



Contribution ID: 12

Type: **Talk**

Neutron Tomography analysis of bimetallic swords from Northwestern Iran – forensic investigation of trafficked finds

Tuesday, November 21, 2023 4:05 PM (25 minutes)

Multiple bimetallic split-ear pommel swords from Northwestern Iran dated to the Iron Age (ca. 1250-800 BC) were investigated with Neutron Tomography at ISIS Neutron and Muon Source, UK. It is the first time that Iranian swords from that period were investigated with neutron techniques. The weapons were seized as part of law enforcement investigations and are pending repatriation. These circumstances, and the fact that there are many known examples of bimetallic weapons of this type being modified in modern times, led to a suspicion that a few were pastiches. With the use of Neutron Tomography, various modifications were revealed, including soldering and the use of other modern materials. Investigating bimetallic weapons is crucial to understanding the use of bronze and iron in the transitional period in early Iron Age Iran. Iranian weaponry, frequently found in museums but rarely well contextualised, is analysed in this study using non-destructive techniques to gain insight into ancient technology and modern forgeries.

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Session Classification: Provenance Research

Track Classification: Default track