



**THE BLESSED VIRGIN MARY CHURCH, CLOFORD SOMERSET**

**Post Treatment Report for  
The Conservation of The Horner monument  
The Blessed Virgin Mary Church, Cloford, Somerset**

**Client: Richard Mawer**

**Job No. 2601**



**Revision**

Date	Revision	Comments
01/07/22	1	

**Quality Assurance Review**

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## 2.0 Project Brief

This report should be read in conjunction with the SSHC 2022 Report 'Evaluation of Trials and Proposed Treatment Programme of the Horner Monument'.

The project brief was to improve the appearance and readability of both the Horner monuments and The Horner Chapel, following the findings of the 'Condition and Recommendation Report to Monuments in the Horner Chapel, Church of St Mary, Cloford' conducted by Sally Strachey Historic Conservation in 2020. The report highlighted improvements needed to be made to both the internal and external fabric of the chapel, to reduce levels of moisture within the building envelope and improve the micro-climate around the monuments. The external environment was considered, and it was determined the entire external walls of the chapel should be repointed in a compatible lime mortar, thus ensuring good breathability. Internally due to water ingress, damp and salts, the plasterwork needed repair and to ensure good breathability of the building fabric it was decided that most of the plaster should be removed and reinstated with 3 coats of haired lime plaster. This in turn would help to address the ongoing issues of disruption to the painted surfaces of the monument to Sir George and Lady Anne Horner. By addressing the internal presentation and visibility of the monuments it was hoped to raise their profile within the church.

The works and report were commissioned on behalf of the PCC of Saint Mary's Church Cloford, by its church warden Richard Mawer.

The church architect is Marcus Chantrey of Benjamin + Beauchamp Architects Ltd. Wedmore.

The works were carried out between April 2022 and September 2022 by conservators Josephine Walton, Christina Kaye, Meredith Aldworth, Stephanie Bierkandt, Lee Hargreaves, and Michelle Pepper; specialist lime plasterer Simon Leach and team on behalf of SSHC Ltd.

## 3.0 Project Support

The works would not have been possible without the kind support of the following bodies:

National Churches Trust, The Pilgrim Trust  
Garfield Weston Foundation  
Idlewild Trust  
St Andrews Conservation Trust  
Leche Trust  
Francis Coales Charitable Foundation  
ChurchCare  
Allchurches Trust  
Society of Antiquaries of London, The William and Jane Morris Fund

## 4.0 Church Location and Details

Address: St Mary's Church  
Cloford  
Frome  
Somerset  
BA11 4PQ

County: Somerset  
District: Postlebury





Parish: Postlebury  
Diocese: Bath and Wells  
National Grid Reference: 51.1944°N 2.3930°W  
Heritage Category: Listed Building  
Grade: II\*  
List Entry Number: 1295509

### 5.0 Significance

The Church of St Mary, Cloford is a Grade II\* listed building set in an idyllic setting on the eastern edge of the Mendip Hills in the village of Cloford. An area of rural farmland juxtaposed with heavy industry from the carboniferous limestone quarries dotted all around this area. Cloford quarry, long since silent, is now a designated geological Site of Scientific Interest due to the exposures of sediments of the Triassic and Jurassic stone, locally known as Doultling and Forest Marble stone, this stone has been used in the construction of St Marys. The current church building dates from the 15<sup>th</sup> century, with the nave and chancel having been rebuilt in the Victorian period, C.1856 and then extended in 1869 in the decorated style.

The 17th century monuments in the Horner chapel are significant heritage assets as they provide valuable information on the characters who contributed to the history of Cloford, as well as displaying high quality examples of funerary design and detail.



Figure 1 View of the church looking east

## 6.0 Improvements to the Environment

### 6.1 External Works

#### 6.1.1 Pointing

The brief was to remove all the pointing to the exterior stonework, over 50 square metres. The mortar joints were raked out using a combination of mechanical techniques, an electronic breaker and small tools to ensure the historic mortar was removed with care and precision ensuring minimum damage to any stonework. The walls showed a mixture of historic mortars, whilst lime based, some of the mortars were of a cementitious nature. On closer inspection this variation within the mortars highlighted differing responses to weathering, being on the exposed north side of the church the mortars have endured the extremes that weather can offer, and some sections were friable, whilst some harder mortars now sat proud and detached from their original placing. To the lower north-east corner of the Horner Chapel, the exposed mortar joints revealed earth and root matter suggesting that at some point excessive vegetation had been present; this is a key area within the interior of the chapel to where there have been issues with damp.



Figure 2 Image to show hard cementitious mortar to the right and softer lime mortar to the left.



Figure 3 Image to show soil and root matter.

Following the removal of the historic mortars, the walls were prepared for the application of a lime mortar, any fragmented or damaged stones were replaced, and the chapel was repointed with a 1:3 lime/sand mix and tended accordingly.

### 6.1.1.1 Lime Putty Mortar Samples

Five samples were made as small tiles and then transferred to the wall to be assessed.



Figure 4 Mortar sample No.1 warm grey



Figure 5 Mortar sample cool buff



Figure 6 Mortar sample No.3 grey buff



Figure 7 Mortar sample No.3 warm grey buff



Figure 8 Mortar sample No.5 grey tone

### 6.1.1.2 Completed Pointing



Figure 9 New pointing on the east wall



Figure 10 New pointing on the north wall



Figure 11 New pointing on the west wall

### 6.1.2 Rainwater Goods

All the water goods connected to the Horner Chapel were redecorated. The existing paint was sanded down and cleaned before two coats of black metal paint were applied (specialised paint which was designed to be a primer/undercoat and topcoat in one. Brand – Rust-Oleum Industrial).



Figure 12 Painted rainwater goods

## 6.2 Internal Environment

### 6.2.1 Plasterwork

The 2020 condition survey recommended the removal of the plaster within the Horner chapel. Previous water ingress and issues with damp and salts had left the plaster surface disfigured and unsightly. The presence of salts within the plaster could also be detrimental to any future decorative surface application. The east wall shows the worst degradation to the plasterwork with other areas evident to all walls within the chapel. Great consideration was given to establishing what areas of plasterwork should be removed and retained. The need to address the breathability of the walls of the chapel suggested the best approach would be to remove as much as possible, especially to the north wall displaying the monument to Sir George and Lady Anne Horner. A few test areas within the chapel were chosen to determine the content of the plasterwork; evidence suggested this was a lime-based plaster, however, paint analysis showed that the plaster had been painted with a modern emulsion, which would need to be thoroughly removed where plaster was to be retained in order to ensure the compatibility of the surface with lime wash .

In line with the condition survey report recommendations (2020), a series of window investigations were carried out to establish if there were any hidden decorative details to the plasterwork surrounding the window on the east wall or on the walls of the two Horner Monuments. These investigations found no hidden decorative details to the west and east walls, however, they revealed the presence of Mourning

bands to the lower edges of the Sir George and Lady Anne Horner monument; these were of historic significance and therefore, to be retained. This retention of historic plaster now made the original recommendation to install an air gap around the monument moot.

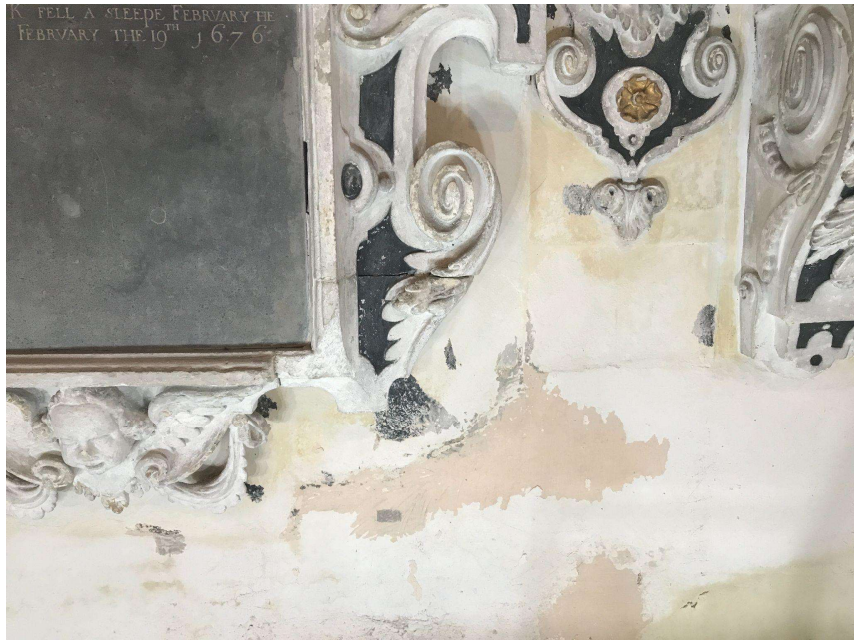


Figure 3 Image to show evidence of mourning bands around the lower section of the monument.

### 6.2.2 Paint Removal

Half of the plaster in the chapel was either cementitious or lime-based mortar that had degraded to an unsavable state. This was removed and new plaster was installed. This left the rest of the chapel with a historic plaster covered in white emulsion paint. The emulsion needed removing to allow the walls to breathe; limewash cannot bond to emulsion. A number of tests were carried out, finding that an application of paste type paint stripper with a dwell time of 24hrs was the most effective way to get back to the original surface. Once the paint and paste was removed from the walls, the walls and residual paste were neutralised and washed off.

### 6.2.3 Limewash

After carrying out three trials of assorted colours, sienna (soft pink) was chosen. The soft pink was considered to complement the faces of the figures, not clash with the nave white or indeed the monument; the colour is also near to the original Victorian decoration revealed when the white emulsion was removed from the walls.

The paint was a pure limewash type with no casein or other additives. The first coat was watered down and applied to all surfaces to prime the new and paint stripped plaster walls. Four coats of normal strength limewash were then applied.



Figure 13 Sample No.1 of the Limewash - Terra Maroc



Figure 14 Sample No.2 of the Limewash - Sienna

### 6.2.3 Floor

The carpet was removed from the chapel before works commenced. This was done by the church warden under the recommendations presented in the SSHC condition report 2020.

The stone floor was cleaned, and two flagstones beneath the window had the cement removed from their cracks and replaced with colour matched lime mortar.

The cleaning solution was 50% Acetone, 25% Clear spirit and 25% Deionized water.

Note, the initial white bloom of salts on the floor is a reaction to both the carpet being lifted and the cleaning. Over time the bloom will fade. The dark stains contained in the surface should also subside in time as the chapel dries out, they will not disappear fully but should reduce in intensity.



Figure 15 Horner Chapel floor before cleaning



Figure 16 Horner Chapel floor after cleaning

#### 6.2.4 Rafters

The rafters were vacuumed to remove the cobwebs and dust; old paint marks were also removed with a stiff brush and wooden implements. The rafters were then wiped down with a clean lint free cloth.

#### 7.0 Conservation works

##### 7.1 The Monument to Sir George and Lady Anne Horner 1676

Before conservation works could commence, several pre-treatment investigations were undertaken. These were carried out in line with the condition survey and recommendations report 2020 and covered both the structural and surface condition of the monument. In addition to the structural condition, findings highlighted in the 2020 report the seated female figure on the sinister pediment was found to be loose. Examination of the surface condition suggested that deterioration of the painted surfaces was ongoing,



heavy soiling was also evident and in turn impacting on not only the readability of the monument but posed a threat to the stability of the fragile paint layers.

### 7.1.1 Paint Analysis

In addition to the paint analysis undertaken in the 2020 survey a further four collections of paint samples were sent for analysis to gain a better understanding of both the type of paints used and an insight into the number of historic paint schemes. All the paint analysis reports by Catherine Hassall can be found in appendix 1. They are in chronological order from the original set taken for the SSHC Condition report of 2020.

### 7.1.2 Moisture readings



Figure 17 Surface Moisture readings on North Chapel Wall & Monument

Location	Original Moisture Reading	Latest Moisture Reading	Location	Original Moisture Reading	Latest Moisture Reading	Location	Original Moisture Reading	Latest Moisture Reading
1	8.1 dry	N/R	10	30.2 wet	N/R	19	11.2 dry	N/R
2	11.6 dry	N/R	11	14.2 dry	N/R	20	11.2 dry	15.1 dry
3	9.6 dry	N/R	12	15.7 dry	N/R	21	12.6 dry	10.7 dry
4	16.8 dry	N/R	13	12.1 dry	N/R	22	12.2 dry	18.2 dry
5	8.9 dry	N/R	14	14.1 dry	N/R	23	21.7 wet	13.2 dry

6	9.2 dry	N/R	15	10.9 dry	N/R	24	43.1 wet	
7	26.5 dry	N/R	16	14.8 dry		25	25.9 wet	42.1 wet
8	11.2 dry	N/R	17	10.7 dry		26	42.6 wet	51.3 wet
9	13.6 dry	N/R	18	12.3 dry	9.3 dry			

N/R = Not registering on instrument, i.e. moisture is below 5%

#### Moisture reading parameters –

Key	
Moisture content	
5 – 15.9%	Dry
16 – 19.9%	Risk
20 – 100%	Wet

#### 7.1.3 Dry Cleaning

Following the pre-treatment investigations the monument was carefully cleaned from top to bottom using fine soft bristle brushes to loosen any surface soiling in conjunction with extraction using a 'H' Class vacuum cleaner due to the known lead content of the polychrome. Where the paint was particularly unstable, namely the black back panels, it was determined that consolidation would need to be undertaken first.

#### 7.1.4 Paint Consolidation

##### 7.1.4.1 Black Paint Layers

Initial trials for paint consolidation as documented in 'The 2022 SSHC Evaluation of Trials and Proposed Treatment programme, The Horner Monument Cloford Church', Section 3: Consolidation and Touching In Trials, recommended the application of a solution of Tri-Funori in deionised water, unfortunately, these trials were found to be inadequate when re-visited. It was therefore determined a stronger approach was required to ensure a longer lasting finish. The original binding material within the black paint had dissipated, leaving the black pigment powdery, detached, and fragile. It was concluded that a new binder needed to be introduced, this would minimise the loss of original pigments and in turn reduce the need to introduce another paint layer to any areas of loss. Paint analysis indicated that this black paint layer could be original, (The C940 Paint Analysis report by C. Hassall, May 2022). Further consolidation trials using Paraloid B67 in white spirit proved effective, this medium provided a stronger binder for the original pigments and could be readily adjusted to achieve the desired surface finish, whilst also being quick drying and reversible. The application of 10% Paraloid B67 in White Spirit was successfully applied by a brush, gentle sweeping motions helped to work the loose pigments into the new binder thus helping to unify the overall colour and finish. This method was used on all the black surfaces as these were considered the most friable.

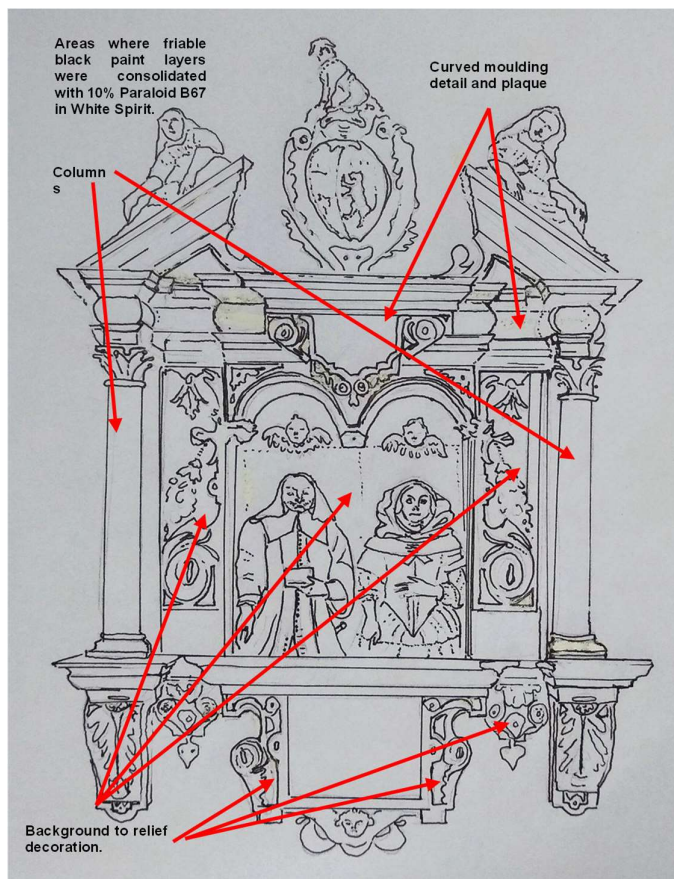


Figure 18 Diagram to show where friable black paint layers were consolidated.



Figure 19 Black painted layer before consolidation



Figure 20 Black painted layer after Consolidation.

### 7.1.5. Paint Consolidation of other painted surfaces

The 'Condition and Recommendation Report to Monuments in the Horner Chapel, Church of St Mary, Cloford' conducted by Sally Strachey Historic Conservation in 2020, highlighted most of the painted surfaces to the Monument to Sir George and Lady Anne Horner to be fragile and unstable. The project brief was in part to address the overall readability of the monuments within the Horner Chapel and therefore, a great deal of thought and consideration was given to the proposed treatment of the painted surfaces and their interaction. While extensive paint analysis gave an insight into the numerous historic paint layers and finishes it was unable to define the true extent of the historic paint schemes.

When assessing the overall appearance of The Sir George and Lady Horner Monument, it was concluded that the flaky heavy grey overpaint detracted from the softer more refined painted details seen on the monument and due to its instability, there were extensive areas of loss which in turn lead to a disparity in the readability of the monument. It was however part of the monument's history and therefore, it was established that some areas would be removed whilst other areas consolidated to regain a sense of balance. Having established a compatible consolidation treatment method for the areas of black paint a similar approach was also trialled for the other painted surfaces. This involved the use of a 10% solution of Paraloid B67 in White Spirit with the addition of a sympathetic pigmented tint that was applied to the scheme being treated to both stabilise and enhance the painted surface.



Figure 21 Figures & background before Consolidation.



Figure 22 Figures and background after Consolidation.

The figures were addressed first, the approach taken was as described above, areas of loose heavy overpainting such as the Brown on Sir George's Bible were removed carefully by mechanical means to reveal a red and gilded version, whilst other painted surfaces were consolidated with an appropriately pigment tinted solution of 10% Paraloid B67 in White Spirit, this was particularly effective at unifying the overall appearance of the various green tones seen on Sir George's jacket.

Once other painted surfaces had been addressed, it was necessary to consider options for treating the three cherubs to bring them up to the same level as the surrounding surfaces. The '2022 SSHC

Evaluation of Trials and Proposed Treatment, The Horner Monument, Cloford Church' report, Section 4: Polychrome, indicated that the eyes, hair, and wings had been in part decorated. The decision was taken to 'colour lift' the three cherubs using the same methods applied to other overpainted areas, as far as emulating what lies underneath and reflecting the earliest colour intent.



Figure 23 After consolidation and uplifting the cherubs



Figure 24 Before uplifting and limewashing the walls



Figure 25 After uplifting and limewashing of the chapel walls

		Pigment (Applied in a 10 % solution of Paraloid B67 in White Spirit for consolidation)																					
		Brown Umber	Burnt Sienna	Cassell Brown Earth	Calcium Carbonate	Davy's Grey	Green Earth	Lamp Black	Mars Violet	Mexico Yellow	Oxford Ochre	Pale French Ochre	Prussian Blue	Raw Sienna	Red Lustre			Red Oxide	Terre Verte	Titanium White	Ultra Marine	Venetian Red	Yellow Ochre
Area	Coat of Arms Background		✓						✓		✓			✓							✓	✓	
	High Relief Swags/Garlands		✓							✓				✓									✓
	'New' Flesh to all 3 Cherubs		✓	✓		✓							✓		✓		✓						
	Cherub Eyes					✓	✓											✓	✓				
	Cherub Feathers & Leaves			✓										✓	✓								
	Left Arch Ceiling Above Sir George Horner				✓	✓																	
	Inscription Level Colouring													✓									✓
	Figure clothing	✓	✓	✓		✓		✓					✓	✓		✓	✓	✓					

Figure 26 Table to show use of pigmented tinted washes in consolidation

One area where it was chosen to remove some of the heavy grey overpaint was to the shield. Here the easily removable overpaint was mechanically removed to reveal as much of the earliest colour scheme as possible, this was followed by tinted consolidation, thus intensifying the depth of colour. The same pigmented 'wash' was also used on top of the sound grey overpaint to tone in areas, helping add uniformity to the shield.





Figure 27. Image to show shield before treatment



Figure 28 Image to show shield after treatment.



Figure 29 The crest finished with the pink limewashed wall behind

#### 7.1.6. Consolidation of Gilding

The gilded elements to the monument were key to improving the monuments readability. Unfortunately close inspection revealed that these decorative surfaces were also very fragile and would require a stronger consolidation treatment. Trials proved a solution of 20% Paraloid B67 in white spirit to be effective. Selective areas of decorative detail, mostly to the high relief panels to either side of the main figures, were re-coloured using earth pigments or gilded to honour two different historic paint schemes.



Figure 30 Image to show where a selective approach of re-gilding and in-painting was applied to improve the readability of the decorative elements



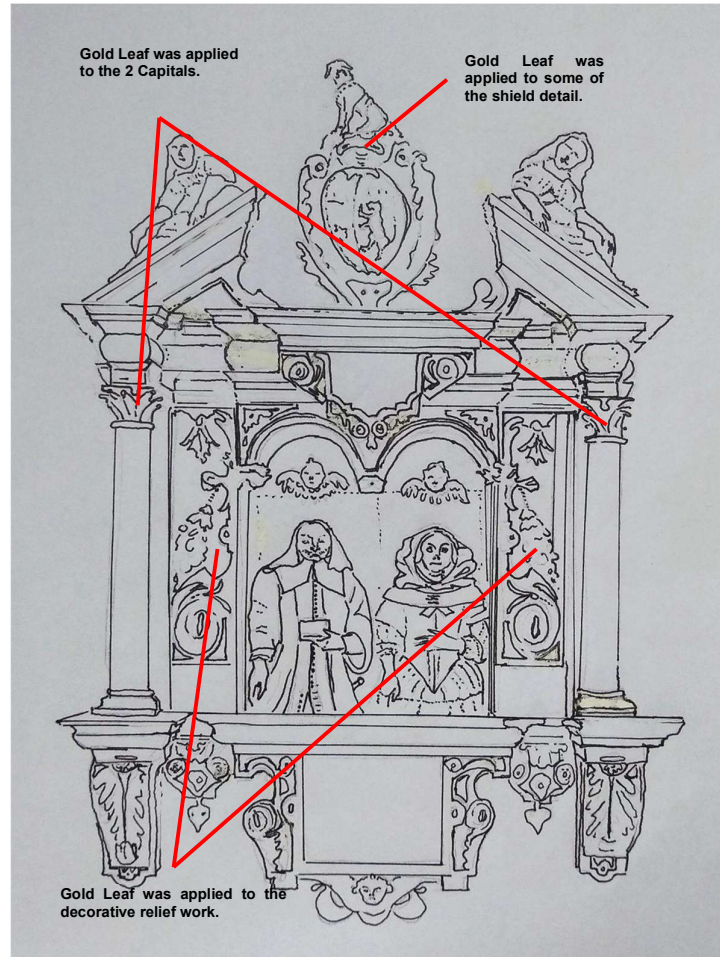


Figure 31 Image to show where the new gold leaf was applied

Paint analysis (The C940 Paint Analysis report by C. Hassall, May 2022) revealed that Silver gilt was present in samples 4.1, 4.2, 4.7 and 4.10. Here silver leaf was laid directly on top of the buff-coloured undercoat (In the 17<sup>th</sup> and 18<sup>th</sup> centuries oil gilding involved laying the metal foils onto oil paint that was tacky, rather than the use of size) and a glaze or varnish was then applied over the silver to enhance its colour and even mimic gold. Where there was evidence of silver gilt the decorative elements were dark in appearance and could only be seen where there were areas of loss to the grey overpaint. Where the grey overpaint was sound, pigments bound in Paraloid B67 and white spirit were applied on top of the paint to emulate the appearance of the silver gilt to enhance the overall readability of the monument, (see figure 11).

### 7.1.7 Wet Cleaning

Wet cleaning was carried out towards the end of the consolidation phase. In conjunction with the consolidation of fragile paint layers, additional cleaning trials were undertaken to the painted surfaces where the surfaces were considered sound. Two cleaning solutions were selected, the first being a V & A Mix (50% white spirit / 50% deionised water with a drop of Synperonic A7) and for more stubborn deposits a solution of 3-5% Vulpex in deionised water was used. These were both applied on cotton wool swabs and exceptionally fine meshed fabric wipes in a controlled manner. So as not to over saturate the delicate surfaces any excess was wiped away with cotton swabs and the cleaned surfaces neutralised with a further wipe of deionised water and dried with a cotton wool swab.



Figure 32 Before conservation 2021



Figure 33 After conservation 2022

### 7.1.8 Repairs to figures and Mouldings

- Lord Horner Repairs:  
Where missing, extending both coat and walking-cane to join the main mantle; making good some previous repairs also along this join.
- Lady Anne Repairs:  
The repairs were carried out to both the base join with the mantle and to the join in the carved figure (running at the same height as her lower hand). This involved moving the upper part of the figure to align the hand and dress as near as possible. Old repairs had been carried out to both dress and hand join. The new repairs married up these discrepancies.  
Lady Anne's little finger on her righthand was refixed and the missing end remodelled.

- A single small repair was carried out to Lady Anne's bottom lip
- Various open joints and tidying up of previous repairs across the whole monument.
  - The cornice was damaged along the top edge and corners, these were repaired and toned in, (illustrations for these can be found in the 'Additional Works' section)
  - Sinister corbel leaf, the leaf on this corbel was missing and no longer on site. A decision was made to hand carve a new leaf as this section was noticeably missing as works progressed. The new leaf was made from stone as it is in a vulnerable position.
  - Sinister main mantle and far sinister mantle damaged corners

All the repairs to the cornices, figures, and open joints were made with plaster of Paris. The sinister main mantle corner had stainless-steel armatures inserted; with a colour matched lime mortar repair mix the repair was built up in two coats to full profile. The new sinister corbel leaf was carved out of Bath stone.

The repairs to the figures were painted to match its corresponding setting. The cornice, new pointing and some previous repairs were then toned in. The new leaf carving was given two washes of white limewash.



Figure 34 The base of Lord Horner's coat and walking cane during repairs



Figure 35 The base of Lord Horner's coat and walking cane after repairs

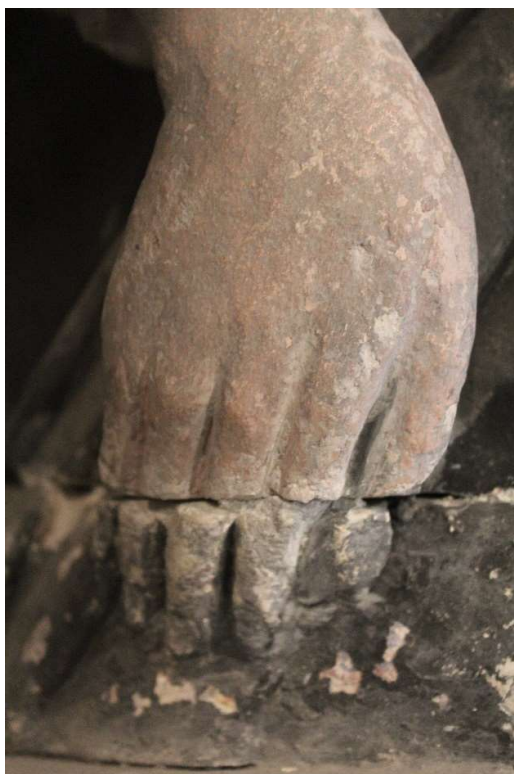


Figure 36 Lady Anne's right hand before conservation work



Figure 37 Lady Anne's right hand during conservation work



Figure 38 Lady Anne's right hand after conservation work



Figure 39 Lady Anne's Lip before repair and painting



Figure 40 Lady Anne's Lip during repair and painting



Figure 41 Lady Anne's Lip after repair and painting



Figure 42 Lady Anne's little finger before repairs



Figure 43 Lady Anne's little finger during repairs



Figure 44 Lady Anne's little finger after repairs and painting



Figure 45 Missing sinister section of main mantle



Figure 46 The stainless-steel armatures being installed to the sinister main mantle



Figure 47 Completed repair to the sinister main mantle



Figure 48 Missing section before repair to the far sinister mantle



Figure 49 Completed repairs to the mantle

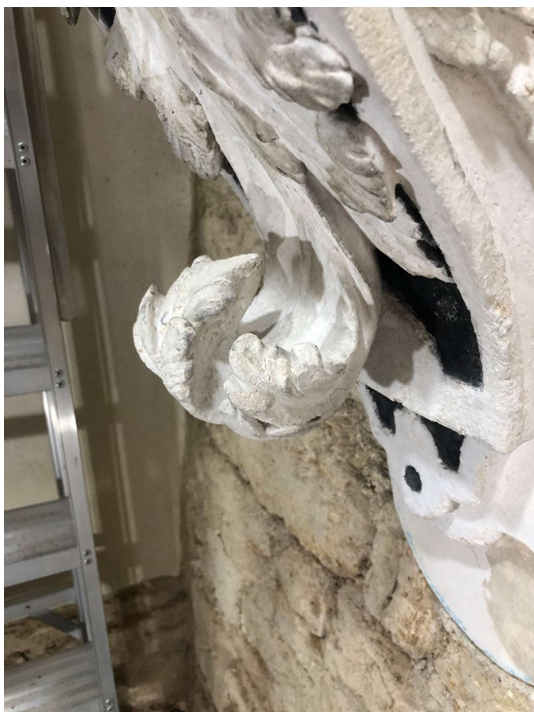


Figure 50 Original leaf carving on dexter corbel



Figure 51 Missing leaf on sinister corbel



Figure 52 New carved leaf on the sinister corbel (face on)

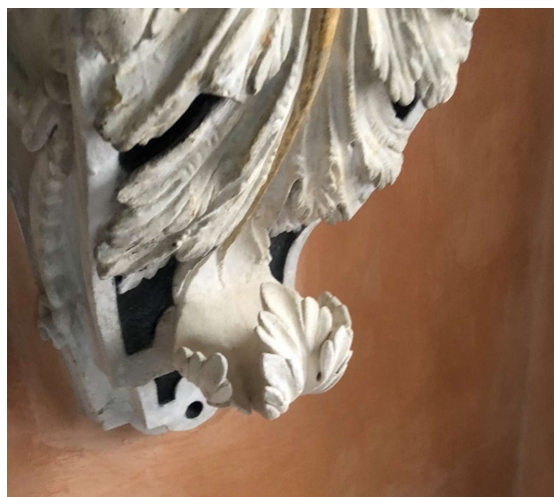


Figure 53 New carved leaf on the sinister corbel (looking north-west)



### 7.1.9 Fixing Loose Elements



Figure 54 First grape and leaf embellishment loose on monument



Figure 55 Second grape and leaf embellishment loose on monument

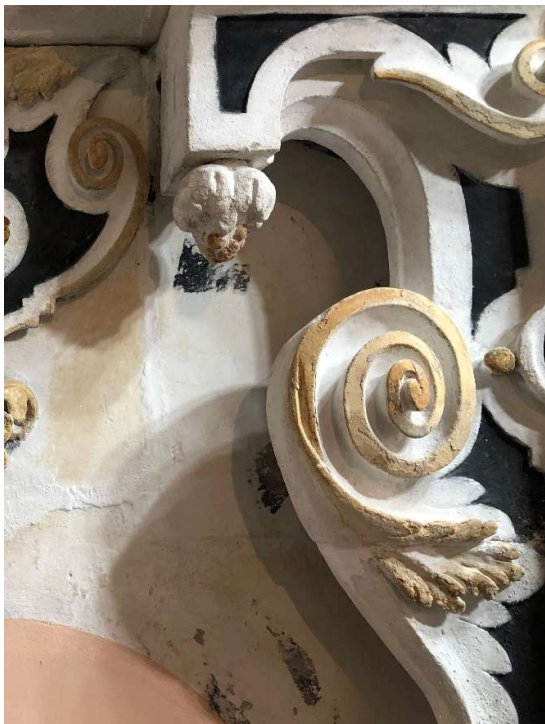


Figure 56 Dexter grape and leaf embellishment fixed in place



Figure 57 Sinister grape and leaf embellishment fixed in place



Figure 58 Monument with the missing grape and leaf embellishments



Figure 59 Finished monument with the grape and leaf embellishments in place



## 7.2 Conservation of The Monument to Mavis Horner & Children



Figure 60 Before treatment



Figure 61 After treatment

Initially dry cleaning was undertaken - the use of soft brushes in conjunction with extraction by a vacuum loosened any surface dirt. Once clear of any surface dirt, the monument was cleaned using a variety of bristled brushes in warm deionised water; this proved highly effective and was enough to eradicate the appearance of the scratch marks to the top of the monument. During the first clean particular care was taken to the areas where there appeared to be the remains of a green pigment as mentioned in the original SSHC condition survey/ treatment report 2020 (paint analysis later showed there to be no traces of pigment to this residue and was identified as being biological). With the identification of the green substance being identified as being biological the tomb was cleaned again.



Figure 62 Before treatment

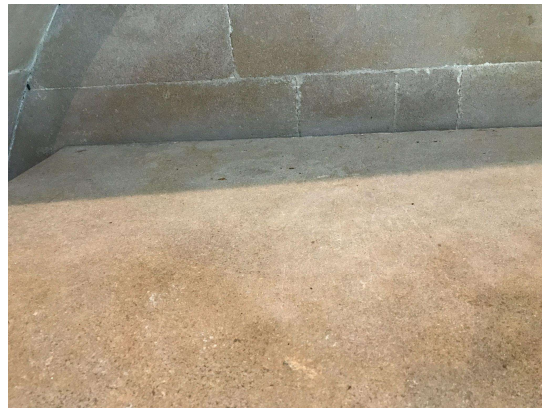


Figure 63 After treatment

### 7.3 Conservation Treatment for the William Tucker Monument

Dry cleaning with the use of soft bristled brushes in conjunction with extraction by a Hoover worked to loosen any surface dirt as an initial treatment. Once clear of any surface deposits, the monument was cleaned using warm deionised water applied through a variety of bristled brushes to agitate any remaining deposits to the stone. This proved to be effective and achieved the desired level of surface clean.



Figure 64 Image to show before treatment

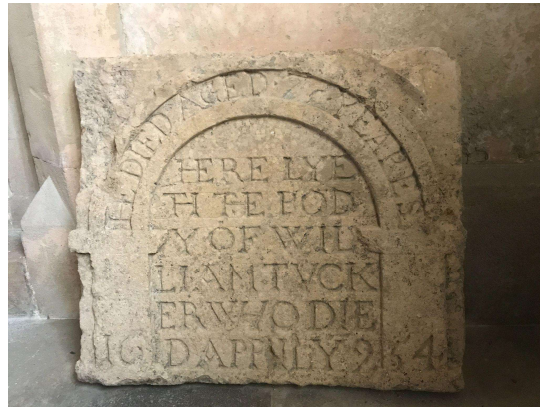


Figure 65 Image to show after treatment

### 7.4 Conservation Treatment to The Wyer Monument

Dry cleaning with the use of soft bristled brushes in conjunction with extraction by a Hoover worked to loosen any surface dirt as an initial treatment. Once clear of any surface deposits, the monument was cleaned using warm deionised water applied through a variety of bristled brushes to agitate any remaining deposits to the stone. This proved effective and achieved the desired level of surface clean.



Figure 66 Image to show monument before treatment

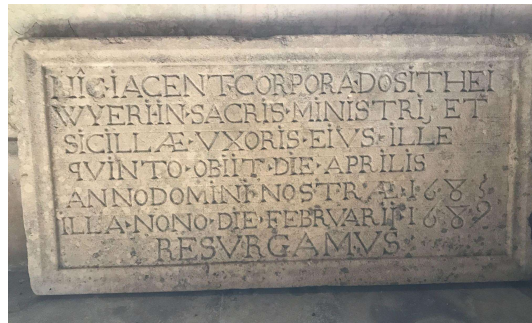


Figure 67 Image to show monument after treatment

## 8.0 Additional Works

### 8.1 Chapel Exterior

Whilst undertaking the exterior works to the masonry, a few other structural weaknesses to the chapel were observed.

- North-east kneeler/coping

The coping for this kneeler did not provide adequate water displacement as it was too short. The iron pins holding the coping also had signs of rusting. This rust was causing the coping to separate from the kneeler beneath (The original kneeler was one stone, at some point the coping had been replaced).

- North-east end of the east-wall wall-plate (this showed evidence of rot), the tin flashing in this area had been damaged. This damage was leading to debris being trapped and directing water onto the wooden wall plate below.

### 8.1.1 Wall Plate

The rot in the north-east wall plate was cleaned out and treated with a wood preservative. Stone and lime mortar were built up to protect the end from burrowing insects and rain. The tin roof flashing was corrected to allow free passage of water to the guttering directly below.

### 8.1.2 Copings East Side of the Chapel

As an alternative to replacing the current kneeler coping with a longer stone - costs, lead time for cutting and looking out of balance with the north-west kneeler were considered. The need to replace the mortar bed and iron fixings to the coping necessitated it being lifted. This would then allow a lead tray to be fitted to the underside bottom edge of the coping. Two more copings above the kneeler were found not to have a sufficient mortar bed. They were taken off and re-bedded after first installing stainless-steel pins and a new mortar bed to the kneeler/coping.

Purpose of the interventions:

- 45-degree angle cut – installed to move the rain run-off on to the slate roof and into the gutter before it reaches the end of the coping. The effectiveness of the 45-degree cut made in the east side copings strengthens the case for deciding to implement this cut into the west coping.
- Lead tray - built into the joint beneath the kneeler to catch any drips. These drips are then channelled again onto the slate roof and into the gutter below. Very heavy rain will shoot over these interventions and should clear the base of the chapel.



Figure 68 The east coping 45 degree cut in the dry



Figure 69 The east coping 45 degree cut in the wet; note how the coping is wetter above the cut.



Figure 70 The east coping 45 degree cut



Figure 71 The east side copings being lifted



Figure 72 The new stainless-steel pins fitted



Figure 73 The lead tray before fitting

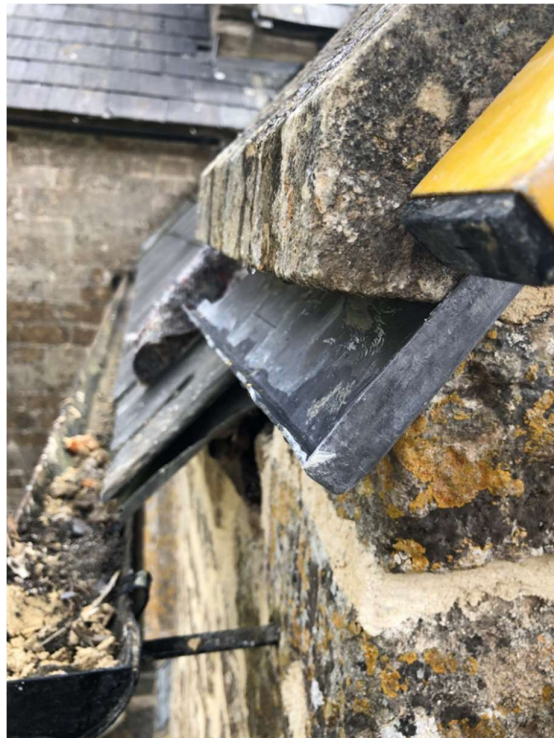


Figure 74 Lead tray fitted and being tested



## 8.2. Chapel Interior

### 8.2.1 Lighting

As recommended by the SSHC Condition Report 2020, the lighting in the Horner Chapel needed updating. This has now been completed by the churchwarden out of contract.

### 8.2.2 Crest

The crest at the top of the monument was not aligned with the monument beneath. This was because when it was rebuilt, the iron stay holding the crest was fixed into the rafters and was set to be central to the roof. The foot of the crest however was set to the middle of the monument, hence the disparity. To rectify this the iron stay was removed and replaced with two stainless-steel threaded bars; the crest was then aligned to the monument only.

The crest had two new holes made and then stainless-steel fixings were set in plaster of Paris. The wall also had two new holes drilled, the threaded bar inserted and fixed with anchor resin. All the fixings were designed to be hidden from the viewer at ground level.

Stainless-steel was marine grade 316, diameter of 6mm.

Note, the carving on this crest was carved free hand so not all lines and repeated motifs are true.



Figure 75 Crest (before straightening)



Figure 76 Crest (after straightening)

### 8.2.3 Cornice repairs

Over time the cornice has succumbed to damage, through rebuilding or ladders being put up against the monument along this edge. The repairs were only small, so armatures were not needed. They were carried out in plaster of Paris.



Figure 77 Central cornice (before repair)



Figure 78 Dexter cornice (before repair)



Figure 79 Sinister cornice (before repair)



Figure 80 Central cornice (after repair)



Figure 81 Dexter cornice (after repair)



Figure 82 Sinister cornice (after repair)

## 9.0 Public Engagement

The PCC held an extremely successful public engagement event on Sunday 11<sup>th</sup> September to present the work to the Horner Chapel to the parish and interested parties; the event had well over 100 attendees.

## 10.0 Care and Maintenance Recommendations

- Moisture levels should be monitored across the interior of the chapel over the coming year, with careful inspection for evidence of further salt efflorescence on all surfaces, including the monuments.
- Currently the salts are moving faster to the surface on both floor and walls; this should calm down and disappear with both regular vacuuming and as the chapel dries out.
- At the end of a one-year period of monitoring, an assessment should be made regarding the condition of the floor and base of the walls.

If the salts and elevated levels of moisture remain, then the ground drainage is not sufficient and further intervention is needed.

As in 'The Condition Survey & Recommendations report 2020,' carried out by SSHC; a French drain was recommended to alleviate this problem, this solution would be recommended again.

- There should be no cleaning intervention to any of the surfaces, other than the gentle removal of cobwebs with soft brushes.



Figure 83 Salt formation on the stone floor in the north-west corner; September 2022



Figure 84 Salt formation on original lime plaster over the new limewash north corner of window; September 2022

**10.0 Mortar Mixes**

## Exterior Mortar Pointing Mix

Binder:	Ratio:	Aggregate:	Ratio:
Lime Putty	1	Washed sharp sand (Bradford's)	2
		Washed soft sand (Bradford's)	.5
		Washed sand (ROJ – Westerham)	.5

## Interior Mortar Repair Mix

Binder:	Ratio:	Aggregate:	Ratio:
Lime Putty	1	Ham Stone dust (ROJ)	1.5
		Oolitic stone dust (ROJ)	.5
		Washed sand (ROJ – Westerham)	.5

## Interior Plaster Mix

## First and Second Coat Lime Plaster : Pre-made by Rose of Jericho Ltd

Binder:	Ratio:	Aggregate:	Ratio:
Lime Putty	1	Sharp sand	1.5
		Soft sand	1.5
Addition Of Horsehair			

## Second Coat Lime Plaster : Pre-made by Rose of Jericho Ltd

Binder:	Ratio:	Aggregate:	Ratio:
Lime Putty	1	Soft sand	1

**10.1 Limewash**

Rose of Jericho pre-mixed pure limewash (sienna)

**11.0 Materials and Suppliers**

Supplier	Materials	Contact details
Rose of Jericho Ltd (ROJ)	Lime putty	01935 83676 <a href="mailto:info@roseofjerichco.co.uk">info@roseofjerichco.co.uk</a>
	Pure limewash (sienna)	
	Pre-made haired base-coat lime putty plaster	
	Pre-made top-coat lime putty plaster	
	Washed sand (Westerham)	

	Oolitic stone dust 10>	
	Ham stone dust 10>	
Bradfords Building Supplies (Trowbridge)	Sharp sand	01225 712020 bradfords.co.uk
	Building sand	
Wickes (Trowbridge)	Code 4 lead flashing	01225 776580 www.wickes.co.uk
Conservation Resources (UK) Ltd	Cleaning products Consolidants	01869 377940 <a href="https://conservation-resources.co.uk">https://conservation-resources.co.uk</a>
L. Cornelissen and Son (London)	Pigments, Consolidants, Gilding size, Gold leaf.	020 7636 1045 <a href="https://www.cornelissen.com">https://www.cornelissen.com</a>
Minerva Art Supplies (Bath)	Water colour paint	01225 462116 <a href="https://minervaartsupplies.co.uk">https://minervaartsupplies.co.uk</a>
Rawlins – Trade Paint and Coatings	Rust-Oleum Advanced formula 'all in paint and primer.' Satin black	0113 2455450 sales@rawlinspaints.com
Strukta Ltd	Stainless-steel	0333 321 0013 www.strukta.co.uk
Industrial Plasters Ltd (Chippenham)	Plaster of Paris	01380 850616 info@industrialplasters.com
Brewers Decorator Centres	Paint stripper and other sundries	01323 576555 trowbridge@brewers.co.uk

**Appendix 1 - Paint Analysis Reports Carried out by Catherine Hassall****Set No.1**

Taken for the SSHC Horner Chapel Condition Report 2020

THE HORNER MONUMENT

St Mary's Church

Cloford

The monument to Sir George and Lady Horner was built in 1676

Ten paint samples were taken by Sally Strachey Conservation as marked on photographs at end of this report:

- |    |   |
|----|---|
|    | Figure of Sir George                                    |
| 1  | coat  |
| 2  | waistcoat   |
| 3  | hand  |
|    | Figure of Lady Horner                                   |
| 4  | cheek   |
| 5  | white of sleeve   |
| 10 | flesh above eye   |
|    | Monument surround                                       |
| 6  | red on border, between figures and column on right side |
| 7  | arm of seated figure on right pediment                  |
| 8  | blue background on coat of arms                         |
| 9  | corbel on left side.                                    |

Examination procedure

The samples were examined under low magnification and then the pieces were mounted in cold-setting polyester resin to be cut and polished as cross-sections.

Material from the different layers was dispersed on glass slides and the pigments identified using a polarising light microscope.

RESULTS

The monument has been painted at least five times since 1676.

The original layers were not found in Samples 4, 6 and 10.

Original decoration

Found in all samples, apart from Samples 4, 6 and 10.



A white primer/ground of lead white oil paint was brushed on first. It can be seen resting on clean stone and appears to be original.

A second ground layer was applied. It was much thicker than the first and must have been brushed on in several coats. In the three samples taken from the figure of the man it was pale buff colour mixed from lead white some ochre and a few small particles of red lead. In the other samples it was white.

The flesh tones were painted a pale pink tinted with some red ochre and a few tiny particles of vermilion. This was found in Samples 3 and 7.

The man's coat [Sample 1] was painted a mid-grey applied in two thin layers of lead white mixed with carbon black.

The man's waistcoat [Sample 2] was painted a deep brown mixed from umbers and a little lead white.

Pure lead white was used for the woman's sleeve [Sample 5] and for the corbel [Sample 9].

The blue used for the Coat of Arms [Sample 8] was built up in several involved a pale grey undercoat followed by a greyish blue topcoat of lead white, very finely-ground smalt, and some carbon black.

On top of the original paint scheme the cross-sections show a thin coat of varnish. It was not present in Sample 8 may have been lost if the blue once involved a topcoat of pure smalt which degraded. It is impossible to tell if it was applied in 1676 or later, but it was before the monument was repainted.

#### Early repairs?

In Sample 6 from the architectural surround to the niches and in Sample 10 from the woman's eye, the cross-sections show a white ground based on chalk, or lime, followed by a dull yellow/brown paint applied in two layers based mostly on ochre, but containing a few particles of iron oxide brown.

In Sample 10 we can see the chalk ground is sitting on the stone, with no trace of any earlier scheme.

There is no varnish associated with the dull yellow paint scheme.

#### Second paint scheme

When the monument came to be first repainted, no fresh ground was applied, and the colours were applied directly on top of those of the original scheme.

The flesh tones were repainted with a much darker shade of pink, tinted with vermilion.



Pink, tinted with vermilion, was also now used for the corbel [Sample 9]

The man's coat was repainted grey, and his waistcoat repainted deep brown. The woman's sleeve was repainted white.

The blue used for the coat of arms was based on Prussian blue and lead white, and so this decoration must have been applied no earlier than 1704. In Sample 8 we can see the blue filling deep cracks in the underlying original blue and the original paint must have been in place for many years when the re-paint took place.

This second paint scheme was given a coat of varnish.

A dull yellow based on lead white and ochres that was used for the architectural surround [Sample 6]. may be part of the second scheme, but it did not have the varnish coating, so it may be part of an a-even later re-paint.

#### Later paint schemes

It was not possible to sort out how later paint layers tied together.

On the figure of the man, only, a fresh white ground was applied, before his coat was painted blue, based on Prussian blue, and the waistcoat painted with iron oxide browns once again. This white ground was not found in any of the other samples .

Pink containing vermilion and lead white was used once more on the corbel [Sample 9].

Pure red lead was used for parts of the architectural surround [Sample 6].

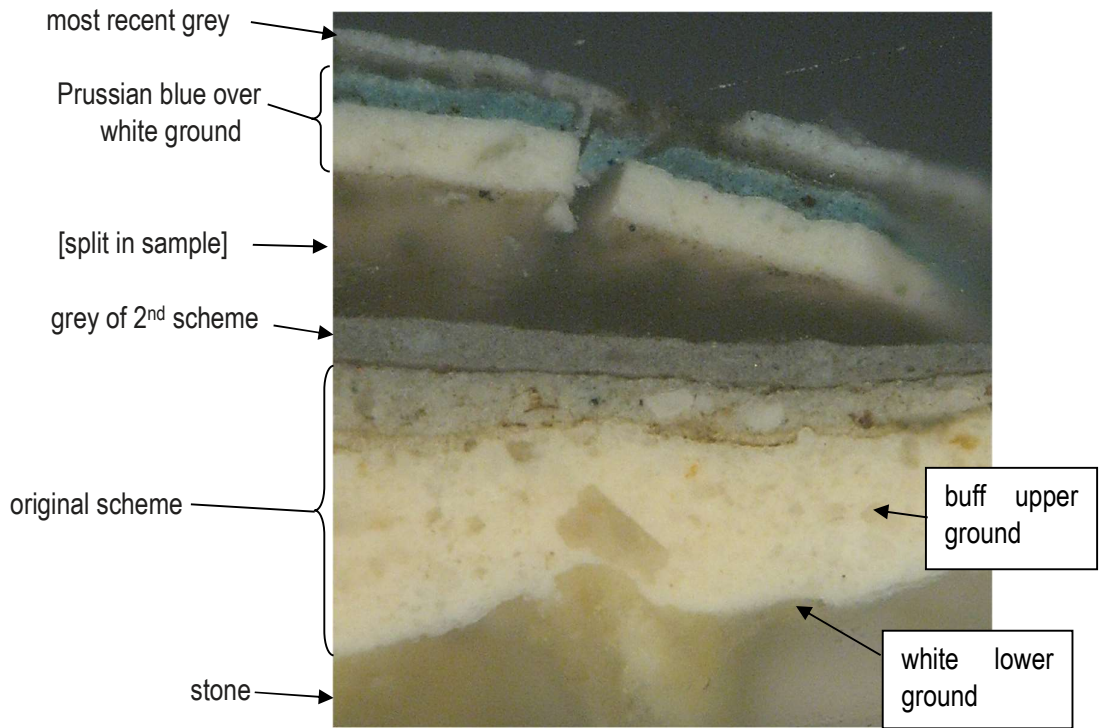
The pigments used suggest that these re-paints were unlikely to have been applied any later than the first decades of the twentieth century.

Most recent paint layer[s]

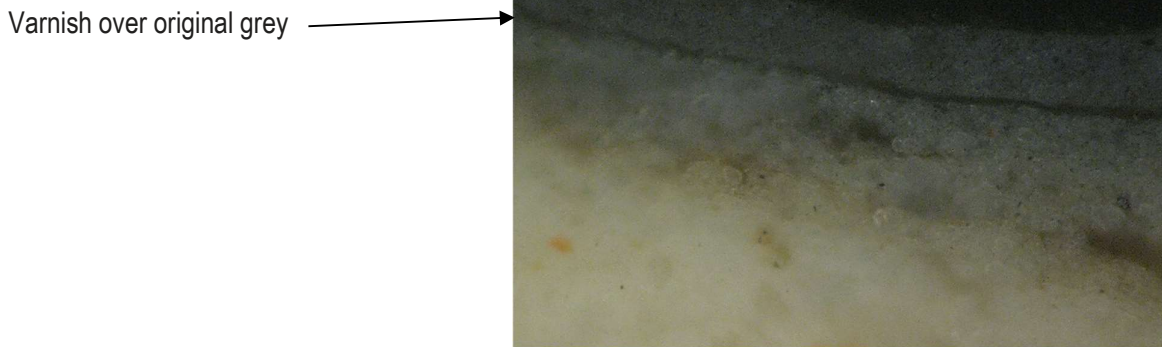
The blue of the man's coat was painted over with grey replicating the original colour. The paint still contained lead white, so this must pre-date the Second World War.

Traces of greyish white were found in some of the fragments from the man's waistcoat.

SAMPLE 1  
Man's coat



Detail of early greys



SAMPLE 2

Waistcoat

brown over white ground

brown of 2<sup>nd</sup> scheme

original brown scheme

stone



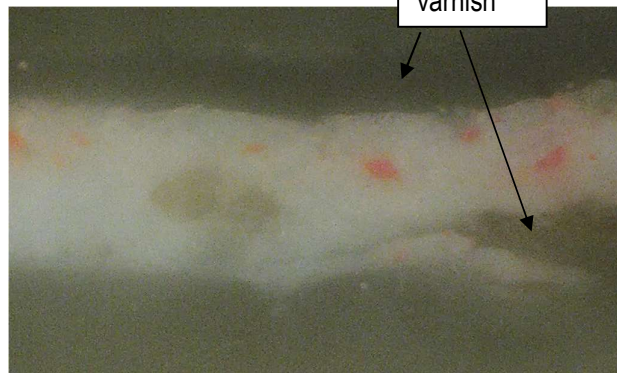
SAMPLE 3

Man's hand

Fragment (i)

Showing pink of 2<sup>nd</sup> scheme  
tinted with vermilion

varnish



Fragment (ii)

varnish

pale pink

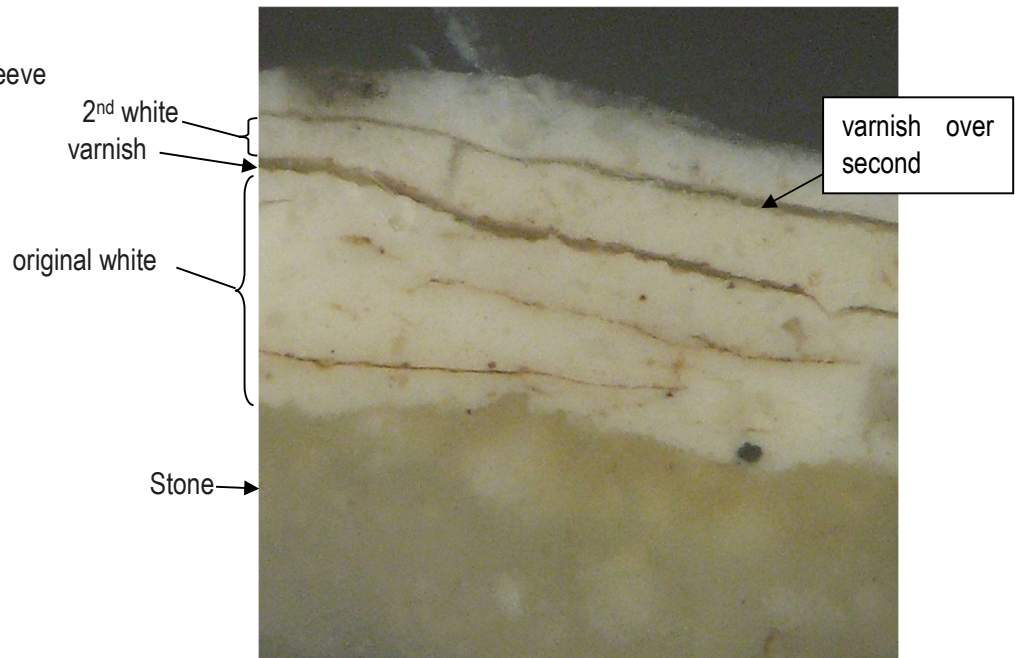
original scheme buff  
upper ground  
over white lower ground



[Sample 4 had no paint layers and was not photographed]

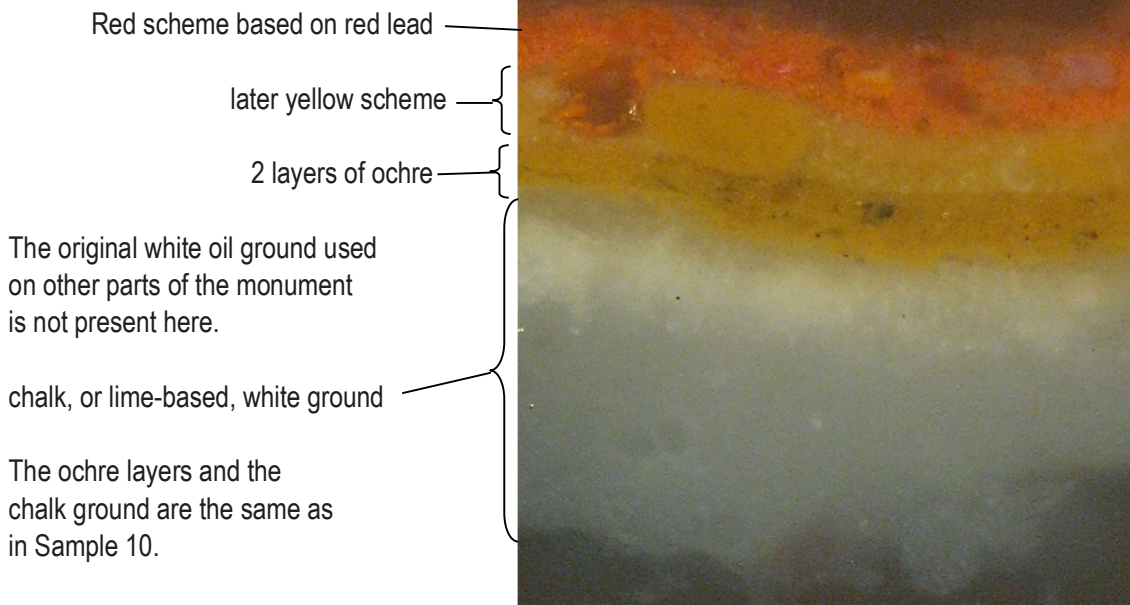
SAMPLE 5

Lady Horner – sleeve



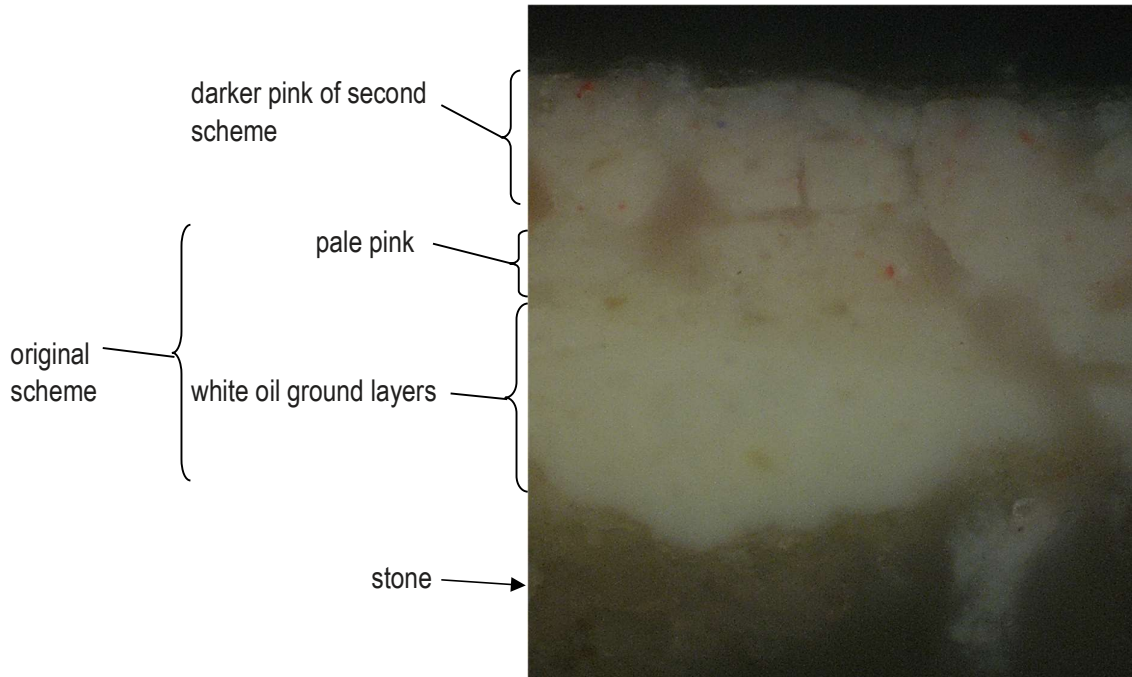
SAMPLE 6

Red on border at rh side



SAMPLE 7

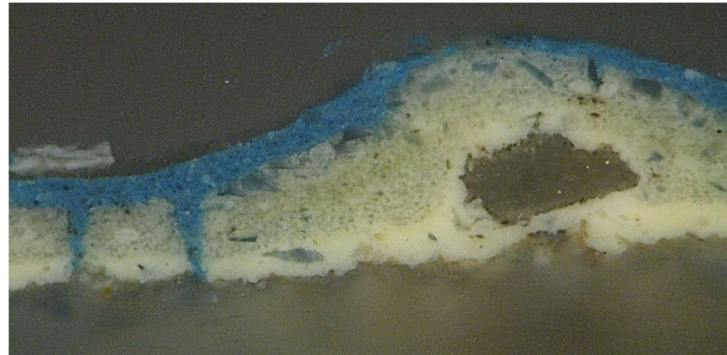
Arm of figure on pediment



SAMPLE 8

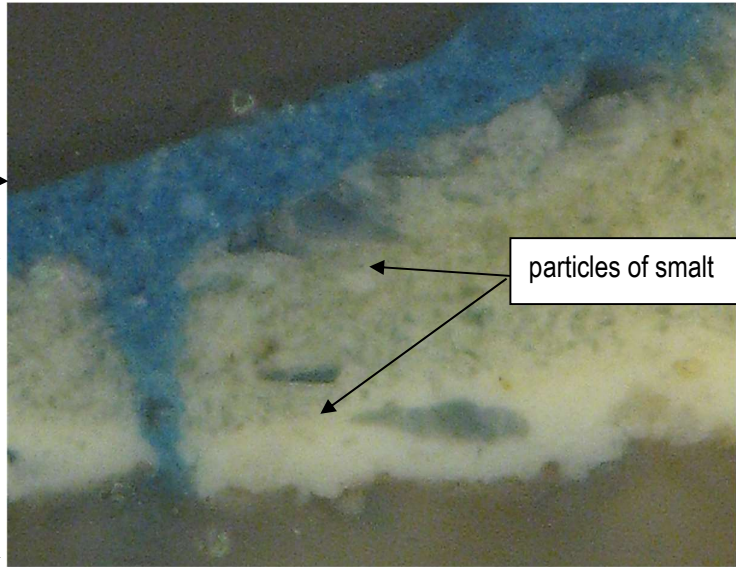
Blue background to lion on shield

The darker blue  
repaint fills  
cracks in the  
original paler blue



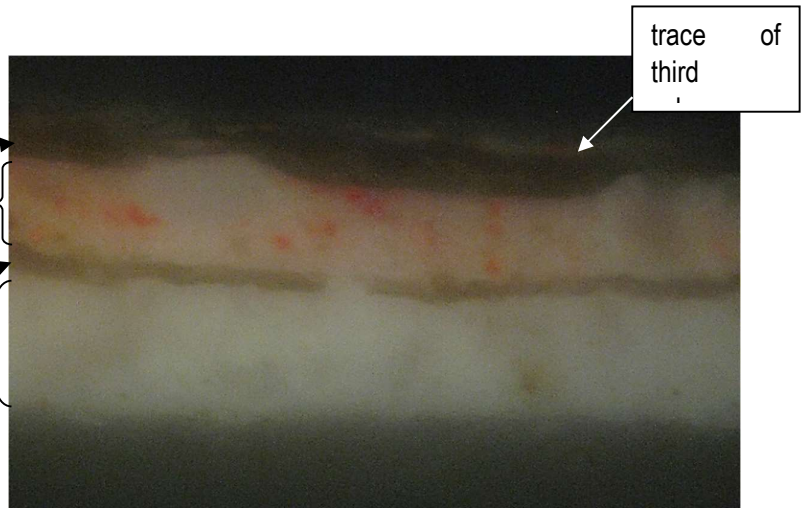
Detail of blue layers

varnish →  
later blue based on Prussian blue →  
greyish { layers of }  
original { blue }  
white oil ground →



SAMPLE 9  
Corbel

Varnish →  
pink of 2<sup>nd</sup> scheme →  
varnish →  
original white →

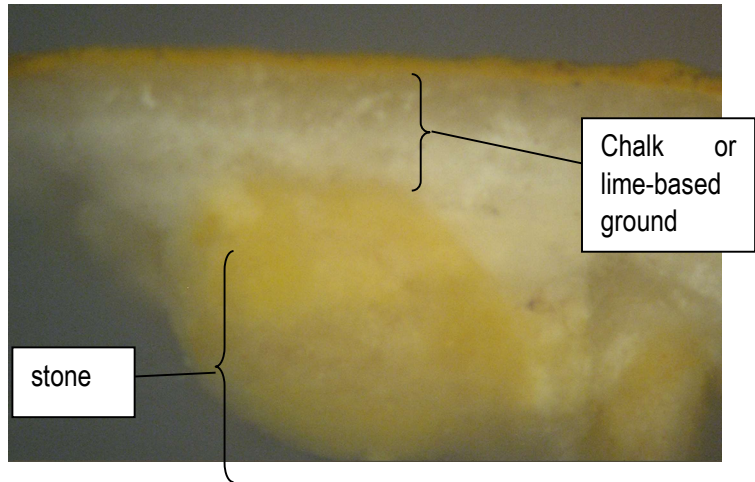


Showing varnish on 1<sup>st</sup> and 2<sup>nd</sup> schemes.

SAMPLE 10

Lady Horner – eye

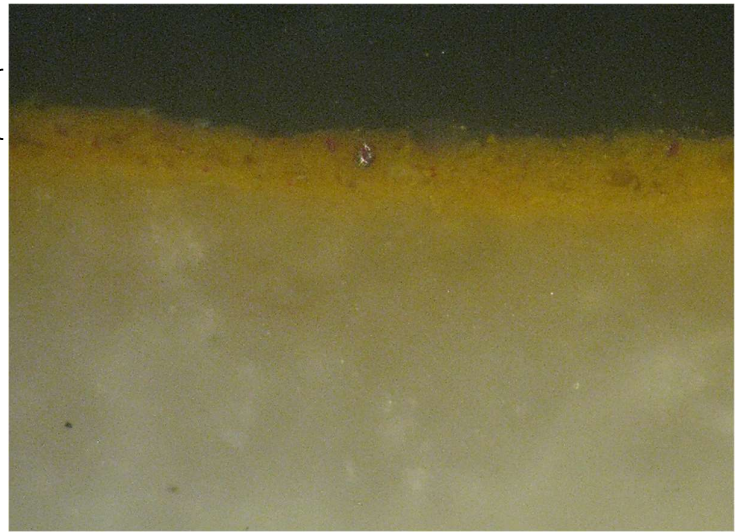
The same early layers as seen in Sample 6



Detail of the yellow

Two layers based on ochre, the second containing only a few particles of brown

chalk ground



Location of Samples







---

C. Hassall, Paint Analysis  
5, Patshull Road, London NW5 2JX

Report no.C541  
May 2020

**Set No.2**

Taken to establish dates for black background.

Examination. The samples were examined under low magnification and then the fragments were mounted in cold-setting polyester resin to be cut and polished as cross-sections. The layers were compared to samples examined in May 2020 and key pigments were identified using a polarising light microscope

**RESULTS**

No original paint was present in the samples, but under the black there was some coloured paint fragments used for an early repaint, so the black paint is certainly later.

**Earliest decoration present**

In Sample 3 there were the remains of a layer of blue underneath the later layers of black.

The blue was a mixture of Prussian blue and lead white. The same blue was found in the samples taken in 2020, where it was used to repaint the coat of arms in the eighteenth or nineteenth century.

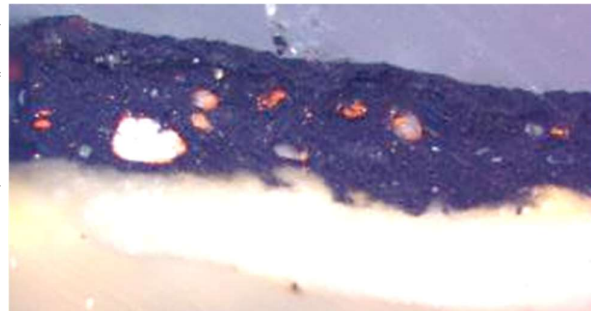
**Later decorations**

- 2 A solid black paint layer was found in all three samples. The black was a mixture of carbon black and a few particles of red lead.  
The addition of the red lead means this black is likely to have been brushed onto the monument in the nineteenth century. Carbon black dries slowly in oil, and before the introduction of chemical drying agents, metallic pigments had to be added to black paint to act as a catalyst.
- 3 A second, thinner layer of black was found in all three samples. This was pure carbon black and therefore likely to have been applied in the twentieth century.

**SAMPLE 2**

Just two layers of black

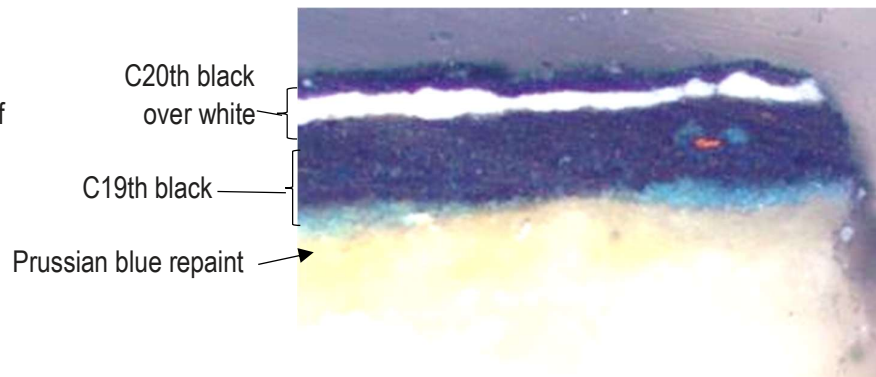
C20th black  
C19th black containing red lead



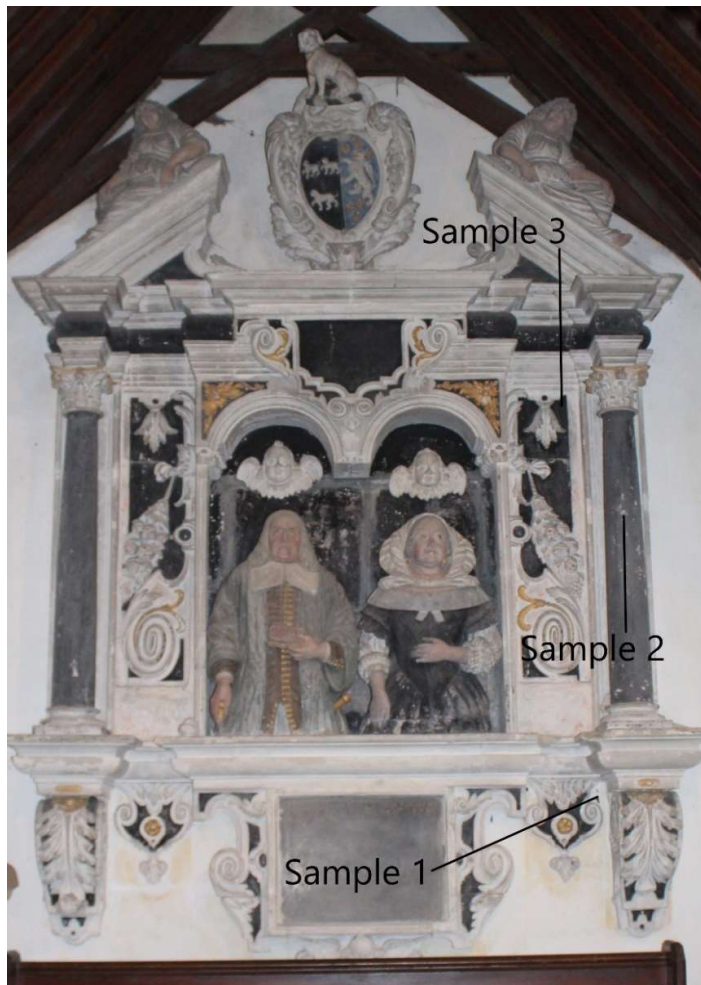
[Sample 1 was the same]

SAMPLE 3

The same two layers of black, over a layer of blue



Location of samples taken



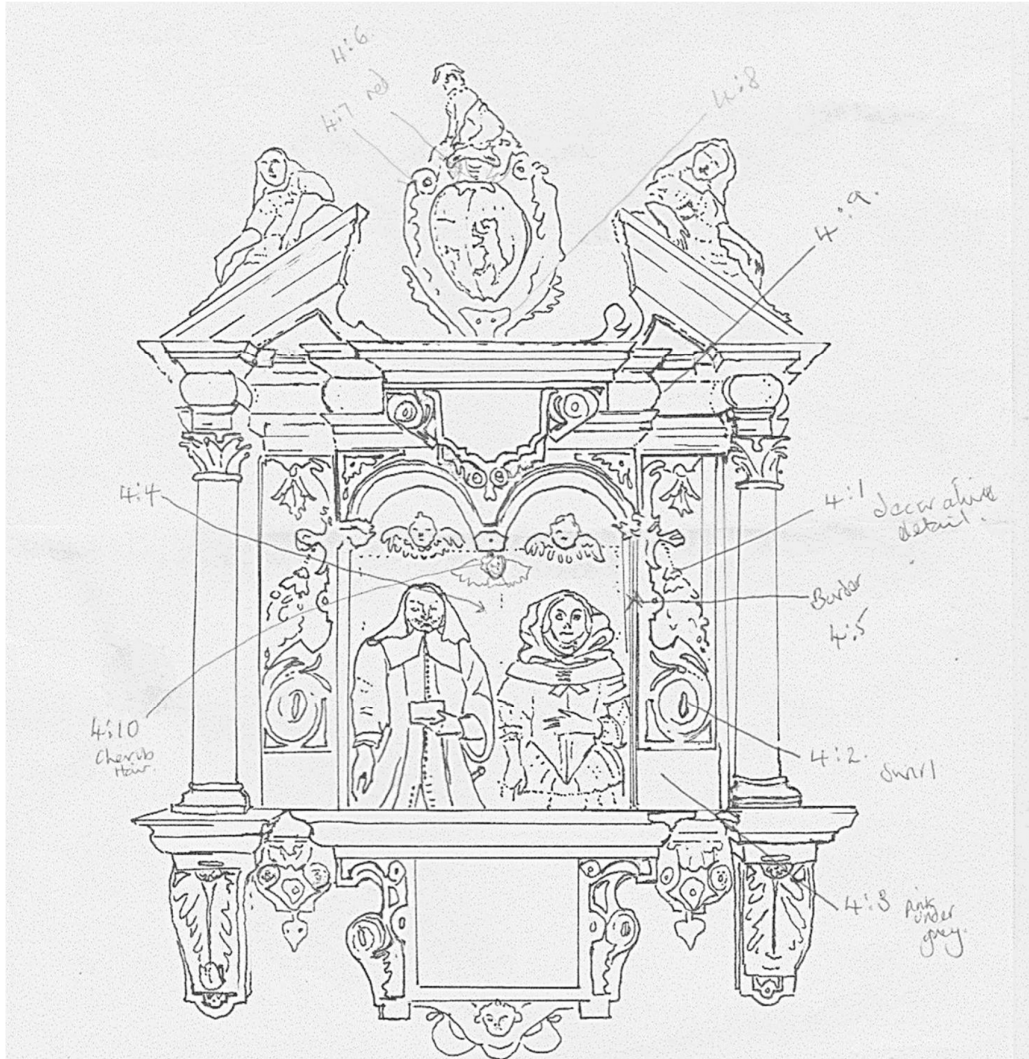
**Set No.3**

Note – The original page numbers are in light grey on the left side to correspond to the original text.

**HORNER MONUMENT**  
CHURCH OF THE BLESSED VIRGIN MARY, CLOFORD

Ten paint samples, labelled 4.1- 4.10, were taken by Sally Strachey Historic Conservation, as marked on the drawing.

The samples were compared to ones examined in May 2020 [Report C541] and April 2022 [Report C907]



Examination.

The fragments were examined under low magnification and then a selection of the pieces was mounted in cold-setting polyester resin to be cut and polished as cross-sections.

The layers were compared to those found in previous samples.

Key pigments were identified using a polarising light microscope.

## RESULTS

In 2020 ten samples were examined, of which seven were from the main figures and one from the shield – Samples 1-10, Report C541. In most of these samples the original-coloured layers were found to be resting on a white ground based on lead white.

In Sample 6, taken from a plain architectural moulding there was no lead white ground, and it was assumed that the original paint was therefore missing. These new samples show that this was incorrect.

At least two types of ground were employed: one for areas where coloured oil paints had been employed, and one for areas where some features were going to be picked out in silver gilt.

### Lead white ground

A pure white ground based on lead white oil paint was applied to the stone. This was found in the following samples examined in 2020:

Samples 1, 2, 3 and 5 from the faces and clothes of the two main figures.

Sample 7 from the arm of a figure on the pediment.

Sample 8 from the blue background of the shield.

Sample 9 from a corbel. [In 2020 this white was thought to be the intended colour of this feature but it now seems more likely that it was the ground, and the corbel was in fact painted a dull pink].

### Buff-coloured ground

This ground, which was built up in several layers, all of them shades of buff or ochre, was found in samples taken from architectural mouldings.

Sample 6 [examined in 2020].

Samples 4.1, 4.2, 4.5, 4.7 and 4.10.

The first two or three layers were mixtures of finely-ground yellow ochre, lead white and a small amount of carbon black. In many of the cross-sections we can see that some dirt collected on the surface of these first layers. This makes sense if they were in areas where silver gilt was due to be applied, because any gilding or silvering would take place at the very end of the process, once all the rest of the monument had been painted.

The final layers, which acted as undercoats for the silver gilt, were mixtures of ochre, lead white and red lead. Where red lead was used elsewhere on the monument, we can see that it contains large lumps of lead white which is typical of pigment manufactured before the introduction of industrial furnaces. Those same distinctive white lumps are present in the buff-coloured ground [see p.5].

### Silver gilt

Samples 4.1, 4.2, 4.7 and 4.10

The silver leaf was laid directly on top of the buff-coloured undercoat. In the seventeenth and eighteenth-centuries oil size was not used, and oil gilding involved laying the metal foils on oil paint that was still sticky.

A glaze or varnish was applied over the silver. This now looks very chestnut brown, but some of this colour is likely to be due to staining because of oxidation of the metal.

### Black

Sample 4.5, taken from the edge of the pilaster to the right of the two figures, we can see a layer of carbon black mixed with a few red lead particles.

The black layer is resting on the buff-coloured ground used for silvering. No silver leaf was found, but a lot of silvering was carried out on the decorative mouldings of that same pilaster [4.1 and 4.2]. The black in 4.5 looks original [see p.6]. In the first place it sets cleanly on the buff ground layer and in the second place it contains particles of red lead. Significantly there are lumps of lead white associated with those red lead particles, which means the pigment is early.

A similar black mixture was found in two samples examined in April 2022. Sample 2.1 from decoration on the lower part of the monument and Sample 2.2 from the right-hand column. At the time those were thought to be later re-paint, but this new sample suggests that the first layer of black in those two samples could be original. It is impossible to be completely certain of this, because even layers of black that are certainly repaints [Sample 2.3] also contain particles of red lead, but the red in 2.3 could be contamination particularly as it does not contain the distinctive lumps of lead white.

### Bright red

Sample 4.7, from above the coat of arms, shows that this feature was certainly originally red.

In one fragment we can see a thick layer of red lead containing large particles of un-fired lead white, which is certainly part of the original decoration.

In another fragment, the red lead layer is not present and instead there is a thin layer of pure vermilion. It remains a possibility that the red lead was an undercoat for the vermilion, but it also possible that the vermilion is from a later repaint.

### Dark red?

Sample 4.8 taken from below the shield, has only got the later layers of white repaint.

In one fragment there are a few particles of smalt caught up in the first white layer, but these could be contamination from the shield which was originally painted with smalt. In another fragment the white re-paint rests on a very thin layer of pure, dark red iron oxide.

Pink?

It is possible that pink was used for some of the plain architectural features.

Sample nine, taken from a corbel in 2020, shows what may be an original pinkish layer over the original white ground. In the cross-section the layers are separated by coats of varnish, and in 2020 it was assumed that they were two separate schemes, but the pigments in the pink appear hand-ground in dispersion which points to it being early. Those varnish layers could have worked their way down from later schemes.

Later repaints

**Black** Sample 4.4 taken from the background to the two main figures, shows two lots of black. No ground layers were involved, and the layers are pure carbon black - no particles of red lead are included. The black layers in this sample appear to be from later repaints.

**White** In all the other samples the original layers are covered with at least three lots of plain white oil paint based on lead white.

In Samples 4.1 and 4.2, a thin layer of pinkish brown was applied over the original silver leaf, but this was immediately overlaid with the first of the plain white repaints.

Possible later repaint

In Sample 4.3, under the usual three layers of white repaint, is a thin layer of dusky pink paint mixed from iron oxide red and a small amount of lead white.

Neither of the original ground layers that were found in all the other samples were present.

There is no obvious dirt layer between the pink and the overlying white so the pink may have been a colour that was applied by the decorators doing the repaint but was then rejected.

**Page 4**

SAMPLE 4.1 Discoloured  
Decoration glaze over silver leaf  
on scroll at  
pilaster to Upper ground layers  
right of main & undercoats for  
figures Silvering

Fragment (i)  
With original  
layers, but  
none of the  
later white  
repaints. lower ground layers

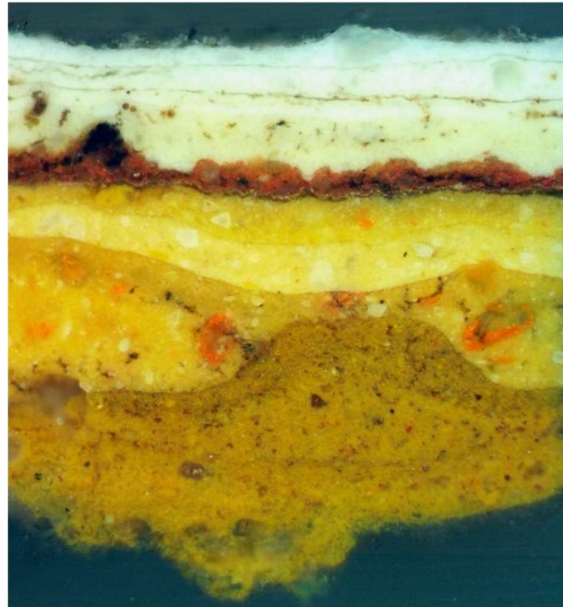


Fragment (ii) With later white repaints  
pink/brown layer used to  
cover silver at time of first  
repaint

Tarnished silver leaf

upper ground layers  
with distinctive lumps of red  
lead & lead white

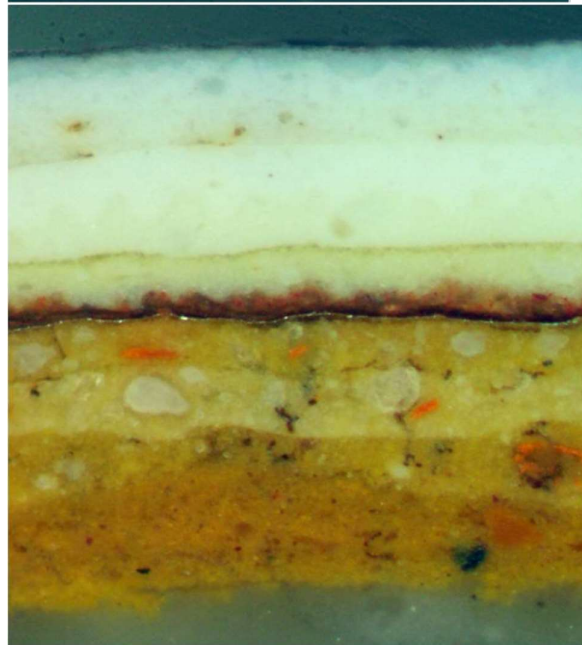
lower ground layers  
mostly ochre



SAMPLE 4.2

Base of scroll on pilaster The same layers as in 4.1  
above

Original silver gilt



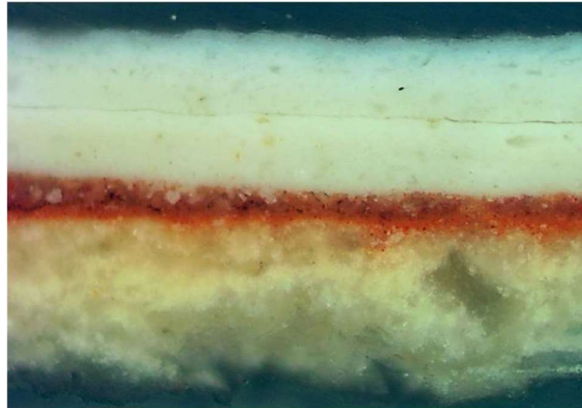


SAMPLE 4.3

Plinth under  
 pilaster to rh  
 side of  
 figures

First white repaint  
 pink/brown layer like that  
 used to cover the original  
 silver  
 [see previous page]

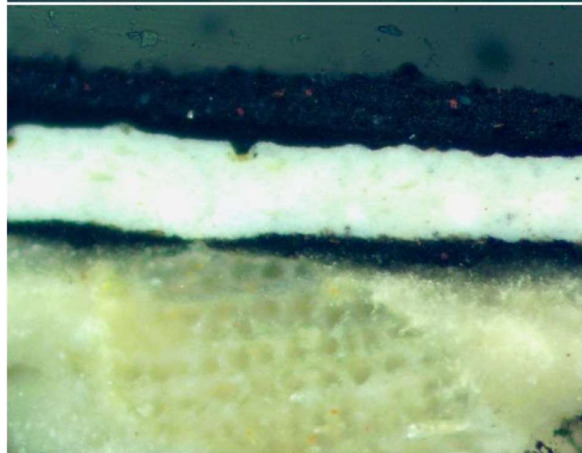
The paint layers all are later  
 repaints.



SAMPLE 4.4

Flat  
 background  
 to figures

Two lots of black repaint –  
 the first  
 on stone, the second over a  
 white  
 undercoat

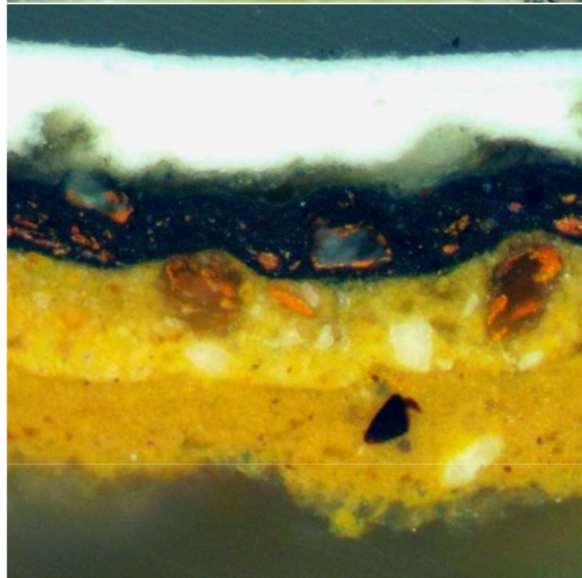


SAMPLE 4.5

Border  
 around  
 central niche  
 containing  
 the two  
 figures

The black layer contains red  
 lead particles as well as bits  
 of lead white.  
 It rests cleanly on the buff  
 ground  
 and looks original.

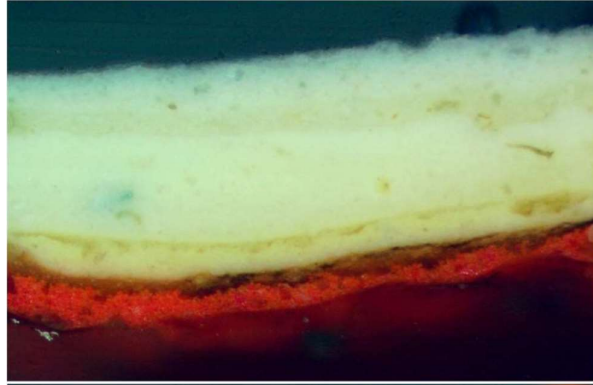
The same original ground  
 layers as used under the  
 silver gilt [see Samples 4.1  
 and 4.2]  
 red lead around lump  
 of lead white



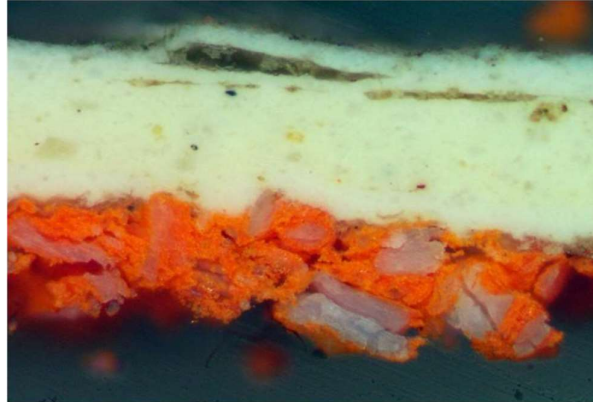
SAMPLE 4.6

Red seen under animal on top of coat of arms

Fragment (i) Is it a topcoat for the red lead layer seen in Fragment (ii) below?

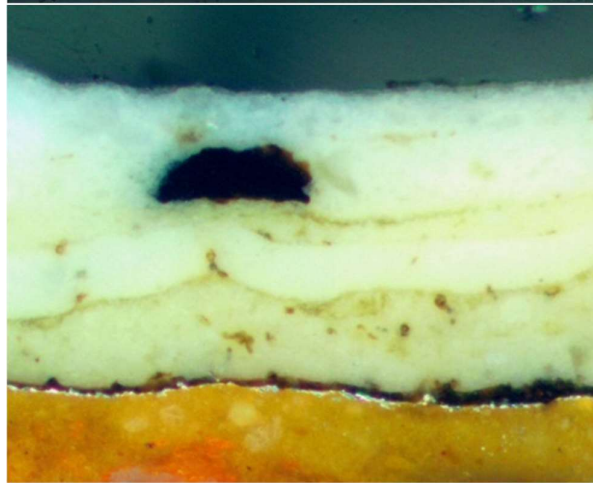


Fragment (ii) The same white repaints as in Fragment (i) above, but over red lead with the distinctive lumps of lead white which prove it is a pigment made by pre-industrial methods



SAMPLE 4.7

Scrollwork around shield Three lots of later white repaints over original silver gilt



Page 7

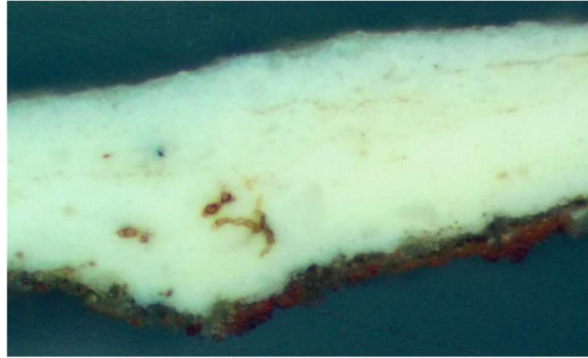
SAMPLE 4.8

Feature supporting the coat of arms  
Fragment (i)

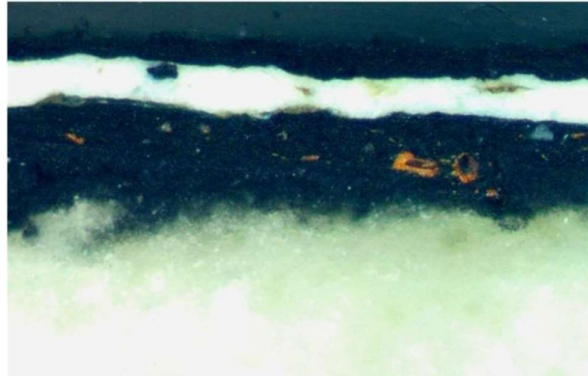
Showing particles of original blue smalt caught up in the later white repaints  
The background to the coat of arms was originally painted with smalt



Fragment (ii) In this piece the later white repaints are over the remains of a thin layer of pure red iron oxide

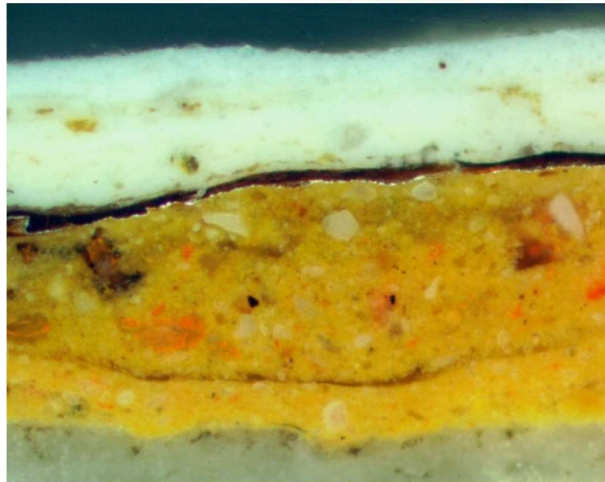


SAMPLE 4.9 most recent black Entablature  
  
The first black layer on the stone contains small particles of red lead so may be original



SAMPLE 4.10  
Cherub's hair

original silver gilt scheme over buff-coloured ground layers



**Set No.4**

## HORNER MONUMENT

Church of Blessed Virgin, Cloford, May 2022

Two samples were taken from the side of the monument by Sally Strachey Conservation

- One sinister lower shelf of monument – grey paint
- Two sinister side of monument – wall paint



Examination. The fragments were examined under low magnification and then a selection of the pieces was mounted in cold-setting polyester resin to be cut and polished as cross-sections. The layers were compared, and key pigments were identified using a polarising light microscope.

Basic solvent tests were carried out on the most recent paint schemes

**RESULTS**

The paints found used on the monument were different from the paints found used on the wall.

Paint on Monument

The cross-section shows four lots of oil paint all based on lead white.

The first, which could be the original decoration, was a pale, greyish white applied over a white undercoat.

The second and third paint schemes were a light buff, or stone colour, based on lead white and a little ochre.

The fourth, which is the paint seen today is a very pale grey. As it is based on lead white it was applied before the middle of the twentieth century.

Paint on Wall

The lime plaster on the wall contains hair and fine grit.

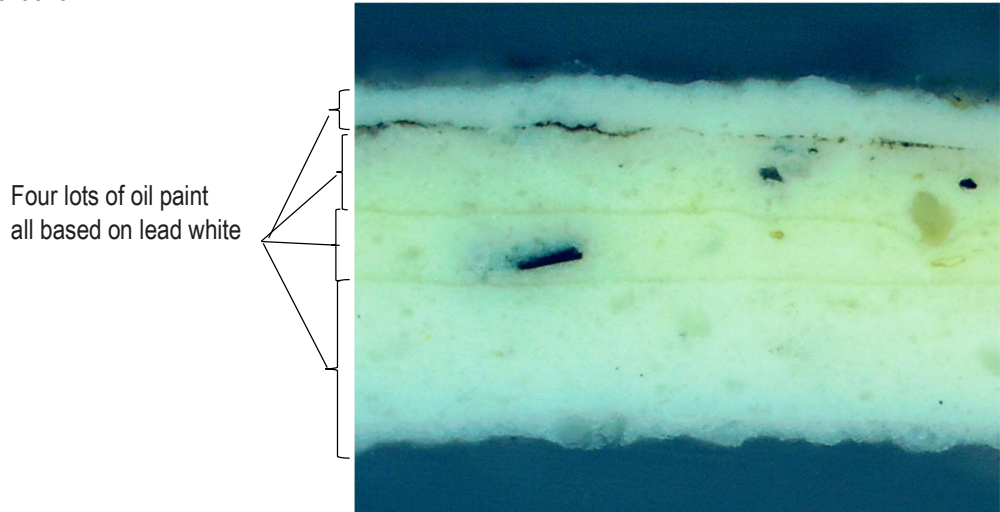
The wall must have been cleaned down the last time that the Chapel was painted, because little early paint has survived.

On top of the plaster are the remains of two coats of limewash [or distemper] The first is a warm white, the second contains a few particles of red ochre and had a slightly pinkish tone.

On top of those limewashes is the paint seen today - an off-white emulsion paint. The main pigment is titanium dioxide white, so the paint is a late twentieth, or early twenty-first century, coating.

SAMPLE 1

Paint on monument shelf

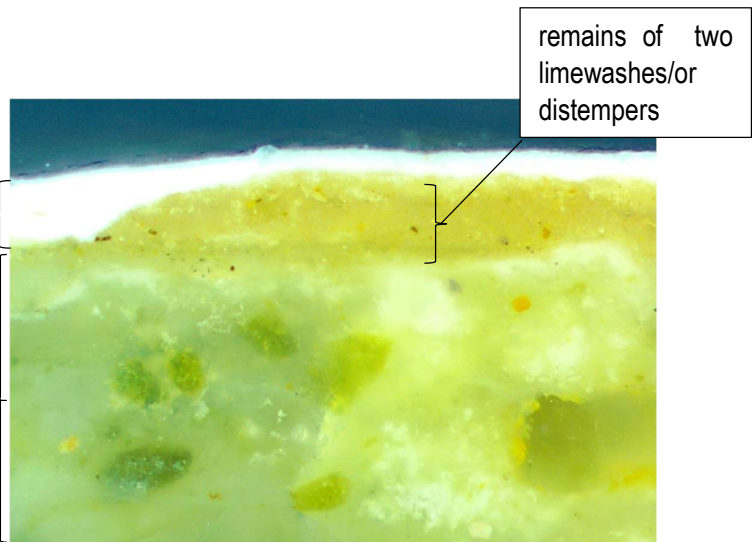


SAMPLE 2

Paint on wall next to monument

Emulsion paint based on titanium white

lime plaster



## Appendix 2 – Historical Interventions and other Observations

During the de-pointing process historical changes to the fabric were confirmed. By linking the distinct types of stone used, the bedding mortar and stone beds not interlocking patterns could be formed. The original chapel mortar is buff in colour, the new interventions are pure white.

Below is an illustration of where a window or doorway was positioned centrally on the west wall. As you look at the wall, the far-right corner shows a steep diagonal join between the early chapel and later nave.

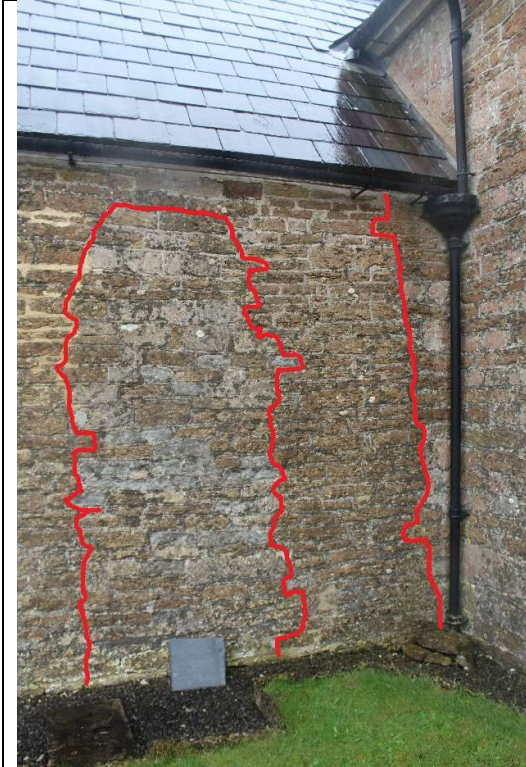


Figure 85 Illustration of historical interventions on the west wall of the chapel



Figure 86 The current view of west wall of chapel, new pointing revealing historical interventions

Beneath is an illustration of the historical intervention and current view of the north wall. The illustration shows both the newer buttress and the tying in of stonework. Again when the grey pointing was removed the original buff bedding mortar of the chapel and the white buttress build was revealed.

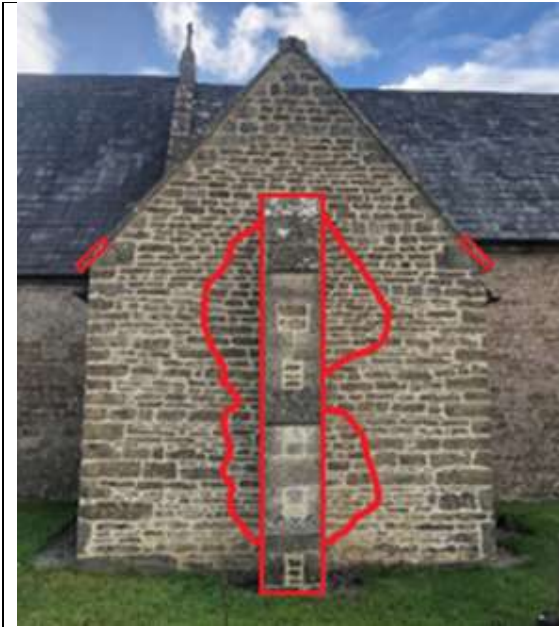


Figure 87 Illustration of historical interventions on the north wall of the chapel



Figure 88 The current view of north wall of chapel, new pointing revealing historical interventions



Figure 89 Exterior north-east lower putlog hole

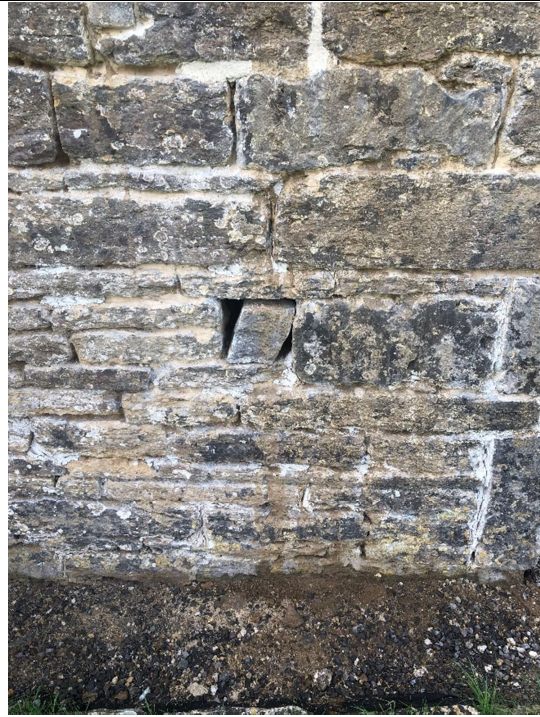


Figure 90 Exterior north-west lower putlog hole



Figure 91 Interior north-west lower putlog hole



Figure 92 Interior north-east lower putlog hole



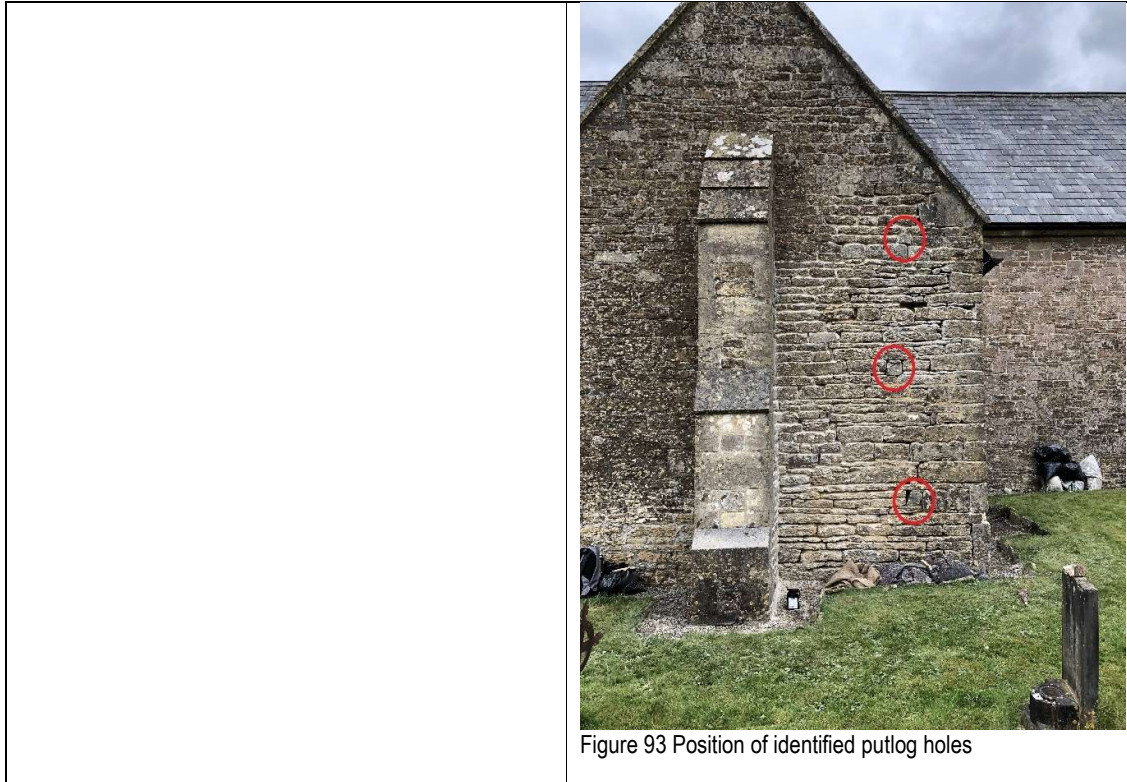


Figure 93 Position of identified putlog holes