

EXAMINATION OF THE ROMAN TREASURE FIND BY NEUTRON AND GAMMA RADIOGRAPHY AND I-NAA

Monday, 9 September 2013 18:00 (3 hours)

By the end of 2003 during the archaeological excavations near the village Drnovo on the construction site of future European highway Ljubljana-Zagreb (Croatia) an intact Roman ceramic pot assumingly containing a treasure find was unearthed. The ceramic pot was dated into the 2nd half of the 3rd century A.D. In order to get some preliminary information for the archaeologists and to properly conduct the opening and salvaging the suspected precious contents of the find non-destructive radiographic examinations by both conventional radiographic techniques (X-ray and Ir-192 gamma ray radiography), by thermal neutron radiography (NR) and non-invasive instrumental neutron activation analysis (I-NAA) were performed. The pot was completely filled with earth, with total weight of over 9 kg and quite large - out. dia 20 cm, height 24 cm) and hence presented a demanding task for radiographic examination. The radiographic techniques provided clear evidence on the presence of a hoard of coins and jewelry and confirmed the assumptions about the treasure contents. The I-NAA gave a clue about the elemental composition of the hoard. The NR complemented the conventional radiography since it revealed that the coins were hoarded in the 3 separate purses made of organic materials, probably leather.

Summary

Key words: archaeology, neutron radiography, Ir-192 radiography, instrumental neutron activation analysis, Ljubljana TRIGA research reactor

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