

CONSERVATION OF PLASTER CASTS

The 2008 exhibition “Models of Beauty: Masterpieces in Plaster,” presented at the National Museum of Antiquities (RMO) in Leiden, the Netherlands, featured beautiful 17th- to 19th century plaster casts of some of the finest sculptures from the ancient world. Recently, there has been renewed interest in plaster-cast sculptures in museums and academic collections. This has prompted an expanded interest in issues related to the conservation of objects made from plaster. A large-scale restoration project was undertaken to stabilize the plaster casts, which had been damaged principally by improper handling and storage.

Plaster: conservation problems

Plaster is vulnerable to moisture, very porous, and sensitive to mechanical damage, dirt, and changes in humidity. Tensions within the plaster objects often cause large cracks and constructional problems. The original paint layers and finishes, which were applied to the casts to imitate the surface of the original marble or bronze sculptures, sometimes exfoliate, leading to large losses that affect the appearance of the sculptures.



Fig. 1. Plaster cast of the Borghese Warrior (I 1927/4.1) before restoration. Collection National Museum of Antiquities, Leiden (Photo: R. Dooijes)

Ethical questions and selection of restoration materials

In addition to stabilizing the casts, the restoration project was intended to make them legible for visitors to the exhibition. Large areas with missing paint or old restorations were retouched. Restoration materials were tested to assess their reversibility and their compatibility with plaster. Klucel G was used to consolidate the loose paint layers and to seal the missing areas. Modostuc proved to be the best material to fill in the losses in the paint layers.



Fig. 2. Plaster cast of the Borghese Warrior after restoration. Collection National Museum of Antiquities, Leiden (Photo: R. Dooijes)

A new research project

Despite the good results of the conservation project, the work carried out during the project also demonstrated the need for additional study. This sparked the initiation in early 2010 of a research project at the Netherlands Institute for Cultural Heritage (ICN), in association with the National Museum of Antiquities in Leiden and the Allard Pierson Museum of the University of Amsterdam. This project will test current and new conservation methods and issues concerning the valuation and future role of plaster-cast collections.

The following issues will be addressed:

- Characterisation of the material properties of the plaster casts
- Testing of cleaning and conservation methods
- The investigation of the possible use of protective coatings

First results

Twenty five objects in the collection of the RMO from different periods and provenance were selected to study their composition and the surface finishes. It is known that various additives were used in preparing the plaster to modify its properties. These might influence the effectiveness of conservation techniques. Inorganic additives like chalk or alum have not been found in the samples studied so far. The analysis of organic additives like glue is ongoing. In general, paint layers were applied directly onto the plaster, which in some cases appears to be impregnated with an organic primer. On one object a thick layer of gesso (glue and natural chalk) was applied before painting. This layer diminishes the porosity of the plaster but may also have been applied to smoothen the surface.

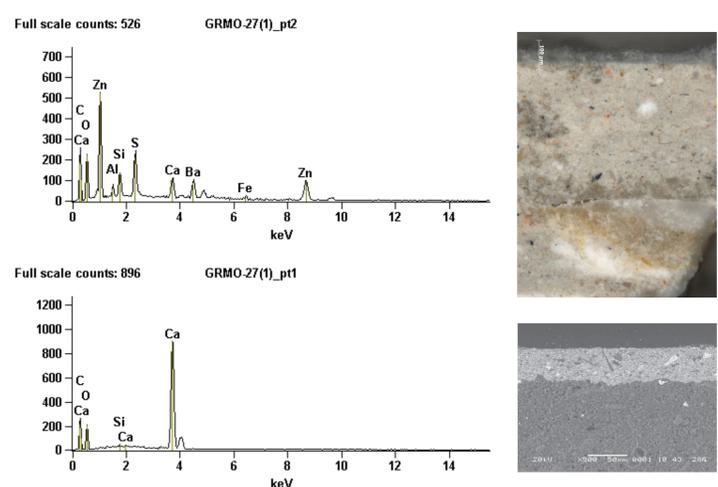


Fig. 3. Electron microphotographs and EDX spectra of the composition of the gesso and paint layer on a plaster copy from 1858 of an Assyrian relief

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