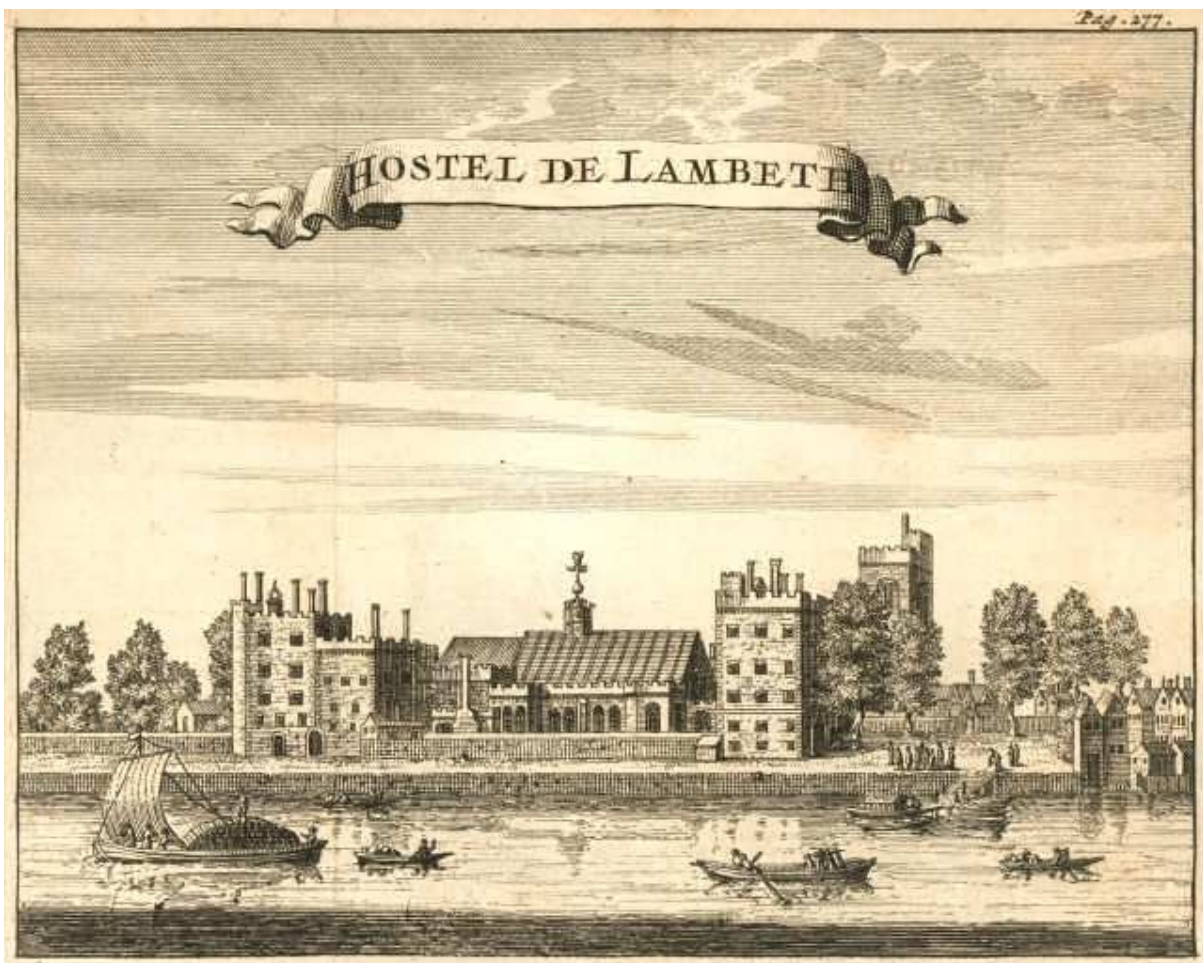


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Historic Interiors Research and Conservation

Lambeth Palace – Great Hall

Architectural Paint Investigation



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Abstract of Findings

Weathervane

The Weathervane may have been picked out in **heraldic colours** and not fully gilded. The uniform gold leaf decoration may date from the mid 19th century.

Cupola (Interior & Exterior)

The exterior and interior of the Cupola were originally decorated in a **white coloured oil paint** applied over a red primer which was tinted with red lead. The wooden structure was intended to look like carved white stone/marble.

The interior has been stripped of early paint layers – probably during post WWII renovations.

Great Hall - Wall faces

The brick walls were originally plastered in horse-hair plaster. Traces of a **translucent green/grey containing coarsely pigment particles** were found on the surface of the plaster. This paint probably dates from the 17th century.

Italianate Stone Door Architrave

Traces of a translucent green/grey coarsely texture paint was also found on the surface of the plaster. A later pink/red coloured paint was also found – below modern paint layers. During the 17th century it was common practice to colour-wash dressed stone surfaces.

NE Window bay

The junction between the moulding of the window reveal architrave and the brick wall had been fitted with shaped bricks. Traces of horse hair plaster and early paint were also found in this area. No access was available to remove samples from the higher moulded detailing of the window bay.

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Lambeth Palace – Great Hall

Introduction

Problems with the existing heating system in the 1980s and the outbreak of black mould instigated a renovation project and remodelling of the Great Hall. The current conservation project proposes to reinstate the original layout of the late 17th century hall. The original north-west door and porch, the screens passage (with passage over) and the dais at the east end will be rebuilt. The interior will be decorated in finishes appropriate matching the appearance of the late 17th century decorations

Architectural Paint Research is required to examine the existing 17th elements for traces of early paint and decorative finishes which could inform the redecoration of the interior.

The investigation will focus on the:

- Weathervane
- Cupola (Interior & Exterior)
- Wall faces
- Italianate Stone Door Architrave
- NE Window bay



History

The existing Great Hall was rebuilt after the Restoration in the 1680s on the site of the former hall which had been demolished during the Commonwealth period. Lambeth Palace has undergone a series of radical alterations since the 19th century.



The original Great Hall, built in the 16th century, was ransacked by Cromwellian troops during the Civil War. The Parliamentarian Colonel Scot ordered the demolition of the building following the English Civil War and the more valuable materials were sold off at auction. Many other buildings in addition to the Hall were destroyed. William Juxon, a loyal Royalist supporter, he attended Charles I on the scaffold during his execution, was promoted to the See of Canterbury in 1660. The seat had had remained vacant during the Commonwealth period. After the Restoration it was completely rebuilt by Juxon on the site of the original hall c.1663. Juxon's coat of arms (*Or, a cross, gules, between four blackamoors heads, couped at the shoulders, proper; impaled with the See of Canterbury*) features of the weathervane which surmounts the roof of the Great Hall.



Figure 1 Arms of Archbishop Juxon - Weathervane & Window in Gloucester Cathedral

Juxon ordered that the new Great Hall was to resemble the original hall as closely as possible, despite advice to the contrary,*'nor could all the persuasions of men versed in literature, and all his friends, induce him to rebuild it in the modern way, and unite it with the library, though it would cost him less money'*

Luxon spent £10,500 on the building which was constructed with a late Gothic style hammer beam roof, the like of which had not been constructed for a hundred years. The much more sophisticated classical style Italian Doorway fitted on the east end of the south wall does not relate to the rest of the architecture of the rest of the room, inviting comment that the design evolved as work proceeded. The Great Hall was originally constructed with a dais at the east end and a Screen and a Screen's Passage at the west end. Writing in his diary in 1665, Samuel Pepys described a visit to see *'Bishop Juxon's new old-fashioned hall'*. Juxon demanded the return of extensive collection of books removed from Lambeth during the Commonwealth period. John Evelyn, in a letter to Samuel Pepys dated 1689 comments that *'(Lambeth library) replenished with excellent books, but that it ebbs and flows like the Thames running by it at every prelates accession or translation.'*



Figure 2 the Great Hall - Early 19th Century

The hall was altered during the 18th century. By the beginning of the 19th century the western end of the hall had been altered and the Screen and first floor rooms had been removed.

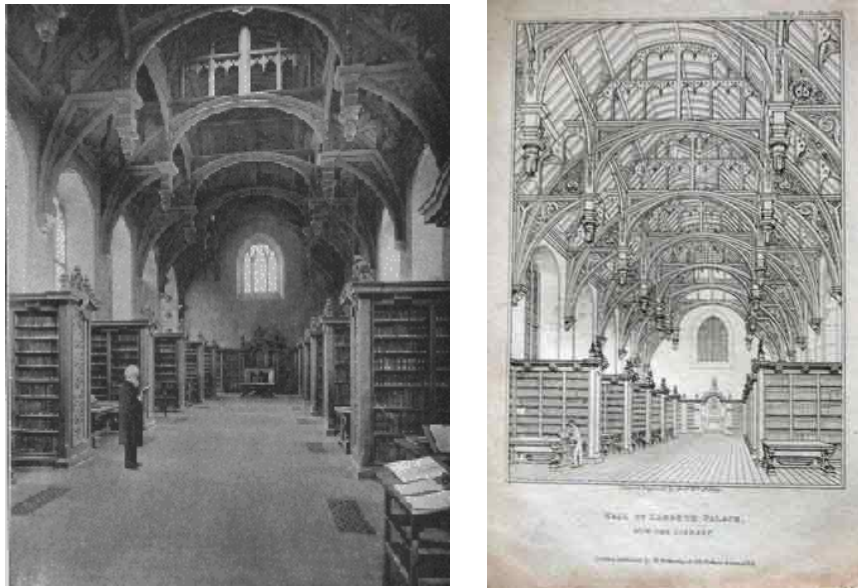


Figure 3 The Great Hall - Post 1830s Alterations

The Great Hall was altered during the 19th century when it was configured for use as a library with the addition of projecting book shelves on the north and south walls. This alteration was directed by the architect Edward Blore. Blore's alterations were discussed in *The Gentleman's Magazine* (Volume 156-157, 1834, pp. 152-154). The hall is described as being, 'wainscotted to a considerable height'. The hall was heated by under floor pipes and two fireplaces installed at the east and west ends. The entrance to the courtyard in S/W corner was converted into a bay window. The roof suffered bomb damage during WWII and the building was altered during the 1950s.



Figure 4 the Great Hall - WWII Bomb Damage

The Weather Vane

On site observations

- There is evidence of various repairs and patching of the copper.
- The upper crown is badly corroded in places. There are holes in the copper.
- The current decorative scheme (all elements fully gilded) is damaged in places.
- A layer of corroded copper is visible in numerous areas. This layer is particularly noticeable on the on the top crown.
- Several layers of gilding are visible. The existing scheme has been applied over a yellow coloured ground. The penultimate gilding has been applied over a pink coloured undercoat.
- There are traces of a brown layer beneath these two gilding decoration.

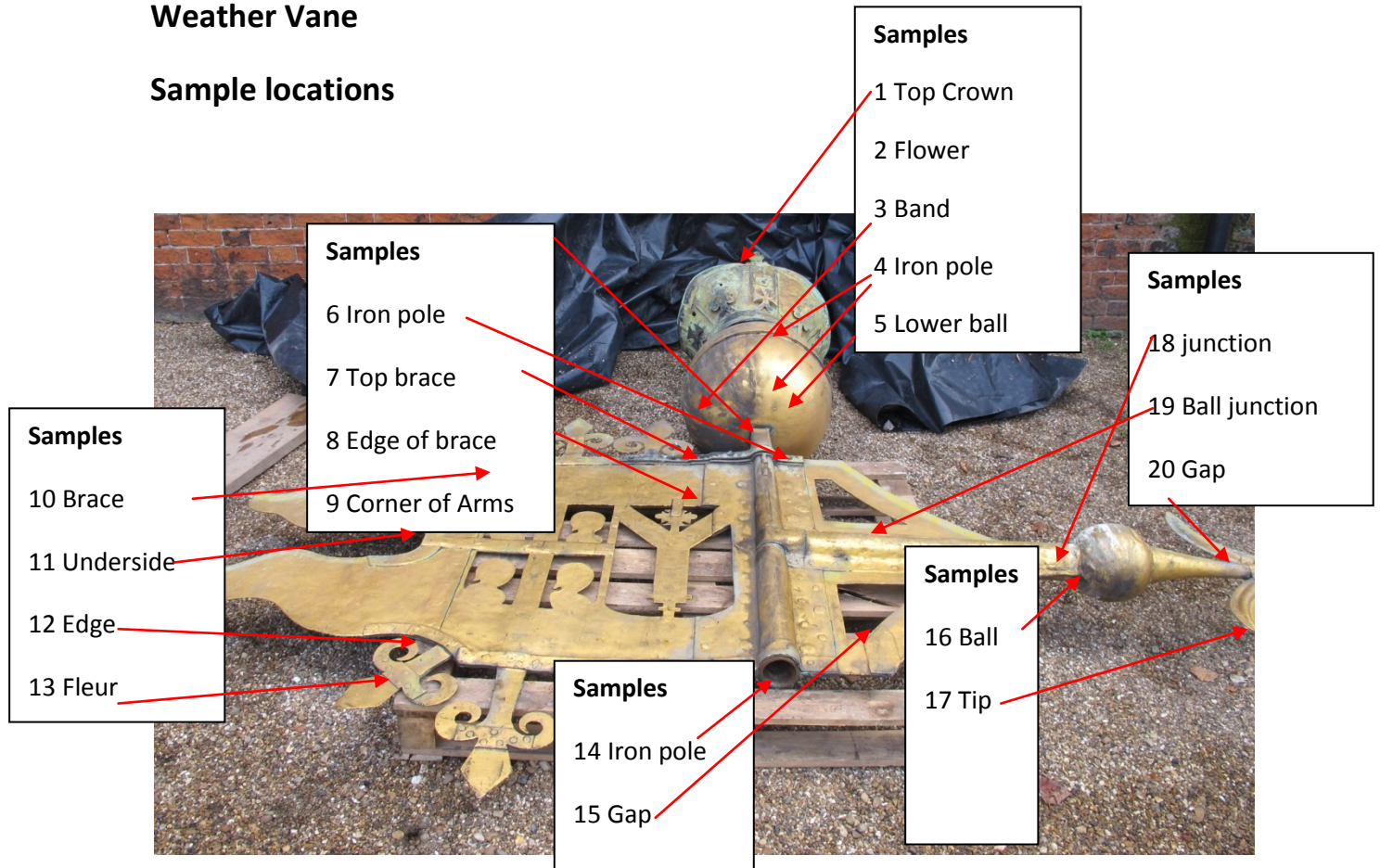


Figure 5 the Weathervane - Detail of Surface



Weather Vane

Sample locations



Examination of Mounted Paint samples

Examination of the samples revealed that the weather vane had been extensively **stripped of its early decorative finishes (possibly post c.1850)** prior to the application of a **gilded decoration applied over a zinc based pink undercoat** (tinted with red lead).

Zinc white was a pigment commonly used by housepainters from the mid 19th century, but fell out use in the early 20th century. When viewed under ultra-violet light zinc white exhibits a bright sparkly appearance. This means that it is a useful marker material for the dating of paint.

There are traces of an early brown primer on the surface of the copper. It is noted that the extensive copper corrosion (verdigris – copper acetate) has built up **above** this brown layer.

Small traces of decorative finishes which **predate the c.1850** stripping suggest that the weather vane was **not** always uniformly decorated in gold leaf and may have been **partially gilded and decorated in coloured paints**.

The early schemes may relate to the colours of the Coat of Arms of the Bishop cut into the body of the weather vane. (research to establish the heraldic colours is in hand).

Sample 1 Top of Crown – sample location

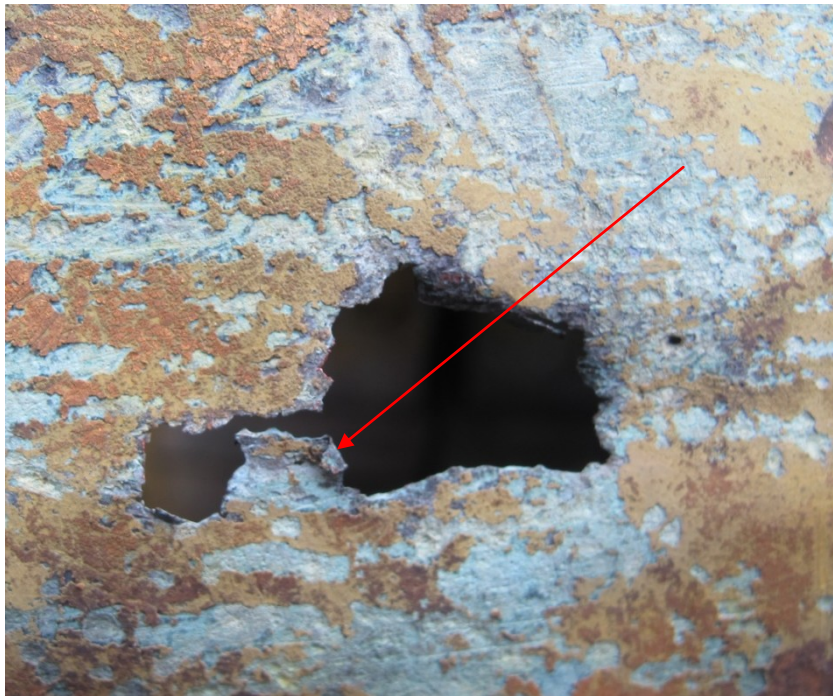


Figure 6 Detail of holes in Crown and deposits of Verdigris (Basic Copper Acetate)

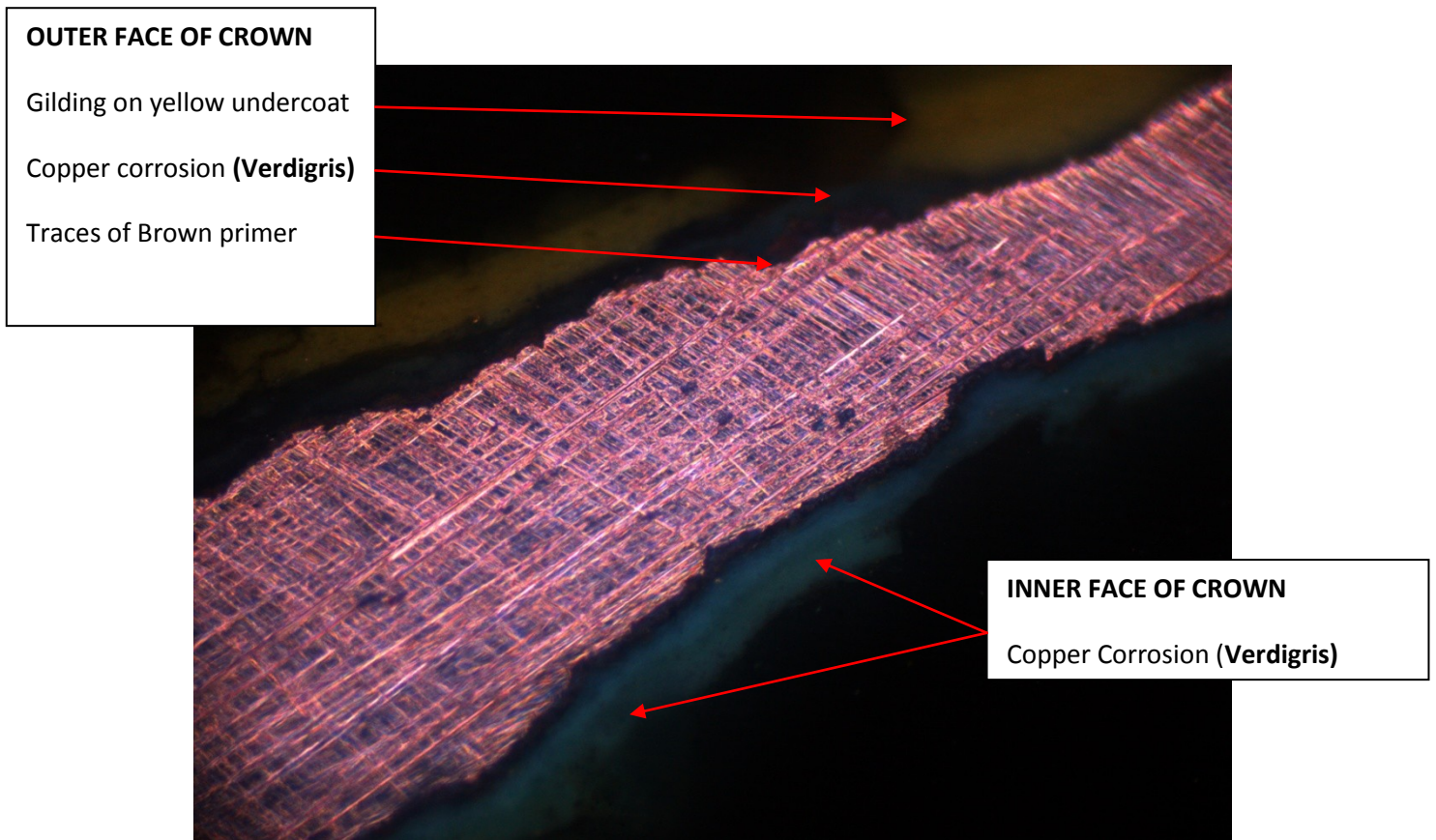


Figure 7 Sample 1 - Copper - Cross-section x500 Brown primer and Verdigris deposits

Sample 1 Top of Crown – sample location

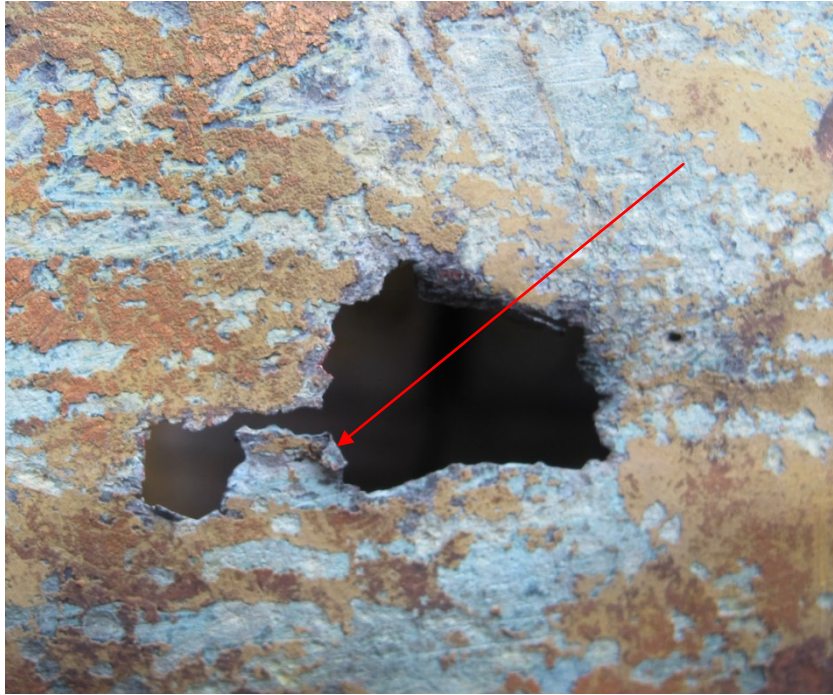


Figure 8 Detail of holes in Crown and deposits of Verdigris (Basic Copper Acetate)

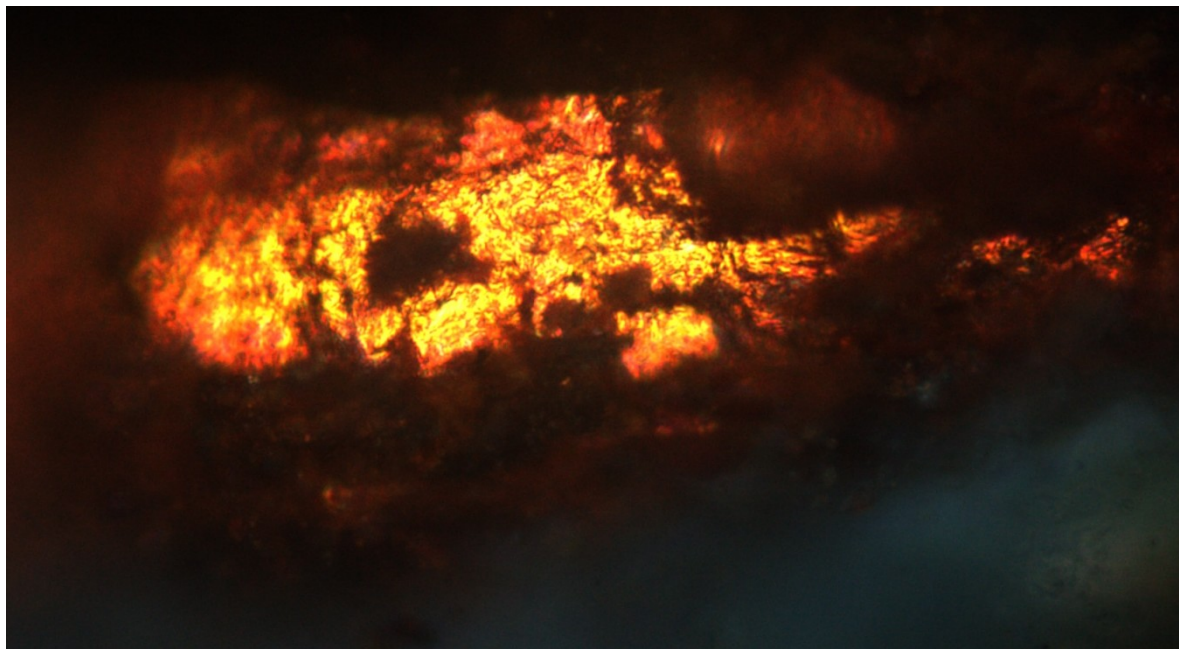
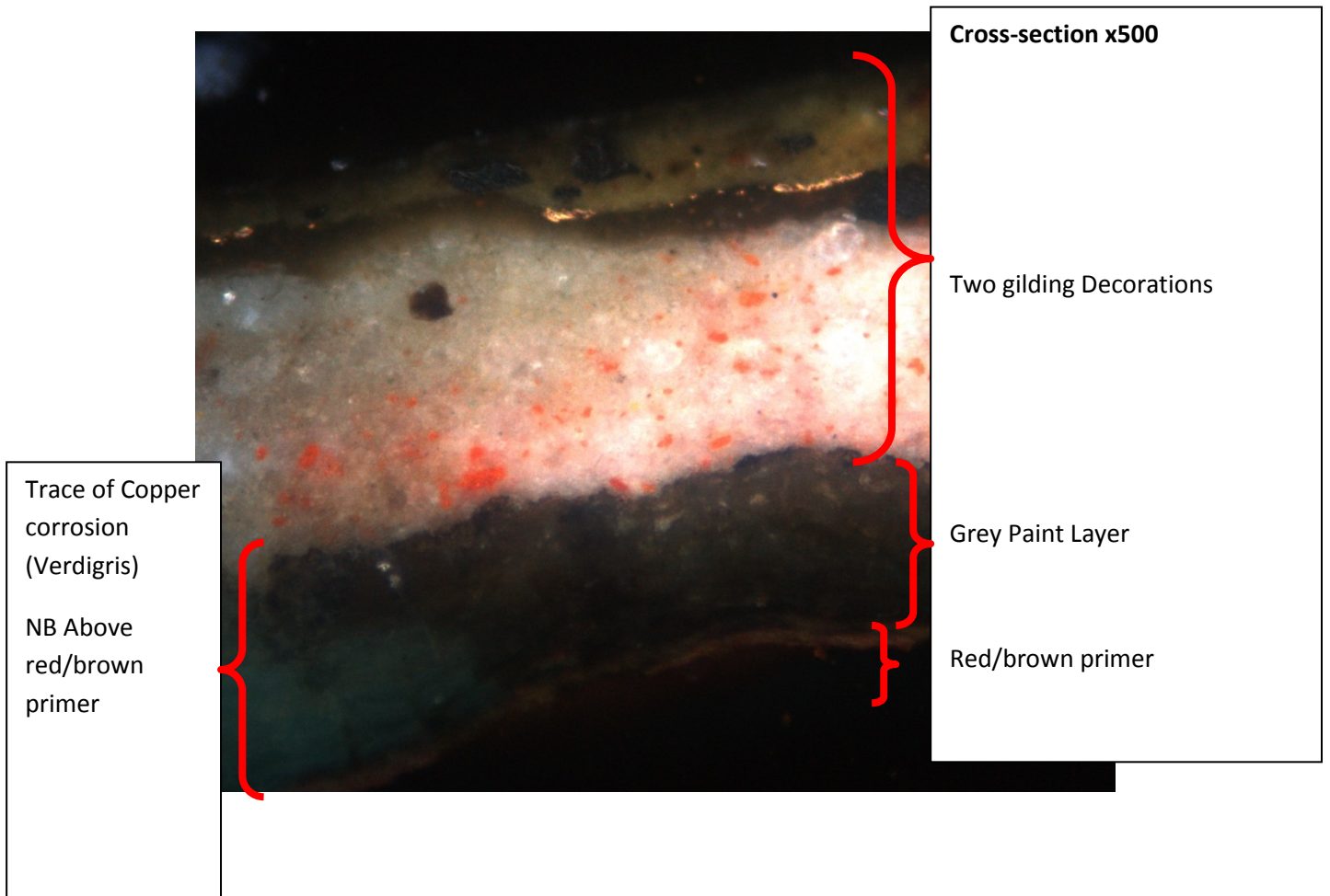


Figure 9 Sample 1 - Cross-section x500 - Traces of early gold leaf x500

Sample 3 – Lower band of Crown



Figure 10 Sample 3 Location - Lower band of Crown



Sample 13 – Early decorations in Dark Green and Grey on Brown Red (Sample 7 similar)



Figure 11 Sample 13 Location - bottom fleur de lys

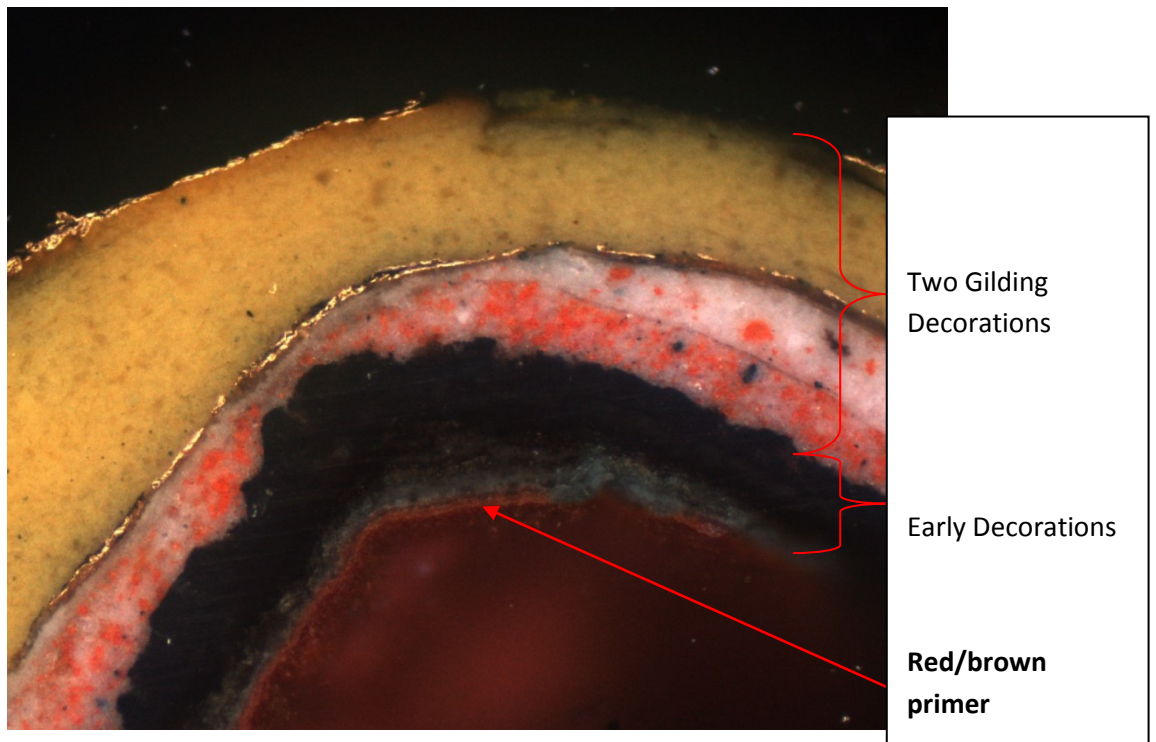
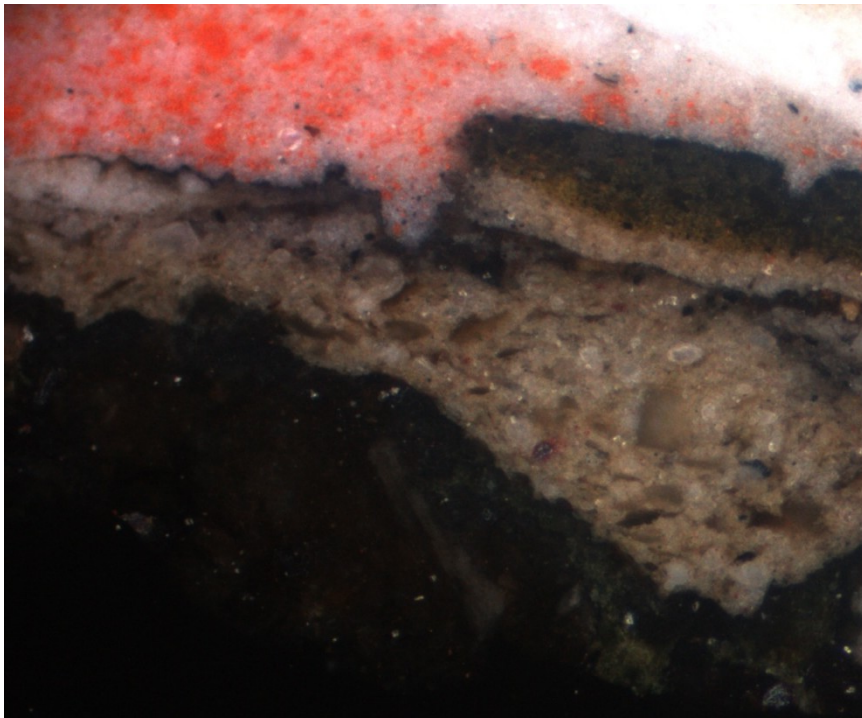


Figure 12 Sample 13 - Cross-section x200 Traces of early paint predating 2 gilded schemes

Sample 13 – Details of pink primer (with zinc)



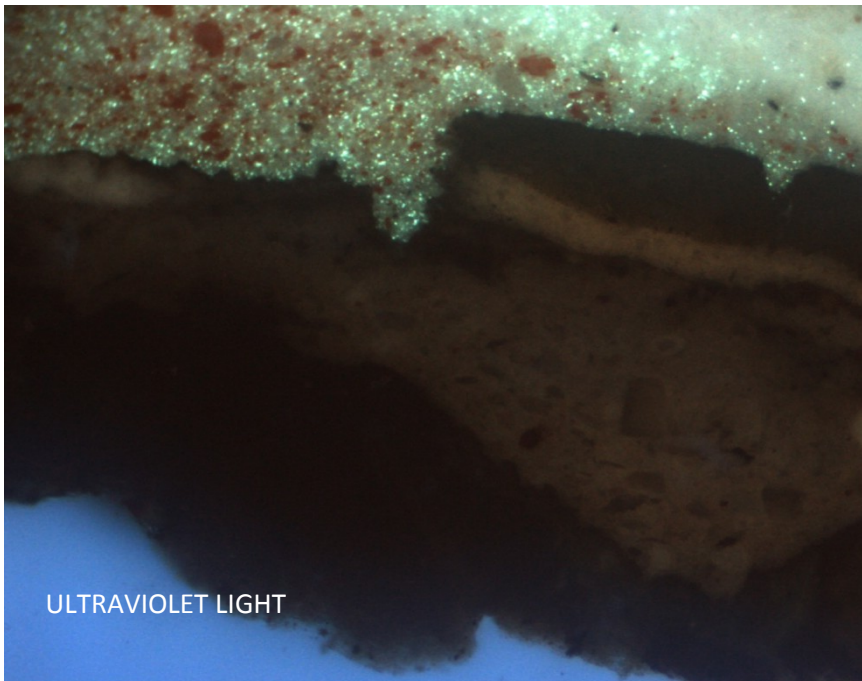
Pink primer of gilding

Traces of early finishes

Green in grey

Grey

Dark Green



Pink primer of gilding

Traces of early finishes

Green in grey

Grey

Dark Green

ULTRAVIOLET LIGHT

Sample 9 – Sample location – Corner of ‘Y’ Gap



Figure 13 Sample 9 Location - Edge of Corner of Arms cut

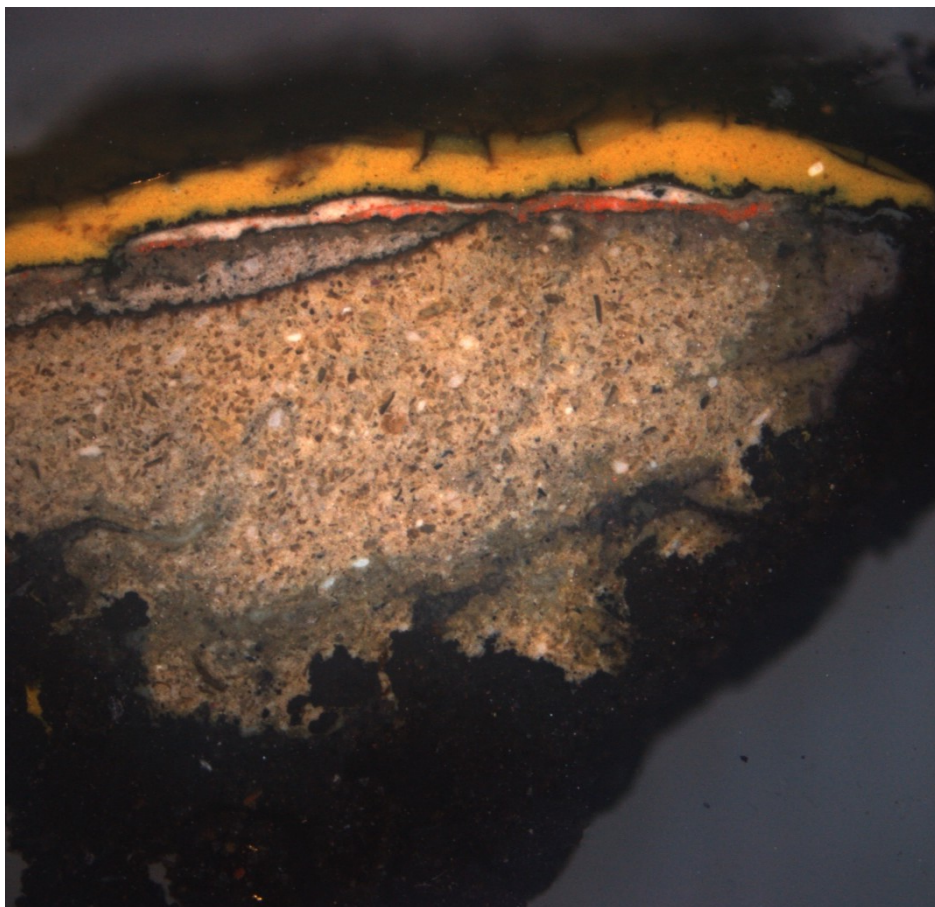


Figure 14 Sample 9 Cross-section x100 - traces of Dark Green, Green & Brown Primer

Sample 15 – Sample location - Gap



Figure 15 Sample 15 Location



Figure 16 Sample 15 - Traces of early decorative schemes visible beneath pink primer

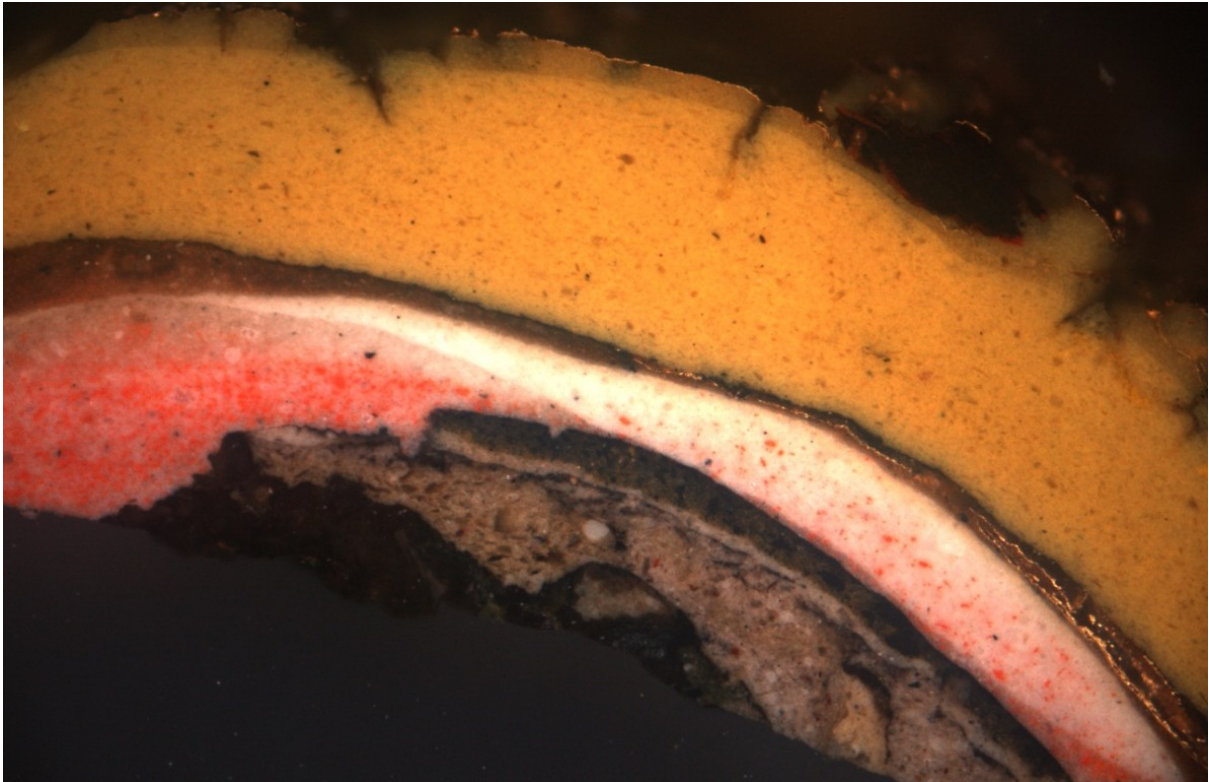


Figure 17 Sample 15 - Traces of early decoration beneath later gilding

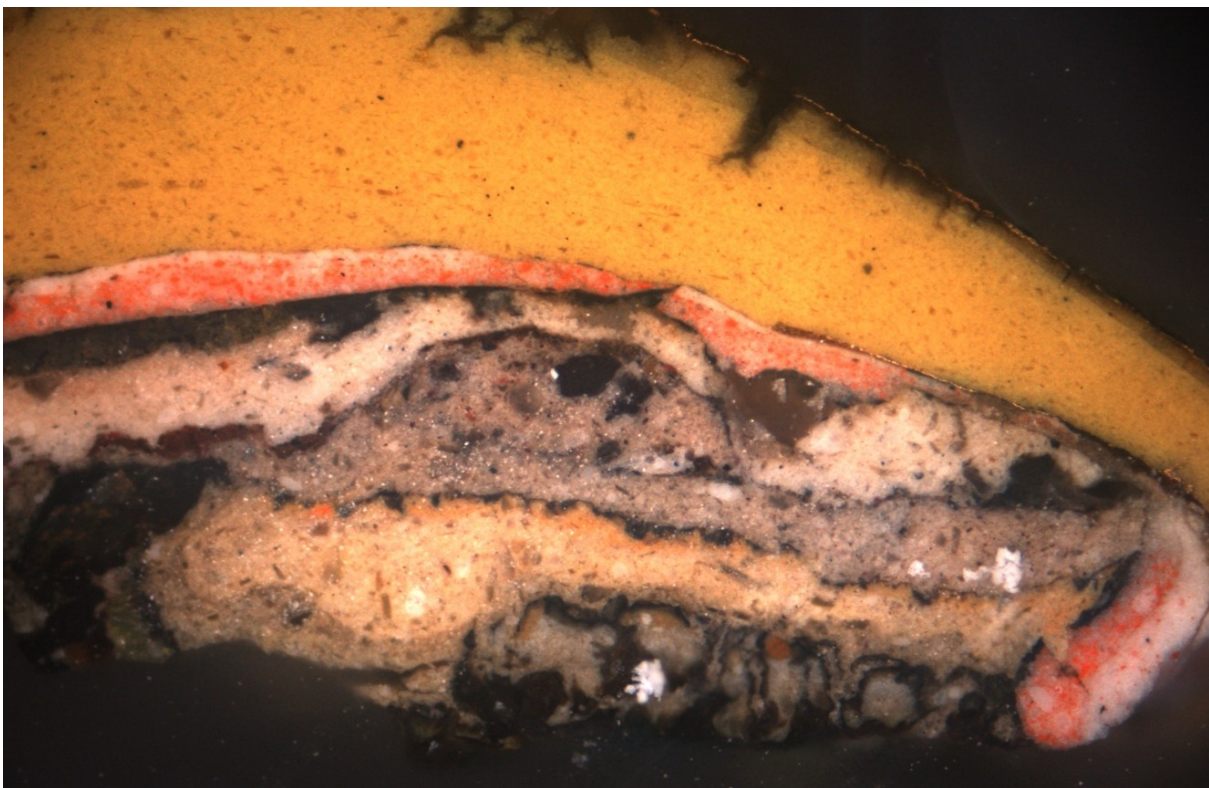
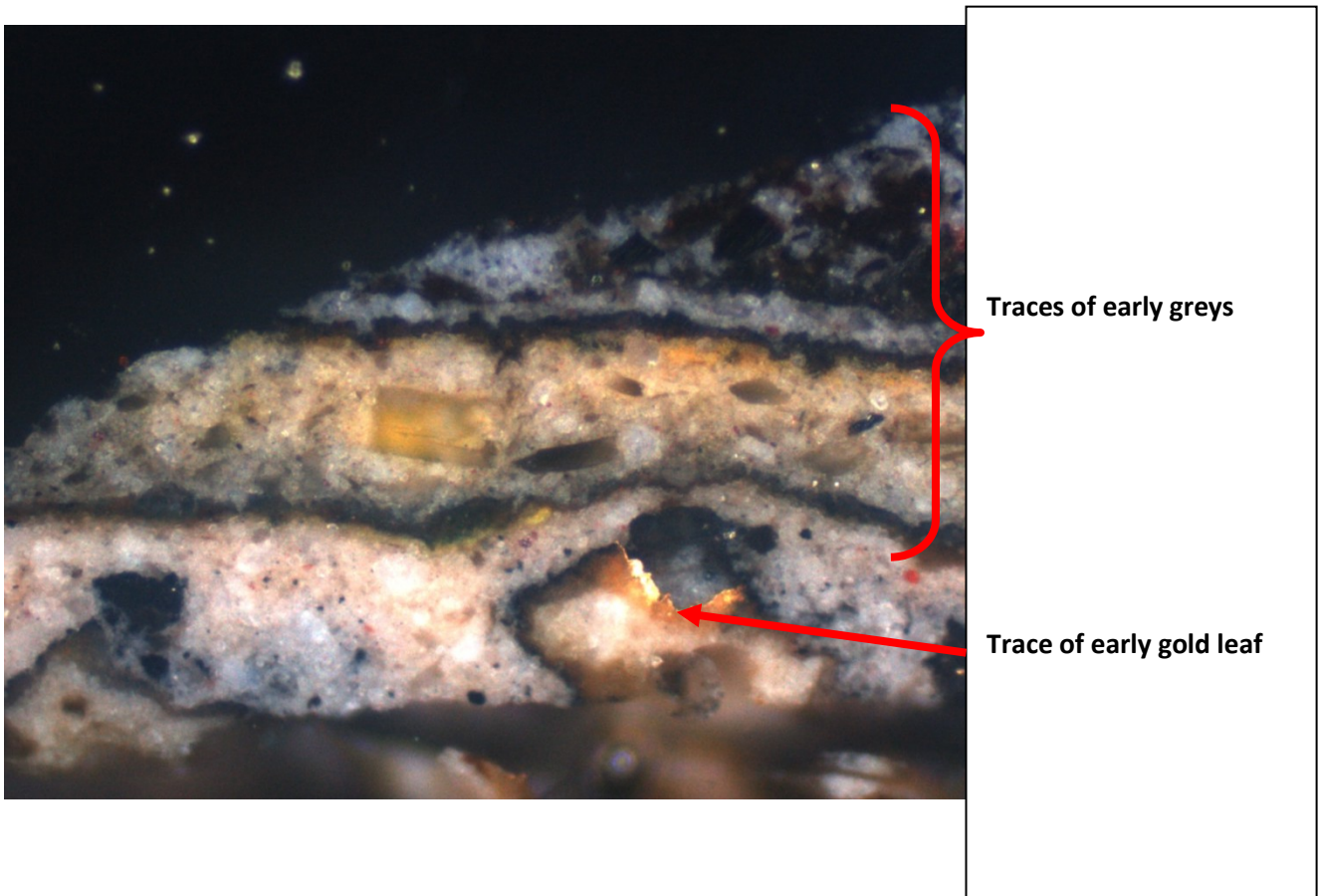
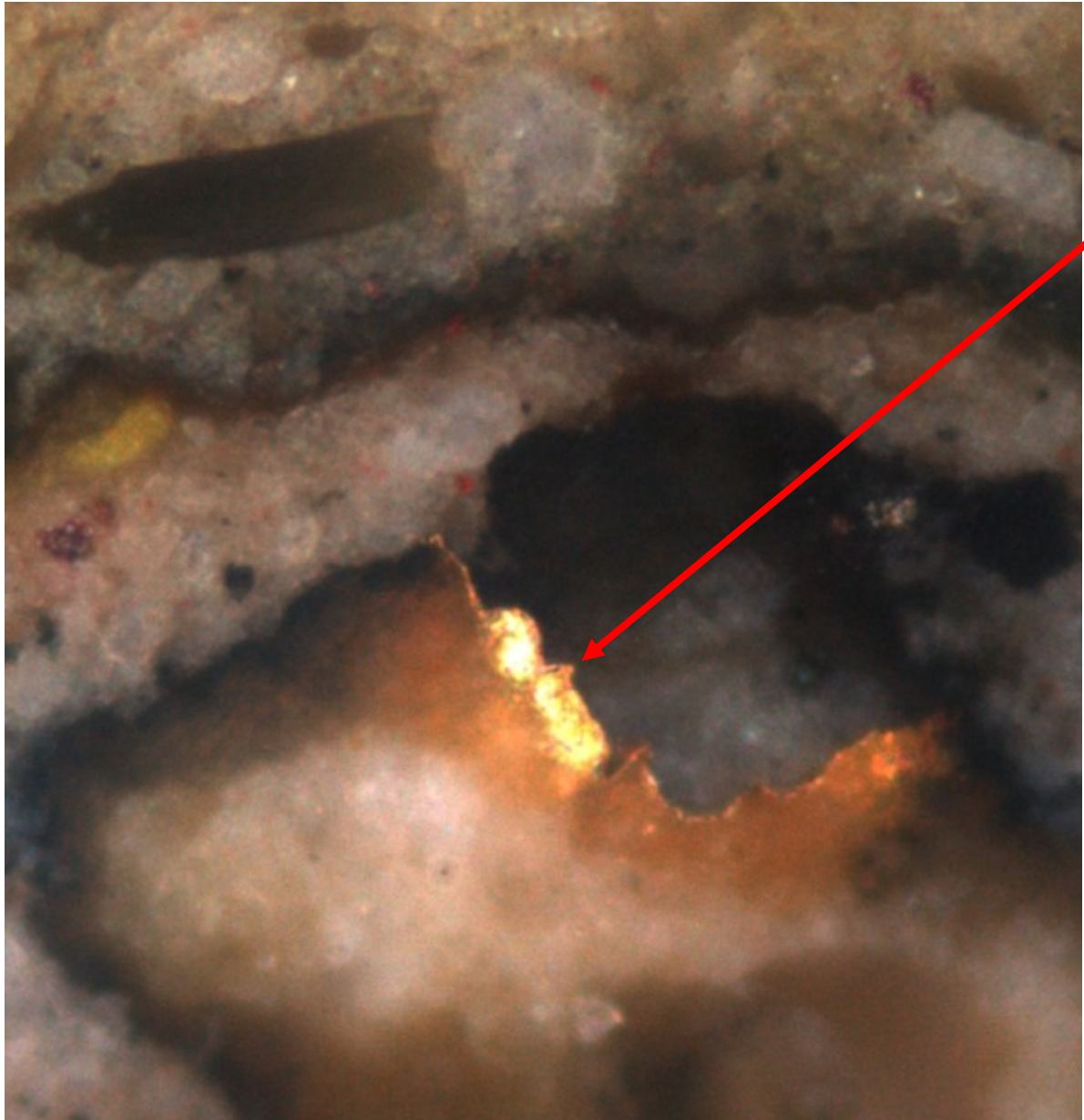


Figure 18 Sample 15 Cross-section - Traces of early decorative finishes beneath later gilding

Sample 19 –Sample Location Junction of side ball – Trace of early gold



Sample 19 –Sample Location Junction of side ball – Trace of early gold



Sample 20 – Layer of Corrosion Verdigris or Green Paint Layer?

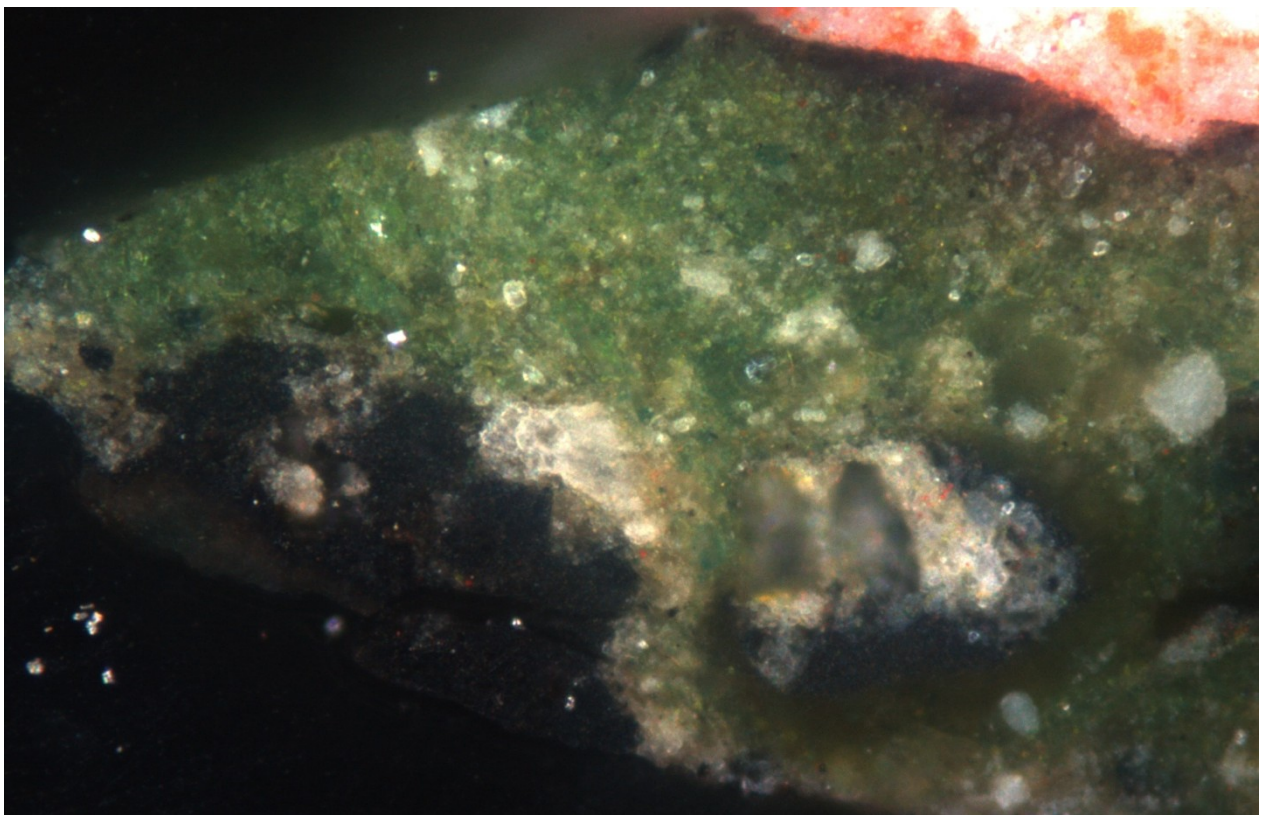
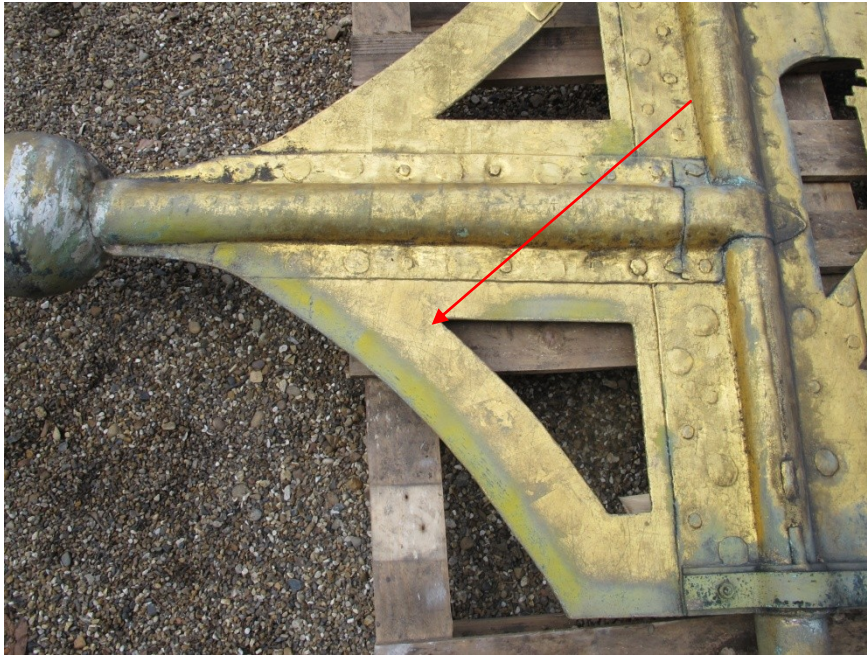
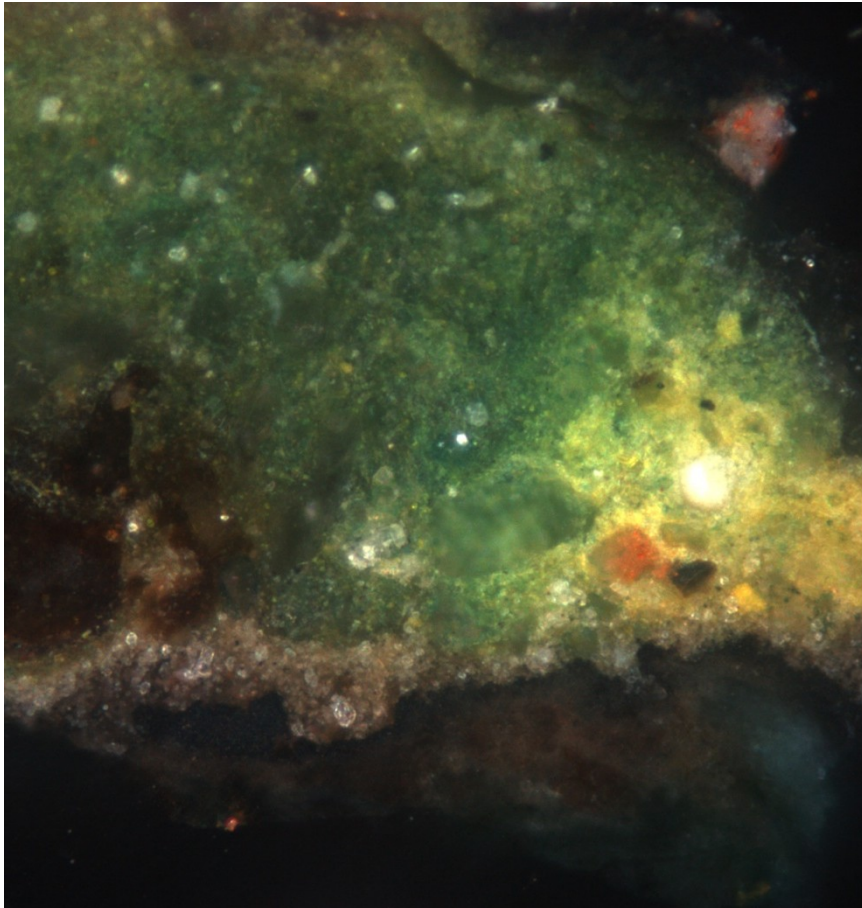


Figure 19 Thick deposit of bright green - applied paint or corrosion product

Sample 20 – Layer of Corrosion Verdigris or Green Paint Layer?



Bright Green

Paint or Copper Corrosion

Green layers appears to overlie a grey layer

Green on grey layer

The Cupola – Exterior

The Cupola was erected in c.1663. It is a two tier wooden construction which apart from the exposed sections of moulded wooden cornice and carved capitals, is covered in lead. Historic illustrations indicate that the entire exterior of the cupola (wood and lead) was **painted white**. The exterior of the cupola is currently painted black with the carved wooden capitals picked out in a terracotta red. The application of white paint not only protected the wooden elements but provided a uniform appearance which was intended to suggest that the cupola was a stone construction.



Figure 20 Historic Illustrations of Lambeth Palace - Cupola painted white

The existing decoration is a dark grey/black with the carved wooden capitals picked out in a terracotta red colour



Figure 21 Lambeth Palace Cupola Existing Decoration - Removal of lead from roof (March 2015)

The wood and lead is very weathered. There is evidence that the applied paint layers have been stripped from the surface of the lead and wood. – but in places a heavy build-up of applied paint layers has survived. The cupola did suffer bomb damage during WWII and some elements will have been replaced. But there was no obvious indication that any of the capitals had been totally replaced



Figure 22 Lambeth Palace - Detail of surviving paint finishes on carved capitals



Figure 23 Detail of a section of a wooden capital which has been stripped of early paint layers - or replaced

Paint Sample 1 Location – Wooden Cornice

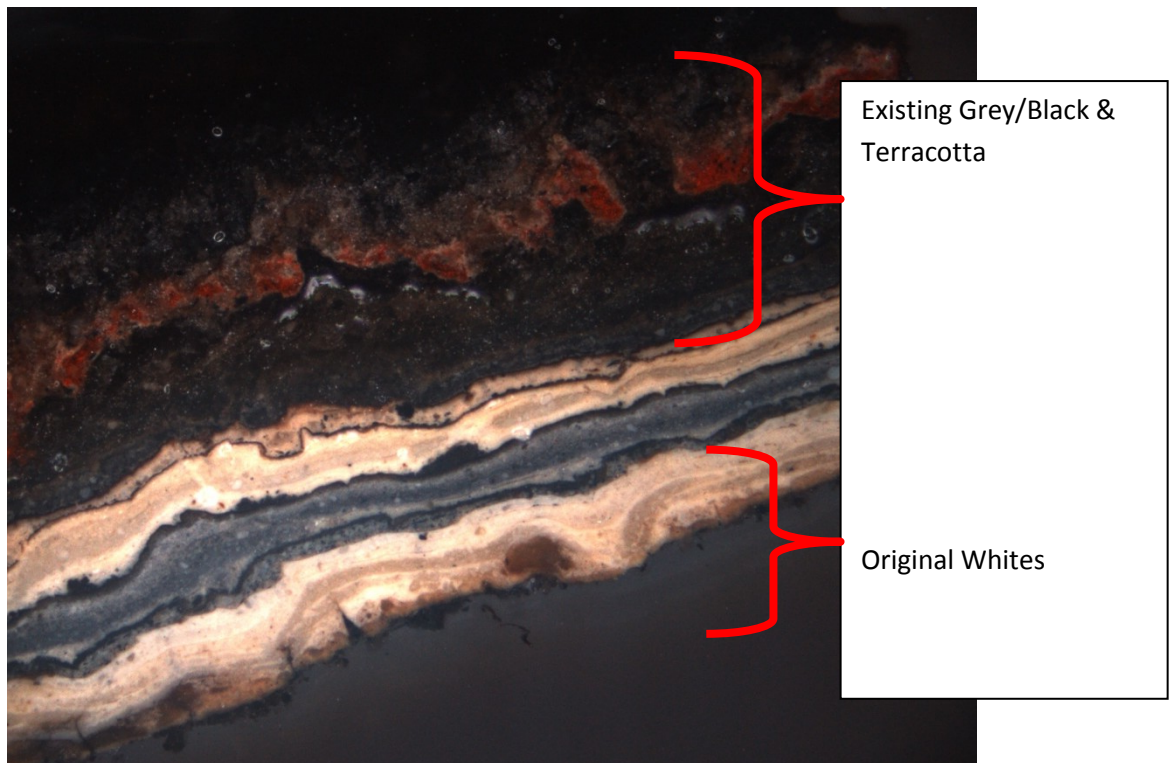


Figure 24 Sample 1 Cross-section - Original White Oil paint on pink primer - later decorations

Sample 2 Location – Wooden Cornice lower

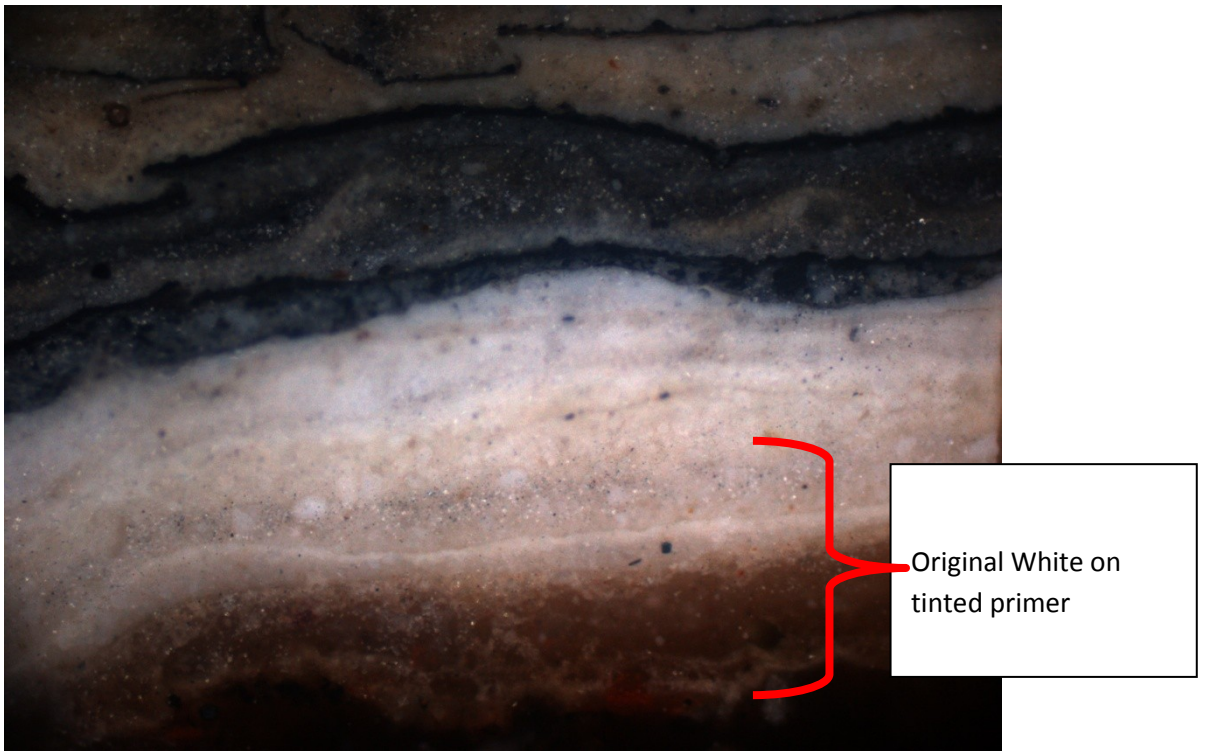


Figure 25 Cross-section Sample 2 - Original primer with red lead and early decorations in white oil paint

Sample 4 Location – Paint on lead below painted cornice

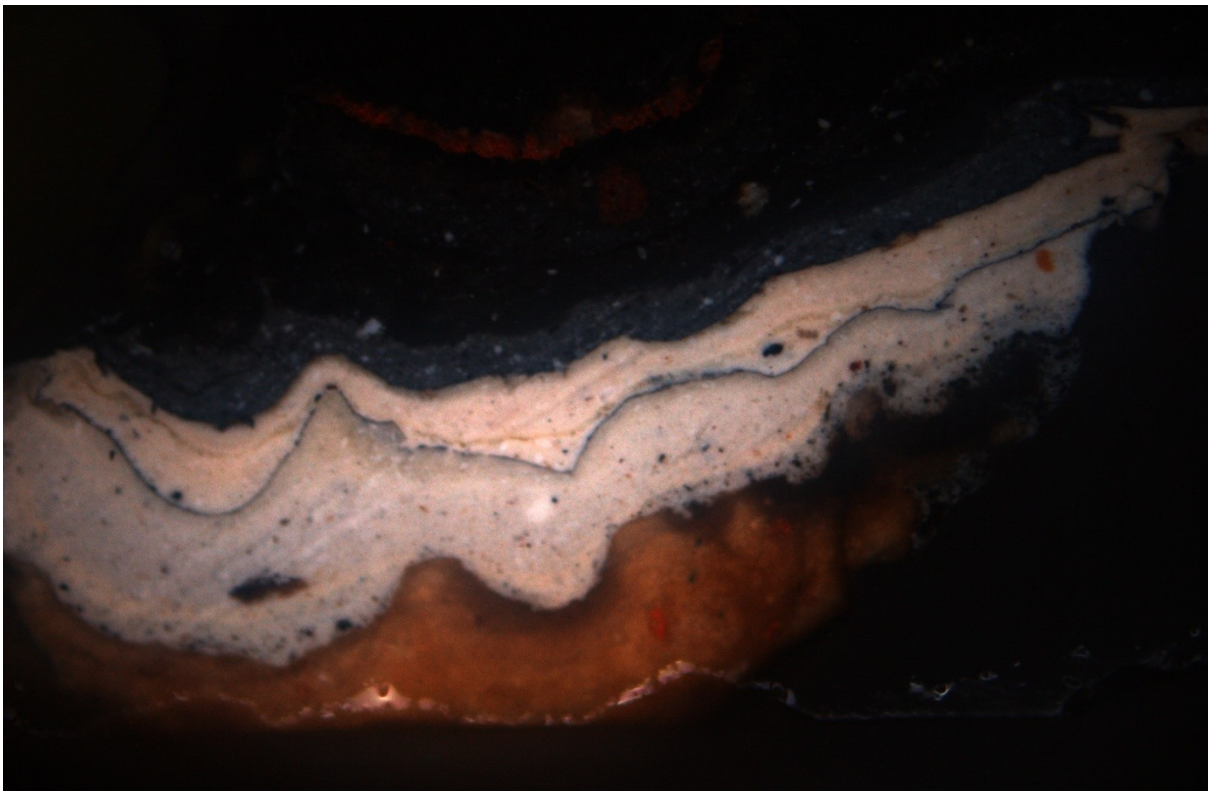


Figure 26 Cross-section Sample 4 - Traces of early white painted decoration and pink primer

Sample 6 Location – Carved Capitals

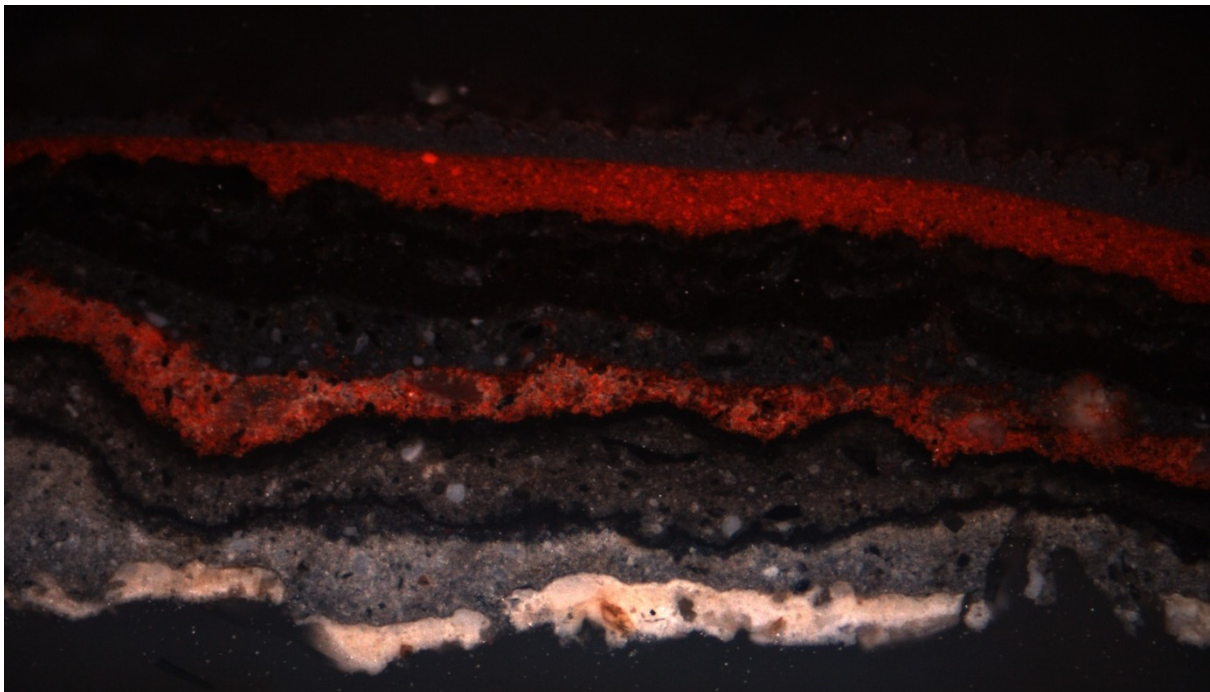


Figure 27 Cross-section Sample 6 - Traces of white oil paint and later grey and terracotta decorations

Sample 9 Location – Bed of pilaster



Figure 28 Cross-section Sample 9 - White oil paint on lead

Interior of Cupola

The interior of the cupola is made of wood. Sections of the west side have been replaced - presumably as part of the post-WWII renovations. The carving of the replacement sections lack the detailing of the original foliate swags. On close examination it is evident that the original wooden lining panels, the carved foliate swags and carved grotesque masks, have been stripped but still retain traces of accumulated paint.



Figure 29 Interior of the Cupola – Upper tier Foliate swags between the windows



Figure 30 Interior of Cupola - Lower tier Grotesque Masks on replacement panelling.

It seems probable that when the post WWII renovations were carried out and the new panelling was installed, an attempt was made **to remove all of the historic paint** applied to the original woodwork. This action was carried out due to the false assumption that the wood had not been painted originally. The new sections of wood were left unpainted – matching the stripped wood of the original elements. **The interior of the cupola was originally painted white.**



Figure 31 Sections of replacement joinery – western side



Figure 32 Interior of Cupola - Original joinery - stripped but traces of original paint are retained in mouldings



Figure 33 Interior Cupola – Junction of stripped original and replacement joinery - not painted

However traces of the successive decorations were retained in the recesses of the carvings and the ground behind the foliate swags. Examination of paint samples mounted in cross-section confirms that the interior of the cupola - like the exterior - had been **originally painted decorated in white coloured oil paint** but that these paint layers had been stripped off. (See below) . It is suggested that like the exterior the interior was intended to imitate dressed and carved stone . It would have been inappropriate to have left the wood in the late seventeenth century.



Figure 34 Cupola Upper Tier – Foliate relief -traces of early decorations

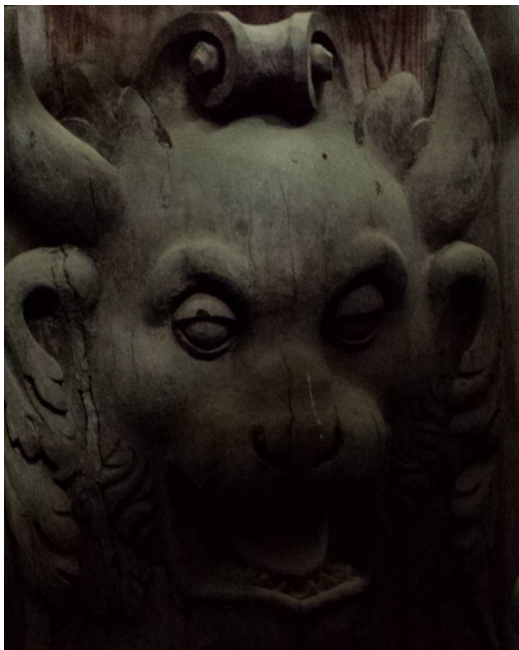
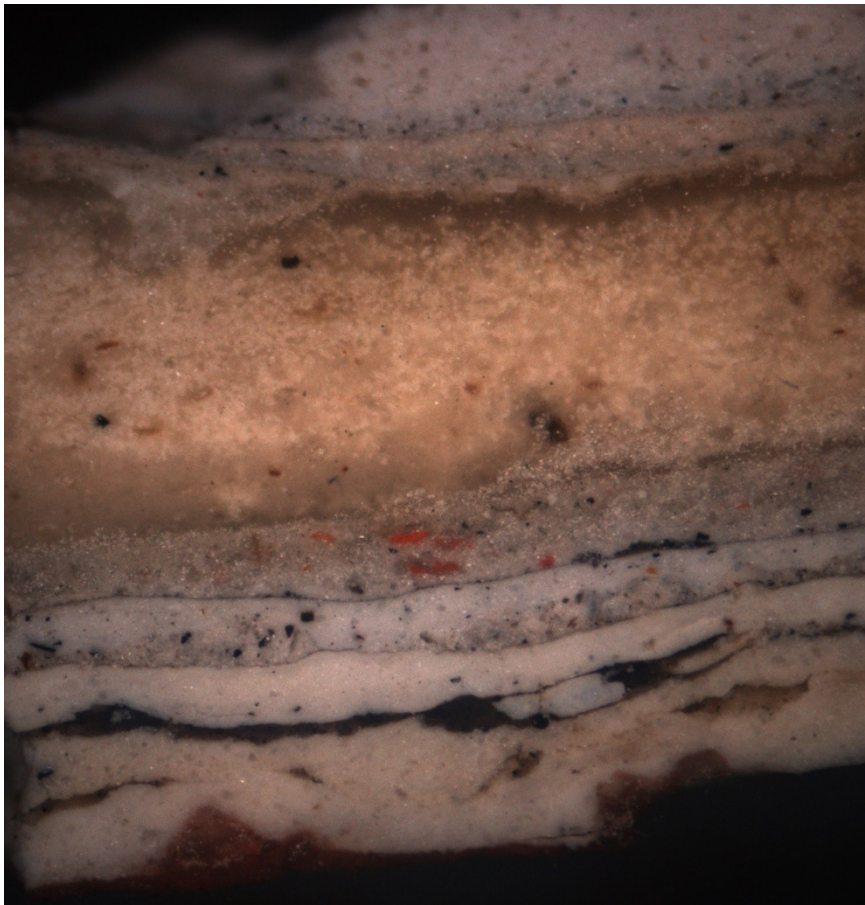


Figure 35 Cupola Lower Tier - Grotesque Mask - traces of early decorations

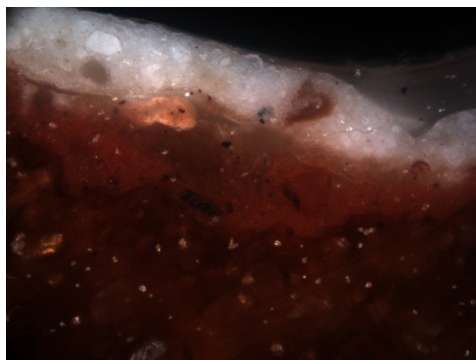
Locations Sample 5 Background



Later decorations in cream and broken whites

White on red primer

Wood

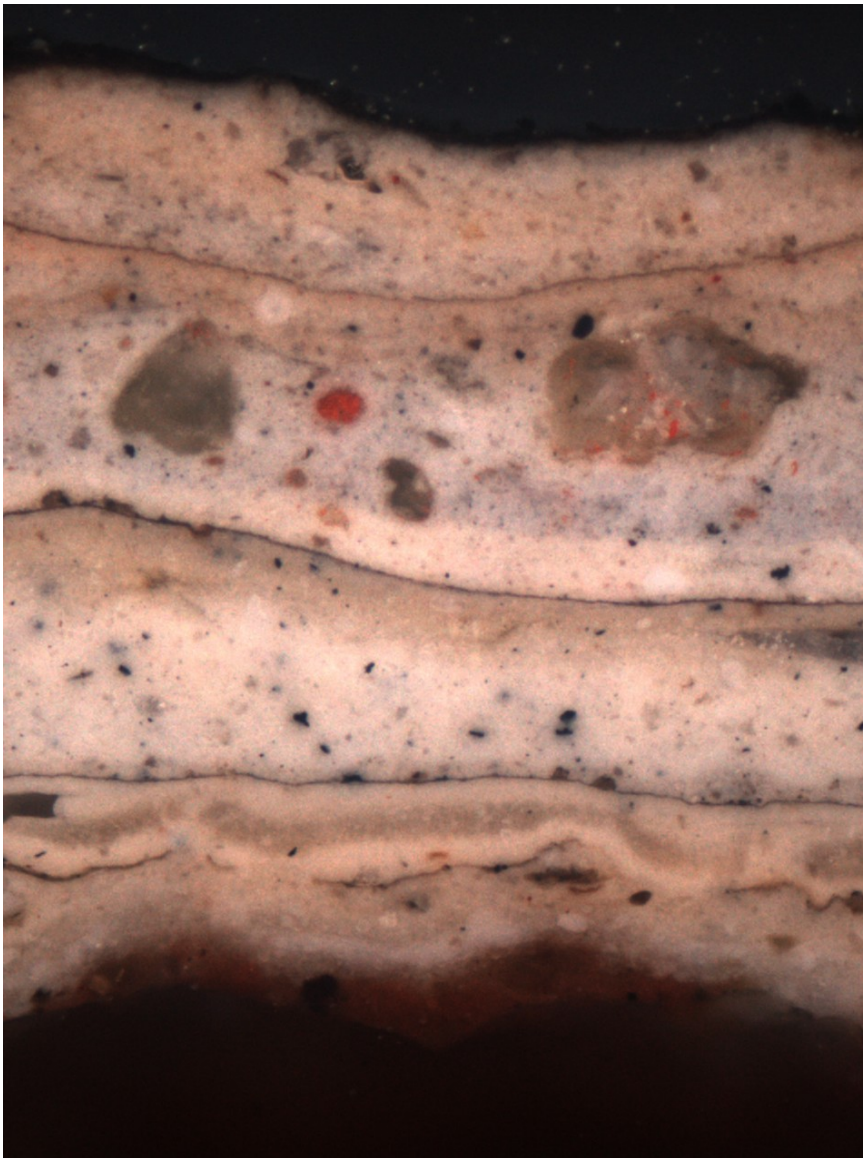


Detail of Original Red Primer

White on red primer

Wood

Sample 7 Carved Relief SE Swag



Later decorations in cream and broken whites

White on red primer

Wood

Summary of Decorations

The Cupola – Lambeth Palace		
	Exterior	Interior
1950s	Dark Grey & Terracotta	Stripped
	Dark Grey	Dark Cream
	Dark Grey	
	White	Cream
	White	
	Grey	
	Grey	Greyed White
	White	Light Cream
	White	
	White	White
1670s	White on red primer	White on red primer
Substrate	Wood & Lead	Wood

Great Hall - Italian Door

The Italianate Door Architrave is located in the eastern end of the south wall. It has been noted that does not match the rest of the fittings in the Great Hall – suggesting that the design of the room was modified as the Great Hall was built. An early view of the room (c.1800) indicates that the doorway was surmounted by a window. This feature was probably removed or blocked by Blore during the 1830s alterations



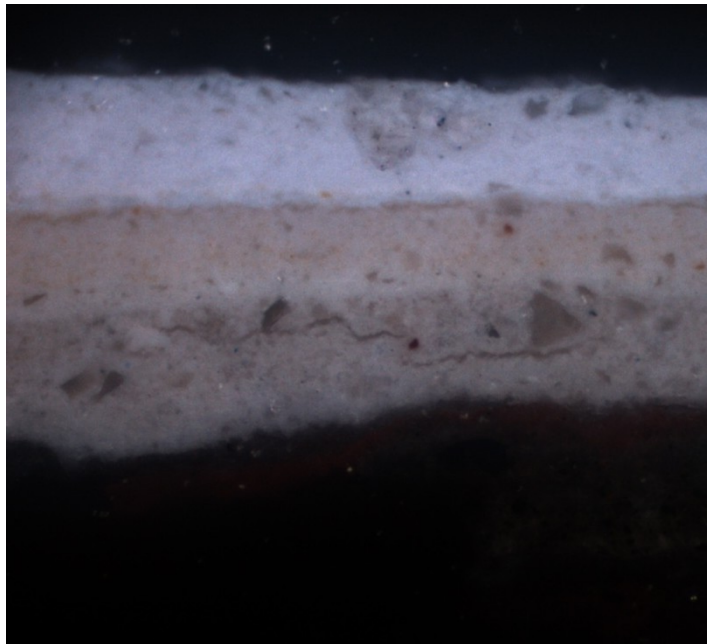
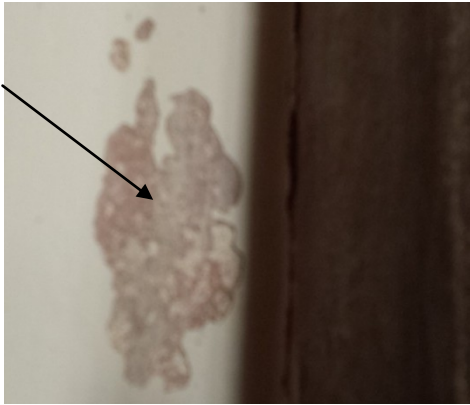
Examination of the walls surrounding the stone architraves revealed that the wall plaster above and to the right of the door architrave has been recently replaced. But the plaster to the left of the architrave retains early plaster and traces of a red/pink paint and a translucent grey/green paint. NB The translucent grey/green paint was also found on the stone architrave and sections of plaster on the North Wall.





Figure 36 The Great Hall - The Italian Door Architrave

Italian Door Architrave – Plaster & Paint (East Side)



3 Layers of Modern Paint

Trace of Red/Pink Paint

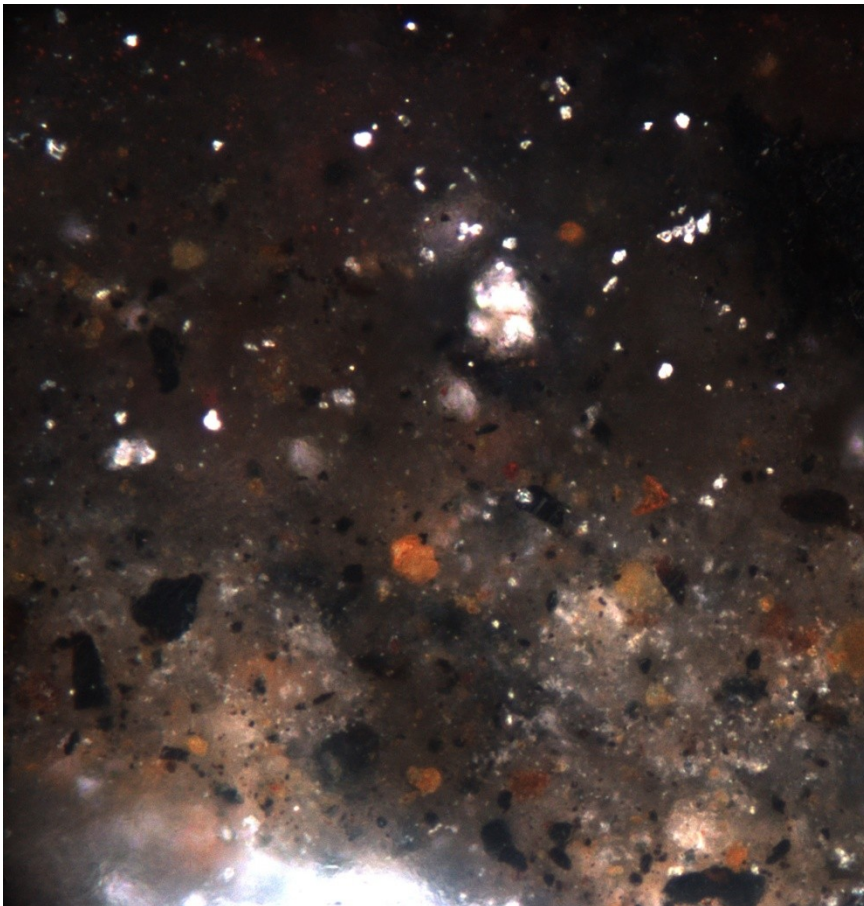


Trace of Red/Pink Paint

Translucent Green/Grey paint

Plaster

Italian Door Architrave – Dressed stone



Grey/Green Translucent Paint

Contains coarse Black and yellow pigment particles and is consistent in appearance to paints applied in the late 17th century.

Great Hall – Walls

The walls of the Great Hall are built of brick covered with plaster. The original plaster has been stripped from wall faces behind the bookcases (by Blore) but traces of this early hair bound plaster were discovered behind the bookcases on the northern wall. These bore layers of paint.



Figure 37 Geat Hall - Detail sof wall plaster

North Wall

Traces of plaster of pre-1830s plaster and paint finishes are retained behind the bookcases. Analysis of the plaster and paint revealed traces of **horse hair plaster and early late 17th century translucent paint or colour washes.**



Figure 38 North wall - Bookcase 13 - traces of early plaster and paint

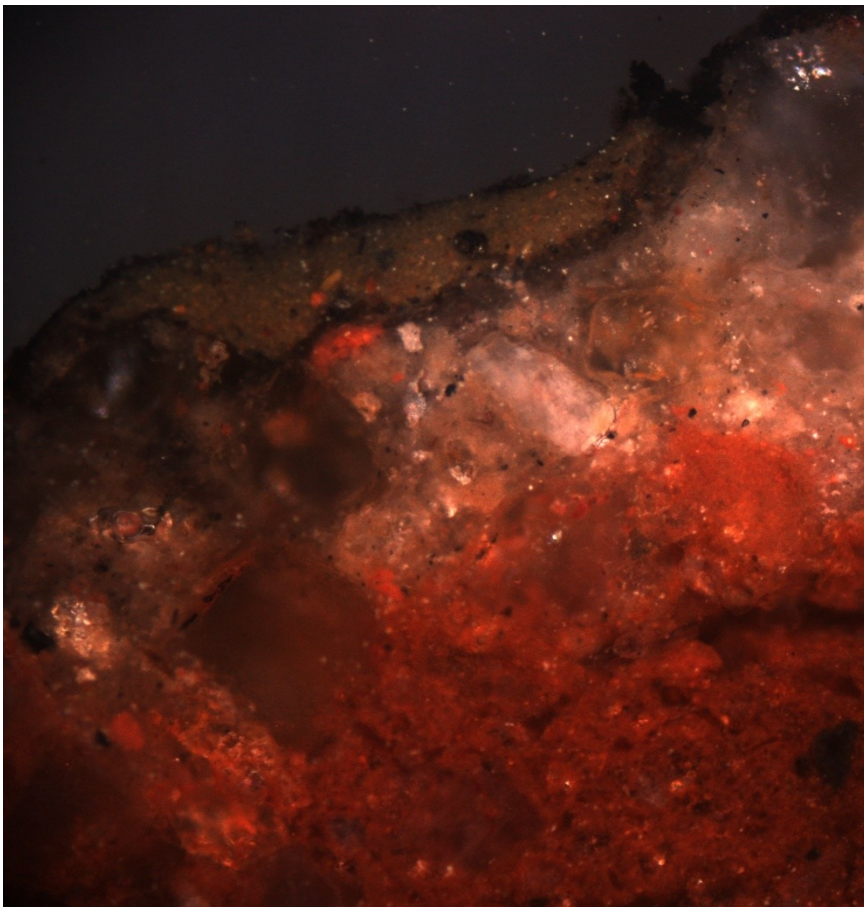


Figure 39 North wall - Bookcase 17 - traces of plaster and paint



Figure 40 North Wall - Bookcase 20 - dressed stone, shaped bricks, and traces of plaster and paint

Location 13 – Traces of plaster on bricks (Pre-1830s)



Yellow Paint (translucent 17th century type)

Grey Paint (Translucent 17th century type)

Plaster

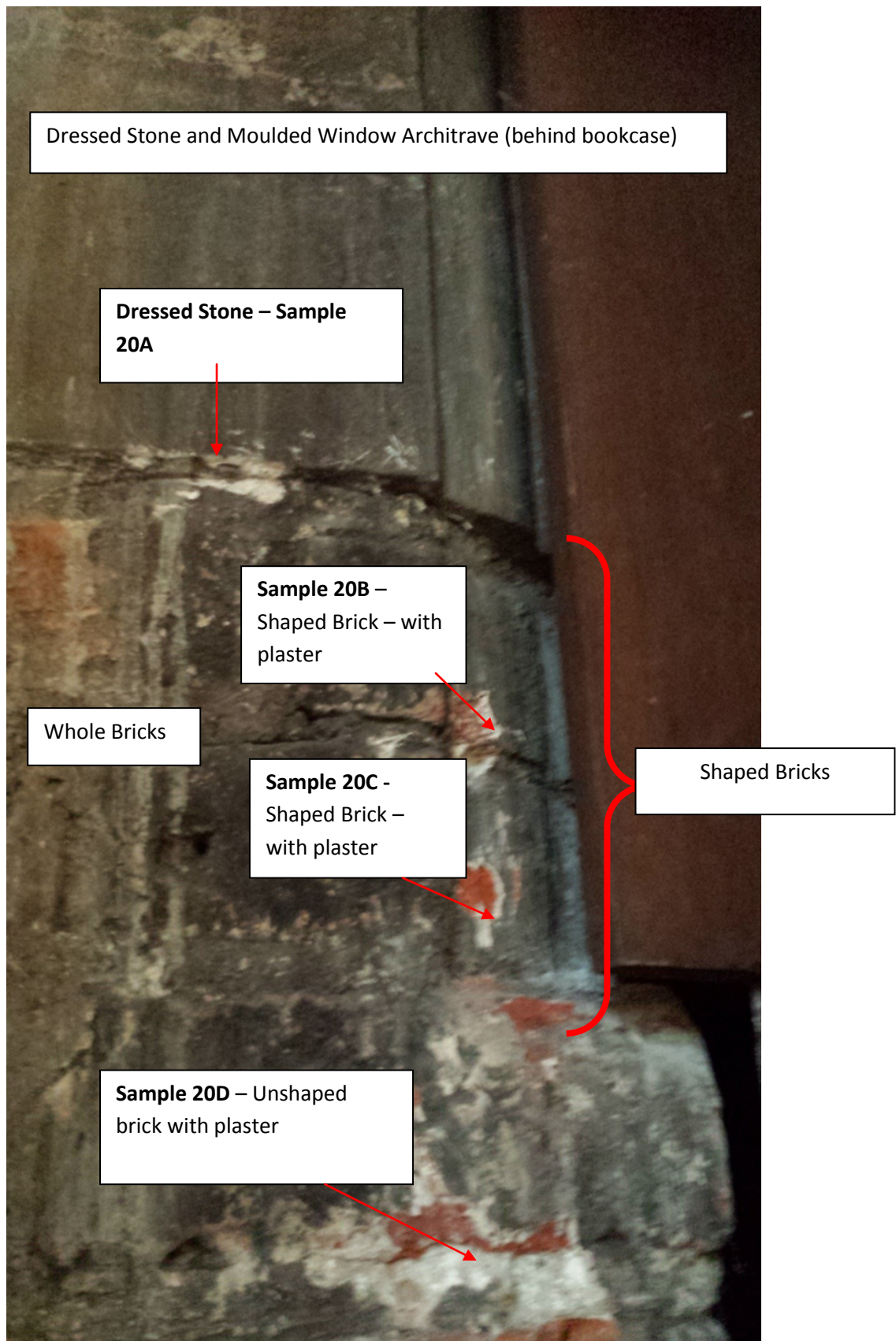
Brick

Location 20 – North Wall – Junction with Moulding of the North – East Window Bay



Figure 41 Junction of North Wall & NE Window Bay

Location 20 - Wall/Window Moulding Junction (Sample Locations)

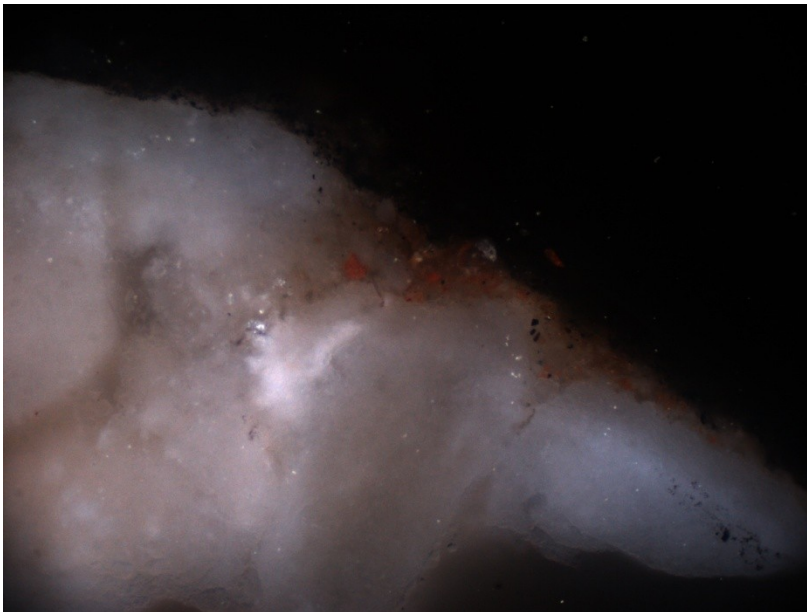


HIRC

The Great Hall - Lambeth Palace – APR Re

Location 20 - Wall/Window Moulding Junction

20A – Dressed Stone – with paint

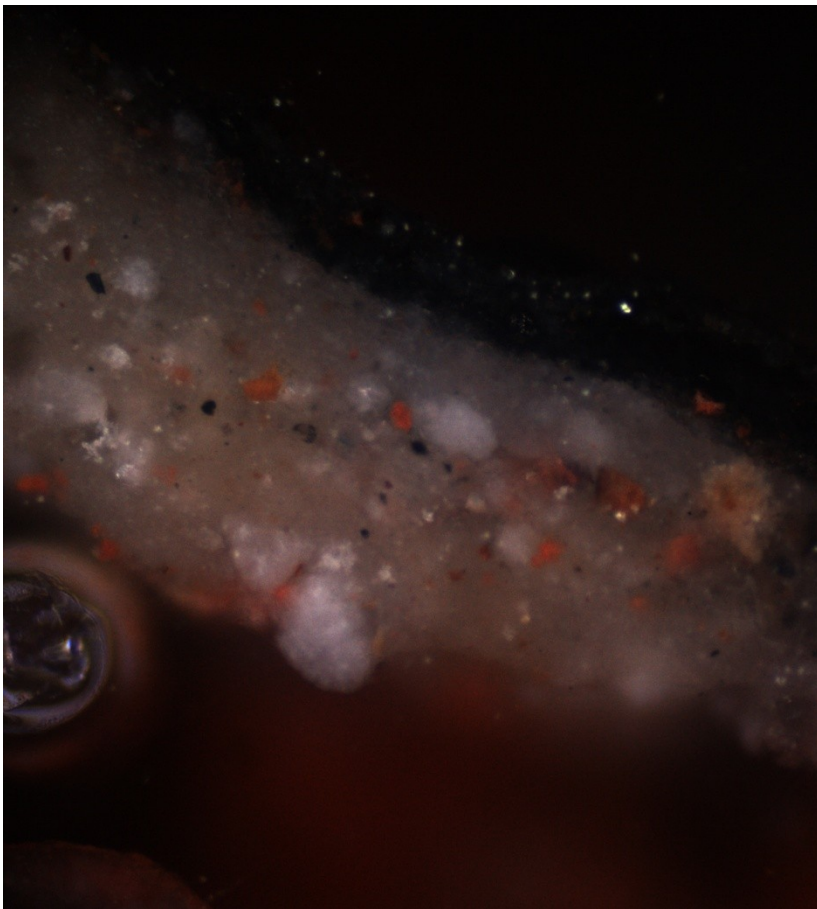


Paint on stone

Stone

Location 20 - Wall/Window Moulding Junction

20C – Shaped stone – with paint



Surface Dirt

Plaster

Shaped brick

Summary of Decorations – Italian Door & Walls

Great Hall – Italian Door & Walls (Lower level access)							
	South Wall	Wall right of Italian Door	Italian Door	North Wall	Junction with NE Window		
2015	White	White			?		
	Cream	Cream			?		
Modern Plaster	Plaster				?		
1830s Library					1830s Bookcases Plaster stripped	Dirt	Dirt
		Red?pink			Yellow		
		Grey /Green			Grey/Green	Grey/Green	
		Plaster			Stone	Plaster	Plaster on brick
1670s	Brick	Brick		Brick	Stone & Brick		

NE Window Reveal

This element is part of the original design of the Great Hall. It was not possible to access the surface of the window reveal to remove samples of plaster and paint.



Figure 42 North East Window Reveal - Details

Conclusions

Weathervane

Originally the Weathervane may have been picked out in **heraldic colours** and not fully gilded. The uniform gold leaf decoration may date from the mid 19th century.

Cupola (Interior & Exterior)

The exterior and interior of the Cupola was originally decorated in **a white coloured oil paint** applied over a red primer which was tinted with red lead. The wooden structure was intended to look like carved white stone/marble.

The interior has been stripped of early paint layers – probably during post WWII renovations.

Great Hall - Wall faces

The brick walls were originally plastered in horse-hair plaster. Traces of a **translucent green/grey containing coarsely pigment particles** were found on the surface of the plaster. This paint probably dates from the 17th century.

Italianate Stone Door Architrave

Traces of a translucent green/grey coarsely texture paint was also found on the surface of the plaster. A later pink/red coloured paint was also found – below modern paint layers. During the 17th century it was common practice to colour-wash dressed stone surfaces.

NE Window bay

The junction between the moulding of the window reveal architrave and the brick wall had been fitted with shaped bricks. Trace of horse hairplaster and early paint was found in this area. No access was available to remove samples from the moulded areas.

APPENDIX

Cross – sections & Sample Locations

Lambeth Palace – Great Hall

Cross-sections

Interior of Cupola – Upper Tier

LP/CI/1	1	Wooden swag
LP/CI/2	2	Background

Weather-vane

LP/CI/3	1	Crown (3)
	2	Flower motif on crown (2)
	3	Band on crown (6)
	4	Central support (4)
LP/CI/4	5	Big ball (4)
	6	Central support (8)
LP/CI/5	7	Top Brace (3)
	8	Underside of brace plate 7 (5)
	9	Corner of 'Y' (4)
LP/CI/6	10	Brace top left (4)
	11	Bottom left brace (4)
LP/CI/7	12	Bottom left (4)
	13	Lower plate (4)
	14	Iron pipe

LP/CI/8	15	Right side bottom edge (4)
	16	Ball side (5)
LP/CI/9	17	Point of tip (6)
	18	Right top corner – gap
LP/CI/10	19	Junction with side ball (6)
	20	Side of cut (7)

Cupola Exterior

LP/CI/11	1	Cornice – paint on wood (5)
LP/CI/12	2	Cornice – paint on wood (lower) (4)
LP/CI/13	3	Paint on lead (3)
	4	Side (3)
LP/CI/14	5	Projection (3)
	6	Paint on carved wood (4)
LP/CI/15	7	Middle of carved capital (4)
	8	Bottom of carved capital (2)
	9	Lead (2)
	10	Window bar
LP/CI/16	12	Very weathered (4)
	13	Capital (6)
LP/CI/17	14	Lower cornice (10)

Northern Capitals – (Original ?)

LP/CI/18	NE Capital Upper (8)
LP/CI/19	NW Capital Upper
LP/CI/20	NW Capital Upper
LP/CI/21	NE Capital Lower
LP/CI/23	NW Capital Lower (9)

Great Hall - Interior

LP/CI/24	1	Wall above Italian Door
	2	Wall right of Italian Door (4)
	3	Wall left of Italian Door (7)
LP/CI/25	3	Italian Door
		North Wall – 2 Bookcase (3)
LP/CI/26		North Wall – 8 Bookcase
LP/CI/27		North Wall – 13 Bookcase (5)
		North Wall – 17 Bookcase (1)
LP/CI/28		20A Stone moulding
LP/CI/29		20B Shaped brick – white finish
LP/CI/30		20C Shaped brick
LP/CI/31		20D Brick wall lower

Cupola Interior – Upper Tier

LP/CI/33	3 East Swag – Leaf left (4)
	4 Right leaf (3)
LP/CI/34	5 Background of flat (5)
	6 Dado planks – filler (2)
LP/CI/35	6 Dado planks – filler (2)
	7 SE Swag – leaf upper (2)
LP/CI/36	8 SE Background
	9 NE Swag leaf
LP/CI/37	11 Third Tier SE top of head
LP/CI/38	12 SW Mask Background