample was taken from the ghost of a former curtain support (now missing) on the west wall. The pegrail was also sampled for comparison with others in this building.

K203 Southeast Corner



Room K203 Middle Chamber Phase II Cross-section Sample Locations

K203-II-1. Ceiling in southwest corner, large fallen piece of infill in front of fireplace on top of circular sawn lath. 1850s repair. Could the ceiling all date to the same period?

K203-II-2. North wall, pink paint on crude curtain support structure, stile on right side, one piece is circular sawn.

K203-II-3. West wall, on grayish ghost behind position for former curtain support for comparison.

K203-II-4. West wall pegrail, lower edge for comparison of paint chronology.

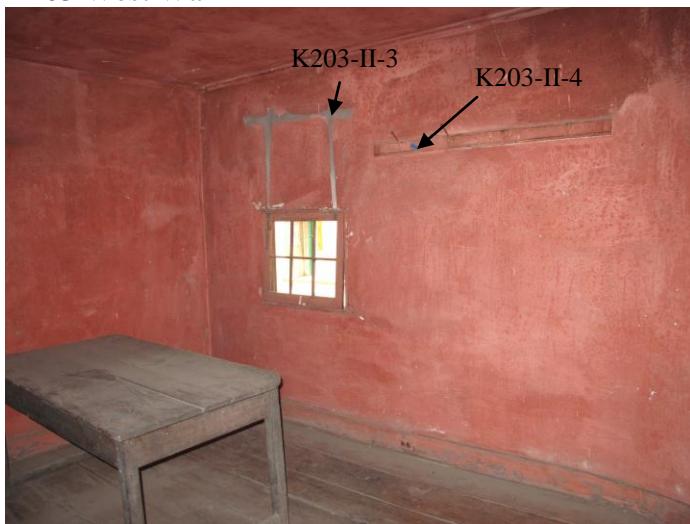
K203 Southeast Corner Ceiling



North Wall



K203 West Wall



K203 Woodwork.

The paint evidence suggests the curtain support on the north wall was initially left unpainted as there wood substrate in sample K203-II-2 is quite dirty, while the paint directly on top of the wood is the most recent dark pink paint. The paint history on the peg rail (K203-II-4) does not resemble the coatings found on any of the other pegrails. The first paint layer is a dark red brown oil-based paint, and this layer became quite weathered and fragmentary before a shellac coating was applied. The peg rail was later coated over with a brown paint that is the same as that identified as generation 11 on the woodwork in K101. After substantial dirt accumulated, the peg rail was painted black, and then finally the current pink. The original red-brown paint on the peg rail may have matched the first red-brown paint which was found on the door during the dissertation phase of research.¹³

Sample K203-II-2. North wall, pink paint on crude curtain support structure, stile on right side, one piece is circular sawn.

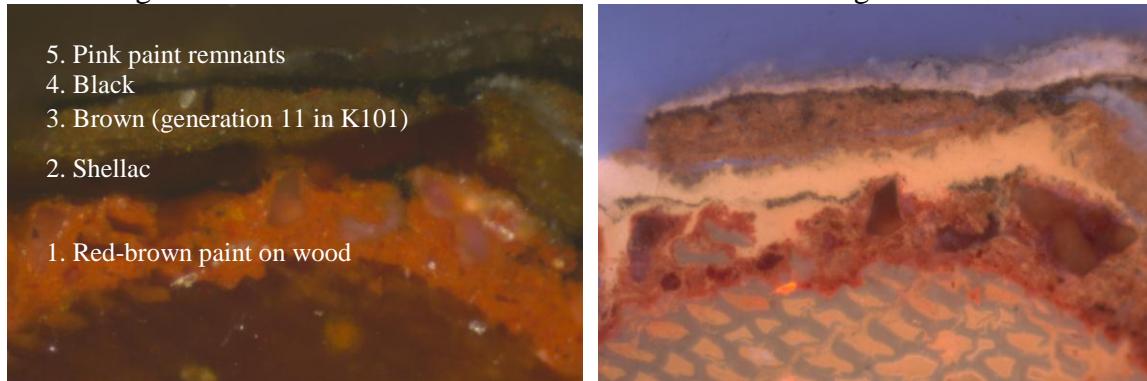
Visible Light 200X



¹³ Buck, diss., 328.

Sample K203-II-4. West wall pegrail, lower edge for comparison of paint chronology.
Visible Light 200X

Ultraviolet Light 200X



K203 Plaster.

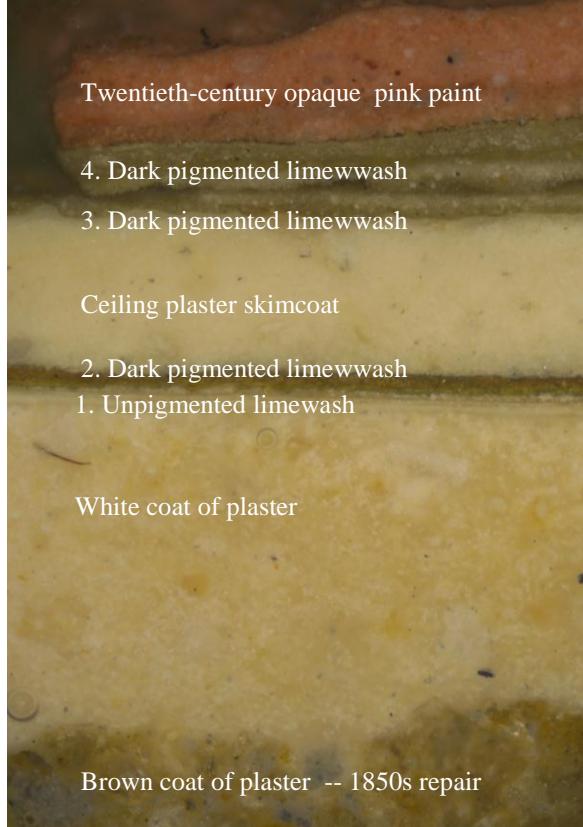
When the wall plaster was analyzed during the first phase of research, eight generations of coatings were found on the walls, beginning with an unpigmented limewash, followed by a yellow-pigmented wash, and then an orange-pigmented limewash. This same sequence of coatings was found on the ghost for the missing curtain support on the west wall of the room (sample K203-II-3). The most recent coating in this cross-section is a now-degraded unpigmented limewash layer in generation 4. This suggests that the curtain support was installed before the fifth generation of limewash was applied. This is perhaps an indication that the curtain support is a nineteenth-century element, but was initially left unpainted, as shown in sample K203-II-1.

The paint sequence found on the section of 1850s ceiling plaster shows that the brown and white plaster coats are considerably smoother, with smaller sand particles, than the Period II plaster found elsewhere. In the first phase of research two samples of ceiling plaster (K203-6 and K203-7) were analyzed and their paint histories were the same as the Period II walls, suggesting some of the ceiling plaster in this room still dates to Period II.¹⁴ The sequence from the 1850s infill is quite different, with very thinly applied limewashes sandwiched between the first and second white plaster skimcoats of fine white plaster. The most recent pink paint is thickly applied and completely opaque, unlike any of the earlier translucent limewashes.

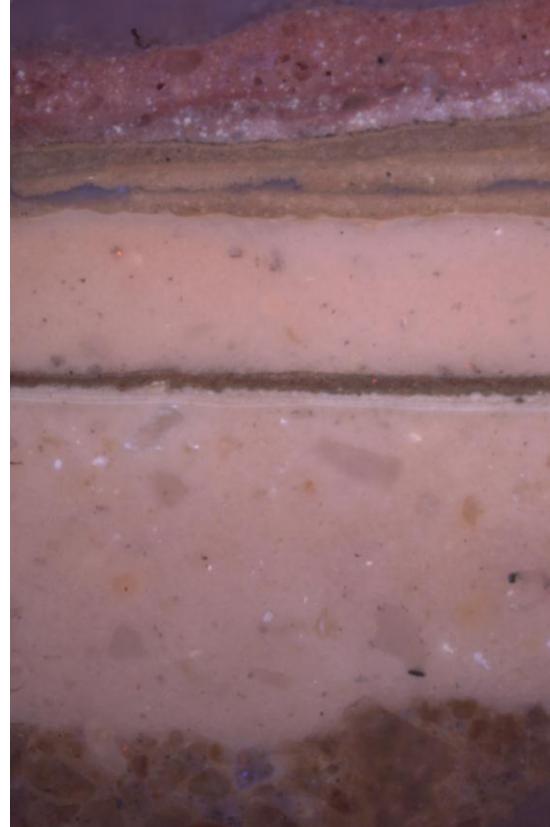
¹⁴ Buck, diss., 329-330.

Sample K203-II-1. Ceiling in southwest corner, large fallen piece of infill in front of fireplace on top of circular sawn lath. 1850s repair.

Visible Light 40X



Ultraviolet Light 40X

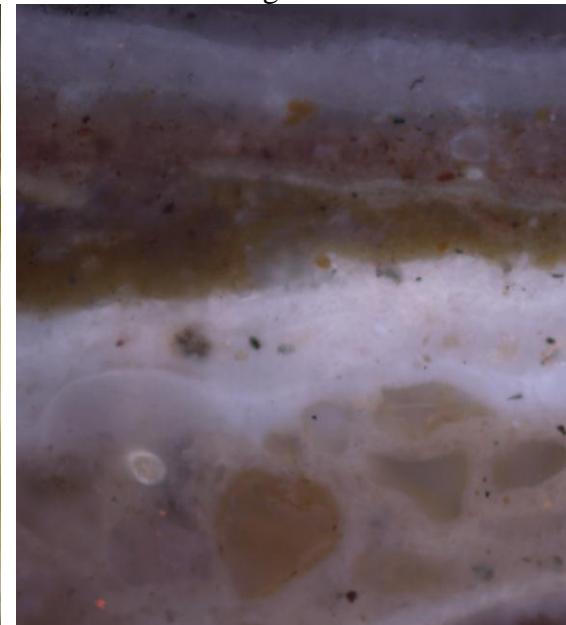


Sample K203-II-3. West wall, on grayish ghost behind position for former curtain support for comparison.

Visible Light 200X



Ultraviolet Light 200X



Rooms K204A (South) and K204B (North) Passage:

The south and north ends of the passage were sampled, as directed by Graham, to better understand the timing for the black-painted wainscot on the walls, and to document some of the trim paints. The black-painted wainscot was studied during the first phase of research, but at that time it was not obvious that the wainscot had been painted black more than once.

K204B North End of Passage



Rooms K204A and K204B Passage Phase II Cross-section Sample Locations

K204A-II-1. East wall, near join of Period II building, faux black wainscot can be seen below peeling paint. There are at least two generations of gray/black wainscoting on the wall. (See K204A-10.)

K204B-II-1. East wall, plaster wall north of rob window, about 5' up, to search for upper wall and wainscot paint evidence.

K204B-II-2. East wall, plaster wall north of rob window, about 3 1/2' up, at wainscot level. At least two generations of dark gray/black paint are present at wainscot level.

K204B-II-3. East wall, just below rob window.

K204B-II-4. East wall rob window, upper left corner of window frame (early blue paint is present).

K204A East Wall



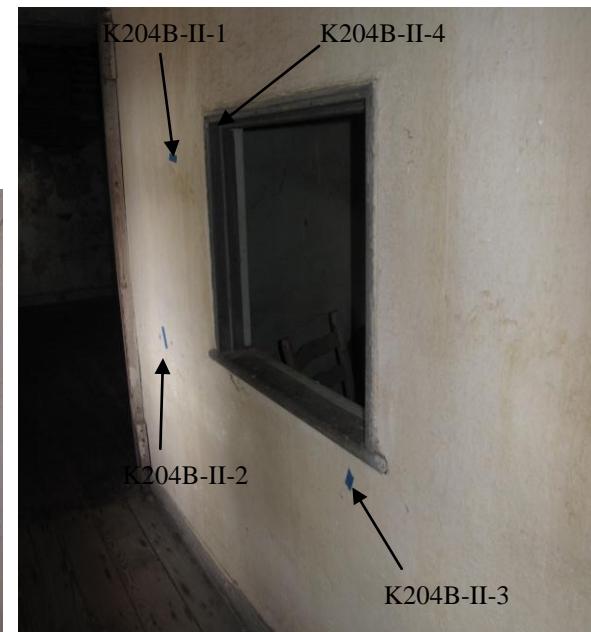
Detail of Faux Black-Painted Wainscot



K204B West Wall Detail Faux Wainscot



East Wall

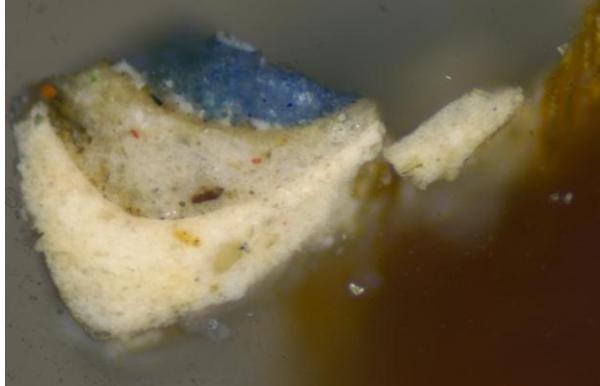


K204B Woodwork.

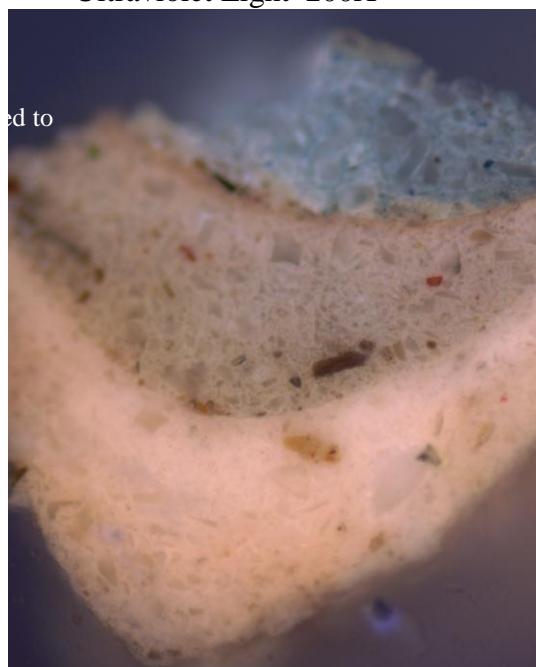
The sole woodwork sample in this hall was taken from the rob window at the north end. There are only three generations of darkened paints in sample K204B-II-4, but the evidence clearly shows that the window was originally painted with the same type of cream-colored, oil-bound paint found as the first layer on the Period II rob window in room K202 (see sample K202-II-2). This is followed by another cream-colored paint, and then a grayish-white paint that contains zinc white in generation 3. The most recent woodwork paint is a medium blue paint that has now darkened to almost black.

Sample K204B-II-4 East wall rob window, upper left corner of window frame (early blue paint is present).

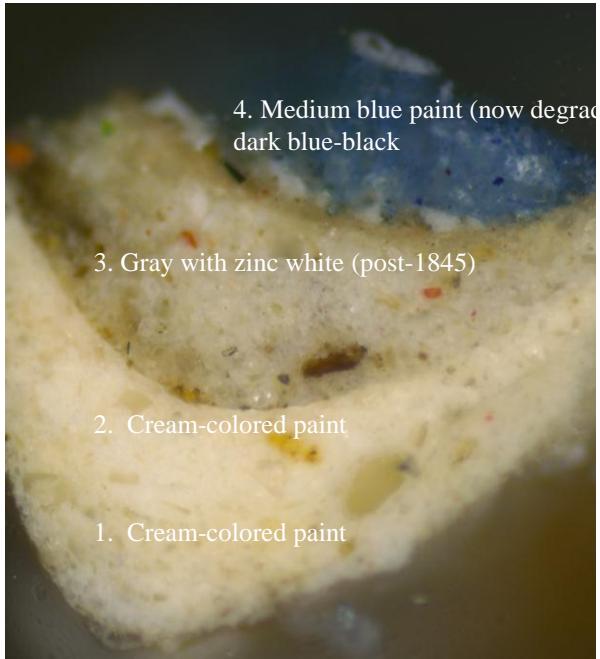
Visible Light 200X



Ultraviolet Light 200X



Visible Light 200X



K204A and K204B Plaster.

The plaster paint sequences above and below wainscot level at the south and north ends of the passage are quite different, although there is clear evidence of a black or dark gray-painted wainscot in at least three generations of paint at the south end, and in at least four of the earliest generations of paint at the north end. The upper walls were consistently white when the black or dark gray wainscot was painted below.

At the south end the walls were painted entirely orange in generation 8, and perhaps entirely yellow in generations 9, 11 and 12 (sample K204A-II-1). The colored limewashes are now mostly covered over with opaque off-white paint that was likely applied in 1986 when a CBS movie for television was filmed in this building.¹⁵

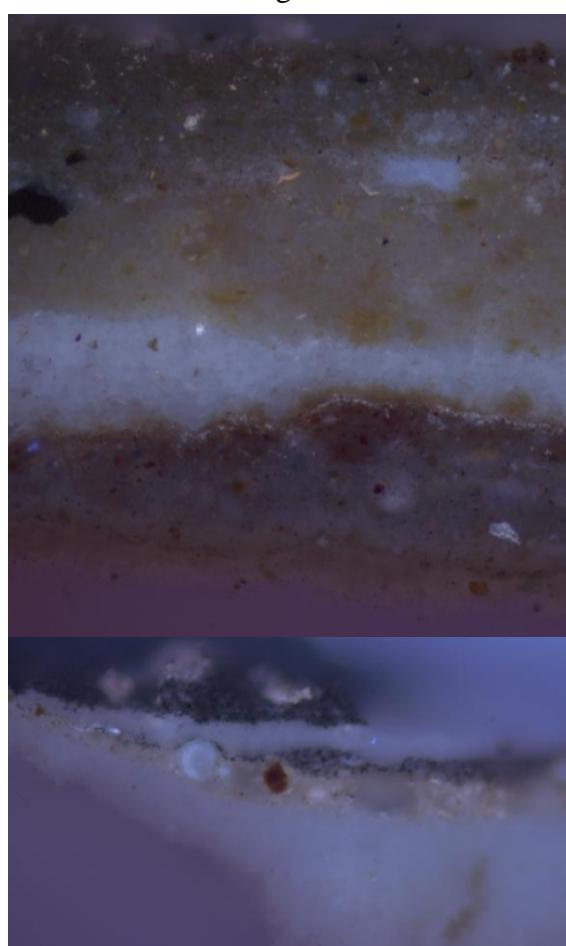
The black and dark gray limewashes at wainscot level are more thickly applied at the north end of the passage (K204B-II-2 and K204B-II-3), but the pattern of application and the use of white limewashes above are the same as at the south end of the passage.

Sample K204A-II-1. East wall, near join of Period II building, faux black wainscot can be seen below peeling paint.

Visible Light 100X



Ultraviolet Light 100X



¹⁵ Buck, diss., 319.

Sample K204B-II-1. East wall, plaster wall north of rob window, about 5' up, to search for upper wall and wainscot paint evidence.

Visible Light 200X



Ultraviolet Light 200X

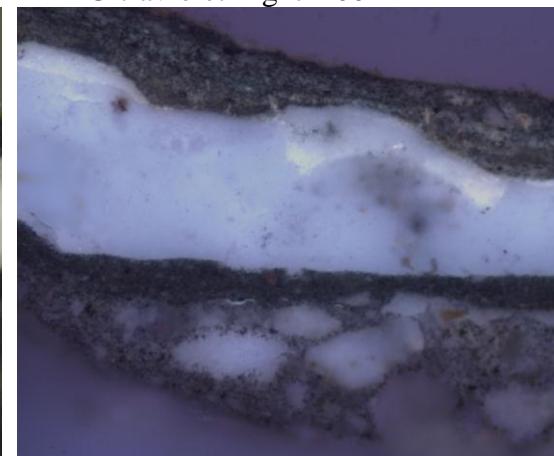


Sample K204B-II-2. East wall, plaster wall north of rob window, about 3 1/2' up

Visible Light 100X

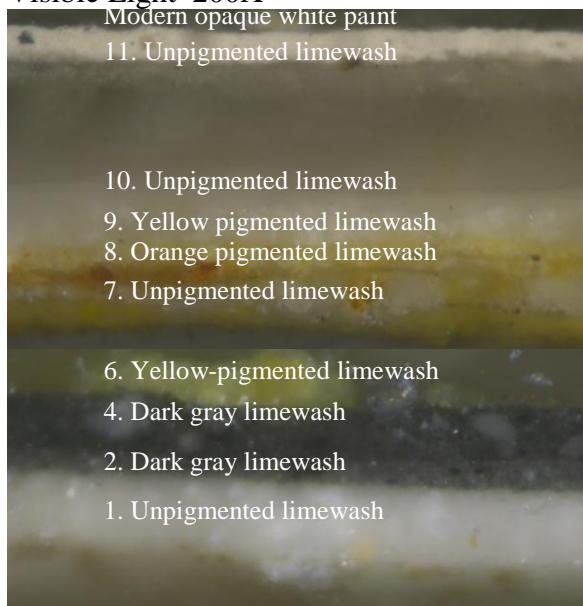


Ultraviolet Light 100X

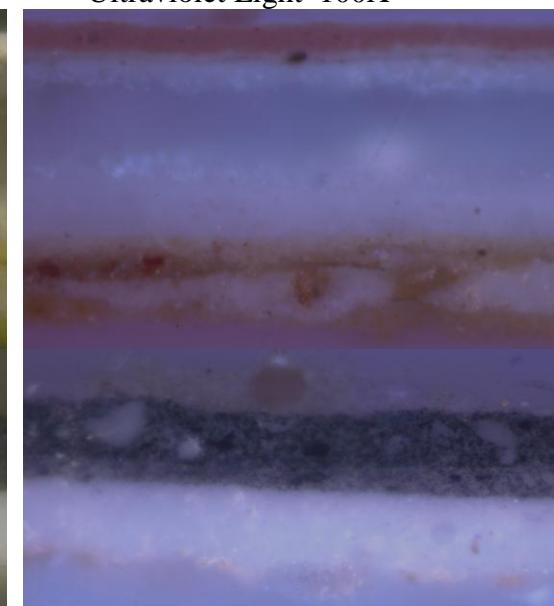


Sample K204B-II-3. East wall, just below rob window.

Visible Light 200X



Ultraviolet Light 100X



Room K205 North Middle Room:

The first phase of analysis confirmed that the green paint now on the walls must date to after 1910 because of the presence of the white pigment titanium white.¹⁶ No evidence was found for a faux-painted wainscot, but yellow, tan, and orange-red pigmented washes were found in generations 4 through 6 on the wall plaster. The woodwork was also found to have originally been painted with the Period II cream-colored oil-bound paint found elsewhere. This space was sampled on a limited basis during this round of analysis to look further for evidence of faux painting, and to document the paints on the board door.

K205 East Wall



Room K205 North Middle Room Phase II Cross-section Sample Locations

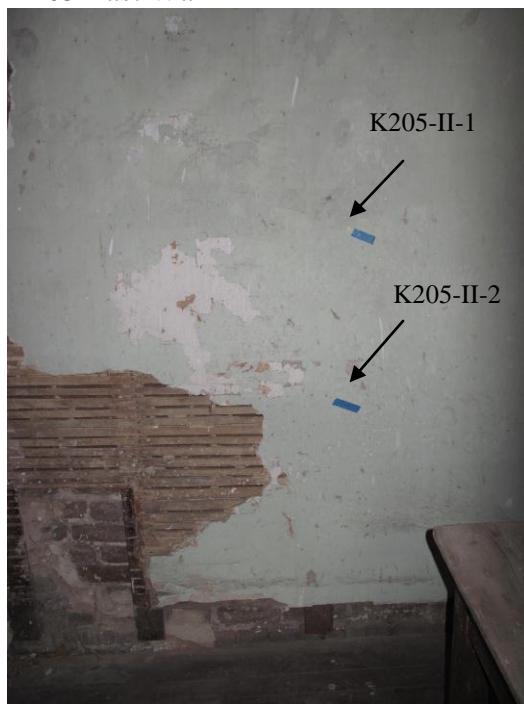
K205-II-1. East wall, centered between chimneybreast and south wall, plaster about 5' up. (Compare to K205-2).

K205-II-2. East wall, centered between chimneybreast and south wall, plaster about 2 ½' up. Could not see black wainscot evidence. (Compare to K205-1).

K205-II-3. West wall, board door, left side, at edge of middle left board, about 5' up.

¹⁶ Buck, diss., 329.

K205 East Wall



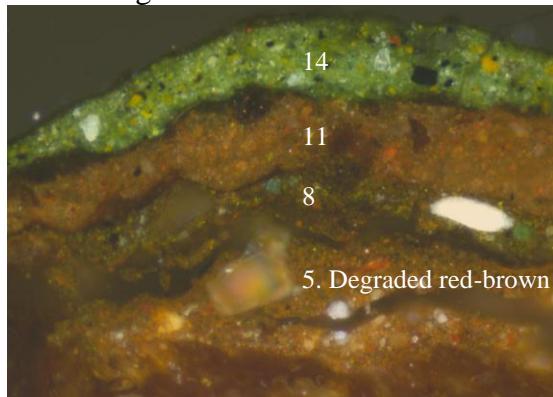
West Wall Door



K205 Woodwork.

The first paint on the board door is a thick resinous red-brown coating that is now very degraded. It resembles the first (Period II) red-brown with varnish identified on the board door separating rooms K101 and K102 (see below). This door was then repainted dark green, followed by brown and then black. These two board doors seem to have been painted in the same manner until the most recent coatings, suggesting they were both installed in Period II.

Sample K102-II-11. South wall, upper door.
Visible Light 200X



K205-II-3-3. West wall board door.
Ultraviolet Light 200X

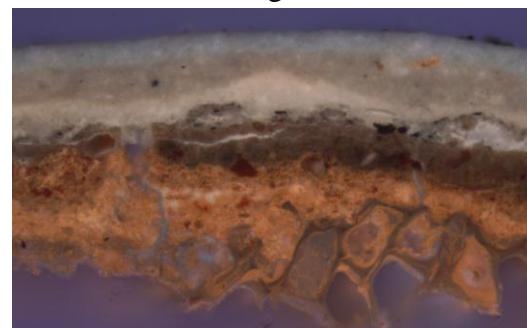


Sample K205-II-3. West wall, board door, left side, at edge of middle left board, about 5' up.

Visible Light 200X



Ultraviolet Light 200X

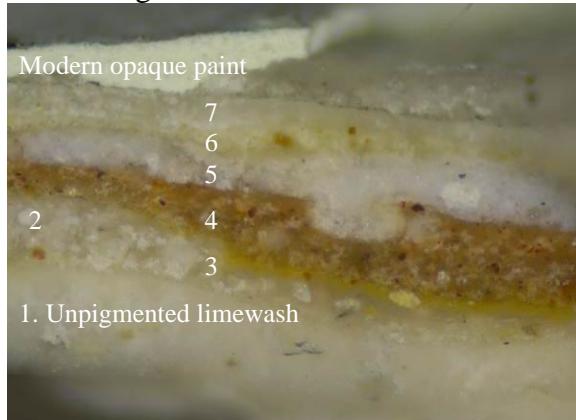


K205 Plaster.

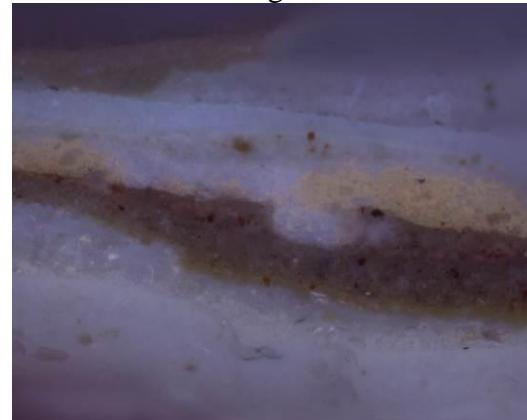
Samples taken from the upper and lower portions of the east wall confirm that this room did not have a faux-painted wainscot. The walls were initially limewashed white, then were re-limewashed yellow in generation 3 and orange in generation 4 in this room. All subsequent coatings were whites, and the evidence shows that these walls were repainted with far less frequency than the passage or the north chamber K206.

Sample K205-II-1. East wall, centered between chimneybreast and south wall, plaster about 5' up. (Compare to K205-2).

Visible Light 100X



Ultraviolet Light 100X



Sample K205-II-2. East wall, centered between chimneybreast and south wall, 2 1/2' up.

Visible Light 200X



Ultraviolet Light 200X



Room K206 North Chamber:

When this room was studied during the first phase of research, exciting evidence for a faux-painted wainscot in deep red with a gray shadow line for the top edge of a simulated chair rail was found in the sixteenth coating generation, which may date to Period III.¹⁷ A dark gray wainscot was found in generations 10 and 15. This room was repainted with far greater frequency than the other chambers, consistent with its status as one of the best rooms on the second floor as it has a fireplace and windows on two walls.



For this phase of research most of the sampling was concentrated on the north wall window, believed to have been added in Period III. One sample was also taken from the south wall pegrail for documentation and comparison with other pegrail paint sequences.

¹⁷ Buck, diss., 331.

K206 North Wall



Room K206 North Chamber Phase II Cross-section Sample Locations

K206-II-1. South wall pegrail (see sample K206-

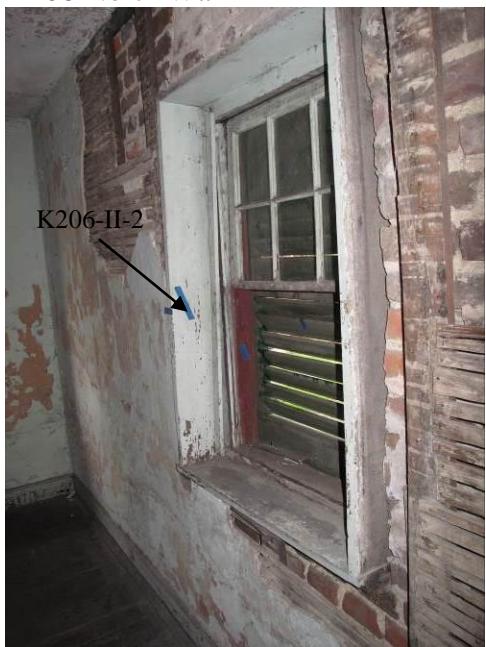
K206-II-2. North wall, inserted window, likely in Period III, reveal on left side, to establish the later paint sequence.

K206-II-3. North wall, inserted window, likely in Period III, red paint on exterior of window frame. This red paint was likely applied by Jim Crow as it is on top of a new thin board nailed to the front of the window frame.

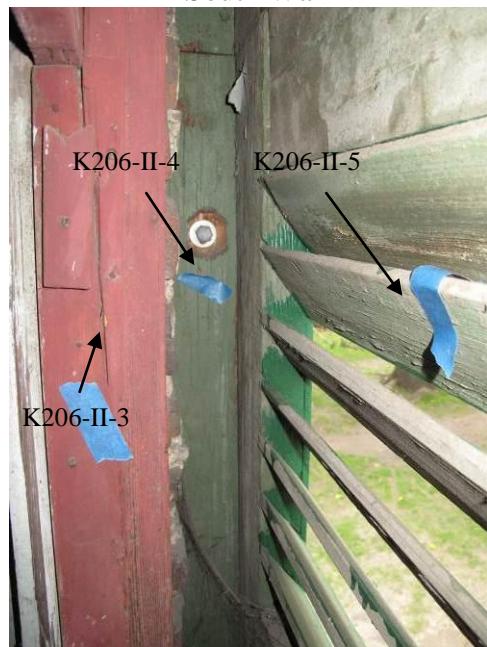
K206-II-4. North wall, inserted window, likely in Period III, green on exterior of underside of Gothic arch, left side.

K206-II-5. North wall, inserted window, likely in Period III, back side of louvers for Gothic window.

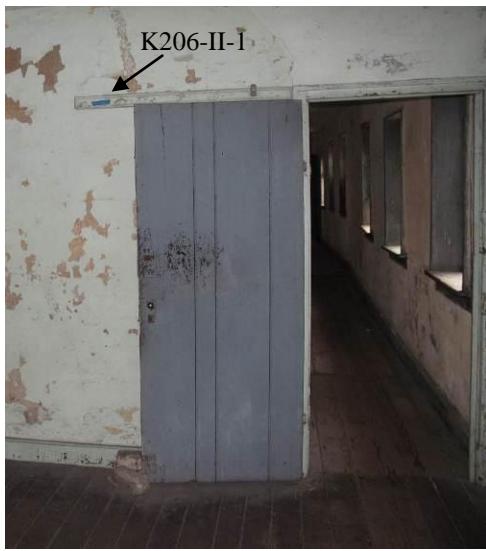
K206 North Wall



South Wall



K206 South Wall



K206 Woodwork.

The woodwork samples all contain different paint stratigraphies, so each one is described separately and then related, if possible, to other areas of woodwork in the second floor of the kitchen building. Six generations of paint were found on the baseboards during the first phase of research, beginning with a sequence that suggested grain-painting.¹⁸ But fewer early layers were found on the north window woodwork.

South Wall Pegrail. Sample K206-II-1 from the pegrail begins with an oil-bound cream-colored paint which has a varnish coating. This coating can be aligned with the first paint layer found on the frame for the rob window in K202, and it seems to be the Period II window paint. The same paint was also found as generation 2 on the Period I window in room K201. This is followed by a medium brown paint, and then a light gray paint which contains zinc white, dating it to after 1845. The most recent paint is a twentieth-century nonfluorescent white. The paints on this pegrail do not resemble any of the other pegrail coating sequences in this building.

Sample K206-II-1. South wall pegrail.

Visible Light 200X



Ultraviolet Light 200X



¹⁸ Buck, diss., 332.

North Wall Window Reveal. The paint sequence in the cross-section from the reveal of the window also begins with a cream-colored paint layer that may line up with generation 3 in the woodwork paint chronology for room K201. It appears to be one generation later than the first paint identified on the pegrail, and may well be the Period III coating on the second-floor windows in this building. It is followed by the same light gray paint which contains zinc white that was used on the pegrail.

Sample K206-II-2. North wall, inserted window, likely in Period III, reveal on left side, to establish the later paint sequence.

Visible Light 200X



Ultraviolet Light 200X



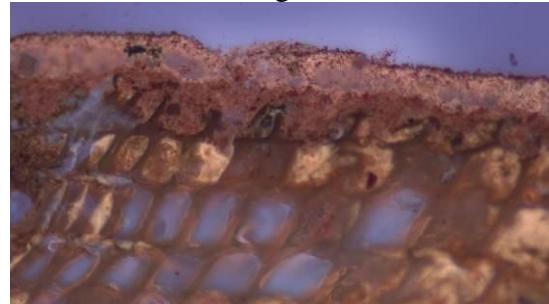
North Wall Exterior Window Frame. The evidence in this sample suggests that the exterior paints were allowed to completely weather away as the wood substrate is fibrous and dirty. There is only one layer of finely ground red-orange, followed by red paint, in this cross-section. Both paints likely applied by Jim Crow (HCF) as they are on top of a new thin board nailed to the front of the window frame.

Sample K206-II-3. North wall, inserted window, likely in Period III, red paint on exterior of window frame.

Visible Light 200X



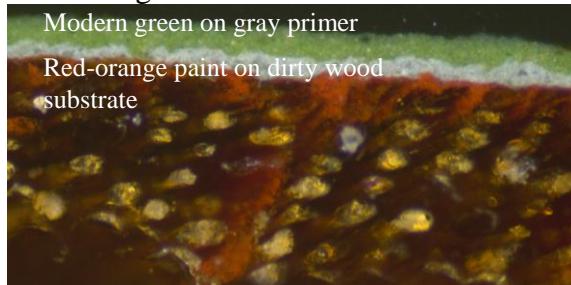
Ultraviolet Light 200X



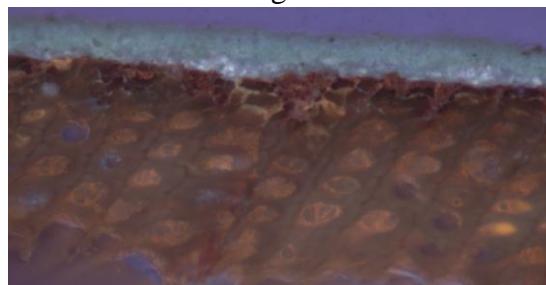
North Window Exterior Gothic Arch. No early paint remains on the underside of the arch as the wood substrate is darkened and weathered. Only the most recent two generations of modern, finely ground paint are on top of the wood.

Sample K206-II-4. North wall, inserted window, likely in Period III, green on exterior of underside of Gothic arch, left side.

Visible Light 200X



Ultraviolet Light 200X



North Window Louvers. This cross-section K206-II-5 suggests that no early paint remains on the louvers, or the back sides of the louvers for the arched Gothic windows were never painted.

Sample K206-II-5. North wall, inserted window, likely in Period III, back side of louvers for Gothic window.

Visible Light 200X



Ultraviolet Light 200X

