

Roberts, B.W. & Thornton, C. (Eds.) 2014: *Archaeometallurgy in Global Perspective – Methods and Syntheses*. Springer: New York. 868 pp.

Review by Daniel Sahlén*

*Stockholm County Museum, P.O. Box 4151, SE-141 04 Huddinge, Sweden
(daniel.sahlen@stockholmslansmuseum.se)

Archaeometallurgy in Global Perspective – Methods and Syntheses is an ambitious book, summarising our understanding of archaeometric methods on metals. It contains 28 independently written chapters, including an Introduction by the editors, and is divided into two parts, one dealing with methodological issues, and the other providing regional or national case studies on the emergence of metallurgy. The book derives from a session at the Society for American Archaeology (SAA) conference in Vancouver (2008), Canada, focusing on the emergence of metallurgy in the Old and New Worlds, and many of the chapters develop from papers later published in the *Journal of World Prehistory* (2009, issues 3–4). A few, however, have been added to expand coverage of areas not discussed at the conference. The 11 methodological chapters were added to give a more complete presentation of archaeometallurgy as a discipline.

One of the strongest elements of the book is its great global span, discussing materials from widely disparate areas. This is central, since the emergence and development of metals are increasingly seen as a global phenomenon. However, the focus on early metallurgy narrows the book's empirical outlook, and the opportunity to explore archaeometallurgical developments more widely is missed.

Roberts and Thornton introduce the book with a general overview of the history of archaeometallurgy. It feels nonspecific, and more details could have been given for introducing archaeometallurgy as an interdisciplinary academic field. The book is aimed at “an uninitiated audience” (p. 3), but *archaeometallurgy* is probably a term some readers are unfamiliar with. It has not been an established term for many years within the field; until the 1990s two terms were used to describe largely the same subject, archaeometallurgy and historical metallurgy (Goodway 1990; 1992). Both were used to describe a historical study of metallurgy, but the former developed more closely from

the analysis of archaeological materials and aimed to reconstruct technological practices. A full definition of the term archaeometallurgy and its application would have been a good starting point. Roberts and Thornton provide a basic historical and theoretical background to archaeometallurgy but aside from commentaries in individual chapters, this is the only discussion about theory. They correctly stress the increased importance of theory in archaeometallurgy, but perhaps a more detailed background should have been provided, either as a separate chapter or, at the least, a more comprehensive discussion in the Introduction.

The first 11 chapters following the Introduction (Chapter 1) are introductions or summaries of various methods used in the study of metals and metallurgical practices. Some are quite detailed and give a comprehensive introduction to a particular field or method, while others are mere overviews of literature. The first two chapters are introductions to ore, metals and metal properties; Chapter 2 (Killick) gives a broad overview of processing of ores, from the perspective of economic geology and its relation to archaeometallurgy, while Chapter 3 (Notis) discusses the properties of metals and its relevance in archaeometric studies, providing a chemical and physical introduction to the field. The following three chapters provide an introduction to various laboratory techniques for the study of metals and metal processes, including metallography (Chapter 4, Scott), investigations of slag (Chapter 5, Hauptmann) and technical ceramics (Chapter 6, Martín-Torres and Rehren). These chapters cover some fundamental aspects of archaeometallurgy, discussing the main materials studied in the field and some of the key methods. They are only brief summaries of complex issues and an extensive literature, but to some extent are balanced with comprehensive bibliographies. The next three chapters are concerned with approaches to field-based investigations, including methods of mining archaeology (Chapter 7, Stöllner), experimental ar-

chaeometallurgy (Chapter 8, Heeb and Ottaway), and ethnoarchaeological and historical research (Chapter 9, Iles and Childs). These, in contrast to the preceding three chapters, are more focused on archaeological interpretations, and Chapters 8 and 9 use a theoretical perspective. Chapters 10 (Pollard and Bray) and 11 (Pernicka) give a broad overview of the use of chemical data to understand metallurgical practices in archaeological contexts. The last chapter in the methodological section (Chapter 12, Schorsch) gives a conservator's perspective on theories and methods in archaeometallurgy, and adds greater depth to the methods discussed in earlier chapters.

Altogether, the first part of *Archaeometallurgy in Global Perspectives* provides comprehensive discussions of the main methods used in the field. This will probably be an important reference point for students and researchers for many years to come, particularly due to its comprehensive treatment of methods and materials used in archaeometallurgy today. In contrast to the following part of the book, the discussion deals both with non-ferrous and ferrous metallurgy. However, many of the chapters are written as literature reviews rather than a guide introduction to the method or material, which makes them more suited for research purposes rather than standalone course literature.

The second part of the book contains 16 chapters discussing developments and trends in a particular geographic region, including three chapters on the Americas, three on Europe, one on Africa, four on the Middle East, three on Central Asia, and two on East Asia. This gives the book a global perspective, and has probably been done to go beyond the common focus on trends in Europe and the Middle East. However, some areas, such as the Middle East and Asia, have been explored more fully, while other regions are omitted or are less well covered, for example Africa and America. There is no regional summary of trends in north/northwest Europe. This is partly compensated by some of the methodological studies that discuss materials from these areas, but materials from Scandinavia are not discussed at all. This is surprising considering the importance of the early work on Scandinavian metals. The reason for this is partly due to the focus of the book on the emergence of metallurgy, which has featured very little in Scandinavian research, excluding more archaeological orientated work (e.g. Vandkilde 1996; Kristiansen & Larsson 2005; Prescott 2006). It

may also reflect the marginalised interest in past decades on archaeometric studies on non-ferrous metals in Scandinavia. Recent archaeometric work on metals by several independent researchers might be a new beginning for archaeometallurgy in Scandinavia. The common theme of the chapters in this second section limits the general application of the issues discussed in the book, but provides an interesting perspective on the emergence of metallurgy globally. This illustrates well that metallurgy was invented independently in several parts of the world, and not first invented and spread out of Anatolia and the Levant, as was the common view of research a few decades ago.

In summary *Archaeometallurgy in Global Perspective – Methods and Syntheses* is a collection of articles on recent archaeometallurgical research, with a clear focus on the emergence of metallurgy. This could have been stated more clearly in the title of the book, since there is little discussion of materials from later periods or metallurgy of metals other than copper-alloys, beyond the methodological discussions in part one. Most of the articles from part two have already been published in the *Journal of World Prehistory* and perhaps the value of this work would have been greater if these had been transformed into more holistic summaries of trends and research discussions. However, part one of the book provides a comprehensive introduction to the diverse methods and materials used and studied within the field archaeometallurgy. This section of the book will be a useful reference for wider studies on archaeometallurgy, both for researchers and more advanced students.

English language revision by Linda Fernley.

References

- Goodway, M. 1990. Archaeometallurgy: Evidence of a paradigm shift? *MRS Proceedings*, 185, pp 705–12.
- Goodway, M. 1992. Archaeometallurgy: emerging practices. *Laborativ arkeologi* 6, pp. 57–74.
- Kristiansen, K. & Larsson, T. B. 2005. *The Rise of Bronze Age Society: Travels, Transmissions and Transformations*. Cambridge.
- Prescott, C. 2006. Copper production in Bronze Age Norway. In Glørstad, H. (ed.): *Historien i forhistorien: Festskrift til Einar Østmo på 60-års dagen*, pp. 183–90. Kulturhistorisk museum, Universitetet i Oslo.
- Vandkilde, H. 1996. *From Stone to Bronze: The Metalwork of the Late Neolithic and Earliest Bronze Age in Denmark*. Højbjerg.