

DEEDS OF A CAST

INVESTIGATION AND CONSERVATION TECHNIQUES DEMONSTRATED IN THE PLASTER CAST DEAD CHRIST

AN EXHIBITION BY THE EDINBURGH CAST COLLECTION

WITH THE FILM:

'CONSERVING THE EDINBURGH COLLEGE OF ART CAST COLLECTION'

31 JANUARY - 6 FEBRUARY 2011 AND 22-27 MARCH 2011

EDINBURGH COLLEGE OF ART
SCULPTURE COURT UPPER GALLERY

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PLASTER CAST OF THE DEAD CHRIST (1831) FROM MICHELANGELO'S PIETÀ (1499), BEFORE CONSERVATION

Inspection of the plaster cast of the *Dead Christ* before conservation revealed layers of over-paint, surface dirt, dirty drips, paint splashes (1) and thick coats of discoloured old wax covered the cast. Furthermore, there were numerous cracks and breaks on the cast, exposing the raw plaster, the most notable of which were found on Christ's chest, neck and left leg (2, 3). Three significant missing elements – the nose, the little finger on the right hand, and some drapery over the head – and a number of unsightly previous repairs – namely, the big toe and the calf on the left leg – completed the damage done to the cast.

In addition to this surface damage, the structural integrity of the cast had been compromised (4). The original wooden armature supporting the cast was loose and some of the batons were broken. There were also ferrous metal straps which had corroded and were no longer supporting the structure of the vulnerable plaster cast.



X-ray photograph of the left foot

ANALYSIS

A number of tests and analyses were carried out to better guide the conservators in deciding the most suitable treatments for the cast. One such test involved the surface coating of the cast: paint samples were sent to the University of Northumberland for surface coating analysis. The results showed that the cast had been painted many times. In fact, this result agrees with a document from the 1990s, which states that a number of casts, including the *Dead Christ*, were repainted with cream-coloured paint, with a further application of pigmented paraffin wax. Therefore we can say with absolute certainty that the painted surface seen today is not original. It was decided not to attempt to remove the paint layers in order to conserve its historical integrity.

The cast was transported to a veterinary surgery for x-rays. The x-ray photographs allowed us to see that there was an internal metal armature (in addition to nails, screws, etc.) supporting more recent repairs.



Surface cleaning with vulcanised rubber sponges

DRY CLEANING

Photographic documentation of the cast was carried out before any work actually began, and this record was maintained throughout the entire project. The first physical step to cleaning the cast was dry cleaning; this was the primary method used, in order to lessen the amount of loose surface dirt on the cast. Conservation-grade cleaning materials were utilized, after which the surface was further cleaned by means of brushing and vacuuming. During vacuuming, the end of the hose was connected to a rubber nozzle attachment, which was in turn covered with muslin to prevent any loose fragments of plaster from being lost. Through this dry cleaning process, the conservators gained a fuller understanding of the condition of the surface; and the most vulnerable areas, for instance, those with cracks or flaking paint, were highlighted.



Half-way through surface cleaning

WET CLEANING

Following the dry cleaning process, discreet wet cleaning tests were carried out to determine which liquid substances would be most suitable for cleaning the painted surface. The pigmented wax coating, which we believed to have been applied in the 1990s, was removed. Surface coating analyses carried out on other casts treated with a similar finish to that of the *Dead Christ* cast also showed traces of paraffin wax. Paraffin wax, like other thick, old-fashioned wax coatings, are known to be susceptible to accumulating dirt over time, and, if applied thickly, fine cracks and damaged areas on casts can be obscured. A variety of different materials, cotton wool swabs and including soft toothbrushes, were used to carefully clean the painted surface.



Larger cracks being filled in with hollow glass microspheres in acrylic resin

REPAIRS TO AREAS OF LOSS AND CRACKS

The next step was to repair and fill in cracks and areas of loss. Prior to this, areas of unpainted plaster were isolated with a solution of acrylic resin. Cracks and areas of loss in the plaster were filled with an easily reversible solution of acrylic resin mixed with hollow glass microspheres. Larger areas of loss, such as the drapery above the head of Christ, and those areas which required additional structural support were filled with inert filler and reinforced, where necessary, with stainless steel dowels. These were held in place with polyester resin. The fills were carefully sanded and textured to match the original surface, before being toned out with paints to blend in with the surrounding painted surface.



Peeling off the latex solution from the raw plaster surface

CONSERVATION TO THE REAR OF THE CAST

The *Dead Christ* cast is particularly interesting and unique, since the back of the cast is open and its armature structure is visible. This gives us a rare insight into the manufacture of the cast. There are both metal and wooden supports inside the cast, and each material had suffered in different ways. All the wooden batons were loose, and a number of them were broken. The ferrous metal straps and rods were badly corroded, and there was rust staining to the adjacent plaster. The broken wooden batons were repaired with an appropriate adhesive, and the loose batons were held securely in place by means of inert filler. The ferrous metal elements were treated with a corrosion inhibitor and isolated with a solution of acrylic resin. The inert filler and the unsightly rust staining visible on the plaster were toned out with paints to blend in with the surrounding patina.

The reverse side of the cast was cleaned using a solution containing latex, which is designed to remove dirt from the surface of unpainted plaster. This specially formulated conservation material lifts the dirt from the plaster without leaching in and staining the unpainted plaster surface.



Removal of the cast together with the attached wooden lid of the plinth

REMOVAL OF PLASTER CAST FROM THE OLD PLINTH

One of the old casters on the plinth of the *Dead Christ* cast had broken off. This made the plinth unstable and difficult to move. It was necessary to lift the fragile plaster cast off its plinth to make the repair. In order to do so without damage, since the cast had been built into the plinth, the top of the plinth was carefully cut around the base of the sculpture. This not only revealed the structure of the plinth, but that the cast was actually attached to a wooden board. The removal of the cast from the old plinth involved manoeuvring an A-frame aluminium gantry with block and tackle into position over the sculpture and securing slings around the fragile cast with polyethylene foam, which is a shock-absorbent and vibration dampening material. This ensured the sculpture was safely supported during the removal, as well as the installation onto a newly built replica plinth.



1



2



3

REPLICA PLINTH

Among the plinths of the casts in the collection, the original plinth of the *Dead Christ* constituted a notable exception. While its structural and technical details, e.g. the corner joints, the fasteners and the choice of timber, proved its kinship with the remaining plinths, the *Dead Christ* base was distinctively different, not only in its proportions, but also its castors arrangement and the shape of the lid. The cast was not sitting on its plinth, but it was lowered into the shaft, a detail that *Dead Christ* shared with the *Dying Gaul*. Their lids thus framed both sculptures – a technical solution not encountered at any of the other plinths. Tailoring the lid around the curved body of the cast was a complex process that started with the making of cardboard-templates (1, 2). The lid, consisting of solid timber in a thickness of 10 mm, was subsequently pre-fabricated in the workshop before it could finally be assembled around the cast (3). This process had taken place *in situ* as the geometry of the cast made it impossible to install the lid in one single piece, requiring assemblage of individual units which received their final finish on site.



Lifting of the cast with a gantry

INSTALLATION OF THE CAST ON THE NEW PLINTH

In order to minimise the potential for future damage caused by vibrations whenever the cast is moved, a cushioning layer of polyethylene foam was placed between the new plinth and the wooden base of the cast. Vulnerable parts of the cast were also reinforced during this stage. For instance, the projecting leg of Christ, which had been damaged several times during the history of the cast, had previously been supported by a metal rod inserted into the foot and up into the leg of Christ. The rod had become loose, and was no longer functioning as a support. To address this problem and prevent any future damage, it was necessary to manufacture a bespoke two-part metal attachment to firmly connect the metal supporting rod to the plinth and to hold the leg securely in place.



Mould of the nose used for its restoration

REMOVAL AND REPLACEMENT OF MISSING ELEMENTS

X-ray photographs of the cast proved that the rather crudely remodelled big toe on Christ's projecting foot was a modern repair. A number of modern screws and nails that had been used to form an armature to support the repaired toe were visible in the x-ray photos. Furthermore, photographs of the original marble sculpture of Michelangelo's *Pietà* (located in the church of St. Peter's in Rome) showed that the remodelled toe was a completely different shape than the original. In order to improve the visual appearance of the sculpture, a decision was made to remove and replace the toe. This was also an opportunity to reinstate other missing elements, such as the nose and the little finger of the right hand. After some research, another *Dead Christ* plaster cast was located in the Royal Academy in London but unfortunately the little finger is also missing from the London cast, and we are still searching for a cast that can provide a replacement. We requested that moulds were taken from the Royal Academy copy of the *Dead Christ* to enable us to cast and reinstate the missing elements. Plaster was poured into the silicone rubber mould, and the newly cast elements were installed in place with a reversible adhesive. The new elements were subsequently toned out with paints to match the surrounding painted surface.



Application of pigmented wax

FINAL PATINATION

Having painted the fills and the newly cast elements to match the cream-coloured painted surface of the *Dead Christ*, a decision was made to apply a pigmented wax coating to the cast. Unlike their predecessors, modern waxes remain stable during fluctuations in temperature; therefore, they are unlikely to attract and trap dirt at the same rate as the previous wax coatings on the cast. A modern, more stable, cosmolloid wax was mixed with natural pigments and applied thinly to the painted surface.

ACKNOWLEDGEMENTS

Edinburgh Cast Collection: Ruxandra-Iulia Stoica (Project Co-ordinator), Margaret Stewart (Cast Curator), Bill Hare (Exhibition Curator), Alexia Margariti (MSc Intern)

Graciela Ainsworth Sculpture Conservation: Graciela Ainsworth (Senior Conservator), Iain Fox (Financial and Team Manager), Sylwia Mosko (Team Leader), Mairi Harland, Sophie Woerhling, Will Collier, Eric Waanders, Sergio Merida, Jonathan Leburn, Csilla Karsay, Yvonne Mc Clement, Jonathan Kemp

Non-invasive investigations: Dr Brian Singer, Northumbria University (Surface Coating Analysis), Pdraig Egan, Links Services (Digital X-Ray Analysis), Bill Revie, CMC (Mortar Analysis and Thermography)

Plinths Conservation: Thorsten Hanke

Thanks to all Edinburgh Decorative and Fine Arts Society volunteers, alumni, students and other volunteers throughout the project.

Documentary film: Daniel Warren (Filmmaker), Shu Lorimer and Sarah Scott (Cinematography)

Photography: John McGregor (ECA Photographer), Claudine Quinn, Graciela Ainsworth Sculpture Conservation, Thorsten Hanke

Funded by the Heritage Lottery Fund, Esmée Fairbairn Foundation and Carnegie Trust for the Universities of Scotland