THE USE OF PAINT ANALYSIS TO AID IN THE RESTORATION OF A 17TH CENTURY ITALIAN PAINTED FRAME

By Lucinda Compton

Description and Condition

This carved lime frame, typical of mid 17th Century North Italian work, is decorated with a bird with outstretched wings, a pair of mystical beasts and a mask, amongst opulent scrolls of foliage. It measures 4 feet wide by 3.5 feet high.

In the past a section of carved leafwork was inserted into each side to either increase or decrease the overall height. Possibly this alteration was carried out to accommodate the 17th Century Italian painting it now houses. It could have originally housed a mirror plate? Blown glass plates were usually 3 – 4.5 feet across each way at the most, at this date.

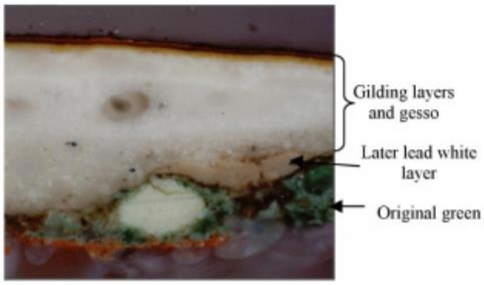
Small sections of carving were missing, the joints loose and some worm damage. The whole frame was coated in layers of gesso and gilded. The gold had a thick layer of black surface dirt, typical of this previously industrial area of Yorkshire, and there were large areas of detached gesso.

I was originally asked to clean and restore the gilding but on closer inspection I noticed the tiny fragments of blue pigment below the gold. The client agreed to have some samples analysed to determine if this was the original paint scheme, how much remained, how easy it would be to reveal, etc.

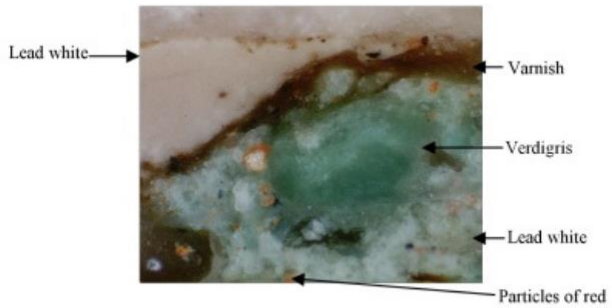
Paint Analysis

Tiny samples were taken from different areas and the fragments of paint were examined under low powered magnification and a few were mounted as cross-section to see the layers. Paint from the early layers was dispersed on glass slides and the pigments identified by polarised light microscopy. A chemical test for copper was carried out on the green.

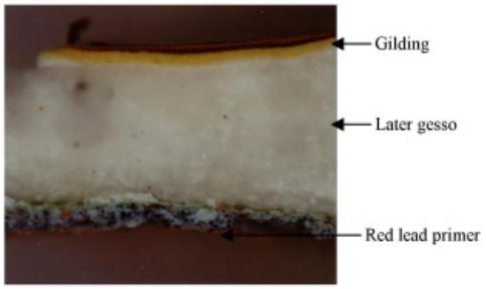
The fragments showed loose pieces of later gesso and oil gilding, with original paint attached to the underside. A number of pieces start with a thin layer of red lead, traditionally used as primer.



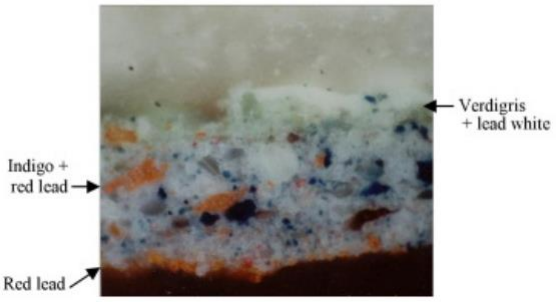
Red lead primer. Original green overlaid by thick gesso and then oil gilding. A trace of plain lead white paint over the green at the right end of the section suggests the frame may have been painted more than once, and that it was cleaned down before the gilding took place. X 200 magnification



Detail of the green, showing the thick varnish on top, followed by the remains of a white oil paint layer which may have been a second scheme. X 500 magnification.



A thin layer of red lead under the purple/blue. X 200 magnification.



X 500 magnification.

Pigments

The Green is a mixture of coarsely ground verdigris (copper acetate) and lead white. The Blue is indigo. Pink - a mixture of red ochre and lead white, Red – vermilion and red lead, Purple – a mixture of vermilion, indigo and lead white. These pigments are all historically correct for the date. In sample 1B we can see the remains of the original resin varnish. Above this are remains of a layer of white oil paint indicating the frame was painted before being sanded down prior to applying the thick layers of gesso and gold.

Treatment

All loose breaks and joints were glued up and supported from behind with canvas and size. All wormholes were treated and filled with glue and sawdust mix so fresh holes can be identified in future (time 10 hours). The hanging attachments were removed and refitted securely. Missing areas of carving were replaced using lime (time 24 hours).

In some areas the gesso and gilt were removed manually by dry-scraping with a Tiranti spatula. This was especially effective above the indigo painted slip frame where the thick layers of loose pigment had prevented the gesso from forming a strong bond . Other areas were extremely stubborn and care was needed to preserve the original paint. The oil gilding was removed with Nitromors. The deep layers of clay and gesso were removed by softening with water soaked papier-mâché, in gradual controlled stages. This was complicated by a huge variation in the thickness of the gesso, and random patches of white lead-based paint.

The loose pigments were consolidated with a barrier layer of Paraloid B72 in toluene.

Areas of bare wood were gessoed and smoothed to match existing thicknesses and then decorated to match the original paint using pigments (as per the analysis) in gum arabic. A thin coat of microcrystalline wax was applied (time 206 hours).

The original colours are wonderfully vibrant and the whole frame is decorated with highlights, lowlights, veins and shading on the leaves, etc. It is a truly stunning and rare frame.

I hope this demonstrates how paint analysis can be invaluable in assessing a work before commencing restoration. We use it quite often to date objects and different layers of restoration on the same object. It also gives us the confidence to persuade the client to go ahead with a big job like this. I learnt how to carry out this analysis at Hammersmith and West London College's "Chemistry for Conservators" one year course which is tailored to suit your needs and is fascinating. But I use Catherine Hassall now on a regular basis for analysis and can highly recommend her.

Catherine Hassall, 5 Patshall Road, London NW5 2JX (0207 482 0394)

Pigments from A P Fitzpatrick, 142 Cambridge Heath Road, Bethnal Green, London E1 5GJ (0207 790 0884)