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# Fine Tuning: An Analysis of Bronze Age Potmarks as Clues to Maritime Trade

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# ***Fine Tuning:*** **An Analysis of Bronze Age Potmarks as Clues to Maritime Trade**

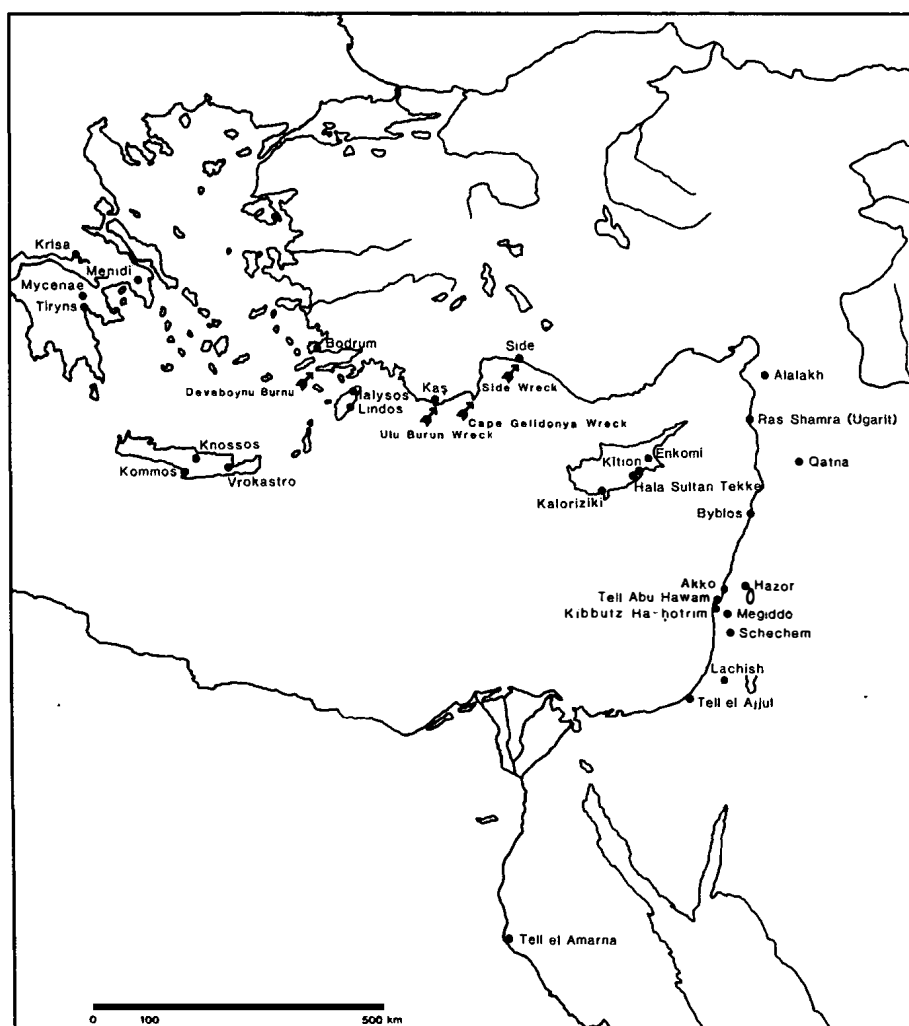
by Nicolle Hirschfeld

One of many puzzling questions facing archaeologists working in the eastern Mediterranean deals with the organization of trade during the Late Bronze Age (LBA). This is the time of the New Kingdom—the period of Tutankhamun and Ramses—in Egypt, the Hittite empire in Anatolia and parts of the Near East, and the age of the heroes of the Trojan war. Palace archives, treaties in-

scribed on public monuments, and murals painted on walls testify to extensive economic ties between these powers. Archaeological excavations also provide a glimpse of the types and quantities of trade-items and their distribution. These sources give some indication of the kinds of goods which were exchanged, but the mechanisms by which they changed hands are not at all

clear. Mycenaean pottery, for example, was certainly a marketable commodity; great quantities of this distinctive ware were exported to the Dodecanese, Cyprus, Syro-Palestine and, to a lesser extent, Egypt and Anatolia. But the large number of Mycenaean vessels found in these areas is not balanced by a reciprocal quantity of recognizable foreign goods in the Mycenaean world. One hypothesis put forward by archaeologists is that the Mycenaean wares (and the contents within some of them) must have been traded for raw materials, especially copper. But the active participants in this trade remain unidentified: Did Mycenaeans sail east in search of copper, or was it a matter of traders from Cyprus and the Near East voyaging west in search of a market?

Shipwrecks provide evidence with which to address these specific issues. The cargo of the LBA Ulu Burun shipwreck, excavated by INA since 1984, illustrates directly the variety and volume of goods carried on a single trading mission. This cargo is characterized by an array of manufactured goods, exotic raw materials and more than 250 copper and tin ingots. The question remains whether a shipment on such a scale was the typical mode of exchange in the 15th and 14th centuries



*Late Bronze Age sites in the Eastern Mediterranean.*

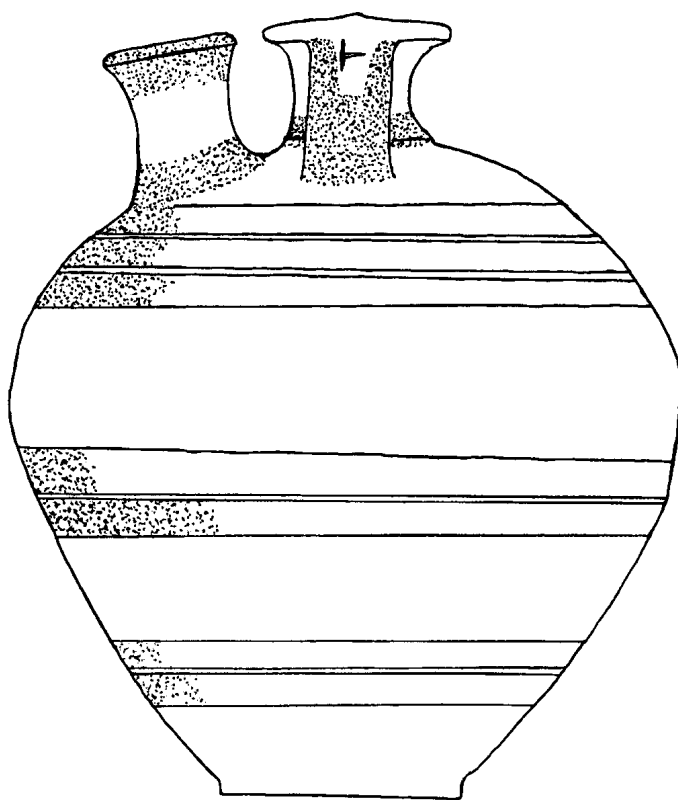
BC. Was this perhaps a "royal" shipment of some sort?

One hundred years later (ca. 1200 BC), a ship sank at Cape Gelidonya, only a few hours sail east of Ulu Burun. Economic conditions had changed drastically in the century between the two shipwrecks. The Gelidonya ship carried a much smaller cargo, consisting primarily of 34 copper ingots, a collection of broken bronze tools carried as scrap, and traces of badly-deteriorated tin ingots. The finds suggest that the ship was probably the private venture of an itinerant smith. This is a much smaller enterprise than that of the Ulu Burun shipwreck, but it is not clear whether the difference in cargoes was a result of changed economic conditions or whether the two shipwrecks merely represent different levels of LBA trade which operated simultaneously.

Written records of commercial exchange provide us with another direct source of evidence for the organization of LBA trade. Archives recording LBA commercial transactions exist at El Amarna, Ugarit, Boghazkoy, and the Mycenaean palatial centers. From them, we learn who was trading what with whom and sometimes even the conditions and regulations of the exchange. However, these LBA records all happen to be remnants of official archives and, as such, they naturally deal to a great extent with official exchange: gifts between rulers in commemoration of auspicious occasions or tribute from vassal states, as well as strictly commercial transactions conducted under governmental supervision. Not surprisingly, mention of individuals acting in any private capacity is rare. The official nature of the archival evidence provides few clues to the existence and scale of participation by the private sector in LBA international trade.

It is with this question in mind—the organization of LBA trade, and especially the extent of individual enterprise—that I have begun my study of marks incised on LBA pottery. Because my work is still in progress, many of the ideas presented in the rest of this article are preliminary suggestions and subject to revision.

By far the greatest quantities of marked pottery are found on the island of Cyprus; to date, close to six hundred inscribed vessels from Cyprus have been published. Extraordinary, too, is the range of wares on which incised marks occur. Not only imported wares which one might expect to have been closely accounted, but also a great many locally made and used vessels bear marks. By contrast, LBA pottery in other areas of the Eastern Mediterranean is far less often marked with inscribed signs, at least according to published excavation reports. To some extent, this difference may be more apparent than real. It is important to realize that pot-



*Stirrup jars like this example found at Enkomi (T.48/967) are thought to have been used to transport perfumed oil or aromatic unguents in the Late Bronze Age. Mycenaean Greek Linear B tablets list ingredients used to make perfumes and include inventories of stirrup jars. The jars themselves sometimes bear inscribed evidence, probably concerning trade, as well, adding to our knowledge of this facet of the Mycenaean economy. (Drawing: Nicolle Hirschfeld)*

marks have received special attention in Cyprus because some of them happen to be important evidence for the ancient Cypriot script (see below); perhaps a closer look at material from the Aegean and Near East would reveal that the practice of scratching marks on pottery is not so idiosyncratic to Cyprus as it appears at first glance.

Some recent excavation reports from the sites of Kommos on Crete and Tiryns on the Greek mainland catalogue local pottery with inscribed marks and indicate that this practice existed in the Aegean. In the Near East, too, a need to mark wares might be attested by the numerous "Canaanite" amphoras which bear incised signs. Yet even these examples do not provide clear evidence for the practice of marking pottery outside of Cyprus: (1) the Mycenaean pottery may have been involved in a specific Cypriot trading network and thus have received appropriate markings, (2) the manufactur-

ing center(s) of "Canaanite" marked jars is not certain, and (3) the incised marks were generally inscribed after firing and thus may have been engraved at any time after their manufacture, including at a place of transshipment or destination. In any case, although marking systems were not unknown in other areas, the large number of vessels found on Cyprus which were marked with incised signs remains unparalleled in the LBA Eastern Mediterranean. Why was there a need for such a prevalent marking system in Cyprus? I believe this is an indication of the high level of organization in the exchange networks operating on the island.

Incision was the most common manner of marking LBA pottery; painted marks are comparatively rare. Surprisingly, most incised marks which I have studied were inscribed *after* firing. This leads me to believe that the marks in general had little to do with the potter or workshop which manufactured the vessel; for them it would have been much easier to scratch a mark into wet clay.

There are many reasons why a vessel might have been marked at some point after it left the kiln. Perhaps the intended destination (either a person or a place) of the vessel was represented by the mark, but this seems unlikely for there are very few correlations between where the inscribed pottery is found and the specific marks on it. It has also been thought that some marks may be an indication of volume, but this, too, seems unlikely as there are no consistent patterns between specific marks and volumes of various containers.

For example, handles from "Canaanite" amphoras are often incised with series of parallel lines; it seems reasonable to hypothesize that this particular type of mark may have a numerical connotation. But the number of marks cannot refer to quantity, since handles of similar-size jars may bear anywhere between one to six incised lines. Another possible explanation is that the marks refer to the nature of the contents, indicating their quality or provenance.

This possibility is difficult to assess without more extensive preservation and careful analysis of the contents of marked containers, but I believe that the wide range of marks found on a specific type of container, the fact that a similar mark often occurs on very different types of containers, and the appearance of marks on open shapes make an association between mark and contents less likely.

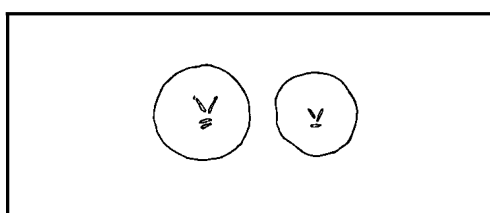
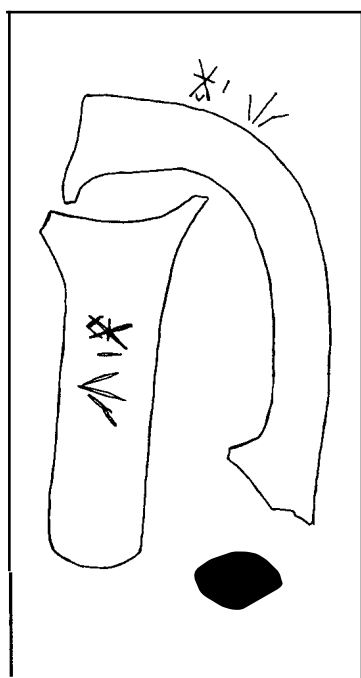
Finally, merchants buying the wares (whether directly from the potter or indirectly from another merchant) may have inscribed their mark, perhaps to identify their particular lot of merchandise. In default of other viable explanations, this seems to me the most likely surmise.

If it can be tentatively postulated that these potmarks identify merchants, then the distribution of a particular mark or group of marks should indicate something about the scale on which a particular merchant or group of merchants operated. This assumption must be regarded with caution, and requires careful consideration of whether the same mark is consistently to be identified with the same merchant or group of mer-

chants, especially when it appears on very different kinds of pottery wares.

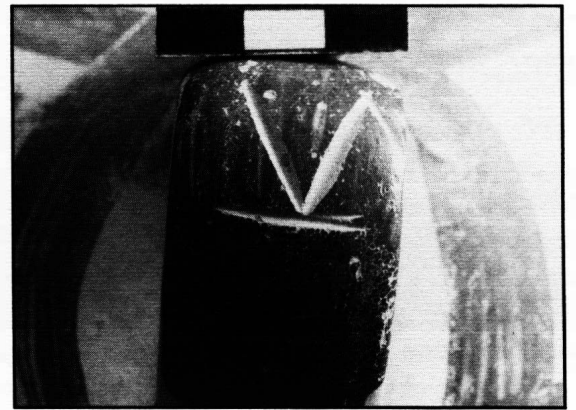
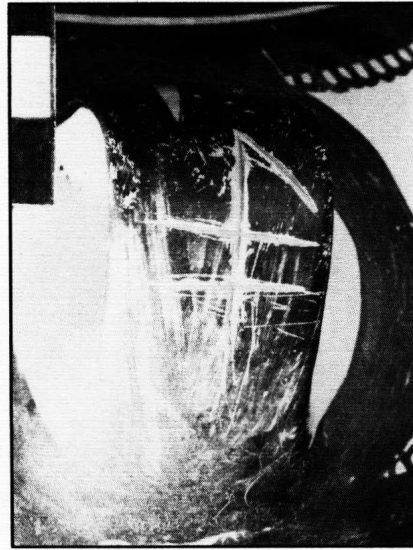
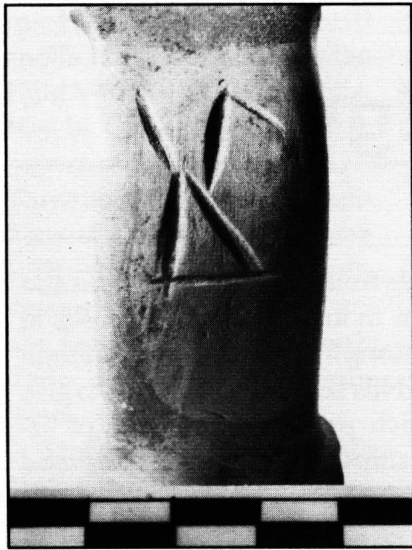
The marks, of course, need not all represent exactly the same function nor are they all organized on a single system. Marks on local Cypriot pottery often are related to the script (Cypro-Minoan) in use on the island in the LBA. In fact, because the extant formal inscriptions are so few in number, the inscribed pottery is an important source of information for the repertory of Cypro-Minoan signs. The frequent appearance of the Cypro-Minoan script, sometimes in the form of long inscriptions, on so many plain-ware jugs (low-prestige objects) is intriguing. Are these indications of *relatively* widespread literacy?

The signs incised on Mycenaean wares (usually Late Helladic IIIB) are



*Cypro-Minoan inscriptions like this one (left), incised after firing on the handle of a locally made jug from Kition (Kition II/3249), are comparatively common, suggesting that the use of syllabic signs was not unusual.*

*Red Lustrous spindle bottles, possibly imported into Cyprus, are of a very particular shape and fabric. A very different marking system was used to identify this ceramic ware: marks were incised before firing rather than after. (Left: Enkomi 4702; Right: Enkomi 1949). (Drawings: Nicolle Hirschfeld)*



*Mycenaean ware vessels on Cyprus sometimes bear Cypro-Minoan markings, usually incised after firing. These marks are from a pyriform jar (FS 36; A1650a) of unknown provenance in the Cyprus Museum (left), a stirrup jar (probably FS 164; Kition II/5120) from Kition in the Larnaca Museum (center), and a Hala Sultan Tekke pyriform jar (FS 36; BM 97 12-1 223) (above). (Photos: Nicolle Hirschfeld)*

also often Cypro-Minoan characters. On Mycenaean pottery found in Cyprus this is not surprising, for the vessels could have been inscribed upon arrival in Cyprus. Mycenaean wares in the Near East with Cypro-Minoan marks were presumably shipped via Cyprus. But the fact that Cypro-Minoan signs are also found on vessels in the Argolid on the Greek mainland is puzzling. Are these vessels marked in anticipation of shipment to Cyprus, i.e. were trade items designated for very specific markets? Or are the few pieces of Mycenaean pottery marked with Cypro-Minoan signs the remnants of trade items "recycled" back to Greece?

Not all vessels are marked with distinctly Cypro-Minoan signs. Red Lustrous spindle bottles are conspicuous because their potmarks are almost always made *before* firing and it is debatable whether or not these marks bear any relation to the formal Cypriot script. Also, "Canaanite" jars bear marks which often seem to belong to a conspicuously different marking system. Such differences in marking systems may reflect different functions for the marks, or they may be indicative of different processing or exchange systems.

These ideas are the result of a preliminary review of the material. Collection and personal examination of signs has been the focus of my efforts so far. Detailed study of various aspects of the LBA potmarks may prompt revision of these initial thoughts, and continued study may also provide clearer insights to the parameters and reasons for various marking systems. In particular, I believe that systematic examination of inscribed pots will yield significant clues to the organization of LBA trade in the eastern Mediterranean.

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