Journal of Archaeological Science: Reports xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

Journal of Archaeological Science: Reports

journal homepage: www.elsevier.com/locate/jasrep

Weight and context: A new approach to the role of metals in LBA societies on Crete

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ARTICLE INFO

Article history:
Received 29 October 2014
Received in revised form 14 January 2016
Accepted 4 March 2016
Available online xxxx

Keywords:
Metals
Metal weight
Crete
Minoans
Mycenaeans
Late Bronze Age

ABSTRACT

The importance of metals in the LBA Minoan and Mycenaean societies on Crete has been a generally accepted view, but no one has so far focused directly on this topic. In this new approach on the basis of the distribution of the metal amount differences between the role of metals in LBA Minoan and Mycenaean societies were revealed. The analytical work is based on three parameters for the metal finds and three aspects of the regional metal assemblages. The approach is new in three ways: the metal-centred focus for studying Aegean societies, the holistic view comprising all types of copper-based metal finds, and particularly the quantification of the metal finds by weight. The most striking differences regarding metals between the two societies are how the valuable imported metal was used and its find context. The Minoans seem to have considered metal mainly from an economic point of view whereby a considerable share of the valuable metal was used for utilitarian artefacts needed by the whole population. Mycenaeans on the other hand used almost all metal for prestige artefacts for an elite. The main part of the Minoan metal finds is settlement finds, whereas the Mycenaean artefacts were deposited in tombs.

1. Introduction

Metals were the primary determinants of power and status in the eastern half of the Mediterranean in the Late Bronze Age (Sherratt, 2000). Access to metals and metallurgical skills were crucial factors in the emergence of the Aegean Bronze Age palatial civilizations (Hakulin, 2004), and therefore a knowledge of the metal trade and metalworking in the Bronze Age, and of the regional metal systems and metal cycles are important for an understanding of the political and social situation in these societies. The availability of copper and particularly tin sources was restricted to specific geographical ranges, but even nonmetalliferous regions sometimes developed into metalworking centres that could outshine the metal-yielding ones (Needham, 1998). Late Bronze Age Crete is an example of a region lacking metal sources that developed a thriving bronze industry (Hakulin, 2013). All copper and tin needed had to be imported: in the Neopalatial period as oxhide ingots mainly from the Near East and Cyprus, whereas the metal supply to Mycenaean Crete remains an enigma as no ingots have been found. The import of finished bronze objects to LBA Crete has never been thoroughly investigated. The Minoan bronzesmiths were quite skillful and Neopalatial Crete might have been rather self-sufficient in manufactured bronze objects and can be considered rather as an exporter than an importer of bronze objects. During the more militaristic Mycenaean periods mainly weapons might at times have been imported: weapons found in the Mycenaean graves at Knossos could have been brought from the mainland by the warriors, and at the end of the Postpalatial period a migration of mainlanders came to Crete from Central Europe with elaborate weapons of a new type (Bouzek, 1985; B.P. Hallager, 1985; S. Sherratt, 2000.) Particularly in East Crete the number of tombs containing weapons then increased dramatically (Tsipopoulou, 2005).

The Late Bronze Age era on Crete, from ca. 1600 BCE to ca. 1200/1190 BCE were momentous years when the Minoan society reached its peak of development only to be overrun and destroyed by the Mycenaean Greeks around 1450 BCE (Fig. 1).

The two civilizations were completely different in characters, but what they shared was a need for metal for their very existence. As none was to be found on Crete or in the Aegean, both developed extensive commercial networks to import the copper and tin needed in the bronze industry, mainly from Cyprus and the Near East. The outstanding feature of the metal system on LBA Crete is the huge amounts of copper and bronze preserved, in total about 2 tons, almost equally divided between copper oxhide ingots (Fig. 2) and bronze objects of a massive, substantial nature (Fig. 3), which indicates a great increase in the use of metal from the previous periods, and a prospering bronze industry.

Throughout the history of Aegean archaeology, scholars have studied ceramics, architecture, art and many other topics. Ceramics have been the main lens through which the past has been viewed and interpreted; ceramic-centred approaches have dominated Aegean prehistory (Nakou, 2007). Late Bronze Age Crete seems never to have been a core area of interest for archaeometallurgists. In recent years, the research focus has been on the Early Minoan period (e.g. Day and Doonan, 2007). Some scholars have, stressed the critical role of metals,

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http://dx.doi.org/10.1016/j.jasrep.2016.03.003
2352-409X/

Period (ceramic phases)	Absolute dating	Cultural identity
Neopalatial (MM III – LM I)	ca. 1700/1600 - 1450 BC	Minoan
Final Palatial (LM II – LM IIIA1)	ca. 1450 - 1375 BC	Mycenaean
Post palatial (LM IIIA2 – LM IIIB) /1190 BC	ca. 1375 - 1200	Mycenaean

Fig. 1. Temporal division for LBA Crete.

particularly in the development of the Minoan palatial societies on Crete (e.g., Wiener, 2011; Betancourt, 2002, 2012), but so far, to my knowledge, no one has directly focused on this topic.

My Master's thesis (Hakulin, 2004) revealed significant differences in the metal record from the 500-year-long LBA era on Crete, regarding the availability of metal, the type and size of the metal finds and their spatial distributions and find contexts. It indicated that the metal record, the metal systems and their social impacts in the different periods could be a demanding research topic for a PhD. My recently finished dissertation, entitled Metals in LBA Minoan and Mycenaean Societies on Crete: A Quantitative Approach (Hakulin, 2013) is an attempt to increase the understanding of the role of metals in the palatial societies on Crete through a systematic investigation of the preserved metal finds with a new quantitative approach.

2. Materials

The material analysed in my dissertation with the new approach comprises copper-based metal finds in all forms and metallurgical refractory material from LBA Crete, in total 3292 finds, roughly estimated to cover ca. 80–90% of the finds published so far. The majority are bronze objects, ca. 3000 finds, of 50 different types of varying function, size and importance. The cast functional double axes, weighing ca. 1 kg. were typical of LBA Crete and the large saws which could be up to 1.6 m long and weighing as much as 5 kg were unique to Neopalatial Crete. They are only found in palatial contexts, which might indicate that, for instance logging and shipbuilding were palatial privileges (Hakulin, 2004, 2013). The collection also included elaborate vessels and weapons from all periods and objects for personal care, such as razors, tweezers and mirrors, found in burials from the Mycenaean era, as well as small figurines, found particularly on cult sites in the Neopalatial period. The most spectacular are the 32 complete copper oxhide ingots mainly found hidden or in storage for future use (Fig. 2). They are dated to the Neopalatial period and are the oldest complete oxhide ingots found. The most common evidence of bronzeworking are metallurgical refractory materials, not metal finds. The material included 179 fragments of crucibles, moulds, tuyères and pot bellows. In order to effectively manage this heterogeneous material, the finds were entered into a codified database, ΧΑΛΚΟΣ, enabling searching and sorting the material at will. It was initially designed for my Master's thesis (Hakulin, 2004) and improved and updated for my dissertation, where it is presented in Appendix I (Hakulin, 2013).

3. Method

In Aegean archaeology, the use of archaeometallurgical data for the interpretation of social, political and economic conditions represent a rather new approach. For that reason, since until recently very little systematic analytical or technical work has been published on the metal finds from LBA Crete (Giumlia-Mair et al., 2011), a new quantitative approach was devised for my dissertation. As a basis for the analytical work, three parameters of the metal finds were selected: their function, find context and weight, and three aspects of the metal assemblages, related to the distribution and use of the metal amount (Fig. 4).

The function of a metal find reveals how it was used: was it a utilitarian object for practical purposes, or a prestige object mainly intended for strengthening the power and status of the elite? The find context of a metal object can be indicative of the future use of the metal: metal objects found in circulation could be recycled, whereas metal deposited in burials or as votives is in theory lost from circulation and had to be replaced by new metal, if the intention is to keep the metal amount in circulation constant (Needham, 1998). The metal weight is the most

Fig. 2. LM IA copper oxhide ingots from storage at Hagia Triadha in Heraklion Museum. Photo: Jill Aschan.

Fig. 3. Huge bronze cauldrons from Tylissos, weighing about 50 kg each in Heraklion Museum. Photo: Lena Hakulin.

Please cite this article as: Hakulin, L., Weight and context: A new approach to the role of metals in LBA societies on Crete, Journal of Archaeological Science: Reports (2016), http://dx.doi.org/10.1016/j.jasrep.2016.03.003