



ABSTRACT SUBMISSION

Ancient Metallurgy in the Alamut Region of Qazvin analyzing the Metals uncovered from the Nezam Bagh Cemetery

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Abstract

The cemetery of Nezambagh, in the Andejrud valley, in Alamut, Qazvin, is a cemetery dating from the prehistoric period to the Islamic era. This cemetery can be dated to the Late Bronze Age and the beginning of the Iron Age I. Out of 44 bronze and pottery artifacts from this cemetery, three bronze artifacts (a javelin, a spearhead, and a bracelet) have been studied using optical microscopy and the results from (XRD) and (PIXE) techniques. The results show that the bracelets covered with corrosion products of cuprite and malachite. The corrosion study of the javelin, in addition to cuprite and malachite, reveals an alloy composition of Cu41 Sn11, indicating a high tin content in the alloy. PIXE elemental distribution images indicate a high tin content in the structure and selective corrosion. The presence of malachite and azurite in the corrosion products of the spearhead confirms the carbonate soil with high CO₂ content in the cemetery. The metallic zinc in the corrosion products indicates a change in the subsurface environment to an anaerobic state at some point in time. The microstructure of the spearhead includes metallic or non-metallic inclusions, and the presence of gas porosity suggests that the artifact was cast.

Keywords

cemetery, alamut, qazvin, metallurgy, nezambagh

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