Treatment and Conservation Study for Two Archaeological Spears from Dhamar Regional Museum, Yemen

Abstract
Archaeological iron artifacts are often covered with a crust, containing organic fibers, mineral particles, dirt, etc. Before conservation, this crust must be carefully removed. With traditional mechanical and chemical methods, there is an obvious risk of over-cleaning. These methods also increase the risk of the oxidized or primary corrosion layer breaking away which will lead to loss of information about the form of the object and other important surface details. Two archaeological iron spears from Dhamar museum, Yemen were selected for studying. The aim of this paper is to examine, in detail, the corrosion of the selected artifacts grown during the long-term burial and identify its products; this will help us to understand the corrosive factors and the degradation mechanisms, as well as to identify their constituting metals in order to carry out scientific treatment and conservation. For this purpose, samples from the spears were examined by Optical microscopy, Metallographic Microscope and Scanning Electron Microscope & Energy Dispersive Spectrometry, X-Ray Diffraction and X-Ray Fluorescence. Exploiting the collected info, chemical cleaning was chosen for treating the artifacts.