

Preliminary Study of the Armored Door at Al-Zaher Barqūq's Mosque, Condition Assessment, and Previous Conservation Campaigns

Copper alloys-plaques used for the door of Barqūq's Mosque exhibited significant corrosion processes. Thorough chemical analyses revealed a diversity of metals and alloys in the plaques. This paper presents a case study related to the armored door's chemical structure and crafting techniques, along with its degradation and previous conservation campaigns. The surface morphology of the laminated door was examined by both stereomicroscope and scanning electron microscopy (SEM). The microstructural analysis is done by scanning electron microscopy-energy dispersive X-ray spectrometry (EDXS). Copper-iron corrosion products collected from the surface were examined using Raman spectroscopy. Fourier-transform infrared spectroscopy (FTIR) was used to characterize of the adhesive material used to fix the inlaid silver. Results revealed that quaternary alloy (copper, tin, lead, and zinc) were mainly used to manufacture the armored door inlaid with gold, silver, and red copper. A disproportionate percentage of chloride and sulphur ions were detected in the active corroded products growth on copper-based alloys and inlays. These are the cause of morphological alterations. Recent routine techniques performed for conservation treatments of the plaques and inlaid silver. The protection system was done by benzotriazole, and incralack followed by a thin layer of Boston wax.