

The major architectural feature of Levels 4–3 is a substantial ‘Round Building’ with walls preserved up to 4m in height, whose function is interpreted as that of a series of massive grain (barley) silos, protected by a thick circular wall. Schwartz and his team excavated the remains of small-scale rectilinear structures radiating from the Round Building and interpreted as residences and a small temple. Amongst the small finds, several clay sealings with cylinder seal impressions, along with a numerical tablet and clay tokens, indicate the presence of an administrative bureaucracy that parallels that attested at major third-millennium BC Mesopotamian urban sites of the north (e.g. Tell Brak, Leilan, Ebla) and of the south (e.g. Abu Salabikh, Ur, Fara), further strengthening the argument of a continuum in urban and rural complexity and activity.

In the chapter entitled ‘Spatial and social organization of Level 3’, Schwartz and Eric Klucas provide an intriguing discussion rooted in the architectural layout of this level. They discern a village structured into ‘neighbourhoods’, demarcated by alleyways, comprising small households and craft production areas, analogous to the urban structure of major Mesopotamian towns, although on a much smaller scale. In the concluding chapter, Schwartz weaves together the threads running through the volume into a cohesive and convincing argument to the effect that small village sites such as Raqa’i can provide uniquely informative insights on issues such as economic and craft specialisation, interactions between settled farmers and mobile steppe pastoralists, and the importance of excavating small sites in order to apprehend fully the development of early social complexity.

The quality of the book’s production is sound, with many good line drawings, although the half-tones often lack sufficient contrast and clarity. There is a very useful index and there are ample bibliographies at the end of each chapter. In many respects, the true value of this volume is revealed through its consideration within a matrix of the research and publication on all the other Khabur rescue sites excavated by various teams during the 1980–1990s, including ‘Atij, Umm Qseir, Melebiya and Bderi. Fortin and Aurenche (1998) made a preliminary attempt at a regional synthesis of these results; in the concluding pages of the present volume, Schwartz provides a masterful updated overview of the points of comparison and contrast amongst the Khabur rescue sites. This new publication provides a stimulating

research framework, and adds a huge amount of detail. Schwartz and his team are to be congratulated on shifting the focus of early complexity studies through their systematic work at this small village site located in a region of Syria now cursed by a hostile and ignorant occupation.

## Reference

- FORTIN, M. & O. AURENCHÉ (ed.). 1998. *Espace naturel, espace habité en Syrie du Nord (10e–2e millénaires av. J.-C.) (Actes du colloque tenu à l’Université Laval (Québec) du 5 au 7 mai 1997)*. Lyon: Maison de l’Orient et de la Méditerranée Jean Pouilloux.

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ROLAND GAUSS. *Früher Bergbau und Metallurgie auf der Iberischen Halbinsel 1: Zambujal und die Anfänge der Metallurgie in der Estremadura (Portugal). Technologie der Kupfergewinnung, Herkunft des Metalls und soziokulturelle Bedeutung der Innovation* (Iberia Archaeologica 15.1). 2016. 332 pages, 111 figures, 39 plates. Tübingen: Wasmuth; 978-3-8030-0241-9 hardback €99.



This monograph, the first of a set of three, presents the results of a collaborative German Archaeological Institute project undertaken between 2004 and 2006 to investigate early metallurgy and its social

context in central and south-central Portugal. This first instalment is a lightly revised version of Gauss’s PhD dissertation, submitted at the University of Tübingen in 2008, which focused on the analysis of metallurgical remains from a series of Chalcolithic settlement sites.

The three main aims are to identify the metallurgical processes attested at the sites of Zambujal, Vila Nova de São Pedro, Leceia, Fórnea, Penedo and São Pedro; to establish the probable provenance of the ores used in the production of metal artefacts; and to determine

the wider socio-economic impact of early metallurgy on the Chalcolithic communities of the area.

Gauss's approach is based mainly on a combination of trace-element analysis (XRF and NAA), and lead-isotope analysis using both MC-ICPMS (multicollector inductively coupled plasma mass spectrometry) and TIMS (thermal ionisation mass spectrometry) of finished products, production debris and ores (the latter from the aforementioned sites as well as from a variety of ore bodies across central and southern Portugal). This work has produced a considerable amount of fresh analytical data, but the author also draws on relevant legacy OES (optical emission spectroscopy) data from the *Studien zu den Anfängen der Metallurgie (SAM)* project of the 1950s–1970s. One of the undoubted strengths of this volume is the thorough assessment of, and comparison between, the results of different analytical techniques.

Where available from the study sites, metallurgical ceramics and slags have been included in the analysis in order to help determine the types of ore used, and to reconstruct production processes. This use of multiple techniques on a wide range of material, together with the careful analysis of contextual data, constitutes another strong point of the monograph, as does the resulting chronology for the development of early metallurgy in the study area, which provides a higher resolution than most comparable studies from prehistoric Iberia. It should also be stressed that, while archaeometallurgical research in neighbouring Spain has accumulated an increasing number of lead-isotope datasets over the last two decades, the examples presented in this volume are the first obtained for archaeological purposes from any Portuguese sites.

With regard to Gauss's first two stated aims—identifying the metallurgical processes employed and establishing the probable provenance of the ores used—his study is largely successful, with the remaining gaps the result of a lack of available data in some areas. The author is able to dismiss several old ideas that are still prevalent in the literature. Notably, he can convincingly rule out that any of the frequently cited ore sources from the Portuguese Estremadura supplied the raw materials used at the study sites. Instead, he is able to identify the upper Alentejo or neighbouring parts of the Ossa Morena Zone as the most probable source area. He is also able to demonstrate that the material evidence from Cabezo Juré in south-west Spain is inconsistent with the furnace process hypothesised by the site's excavator.

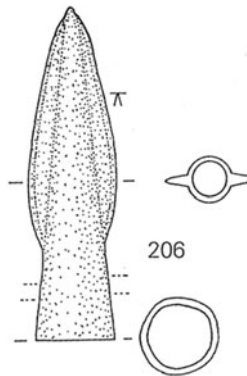
Regarding Gauss's third and final aim—determining the socio-economic impact of early metallurgy on Chalcolithic societies in south-west Iberia—the results are sketchier, mostly because of a dearth of information on many aspects of the social and economic context within which metallurgy was adopted in the study area. Also, the author's repeated recourse to A.J. Toynbee's 'challenge-and-response' theory does not really provide an adequate substitute for model building as an explanatory device, and a broader theoretical footing would have been helpful here.

Given the considerable time and effort that clearly went into the laboratory work and the interpretation of its immediate results, it is easy to see how the final part of the original PhD research was less developed. It is unfortunate, however, that this aspect was not developed any further during the time that elapsed between the submission of the dissertation and its eventual publication. One might equally have hoped for more thorough copy-editing to eliminate the occasional typos and frequent inconsistencies with the German Archaeological Institute's guidelines for authors. These, however, are minor caveats that do little to diminish the overall value of this study. It represents a significant leap forward in our understanding of early metallurgy in Iberia.

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RICHARD DAVIS. *The Late Bronze Age spearheads of Britain* (Prähistorische Bronzefunde Abteilung V, 7 Band). 2015. viii+267 pages, 163 plates, 19 b&w illustrations, 19 tables. Stuttgart: Steiner; 978-3-515-11246-8 hardback €78 & \$117.



With this monograph on the Late Bronze Age spearheads of Britain, the *Prähistorische Bronzefunde* (PBF) series adds another volume to its rich corpus of artefact catalogues. Bronze Age research has tended to overlook spearheads as a

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