

St. Michael and All Angels. Michaelstow. Cornwall

The Royal Arms

Post Conservation Report



Record of Treatment

October 2022

Painting: Elizabeth Cheadle ACR.

Timber: Hugh Harrison ACR

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Introduction

In January 2022 I carried out an inspection of the Royal Arms in Michaelstow church. This was followed by a condition report with recommendations for treatment. See report dated February 2022 ¹. The church applied to the DAC for a faculty which was granted and in July 2022 the church commissioned the cleaning and conservation of the Arms and the frame. In collaboration with timber specialist Hugh Harrison and his team of conservation joiners, it was taken off the wall to inspect behind and transported to my studio for cleaning and conservation. This report records the treatment to the painting and the striking faux marble frame with an assessment of the timber structure by Hugh Harrison.

See **Fig 1** before conservation.

Paint analysis has been undertaken in order to gain a better understanding of the paint layers and to allow informed decisions about options for treatment. The samples were analysed by Catherine Hassall and her report is included.

Description

The Arms are those of George II, commemorating his coronation in 1727. It has been a significant part of the furnishing of St. Michael's since the early eighteenth century and is positioned in a prominent position on the north wall, opposite the south door. As a result of the cleaning the initials with the date, in the top section of the boards, are now visible and read G R C which stand for George Rex Coronatus with the date 1727.

Stylistically, the painting is quite unsophisticated. It was applied onto four pine boards, in broad strokes using a simple palette of colours. For example, where gold leaf is sometimes applied, on the lion and mantling, here yellow ochre paint was used. It is likely that it was made in a hurry as a statement of support for the new king, George II, - a celebration of his ascension to the throne.

¹ Michaelstow Royal Arms Condition Report. Recommendations for Conservation Treatment, February 2022. Painting Elizabeth Cheadle. Timber Hugh Harrison

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Previous Interventions

When the Arms were taken down a recess in the wall was revealed where the original north doorway had been covered in. **Fig 2**. It was also useful to discover a note on the back of the boards recording restoration and repairs carried out in 1969 and 1970: The timber was 'repaired and redecorated' and 'treated with Rentokil'. **See figs 3, 4 and 5**

Structure Hugh Harrison

The original structure is perhaps the simplest I have ever seen. Onto four wide pine boards cut to the shape of the outside edge of the frame, the frame is nailed with no additional cross bracing. The boards are approximately 15mm thick and placed vertically and are remarkably high quality slow grown pine. Curiously, they have been finished on their back surface and possibly had a thin coat of paint applied, though this might be later.

Fig 3 General view of the back.

As there are splashes of white paint from the decorated frame onto the front edges of the boards and saw marks on the front of the boards where the mitre joints had been cut already nailed to the boards, we know that frame is original, constructed to fit the boards and painted at the same time as Royal Arms. **Fig 6**

Interventions 1970's repairs. Hugh Harrison

An outer frame was constructed to allow the arms to fit over the covered-in door space. Two softwood cross battens have been fixed horizontally across the back to support the boards within the frame and for added strength. These are screwed with a single screw in the centre of each board so they do not affect the shrinkage or expansion of the boards according to the prevailing RH. **Figs 3**. It is notable that there is no frame at the bottom of the Arms and a gap at the top where the centre original board is cut short, so there is provision for a good airflow behind the Arms. **Figs 8 and 10**

The Painting

The painting had been coated with at least two layers of varnish which, as well as the discolouration due to oxidization, appeared to contain some brown pigment. **Figs 11, 12, 13** Analysis did not find evidence of any earlier scheme or later redecoration and removal of the old varnish did not reveal any paint other than the original. However, I believe that at some stage the painting was cleaned – perhaps in 1970, with an alkali solvent, such as methylene chloride (Nitromors) or caustic which would have weakened the paint, removing the colour in

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the background (which was a dark brown primer coat with little binder). As the main elements were painted with colours containing lead white, these have survived in relatively good condition, although I suspect that some glazes and toning have been lost. The blue colour, made from the pigment smalt, had degraded to greyish beige. See **Figs 14,15, and 16** the supporters painted with lead-based paint and the shield with degraded blue smalt **Fig 18**

Paint Analysis

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ROYAL ARMS

St Michael's Church, Michaelstow

The Arms were painted in 1727

It is known that they were restored in circa 1970

Paint samples were taken by Elizabeth Cheadle from the following locations:

- 2 Top of board 4, dark background colour, taken from a surviving fragment of paint.
- 3 Board 3 - lower quarter of shield, red of lion rampant
- 4 Board 3, lion's haunch
- 5 Board 3, background of belt

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.

RESULTS

Original ground

The wood was primed with a very thin layer of dark brown iron oxide mixed with carbon black. This was followed with a lighter coloured layer of the same pigments mixed with more of the lead white.

This ground mixture was found in Samples 3 and 4.

The dark brown layers seen in Sample 2 are probably the same but the lead white was not picked up in the dispersion, so the mixture may have varied across the panel

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Paint layers

Sample 2 Only the dark brown ground layers were found.
In the cross-section they can be seen covered by a thick layer of discoloured varnish, so they were presumably not affected by the 1970 restoration.

Sample 3 A dull yellow undercoat mixed from ochres and a little lead white was applied first, followed by a top coat of pure vermilion.

Sample 4 A pinkish undercoat of red iron oxide mixed with lead white, followed by a yellow/brown top coat of lead white tinted with yellow and red iron oxides.

Sample 5 A similar pink undercoat as seen in Sample 4 was found in some fragments. A light blue undercoat of lead white and smalt was followed by a layer of pure smalt. The pigment has largely lost its colour, but a few particles are still a strong blue.

Varnishes

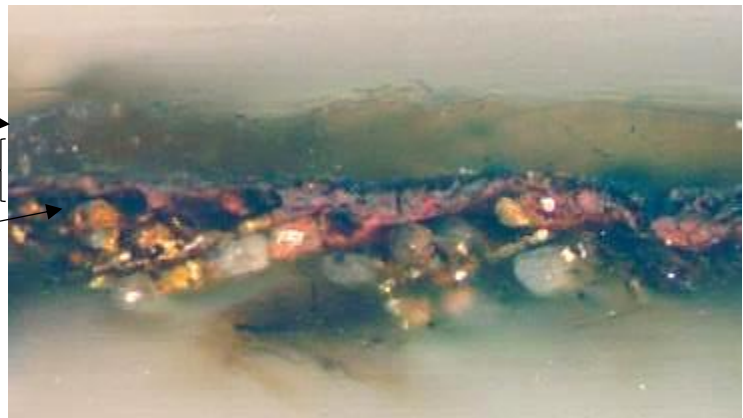
A thick layer of discoloured varnish can be seen over the paint layers in all of the samples, including Sample 2.

A second, thinner layer of clear varnish rests on top of the discoloured varnish. This may be what was applied in 1970

SAMPLE 2

Background – top of Board 4

clear varnish →
discoloured varnish {
brown ground layer →
resting on wood



SAMPLE 3

Red lion rampant on shield
Board 3

discoloured varnish {



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Sample 3 At higher magnification

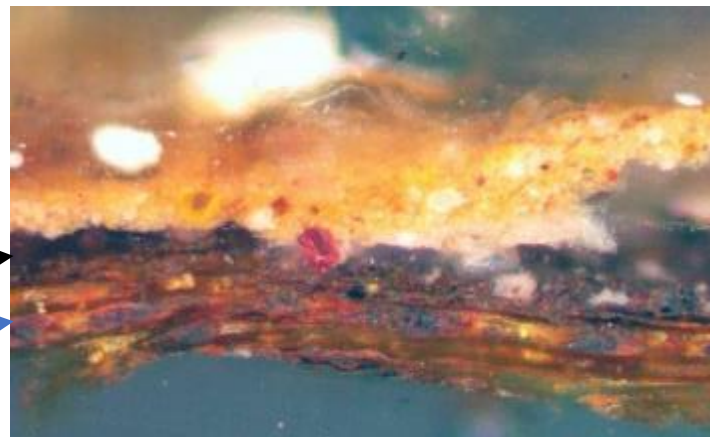
red of lion →
yellow undercoat →
brown ground →



SAMPLE 4

Lion's haunch – Board 3

brown ground →
wood →



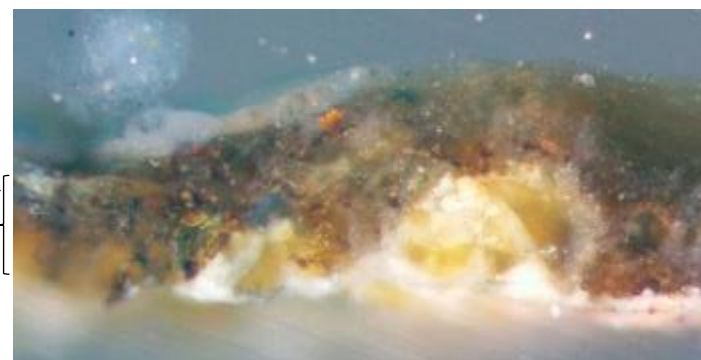
SAMPLE 5

Belt background colour

Fragment (i)

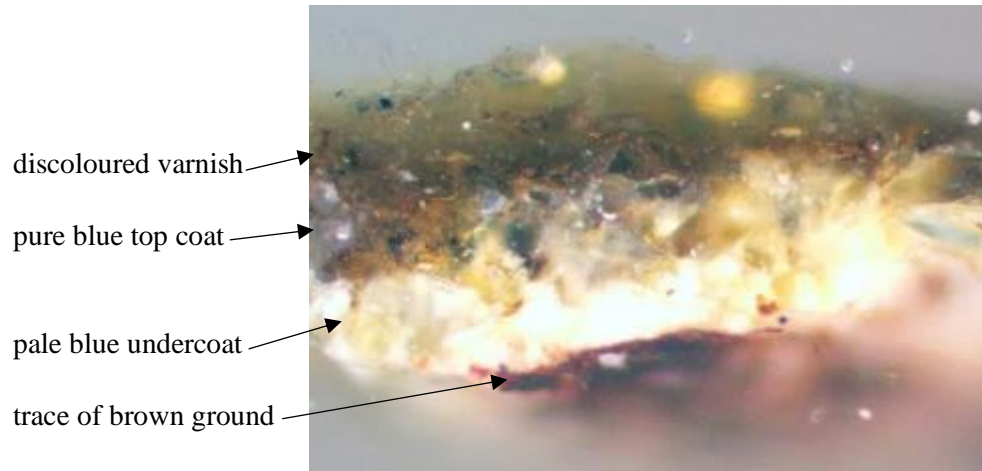
Mostly the top coat of pure smalt

top coat of smalt particle surrounded
by discoloured and dirty varnish



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Sample 5 Blue Fragment (iii)



Treatment

The discoloured varnish was carefully removed on cotton wool swabs using a range of solvents, depending on the thickness of the varnish and the condition of the underlying paint. SPVR gel solution, containing ethanol, was followed by acetone / white spirit. Where the varnish was encrusted methoxy 2 propanol was applied with a brush successfully softening the heavy layer, which could then be removed with ethanol and the surface finally cleaned with Shellsol T. **Figs 14, 15, 16, 17** during cleaning.

Once the discoloured varnish had been removed from each board the painting could be viewed as a whole. The main elements of the painting remained in a stable condition: the helm with crest, the lion and unicorn supporters with ermine mantling, the Hanoverian shield and the charming cherubs at the base each side of the motto, all survived with their original colours. However, the background colour was entirely lost and the blue colours had degraded to a beige/ grey.

Reintegration.

An isolating layer was applied over the cleaned surface using a thin coating of Paraloid B72 10% solids before reintegration of missing areas.

Paint analysis had identified the original pigment used for the background was a mixture of umber mixed with carbon black. The blue colour was smalt, made from cobalt coloured

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glass, ground to a pigment.² With this information the decision was made to unite the scheme by inpainting a thin umber glaze to the background using Gamblin conservation paints in a removable varnish³ applied over the isolating layer. A light water based cobalt coloured wash⁴, over the isolating layer, was used to lift the areas of degraded blue, **Fig 18**

The Frame

Cleaning the frame, with its distinctive marble effect of fine white veins (applied with a feather) and splashes of white on a black background required extreme care, as the black paint was fugitive. A gel solution containing ethanol was applied with a fine brush, only to the white. The discoloured varnish was removed from the white paint on cotton wool swabs and then surface dirt was removed from the black background with white spirit. **Figs 21 and 22**

Protective Varnish

Gamvar varnish, (compatible with the isolating layer and Gamblin conservation colours) was applied to the surface, including the frame. This is a clear, non yellowing varnish, removable with Gamsol mineral spirit or mild organic solvents. Finally, a thin coat of microcrystalline wax was applied for protection against damp and to prevent the accumulation of dust on the surface.

Treatment to Structure

The back of the frame and the boards were cleaned and checked for beetle infestation. There was some evidence of past beetle and although this was not seen to be active this was treated with Microtech AQ insecticide. Where there was fragile decayed timber, this was consolidated by injecting 20% Paraloid B67.

Iron nails and screws on the back of the boards have been coated with anti corrosive sealant, 20% Paraloid B72 to prevent further oxidization and corrosion.

The wide gaps between the boards have been covered on the back with strips of dark cloth, glued with PVA wood adhesive. **Fig 19, 20**

² Smalt made from cobalt coloured glass ground to a pigment was popular in the 18th and 19th century. It is affected by damp and alkalis which causes the pigment to change to a grey colour.

³ Gamblin conservation colours in aldehyde resin are light fast, stable and reversible, removable in mild organic solvents.

⁴ Lascaux Acrylic paints were considered to have the necessary properties of durability, whilst also being reversible. Lascaux paints have good light fastness and are unaffected by moisture once dry.

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Refixing

The Royal Arms has been re-fixed in the same position on the north wall using the original fixings. As it is placed over the original door space there is a wide gap behind allowing air to circulate in addition to the lack of bottom boxing-in later frame.

See front cover and figs 23, 24

Future care

1. Preventative measures have been carried out to conserve both the painting and structure. The painting has been consolidated and the reintegrated areas isolated between varnish layers.
2. The deep recess behind the boards, where there was once a door, should allow air to circulate.
3. Cleaning should only be a light dusting no more than once a year using a soft brush and a vacuum with brush head held away from the surface. Dusting will prevent the accumulation of dust which attracts moisture. It is important that no liquids or solvents are applied, as the varnish and the reintegration layers are re-soluble. Apart from dusting, cleaning should only be undertaken by a qualified conservator who can refer to this report and the treatment I have undertaken.
4. The most important consideration is to prevent damp transferring from the walls to the timber boards, which would eventually damage the painting. It is therefore the continued maintenance of the building which will help to conserve the contents. Normal fluctuations in levels of humidity will cause some movement in the timber. However, extreme changes in temperature should be avoided, so heating should be low and away from the Arms. The DAC will normally advise on the questions of heating the church.
5. I will undertake to inspect The Royal Arms if requested by the church or the architect, to monitor the condition of the painting and the structure and to check for movement which may occur in the church environment.

I am grateful to those who have supported the project and for their interest and determination to care for the church and its furnishings.

Elizabeth Cheadle ACR

October 2022