

Sealing and “Exchange” in the Late Bronze Age Aegean and Beyond

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“Do not accept if seal is broken.”
Modern box sealing tape.

Abstract: Despite the rich data pertinent to commercial activities in Minoan Crete and Mycenaean Greece, the evidence for sealing practices in a context of trade exchange is virtually absent. In an attempt to provide an explanation for the enigmatic absence of sealings in Bronze Age commercial transactions in the Aegean and beyond, the paper addresses some crucial aspects of this problem which include the Aegean evidence on exchange and sealing as two practices unrelated to each other and the question whether this incompatibility was an Aegean or rather a general phenomenon in the Late Bronze Age Eastern Mediterranean.

Keywords: sealing practices, trade, markets, administration, commodity branding

In modern society, material exchange is a dominant social fact involving individuals, companies and, to some extent, institutions as well. The ever increasing significance and complexity of commercial transactions are, however, accompanied by an increasing mistrust and a need on the part of the buyers to protect themselves against any kind of fraud. For this reason, sealed and standardized containers which are labeled with information relating to their provenance, quality and quantity become indispensable.¹ Only through labeling, packaging and securing commodities, consumers are able to assess this crucial information before purchase. The circulation of trade goods in standardized and/or “branded” containers or packages is certainly not a modern invention but can be traced back to antiquity. At least from the late second millennium B.C.E. onwards, sealing or marking of the body and/or the closure of standardized ceramic containers was practiced regularly to secure and “brand” portable goods, especially wine.² The sealings guaranteed the integrity of the package and its contents or indicated the producer, thus furnishing proof for the authenticity of the commodity.

Looking at relevant Late Bronze Age Aegean evidence from this diachronic backdrop, we are confronted with a puzzling fact. Despite the rich data pertinent to commercial activities in

¹ See Fanselow 1990, 253: “(...) in the standardised commodity market, brand names and trademarks act as classificatory devices by which the provenance of goods in the market becomes identifiable and therefore their quality more predictable. They thus provide efficient channels of communication between producers and consumers, which are independent of the chain of intermediary traders and middlemen.”

² The earliest examples of sealed standardized containers were, as a rule, distributed within the confines of an administrative system, cf. Egyptian New Kingdom wine jars (Lesko 1977; Lesko 1996, 220–28) and royal Judahite storage jars or *lmlk* jars, which were in use from the late 8th to the early 6th cent. B.C.E. (Lipschits et al. 2010, Lipschits et al. 2011; Sergi et al. 2012, esp. 89). Greek wine amphoras which were “labeled” by stamped impressions made before firing were, on the contrary, distributed in commercial networks, see Grace 1961; Garland 1983. For ancient wine amphoras as the earliest “consumer packages” see Twede 2002, esp. 98: “They served as “silent salesmen” to convey information about the contents’ origin, type, and grade. Many identified the merchant. They even had tamper-evident closures to ensure “truth in packaging.” For a thorough discussion on the ancient origins of branding in a wider cultural setting see further Wengrow 2008, Wengrow 2010. Wengrow (2010, 16) notes that in modern times, industrial adhesives, synthetic wrapping materials and labels have taken the place of ancient sealing practices.

Minoan Crete and Mycenaean Greece,³ the evidence for sealing practices in a context of trade exchange is virtually absent. This puzzling fact needs an explanation. In an attempt to tackle the problem, the present paper focuses on the enigmatic absence of sealings in Bronze Age commercial transactions by addressing four crucial aspects:

1. the Aegean evidence on exchange and sealing as two practices unrelated to each other,
2. two ostensible “exceptions” from this general rule of incompatibility,
3. this incompatibility as an Aegean or a general phenomenon in the Late Bronze Age, and
4. further questions that arise from the present approach and may be relevant to the nature of the Late Bronze Age trading system.

A brief overview of the Aegean evidence

My approach requires me to summarize briefly the basic facts: on the one hand, the evidence on the significance of exchange in Minoan and Mycenaean societies and, on the other hand, the main function or functions of sealing in this specific historical setting. Starting with exchange, there is definitely no need to repeat what we all know and what has been the topic of this conference.⁴ In the Late Bronze Age Aegean, reciprocal exchange in a commercial or ceremonial context represented one of the most important forms of social interaction with various political, economic and ideological dimensions. The archaeological data provide ample evidence for this activity, at least as far as market exchange is concerned. As for ceremonial exchange, it is very likely that some of the imported valuables were diplomatic gifts. The same can also be said of many luxury items of Aegean manufacture that were circulated among centers of power on Crete and the Greek Mainland. In most of the cases, however, it is very difficult – if not impossible – to identify with any certainty an archaeological find as a ceremonial gift only by virtue of its material, shape, decoration or context.⁵ Contrary to the impressive wealth of archaeological data for the supra-regional circulation of commodities (and gifts) within and beyond the Aegean, there is unfortunately no relevant pictorial or written evidence. None of the Minoan or Mycenaean processions with valuable items can be securely related to trade or gift exchange.⁶ On the other hand, Linear B tablets are – as we know – surprisingly silent as to commercial activities.⁷ These lacunae can only be filled by Egyptian and Oriental sources – both, pictorial and written – referring extensively to diplomatic gift-exchange.⁸ To summarize: Despite numerous gaps in the archaeological record caused by an absence of Aegean pictorial and written sources and the problematic documentation of ceremonial exchange on the basis of artifacts, we have a substantial body of archaeological data relating to trade and within this type of evidence, as we shall see, sealings are absent.

³ For some recent publications which provide a good overview on this vast field of enquiry see Cline and Harris-Cline 1998; Haskell 1999; Zerner et al. 2003; Laffineur and Greco 2005; Collon 2005; Yağcı et al. 2005; Elster 2007; Cline 2007; Gillis and Sjöberg 2008; Betancourt 2008; Aruz et al. 2008; Sacconi 2009; Burns 2010a, Burns 2010b; Alberti 2013.

⁴ Several aspects of Bronze Age exchange in the Aegean are analyzed in an excellent manner in several papers of the present volume.

⁵ For a few – possible – exceptions see the alabaster lid with the cartouche of the Hyksos pharaoh Chayan from Knossos (Karetsou and Andreadaki-Vlazaki 2000, 82–3, cat. no. 62; Phillips 2008a, 77; 2008b, 97–8, no. 163), the alabaster amphora with the cartouche of Thutmose III from Katsambas (Karetsou and Andreadaki-Vlazaki 2000, 220–21, cat. no. 219; Phillips 2008a, 56–9; Phillips 2008b, 67, cat. no. 114) and the cache of lapis lazuli seal cylinders from Thebes (Porada 1981/1982).

⁶ Boulotis 1987; Blakolmer 2007, esp. 49–50; Blakolmer 2008.

⁷ Killen 1985, 265, 268–70; Olivier 1996/1997; Bendall 2007, 270–74.

⁸ For an overview of the relevant evidence see Zaccagnini 1973; Zaccagnini 1983, esp. 198–227; Zaccagnini 1987; Liverani 1990, 255–66; Peltenburg 1991, 167–70; Cline 1995; Panagiotopoulos 2000; Panagiotopoulos 2001; Feldman 2006, 105–14; Liverani 2008; further Cochavi-Rainey 1999; The fact that references to commercial activities are extremely rare in official Near Eastern texts and images can be explained by the profane character of this activity, see Panagiotopoulos 2000, 156–57.

Keeping this absence in mind, let us now turn to sealing practices. Sealing arose from the necessity to safeguard one's property. This necessity became critical not in the context of normal households but within complex social institutions such as palaces, institutional households, or administrative centers of any kind, where trust and honesty were anything but self-evident. Here, seals were used as sphragistic instruments especially for monitoring the shipment and storage of goods. Furthermore, they were employed both for securing and labeling goods as the systematic analysis by W. Müller has clearly demonstrated.⁹

Most if not all of the contexts of nodules with seal impressions can be identified as administrative centers or related to such. This contextual nexus is quite apparent in the case of Mycenaean Greece since nearly all Mycenaean nodules have been found in palaces or satellite buildings which must also be regarded as branches of palatial institutions.¹⁰ In Minoan Crete, the evidence is less straightforward because many nodules were discovered in non-palatial centers such as Hagia Triada, Gournia, Sklavokambos and elsewhere.¹¹ Yet even in these cases the nodules can be associated with the activities of institutions of power with a wide administrative reach rather than with a network of commercial exchange.¹² Further nodules found in buildings in the vicinity of palaces such as *House A* in Zakros, the *North-East House* in Knossos, and *House I* in Chania should also be related to the central administration and not to private activities.¹³ To make this crucial point clearer, it seems that in the Late Bronze Age Aegean sealing fulfilled its function only within a closed administrative system in which goods were produced, circulated, and stored without "changing hands", in other words without changing ownership. This is of course not at all surprising: The main purpose of sealing was to secure the means of closure and presumably to guarantee the integrity of the goods or products being transported or stored. The effectiveness of the entire system was based on the controller being able to recognize the motif of the seal impression and to associate it with a certain person or institution. This condition was, as a rule, possible only within the confines of a well-organized administrative system. The interregional distribution of seal impressions from a single site, a feature which would correspond to the interregional distribution of trade commodities from a single site or region, is a phenomenon virtually unknown in the Aegean.

Two ostensible exceptions

There are, however, two cases which at first glance might seem to deviate from what could be regarded as a general practice in Bronze Age Aegean. Both cases have been extensively discussed in past decades, more recently by W. Müller who considered them in his 2008 article on traveling sealings as evidence for trade. Müller argued that sealings must fulfill two conditions to be related to trade:

"First, there must be evidence that one is dealing with sealings that travelled, i.e. that did not originate in the place where they were found (...) Second, one must identify the sealed objects in order to prove that they were meant for transportation."¹⁴

Following these two criteria, Müller suggested that in two cases (a Minoan and a Mycenaean one), Aegean sealings can be related to *emporía* (trading posts) in the Late Bronze Age. The first case is the well-known group of Minoan nodules sealed by the so-called Knossian replica rings. The term refers to roughly 25 nodules discovered on five widely dispersed Cretan sites

⁹ Müller 2002, 52–69; Müller 2006.

¹⁰ See Panagiotopoulos 2010, 300–1.

¹¹ Hallager 1996, 38–77, esp. 77.

¹² See below n. 19.

¹³ This seems to imply also Schoep (1996, 78–82; 2000, 215; 2002, 24) in her assumption that these buildings belonged to a "decentralised administration" or operated as "decentralised offices".

¹⁴ Müller 2005, 785.



Fig. 1: Minoan nodules impressed by the same ring from Akrotiri, Hagia Triada and Sklavokambos

and even outside Crete, in Akrotiri on Thera (fig. 1).¹⁵ The exceptional feature of this group is the fact that nodules found in more than one site were stamped by the very same gold ring. The most notable case of the entire group is represented by a ring with a bull-leaping motif, which was impressed on nodules found in Sklavokambos, Hagia Triada, Gournia, and Zakros.¹⁶ These nodules sealed tiny pieces of parchment or leather which were wrapped and tied up with fine threads forming the sealed parcels. Modern silicone casts of the nodules' rear side clearly indicate that these tiny folded "parcels" could not have contained anything.¹⁷ The only logical inference is that we are dealing with written messages.

In the last decades, this absolutely unique example of interregional distribution of identical impressions has been the focus of much controversy among scholars questioning their Knossian provenance, supporting the idea of a balanced commercial network and therefore (as Müller also did) regarding these nodules as clear evidence for a sealing practice in the context of market exchange.¹⁸ However, a recent multidisciplinary analysis of this group by Y. Goren and the present author provided new evidence which weakens the trade hypothesis. An examination of minute samples taken from several nodules using a petrographic microscope, an environmental scanning electron microscope, and an attached energy dispersive spectrometer showed that the raw materials of their clay are in agreement with those known from north-central Cretan assemblages, thus making Knossos the most probable site of origin.¹⁹ Based on these results, it seems to us fully justifiable to conclude that their distribution was associated with a closed Knossian network (this is a perfectly neutral term)²⁰ which operated on an interregional basis on Crete and even beyond the island, involving different agencies or branches. Such a network would furthermore explain the peculiar type of these nodules which seem to have sealed not commod-

¹⁵ Hallager and Hallager 1995, 549–51; Hallager 1996, 207–13; Dumas 2000; Krzyszkowska 2005, 189–92; Müller 2005, 787–89; Karnava 2008, 378–81; Karnava 2010.

¹⁶ See Krzyszkowska 2005, 190, no. 368.

¹⁷ Müller 1999, 349–60.

¹⁸ Weingarten 1991, 308–10; Schoep 1999, 213–17, esp. 217.

¹⁹ For two preliminary reports see Goren and Panagiotopoulos 2008, 2009.

²⁰ See also Weingarten 2010.

ities but rather written messages. The discovery of three flat-based nodules stamped by a Cretan gold-ring and many other Minoan nodules in Akrotiri²¹ does not necessarily imply that the island of Thera was politically or economically dominated by a Minoan center.²² It is more plausible to assume the existence of a Knossian office or trading post in Akrotiri, somewhat similar to Assyrian trade colonies in Anatolia which provide evidence for Assur’s wide administrative reach but not for Assyrian political control over parts of the Anatolian territory.²³



Fig. 2: Sealed transport stirrup jar from the “House of the Oil Merchant” at Mycenae

Let us turn now to the Mycenaean case, the well-known group of c. 30 transport stirrup jars from the *House of the Oil Merchant* at Mycenae (fig. 2).²⁴ At the time of their discovery, some of their mouths were still covered with stopper sealings. Several scientific analyses of the clay of stirrup jars and stoppers which were conducted in the past decades provided very interesting – yet at the same time – perplexing results. The analyses indicated different provenances for jars and stoppers.²⁵ The main problem is that in many instances the jar’s place of manufacture could not be pinpointed with certainty. A recent publication of new typological, petrographic and chemical analyses of this group may not yet have solved all problems but could at least shed some light on this matter.²⁶ There can now be no doubt that at least some of these stirrup jars were manufactured in

central or western Crete, sealed with stoppers in western Crete and then shipped from there to Mycenae.²⁷ Müller is certainly right to suggest that the sealing of the vessels’ mouth provides “a clear indication of the organization and monitoring of the transport by an appointed person” and that this group fits in an organized system.²⁸ Although agreeing with Müller thus, I see, however, no pressing need to relate this group with market exchange. It is more plausible to assume that the sealed containers were circulated within a closed administrative system. In a 2005 article, J. Maran suggested that the wide distribution of Cretan coarse ware stirrup jars on sites of the Greek Mainland could be explained not necessarily in terms of trade but rather in terms of a

²¹ See above n. 15.

²² Karnava 2008, 384–85: “(...) these sealings still fail to show what kind of economic relationship Crete (rather, the locality where the sealings came from to Akrotiri) enjoyed with Thera, and it is still premature, as it was 20 years ago, to speak about dependency or independence.”

²³ Dercksen 1996; Veenhof and Eidem 2008. For the use of seals in the Old Assyrian trading colony of Kültepe see Teissier 1994; Özgüç and Tunca 2001. For a similar interpretation of the Minoan nodules from Akrotiri see also Pini 2005, 782: “(...) this is clear evidence for exchange (trade?) activities at an official level; they were not just sent from a “μπακάλικο” on Crete.”

²⁴ Müller 2005, 785–86; Pini 2005, 782–83; Bevan 2010, 68–9.

²⁵ See Jones and Day 2011, 81–2; Haskell 2011a, 112–13; Haskell 2011b, 155; further Day 1995, 315–16; Tomlinson and Day 1995, 317, 319; Müller et al. 1998, 12.

²⁶ Haskell et al. 2011.

²⁷ See Müller et al. 1998, 13; Krzyszkowska 2005, 289. According to the results of the recent scientific analyses, the scenario of stirrup jars manufactured in central Crete, sealed with stoppers in western Crete and then shipped to Mycenae can be confirmed in at least three cases, see Haskell et al. 2011, MYC19 with MYC35#, MYC24 with MYC25#, and MYC21 with MYC22#.

²⁸ Müller 2005, 786.

feudal system in which Cretan vassals of Mainland palaces were obliged to send a share of their agricultural production as a tribute.²⁹ Based on this feasible explanation, it would not be far-fetched to link the stirrup jars from the *House of the Oil Merchant* with a circulation of commodities within the confines of the palatial administration of Mycenae, an administration which obviously controlled some Cretan regions, even if this interpretation does not fully explain their strikingly complex pattern of movement. Slightly modifying Maran's hypothesis, I would suggest that the stirrup jars from the *House of the Oil Merchant* were not Cretan tributes but were instead the produce of Mycenae's royal estates on Crete, thus providing an Aegean equivalent to Canaanite transport amphorae sent from Syro-Palestinian estates of Egyptian royal institutions to Egypt proper.³⁰

Even if these two intriguing cases of travelling sealings cannot be interpreted with absolute certainty (especially the group of Mycenaean stirrup jars), they can at least help us to revise the criteria set by Müller for linking sealings with commercial activities. Geographical distance between the place of origin and the final context of a sealing alone is insufficient, since even distant regions could have been part of the same political entity. In my opinion, the decisive criterion must be an "appropriational movement" (or "change of hands"),³¹ in other words a change in the commodities' ownership status rather than geographical distance. This shift in the property sphere requires the involvement of two different parties, i.e. two different owners at both ends of the shipment. In the two cases discussed above, I do not think that the commodities changed hands, merely that they were circulated within one and the same administrative system. Müller is perfectly aware of this fact stating at the end of his excellent analysis that the nodules which accompanied goods in transit cannot give us any indication of the status of their users who could have been either private merchants or palace officials.³² In my view, the crucial point here is to assume that only the latter possibility holds true and that in this case the officials involved at both ends of the transport belonged to the same administrative center.³³ If we now move from theory to practice, we must admit that employing this criterion on archaeological evidence is hampered by the fact that in many cases it is difficult, if not impossible, to decide whether an object changed ownership moving from an institutional to a private end-user or from an independent institution to another. This change in property status cannot be documented with any certainty by archaeological means, especially when only individuals are involved. Moreover, it cannot be excluded – or may even be likely – that in many cases objects left the orbit of an administrative system with seal impressions attached to them, even if these sealings were now useless. Given these problems of interpretation one may ask whether such an approach is sensible. I would answer in the affirmative, since a possible answer to the question whether during the Late Bronze Age in specific contexts of commercial exchange and especially in supra-regional or international exchange the buyer insisted on purchasing sealed commodities, could help us to better comprehend the logic and modus operandi of the trading system in question.

²⁹ Maran 2005, 427–29.

³⁰ See L. Bavay (this volume). Pini (2005, 783) has already formulated a similar hypothesis concerning one vessel of this group having an impression of a signet ring with a secure Helladic origin: "If the latter vessel with this stopper came from Crete might it point to the presence of a Mycenaean representative controlling the outgoing goods at the Cretan end?"

³¹ For this term, which was coined by K. Polanyi, see Halperin 1994, 58–63.

³² Müller 2005, 789.

³³ This assumption is in sharp contrast to Wengrow (2010, 17–8), whose argument is, in my view, founded on a basic misunderstanding of the function of ancient sealing: "The presence of a clay sealing demonstrated the integrity of the package and its contents, which was particularly important in the case of organic comestibles, and had the potential to reduce the risks involved in exchanges between *unfamiliar partners*" (my italics). The main argument of this paper is that sealing could *not* fulfill its actual role in exchanges between unfamiliar partners since they were not able to check the authenticity of the seal impressions.

Beyond the Aegean

If we now turn our attention to Egyptian and Near Eastern evidence we see that incompatibility between sealing and commercial exchange is probably not only an Aegean phenomenon. In the Late Bronze Age and in periods prior to it, sealing seems to have played an unimportant role in the context of commercial transactions. The vast majority of Near Eastern sealings were used primarily to manage local resources fulfilling this role within a closed system in which goods were circulated without changing ownership.³⁴ Sealing enabled strict control over the management and distribution of the wares stored because it not only provided a guarantee against misuse but also a way for keeping track of the movement of wares. In a commercial context, sealing seems to have been mostly related to documents (agreements, loans, etc.) and not commodities.³⁵ What can hardly be coincidental is the fact that despite the intensive trade contacts between the Aegean and the Eastern Mediterranean, there is not a single Aegean sealing in Egypt and the Near East and conversely no Egyptian or Near Eastern sealing in the Aegean.³⁶ My intention here is not to exclude the sporadic appearance of seals in the context of commercial transactions in the Near East prior to and during the Late Bronze Age, since only a systematic survey of the relevant evidence can give a reliable answer. I think, however, that according to the evidence at hand, it seems apparent that sealing was not an indispensable prerequisite for the exchange of commodities in the Near East. In other words, I would suggest that in the Late Bronze Age the person or institution purchasing commodities did not care whether these bore the producer’s or merchant’s sealing.

Sealing as commodity branding?

A recent debate seems to provide some useful insights to our problem. In an inspiring – yet very controversial – article published six years ago, D. Wengrow argued that one of the main roles of sealing in the Ancient Near East was commodity branding.³⁷ In his view, standardized systems of product packaging and labeling guaranteed authenticity and quality and thus served as demonstration of relationships of exclusivity. This provocative hypothesis has, however, several weak points, as E. Rova has shown in her reply to Wengrow’s article:

“If quality control was really a crucial issue, however, it must have been achieved exclusively through the community’s confidence in the officials who were entitled to use specific seals, since seal images do not convey any specific information about the type and quality of wares. Furthermore, the same seals were used to seal various movable containers (presumably, therefore, containing commodities of different types), the doorways of storerooms, and various types of documents. Finally, it is possible that the “final consumer” was unable to check the mark on the sealed ware because it had been unpacked by the official in charge before he received it.”³⁸

Despite its weak argumentation, Wengrow’s article is extremely interesting for our case, since it deals with some aspects that can serve to elucidate the structure of the Late Bronze Age trade system and the significance that branding practices may have enjoyed in this context. Wengrow

³⁴ More specifically, sealing was mainly employed for the management of storerooms at both palatial and “private” level, see Magness-Gardiner 1990, 63, 67; Ferioli and Fiandra 1990, 222–23.

³⁵ See Monroe 2009, 56–69. Even in the few cases in which the sealing of commodities is documented, this practice was employed for keeping track of the shipment and not for the act of commercial transaction, see *ibid.* 61–2.

³⁶ In the Aegean region, there are only a few isolated cases of impressions/rolled impressions of foreign seals/seal cylinders on nodules of local clay, see Palaima 1990, 79; Pini 2005, 778–79. In all these cases, it is apparent that the nodules were sealed within the Aegean by an imported seal/seal cylinder and cannot be related to foreign trade.

³⁷ Wengrow 2008, see further Wengrow 2010.

³⁸ Wengrow 2010, 25.

repeatedly refers to F. Fanselow's ethnographic approach on branding published in 1990,³⁹ in which the emergence of bazaar economies as opposite to brand economies is thoroughly discussed. In bazaar economies, goods are heterogeneous and unbranded, so that consumers have little opportunity to assess quality and quantity before purchasing. Bazaar economies "often involve the mobilization of personal networks of loyalty and affiliation between traders and consumers".⁴⁰ On the other hand, brand economies are characterized by the circulation of rigidly standardized, branded and substitutable commodities.⁴¹ Since personal loyalty and trust are generally less essential to business being conducted, the labor involved in packaging and sealing commodities is important.

Viewed from this theoretical background, the lack of evidence for sealing/branding practices as means to indicate origin, quality control, and authenticity in the Late Bronze Age is of course a very interesting phenomenon, which needs an explanation. Is it perhaps the simplest one, namely the patchy character of the archaeological record? Or was an *appellation d'origine contrôlée* indeed irrelevant for commercial exchange in the Late Bronze Age Eastern Mediterranean? Was this trading system operating as a kind of well structured bazaar economy in which most exchange only took place between known partners in order to avoid any risks? Or were there perhaps some other ways to convey such information? In a recent article, A. Bevan lucidly discussed the various problems of exchanging information between producers, distributors, and consumers when separated from each another both in terms of space and cultural setting and how these problems influence the nature of commercial activities.⁴² One effective strategy to overcome the difficulties relating to limited information as to the authenticity, quality, and quantity of a commodity is standardization:

"(...) commodity standardisation is an attractive solution, particularly if it is easily identifiable by the presence of some highly recognisable, carefully structured packets of cultural meaning. These mnemonic packets are usually created through physical addition to the objects involved (logos, labels, seals, special additives, and/or assembly practices, abstract symbolism, external advertisement, and, where possible, structured social performance (...)"⁴³

Consequently, it is very likely that commodity recognition could be achieved in some cases by means other than brand marking such as effective packaging or even manufacturing. A standardized and distinguishable container could have rendered a brand sign superfluous. I. Winter argued that not only labeling but also style could have provided an indicator of provenance.⁴⁴ In the same vein but in a completely different cultural context, J. Bennet suggested that specific products of Mycenaean palatial workshops could have been recognized as unique and highly valuable items by virtue of their material and process of manufacture, thus suggesting a "trademark" palatial production of these objects, a "Palace™", in other words a trademark without having to resort to a brand sign.⁴⁵

For the Late Bronze Age Eastern Mediterranean, there is sufficient evidence that such "mnemonic packets" were employed as commodity branding. A series of "technological and/or procedural trademarks", such as the design of clay containers, the design and blistered surface of copper ingots, the cast, impressed or incised marks on different types of commodities, and the borders of textiles seem to have fulfilled the function of brand marks providing the distributors

³⁹ Fanselow 1990; for a detailed discussion of Fanselow's terminology see Wengrow 2008; Wengrow 2010, 22–4.

⁴⁰ Wengrow 2010, 22.

⁴¹ See Fanselow 1990, 252: "The standardisation of product quality and quantity is a condition for product substitutability, which balances the information asymmetry between buyer and seller and thereby becomes a precondition for the efficient functioning of the price mechanism. If quality and quantity are standardised, the seller cannot, as in the bazaar, adjust them to price by adulterating and short-measuring, but must instead adjust price to quality and quantity."

⁴² Bevan 2010, 39–42.

⁴³ Bevan 2010, 40.

⁴⁴ See the reply of I. Winter to Wengrow 2008, 27.

⁴⁵ Bennet 2008.

or buyers with information relating to the provenance, quantity or quality of commodities.⁴⁶ The communicative efficacy of such signs depended on their complexity. What seems to corroborate this suggestion is the fact that when such brands are more complex than simple pottery marks, they can be related to ceremonial rather than to commercial exchange. One could mention here alabaster vases with cartouches of Egyptian pharaohs⁴⁷ or even Mycenaean transport jars with large painted Linear B inscriptions across the body or on the shoulder referring to the manufacturer, a probable distributor or owner of some kind, and/or a place name.⁴⁸ According to a very recent and – in my view – very plausible interpretation these jars were circulated during the course of gift-exchange among members of Mycenaean elites.⁴⁹

What I am suggesting here is that despite the need for branding practices in the Late Bronze Age Eastern Mediterranean, which is apparent through the evidence discussed above, sealed nodules/bullae were not employed for this function. One can certainly not exclude the possibility that sporadically sealed commodities left the orbit of an administrative system bearing an intact seal impression and were sold and bought in Mediterranean markets.⁵⁰ My point is that the existence of an intact sealing was not a prerequisite for a commercial transaction. The fact, that – according to our present state of knowledge – there is no sufficient evidence for the use of sealings as a “charismatic signifier of product identity”⁵¹ in the context of commercial or even ceremonial exchange, cannot of course fully exclude such a function. Therefore, future research should study in a more systematic fashion the problem whether sealings could have acquired beyond their purely administrative role, a commercial or symbolic value, which guaranteed and even enhanced the material and social value of a commodity.

Epilogue

Many of the observations presented in this paper are based on *argumenta ex silentio* which undoubtedly render the arguments stated here less sound. In my opinion, however, this negative evidence cannot be attributed to the fragmentary character of the archaeological record but reflects a historical fact and more specifically a certain practice in Late Bronze Age market exchange, according to which sealings did not play a decisive role during an exchange “event”. The ability of the end-users to identify the provenance and, more importantly, the authenticity of the sealing was possible only within the confines of an administrative system. The same also applies for a well-organized commercial network as in the case of the Old Assyrian trade colonies. In this carefully managed commodity flow from an administrative center to the *kārum*, sealings fulfilled their authorizing/securing function during the shipment or storage of goods,⁵² but not during the actual transaction, i.e. the ultimate delivery of the commodity to the end-user. According to the evidence at hand, we can assume a similar *modus operandi* for commercial exchange in the Late Bronze Age Eastern Mediterranean.

⁴⁶ See Bevan 2010, esp. 53, 58, 63–4.

⁴⁷ Bevan 2010, 135.

⁴⁸ See van Alfen 1996–1997, van Alfen 2008; Zurbach 2006; Killen 2011. On several of these labeled coarse ware jars, the name of the collector/owner is replaced by the adjective “royal”.

⁴⁹ Duhoux 2010. This hypothesis is the only convincing explanation for answering the questions why only some of the widely distributed stirrup jars were inscribed and why these inscriptions had an apparently calligraphic character aimed at enhancing their visual impact. Both aspects cannot be understood by assuming a purely “administrative” function, as van Alfen 1996–1997, 2008 and Zurbach 2006 have erroneously concluded.

⁵⁰ One could describe such cases as “leakages”, to borrow a term coined by Bevan 2010, 41–2.

⁵¹ Wengrow 2008, 8 (cited in Bevan 2010, 56).

⁵² Monroe 2009, 67–8.

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List of illustrations

Fig. 1: Minoan nodules impressed by the same ring from Akrotiri, Hagia Triada and Sklavokambos (Corpus der Minoischen und Mykenischen Siegel)

Fig. 2: Sealed transport stirrup jar from the "House of the Oil Merchant" at Mycenae (Corpus der Minoischen und Mykenischen Siegel)

Cyprus - Crossroads of Civilizations

Journal Maritime

Ancient Cyprus is one of the few regions where copper was in the Mediterranean. Copper production and trade in copper have shaped the cultural history of the island in antiquity. The article discusses archaeological evidence for copper and bronze production from the Palaeolithic to the Late Cypriot period, back with Cypriot copper in the Mediterranean (especially distribution of white sigils), cultural interchanges between Cyprus and Sicily at the end of the Late Bronze Age and in a more general way cultural interchanges, processes of contact and acculturation between Cyprus and the civilizations of the Levant as well as the Aegean during the Late Cypriot period (c. 1600 - 1100 B.C.).

Keywords: Cyprus in the Late Bronze Age, copper production, copper trade, white sigils, bronze work, Sicily and Cyprus

Ανεξαρτήτως από τις ποικίλες απόψεις για το "gold given, but thrown into the sea" (the title, which I chose, is a line from a famous song by Leonardos Michalos (music by Mikis Theodorakis) praising the island of Cyprus), it characterizes very well the geographical position of the island of Aphrodite, its central position in the Eastern Mediterranean, at the crossroads of seafaring between East and West, Cyprus was an intermediary station for traders and seafarers on the way from the Aegean towards the Levantine coast and back, a favorable prerequisite for intensive contacts with east and west, with the Aegean and the civilizations of the Ancient Near East.

But the specific role of Cyprus within the network of cultural interconnection and contacts during the Late Bronze Age in the East Mediterranean is based on its natural resources, its immense



Fig. 2 Cyprus, location of Cyprus and deposits