

MANUFACTURING TECHNIQUE AND CONSERVATION TREATMENT OF A UNIQUE GILT- BRONZE STATUETTE EXCAVATED THROUGH RESTORATION OF THE STEP PYRAMID, SAQARA

Unexpected excavation of the Osirian statuette was inaugurated in 2021 during a conservation project at the first step in the western façade of King Djoser Pyramid which dates back to the Ptolemaic era. Various strategies of the examination techniques, such as stereo and polarizing microscopes, and scanning electron microscopy coupled to energy dispersive X-ray spectrometry and X-ray diffraction were undertaken to characterize the chemical structure of gilt-layer, preparatory layer, and bronze alloy to evaluate their condition. This paper describes the actual condition of the statuette after excavation inside the King Djoser Pyramid, and characterization of the corrosion phases, and determines the best technique for conservation. Visual investigation revealed that the core of the bronze statuette was in good condition, but most gold with gesso was misplaced. Investigation and analyses results demonstrate that amazing technique which gilding has been accomplished as a thin layer over the white substrate from gesso. X-ray diffraction establishes that cuprite and atacamite resulting from the activation corrosion were the major minerals covering the statuette. Besides, calcite and gypsum were detected, which are to be a part of the preparatory layer. EDX results demonstrate that pure gold was likely used in the gilding layer. The gilt-bronze statuette was made of multi-layered surfaces. The solid cast was used in the crafting technique. Fixation of remaining plaster to metal was undertaken using Clucel G (4%). The figure was immediately treated via popular methods as mechanical tools and solvents. Benzotriazole inhibitor (3%) was used to cure the activation of bronze disease. The coating system was applied by using 3% paraloid B72. Finally, the statuette was preserved in the storage with the appropriate conditions.