



# Taylor Pearce Limited, Fishers Court, Besson Street, London SE14 5AS



All Saints' Church Hertford Alabaster Reredos Completion Report February 2019

# Contents

1	Object details				
2	Condition before treatment 3				
3	Treatment carried out			3	
	3.1 Cleaning			3	
	3.2	Repairs		5	
		3.2.1	Mullions	5	
		3.2.2	Jambs	8	
		3.2.3	Longstanding loss to north corner of shelf	8	
		3.2.4	North buttress	8	
		3.2.5	Pomegranate finials	9	
		3.2.6	Finials at top of north and south towers	10	
		3.2.7	Repointing	11	
	3.3	.3 Consolidation		11	
	3.4	Surface treatments			
4	Access and logistics			12	
5	Future recommendations 13			13	
6	Materials and suppliers 15			15	

### 1 Object details:

Title:	Alabaster reredos				
Donor:	W.F. Andrews				
Date:	1914				
Materials:	Alabaster and casting plaster with timber supports				
Dimensions:	Height (approx.) 4000mm Width 4250mm Depth 400mm				
Location:	All saints' Church, Hertford SG13 8AY				
Client:	PCC All Saints' Hertford				
Contact:	Colin Bird (colingbird@outlook.com)				
Date: Materials: Dimensions: Location: Client: Contact:	1914Alabaster and casting plaster with timber supportsHeight (approx.) 4000mmWidth 4250mmAll saints' Church, Hertford SG13 8AYPCC All Saints' HertfordColin Bird (colingbird@outlook.com)				

The different elements of the reredos referred to in the text are identified in Image 1 below.



Image 1: Diagram to identify different elements of the reredos identified in the text.

# 2 Condition before treatment:

Several small elements (finials from both north and south towers and mullions from the middle and lower sections of tracery on both sides) had become detached and in some cases broken (Image 2). In addition, both mullions and jambs on the tracery on the lower sections (particularly on the north tower) were loose and in danger of detaching. Taylor Pearce Limited was, therefore, commissioned in June 2018 to assess the causes of the damage and devise a plan to treat the reredos as a whole. The current document should be read together with the report produced at that time (*Condition report and conservation proposals June 2018*) for a full discussion of the condition before treatment.



Image 2: Intact but detached mullion (top) and fragments of two mullions (middle) and two finials (bottom).

# 3 Treatment carried out:

## 3.1 Cleaning

Loose dust and dirt were removed from the whole surface using soft bristle brushes and vacuum cleaners (Image 4).

Tests were carried out to establish a method for the removal of residual staining and more ingrained dirt. Wishab sponges and smoke sponges were trialled as dry cleaning methods. White spirit, V&A mix (1:1 emulsion of white spirit and water with a drop of non-ionic detergent) and acetone were applied using cotton wool swabs; melamine sponges dampened with water and a 1:1 mix of water and IMS were also trialled. The melamine sponge dampened with water was found to be the most successful method and also avoided the need to use solvents in a busy church (Image 3). The whole surface including the reverse side was cleaned using this method (Image 5).

The top surface of the shelf, the bases of the niches housing the figures on the north and south sides and the lower section of the central relief panel were covered in splashes of candle wax (Image 8). These were reduced using scalpels and wooden tools before removing any remaining wax with a dampened melamine sponge.

On the upper surface of the shelf there were residues from tape adhesive (Image 6). These were poulticed using cotton wool soaked in acetone and covered in cling-film to soften the adhesive, which could then be removed with a melamine sponge (Image 7).



Image 3: Cleaning tests on north buttress and tower.



Image 4: Loose dust and dirt before cleaning on south side of inscription.



Image 5: Central tower and inscription before (left) and after (right) cleaning.





*Image 6: Upper surface of shelf with adhesive residues from tape before poulticing.* 

Image 7: Upper surface of shelf after poulticing with acetone to reduce residues.



Image 8: Candle wax on surface below relief panel.

# 3.2 Repairs

# 3.2.1 Mullions

All mullions that were loose were removed: two from the lower section of the north tower, three from the lower section of the south tower and one from the middle section of the south tower (Image 9). Two of the mullions from the lower section of the south side were broken. One had been repaired previously and pinned with a short copper alloy dowel; this was secure on one side and was left in place to prevent further damage (Image 10). The broken mullions were readhered using polyester resin (Steinkitt).

Taylor Pearce Ltd

Alabaster reredos All Saints' Hertford Two mullions from the lower section of tracery on the north tower were broken; one into eight sections and the other into three (Image 2). The break surfaces were coated with a barrier layer of 20% Paraloid B72 in acetone and allowed to dry. The sections were then readhered using polyester resin (Akemi); losses were filled using gypsum plaster and retouched with acrylic paints to colour-match adjacent surfaces.

The backs of the mullions were then reinforced using three layers of 'Spider Tissue' adhered with 20% Paraloid B72 in acetone. The strips of tissue were cut so they would overhang the ends of each mullion by 15mm (Image 11). The same reinforcement was applied to the backs of all the mullions that were removed including the two mullions from the lower section of the south tower which had also been repaired.

A replacement for the missing mullion for the centre of the middle section of tracery on the north side was made by taking a mould from one of the detached mullions in the lower section of tracery on the north side. A new mullion was cast using polyester resin (Akemi and Steinkitt) mixed with onyx powder and pigments to colour match the original alabaster. The resin was reinforced using glass fibre in a channel down the centre of the mullion. Using 20% Paraloid B72 in acetone, a short length of 'Spider Tissue' was attached to the back of the replacement mullion overhanging at each end by approximately 15mm (Image 12).

The mullions were attached by resetting them top and bottom in gypsum plaster; where necessary, a small plastic spacer was placed on the lower surface to ensure that upper and lower joints were even. Once the plaster had cured, the overhanging tabs of spider tissue were adhered to the adjacent surface using 20% Paraloid B72 in acetone (Images 13 and 14); the joints were then further reinforced using gypsum plaster. The new plaster joints were retouched to match existing plaster joints using acrylic paint (Image 15).



1 mullion removed from middle section on south tower (south side)

1 mullion removed from middle section on north tower

3 mullions removed from lower section on south tower

4 mullions removed from lower section on north tower



Image 9: North (left) and south (right) towers following removal of mullions.



Image 10: Mullion from lower section of south tower with old repair.



Image 11: Adhering 'Spider Tissue' to reverse side of mullion from north tower.



Image 12: Replacement mullion for lower section of north tower made from polyester resin.



Image 13: Mullion set in casting plaster.

Image 14: Mullion after spider tissue adhered.

Alabaster reredos All Saints' Hertford

# Taylor Pearce Ltd

#### Alabaster reredos All Saints' Hertford

February 2019

3.2.2 Jambs

Three of the jambs at the bottom of the north tower and one of the jambs at the bottom of the south tower were loose. The remaining gypsum plaster was raked out from both the upper and lower joints using hacksaw blades. Spacers were used to ensure that upper and lower joints were even and gypsum plaster was injected into the joints and allowed to cure. The new plaster joints were retouched to match existing plaster joints using acrylic paint (Image 16).



Image 15: Reinstated mullions in lower and middle sections of north tower.

Image 16: All four jambs in lower section of tracery on north tower following stabilisation with gypsum plaster and repaired corner of shelf.

# 3.2.3 Longstanding loss to north corner of shelf

A fragment of alabaster stored with the detached finials was found to be a missing fragment from the north side of the shelf. Both break surfaces were thoroughly cleaned with acetone and the fragment was readhered using polyester resin (Steinkitt). However, there were significant losses of surrounding material which was replaced using glass microballoons mixed with 20% Paraloid B72 in acetone and dry pigments to achieve a good colour match. Once the resin had cured, the fill was sanded down and the surface smoothed with acetone (Image 16).

## 3.2.4 North buttress

The top two sections on the north buttress were loose. The remaining gypsum plaster in the lower joint was raked out and two slips of lead were used as spacers (Image 17). Gypsum plaster was injected into the joint and allowed to cure (Image 18). The new plaster joint was retouched to match existing plaster joints using acrylic paint.

Image 21:

#### 3.2.5 **Pomegranate finials**

The joint between the pomegranate finial and the north buttress was broken and the finial was held in place by a copper alloy dowel (Image 19). The dowel was removed and replaced with a threaded stainless steel pin (Image 20) which was set in polyester resin (Steinkitt); the joint was filled with gypsum plaster (Image 21). The pomegranate finial on the south buttress was loose, but the finial could not be removed. The remaining plaster was raked out using hack saw blades and the finial was set on new gypsum plaster which was injected into the joint. The new plaster joints were retouched to match existing plaster joints using acrylic paint.



Image 17: Joint at top of north buttress after raking out plaster.



Copper alloy pin holding north 19: Image pomegranate finial from previous repair.



Image 18: Joint at top of north buttress after repointing.



Image 20: Replacement stainless steel pin for north pomegranate finial.



Image 21 (left): Reinstated north pomegranate finial repointed with gypsum plaster.

#### 3.2.6 Finials at top of north and south towers

Two detached finials were stored with the other fragments at the church (Image 2); both had been previously repaired; the top was attached using a copper alloy pin set in plaster in one. All old adhesive was removed and the pin was replaced with a 3mm diameter acrylic dowel. Break surfaces were coated with a barrier layer of 20% Paraloid B72 in acetone and the fragments were adhered using polyester resin (Steinkitt). Lost material adjacent to break surfaces were filled using gypsum plaster and retouched using acrylic paint (Images 22 and 23). Two further finials were removed from the octagonal tracery at the top of each tower and cleaned; a copper alloy pin was removed from the finial from the north tower.

There were six missing finials in total; three from each tower. However, only four detached finials were found. As the finials on the back of the octagons are not visible from the ground, it was decided not to replace two of the finials at the back of the south tower. Three finials were reinstated on the north tower and one on the south tower. Holes were drilled in the bottoms of the finials and in position at the tops of the towers to house 30mm lengths of 2mm stainless steel threaded dowel (Images 24 and 26). The dowels were set in polyester resin (Steinkitt) and the joints were filled with gypsum plaster (Images 25 and 27).





Image 22: Damaged finial (see Image2) after repairs and cleaning.

Image 23: Damaged finial (see Image2) after repairs and cleaning.



place for finials to be reinstated.



Image 24: North tower with stainless steel pins in Image 25: North tower with detached finials reinstated.



Image 26: South tower with stainless steel pin in place for finial to be reinstated.



Image 27: South tower with detached finial reinstated.

# 3.2.7 Repointing

In addition to the joints that were repointed during the reinstatement of detached or loose elements detailed above, several joints in the ashlar, above the shelf and on the reverse side of the reredos had missing or cracked plaster. These joints were raked out using hack saw blades and new gypsum plaster was injected into the joints and retouched using acrylic paint.

# 3.3 Consolidation

One of the central panels was friable in an area next to the lower edge; this appeared to be caused by water damage, leaving the surface blistered and uneven (Image 28).

Where the alabaster was heavily veined, the red material was friable and significant amounts had been lost, especially on the ashlar, probably partly as a result of wear and tear in this accessible area (Image 29). A white powdery efflorescence on the surface also indicated that the movement of soluble salts may have contributed to the deterioration (Image 29). Small red fills to similar areas on other parts of the reredos indicated that this was a longstanding problem, probably resulting from natural weaknesses in the stone itself (Image 31).

These areas were consolidated by injecting 5% Paraloid B72 in 1:1 acetone and IMS into the stone; excess was removed from the surface using acetone on a cotton wool swab. Fissures and losses of material were filled using glass microballoons mixed with 20% Paraloid B72 in acetone and dry pigments to achieve a good colour match. Once the resin had cured, the fill was sanded down and the surface smoothed with acetone (Image 30).

# 3.4 Surface treatments

Light scratching on the surface of the alabaster, particularly on the ashlar was retouched using acrylic paints. Finally, a thin coating of microcrystalline wax was applied to all surfaces on the front of the reredos and lightly buffed using microfibre cloths to remove excess. The wax was mixed with a small amount of raw umber pigment and applied to the two panels to the north of centre that had been lightened due to water damage to tone them down (Image 32).



*Image 28: Lower edge of panel to north of centre with area of friable stone after consolidation.* 





Image 29: Example of friable stone and white efflorescence on ashlar before treatment.



Image 30: Area of friable stone on ashlar after Image 31: Old fills to red veining in alabaster. consolidation and fills.



Image 32: Three panels damaged by water after toning down with pigmented microcrystalline wax.

## 4 Access and logistics:

The altar was moved off the chancel steps to a position inside the communion rail. The chancel steps were covered with corex sheeting and the area immediately in front of the reredos was protected using ply board. Upper areas of the front of the reredos were accessed from a mobile aluminium tower (Image 33). On the reverse side, the top of the reredos was accessed from a narrow telescopic step ladder (Image 34). Materials and equipment were stored in the chancel during the project; solvents

were kept in a locked metal box. Work was coordinated with All Saints' PCC around services and events that were taking place.



tower used for accessing higher areas.

Image 33: Floor protection and mobile aluminium Image 34: Telescopic ladder used for accessing higher areas in narrow space behind reredos.

#### 5 **Future recommendations:**

The mullions and jambs on the lower and middle sections of the north and south towers became loose and in some cases were completely detached because the gypsum plaster in the joints failed. However, it is still unclear whether this happened as a result of the plaster becoming more brittle (possibly due to changes in temperature and relative humidity connected to the central heating) or a slight movement in the structure of the reredos itself. The mullions have been reset in plaster, but they are also reinforced by spider tissue which has been adhered to the reverse side as well as to adjacent surfaces. If the plaster fails again, the spider tissue should hold the mullions in place and prevent them falling leading to further damage, but the stability of the mullions should be monitored at regular intervals.

There are signs of water damage on the central panels, the upper surface of the shelf and on the north side of the ashlar. Alabaster is soluble in water and this damage may relate to the custom of placing flowers on the shelf. In order to avoid future damage, extra care should be taken to prevent spillages either by using artificial flower displays or standing flower arrangements in waterproof containers. If any water is accidently spilt on the reredos, it should be removed immediately and not allowed to stand on surfaces or become absorbed into joints.

The loss and detachment of several finials from both the north and south towers results from impacts to the top of the reredos. The church hosts regular musical events including choral recitals which sometimes require staging to be constructed over the top of the reredos. It is likely that the damage to the finials occurred during either the erection or disassembly of these stands. It is advised that particular care is taken in future to prevent further damage and losses.



![](_page_14_Picture_1.jpeg)

Image 36: Reredos after conservation.

Alabaster reredos All Saints' Hertford

# 6 Materials and suppliers:

Acetone - supplied by Performance Chemicals, Belvedere Industrial Estate, Fisher's Way, Belvedere DA17 6BS.

Acrylic dowel - supplied by 4D Modelshop, The Arches, 120 Leman Street, London E1 8EU.

Acrylic paints (Liquitex Professional) - supplied by Cass Art, 13 Charing Cross Rd, London, WC2H 0EP. Akemi Marmokitt 1000 (vertical waterclear polyester resin) - supplied by Crawshaws & Co Limited 3 Silverwing Industrial Park Horatius Way Croydon Surrey CR0 4RU.

**Bristle brushes** - supplied by Decorating Direct Ltd, Unit G1 Commerce Way, Middlesbrough, TS6 6UR. **Glass microballoons** - supplied by Conservation Resources, 15 Blacklands Way, Abingdon OX14 1DY.

**IMS** - supplied by Performance Chemicals, Belvedere Industrial Estate, Fisher's Way, Belvedere DA17 6BS.

**Melamine sponge (Doktor Power Magic Eraser)** - supplied by JML Direct, Unit 1, East Side, Tyne Dock, South Shields NE33 5SP.

**Onyx powder** - supplied by Alec Tiranti, 27 Warren St, Fitzrovia, London W1T 5NB.

**Paraloid B72 (acrylic copolymer of ethyl methacrylate and methyl acrylate)** - supplied by Conservation Resources, 15 Blacklands Way, Abingdon OX14 1DY.

**Dry pigments** (various) - supplied by Cornelissen & Son, 105 Great Russell Street, London WC1B 3RY. **Renaissance microcrystalline wax** - supplied by Picreator Enterprises, 44 Park View Gardens, London NW4 2PN.

Smoke sponge - supplied by Conservation Resources, 15 Blacklands Way, Abingdon OX14 1DY.

Spider Tissue - supplied by Preservation Equipment Ltd, Vinces Road, Diss IP22 4HQ.

**Stainless steel dowel (316 grade threaded) -** supplied by Metals4u Ltd, Armitage Works, Sandbeck Way., Wetherby LS22 7DN.

**Steinkitt Mastic for Marble (knife-grade polyester resin)** - Crawshaws & Co Limited 3 Silverwing Industrial Park Horatius Way Croydon Surrey CR0 4RU.

**Synperonic A7** (non-ionic detergent) - supplied by Conservation Resources, 15 Blacklands Way, Abingdon OX14 1DY.

White spirit - supplied by Performance Chemicals, Belvedere Industrial Estate, Fisher's Way, Belvedere DA17 6BS.

Wishab sponge - supplied by Conservation Resources, 15 Blacklands Way, Abingdon OX14 1DY.

Conservators:	Lou Ashon, Becky Davison, Aneta Krupnick, Ana Logreira
Dates work carried out:	21 <sup>st</sup> January – 4 <sup>th</sup> February 2019
Report:	Lou Ashon 6 <sup>th</sup> February 2019
Reviewed:	Angus Lawrence ACR 14 <sup>th</sup> February 2019