

A century later, the mother goddess is still very much alive in both popular and specialised scholarship, although she has taken various guises. She has been linked to Babylonian Ishtar or Syro-Palestinian Astarte by scholars who rightly acknowledge Near Eastern influences on Crete. But even so, she remains the great mother of vegetation and fertility. (p. 151)

Goodison and Morris's *Ancient Goddesses* is not in the bibliography, nor Cline's *Sailing the Wine Dark Sea*, nor Lambrou-Phillipson's *Hellenorientalia*, nor Phillip's *Aegyptiaca*. This book has nothing to recommend it.

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## OXHIDE INGOTS: ARCHAEOMETALLURGY AND ARCHAEOLOGY

LO SCHIAVO (F.), MUHLY (J.D.), MADDIN (R.), GIUMLIA-MAIR (A.) (edd.) *Oxhide Ingots in the Central Mediterranean*. (Biblioteca di Antichità Cipriote 8.) Pp. 519, ills, maps, CD-ROM. Cyprus and Rome: A.G. Leventis Foundation, Istituto di studi sulle civiltà dell'Egeo e del Vicino Oriente del Consiglio Nazionale delle Ricerche, 2009. Cased, €120. ISBN: 978-88-87345-15-5.

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Ever since the first examples were found in Sardinia at Serra Ilixi (1857; pp. 345–9) and in Cyprus at Enkomi (1897; pp. 42–6), the hefty (c. 30 kg) copper ingots of the distinctive so-called 'oxhide' shape have been regarded as indicative of a Late Bronze Age relationship of some kind between the Levant and the Central Mediterranean. The primary aim of the work under review is a deceptively simple one: to assemble and evaluate all the available archaeological and archaeometallurgical information relating to every site in the Central Mediterranean where oxhide ingots are known to have been found. This has been achieved: two sites in Sicily and one on Lipari (Part 2, pp. 135–221); 31 sites, with 36 findspots (synoptic table: p. 394), in Sardinia (Part 3, pp. 225–390); and one site each in Corsica (Part 4, pp. 411–17) and southern France (Part 5, pp. 421–7). A great deal of well-organised information, old and new, and all of permanent reference value, is reliably assembled in these four Parts, which have been overseen and largely compiled by Lo Schiavo. Inevitably, the surviving evidence for context varies considerably in quantity and quality, which means that coverage of this aspect ranges from the simple announcement of the chance find in 1995 of a single decontextualised oxhide fragment in the Porticciolo locality of Alghero in northern Sardinia (not far from a nuraghe 'of which not much remains': p. 268) to the major (re-)publication by R.M. Albanese Procelli of the artefacts from the vast Lipari hoard of metalwork and the associated settlement (pp. 151–65), culminating in an important new metallurgical study by Giumlia-Mair of the material (pp. 166–214) – which includes many fragments of oxhide and plano-convex ('bun') ingots.

The mass of clearly presented and unremittingly technical information assembled in Parts 2–5 is preceded by Part 1 (pp. 17–132), in which Muhly and V. Kassianidou provide all the background information we need concerning oxhide ingots in the Aegean and Egypt and in Cyprus respectively, while G. Papasavvas offers a wide-

ranging and well-illustrated account of their iconographical appearances in these areas (pp. 83–132; 44 figs). Other useful essays appear at the end of the book: Part 6 (pp. 431–87) deals with marks (M.G. Amadasi Guzzo), weights (F. Lo Schiavo) and mathematical considerations (M. Lo Schiavo). In Part 7 (pp. 491–516), Maddin offers a statesmanlike technical evaluation of archaeometallurgy in Sardinia, A. Hauptmann assesses lead isotope analysis and the origin of Sardinian metal objects, and E. Farinetti introduces the digital archive of analyses that appears on the CD-ROM inside the back cover.

This imposing volume, the research for which was undertaken and is published with the support of the truly *benemerito* American body known universally as INSTAP (Institute for Aegean Prehistory, Philadelphia), does not pretend to present the last word on its extraordinarily complex subject. It rather reports on certain highly technical work in progress that amounts to a massive advance in respect of the slim volume published 20 years ago by some of the editors of this one.<sup>1</sup> Throughout this ground-breaking research, much has always depended on the ways in which compositional analyses of ingots and metal artefacts are obtained, expressed and interrogated. Rather than attempt to assess the possible implications of the fact that, for example, ‘mass spectrometry’ is now often qualified by the words ‘multi-collector inductively coupled plasma’ rather than ‘thermal ionization’ (p. 502), I am assuming that readers of *CR* will be mainly interested in the results that are emerging for the Mediterranean Late Bronze Age – and in the implications of these for later periods.

It must be said at once that no praise is too high for the care and attention devoted throughout the catalogues in Parts 2–5 to the identification, analysis, presentation and exegesis of frankly unprepossessing oxhide ingot fragments, which are far more numerous than the immediately recognisable intact specimens. In this respect, as in many others, Lo Schiavo’s essay on the hoarding, fragmentation and use of oxhide ingots in nuragic Sardinia (pp. 391–407) will open many eyes. This is particularly true of her assumption that ‘on the basis of the majority of the lead isotope analyses, ... most, if not all, of the oxhide ingots that reached Sardinia came from Cyprus’ (p. 404; see too Muhly, p. 32; and Hauptmann, especially pp. 503–6, for an admirably even-handed metallurgical account of Sardinia, Cyprus and lead isotopy).

That said, the Late Bronze Age ‘Cypriot connection’ with the Central Mediterranean in general and with Sardinia in particular is not at all easy to assess in real – historical and human – terms. It is logical to suppose that such a relationship would have led to fruitful exchanges between incoming and indigenous specialists (as in the case of Italo-Mycenaean pottery in South Italy: *AR 2001–2002*, 118 and 136–7) in the techniques of converting ingots into artefacts and of extracting and exploiting the not inconsiderable resources of native Sardinian copper. If that is what happened, it is surprising that the Sardinian archaeological record has not yielded much more than it actually has in the way of pottery and other personal items of Cypriot type. As it is, we are left with no more than the fairly reasonable presumption that the cessation of the Cypriot supply of copper eventually stimulated the native Sardinian communities to extract and exploit more of their own.

<sup>1</sup>Lo Schiavo, Maddin, J. Merkel, Muhly, T. Stech, *Analisi metallurgiche e statistiche sui lingotti di rame della Sardegna* (1990), discussed by the present writer (*Antiquity* 65 [1991], 420–2); see too the important collective volume edited by Lo Schiavo, Giunilia-Mair, U. Sanna and R. Valera, *Archaeometallurgy in Sardinia from the Origins to the Beginning of the Early Iron Age* (2005).

The best that can be said for the latter scenario is that it seems to fit the evidence available for the succeeding period of East–West traffic – defined as the ‘first really busy’ one (J. Boardman, *OxfJA* 9 [1990], 179), when ‘... mobility was easy, and even normal, and where large numbers of ships and people were continuously and familiarly moving around the Mediterranean’ (R. Osborne, *Greece in the Making, 1200–479 BC*<sup>2</sup> [2009], p. 123). Two generations ago, the view was expressed that ‘the search for metals will explain why [Euboean] Kyme was the first colony founded in the West’ (T.J. Dunbabin, *The Western Greeks* [1948], p. 8; see too C.F.C. Hawkes, *StEtr* 27 [1959], 381). At the time those words were written, the metals in question were those located in the Colline Metallifere of northern Etruria. The occurrence there of copper and tin, the constituent elements of bronze, in close proximity will undoubtedly have had its attractions for the first Western Greeks, but we now need to bear in mind as well that the nuragic village of Sant’Imbenia in the metal-rich Algherese has produced the first evidence in the Western archaeological record for the direct association of Euboean Geometric skyphoi (like those encountered in ‘precolonial’ Campania and southern Etruria) with dealings, most probably by Phoenicians, in metal (*AR 1994–1995*, 79–81): and the metal in question was locally-mined Sardinian copper. For good measure, we have recently become aware that the Algherese also provided the copper element in the bronze of which the Capitoline Wolf was fashioned in the fifth century (N. Gale et alii, *StEtr* 71 [2005], 129–41).

All told, I recall with something approaching awe that as recently as 30 years ago ‘Sardinia and early metallurgy were rarely if ever mentioned in the literature on the same page’ (Maddin; p. 495). The work I have tried to review here is a milestone in Late Bronze Age studies, and the archaeologists and archaeometallurgists who have joined forces over many years to produce it deserve our warmest thanks for the extent to which they are enabling old stories to be revised in the Central Mediterranean – and not a few new ones to be written. Long may their work continue! Meanwhile, no institution concerned with the archaeology of the Classical, European and Mediterranean worlds should fail to purchase this item for its library; and institutions in the English-speaking world should note that it is written throughout in their language.

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## TRADE AND MYCENAE

BURNS (B.E.) *Mycenaean Greece, Mediterranean Commerce, and the Formation of Identity*. Pp. xii + 246, ills, maps. Cambridge: Cambridge University Press, 2010. Cased, £55, US\$85. ISBN: 978-0-521-11954-2. doi:10.1017/S0009840X11001740

This is a revised version of B.’s 1999 dissertation, originally written for the University of Michigan under the supervision of John Cherry. The primary aim of the book is to examine the effect of Mediterranean trade on Mycenaean Greece.

While discussing the imported Egyptian and Near Eastern objects found in Bronze Age contexts in Greece throughout the six chapters (plus Introduction and