

METALS, MINDS AND MOBILITY: INTEGRATING SCIENTIFIC DATA WITH ARCHAEOLOGICAL THEORY

Edited by Xosé-Lois Armada, Mercedes Murillo-Barroso and Mike Charlton

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Metals, Minds and Mobility: Integrating Scientific Data with Archaeological Theory is a collection of essays drawn from a session at the 2015 21st Annual Meeting of the European Association of Archaeologists in Glasgow, Scotland. This session, and indeed this volume, aims to integrate archaeometallurgical data with archaeological theory, to address long-standing questions about past mechanisms of exchange, mobility and social complexity. The apparent dichotomy between theoretical and scientific approaches in archaeology is an enduring issue, and there seems to be a renewed interest in bridging this gap at present. This volume is an ambitious attempt at such, and any work to improve their integration must be considered favourably. While not explicit in the title, the applications and foci of most of the papers are within the European Bronze Age, but as Perea's contribution (chapter four) highlights, such multi-disciplinary approaches benefit our understanding of all metal-using periods.

The volume is separated into three sections: Transmission of Metallurgical Technologies, Knowledge and Ideas; Prestige Economies and Exchange; Circulation of Metal as Commodities. While this separation seems a little arbitrary, it does form a clear spine for the work, especially within the framework set out in the introduction by the editors, Armada, Murillo-Barroso and Charlton. The editors make clear that while the period of focus (the Bronze Age) is defined by the importance of metal in social dynamics, it is rarely the focus of the larger syntheses. This work is intended to improve upon *Metals Make the*

World Go Round (Pare 2000), by including archaeometric data at the heart of theoretical arguments, an aim which this volume, at least partially, realizes.

The first section deals with the concept of transmission, materials, technologies, and ideas. It opens with Kienlin's largely theoretical paper which takes issue with World Systems Theory generally, and Kristiansen and Larsson's (2005) *The Rise of Bronze Age Europe*, specifically. Through an exploration of the metal of the Carpathian Basin, he challenges the persistence of core and periphery models. This severe critique draws attention to the fact that universal narratives must be demonstrated as applicable in small-scale, data-driven practice, rather than unilaterally applied and the data made to fit. It is followed by a brief study of origins of Eneolithic copper in southeastern Romania, by Lazar et al. While this paper shows a keen engagement with a variety of scientific applications (aDNA, radiocarbon, pXRF) alongside traditional typology, the limited number of samples make some of the firmer conclusions (e.g. refutation of local source through limited smelting evidence) seem spurious. The following paper in this section, by Perea, is a fascinating study of the Quimbaya Treasure held at Museo de América (Madrid). This paper elegantly dovetails the cosmological understanding of the use of these gold vessels and the society that produced them, with considerations about their composition. She then contrasts this with gold of the Iberian Peninsula in the Bronze Age. Such comparative studies, especially those which consider chemistry, are rare and this is a good example of how they can be used to reassess our assumptions about the nature of an object as unique or prestige. Nessel et al. present the final paper of this section, dealing with the ever-thorny problem of tin. This paper synthesizes tin isotopy with improved typologies and chronologies, while highlighting the current limitations in these fields. It offers a broad but comprehensive survey of early tin exploitation and artefacts across Eurasia. The paper argues for multiple autochthonic developments of tin bronze, that disseminated to differing degrees through different mechanisms.

The next set of papers deals with prestige economy and exchange, and again opens with a more theoretical discussion, this time by Rowlands on the nature of 'prestige goods'. This dense discussion advocates the reintegration of a more Marxist approach to value and wealth, with somewhat loose case studies of Colonial Africa and the Bronze Age. This paper emphasizes that, rather than conceiving of prestige objects as social capital *per se*, it is crucial to understand how these objects allow differential access. A more concrete set of case studies would make this paper more accessible. Sherratt's paper, on the other hand, is a very

readable and thought-provoking trail through what made silver, in the author's words, 'sexy' to Mesopotamians in the fourth to third millennium BC. Due to the poor preservation of silver, it is the focus of few Bronze Age studies despite being, as Sherratt puts it, "available but not too available" (p. 99). This, combined with its lack of utility beyond adornment and the contemporaneous discovery of the process of cupellation, Sherratt identifies as the cause of its popularity as a trade standard. Simply and clearly argued, it is a very compelling summary. The final paper of this section focuses on what makes a good 'prestige' object, and the case of gold in Bronze Age Crete. It opens with a necessary reconsideration of the meaning of 'conspicuous consumption' and social capital—notably that they are not absolutes. This survey of Cretan gold finds, specifically in burials, makes a compelling argument about the social value of gold, and the part it played in a fluid system, where meaning and value were malleable.

The final section of this book contains three papers which most fully embrace all aspects of this book's original intention: that is, a synthesis of metal, minds and mobility. The first, by Bray, is the clearest with its direct engagement with theory and archaeological science. The beginning of the paper deals with the theoretical conceptions of 'object biography', before moving on to the scientific analyses of metals from the British and Irish Bronze Age. What Bray makes clear in this is the problem of the structure of this existing data, and what information will never be recoverable. Bray suggests 'prosopography', a term pulled from history, where fragmentary scientific and typological evidence is combined to illuminate a sum greater than its parts, specifically how and where metal was moving in the Bronze Age. Movement is a key feature of Melheim et al.'s paper also, which shows an apt application of what might be termed the 'new' lead isotope approach. By integrating rock art interpretations with lead isotopes, a comprehensive story of coastal movement is told—though one likely to prove contentious to many. The final paper by Fontanals et al. is the only one to focus specifically on mines and production. This paper shows a changing pattern across time of copper mine organization and the subsequent spread of their material, and posits what this means in terms of social structure. In the Early and Middle Bronze Age, they functioned through collective organization, with little evidence of strong hierarchies, with small mines and areas of influence. The authors lack Late Bronze Age evidence, but the First Iron Age shows a strong contrast to this early period, with evidence of a very different organization that puts mining and the control of mines as the key social organizer.

The concluding remarks of this work by Martínón-Torres playfully ask about an “end of archaeological science” (p. 161), by which he means the integration of archaeometallurgical scientific applications as a standard part of archaeological practice and arguments. These papers show this integration flourishing, and he brings together their common themes elegantly. What this volume does excellently, as Martínón-Torres points out, is to present papers that were founded on decades of scientific analysis, but where this work has been used to drive archaeological arguments and narratives, and critically assess those already in play. It is a deeply approachable work for those with a less solid grounding in archaeological science, while still being robust in its scientific arguments. Another strength is its multi-scalar approach, showing how archaeological science and theory can be integrated on an object to a world scale. While Martínón-Torres praises the lack of ‘arrows on maps’ as markers of mobility, and this is indeed a blessing, it is not always clear what ‘mobility’ means at any point to different authors—the movement of metal, ideas or people? Similarly, the impetus of such movements is not often considered across these papers.

This book is well presented, with a good deal of figures and some truly beautiful coloured plates that enhance many of the arguments. A detailed index which includes many of the key works and archaeologists cited adds to the utility of this volume. This volume is not without its controversial conclusions, but it is an impressive work that accomplished much of what it set out to do. These papers show a fantastic integration of studies of prehistoric metals with studies of minds that made them and/or their mobility, and indeed at least makes headway in its aims of integrating scientific data with archaeological theory.

References

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