EDITORIAL

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The fourth issue of the new millennium is heavy on metal, metallurgy and archaeological science. It is unusual for an issue to focus so tightly on one period – later prehistory (Bronze and Iron Ages) – but Mesolithic, Neolithic, Roman and Medieval papers are scheduled for later in the year. Sue Hamilton and John Manley take a 'soft' phenomenological approach to the Iron Age hillforts of south east England. The three papers on metals each pursue a specific aim. Friedrich Begemann and his colleagues offer a state of the art example of lead isotope analyses of artifacts from Sardinia by combining chemical (trace element) analysis with LIA. Barbara Ottaway examines the social implications of the operational chain of the production of copper and bronze artifacts. Lastly, Noel Gale continues the debate over lead isotope analysis with a critique of Bernard Knapp's article in issue 3(1), April 2000. The issue is rounded off with a lively reviews section.

The first article, by Hamilton and Manley, considers views of hillforts and views from hillforts as a means of understanding why Iron Age communities built such varied monuments. I term this 'soft' phenomenology, as opposed to the richer approach in which the views and mindsets of *different* individuals are theorized and juxtaposed (e.g. Bender, Tilley and Hamilton's work in Cornwall, UK). The research is founded on a careful reanalysis of all the constructional, depositional and dating evidence necessary for a strong interpretative framework. The result is not only a wealth of variability changing through time and across different landscape zones – but also a suite of worldviews distinct from those of the better-studied Wessex region. This is an innovative way of approaching hillforts, which could valuably be tested on similar sites in Brittany or Wurttemburg. But the image of the authors visiting one hillfort by London Underground and taxi reinforces the modern limitations to a contemplation of 'pristine' Iron Age landscapes.

Copper oxhide ingots are the Munsingen 30[1] of the Mediterranean Bronze Age metals trade, endlessly debated and re-analysed – a test of whether LIA can make a solid contribution to Bronze Age studies. Begemann et al. characterize two different signatures for their ingot fragments – a signature consistent with a Cypriot derivation and a signature matching local lead sources. The core of Gale's contribution is that, while lead from pre-1250 cal BC oxhide ingots may derive from a variety of often non-Cypriot sources, the lead in *all* post-1250 oxhide ingots derives from the Apliki mining region of

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Cyprus. It would appear that there is scope for agreement between the present authors but confirmation would require close dating of the Sardinian hoard contexts. If this result is supported by other regional studies, an intriguing social question is presented: why is it that a pattern of several centuries of regional production is replaced by monopoly production in one part of the Mediterranean trade network? There may well be scope here for investigations of the social and symbolic significance of the oxhide ingot form in relation to the maintenance of a 'global' tradition in one region and its abandonment elsewhere.

Another intriguing aspect of Begemann et al.'s article concerns fragmentation. In the Arzachena hoard, there are 12 sword fragments deriving from three or four different swords of standard metal composition unsuited for military use and therefore interpreted as 'votive', and 21 fragments of 'scrap metal' with a mixed set of LIA signatures. As with any structured deposit containing parts of objects, the obvious question is 'where are the other parts?'. The question of deliberate fragmentation has been explored with respect to fired clay objects more than metals, but now metal is becoming a key part of the fragmentation debate, with at least four current British PhD students examining the composition of 'scrap hoards' and looking for joins between hoards a result so far found only in the Slovenian Bronze Age (p.c., P. Turk). The social significance of fragments in metal hoards is thus a burgeoning field with potential new insights, especially when combined with the results of scientific analyses.

Ottaway's examination of the social implications of the operational chain of copper/bronze production uses a wide range of ethnographic, archaeological and experimental examples. This last is worth emphasizing, since the Sheffield archaeometals programme has now produced significant doctoral research based on metallurgical experiments, much of it unpublished and partly summarized here. Ottaway sensibly favours the Childean approach to metallurgy as transformative, empirical science, discriminating between those production stages requiring the active participation of specialists, those requiring specialist supervision, those requiring the cooperation of many people and those that journal editors could manage on a good day. These are fruitful ways of looking at how individuals experience the production of artifacts as extensions of themselves as objectifications of individual skills embodied in personal *habitus*.

NOTE

1. That group of fibulae from the Swiss Iron Age cemetery of Munsingen-Rain analysed over a dozen times by Doran and Hodson (1975) to test multivariate statistical methods.

REFERENCE

DORAN, J.E. and F.R. HODSON, 1975. *Computers and Mathematics in Archaeology*. Edinburgh: Edinburgh University Press.

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