

Geochemical and isotopic characterisation of the coin metal of Roman denarii - A multifactorial application tool for numismatic, political, strategic and logistic contexts in the Republic and the Imperial Era.

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The metallurgical and especially the isotopic composition of silver in the coin metal of Roman Republic and Roman Imperial denarii has been more and more intensively investigated in recent years (For example: [1], [2]) The picture of a progressive step-like decrease in the silver content of the denarius coinage from the middle of the 1st century CE onwards could be broadly confirmed. Only a small number of lead isotope analyses have been included in the analyses of the fineness [2], with the help of which further well-founded statements about the origin of the metal raw material can be made beyond the chemical fingerprinting.

To complement the investigations of Butcher and Ponting, more than 200 additional coins from the period 50 BCE to 230 CE have already been sampled from collections of four museums (Historisches Museum Hanau Schloss Philippsruhe; Historisches Museum Regensburg; LWL Museum für Kunst und Kultur Münster; Varusschlacht – Museum und Park Kalkriese). These were examined for their chemical composition and lead isotope ratios; in addition, the copper isotopy of selected coins was measured. The combination of different isotope systems helps to narrow down possible ore deposits of the components of the alloy produced.

The question of the origin of the metal used to mint the denarii not only highlights the way in which the natural resources in the provinces were exploited by the Romans, but is also closely linked to the question of the reasons for the gradual decline in the fineness of the Roman denarii coinage during the first three centuries after two centuries of stability. The question arises to what extent the reduction in silver content is due to possible raw material crises or economic policy decisions? The answer to this question is of central importance for our understanding of Roman economic policy and the economic policy options of ancient states.

References:

[1] **Butcher, M. Ponting:** The beginning of the end? The denarius in the second century (2012). *Numismatic Chronicle* 172.

[2] **K. Butcher, M. Ponting:** The metallurgy of Roman silver coinage: From the Reform of Nero to the Reform of Trajan (2014), Cambridge.