

6.14 SMUGGLERIOUS



Cast before conservation – front



Cast after conservation - front



Cast before conservation – back



Cast after conservation - back

6.14.1 DESCRIPTION OF THE OBJECT

TITLE: Smugglerius

NUMBER(S): 109, 071

TYPE OF OBJECT: Plaster cast sculpture with internal wooden/ metal structure.

MAKER: W. Pink

SIGNATURE/INSCRIPTION: 'Published by W. Pink, Moulder 1854' on base to the rear of the sculpture.

DATE: 1854

OWNER/LOCATION: Edinburgh College of Art, Lauriston Place, Edinburgh, EH3 9DF.

DIMENSIONS/WEIGHT (APPROX): H: 690mm L: 1570mm W: 655mm

Weight (approx):

6.14.2 BRIEF CONDITION REPORT BEFORE CONSERVATION

STRUCTURAL STABILITY: Poor. The head is loose with a large open fracture around the neck and cracked skull.

SURFACE DUST AND DIRT: Severe, 100% coverage.

VISIBLE PAINT LAYERS/UNSIGHTLY MARKINGS: Surface patination in a dark brown-green colour; 20% paint splashes; chalk and paint graffiti.

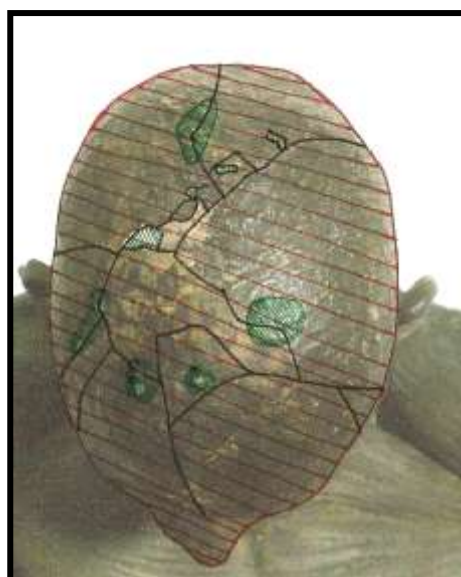
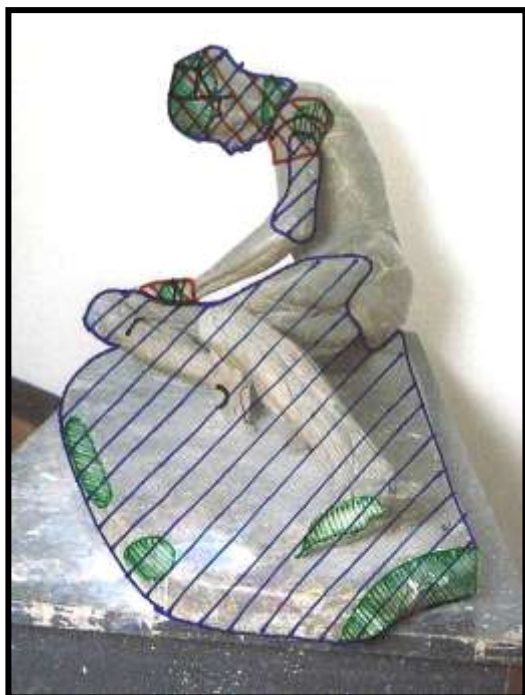
CHIPS AND LOSS: Old losses: forefinger and little finger of right hand; thumb, forefinger and middle finger of left hand; all toes in left foot; large chips to the base at the front and at sinister end; small losses alongside the cracks on left hand and arm.

New losses: around the cracks at the neck; on top of the head; to the base on the sinister end.

Loose fragments: alongside fractures around the neck and on top of the head.

ABRASIONS: Significant at right knee: 2-5% in total.

PREVIOUS REPAIRS: To the left hand and arm - visible fractures with unidentified adhesive inside; to the neck and head.



Cracks

Paint splashes

Chips, abrasions and missing surfaces

Areas of previous repairs

6.14.3 ORIGINAL MATERIALS AND TECHNIQUES

The object is a plaster cast possibly with a wooden and/or metal reinforcing structure inside. The surface of the sculpture is dark brown-green. To find out the stratigraphy, and to identify the materials of the polychromed layer, samples of the plaster with paint were taken from the cast and sent to the University of Northumbria for analysis.

**Investigation of coating samples from ECA Plaster cast Collection, Edinburgh;
Consultant: Brian W Singer.**

SMUGGLERIUS Cross-section



Photograph of the cross-section sample from cast of Smugglerius

The cross-section of the sample from Smugglerius showed at the top, as photographed, a pale orange/yellow layer on a darker orange/yellow layer. A thin dark layer, possibly of dirt separates this from a white layer and beneath this in the figure is a layer containing white pigments and coarse grains of materials including some orange materials. This layer fluoresced orange in UV light and it was suspected that shellac may be present.

GC-MS Analysis

A sample was scraped from sample 2 and was treated with trifluoromethylphenyl trimethyl ammonium hydroxide (5% in methanol) and the mixture was separated by GC-MS the chromatogram (Figure 3) which showed a strong peak for the methyl ester of nonandioic acid (azelic acid) with an azelate to palmitate ratio of 1.9 indicating a drying oil¹. The ratio of palmitic acid (hexadecanoic acid) to stearic acid (octadecanoic acid) (as their methyl esters) is 2.2, which is at the top end of the range for linseed oil¹. The azelate to suberate ratio is 3.9

and the azelate to sebacate ratio is 15.9, which together indicate that the oil has been heat bodied².

It was also possible to find indicative components for shellac by displaying single ion chromatographs (Figure 4). Mills and White report³ that shellac can be identified by characteristic, but unidentified compounds, showing a 276 ion and a 308 ion. Compounds containing a 155 ion are also abundant in shellac. Accordingly, sample 2 yielded a peak at 30.29 and small peaks at 31.31 and 31.37 minutes with a mass 276 ion (Figure 4) and also peaks at similar retention times with a mass 308 ion (Figure 10). These peaks were also identified at the same retention times and in similar ratio (within experimental error) in the 276 and 308 ion count of a reference sample of Shellac. There are also abundant peaks with a 155 ion count in sample 2 (Figure 4) at similar retention times to our reference sample of shellac. The mass spectrum of the peak at 30.29 minutes (Figure 4 bottom) is identical to that of the main component in our reference sample of shellac.

Thus sample 2 contains shellac, as well as paint layers containing heat bodied linseed oil.

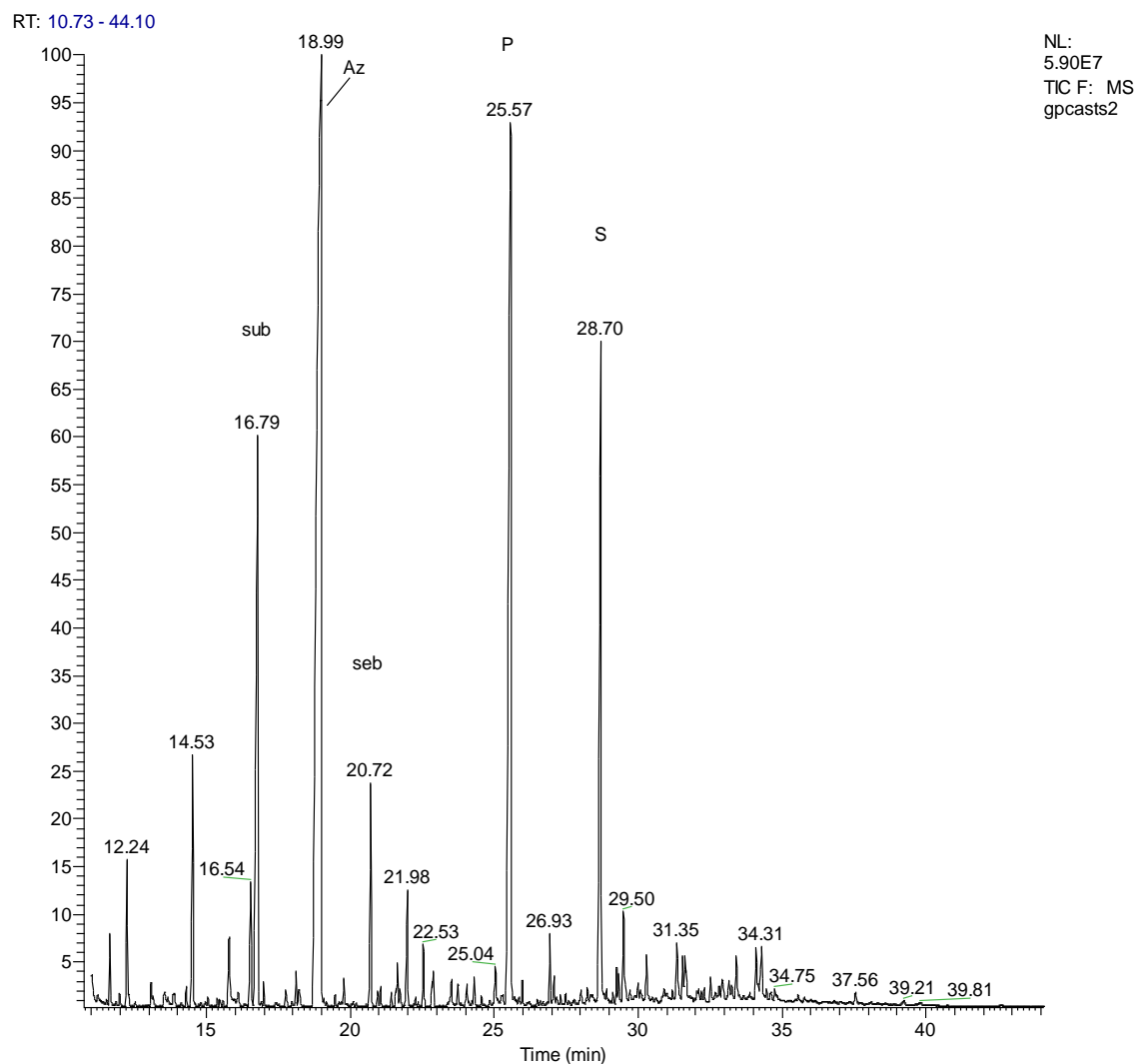


Figure 3: Oil / resin analysis ECA Sample 2, Seb= dimethyl sebacate, Az = dimethyl azelate, Sub = dimethyl suberate, P = methyl palmitate, S = methyl stearate, C27 = nonacosane, T= methyl tetracosanoate

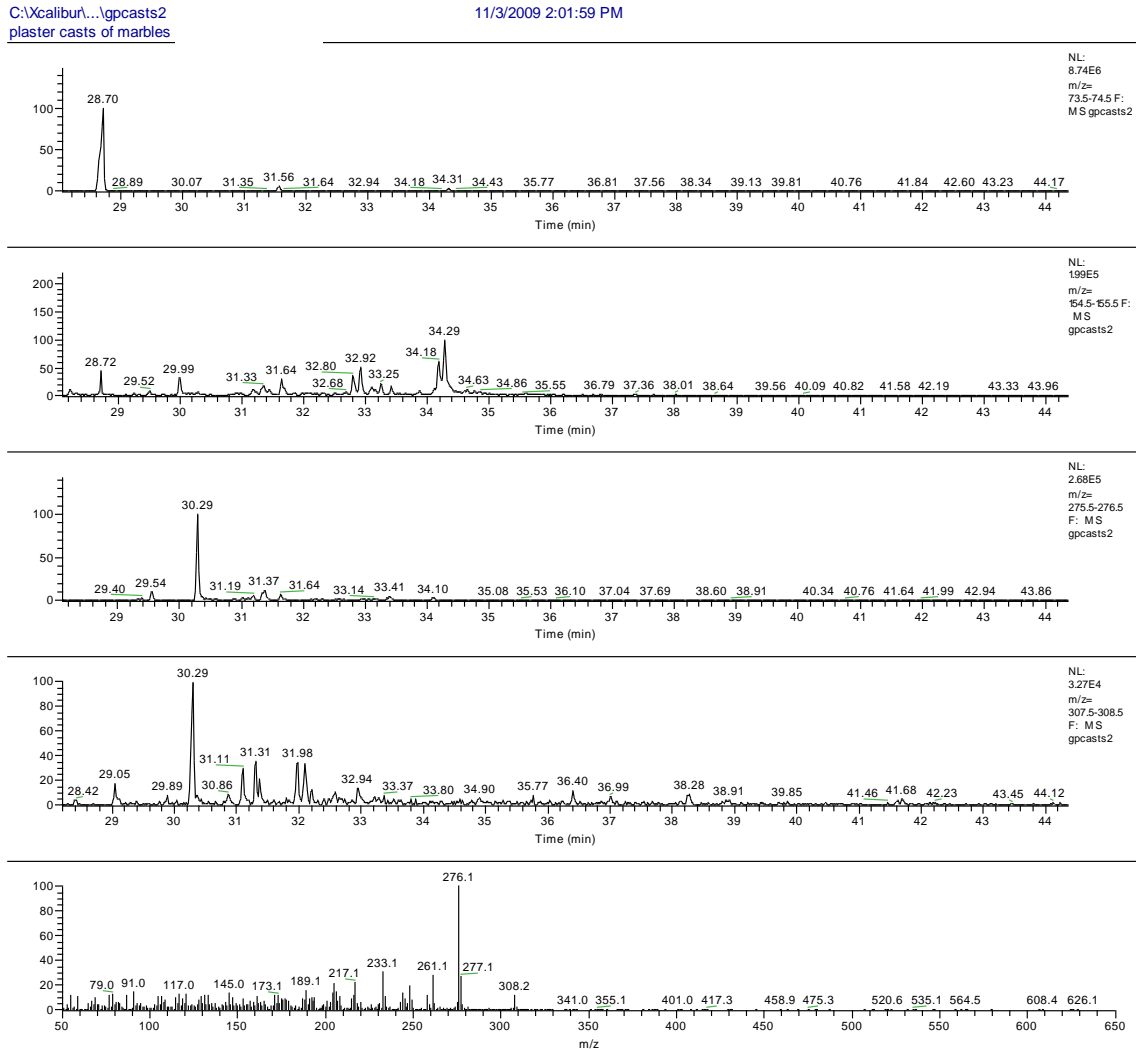


Figure 4 Single ion chromatographs from sample 2 and mass spectrum of the peak at 30.29 minutes, a recognisable component of shellac³.

6.14.4 TREATMENT REPORT

- Prior to any conservation treatment the cast was photographed. This photographic documentation was continued throughout all conservation processes.
- Initially, the cast was dry cleaned with soft brushes and Wishab Sponges with a rubber-nozzled vacuum to pick up loose dust and dirt.
- In order to re-establish the structural integrity of the piece, the loose head required removing from the main body of the cast. The removal of the head gave us some clues towards determining the reasons behind the recent damage to the cast. There was evidence of previous repairs that were carried out using plaster which was poured inside the head. This made the head much heavier than it was originally, therefore any vibration or movement was always going to cause the neck to break.



Cast during removal of the head

- Following wet cleaning spot tests the surface of the cast was cleaned with 1-5% Vulpex Liquid Soap in de-ionised water, using cotton wool swabs.



Cast during wet cleaning

- All areas of raw plaster were given an application of 10% Paraloid B72 in acetone to provide an isolating layer between the original plaster and the repairs.
- In order to securely re-attach the head, the old repair required reversing. A ferrous metal dowel and the extra plaster from inside the skull were carefully removed using small drills and files, in order to reduce the weight of the head. A new, nylon dowel was then installed with polyester resin. All the pieces of the skull were re-adhered with HMG adhesive. All cracks and holes were then filled with white micro-balloons mixed with 12% Paraloid B72 in acetone.



Cast during repair work

- The large area of loss on the dexter side of the base was reinforced with small Perspex dowels secured with polyester resin and filled with a pigmented inert filler so as to differentiate it from the original plaster. A top layer of white micro-balloons with 12% Paraloid B72 in acetone was then applied.



Cast during fill repairs

- All areas of loss, open joints and cracks were filled with white micro-balloons with 12% Paraloid B72 in acetone.



Details during fill repairs

- All the fills were then toned out with acrylics, mixed with matting agent, to match the surrounding patina.



Cast during and after toning out

- Finally, the entire cast was given an application of micro-crystalline wax so as to protect the surface.
- After the conservation works, the cast was placed on a wooden board with a layer of Plastazote. The cast is slightly inset into the plinth, approximately 1 cm, and held in place with a protective layer of Plastazote in between the wood and plaster. The sculpture was then sited on an old plinth. The lid is designed to provide a grip when handling the cast and to avoid coming in to contact with cast itself. The wooden lid was made by another contractor.

6.14.5 MAINTENANCE PROGRAMME

CLEANING

The cleaning programme would involve the trained operatives, wearing the appropriate PPE, (nitrile gloves must be worn to protect the plaster as well as the operative) removing the loose dust using soft brushes and a vacuum cleaner with a rubber nozzle that would have muslin attached to its end. The muslin prevents any potential damage to the plaster from being lost in the vacuum cleaner. Any fragments that are dislodged, and their locations on the cast, should be documented and wrapped carefully in acid free tissue prior to being stored in a safe location. A trained conservator should be contacted immediately in order to repair the damage.

NB At no time should cleaning products or any liquid (including water) be used.

STORAGE AND DISPLAY RECOMMENDATIONS

1. The display of the piece should be given emphasis. For example, displayed pieces should have associated information by way of, say, a plaque that would indicate what the piece is and its history. “Do Not Touch” signs for the pieces on permanent display are recommended.
2. No repairs should be undertaken without a trained conservator in attendance
3. Literature about the collection should be made available to staff, students and visiting groups to develop a greater appreciation of the objects.
4. A complete catalogue of all the objects in the collection, and their locations, should be undertaken and, should any piece be moved the new location should be continuously monitored and noted.

5. Safe gaps between the pieces, and their plinths, and the swing doors should be maintained at all times.

HANDLING AND CARE RECOMMENDATIONS

Certain measures should be taken prior to and during the moving of these pieces:

1. It is recommended that all technicians and at least one member of the Curatorial/Archives Dept. should complete a course in sculpture handling. Any moving of sculpture should involve the attendance of at least one person who has attended such a course. The National Galleries of Scotland can supply the name of a recommended course.
2. A manual on the handling of sculpture should be made available to staff and students. ('The Care and Handling of Art Objects' by Shelley is recommended.)
3. Before handling an object it should be examined closely and any old repairs and structural weaknesses noted. Do not test or probe areas that appear weak. Never grasp projecting elements (arms, etc.) of the object as they will not support the weight.
4. Gloves should always be worn when handling or touching objects as acids and salts from perspiration can damage many materials especially plaster.
5. Report any damage to the object immediately and collect all fragments before leaving the area.
6. The object should be well protected with padding in the form of foam, Plastazote and bubble-wrap especially any fragile or projecting areas that are likely to catch on doorways etc.
7. Avoid haste and confusion while handling as this can result in injury to the handlers or damage to the object. The route to be taken, door sizes and the space for the object at the receiving end should be assessed before a move begins. Two people, at least, should be present throughout the move, one of them to open doors, steady the object where necessary and watch parts of it that the carrier cannot see.