

THROWING THEIR WEIGHTS AROUND? ANTHROPOLOGICAL PERSPECTIVES ON COMMODITY AND GIFT EXCHANGE AT THE DAWN OF THE EARLY BRONZE AGE IN WESTERN ANATOLIA

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Abstract: *The growing body of literature concerning cultural transformations associated with long-distance trade networks between western Anatolia, the Aegean, and Cilicia in the third millennium BC still lacks synthesis regarding social processes and types of exchange involved between trading groups. This paper addresses the issue of long-distance transactions of metals in western Anatolia during the Early Bronze Age. The argument seeks to demonstrate that contact between a predominantly decentralized non-state and an early state society does not necessarily lead to immediate political centralization of the former but rather to a new spectrum of co-existing transactions and socio-political forms. The following contribution derives from empirical evidence of Near Eastern balance weights from the Early Bronze Age 1 (2950–2750 calBC) settlement of Çukuriçi Höyük, a coastal site in western Anatolia. This article is based on previously published archaeological material and addresses wider social implications that weighing and metrology may trigger in a non-scriptural society. The paper draws extensively on ethnographic records of metal trading societies and economic anthropology, in which assiduous attention is given to exchanges conducted outside of the ‘cultural sphere’.*

Key words: *balance weights, long-distance trade, commodity and gift exchange, ethnography, Early Bronze Age western Anatolia*

Introduction

Over the past two decades, intensive investigation of Early Bronze Age (EBA) trade in Anatolia and east Aegean has gained significant momentum.² Among these studies, the so-called land-based *Anatolian Trade Network* between Mesopotamia and western Anatolia has been proposed from the mid-third millennium BC onward due to sweeping changes in architecture and material culture across Anatolia.³ Due to numerous innovations detected in the Aegean and Anatolia, this period has also been previously addressed as the period of “international spirit” and a “cosmopolitan feeling”.⁴ V. ŞAHOĞLU (2005) argued that wide supra-regional contacts led to cultural changes that disrupted the political organization and paved the way to the earliest chiefdoms in Anatolia. Another overlapping model by T. EFE (2002, 2007), the *Great Caravan Route*, equally interpreted the emergence of elite centers and new pottery types as evidence for cultural transformations that occurred in Anatolia due to the intensive land-based, long-distance trade between Cilicia and the North Aegean basin from the mid-third millennium onward.⁵

Although the proponents of the two proposed land-based and riverine networks between the Aegean and Near East agree on major socio-political transformations that occurred within Anatolia in the mid-third millennium BC, the authors view different lines of evidence as the most telling. On

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² EFE 2002, 2007; HOREJS 2016; KOUKA 2002, MASSA and PALMISANO 2018; RAHMSTORF 2006, 2016, 2018; SCHWALL et al. submitted; ŞAHOĞLU 2005.

³ The *Anatolian Trade Network* was inferred from new vessel forms, central authority (reflected in settlement organization), monumental fortification systems, two-tiered settlement of citadels and lower towns, wheel-made pottery shapes, and the first tin bronzes found in western Anatolia (ŞAHOĞLU 2005, 2008).

⁴ RENFREW 1992, 34, 451. For a critique of the term “international spirit” referring to the Early Bronze Age period in Aegean, see Cveček in press.

⁵ EFE 2007.

the one hand, EFE (2002, 2007) argued that new pottery shapes are the best indicators of change, as they occur along the two overlapping exchange routes. On the other hand, ŞAHOĞLU (2005, 341) maintained that considerable changes took place within metallurgy, as “metals have always been viewed as a status symbol”. The present contribution follows Şahoğlu’s proposal that considerable transformation can be studied through metallurgical analyses. Yet, from the socio-cultural anthropological perspective, it is impossible to claim that metals in each and every society indicate a person’s wealth or higher social status. The latter is particularly important with reference to decentralized non-state societies, in which “precious goods” or materials do not mark a person’s status but are rather taken as important items of gift and barter exchange. In decentralized societies, the alliances established through the exchange of precious goods, do not grant a higher status but maintain links between different groups necessary for social reproduction, rather than social prestige. For example, previous studies have shown that gold production around Black Volta in today’s southern territory of Burkina Faso was associated with non-centralized polities such as segmentary lineage system groups.⁶ In pre-colonial times, gold was perceived as a “‘free resource’ to which all within the lineage had access”.⁷ Therefore, by taking historical and ethnographic records into the account, a generalization that metals, its trade, and the access to it were always associated with higher social status, does not stand on firm ground. Instead, metal-working and its trade need to be contextualized through a region-specific and comparative context, if we are to understand the local meanings of metals in a particular region or period.

With reference to the EBA 1 (3000–2700 BC)⁸ long-distance trade in western Anatolia, recent studies complemented the understanding of the mid-third millennium BC *Anatolian Trade Network* and the *Great Caravan Route*. An earlier date (2800 BC onward) for the emergence of exchange between the Levant, Mesopotamia, and central Anatolia has been proposed by a recent research project concerned with metal exchange.⁹

According to this research, the *Anatolian Trade Network* and the *Great Caravan Route* refer to the mature stage of a development that started in the first quarter of the third millennium BC.¹⁰ Based on a multi-proxy study of the spatial distribution of markers of long-distance trade, it became evident that long-distant contacts predated the major material transformations across Anatolia. Therefore, the authors proposed that the contact between the Levant and western Anatolia can be divided into two distinct, though partly overlapping, exchange networks: an earlier maritime network (2800 BC onward) and a later, land-based and riverine network (2500 BC onward).¹¹ The present study builds upon the more recent archaeological literature on long-distance trade between the Near East and Anatolia, yet focuses on the EBA 1 western Anatolia as the main period and region of concern (3000–2700 BC). Within this timeframe, the paper analyzes exchanges conducted outside of the ‘cultural sphere’.¹²

Long-Distance Trade and the Emergence of Stratified Societies

The intersection between long-distance trade, socio-political organization, and the emergence of the ‘earliest’ stratified societies has a checkered history within the Aegean basin’s prehistory. The search for the earliest indicators for contacts between the Mesopotamian states and the Aegean non-state societies has been viewed as a trigger for centralized social organization in the Aegean basin. In his seminal article on *Urban Revolution*, G. Childe proposed that all states in the Old World can “be regarded as lineal descendants of those of Egypt, Mesopotamia, or the Indus”.¹³ The first systematic study that tested this hypothesis showed that the emergence of elites and social stratification in the Aegean basin was an independent process. C. Renfrew (1972) argued that social stratification and the emergence of chiefdoms in the Aegean were caused by a multiplicity of internal causes, including the increasing importance of metals, without external influences of the Near Eastern early states. Since then, the discussion regarding

⁶ CURTIN 1975, 198; LY-TALL 1972, 103.

⁷ PERINBAM 1988, 437.

⁸ ALRAM-STERN and HOREJS 2018, 13, Fig. 2.

⁹ MASSA 2016.

¹⁰ MASSA et al. 2017.

¹¹ MASSA and PALMISANO 2018.

¹² A ‘cultural sphere’ is used as a conceptual working tool here. ‘Sphere’ is referring to the spatial dimensions of influence, and the term ‘culture’ is here used in the sense of local and/or regional cultural settings that usually are not identical with political settings but normally are either smaller or larger.

¹³ CHILDE 1950, 17.

the emergence of stratified societies in the Aegean and western Anatolia has not been decoupled from Childe's hypothesis and Renfrew's data. Trading contacts between a Mesopotamian early state and an Aegean non-state society has since been taken for granted as a trigger, unavoidably leading to the emergence of stratification and political centralization in the Aegean basin.¹⁴ However, the outcomes of recent studies of long-distance trade in the Aegean/western Anatolian EBA 1 challenge theories of independent development of chiefdoms in the region,¹⁵ which previously enjoyed firm support.¹⁶ Simultaneously, new material evidence raises the question of whether the earliest contact between Mesopotamia and western Anatolia indeed led to the immediate emergence of hierarchical societies in the latter region.

The presence of intensive land-based and riverine long-distance exchange¹⁷ and the existence of chiefdoms are widely agreed upon phenomena for the EBA 2 in the Aegean and western Anatolia.¹⁸ In contrast, the social organization of EBA 1 societies within western Anatolia remains enigmatic. In this case, an analogy can be drawn to the mainland Aegean, where it has been proposed that richer data for the EBA 2 often dominates the perception of the whole EBA.¹⁹

For example, a systematic study of the spatial organization of EBA sites located on the east Aegean Islands and the eastern Anatolian coastline has highlighted considerable similarities between sites.²⁰ O. Kouka defined the so-called east Aegean and western Anatolian EBA cultural koine that arose due to intensive interaction between the sites based on land-based and maritime trade of raw materials and finished products (e.g., Melian obsidian and metals).²¹ This EBA 1 cultural koine subsidizes the "Chalcolithic interaction sphere"²² of the 4th millennium BCE and precedes the "international spirit"²³ of the mid- and later third millennium BC in the region.

During the EBA 1, cultural uniformity among east Aegean Islands and the western Anatolian

coastline sites was ascribed to shared house architecture, central complexes as seats of chiefs, Cycladic metals, Early Cycladic pottery, zoomorphic figurines, chamber tombs, and cist graves.²⁴ Among these characteristics, a greater similarity of house architecture is well-attested among the EBA 1 sites. Other features, however, are only commonly shared from the EBA 2 (2700 BC) onward and cannot be traced in the EBA 1 layers.²⁵ Most importantly, archaeological analyses of material record at the EBA 1 site of Çukuriçi Höyük have not confirmed the existence of an exalted building or a seat of the chief,²⁶ which was listed as one of the shared characteristics of the east Aegean EBA 1 cultural koine. Taking the differences in material culture between these EBA 1 sites seriously, then it seems likely that different types of social organization within the same region could co-exist during the EBA 1. Moreover, scholarly attention within western Anatolia should be redirected to the earliest phases of the EBA 1²⁷ to understand the social processes prior to the well-attested EBA 2 chiefdoms and the intensive land-based²⁸ but also maritime²⁹ trade with Mesopotamia.

Stone Balance Weights at Çukuriçi Höyük

Here, I draw the starting point for discussion of the EBA 1 trading networks and the associated socio-political organization during the EBA 1 in western Anatolia from Çukuriçi Höyük for two reasons. First, because this site provides evidence of the earliest weights identified within the region and second, because of its important location, on the western Anatolian seashore, which granted access to maritime, land-based, and riverine exchange networks. The site of Çukuriçi Höyük is a prehistoric western Anatolian tell settlement, located at the Küçük Menderes River Delta and the east Aegean Sea (see Fig. 1 below). Today, it is situated at the southern end of the modern town of Selçuk and southeast of the ancient Greek city and

¹⁴ E.g. ŞAHOĞLU 2005.

¹⁵ E.g. HOREJS 2016; MASSA and PALMISANO 2018; RAHMSTORF 2016.

¹⁶ E.g. ÇEVİK 2007; ÇEVİK and MEHMET 2016; DÜRING 2011; ESLICK 1988; KOUKA 2002, 2016; RENFREW 1972; SHERRATT 1981.

¹⁷ EFE 2002, 2007; ŞAHOĞLU 2005, 2008.

¹⁸ DÜRING 2011; KOUKA 2016; PULLEN 1985; ÇEVİK and MEHMET 2016; ŞAHOĞLU 2005.

¹⁹ PEPERAKI 2007.

²⁰ KOUKA 2002.

²¹ KOUKA 2002, 299–300; 2016, 210.

²² SCHWALL and HOREJS 2018, 61.

²³ RENFREW 1972, 34, 451.

²⁴ KOUKA 2002, 2016.

²⁵ EFE 1988.

²⁶ E.g. SCHWALL and HOREJS 2020.

²⁷ E.g. SCHWALL and HOREJS 2020.

²⁸ EFE 2007; ŞAHOĞLU 2005.

²⁹ BROODBANK 2000, 2013.



Fig. 1 The location of mentioned Early Bronze Age sites and obsidian sources in the Aegean and western Anatolia (map: OREA/M. Börner, Ch. Schwall).

an important trading hub of Ephesus. Although there is a Neolithic and Late Chalcolithic occupation at Çukuriçi Höyük, the primary focus of this paper is the EBA 1 (2950–2750 calBC) period. Previous analyses have already shown that Çukuriçi Höyük was involved in a supra-regional exchange network of Melian obsidian during the Late Chalcolithic and EBA, yet, the percentage of obsidian stone tools peaked at the dawn of the EBA. During the EBA 1, approx. 60–70% of all stone tools recovered from Çukuriçi Höyük were

made of obsidian from Cycladic island of Melos.³⁰ In light of the fact that the amount of Melian obsidian declines at other contemporaneous western Anatolian hinterland sites (e.g., Aphrodisias and Beycesultan), Çukuriçi Höyük has been identified as one among the gateway communities of Melian obsidian trade.³¹ The exchange of Melian obsidian, whose sources are located 280 km to the west, at the west end of Cycladic islands, places Çukuriçi Höyük in the Aegean world during the EBA 1. But maritime connections between Melos

³⁰ KNITTER et al. 2012; SCHWALL et al. in press.

³¹ KNITTER et al. 2012, 2013.

and western Anatolia, most likely based on gift-like or barter-like transactions, were not novel during the EBA 1. The procurement and exchange of Melian obsidian was crucial for the circulation of raw material and finished tools to both the Aegean and Anatolian mainland (and its hinterland) since the Upper Paleolithic.³² This highlights the long-standing importance of the Aegean maritime networks, which predated the long-distance trade with the Near East and Mesopotamia. For location of Çukuriçi Höyük and other EBA sites, see Fig. 1 above.

Apart from being the gateway community for Melian obsidian exchange, the gateway community model for Çukuriçi Höyük has been further extended to include metal exchange, the transmission of metalworking knowledge, and manufacturing techniques.³³ Çukuriçi Höyük also provided evidence of the earliest arsenic copper alloys in western Anatolia, bronze objects, and silver-copper alloys. Therefore, this assemblage further attests that the dwellers at Çukuriçi Höyük were skilled artisans who participated in diverse western Anatolian and Eastern Aegean exchange and communication networks.³⁴ Although it remains unclear what goods or services were exchanged in return for raw materials or finished metal objects, modes of a transaction can be further addressed through indirect evidence for the exchange of metals identified at the site. Among these are the balance weights, which have been thoroughly studied on their own as well as in comparison to regional western Anatolian sites and the contemporaneous Near Eastern and Mesopotamian assemblage.³⁵ Below I provide a short overview of archaeological material relevant to addressing long-distance exchange of metals. The present contribution does not aim at analyzing new data but instead providing an anthropological contextualization of the archaeological material linked with a metal exchange.

Çukuriçi Höyük has provided five stone balance weights dating to two distinct settlement phases – ÇuHö IV and III (2900–2850/800 calBC) (see Fig. 2 below). The first was found in a metallurgical workshop, the second within a storage

room linked to a metallurgical workshop, and the third in mixed layers close to an oven that was likely used for metalworking. Two of the weights meanwhile could not be assigned to a precise context (see Fig. 3 below).³⁶ The weights with the associated metallurgical context at Çukuriçi Höyük were simultaneously located in close proximity to other ‘domestic assemblages,’ including hearths and pottery associated with food preparation, consumption, and storage. The close connection of these balance weights to metalworking contexts at the site along with their light weight (approx. 4–40 g) leaves no doubt that these objects facilitated metal exchange. Balance weights were most likely used for weighing silver and gold³⁷ but could also be used for weighing other specified goods in small quantities³⁸. This holds true despite previously raised doubts about the spool-shaped weights. J. Haas-Lebegyev and C. Renfrew argued that spool weights were instead being used as grinders, since weights should necessarily bear incised marks.³⁹ Weights from Çukuriçi Höyük do not bear any grinding or incised marks, which, however, is not the main typological trait for balance weights. Considering the ethnographic record, geometric stone weighs without incised marks are not an exception limited to prehistory. They were reported being in use in West Africa in the previous century and as having been utilized since the seventh century AD.⁴⁰ Regarding the usage of light balance weights, these may not necessarily be restricted to metal exchange. Transaction of rare specialized goods, where small variations in size and weight matter and where no predefined forms of transportation existed, including pigments, spices, or *materia medica*⁴¹, may be subjected to weighing. Although the specialized goods remain a possibility for weighing with respect to an ethnographic record, it remains challenging to identify such goods within the prehistoric material record. Provided that dwellers at Çukuriçi Höyük were skilled metalworkers and crafts persons, the association between metal trade and balance weights, therefore, seems more likely based on the archaeological material recovered from this site.

³² ASPINALL et al. 1972; JACOBSEN 1969; PERLÈS 1990.

³³ MEHOFFER 2016.

³⁴ HOREJS et al. 2010; MEHOFFER 2016.

³⁵ HOREJS 2009, 2016; RAHMSTORF 2015, 2016, 2018.

³⁶ HOREJS 2016.

³⁷ HOREJS 2016; MASSA 2016; MASSA et al. 2017; RAHMSTORF 2015, 2016.

³⁸ Silver and gold were found in form of jewelry pieces at EBA 1 Çukuriçi Höyük (SCHWALL et al. submitted).

³⁹ HAAS-LEBEGYEV and RENFREW 2013.

⁴⁰ GARRARD 1972, 1980.

⁴¹ *Materia medica* in this context refers to substances derived from plants, animals, and minerals used for healing purposes, commonly used in small quantities.



Fig. 2 1. 09/986/3/1; Phase ÇuHö IV; 3,78 g; 2. 08/520/3/7; Phase ÇuHö III; Basalt; 15,67 g; 3. 11/1200/3/22; Phase ÇuHö I; Marble; 31,2 g; 4. 12/5001/3/59; Phase ÇuHö I; Slate; 5,2 g; 5. 13/5110/3/2; Phase ÇuHö IV; Slightly serpentinized peridotite; 39,79 g (HOREJS 2016, 256, Abb. 4).

Regional and Supra-Regional Comparison of Stone Balance Weights

Regarding the regional comparison, within the east Aegean EBA 1 cultural koine, weights recovered from Çukuriçi Höyük can be compared to two of the four balance weights identified within a metalworking context at the contemporaneous island site of Poliochni (Lemnos).⁴² A set of oblong hematite weights at Poliochni Blue and a set at Çukuriçi Höyük (ÇuHö IV and III) show a strong similarity in shape, material, and weight, to each other. At the same time, these similarities correspond to the Near Eastern types of weights found at the EBA site of Ebla,⁴³ known as one of the earliest kingdoms in Syria. This assemblage implies

that dwellers at Çukuriçi Höyük and Poliochni necessarily adopted the same standardized weights and related weighing knowledge to those in the Near East.⁴⁴

This first group of weights, indicating supra-regional connections between western Anatolia and the Near East was at both sites complemented with the second typological group. These were Aegean type spool-shaped balance weights, which were found at both sites, yet are without a Near Eastern analogy. Therefore, the Aegean type spool-shaped balance weights recovered from Çukuriçi Höyük (ÇuHö IV and III) and Poliochni Blue point to a possible local adaptation of weighing practices particular to the Eastern Aegean Islands and coastal western Anatolia.⁴⁵ Rahmstorf interpreted these as indicators of a shared Aegean weighing practice and maintained that this metric system was introduced to the Aegean from Syro-Mesopotamia at the beginning of the third millennium BC.

Rahmstorf's comprehensive analysis of prehistoric stone weights expanded the understanding of EBA 1 exchange practices in western Anatolia. Moreover, this research proved that the long-distance exchange between the East and West facilitated the transfer of goods and knowledge of unique measuring techniques.⁴⁶ Nevertheless, the scarcity of balance weights available for EBA 1 western Anatolia calls not only for comparison with contemporaneous sites. Also in Mesopotamia and Egypt, where data is somewhat scarce for this period,⁴⁷ calls for the interpretation outside the archaeological contexts. For this reason, the present paper complements the empirical sample by addressing balance weights and weighing practice through comparative insights from socio-cultural anthropology. The long-lasting (albeit today marginal) anthropological interest and expertise of studying non-state, non-scriptural societies, and more or less non-stratified societies, therefore enables us to describe and explain important features specific to different ideal types of transactions.

⁴² RAHMSTORF 2016, 2018.

⁴³ RAHMSTORF 2016.

⁴⁴ RAHMSTORF 2016, 2018.

⁴⁵ RAHMSTORF 2016.

⁴⁶ RAHMSTORF 2016, 258.

⁴⁷ To date, there are only a few known sites providing the evidence of balance weights in Mesopotamia and Egypt, contemporaneous to the EBA 1 in western Anatolia. Balance weights have been so far identified at the Early Dynastic I period from Diyala region, such as at Tepe Gawra VII, Tell Judaideh, Khafajah/Tutub, and Tell Asmar/Ešnunna (RAHMSTORF 2014), in much larger quantities than in western Anatolia during the EBA 1.

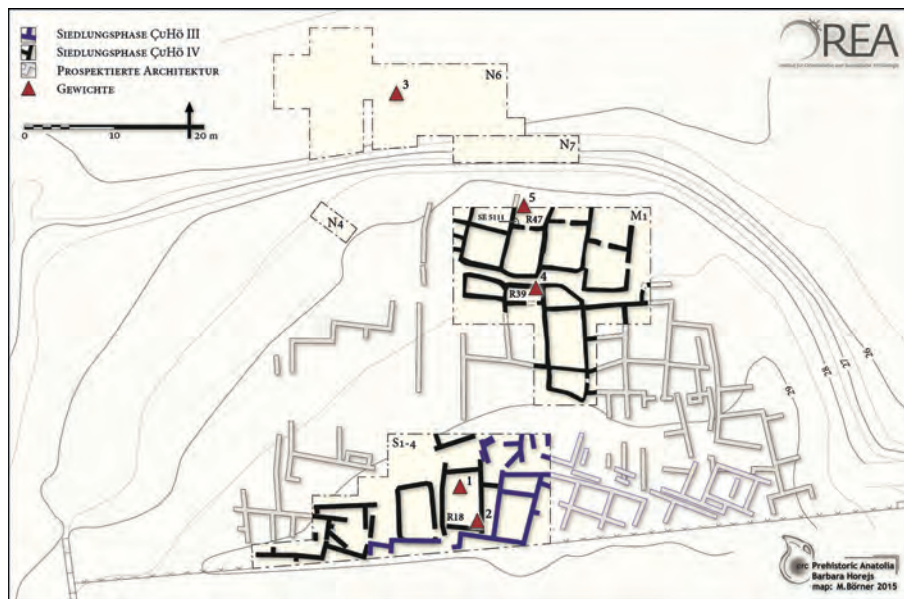


Fig. 3 Distribution of weights within the Early Bronze Age settlement phases ÇuHö IV und III at Çukuriçi Höyük (HOREJS 2016, 259, Abb. 7; M. Börner/ERC)

As the main point of departure for socio-cultural anthropological contextualization of balance weights, the present paper draws upon anthropological knowledge that non-scriptural societies commonly measure bartered goods by volume and not by weight.⁴⁸ For example, Trobrianders bartered fish for vegetables as well as areca nut and sago for stone blades. These exchanges were conducted with strangers, within a non-ceremonial setting, and haggling played an important role since the two parties wished to get most out of this type of exchange.⁴⁹ The Baruya, in the highland fringe of Papua New Guinea, bartered locally produced salt bars for pigs. On average, the Baruya could exchange six locally produced salt bars for one pig.⁵⁰ Whereas Trobrianders measured vegetables in baskets, the size of the oven defined and standardized the size of a Baruya salt bar. In these two cases, the means of transport (e.g., a basket) and production technique (e.g., an oven) defined a unit for exchange. Given the small size and weight of balance weight from Çukuriçi Höyük, the evidence certainly points towards the exchange of specified goods in small quantities such as metals; yet, it does not imply that differently ‘measured’ goods, such as cattle, animal products such as wool or food items, could not be exchanged

against precisely measured metals. Provided that dwellers at Çukuriçi Höyük adopted and appropriated the Near Eastern weighing practice during the EBA 1, this poses a question of what social relations were created between the two trading groups using balance weights. How did weighing and long-distance trade between Mesopotamia and western Anatolia influence the social lives of exchanged objects and the daily lives of dwellers at Çukuriçi Höyük in particular?

Ethnographic Contextualization of Weighting Practices and Long-Distance Trade

To address these questions, I turn to an ethnographic example from the Akan.⁵¹ This is not only done on account of the scarcity of data on balance weights in western Anatolia and Mesopotamia at the beginning of the third millennium BC. More importantly, it is to diachronically highlight changes that weighing practice may have triggered under non-scriptural, sedentary, more or less decentralized conditions through the establishment of trading connections with states or empires. Among these, the ethnographic case of the gold trade and weighing practice of the Akan from Ghana is telling for two reasons. First, it addresses

⁴⁸ GREGORY 1982; HUMPHREY and HUGH-JONES 1992; MALINOWSKI 1922. Known exceptions to this rule include examples from the Maya or even the Akan presented below.

⁴⁹ MALINOWSKI 1922, 190, 362.

⁵⁰ GODELIER 1977.

⁵¹ For the sake of the argument, the present text provides merely one example in better detail to present a local adaptation and usage of weighing techniques, rather than discussion on a more abstract level of several examples that are available in the ethnographic literature.

⁵² LY-TALL 1972, 455.

the introduction of new weighing techniques to a non-scriptural non-state society, within which gold and silver were not perceived as a (luxury) commodity prior to the intensification of long-distance trade. Second, the Akan case of long-distance gold trade highlights a greater time-lag between the primary changes in the economic system that led to secondary changes in material culture and socio-political organization.

Naturally, colonial encounters have fundamentally transformed West African metallurgical societies. Yet, these societies were not operating in a vacuum before the arrival of Europeans. For example, in pre-colonial times, Mande speakers exchanged gold and cattle for copper and slaves as well as brass figurines of ritual importance, salt, food, and textiles. These transactions were conducted both with and without the employment of scales and balance weights.⁵² Hence, historical and ethnographic documentation of these transactions remains particularly relevant for discussing prehistoric weighting practices. As I have already summarized above, recently analyzed archaeological record points towards external influences during the EBA 1 and calls into question the independent development of a metric system.⁵³ Therefore, the EBA 1 societies in western Anatolia, like those of pre-colonial sub-Saharan Africa depended on inter- and supra-regional exchange of goods (e.g. metals, but also cattle, textiles, and food items). Considering limited similarities between the modern example from Akan and the empirical example from prehistoric western Anatolia, the approach applied here perceives weights not only as spatially bounded material objects but as a proxy for a type of practice that is culturally transmitted.⁵⁴ The archaeological analyses of the EBA 1 Near Eastern Weights in western Anatolia namely raise questions of how and why weights were adopted. In order to obtain a complete picture, the archaeological investigations must be complemented with both theories of exchange developed within eco-

nomie anthropology and ethnographic observations, which will be provided in the following section.

The Adoption of Islamic and European Weights among Akan

A number of different Akan chiefdoms in today's Ghana were involved in the metal trade before European colonization. Prior to established contact with Arab traders in the seventh century AD, Akan did not use gold as a medium for exchange, but rather produced it for personal use and adornment.⁵⁵ Although Akan used iron pieces for barter outside their cultural sphere, similar to Baruya salt bars,⁵⁶ iron pieces were also exchanged as gifts within the Akan villages. In a rich ethnographic study, supported with a multi-lingual historical analysis of Akan weights, Garrard (1980) argued that weights were introduced into Akan society from the north, through the trans-Saharan gold trade, in the seventh century AD.⁵⁷ During this time, the Arab traders who traded gold between Ghana and Morocco introduced two types of 'Islamic weights': *mitkal* for weighing gold (4.3–4.7 g) and *wakia* for weighing silver (26–30 g). Following colonial encounters, the Europeans introduced two additional sets of weights to Akan: the Portuguese c. 1500 AD, and the Dutch c. 1650 AD.⁵⁸

A large variety of weights made of different materials such as brass, silver, gold, seeds, pottery, and stone, are reported to have been in use in varying proportions throughout different Akan regions and periods. The shapes of these form two broad groups – geometric (made of stone, without incised marks) and figurative (made of gold, brass, clay). Among the first group of geometric weights made of stone, incised marks were missing and therefore, incision played no significant role in weighing practice (on the contrary to the argument made by HAAS-LEBEGYEV and RENFREW 2013 for

⁵³ E.g. HOREJS 2016; MASSA et al. 2017; MASSA and PALMISANO 2018; RAHMSTORF 2016, 2018.

⁵⁴ BOURDIEU 1976.

⁵⁵ GARRARD 1980.

⁵⁶ GODELIER 1972.

⁵⁷ More recent literature on the Akan balance weights supported Garrard's argument that the Akan weights were based on the *mitkal* as well as on *taku* seed (Mollat 2003). On the contrary, the most recent and the largest metrologi-

cal study of 9301 Akan weights so far, showed that the Akan weights system was only based on *taku* seed and not *mitkal*, and therefore, being an indigenous system (CRAPPIER et al. 2019). The indigenous Akan weighing system, in use before the arrival of Arab traders into the region, was composed of light and heavy weights, the so-called dual system, which allowed trade at variable weight (CRAPPIER et al. 2019).

⁵⁸ GARRARD 1972.

the Aegean spool-shaped weights).⁵⁹ An introduction of weights to Fantera village of Debibi in Western Ghana, approx. 400 km to the north of the Cape Coast, was recalled by one of the village elders:

The Mande were using stone and metal weights for trading among themselves. They came to trade here. My late grandfather Sanango told me this. We made some of our weights to the same weight as the Mande. And we made some to the same as Europeans. The Elminas and Fantis were coming here to buy gold from the Fanteras and they brought European weights to the market in Beho [Begho] where they sold them. During the great market of Beho we bought these. We know that they are European weights.⁶⁰

The interlocutor then shows his set of Dutch troy weights to the researcher, demonstrating the Akan keenness to adopting foreign weights. The reason for this becomes evident through an explanation of the weights' importance by an old woman from Njau village:

In the old days we had stones as weights, also metal weights and seeds. There used to be quite a lot of stone weights but they are now lost since Njau was burned. Some were square, and others like pebbles. The metal and stone weights were of equivalent weight. If you didn't have weights you couldn't trade in gold; you can't know the price of anything unless you have weights. The Kramo (Muslims) also had both stone and metal weights. They weighed the same as ours. Kramo metal weights looked the same as ours but were not so 'stylish'. I can't tell if we or the Kramo had weights first, but our weights were the same.⁶¹

Acknowledging that among the Akan a weighing practice with seeds was already in use before

the arrival of Arab or European traders,⁶² this record shows that the Akan were eager to adjust to buyers' needs. They either adopted weighing values from the 'buyers', the Arab/Muslim traders from the north who showed interest in procuring gold from producers (i.e. *mitkal* and *wakia*), or purchased weights in a local market (i.e. European weights), without encountering European merchants.⁶³ Secondly, once the weighing system was adjusted to buyers' needs, weights among the Akan were privately owned and served as a standard unit for the exchange value. A large number of weights owned by one individual was not unusual (approx. 100 weights), as these were passed down the family lines and accumulated over several generations. In pre-colonial times, the same weights – *mitkal* (for gold) and *wakia* (for silver)⁶⁴ – were used for the weighing of precious metals among and between different ethnic groups between the Cape Coast to the south and the Atlantic Ocean and the Mediterranean Sea to the north. But even though weights were highly standardized, weights were not 'the same'. Garrard (1980) described two different types of weighing among Akkan: *double weighing* practice and *single weighing* practice, which corresponded to differences in social contexts and relations between persons who used weighing as an external measure of value.

Standardized Balance Weights, yet not the Same

Among the Akan, the so-called *double weighing* was practiced between strangers at markets, where both the seller and buyer would weigh gold with their own scales. In this case, sellers tended to use slightly heavier weights than buyers, so that sellers would tend to sell and charge more.⁶⁵ The variability of weights, and therefore a disagreement of the value of goods in transmission, would either lead to consensus through bargaining or the visiting of

⁵⁹ That incision does not play an importance for weighing can be further supported by recent literature on the Akan balance weight. According to the authors, Akan weights could have been solely based on cooked and peeled *taku* seed, presumably from African Carob tree, weighing approx. 0.22g, without any incision marks. Therefore, the light weights of seeds enabled the Akan to trade gold in variable quantities (CRAPPIER et al. 2019), such as *mitkal*.

⁶⁰ GARRARD 1980, 5.

⁶¹ GARRARD 1980, 30.

⁶² CRAPPIER et al. 2019.

⁶³ The adoption of the European weights among the Akan is a representative example of how weights can be adopted without meeting 'European strangers'.

⁶⁴ Considering that Akan weighing system was of indigenous origin, based on *taku* seed and not *mitkal* (CRAPPIER et al. 2019), it shows that the Akan easily adjusted the indigenous, light and heavy weights, to buyers' trading measures, such as *mitkal* and *wakia*.

⁶⁵ Manipulation of weights between buyers and sellers has recently been observed and reported with reference to gold trading practices in Northern Benin (GRÄTZ 2004).

a local smith or chief – the two referents for the accuracy of the weights.⁶⁶ This case shows that negative reciprocity, in which the two distant parties involved in exchange aim to “maximize utility at the other’s expense”,⁶⁷ can be practiced despite the usage of weights as a standard of value and translation of price. Therefore, it can by no means be assumed that standardized weighing practice necessarily guarantees a mutual agreement in non-industrial contexts. As can be understood from the Akan’s case, hand-made balance weights could be slightly appropriated to either serve a buyer’s or seller’s interests.

Another weighing practice, so-called *single weighing*, was practiced among the Akan when the two parties involved in the exchange are not strangers but linked by previous obligations. In this case “the gold would be weighted only once, on the scales of the recipient”.⁶⁸ For example, a chief’s scales would be used for weighing gold as payment of fines and a lender’s scales for repayment of debt. Provided that balance weights were standardized, yet not the same, it is evident that *single weighing* always benefitted a chief and a lender, rather than a wrongdoing person or a debtor. As Akan were aware of local appropriation of the weighing system, stone balance weights then played as a material proxy to discourage wrongdoings since repayment of debts and fines was of a high cost.

The impact of long-distance trade among the Akan resulted in several technological and socio-political changes that can be traced archaeologically. Initially, the Akan adjusted weighing practices to buyers’ standards (e.g. *mitkal*), which triggered the commodification of gold. Then, the Akan derived new architectural forms from Middle Niger and adopted a number of new pottery styles as well as the usage of ivory side-blown trumpets. The intensification in the gold trade had an extensive impact on Akan social and economic organization, which led to greater craft specialization, intensive gold mining, and a greater demand for slave labor.⁶⁹ Whereas changes in material culture (including domestic architecture) and socio-

political organization were gradual over centuries, long-distance exchange and weighing practice had an immediate effect on the established economic practices and labor organization.

Commodity Exchange Implies Transaction in Commodity Relations

How can we make use of Akan gold trade for the understanding of transactions involving weights at Çukuriçi Höyük? The fact that the transaction of objects relates to the nature of relationships between social groups, has stood at the center of socio-cultural anthropology since *Argonauts of the Western Pacific*.⁷⁰ These early publications⁷¹ on societies where gift exchange predominates (but gifts are not the exclusive mode of transactions) have shown that the economic system serves as a function of any social organization.⁷² Although a large body of anthropological literature has questioned sharp theoretical divisions between ideal types such as ceremonial gift and non-ceremonial commodity exchange,⁷³ it seems necessary to use the distinction for analytical purposes within prehistoric archaeology for two reasons. Firstly, because within prehistoric archaeology social organization and an economic system often need to be inferred from a rather restricted data set. And secondly, because a theoretical distinction between different transacting practices may highlight different relations between transacting groups.

Following the basic socio-cultural anthropological classification of exchange, two ideal types of economic transactions comprise of gift and commodity⁷⁴. They diverge in many ways, but for the purpose of this study, it is important to note that “gift exchange establishes a relation between the transactors, while commodity exchange establishes a relation between the objects transacted”.⁷⁵ In the case of gift exchange, the two parties involved are in a state of reciprocal dependence whereas in commodity exchange they are in a state of reciprocal independence. Considering that commodity exchange begins on the boundaries of “primitive

⁶⁶ GARRARD 1980.

⁶⁷ SAHLINS 1972, 195.

⁶⁸ GARRARD 1980, 174.

⁶⁹ GARRARD 1980.

⁷⁰ MALINOWSKI 1922.

⁷¹ See MALINOWSKI 1922, MAUSS [1925] 1990.

⁷² POLANYI 1944.

⁷³ ANGÉ 2018; APPADURAI 1986; HUMPHREY and HUGH-JONES 1992.

⁷⁴ For an understanding of commodity within socio-cultural anthropology see Table 1 below. In this paper, commodity is addressed through a transaction-focused approach.

⁷⁵ GREGORY 1982, 42.

Table 1 Understanding commodity exchange within socio-cultural anthropology, complemented after CARRIER 2018.

Commodity	
Production focused approach MARX [1967] 1978	Objects are produced in order to sell them in market transactions (production for exchange) rather than in order to consume them (production for use) Market economy and a substantial division of labor is a necessary precondition
Transaction focused approach MAUSS [1925] 1990. GREGORY 1980, 1982 APPADURAI 1986 CARRIER 1995	An impersonal transaction between strangers Lack of enduring relations between the transactors (producer and a receiver) A commodity may become a gift and a gift may become a commodity (it depends on a social relation between transactors)
Consumption focused approach MILLER 1987	Objects are produced in order to sell them in market transactions Commodity production is impersonal Consumers ascribe meanings to objects based on the social relationships in which commodities are consumed

communities”,⁷⁶ this implies that owners of such objects are willing to alienate them voluntarily since the demand for these resources existed outside and not inside the community. Although a commodity exchange might at first be accidental, its repetition leads to emergence and distinction between use and exchange value, meaning the more labor it takes to produce a product, the greater its value (see Table 1 above for different approaches to commodity transactions).⁷⁷

Gift exchange commonly involves a delayed exchange of the same objects or simultaneous exchange of different gift objects within a ceremonial setting. Objects in gift exchanges are commonly presented and offered rather than exchanged. Gift transaction creates moral and social indebtedness between the two groups, which can be recognized by an appropriate return at a later date.⁷⁸ An external measure of weight or volume is, therefore, neither necessary nor desirable.⁷⁹ Both parties involved in gift exchange rely on social bonds that link them through giving, receiving, and reciprocating. Given the fact that some local communities within the EBA 1 western

Anatolian used weights for specified goods, which is not fully compatible with a gift exchange, we cannot classify these as solely gift-giving systems. The presence of balance weights implies that objects exchanged were measured against each other with external criteria – a common practice when the exchange is conducted between strangers. Equally, the possibility of weights as indicators of simple barter trade between two distinct groups – western Anatolian and Mesopotamian – does not seem to be the case. In barter exchange, the objects or services are exchanged for one another by internal balance, without money or any external criterion for mediating value.⁸⁰ Since balance weights within the considered context certainly served as a medium of exchange, or possibly, a unit of account, this calls for an alternative explanation.

Stone Balance Weights as Boundary Objects

Western Anatolian weights indicate contact between Mesopotamian polities and western Anatolia via maritime, riverine, and possible land-

⁷⁶ GREGORY 1982; MARX [1859]1970.

⁷⁷ MARX [1859] 1970, 50.

⁷⁸ GREGORY 1982, 47.

⁷⁹ MAUSS [1925] 1990. A known exception where gifts can be weighted, comprises Amarna letters. For example, a Babylonian king complained to Pharaoh that Pharaoh sent him only 30 minas of gold, which was not even equivalent to

what the Babylon king sent to Pharaoh every year (EA 3: 19–29, cited in GESTOSO SINGER 2017). Therefore, in some exceptional cases, gift exchange and commodity exchange can exist within the same transaction.

⁸⁰ GINGRICH and SCHWEITZER 2014, 28; HUMPHREY and HUGH-JONES 1992, 8.

based routes. This paper does not argue the *de facto* presence of Mesopotamian traders or merchants in western Anatolia in the first centuries of the third millennium BC. In fact, we do not have clear indications of Mesopotamian artefacts in EBA 1 in this region. The argument presented here, however, shows that the demand or search for silver – the proto-currency of Mesopotamia by the mid-third millennium BC⁸¹ – or gold, could have been the main reason for Mesopotamian and other merchants to expand the trading networks and to reach out to western Anatolia. Therefore, the adoption of stone balance weights in EBA western Anatolia was not necessarily a result of encountering Mesopotamian merchants in the region. On the contrary, as the Akan case study shows, indigenous weights systems can be adjusted, or new ones adopted from buyers, to satisfy buyers' needs.

The archaeological record illustrates considerable differences between the two cultural spheres – the one in the Aegean basin and the Near East at the dawn of the EBA. Despite there being little evidence for a counter-transaction for western Anatolian specified goods, money certainly did not play any role in these exchanges. Yet, the value of exchanged goods was nevertheless compared in weights. The use of weights without a monetary transaction for the exchange of metal is evident from the 15th century AD ethnographic reports of Egyptian merchants who supplied copper with caravans to Sudan in return for gold.⁸² Seen in this light, the Near Eastern stone balance weights at western Anatolian sites can be regarded as boundary objects, in which they

are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual-site use. These objects may be abstract or concrete. They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable, a means of translation. The creation and management of boundary objects is a

key process in developing and maintaining coherence across intersecting social worlds.⁸³

Considered as boundary objects, stone balance weights were introduced to western Anatolia in the earliest phases of the EBA 1 by either strangers (e.g. Mesopotamian merchants or Aegean/Anatolian 'stranger trading communities') or friends within the Aegean World (e.g. from Poliochni to Çukuriçi Höyük or vice-versa). Most likely, they served as standardized units for the exchange of metals or other precious and specified goods but could be also used for repayment of debts and fines, as seen from the Akan case. Therefore, stone balance weights provide an exceptional context "for the commoditization of things that are otherwise protected from commoditization",⁸⁴ which could include gold and silver but also a person's wrongdoing within the western Anatolian EBA 1 context.

In EBA 1 western Anatolia, archaeological records do not point to gold or silver being common luxury commodities and so we cannot *a priori* assume that every society perceives all metals as status symbols.⁸⁵ Gold in EBA 1 western Anatolia was meant for personal use – adornment in extremely small quantities, which gained in importance during the EBA 1.⁸⁶ The case in EBA 1 western Anatolia therefore structurally resembles the Akan case study prior to encounters with the Arab traders who triggered the commodification of gold among Akan. The role of Arab traders among Akan is thus comparable to the Mesopotamian merchants or other Aegean 'stranger trading communities' in EBA 1 western Anatolia. These either Mesopotamian or Aegean 'stranger encounters' in western Anatolia introduced stone balance weights and created a demand for gold and silver, thus facilitating western Anatolian non-commodified goods (gold, silver, and other specified goods) to enter a new social life – a commodity phase in Mesopotamia. Like the Akan, dwellers at Çukuriçi Höyük adopted or adjusted standardized weighing practices from 'buyers' to facilitate transactions with strangers. The explanation for this we can recall from one of the Akan interlocutors – "if you didn't have weights you couldn't trade in gold".⁸⁷

⁸¹ BROodbANK 2013, 337.

⁸² GARRARD 1980.

⁸³ STAR and GRIESEMER 1989, 393.

⁸⁴ APPADURAI 1986, 15.

⁸⁵ For a different opinion see e.g. ŞAHOĞLU 2005, 341.

⁸⁶ SCHWALL et al. submitted.

⁸⁷ GARRARD 1980, 30.

Building upon cases from the Akan or the Baruya, it is likely that the same objects being transacted through commodity exchange within strangers, remained in circulation as gifts between kin or allies within the Aegean Basin. At the same time, the local development of the Aegean spool weights found at Çukuriçi Höyük and Poliochni in the EBA 1 layers, which remained in use and widespread in the EBA 2 elsewhere in the region, further indicates that commodification of these specified items was not limited to the Near East but also introduced to the Aegean basin during the EBA 1. This indicates that commodification of specified goods (e.g. silver, gold, and other goods) that emerged in the Eastern Aegean Islands and the western Anatolian coast during the EBA 1, required a new or a parallel set of values, distinct to those existing in the Near East.

Conclusion

Despite the evident long-distance commodity exchange during the earliest phases of the EBA 1, differentiated settlement plans that clearly indicate rigid hierarchical differences within and between residential units in western Anatolia, appear only around 2600 BC. In particular, at Çukuriçi Höyük, there is no evidence of a central building associated with a permanent central authority in EBA 1.⁸⁸ Moreover, metal production is not limited to a specific workshop but regularly distributed around the settlement and so are the weights.⁸⁹ This leads to two possible conclusions.

First, the EBA 1 maritime-based long-distance exchange between Mesopotamia and coastal sites of western Anatolia might have been a rare, rather than well-established, practice. This could be a case of mere coincidence at the boundaries of community, in which boundary objects such as weights played a key role in translating exchange value without the importance of money. These boundary objects facilitated the transformation between non-commodity (in western Anatolia) and the commodity phase (in Mesopotamia) for the social lives of specified goods exchanged between strangers. So far, only scarce evidence of weights has been identified in western Anatolia for this period.⁹⁰ Comparison to the abundance of

weights among the Akan, which facilitated long-distance trade, further supports this conclusion.

Second, the primarily maritime-based, but also riverine and land-based long-distance exchange between Mesopotamia and coastal sites of western Anatolia might have been a well-established practice that was purely ‘economic in character,’ in which balance weights could translate the value of goods. As seen from the case of the Akan gold trade, such commodity exchange may have been incapable of preventing fraud between strangers. This does not imply that goods produced at Çukuriçi Höyük were intentionally produced for exchange but as seen from the Akan, commodity exchange is possible in the absence of such intent. The commodity transaction between the dwellers at Çukuriçi Höyük and strangers (e.g. Mesopotamian or Aegean merchants) also implies that both parties involved were free to transact or cease to transact at any time. Exchange of commodities, unlike those of gifts, are namely completed after the transaction occurs and do not lead to durable social relations based on reciprocity. Therefore, this sort of commodity exchange networks should be perceived as less durable, easily shifting, and therefore, less reliable than gift transactions also within the prehistoric setting.

In any of the two cases, the EBA 1 site of Çukuriçi Höyük is an example of an economic system in which gift economy, barter, and seemingly occasional commodity exchange of specified goods with Mesopotamian or other stranger polities coexisted. Metals could be circulated as commodities between western Anatolia and Mesopotamia, whereas within the Aegean basin, the same objects could be transferred as gifts or commodities, depending on social distance between transactors. Yet, Çukuriçi Höyük is of no means representative for all of the EBA 1 sites in western Anatolia. Unlike Poliochni, Troy, Demircihöyük, Liman Tepe and other EBA 2 trade centres organized in chiefdom social organization, the site of Çukuriçi Höyük was abandoned at the end of the EBA 1 for – so far – unknown reasons. Provided that the EBA 1 archaeological material from Çukuriçi Höyük does not indicate a centralized socio-political organization,⁹¹ it appears that long-distance trade with the Near East was indeed com-

⁸⁸ SCHWALL and HOREJS 2020.

⁸⁹ HOREJS 2016.

⁹⁰ To date, EBA 1 balance weights in western Anatolian have been only identified at Çukuriçi Höyük and Poliochni (RAHMSTORF 2016, 2018).

⁹¹ SCHWALL and HOREJS 2020.

patible (albeit not sustainable) with more or less politically decentralized societies, of which an example is Çukuriçi Höyük. This, however, is not an exception to prehistory. Metal-trading decentralized societies were previously described for the Black Volta region in today's southern territory of Burkina Faso.⁹²

This result does not downplay the existence of the EBA 1 Eastern Aegean and western Anatolian cultural koine,⁹³ but rather highlights the co-existence and plurality of centralized and decentralized societies within this EBA 1 cultural koine, despite some shared and equalizing material traits. Moreover, the case presented here shows that the emergence of EBA 2 chiefdoms in the Aegean basin was neither an internal, local development nor a development solely based on external influences from the Near East, but both. Therefore, it remains necessary to recognize an intra-regional diversity of the political economy, since different trajectories of social organization within western Anatolia EBA 1 are all too apparent but not well understood.

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⁹² CURTIN 1975, 198, LY-TALL 1972, 103.

⁹³ KOUKA 2002, 2016.

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