6. The conservation of a reverse painting on glass depicting Charles Stewart Parnell

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Abstract

This paper presents the conservation issues that concern the glass reverse painting 'Charles Stewart Parnell' by an anonymous painter, executed in the late nineteenth or early twentieth century. The paper will outline the technique, condition and complex conservation treatment of the object. The painting before conservation was in a poor state of preservation owing to material degradation and previous unprofessional attempts at restoration. The glass support was broken in three parts. The paint layer was severely delaminated. Poor repairs and damages were visually disturbing the painted scene. It was essential to carry out a technical examination and detailed condition assessment in order to consider different conservation approaches. The conservation process involved treatment both of the glass support and of the painting layer. A critical issue was edge-gluing treatment and reintegration of the painting layer.

Introduction

A glass reverse-painted portrait of Charles Stewart Parnell is part of the South Tipperary County Museum collection.[1] This late nineteenth- or early twentieth-century painting was executed by an anonymous artist and was in a poor state of preservation. A conservation treatment grant, approved by the Heritage Council under the 2008 Museums and Archives Scheme, made it possible to exhibit the painting executed in this very rare technique.[2]

Condition

The glass support was broken in three parts. The glass edges alongside the cracks had many tiny chips. Previous attempts at restoration of the painting, which have proved unsatisfactory, resulted in further damage. The reverse of the broken glass support was reinforced by means of thick cardboard that had been attached with a heavy application of synthetic glue. This treatment resulted in greater adhesion between glue and original paint than between the paint and the glass. In effect, there were broad areas where the paint layer was completely detached. The largest area of separation of paint from the glass was on the black jacket in two flakes. The next largest was on the brown background near the right side of the neck. Another type of damage was paint delamination in the form of tiny flakes of various sizes. They were observed on the black jacket, brown background and alongside the glass cracks. Generally, when viewed from the front, the paint delamination appeared as patches of greyish, less saturated areas of paint, visually disturbing the painted scene. Paint delamination represents the most typical disfigurement occurring on glass reverse paintings. In general such degradation of the paint layer is caused by internal and/or external factors such as composition of the transparent priming coat and paint, their drying mechanism, painting technique or environmental instability.[3] The whole surface of the paint layer had scratches situated mostly around the edges, caused by nails supporting the glass in the frame.

Fig. 1—Charles Stewart Parnell. A glass reverse painting with frame, before conservation. The glass panel was broken in three parts.

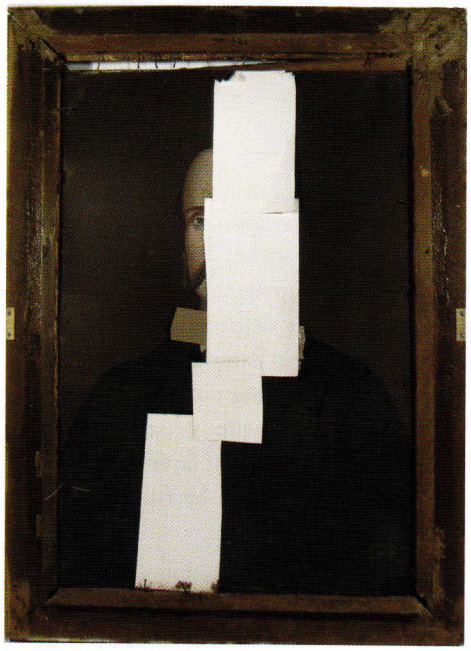

Fig. 2—The back of the painting before conservation. Cardboard and synthetic adhesive were used to reinforce the broken glass panel during amateur repair.

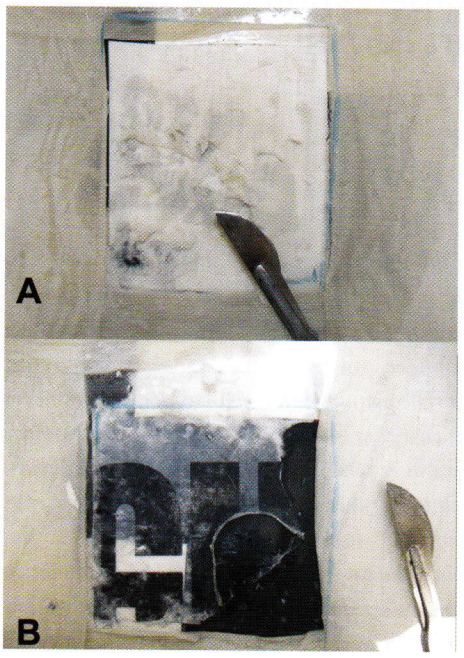

Fig. 3—Removal of the backing paper and adhesive using the 'water method'. A working area was surrounded with blotting paper to avoid surface water penetration of the painting. Then the painting was covered with a polyester sheet with a cut window (A). The adhesive layer on the painting was softened with steam and carefully rolled off (B).

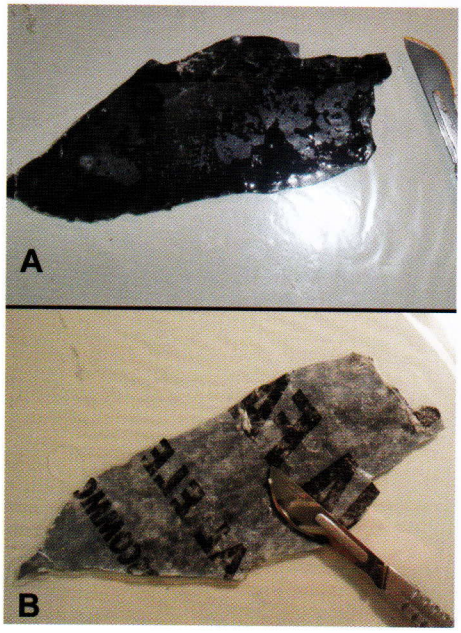

Fig. 4—One of the large flakes after detachment. The front of the paint is penetrated by the adhesive, causing changes of colour and colour saturation (A). The back of the flake is completely covered with adhesive and residues of the paper fibres (B).

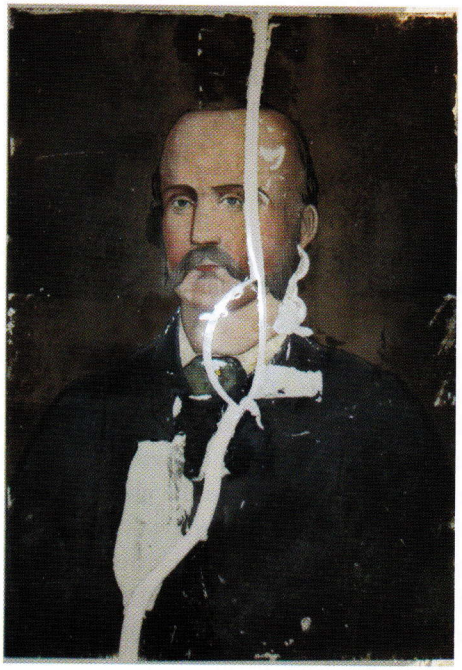

Fig. 5—The back of the painting after paper and adhesive removal. The three pieces of broken glass were separated. Loose, large flakes of delaminated paint were safely detached.

Materials and technique

Reverse painting on glass is a technique involving paint application directly on the reverse of a piece of glass so that the image can be viewed through the glass. The brilliant saturation of the colours that can be achieved in this way is a feature that also attracted many amateur painters to the technique. Unlike other types of support, glass performs two functions. It simultaneously provides a substrate for paint and becomes its protective layer. Reverse-painted glass is intended to be viewed in reflected light.

The dimensions of the glass support are 60.5cm by 41cm by 1.72–1.86mm thick. A visual examination could not establish whether a preparatory coating had been applied to the glass surface prior to painting, nor was it possible to determine any coats between the paint and glass from the flakes available. The working method for many northern European glass-painters was first to brush the glass with a transparent coating of nut or linseed oil, let this dry in the sun and then paint.[4] Other primers in recorded use have included spike oil, glair, gelatine and a range of natural resin varnishes.[5] More often, paintings were created by painting directly onto a clean sheet of glass.

A visual examination of the front of the painting revealed a basic preparatory drawing on the reverse of the glass panel, outlining the areas of anatomical details and executed in a small brush and brown paint. The shape of the suit with its folds and buttons was outlined with bold, fluent and wide lines executed in dark brown paint. Once the design was finished, the painting had to be built up in reverse order, starting with the details and foreground and working 'backwards'. This technique makes corrections virtually impossible. Any alterations would not be possible without destroying the overlying layers. The 'final' touches have to be correct as they are put in place first.

The technical literature on reverse paintings on glass mentions a wide variety of possible binding agents, such as drying oils, natural resins, gums[6] or animal glues, egg and casein.[7] Micro-chemical analysis[8] of a small paint flake taken from the edge of the brown background revealed that oil was the binding medium. Colour by colour, the artist filled in the drawn composition with oil paint. His palette of colours was very simple. The colour of the face is a mixture of lead white, ochre and an unidentified red, where white prevails. The lips contain red with lead white. The hair, moustache and beard contain ochre and vine black with some red particles. The white collar is dominated by lead white. The black suit was painted with vine black. In the brown background the presence of ochre, vine black and red particles was observed. The thickness of the paint layer is varied but in most instances the paint was applied thinly.

Treatment decisions

The conservation process had to involve treatment of both the glass support and the paint layer. The most challenging treatment decision related to the paint layer. In many cases in the area of previous restoration, the adhesive penetrated the large paint flakes through the pores and partially laminated them from both sides, so that the front of the flakes had different colour saturation. Three differing approaches presented themselves:

- Physical or chemical separation of adhesive from the large paint flakes. This treatment failed because the methods were not safe for the paint flakes. Solvents like acetone, toluene, xylene, ethanol and their molecular solvent groups were dangerous to the very delicate paint layer. The treatment could not be fully controlled.
- Preserving by reattaching the large paint flakes to the glass. The adhesive layer on the back of the large flakes would remain after careful removal of the residues of the paper fibres. The question here was whether the final appearance of the reattached paint layer would be aesthetically coherent with surrounding areas of paint. The appropriate tests were carried out with two flakes. The tests were not satisfactory, as the colour of the paint after reattachment was different in tone and saturation owing to the presence of an adhesive on their front, which disrupted the visual effect of the painting.
- A compromise position that would retain as much of the existing large paint flakes as possible without disrupting the visual appearance of the surrounding paint. Defective areas of the paint layer would be retouched. Removed fragments could be archived and preserved.

After examination of the object and the testing of presented solutions, the third option was selected.

Conservation treatment

The painting was securely taken off the frame and surface dust was brushed away. Then tests were carried out to identify the type of glue used to reinforce the broken glass support. The glue was sensitive to organic solvents like acetone and toluene, and also turned out to be flexible when hot water was applied. The organic solvents, which were tested, were very effective in dissolving the glue but had a major disadvantage. The glue became very sticky and thus difficult to remove. It could also have started to penetrate into the paint layer. The paint layer was not chemically inert to the solvents. Finally, the 'water method' was chosen to remove the backing with adhesive, using a hot steam generator. This method guaranteed a fully controlled, gradual application of hot steam to soften the cardboard and then the adhesive from most of the areas. The

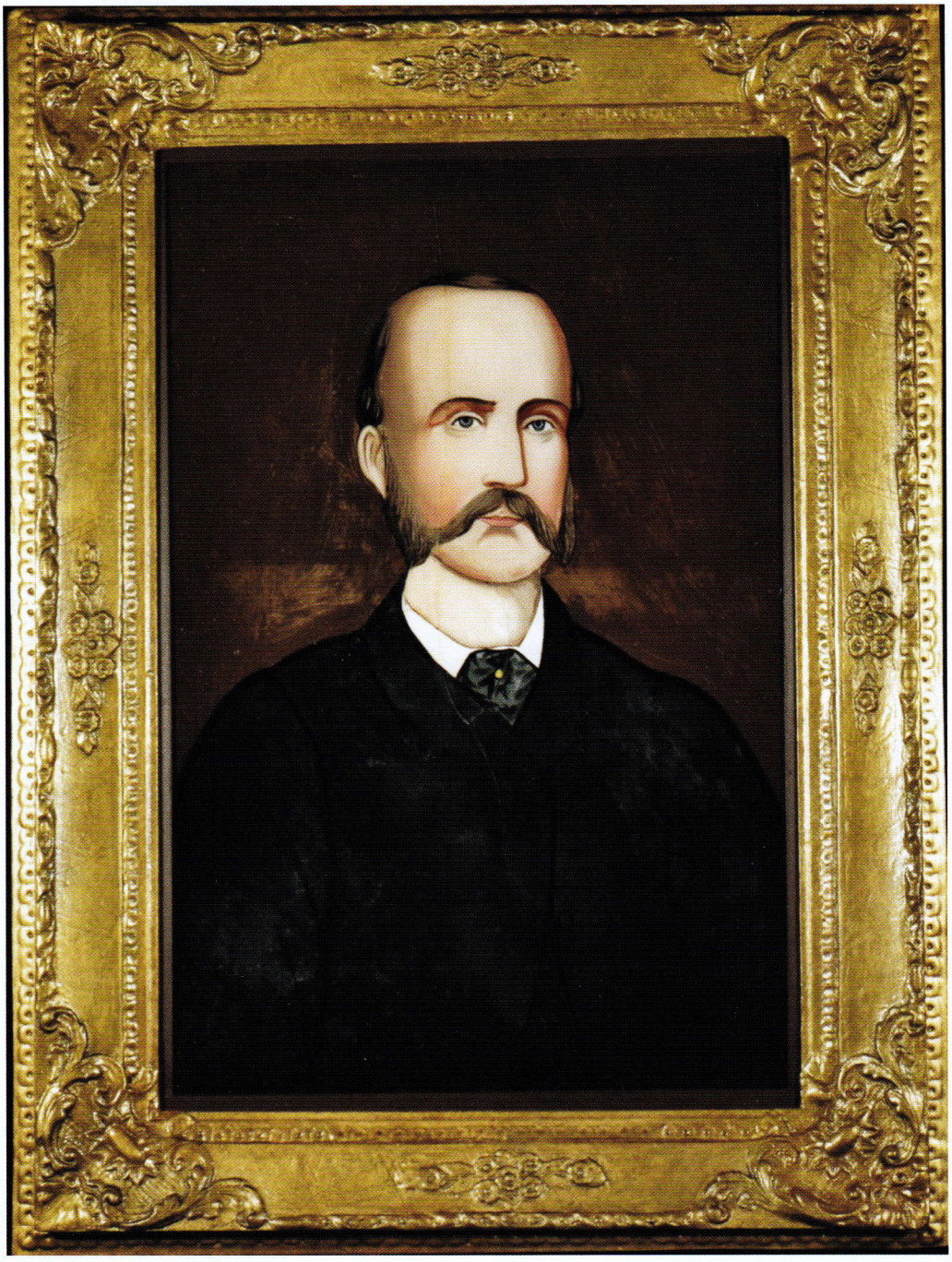

Fig. 6—The painting and frame after conservation.

moistened cardboard was gradually removed mechanically with a scalpel blade. Then some loose, fully delaminated large flakes of paint with adhesive on the back were released and carefully removed for further research and treatment. In the following stage, the adhesive layer on the painting was softened with hot steam and carefully rolled off. This could not have been applied to the already detached large flakes with adhesive on their back.

The following stage was the consolidation of the flaking paint. The appropriate tests were carried out on inconspicuous areas using water-based consolidants like Moviol 10%, and 10% and 20% Aquazol 200 and 500. Some tests were also carried out with 10% Paraloid B 72 in xylene and acetone but turned out not to be satisfactory because of high sensitivity of the paint layer to solvents during reactivation of the bond. A low-viscosity resin, 10% Aquazol 500 in distilled water, was chosen because of its wide-ranging solubility, good optical properties and glass-like refractive index of 1.520.[9] The resin was applied using a small brush. Then, with a small dentist's tool, it was possible to press a paint flake back onto the glass. The consolidant was used selectively only in those areas where there was obvious cracking and flaking.

In the next stage, surface dirt from the paint layer was removed using 3% tri-ammonium citrate. After cleaning, the glass repairs were carried out. All the glass edges were cleaned by scraping off any residual dirt and adhesive, and then were degreased with acetone. The edges were glued using the two-part low-viscosity epoxy resin Hxtal NYL-1,[10] which has a very similar refractive index (R.I. 1.5201) to the glass (1.520). First, the smallest piece of glass was joined to the left half of the painting. Then, when the joint cured, the two biggest halves of the painting were joined together and left under the even pressure of a glass slab for 48 hours. Then the joint was cleaned up, using a scalpel blade to scrape off the excess resin, and then polished with Greygate perspex polish paste. Gluing the edges did not produce a completely invisible line. The break in the bottom section in the area of the black suit is readily visible because the front side of the glass edges alongside the cracks have many tiny chips. The upper section of the repair is almost invisible.

In the next stage, suitable treatments were carried out to address the problem of the detached large flakes. After macroscopic examination only one large flake was chosen for reattachment. The reattachment was carried out using 10% Aquazol 500 in distilled water. A serious concern was retouching the missing areas of paint. Retouching the paint layer on glass is a very difficult task because the thickness and slight coloration of the glass itself can alter applied colours when viewed through it. Sandra Davison presented a review of some alternatives for standard retouching techniques, such as painting on acid-free paper or on Melinex sheet, which are then placed behind the original.[11] Standard retouching with different paint systems like acrylic colours, watercolours, dry pigments bound in Paraloid B 72 or other resins are also popular and depend on individual choice. In the case of this painting, most of the defective areas were retouched using Winsor and Newton acrylic retouching colours. Dry pigments bound in Paraloid B 72 were chosen for the areas of high paint saturation, i.e. folds and buttons outlined with black and wide lines. The process of retouching from the reverse was very difficult technically. Colours were applied after mixing on a small sheet of glass sample. Then, after drying, the sample was turned over in order to check the colour tone and compare to the original. If the colour was correct it was used for matching the original. No varnish nor any protective layer was applied directly on the retouched areas or the original, which makes removal possible without disturbing the surrounding layers. Finally, a set of coloured pieces of cardboard was placed behind the glass to saturate the retouchings and unify the overall visual effect. The boards were separated from the painting by means of a Hostaphan Foil RN 15µm thick.

The original frame belonging to the painting was padded with archival polyethylene foam so that the glass would fit more snugly into its frame. In the end a corrugated plastic sheet was inserted behind the backboard.

The surface of the painting was re-examined two years after the treatment had been completed. No change was apparent. The object is now stable and can be handled safely.

Materials and suppliers

- Solvents (turpentine, white spirit, IMS, toluene, xylene, acetone): VWR International, Ireland.
- Tri-ammonium citrate: VWR International, Ireland.
- Hxtal NYL-1: Conservation Resources, UK.
- Greygate™ perspex polish paste: Conservation Resources, UK.
- Moviol: Kremer Pigmente, Germany.
- Aquazol 500/Aquazol 200: Kremer Pigmente, Germany.
- Paraloid B 72: Kremer Pigmente, Germany.
- Hostaphan® Foil RN 15µm: Preservation Equipment, UK.
- Polypropylene corrugated plastic sheet, 5mm: Preservation Equipment, UK.
- Winsor and Newton™ acrylic colours: Art Materials Company, Ireland.
- Kremer™ retouching colours in Paraloid B 72™: Kremer Pigmente™, Germany.

Notes

1. Inventory number: 1987.421.
2. Conservation treatments were carried out by the author in South Tipperary County Museum Conservation Laboratory from January to November 2008.
3. S. Davison, *Conservation and restoration of glass* (Oxford, 2003), 339–41.
4. N. Caldararo, 'Conservation treatments of paintings on ceramic and glass: two case studies', *Studies in Conservation* **42** (1997), 158.
5. M. Blewett, 'The materials and techniques of twentieth-century reverse-painted glass panels: an investigation of William Nicholson's Knoblock commission', *The Conservator* **28** (2004), 13–14.
6. S. Bretz, U. Baumer, H. Stege, J. von Miller and D. von Kerssenbrock-Krosigk, 'A German house altar from the sixteenth century. Conservation and research of reverse paintings on glass', *Studies in Conservation* **53** (2008), 213.
7. Blewett, *op. cit.*, 17.
8. Five very small samples of the paint layer were taken from the painting for pigment and binding medium identification. Micro-chemical analyses were carried out in line with the identification key in P. Rudniewski, *Pigmenty i ich identyfikacja* (Warszawa, 1995). Light microscopy was carried out using an Optika Microscope B-253.
9. F. Jordan, 'Reverse painting on glass in the British Galleries', *V&A Conservation Journal Online* **39** (2001), http://www.vam.ac.uk/res_cons/conservation/journal/number_39/reverse/index.html (accessed October 2007).
10. More information on glass repair systems was found in Davison, *Conservation and restoration of glass*, 208–20; D. Tremain, 'Reverse-glass prints: their history, technique, and conservation', in H.D. Burgess (ed.), *Conservation of historic and artistic works on paper: proceedings of a conference, Ottawa, Canada, 3–7 October 1998* (Ottawa, 1994), 149–50.
11. Davison, *Conservation and restoration of glass*, 343–4.