

Gilding Technique and Conservation of a Gilded Greco-Roman Cartonnage in Hurghada Museum

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Abstract

Hurghada museum includes a gilded cartonnage from Greco-roman period from Hawara, Fayoum governorate. This gilded cartonnage suffers from many deterioration phenomena, for example presence of cracks, micro cracks, completing of missing parts using wax as a previous conservation, and missing parts in the gilding layer. Examinations and Analysis were carried out by optical microscopy (LOM), Scanning Electron Microscopy (SEM) equipped with an energy dispersive X-ray detector (EDX), X-ray diffraction (XRD), and Fourier transform infrared spectrosopes (FTIR). EDX and XRD analysis show that the gilding layer is a gold leaf which includes gold as a principal component. It showed that the thickness of gold leaf is about 0.05 to 0.10 mm. The XRD analysis of the gilding layer sample showed that, it consists of gold, calcite and gypsum minerals. XRD analysis of the red - pink color revealed that it is red-lead Pb_3O_4 . (lead tetroxide), in addition of calcite and gypsum minerals. The analysis result of the brown color showed that it consists of hematite besides calcite and gypsum minerals. All samples included a ground layer of the cartonnage so that, calcite and gypsum minerals related to the Preparatory layer. FTIR results show that animal glue has been used as a pigment medium and a cohesion material for pigments and the gilding layer. The treatment and conservation plan of the gilded cartonnage includes mechanical and chemical cleaning, injection of cracks and micro cracks; completion the missing parts in colored and gilded parts, consolidating the fragile parts using paraloid-B72 (3%). Plexiglas has been used in display process of the gilded cartonnage in Hurghada museum.

Key Words:

Gilding, Cartonnage, Greco-Roman, Conservation, Hurghada Museum.