# Travellers' tales and science-based archaeology: *ex oriente lux* revisited

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Ling and Stos-Gale (above, p. 206) end their study on a safe, if rather vague, note: "[w]e could, perhaps, consider the maritime-themed rock art depictions [of ships and copper oxide ingots] as records of travellers' tales, where representations of reality mingle with myths, magic and sailors' stories". Yes, perhaps we could, since at least two of the ingot depictions (Kville 156:1 at Torsbo, Norrköping) look strikingly similar—as the authors note—to the 'pillow ingots' (*Kissenbarren*) known from the Mediterranean world. Or, perhaps, we could remain more cautious before even broaching the idea of *interconnectedness* between Late Bronze Age Scandinavia and the eastern Mediterranean. Such a suggestion requires a lot more faith in the basic arguments of Kristiansen and Larsson (2005)—namely, that Europe and the Mediterranean formed a massive, open network through which warrior elites and others travelled at will—than I am able to muster. For Kristiansen and Larsson, cultural contact and cultural change ultimately still flow *ex oriente*—thus, they return whence Childe began. Yet whereas their work is an attempt at synthesis, not analysis, Ling and Stos-Gale have a stab at analysis, of the lead isotope variety. The question is how well they succeed.

In a previous study of 70 Swedish Bronze Age metal artefacts, Ling *et al.* (2014: 125–26) argue that the main copper ore sources involved came from the Iberian Peninsula and Sardinia. Five objects, however, are said to be "made of Cypriot copper" and one of copper from Lavrion in Greece. They note—without further discussion—that "our material do [sic] also match copper and tin signatures with regions, like Austria, British Isles (1) and southern Germany (2), that traditionally have been argued as potential sources for Scandinavian metal" (Ling *et al.* 2014: 125).

In the present study, the authors focus on the five objects—four axes and one dagger, dated between 1600–1300 BC— that are consistent with production from Cypriot ore deposits in the Limassol Forest and near Larnaca. Leaving aside the problems inherent in trying to pin down with any accuracy the exact source of raw materials used in antiquity, the five objects in question are portrayed in a plot (fig. 3) that, while lacking the once-standard 'ellipse' drawn around 'Cypriot' ores and artefacts, shows a veritable miasma of ores, ingots and artefacts emanating from a cluster that simply omits the encircling 'ellipse', now discredited as a means of identifying ore sources (Pollard 2009: 184–86).

The isotopic ratio of lead measured in finished metal products or ores never indicates *archaeological* provenance but rather the *geological* age of the ore body from which the metal objects were manufactured. In the same 'isotopic space', therefore, ores from north-eastern Turkey may be impossible to distinguish from ore bodies in England, something learnt in the pioneering days of lead isotope studies (Brill & Wampler 1967). Above

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(p. 197), Ling and Stos-Gale acknowledge this reality, stating that even when identical lead isotope compositions are combined with elemental data, they are "insufficient to guarantee 'consistency' with a given ore". Moreover, they note that some European ore deposits of similar geological age—from the Massif Central, the Black Forest, North Tyrol and the British Isles—have lead isotope ratios "within ±1 normalised Euclidean distance" from the measured ratios of the Swedish axes. On *current* evidence none of these 'European' ore deposits with a geochemistry similar to the axes have yet revealed evidence of Late Bronze Age copper production. Even so, there are hundreds of copper ore deposits situated between eastern Anatolia and Britain that *might* have been worked in the Bronze Age, and that theoretically *could* have the same isotopic signature as the Swedish axes and dagger. Only when there are a sufficient number of isotope measurements—itself an uncertain quantity—of an ore deposit can it be considered as adequately characterised isotopically. As Pernicka (2014: 249–50) recently emphasised:

> *"it is not possible to regard the provenance of an artefact as proven, even if it shares the same isotopic signature as an ore deposit. The reason for this is that although the variation of lead isotope ratios in ore deposits is much smaller than that of trace element concentrations, there exists the possibility that another deposit has the same lead isotope ratios. This is indeed increasingly being recognised as more deposits become characterised".*

This is the core problem with lead isotope analysis. Like many other archaeologists who have considered the role of Cyprus in the Late Bronze Age metals trade within and beyond the Mediterranean, I believe that lead isotope analysis produces 'objective' data. The problems arise with the consistency of the analyses and the archaeological interpretations inferred on the basis of lead isotope data, in particular concerning items made of alloyed copper.

The ships and 'ingots' represented in southern Scandinavian rock art are indeed intriguing, and the lead isotope analyses that propose possible ore sources for the metal artefacts are presented in a coherent, if inconclusive manner. No doubt Bronze Age merchants, mariners, messengers or 'travellers' were highly mobile, and I do not object to the notion that the Swedish rock art depictions might represent the mingling of reality with "myths, magic and sailors' stories". When it comes to the *interconnectedness* of Scandinavia and the eastern Mediterranean during the Late Bronze Age, however, we are still some way from past realities.

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