



The odyssey of 'enchanted' Cypriot Copper ingots

The trade and exchange of Cypriot Copper in
the Bronze Age East Mediterranean

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Abstract.

In this report we will be discussing the movement of Copper around the East Mediterranean in the Late Bronze age through the theory of trade and exchange. There will be a particular focus on Cypriot Copper and its higher status.

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1. Introduction

The presence of Cypriot Copper in the exchange of metals during the Late Bronze Age in the Eastern Mediterranean/Levant/Egypt has been discussed widely in the academic community. Using evidence from Archaeology, ancient text, and modern metal analysis we are going to explore the journey of the Cypriot Copper ingot, from its origins in trade, to its development into a commodity used in Gift Exchange.

To do this we will follow a chronological pattern, by looking for some of the earliest mentions or discoveries of Copper that has been identified as Cypriot and track its journey in trade around the Mediterranean and Middle/Near East, reflecting on art and cultural changes that appear as time moves forward, highlighting Bronze Age societies' belief in Cypriot Copper's 'enchanted' value or importance, and why despite having access to other Copper resources, some of the most powerful civilizations of the time still highly prized Cypriot Copper above all.

We will consult the modern study of metallurgy, to explore possible reasons why Cypriot Copper was so highly prized above other sources for similar metal compounds popular and valuable at the time.

2 Theoretical Perspectives

2.1 Overview

In this report I will be looking at the Bronze Age exchange of Cypriot Copper ingots and role they played, predominantly in Gift Exchange between the nation of Cyprus, the Levant and Egypt at the same point in history. However, the theory of Gift Exchange only allows us to explore the existing relationship between these nations and I would argue that Gift Exchange grows out of a combination of trade and the heightened quality of the material Cyprus was exporting at the time. As a result, my methodology will be exploring Gift Exchange, and the modes of exchange that surround and support the theory.

2.1.a *Gift Exchange*

According to Mauss, Gift Exchange is essentially obligatory. Whether through personal feeling, social pressures or expectations, most 'gifts' are received or given with an understanding that the giver will receive something eventually in return, even if this thing is intangible.

Becker, Messer and Wolter (2012) have found using social experiments on people working together, that Gift Exchange as an idea has become less valuable to us since we have become a globalized economy.

However, they also found that for those who engaged in it, a higher sense of value remained, and the Gift Exchange continued to be reciprocal over a long period of time. A similar experiment explored by Kube, Marechal and Puppe in 1999 came up with results and similar conclusions, however the .com boom and the advances we now have in global economy had not yet occurred in 1999. This leads us to question

whether Gift Exchange is a natural occurrence or is forced into societies' practices, when no other form of exchange will do. We will be reflecting on this during the presentations of data, to see if there is any evidence that Gift Exchange is the exception rather than the rule.

One thing that has always been clear with Gift Exchange, is that it is far more complex than the exchange and interaction that takes place in economic or trade practices, whose main endeavor is almost inevitably to increase the value of whatever is traded. Gift Exchange, as Mauss reminds us, covers a wide range of social situations; the sex that is affiliated with the gift itself – masculine and feminine properties, the spirit in which it is given, or even the political climate or language used to exchange, and the cross purposes that come when peoples of multiple civilizations convene. Unlike the communication that is necessary when bartering or trading, gifts can be given to barter for peace, without the perception that someone might be buying loyalty and risking offense. There are also gifts that hold no real value in the living world, gifts to gods or offerings for loved ones that have already passed. Renfrew and Bahin discuss how Gift Exchange and Reciprocity often develop from simplified modes of exchange, and in equal measure give birth to them as well.

Gift Exchange is something we are very used to as traditional form of interaction with people in our lives, but as Manolopoulos explains in his article, gift giving “is marked by both gratuity and reciprocity; both linearity and circularity; excess and exchange” (Manolopoulos, 2007). I also will be looking at why Gift Exchange was an essential part of Cypriot trade, and how it drove the use of Cypriot Copper all over the near and middle east, especially towards the Late Bronze Age period.

2.1.b *Other modes of Exchange*

As Mauss, Renfrew, Bahin and Manolopoulos confirm, Gift Exchange is such a multifaceted theory that throughout the use of it you must also bear in mind the other common modes of exchange used in and around that of gift giving:

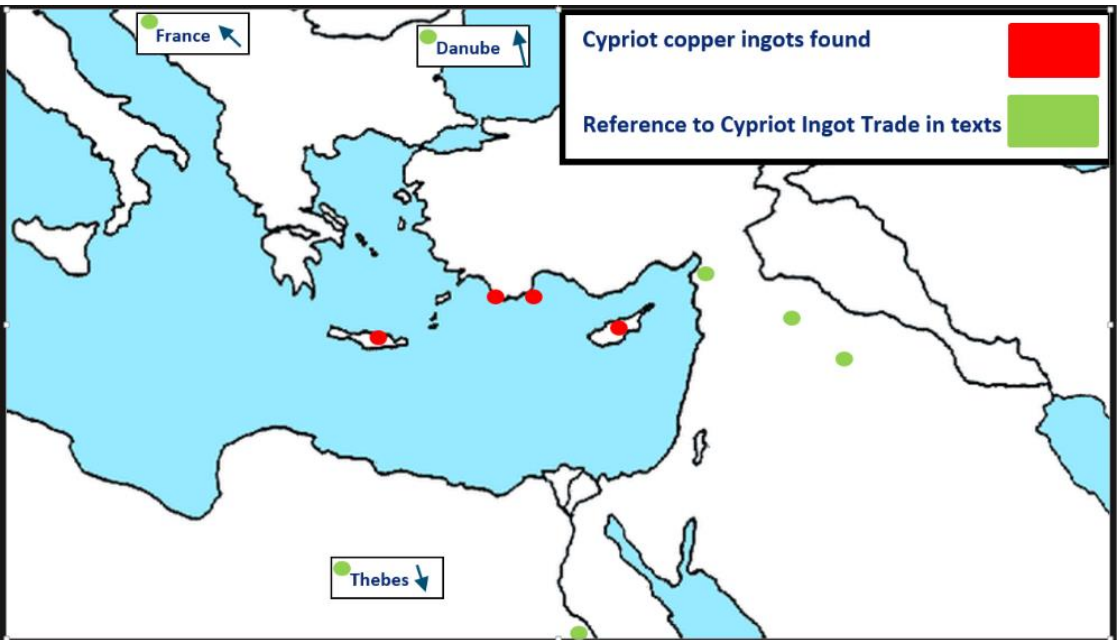
- Commodity trade/mercantile exchange
- Sailor Trade
- Barter

3 Presentations of data

Map of Early Bronze age Near East, with Copper sources highlighted.



Map of Cypriot ingot finds and textual evidence finds



Location	Date	Ingot	Text
Cape Gelidonya	1200 BC	X	
Uluburun Wreck	1300 BC	X	
Armana Letters	1375 BC		X
Danube	1400 BC		X
Mesopotamia	1400 BC		X
Crete	1500 BC	X	
Mari	1800 BC		X
Cyprus	1850 BC	X	X
Ugarit	2 nd Mill BC		X

4 Interpretation and Analysis

What is more than clear is that during the Bronze Age particularly in the Late-Bronze Age, Cypriot Copper was transported around the near and middle east in varying forms. Cypriot Copper has been found all the way down the Levant coastal trade route and in Egypt we not only have written evidence of its exchange in texts but find representations of the Cypriot Copper ingot in art, on decorations and in wall reliefs (Ferrara, 2016. Gale, 1986).

What is clear is that either the quality or the shape of the Copper provided by Cyprus was highly prized in some way. Muhly comments on the fact that there had been very little research done on metallurgy in the area and from where ancient civilizations had sourced their raw materials, however he noted that most Copper alloys found in the Aegean/Anatolian/Egyptian and Central Asia, are dated to the 3rd millennium BC and had arsenic properties. This implies that much of the Copper being transported prior to the Bronze Age was likely coming from a central source. However since Muhly wrote about this it seems early Copper was often alloyed with arsenic, even on Cyprus.

This poisonous alloy being used over such a large area may very well be the reason we see Cyprus taking the lead in the Copper trade once the Bronze Age is well established. However there may be other metallurgical occurrences that could also explain it.

When exploring the metallurgy of the Copper compounds found on Cyprus it was surprising to see that modern metallurgical analysis has found the presence of certain compounds in many of the ancient mining sites on Cyprus. Several of these mineral deposits found in Copper veins, have been proven to change the quality of the Copper, most markedly the compound Chalcopyrite which provides Copper with a more lustrous gold hue. Chalcopyrite is found commonly on Cyprus, as are many of the minerals associated with Copper production, and varied ores.

It is reasonable to believe that this varying quality of Copper explains why such a small island and its trade/exchange/gift giving of one of its most valuable commodities, had a direct impact on social interactions in other peoples, and the relative trade that followed.

Egyptologists have long since spoken about the precious metals used pervasively in ancient Egyptian culture, how the shinier, higher quality metals were valued for their enchanted and indescribable luminescence. Copper at this period of time was valued highly because of its use in creating Bronze when mixed with Tin, but was classically associated with blue and green colors rather than silver or gold. At a time when much of the Copper available was clearly tainted by poison, a new source of good quality Copper would have been vital to any large civilization. If the quality of Copper available nearby was poor, and the trade or Gift Exchange that commenced with Cyprus was done with Copper mixed with the Chalcopyrite, then one of the earliest impressions other civilizations will have had of Cyprus, were of people with access to an industrial metal that had precious metal qualities. Given the Egyptians' greed for the glitter of gold, it is hard to argue that this would not have left a very good impression.

Although we know of many sources the Egyptians used for copper mining (see Presentations of Data) for some reason during the Bronze Age, which we have to remember is later on the island of Cyprus, Cypriot Copper seems to be highly prized. From wall reliefs with the ingots seemingly being gifted by emissaries to the pharaoh, we see the symbol of the Cypriot ingot placed in symbolic positions that make it undeniable how important the ingot was to the cultures outside of Cyprus.

An argument could be made that as the Egyptian civilization spread further East, so did this Cypriot trade in Copper. Although if seafaring was viable at this time it is more than likely they already had trade routes along the Levant all the

way up to the Cyclades. Mandal comments on a Cypriot copper axe head found in Sweden, from a Bronze Age stratigraphy. From what we can tell from cultural aspect, art, decoration, symbolism, much of the indications given are Egyptian. The Armana Letters are one of the sources that have provided us with the best indicators of Cypriot Coppers' importance to the Egyptians, that the Cypriot Copper was somehow of superior quality to that available in the two known Egyptian copper mines (see Presentations of Data). Once this understanding was firmly founded in Egyptian society, any campaigns by Egypt up to the Levant were bound to support the existing trade routes along the coast, not only as allies but as keen investors in the Cypriot trade.

The idea that Copper trade sprang out of nowhere is unlikely, and it is impossible to tell when the first trading of ingots began. In fact there is evidence that trade started with pure Copper axe heads (Mandal, 2016), making it easy to trade, and useful in the meantime. However, one could argue these are the first examples of Gift Exchange. That the reason why the ingot became so integral to Cyprus in maintaining its own form of respect and authority, that ingots became inherently part of the diplomatic discourse of Gift Giving.

It is also possible to argue, that when comparing Copper slag from the smelting centers on Cyprus (see Appendix 2 and 3) with and the average Copper slag we find during the Roman period, it is clear the technology of smelting is still in its infancy. Again, referring to metallurgy (see pic.....that shows the varying degrees of purity of the metals found in Britain, this kind of analysis has not been done on Cyprus), it may be that Bronze Age Cypriot culture had not developed the technology to smelt out some of the less concentrated Copper ore, essentially providing them with ingots of a very high quality. It could be argued that similar slag samples from Egypt or Iraq, show that the technology was not particularly any better there, and so the likelihood that as a result Cyprus was inadvertently producing a higher percentage of Copper quality is low.

5 Conclusion

When looking at the presentations of data, what is clear is that throughout the Bronze Age Egypt had ample resources far nearer to home than Cyprus for many essentials of the period, especially that of Copper. There were at least two mines operating in Egypt during the period. Although Cyprus is seemingly nearer to the Aegean coast line/Levant, it is probable that ancient trade routes from Egypt existed long before Cyprus had begun trade with the wider world, and so it is unlikely that they began trading before contact with Egypt. The evidence is that despite the practicality and economical value of sourcing Copper along existing trade routes or from mines near-by, Egypt particularly, seemed very keen to get their hands on Cypriot Copper Ingots.

There is no outright evidence that the Copper ore smelted in Cyprus may have been of a different quality to copper from other mines at the time, other than the clear status it gives Cyprus and the desire other civilizations had for the material. We have argued on several points that could provide clues as to why Cypriot copper was so highly prized, including looking at comparative smelting practices and at the minerology on Cyprus and composition of the Copper there. By no means is it likely that if the copper was of an 'enchanted' quality, or at least looked that way, that every single ingot made in Cyprus would be the same. In fact, the argument is grounded in the likelihood that the Cypriots were aware of the varying quality of Copper available. That when they were approached or were approaching a far greater and richer society, it made sense to offer a gift, possibly the first ingot made on the island, out of the most beautiful copper vein they knew of. That from that moment, a special importance was given to both the quality of this Copper and the shape in which it was received.

It is worth noting that Ferrara and Bell agree with the higher quality copper hypothesis in their written work "Tracing copper in the Cypro-Minoan script".

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7 Appendices and illustrations

Appendix 1: An example of how Chalcopyrite effects copper

Appendix 2: An example of what is thought to be roman slag from Copper production on Cyprus

Appendix 3: An example of Cypriot slag, found on site at

Appendix 4: Example of Bronze Age impurity groups (Welsh)

Appendix 5: Example of Bronze Age Alloy % (Welsh)

Appendix 6: Armana letters that mention the king of Cyprus and Copper trade



Figure 2 Chalcopyrite, the primary ore of copper.



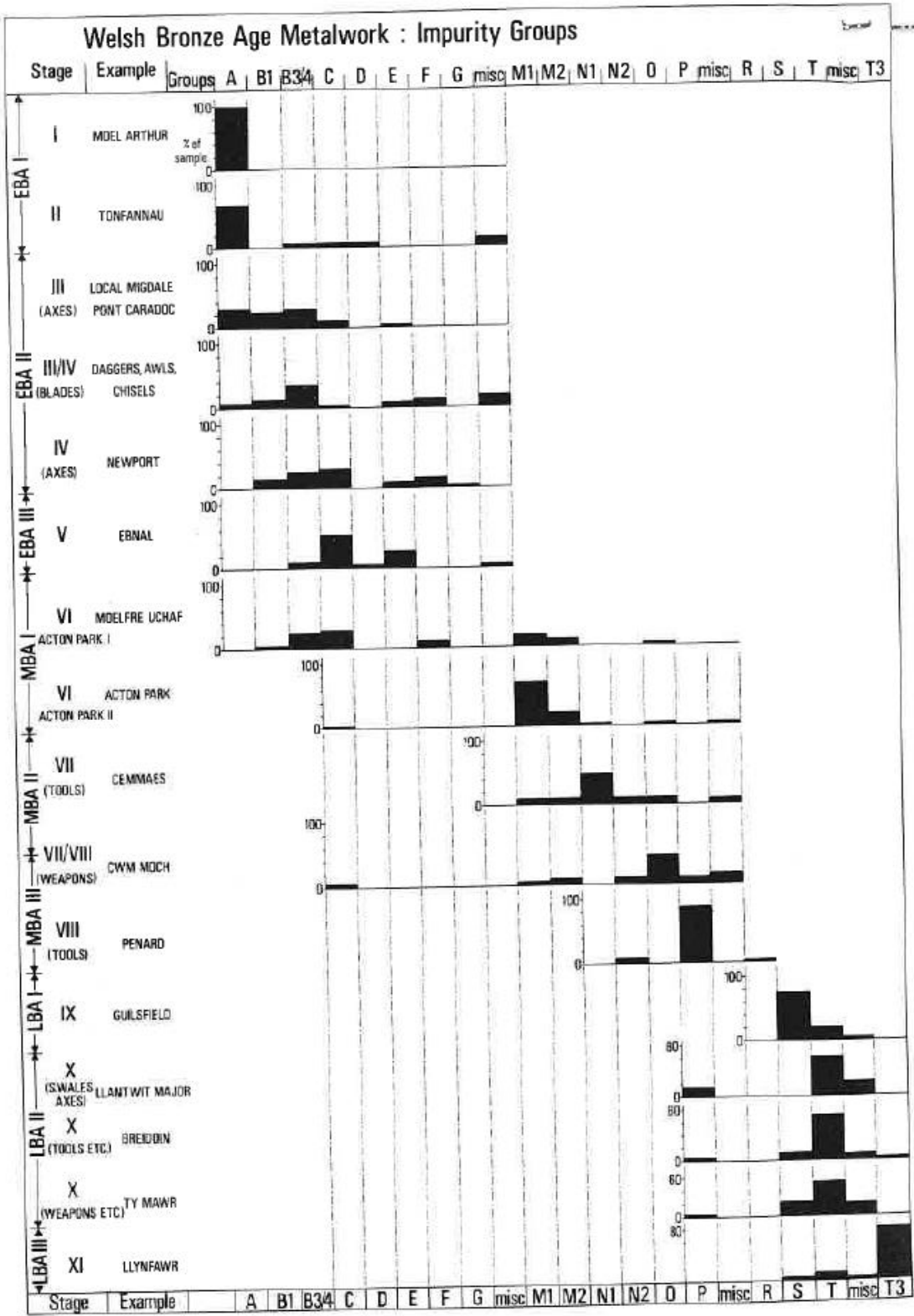


FIG. 3. - IMPURITY GROUPS.

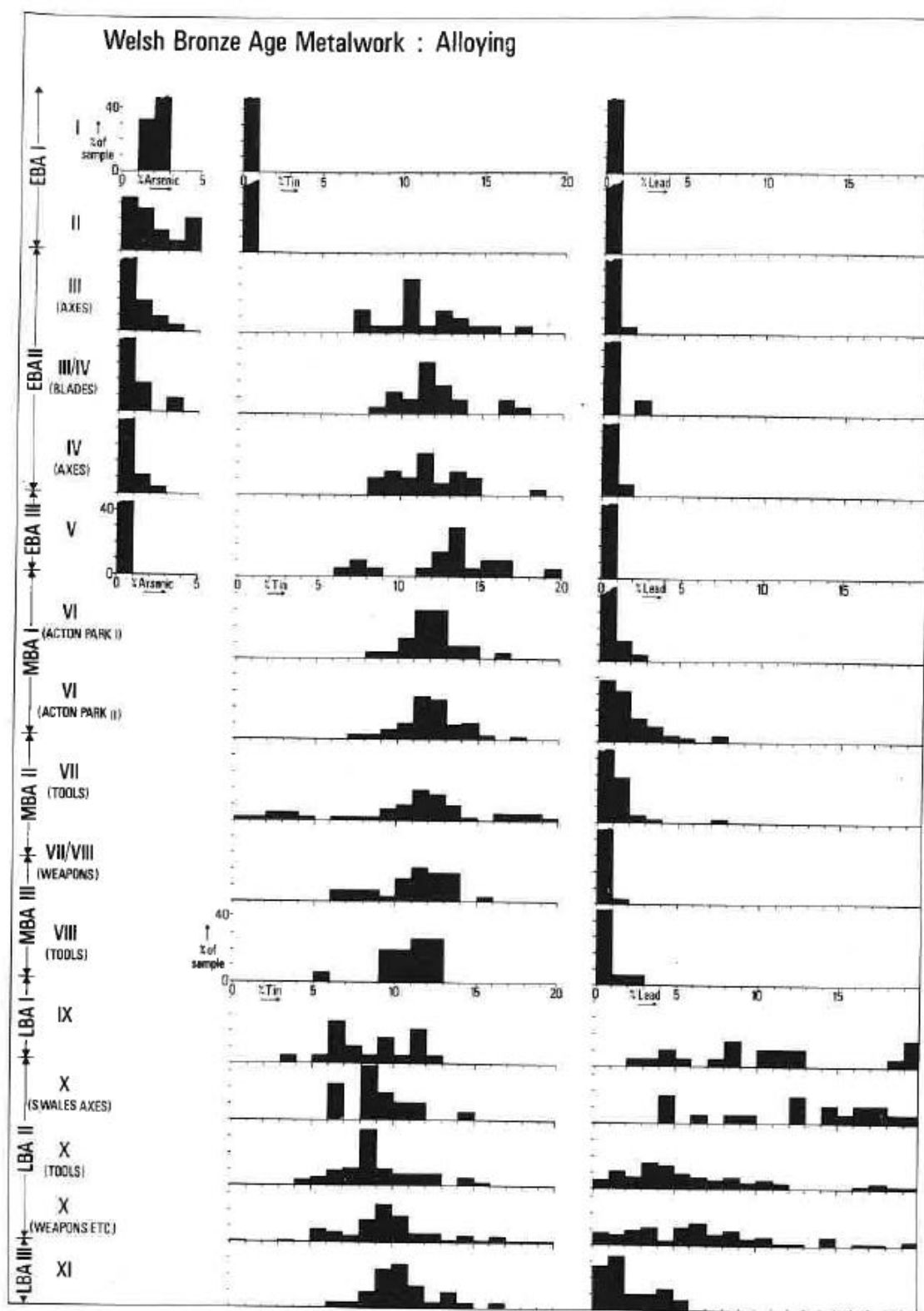


FIG. 4. ALLOYS.

