methodology

BRITISH CARLO MARATTA PICTURE FRAME

technical examination and restoration process

By
Damian Lizun

This paper describes the technical examination and restoration treatment of a British Carlo Maratta style frame. The frame belongs to the 1867 oil canvas painting of Joseph Poulter Mackesy by Catterson Smith. The preservation state of the frame was very poor. It was renovated on one occasion and suffered several areas of substantial loss. The technical examination of the frame was conducted using cross section and polarized light microscopy. Examination was focused on establishing the history of the frame and original gilding techniques. The core treatments consisted of surface cleaning, consolidation, filling and replacement of the losses and in-gilding. A full set of photographs was taken before, during and after treatment to document step-by-step the restoration procedure.

Introduction

The frame with painting belongs to the Waterford Museum of Treasures in Waterford, Ireland and is exhibited in the main stair hall of the museum. It was designed and created probably in 1867 or shortly after[1] for the full scale portrait of Joseph Poulter Mackesy by Catterson Smith. The maker of the frame is unknown. Its dimensions are 191 x 283 x 12 cm (WxHxD). Its distinctive profile is decorated with four passages of independently carved and gilded ornaments. The main decoration includes the torus ornament which is carved with bunches of oak leaf-and-acorn, banded at the corners and cross-banded at the centres. The acanthus leaf-and-shell decoration was placed in the depth of the front hollow. The decoration along the back and sight edges is represented by the stylised leaf-and-tongue ornaments. This type of design is the enriched version of the Carlo Maratta style. The style first appeared in Naples in 1660 and came to England with the Grand Tour where it was widely used from 1750 to the end of the century, surviving in its carved version until the 1820s and beyond that in a plaster version. In no other country than Italy was the Carlo Maratta so popular as in Britain, where it became a particularly British style for picture framing [1]. In Italy, this type of frame is usually known as a Salvator Rosa after the Italian artist to whom the design is attributed [2]. Due to close social relations with Britain this framing style become naturally popular in Ireland. The Carlo Maratta frames were very economical as they could be bought ready-made or quickly made to measure, because there were no complications of corner ornaments [3].

Materials and Technique

The four construction elements are mitre joined with the internal wood splines in grooves along the length of the mitre. Additional screws were added across the mitre to secure the corner joints. The screws are 18 cm long and have a 15 mm diameter. The framer marked all corners by chiselling the numbers I-IV. Also the screws were numbered in the same way to assure the correct assemblage. The four construction elements were assembled after the gesso and gilding were applied. The carved ornaments were gilded independently and have been added to the frame to create an impressive sense of decoration. All bands of the ornaments are mitred at the corners and were originally attached to the frame by means of solid nails.

[1] An inscription on the frame's plaque indicates that the painting was executed in 1867. This date suggests the time when the frame was created.

Figure 1. Carlo Maratta style frame dating from approximately 1867. The frame is original to the painting of Joseph Poulter Mackesy by Catterson Smith. The image shows the frame with painting before the intervention.

The original gesso was based on the traditional composition of animal protein glue and chalk[2]. After gesso application and smoothing, a re-cutting of greater detail was executed. Then, layers of bole were applied on top of the gesso before gold was put on. The microscopic examination of cross sections[3] of the gilded layers revealed that the gilder used three colours of bole. The surfaces intended to be oil matte gilded such as back hollow and ornaments were prepared with a thin coat of a yellow bole. The front hollow, sight edge, slip, narrow astragal and cross-bands on the torus ornament that were intended to be burnished were thickly brushed with a red bole. The astragal and ribbons were given an extra coat of a blue bole over the red. The pigment identified in the blue bole was Prussian blue[4] [4]. The colour of the bole is very important as it lies directly beneath the gold leaf and its colour influences the final appearance of the gold. Red bole adds a warm glow to the gilded surface. Yellow bole blends with the gold in deeply carved areas where it is difficult to gild, making ungilded areas or imperfections less noticeable [5]. Blue bole provides a colder tone than red. Once the bole has dried and been smoothed, the gilding was executed in both water and oil finishes. Real gold[5] [6] was detected in the area of torus decoration and back hollow. The original wooden plaque was gilded in a water gilding technique on a red bole. The lettering was executed with a black oil paint through a stencil.

The gilding finish represents a very high standard of workmanship. The gilder applied the gold leaf with confidence, in a very skilled way. The observation of the frame mouldings after dismantling of the ornaments revealed that the gilder applied the bole and then gold leaf only on the areas visible by the viewer. Wide areas of gesso covered by the ornaments were left untreated.

Condition Assessment Before Treatment

The frame was in very poor preservation state. There was a significant accumulation of dust and grime on the surface. The gilded finish was additionally disfigured by darkened animal protein glue glaze. The glazing was a renovation treatment focused on the refreshment of the frame[6]. Preliminary examination by eye and magnifying lens revealed that the glaze was applied unevenly, omitting some difficult to reach surfaces. All bands of the ornament were originally attached to

[2] The natural formation of the chalk was confirmed by the presence of microfossils like elliptical and circular structures of coccoliths. Observation was done by means of light microscopy.

[3] Gilded decoration cross-sections were embedded in self-curing acrylic dentist resin "Estetic S" supplied by Wident, Poland.

[4] Prussian blue pigment was discovered about 1704 and become well known all over Europe by 1750. The pigment was identified by means of polarised light microscopy using a methodology developed by P. and A. Mactaggart [4].

[5] A small sample of foil was dissolved in aqua regia with heat added during the reaction. The mixture is formed by freshly mixing concentrated nitric acid and concentrated hydrochloric acid, in a volumetric ratio of 1:3 respectively on glass slide. The foil was dissolved completely. Then, a dry residue was dissolved in one drop of the 2M HCl (hydrochloric acid). The product of the reaction was $AuCl_3$ [gold (III) chloride], traditionally called auric chloride. Next, RbCl (rubidium chloride) was added to this chemical compound. After a few moments characteristic yellow crystals turned up. Gold identification was carried out using a scheme of micro-chemical tests developed by P. Rudniewski [6].

[6] The examination and restoration of three other period frames from the Waterford Museum of Treasures collection revealed that they were treated in the same way. Same poor quality glazing was found on two XVIII century Louis XV and one XIX century Carlo Maratta frames.

Figure 2. Detail of the top section of the frame before the intervention.

Figure 3. Close-up of the top-left corner of the frame before the intervention.

Figure 4. Detail of the bottom-left corner of the frame. The image shows the original, purpose made screw added across the mitre to secure the corner joint.

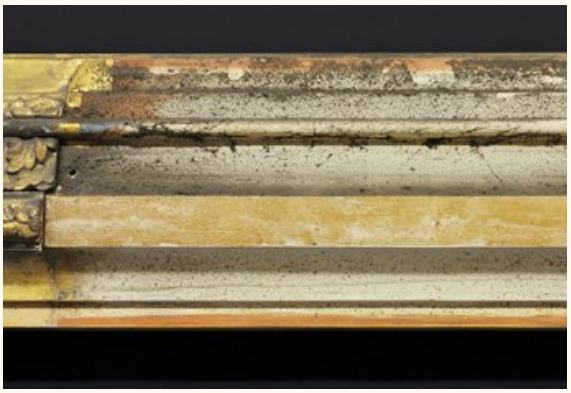


Figure 5 (above). Bottom section of the frame after dismantling of the plaque. The image shows the spectrum of all technological layers (wood-gesso-bole-gold leaf).
Figure 6 (below). Close-up of the bottom section of the frame after dismantling of the plaque. The image shows the colour order of the bole layers.

the frame by means of nails. The nails corroded and became weak resulting in partial or total detachment of the ornaments from the frame. There were several areas of substantial loss in the ornamental decoration including front hollow acanthus leaf-and-shell and back edge leaf-and-tongue. The top section of the acanthus leaf-and-shell ornament was completely detached. A leaf-and-tongue decorative pattern which runs along the back edge was in a very poor state of preservation. Much of the ornament was missing. Only a 150 cm long section remained. A number of losses to the gilding and white gesso were found on the surface of the frame. Abrasions were visible along all sides of the frame and edges of the decoration. The original frame plaque also showed a poor state of preservation. The gilded surface was extensively worn and was characterized by advanced gesso flaking. The black lettering was so worn that the gold background and red bole were visible. The back of the frame was very dirty. The structural condition of wood and joints was good. No evidence of woodworm was observed. Two original, iron hanging devices were very dirty and corroded.

Treatment Decisions

The goal of the treatment was to produce a consistent appearance that would allow the remaining original gilding to represent itself well. The technical condition of the frame and its decoration had to be improved. The core treatment consisted

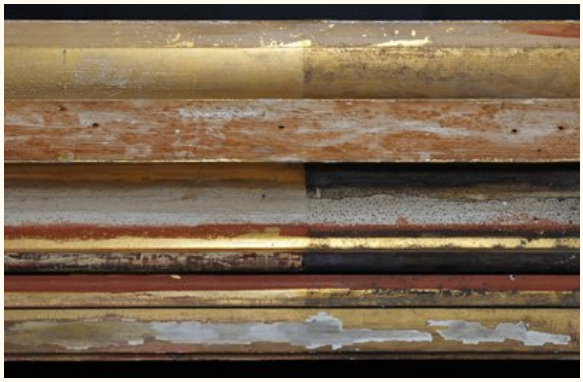


Figure 7 (above). Close-up of the left section of the frame during surface dirt and renovation glaze removal.
Figure 8 (below). The same area after dismantling the decoration. The gilder applied the bole and then gold leafs selectively only on the visible areas.

Figure 9 (above). The ornaments after filling the losses of the gesso layer.
Figure 10 (below). Close-up of the top section of the frame after the restoration.

of surface cleaning of the front and back and removal of the last renovation protein glue glaze. The next important decision was to replace the missing ornaments. Finally the gilded finish had to be restored. This task had to be carried out with respect for the original material and according to the original technique.

Conservation Treatment

The treatment procedure began by carefully dismantling and photo-documenting the frame's four sections. The procedure was straightforward as the original screws were well preserved. Dismantling of the frame was necessary for two reasons. Firstly, due to its extreme weight, it was safer for the object and conservator to have unlimited and easy access to all sides of the frame. Secondly, it helped to understand the construction of the frame. Next, the carved decoration patterns and the plaque were gently detached from the frame profiles. All nails were extracted from the profiles and decoration. After dismantling, a gentle, initial cleaning of the frame was carried out. Loose surface dust was removed by dry cleaning with a soft brush under low powered vacuum. The areas of flaking gesso were successfully secured with 4% solution of hot rabbit skin glue, applied with a small brush without contacting the gilded surface. Further cleaning of the wooden surface of the back of the frame was achieved using 15% Vulpex Liquid Soap in white spirit. Two original iron hanging devices attached to the top section from the back required cleaning and surface rust removal. This

Figure 11 (above). Detail of the top-left corner of the frame after the restoration.
Figure 12 (below). The original plaque with the information on the painting after the restoration.

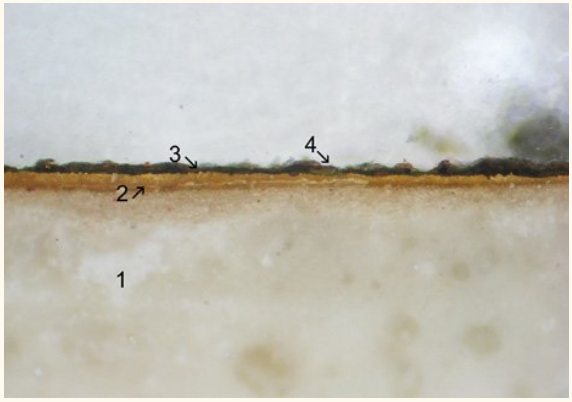
Figure 13. Frame with painting after the restoration.

was done using Biox Conservation Liquid and then polished with a grade four steel wool. Finally, the metal surface was brushed twice with 10% Paraloid B44 in acetone.

The removal of the non-original protein based glaze from the water gilded surfaces was achieved using a solution of dichloromethane with ethyl formate and formic acid in ratio 1:1:0.5. In some difficult areas mechanical removal was the only option. Removal of glaze by scraping with a scalpel blade was laborious. The surface dirt from the oil gilded areas was removed with 5% triammonium citrate in distilled water.

The wood repairs were made with the two-part epoxy resin system Araldite AV 1253 with hardener HV 1253. Broken and loose fragments of the carved decoration were joined together using Araldite AW 106 with Hardener HV 953U. Missing details of the ornaments were replicated by wood-carving and making moulds from the existing elements with Steramould Moulding Compound, non-viscous and quick setting, silicone moulding product. Araldite 1253 epoxy paste was cast into the moulds to produce replacement parts. The new carved elements and Araldite fills were given five coats of traditional gesso and were smoothed in preparation for gilding.

Losses of the original gesso layer were degreased with acetone and then brushed with 4% hot rabbit glue to improve adhesion to the new fills. Next, they were refilled with an appropriate traditional type gesso made of chalk and rabbit glue in a 10% ratio.



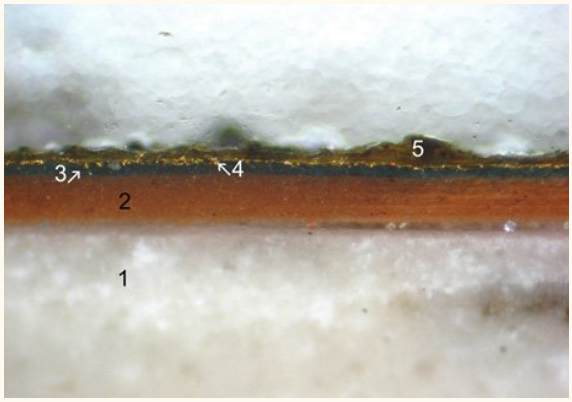


Figure 14 (above). Cross-section of gilded decoration from the frame finish photographed in reflected light (magnification 100x). This sample was taken from the torus decoration. 1-gesso; 2-yellow bole; 3-gold particles; 4-dirt layer.

Figure 15 (below). Cross-section of gilded decoration from the frame finish photographed in reflected light (magnification 100x). This sample was taken from the astragal. 1-gesso; 2-red bole; 3-blue bole; 4-gold particles; 5-dirt.

In the next stage the original water gilded surfaces were re-polished with an agate stone. A new bole, similar to the original, mixed with 7% rabbit glue, was applied on all fills and areas of badly worn original gold with bole. Next, gold leafs were applied using the water gilding technique. Finally the surfaces were burnished with the agate stone to a glistering lustre and then toned in order to match the original gold on the most representative areas of the decorative finish. Very fine linen cloth, bristle brushes and fibre glass sticks of varying thickness were used to achieve the desired effect.

The areas for oil matte gilding were brushed with one coat of yellow acrylic paint and then insulated by application of 10% bleached shellac to limit the absorbency. Then, a mixtion was brushed on and new gold leafs applied. Finally all new matte oil gilding surfaces were toned in order to match the original gold.

The conservation of the plaque was technically similar to the treatments on the frame. After surface dirt removal, the flaking gesso was stabilised with 4% solution of hot rabbit skin glue. Losses of the original gesso surface were refilled with a new gesso made of chalk and rabbit glue in a 10% ratio, and then all fills were prepared by application of a new red bole in 7% rabbit glue. Next, the prepared surfaces were gilded in water gilding technique. Finally, the gilded surfaces were polished with an agate stone and toned. The lettering was reconstructed with ivory black oil paint.

The ornamental decoration and plaque were reinstalled after the treatments on the frame sections using brass oval head screws. The frame sections with decoration were reassembled in the museum's gallery where the original painting was finally framed.

Conclusions

The work on the frame was very challenging due to the large scale and conservation issues. The fact that the frame was intended to be displayed in the most representative space put an extra pressure on the conservator. The frame represented many of the restoration problems typical of gilded objects. The technical macro and micro examination of the frame gave an insight into the technique of the framer and helped to design the proper treatments. The successful cleaning, the

reconstruction of the ornaments and further comprehensive gilding processes have re-established the missing coherence of the frame.

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DAMIAN LIZUN
Conservator-restorer
Contact: d.lizun@fineartconservation.ie

Damian Lizun received MA in Conservation and Restoration of Paintings and Polychrome Sculpture from Nicholas Copernicus University, Torun, Poland in 2001. Over ten years he has worked on the conservation of easel paintings, frames and polychrome sculpture both from private and public collections in Poland and Ireland.

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All correspondence to:
general@e-conservationline.com