

‘A PATH LESS TRAVELLED’? A CASE STUDY OF CROSS-REGIONAL CONNECTIVITY IN THE THIRD MILLENNIUM BC FROM THE MADRA RIVER DELTA ON THE COASTLINE OF NORTH-WEST ANATOLIA

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Assumptions are always made about the levels and directions of cultural connections across regions in western Anatolia and the eastern Aegean in the Early Bronze Age (EBA). However, a lack of primary fieldwork data still inhibits clear conclusions and an understanding of the subtleties and variations in such patterns. In particular, primary data is still lacking from the critical coastal ‘touch-point’ of these two regions where material evidence is usually obscured by significant geomorphological change. This article looks at this complex issue of variations in regional connectivity in the EBA through a case study of unpublished primary fieldwork material from the Madra River Delta, a coastal region of north-west Anatolia. Material from the excavation and surface survey of two EBA mound sites in the delta, carried out as part of the interdisciplinary research project, gives a rare opportunity to explore ‘connectivity’ on this coastal area through elements of its EBA material culture, ranging from ceramic and textile production to figurines. The article highlights not only the complex, and unexpected, nature of the inter-regional cultural ‘pathways’ visible in the delta itself, but also the implications – and further questions – which this raises for the cultural connections with the neighbouring region of the north-east Aegean.

INTRODUCTION

Assumptions are often made about the levels and directions of cultural connectivity across regions in western Anatolia and the eastern Aegean in the Early Bronze Age (EBA). However, a lack of primary fieldwork data still inhibits clear conclusions and an understanding of the subtleties and variations in such patterns. In particular, primary data is still lacking from the critical coastal ‘touch-point’ of these two regions, where material evidence is usually obscured by significant geomorphological change.

The purpose of the present article is to look at this complex issue of variations in regional connectivity in the EBA through a case study of unpublished primary fieldwork material from the Madra River Delta (MRD), a coastal region of north-west Anatolia (Fig. 1). Material from the excavation and surface survey of two EBA ‘tell’ sites in the MRD, carried out as part of an interdisciplinary research project, gives a rare opportunity to explore connectivity on this coastal ‘touch-point’ of the two regions, through elements of its EBA material culture, ranging from ceramic and textile production to figurines. This article highlights not only the complex, and unexpected, nature of the inter-regional cultural pathways visible in the MRD itself, but also the implications – and further questions – which this raises for the cultural connections with the neighbouring region of the north-east Aegean.

This article comprises two main sections. In Part A (by Lambrianides and Spencer), a brief introduction to the fieldwork carried out in the MRD is provided, to give context to the subsequent analysis of the material remains (with more detail on the fieldwork methodology provided in Appendix 1). Part B (written by Röcklinger and Horejs) then moves on to consider in detail the patterns from the region’s material culture and the issue of ‘connectivity’ in the third millennium.

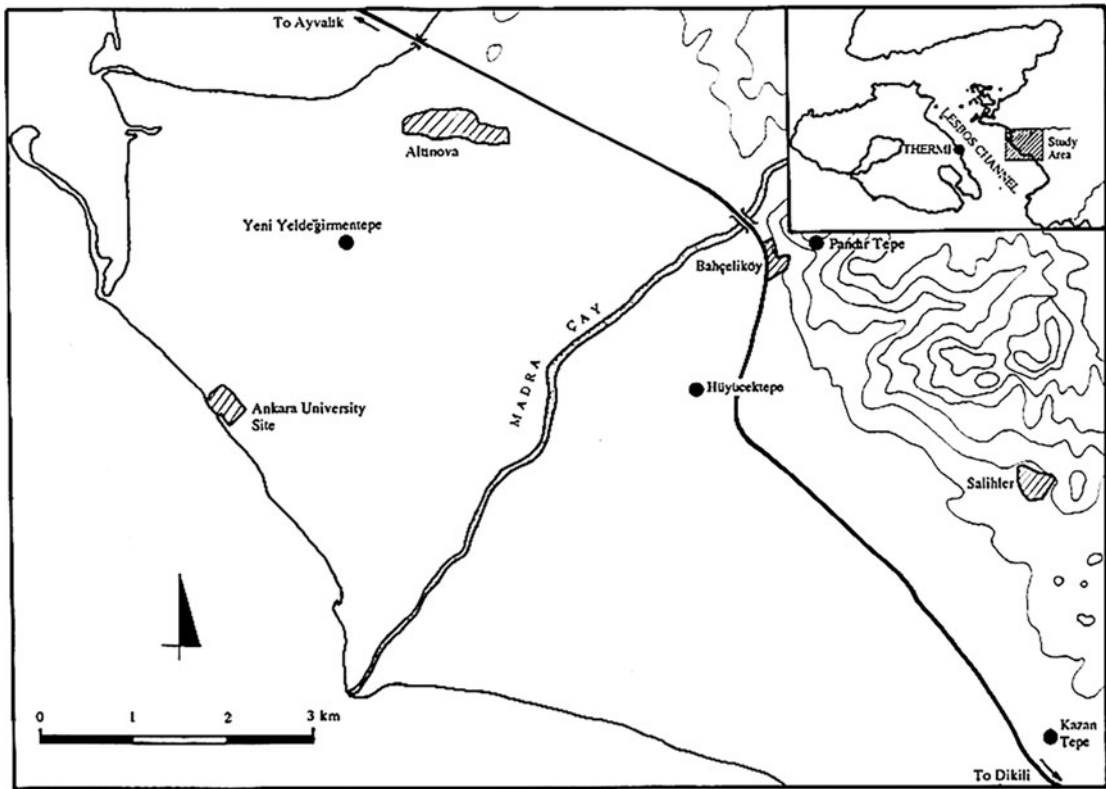


Fig. 1. The Madra River Delta with the two main sites under examination (Yeldeğirmenitepe and Hüyücektepe), and the delta's location on the coastal region of north-west Anatolia and the eastern Aegean (inset). Source: The Madra Çay Delta Archaeological Project.

PART A: FIELDWORK METHODOLOGY FOR THE MADRA RIVER DELTA'S ARCHAEOLOGICAL FIELDWORK

As noted above, one of the main reasons for beginning the MRD project was to examine a previously unexplored touch-point between the cultures of the Anatolian mainland and the Aegean. However, we were aware that conducting fieldwork (especially archaeological surface survey) in a coastal region subject to significant alluviation and sea-level change during the Holocene would be challenging and require us not only to be creative in the techniques employed but also to combine interdisciplinary research methodologies, especially for examination of the cultural remains.

Given the significant amounts of landform change in the MRD, it was critical to understand the delta's geomorphology in detail before deciding upon a methodology for archaeological survey and excavation. For this reason, we carried out a thorough programme of geomorphological and geological research with the team of İlhan Kayan (Ege University) from the early 1990s (Lambrianides 1992a; Lambrianides et al. 1996; Kayan and Vardar 2007a; 2007b; Kayan and Öner 2007). The results of this work allowed us to determine a strategy for the subsequent collection of cultural material, adapting current best-practice survey methods employed elsewhere in the Aegean and Anatolia to the needs of an alluvial coastal delta, and enabling us to focus attention and resources on those areas of the MRD where ancient land surfaces were preserved.¹

¹ One of the current authors (Spencer) had been a survey team leader in the Pylos Regional Archaeological Project under the direction of Prof. Jack Davis (Davis et al. 1997; Davis 2008; Davis and Bennet 2017). The methodologies used for the surface survey described here were adapted from those best-practice ones employed in

For example, one important choice in our surface survey methodology was the area of the overall delta (shown on [Fig. 1](#)) we chose to sample. We were fully aware that other field survey projects in the Aegean and Anatolia began with more extensive surveying of large tracts of the landscape, mapping cultural artefacts before defining concentrations of materials which were then examined through more detailed and intensive collection strategies.² However, our coastal river delta required us to evolve this methodology to fit with the environment within which we were operating because it soon became clear to us that in the delta plain, apart from the surfaces on or very close to a few ‘tell’ sites, ancient land surfaces were not preserved (and often were deeply buried). In the survey of the sites reported here, we therefore decided to carry out intensive collections on the two ‘tell’ sites using the best-practice survey methodologies utilised in other projects but not to survey broad tracts of the delta plain around the tells. This survey methodology entailed the establishing of a ‘grid’ over each mound for the collection of cultural artefacts, and adapting the nature of the grid depending on a number of factors present at each site, in particular the disturbance to the present-day surface at the Yeldegirmen-tepe mound (Lambrianides and Spencer [1998](#); [2008](#)).

The intensive surface survey and trial excavation at Yeldegirmen-tepe mound

The Yeldegirmen-tepe mound had been a main focus of attention from the very beginning of our research in the MRD, with one main aim being to learn more about this prehistoric tell site and its palaeo-environmental history in the context of the geomorphological evolution of the wider delta region (Lambrianides [1992a](#), 75). To achieve these aims, as mentioned above, interdisciplinary methods of research were employed. Preliminary geomorphological drilling work was carried out in 1991 (Lambrianides [1992a](#), 77–8) and formed the basis for further detailed augur drilling on and around the mound in 1995 and 1997 by the team of Kayan (Lambrianides et al. [1996](#); Kayan and Öner [2007](#)).

Archaeologically, our early interest in the mound had been due in part to the possibility that it was the mound near Altınova excavated by Kiliç Kökten in 1949 which he had known by the name of ‘Kaymaktepe’. This mound cannot be located today, but Kökten had discovered there typical western Anatolian Late Chalcolithic and EBA pottery (Kökten [1949](#); Lambrianides [1992a](#), 76). Despite the fact that the Yeldegirmen-tepe mound was now significantly disturbed by the building on it of, first, a windmill and then a municipal water pumping station about 25 years before our fieldwork in the 1990s (see Lambrianides et al. [1996](#), pl. XXII[b]–[c]), the ceramic material initially seen there of similar date to that reported by Kökten emphasised the potential importance of the site in terms of the prehistoric habitation of the delta and the need for further investigation.³ This work was carried out in the form of a more detailed, intensive surface survey in 1996, and trial excavation trenches in 1997, reports of which have been published already (Lambrianides and Spencer [1998](#); [2008](#)). Remote sensing work (using magnetometry and resistivity methods) was also conducted at the site in 1997 and related to the geomorphological and archaeological research (Drahor, Göktürkler and Sengül [2007](#)).

The archaeological survey of the Hüyüktepe mound

The extensive low mound known as Hüyüktepe lies on the east side of the Madra River, approximately 1.5 km south-south-west from the modern village of Bahçelîköy, west of the

the Pylos project (and which had been evolved by Davis from his earlier survey projects in Greece) (Davis et al. [1997](#), 400–2; Davis [2008](#), 273–306).

² The Pylos Regional Archaeological Project is an example of this methodology, whereby teams surveyed the countryside before defining ‘Positions of Special Interest’ (‘POSIs’) which were revisited for intensive artefact collection, establishing a grid over the main scatter of cultural remains (Davis et al. [1997](#), 401 n. 27).

³ Lambrianides [1992a](#), 76–7; Lambrianides et al. [1996](#), 179. The name by which the Yeldegirmen-tepe mound is now known, ‘Yeldegirmen-tepe’ (‘Windmill Hill’), or sometimes ‘Yeni Yeldegirmen-tepe’ (‘New Windmill Hill’) originated from the windmill which pre-existed the water-pumping station of Küçük Köy Belediyesi. This windmill had stood on the higher part of the surviving mound area now occupied by the westernmost building of the water facility and had been destroyed when the water pumping station had been constructed. We are grateful to the Mayor’s Office at Altınova Belediyesi for this information.

modern highway which runs south from Ayvalık to Dikili, continuing to Izmir (Fig. 1). It was first located and visited during the 1989–91 investigations in the delta as part of the preliminary research aimed at inter-relating the geomorphological history and early prehistoric cultural remains in the delta (Lambrianides 1990; 1992a; 1992b; 1995; Lambrianides et al. 1996, 178–80). This first inspection had detected ceramic material similar to that known from Thermi in Lesbos (Lamb 1936) and also apparent on the surface of the nearby mound of Yeldeğirmentepe (see above), suggesting human activity during the Late Chalcolithic/EBA periods. At this time the approximate size of the cultural scatter at the Hüyüktepe mound was gauged, and it was also noted that there were two small, but pronounced, knolls which seemed to represent refuse middens, each containing large numbers of *Cardium* sp. shells and more ceramic fragments. Following this preliminary examination of what appeared a promising surface scatter (previously unknown), a number of other features of the Hüyüktepe mound prompted us to return to the mound and subject it to an intensive surface survey in 1996.

The first of these aspects was that the mound offered a site on the opposite side of the Madra River to the Yeldeğirmentepe mound and, as discerned in the 1995 geological and geomorphological work, one situated in part of the delta with a distinct geological constitution. Another important feature, particularly from the point of view of surface collection, was that the Hüyüktepe mound appeared largely undisturbed, thus offering a potentially more meaningful scatter of surface artefacts than that available at the Yeldeğirmentepe mound, where there had been great disturbance/destruction of the mound (see above); in particular, no building work had taken place on the Hüyüktepe mound itself. The mound was also much larger in area than the Yeldeğirmentepe mound, measuring approximately 220 m × 150 m. And finally, its location also offered a topographical contrast in our consideration of past environmental change in the delta (Kayan and Vardar 2007a; 2007b; Kayan and Öner 2007) as it lies some 4 km from the present-day coastline, much further away than the Yeldeğirmentepe mound on the north side of the Madra River, which was only 2.5 km distant, and which we knew had been close to the EBA shoreline. Our 1995 geomorphological research had clarified that this was not the case with the Hüyüktepe mound (Kayan and Vardar 2007b), and thus we had the opportunity to explore a habitation site in a contrasting micro-environment.

Detailed reports of the intensive surface survey have been published already (Lambrianides and Spencer 1998; 2008), and so we turn now to the analysis of the EBA material found in the fieldwork and the issue of the region's 'connectivity' in the third millennium.

PART B: THE EBA POTTERY OF THE MADRA RIVER DELTA

Introduction

The analysis in this part of the article considers the entire EBA pottery assemblage from the fieldwork conducted during the Madra River Delta Project described above. As noted in the description of the fieldwork in Part A of this article, in addition to already published 'Middle Bronze Age' and 'Iron Age' pottery of the MRD (Bayne and Spencer 2007), significant amounts of EBA finds were discovered during the intensive surface surveys at the sites of Yeldeğirmentepe and Hüyüktepe, as well as during excavations at Yeldeğirmentepe (Lambrianides and Spencer 1998; 2007; 2008).

Given the MRD's location in the immediate vicinity of the area of Pergamon, where the prehistoric period has been under examination by B. Horejs and her team since 2008 (Horejs 2009; 2010a; 2011a; 2011b; 2012a; 2012b; 2013; 2014a; 2014b; 2014c; Horejs, Milić and Pavúk 2015; Horejs and Schwall 2016), the present authors teamed up with the aim of setting the MRD's EBA culture in a wider regional context. Specifically, this Part B of the present study aims to trace patterns of cross-regional connectivity, making direct comparisons between the material culture and micro-regional patterns seen in the MRD and those found in the work in the nearby area of Pergamon. In this section, we also aim to draw parallels with the wider EBA cultural sphere across western Anatolia and the Aegean, understanding the role of the MRD in

this broader cultural context. The present study is based on the survey and excavation data from the MRD, comprising find drawings and find catalogues, as well as photographs, the pottery typology, and the relative chronology visible from the excavation strata at Yeldeğirmenitepe.⁴

In the last century, this particular region between Izmir and the Troad, and the micro regions of the Kaikos valley and the MRD, received little attention from archaeologists studying the prehistoric periods. Only a limited number of scientific undertakings had been conducted before the MRD project of Lambrianides and Spencer: by K. Kökten (1949), K. Bittel (1950), W. Dörpfeld and H. Hepding (1910), as well as J. Driehaus (1957). The present study therefore extends significantly the base of our current knowledge of prehistoric settlement activity within this region.

Since 2008, intensive and extensive surveys in the Kaikos valley have been conducted in order to gain more information about the prehistoric settlement pattern within the region and to fill the gap between the two already well-investigated regions of Izmir and the Troad (cf. Parzinger 1993, 208; Horejs et al. in preparation). To date, continued settlement activity for this region is only verifiable from the ‘Late Chalcolithic/Early Bronze Age’, meaning mainly the fourth/third millennium BC (Horejs 2010b; 2013, 114) onwards. Earlier dates for the ‘Late Neolithic/Early Chalcolithic’ as well as the Middle Chalcolithic period dating to the seventh to the fifth millennium BC are attested by already published pottery fragments (cf. Horejs 2013, 113, fig. 5) from Bağlı Tepe in the Gümüş valley, indicating some earlier occupation in the region.

Chronological classification of the MRD material

According to the catalogues provided from the MRD project,⁵ 398 possible EBA (third millennium BC; cf. Efe 1988, 117, fig. 98) pottery fragments had been chronologically classified by the surveyors/excavators during the fieldwork seasons. The chronological determinations used for initial identification purposes in the field were ‘EBA’, ‘EBA (= Thermi?)’ to ‘post EBA’ and the ‘historical period’. To verify the dating of the individual sherds, and to reach more precise chronological definition, their descriptions and drawings, and also the photographs of the finds, were used.⁶

The first stage of analysing the chronological depth of both sites was the typological assignment, based on the available profile drawings and the descriptions provided by the project leaders. After this stage, 42 individual sherds were excluded from the analyses due to their obvious typological assignment to later/historical periods. As a next stage, the drawings of the remaining 356 sherds were compared to their photos in order to reveal their chronological affiliation. Since photos of the Yeldeğirmenitepe ceramics were only available in very small numbers, this step mainly focussed on the material from Hüyüktepe and, in turn, on the comparison between the

⁴ For reasons of practicality, we include in this article a selection of illustrations of key finds (including Figs 2–3), but we have also made available a much more detailed data set of drawings and photographs of material from the MRD fieldwork, together with tables comparing these finds with that found at other sites, as an online archive: <http://hdl.handle.net/21.11115/0000-000B-DCC4-0>. Where reference is made in the article to drawings presented in the online archive, these illustrations are labelled ‘MRD cat. fig.’ in the main article text. For step-by-step guidance on how to access materials within the online archive, see Appendix 2.

⁵ For the catalogue and the complete tables of the MRD material culture, please see: <http://hdl.handle.net/21.11115/0000-000B-DCC4-0>.

⁶ Röcklinger and Horejs have worked from the detailed fieldwork records of Lambrianides and Spencer as the basis of their study of the EBA material. The labelling of the finds discussed here (and presented in our online archive) uses the following convention adopted during the fieldwork. Finds from Hüyüktepe (where only surface survey was carried out) were given a code of ‘35’ (the regional traffic registration code for the Province of Izmir, in which the site lies), ‘HT’ (Hüyüktepe), the survey year, and an individual find number (e.g. ‘Z415’). A similar approach for material was adopted for the survey at Yeldeğirmenitepe (the regional traffic registration code for the Province of Balıkesir, in which this site lies, is ‘10’, hence the coding on finds ‘10YT...’). For the excavations at Yeldeğirmenitepe, the finds are labelled by the site ‘YYT’ (Yeni Yeldeğirmenitepe), the trench number (1, 2 or 3), the ‘locus’ area within the trench (e.g. a part of the trench bordered by walls or the trench sections), and a ‘lot’ number. Hence a find labelled as being found in ‘YYT-1-025-1’ means ‘Yeni Yeldeğirmenitepe – Trench 1 – Locus 025 – Lot 1’.

available data from both sites. The material record of Hüyüktepe consists of 155 prehistoric sherds, of which 152 sherds were photographed. After the correlation of the photos, the drawings and the descriptions, it became clear that this site was mainly occupied during the early third millennium BC (EBA I and 2), but there is also evidence of activity in later periods. One particular sherd (35HT/96/Film 30/Drawing [Çizim]⁷ 112; MRD cat. figs. 63, 83) indicates an occupation or at least an on-site visit during the Early Iron Age (Troy VIIb). Other sherds (35HT/96/Y272 and 35HT/96/Y242 and Y249; Drawings [Çizim] 18, 19; MRD cat. figs. 73, 78; Lambrianides and Spencer 1998, 410, fig. 8) cannot be affiliated with certainty to a particular period but probably date to the Middle Bronze Age (Peter Pavúk, pers. comm. June 2017). Another particular shape within the material, the fenestrated pedestal (B6 A), may be an indicator for occupation preceding the third millennium BC. Starting in the fifth millennium BC, this pedestal shape appears in a short and compact variant (Schwall 2018, 254), but is also present during the EBA (cf. type A13: Blegen, Caskey and Rawson 1950, fig. 129).

Typological classification

In western Anatolia, the pottery of the EBA I is exclusively handmade and characterised by shallow bowls with inverted rims (*Knickrandschalen*), jugs with high, beak-like spouts, and tripod cooking pots exhibiting different shapes. The MRD pottery is mainly handmade as well and fits to the typical assemblage known from published EBA occupation sites. Only a few pieces are described as ‘possibly wheel made’ or ‘wheel made’, indicating an occupation of the area not only during the earliest phase of EBA I, but also in the more developed phase (EBA 2)⁸ where, for example, the so-called *depata amphikypella* became a characteristic vessel shape (Efe 1988, 97). Of the last-mentioned shape, one possible fragment was found which could be an example of either a *depas amphikypellon* or a so-called ‘hourglass shaped beaker’ (Podzuweit 1979, pl. 6.1) only known once from Troy V (Blegen, Caskey and Rawson 1951, 242, A41).

In general, the EBA MRD pottery assemblage includes 10 vessel shapes, based on 174 rim fragments. The most frequently represented shape is the shallow bowl, which comprises 63 per cent of all shapes found, followed by jars and deep bowls. Narrow-mouthed vessels, jugs, amphorae, *depas* vessels, flasks and pithoi each represent proportionately less than 5 per cent of the overall assemblage. Furthermore, according to their profile, these basic shapes can be subdivided into 35 different vessel types. Due to rather undiagnostic profiles, many fragments and vessel types cannot be assigned to one particular period, but could date to different prehistoric phases. Therefore, the most characteristic and explicit types, typical for the EBA, were selected for more detailed study (see Figs 2–3). This selection is based on the description of fabrics and shapes and the correlation to the photos of Hüyüktepe. After this evaluation, five shapes, including 111 individual pieces, formed the basis of further analyses (Figs. 4–5).

This corpus of 111 sherds comprises shallow bowls (93%), deep bowls (2%), jars (3%), a *depas* vessel (1%) and a neck-jar (1%). The predominant group within the EBA pottery, the shallow bowl, consists of eight different types, and its relative dominance within the assemblage overall can be explained, inter alia, by the distinct profiles which help with the assignment of pieces to this group.

As is to be expected for EBA settlements in western Anatolia, the shallow bowl with inverted rim (Sb1a and b) is the most common type within this group, and can be differentiated in two sub-types. The first sub-type (Sb1a) shows a comparatively long rim, the second one (Sb1b) a generally more common shorter rim. With 22 fragments, the shorter version comprises 20 per cent of the complete assemblage, whilst the long version, with 16 fragments, comprises 14 per cent. The second leading type is the narrow-mouthed shallow bowl (Sb4) which consists of 20 fragments and comprises 18 per cent of the defined assemblage. Other types of shallow bowls

⁷ For the fieldwork drawings, as illustrated in the present article and in our online archive, we have retained the original label of ‘Çizim’ (‘Drawing’) given by project illustrators to the material recorded from Hüyüktepe, in order to enable readers to match more easily the finds being discussed to the original pictures.

⁸ The first evidence for wheel-made pottery derives from Troy IIB, but it became more common during Troy IIC/d (cf. Blegen, Caskey and Rawson 1950, 205, 220–4; Podzuweit 1979, 23).

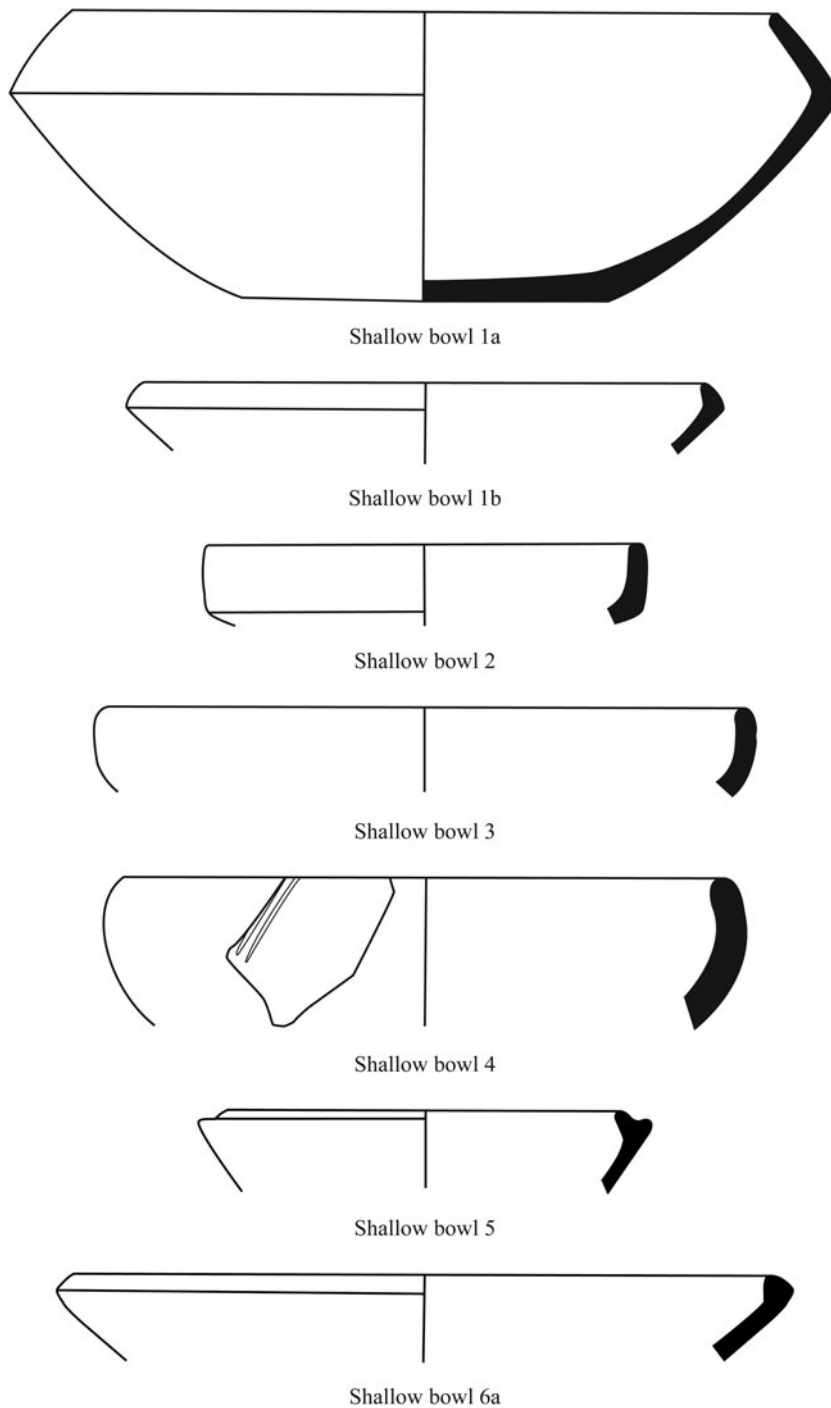


Fig. 2. Selected EBA vessel shapes of Madra River Delta (not to scale).

include those with a vertical upper body (Sb2), bowls with a flanged rim (Sb5), dome-shaped shallow bowls (Sb3), conical or ‘funnel-shaped’ bowls (Sb7), open-mouthed shallow bowls with inside bevelled rim (Sb9), and its decorated sub-variant (Sb9a), as well as the open-mouthed shallow bowls with an inner, thickened rim (Sb6a).

Jars are represented in two different types: narrow-mouthed tripod cooking pots (Jar 1) and jars with slightly curved walls (Jar 2), with three and four fragments of each, respectively. Although Jar 2

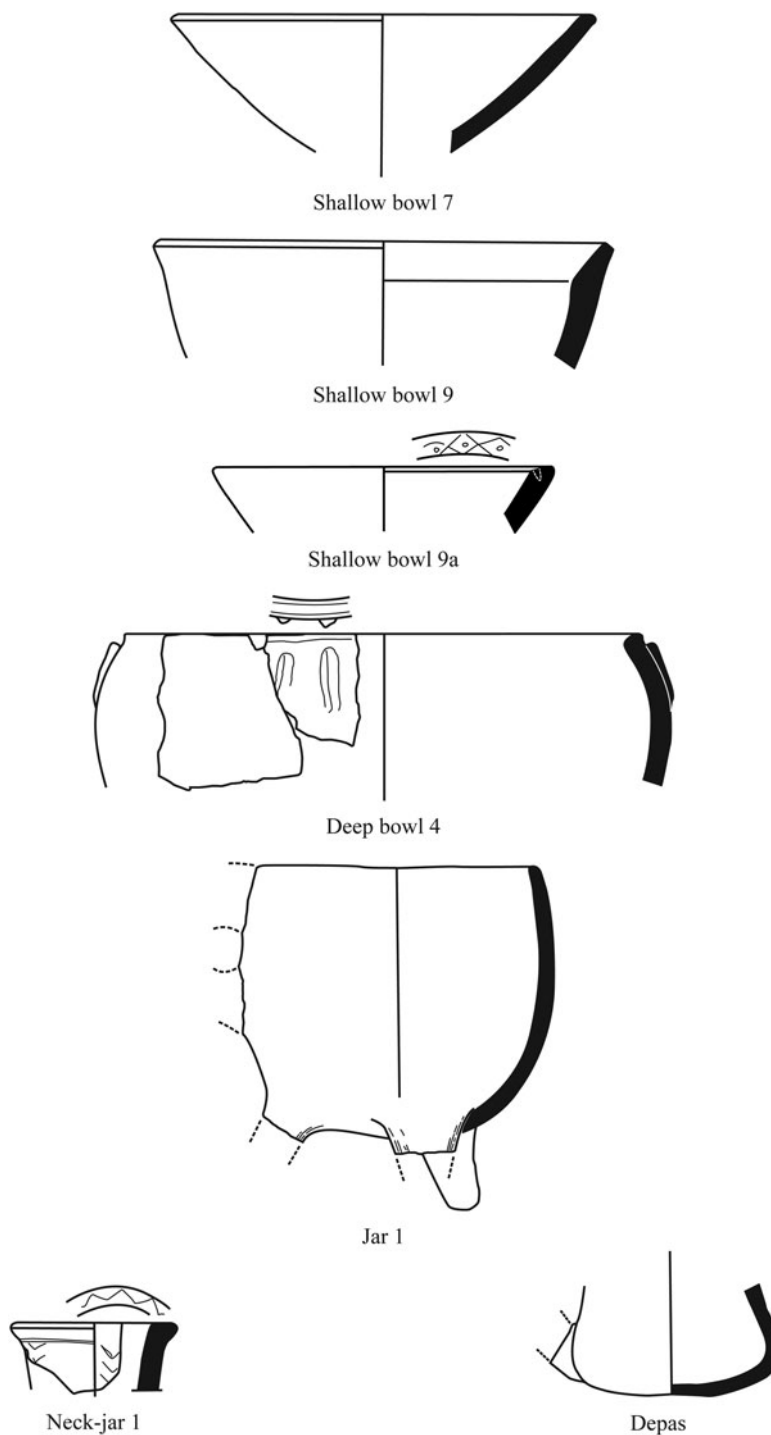


Fig. 3. Selected EBA vessel shapes of Madra River Delta (not to scale).

can clearly be assigned to the EBA, this type was excluded from further studies as its profile and shape are not particularly diagnostic and comparative studies would be inconclusive.

The next shapes are deep bowls, represented in one type (narrow-mouthed deep bowls; Db4), of which there are only three fragments. Two single shapes are the already-mentioned possible *depas amphikypellon* and the neck-jar. The latter shape could be associated with the so-called Yortan pottery. For the description of the different types, see Fig. 6.

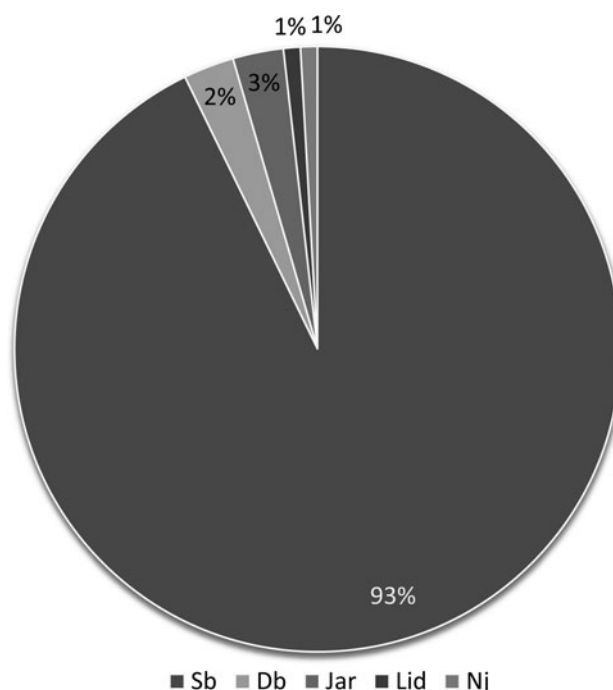


Fig. 4. Distribution of selected pottery shapes [n = 111]; Sb: shallow bowl, Db: deep bowl, Nj: neck-jar (M. Röcklinger/OeAI).

Shallow bowls

In this sub-section, all EBA shallow bowl types will be described and discussed, in the sequence of those most prevalent in the MRD pottery assemblage.

The most frequent shallow bowl type shows a slightly curved wall, an angular shoulder and an inverted rim (Sb1). This type can be differentiated into two sub-types according to the length of their rims. With 22 individual pieces, the version with the short rim (Sb1b) is the most common shape within the MRD assemblage. Type Sb1a is represented by 16 rim fragments. In terms of the distribution of these shallow bowls at the two sites under study (Yeldeğirmen-tepe and Hüyüktepe), the number of the long version at the Yeldeğirmen-tepe marginally exceeds the short-rimmed variant (13:9). Within the Hüyüktepe assemblage, the difference is more obvious with a ratio of 3:13 (long:short). With the exception of Çukuriçi Höyük, Çine-Tepecik Höyük, Demircihöyük, Ilıpınar and Karataş, in all compared sites (Fig. 7) both variants are present. For the sites on Lesbos (Fig. 7:1–5) we can conclude that Sb1b is dominant. A possible example of a Sb1a appears at Profitis Ilias (Lambrianides and Spencer 2008, 348, figs 5:10 and 7). Additional examples for Sb1b are known from Profitis Ilias (Lambrianides and Spencer 2008, 348, figs 5:12, 18 and 6), Chalakes (Lambrianides and Spencer 1997, 91, fig. 7:1–3) and Makara (Lambrianides and Spencer 2008, 348, fig. 8a, 8b). Interestingly, no clear chronological difference in the presence of these two sub-types can be attested. Both start during the later part of the Late Chalcolithic (the late fourth millennium BC) and continue uninterrupted into the EBA.

As summarised in Fig. 8, the shallow bowls with the inverted rim from the MRD occur with:

- horizontal lugs on the rim (Lug 1) as well as on the body (Lug 2);
- saddled lugs on the rim (Lug 1B);
- short horizontal lugs on the body (Lug 3A);
- horizontally pierced knobs (Kn 2);
- vertically applied bars (Applied bar 1); and
- horizontal loop handles with an oval cross-section, attached to the rim (H 13).

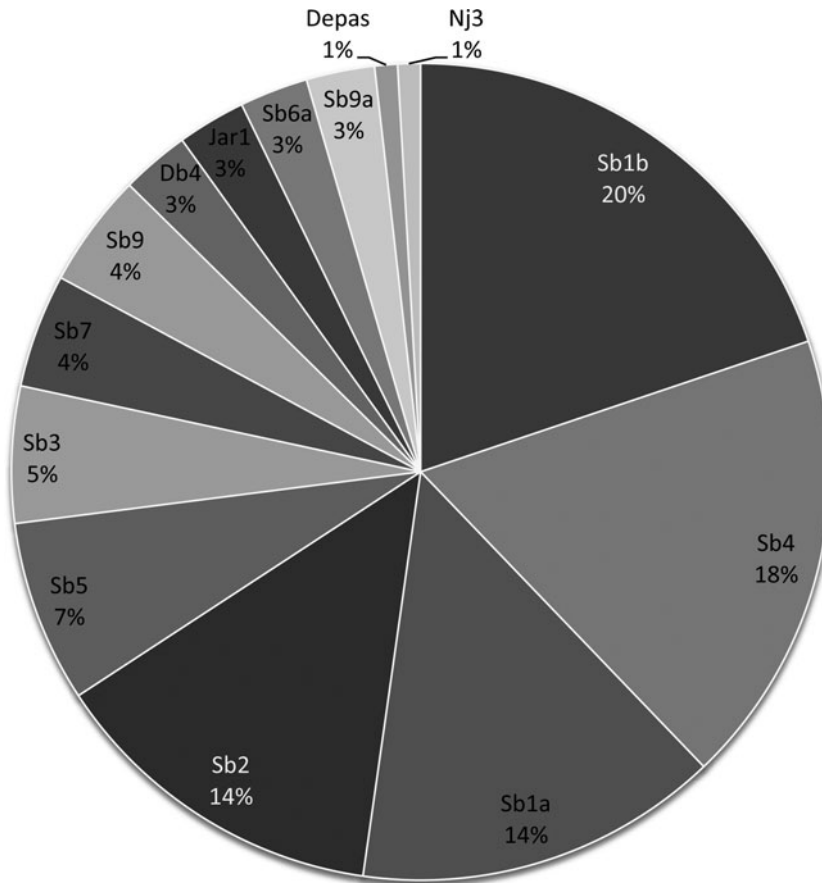


Fig. 5. Distribution of selected pottery types [$n = 111$]; Sb: shallow bowl, Db: deep bowl, Nj: neck-jar (M. Röcklinger/OeAI).

Comparative material from other sites indicates that the combination of Sb1a with a Lug 1 only appears in the MRD and on Lesbos, where it has been found at Thermi and at Profitis Ilias (Lambrianides and Spencer 2008, 348, figs 5:8 and 6); and the combination of this shape with a Lug 2 occurs only at Yeldeğirmenitepe. Other tubular lugs on Sb1 rims have also been found in the Eresos valley on Lesbos (Schaus 1996, 63, pl. 8). Sb1b shows combinations with five kinds of handles/applications. The most common is the Lug 1B, which is present at Yeldeğirmenitepe and Hüyüktepe as well as at Emporio on Chios, the Heraion on Samos, Kanlıgeçit, Kumtepe, Liman Tepe, Poliochni on Lemnos, Thermi on Lesbos and Troy. In turn, the combination with a Lug 3A is only known from Hüyüktepe, Emporio and Troy. The vertically pierced knob (Kn 2) is present at Hüyüktepe, Çukuriçi Höyük, Emporio, Liman Tepe, Thermi, Profitis Ilias (Schaus 1996, 60, pl. 6 bottom) and Makara (Lambrianides and Spencer 2008, 348, fig. 8a, 8b). The horizontal handle (with oval cross-section; H 13) appears only at Yeldeğirmenitepe, Aphrodisias (acropolis trenches 1–2), Emporio and at Thermi (I–II). The uncommon combination with a vertically applied bar (AB 1) is unique and was only found during excavations at Yeldeğirmenitepe. On the basis of this vessel shape, and the combination with the different handles, one can see that most comparisons can be found at Emporio (VII–I) followed by Liman Tepe (VI–V), Thermi (I–V) and Troy (I). Other comparisons were found at Çukuriçi Höyük (IV–III), Heraion, Kanlıgeçit (KG 2a–c), Kumtepe (IB4, IC), Poliochni (*azzurro evoluto*) and Aphrodisias-Pekmez (LC2–BA1/2). We set out detailed literature references for all these comparisons from published studies in our online archive.⁹

⁹ See table 1 in the online archive, <http://hdl.handle.net/21.11115/0000-000B-DCC4-0>.

	Shape	Type
Sb1a	Shallow bowl	inverted rim – long neck
Sb1b		inverted rim – short neck
Sb2		vertical upper body
Sb3		dome-shaped
Sb4		narrow-mouthed
Sb5		y-shaped (flanged rim)
Sb6a		open-mouthed – inside thickened rim
Sb7		funnel-shaped
Sb9		open-mouthed with inside bevelled rim
Sb9a		open-mouthed with inside bevelled rim – decorated
Db4	Deep bowl	narrow-mouthed
Jar1	Jar	tripod cooking pot – narrow mouthed
Nj3	Neck-jar	curved wall
Depas	Depas	
Lid 1	Lid	‘snap-on’ lid
Lid 2		flat lid perforated
Lid 3		flat lid with handhold
B 6	Ring base	
B 6A		fenestrated
F 1	Foot	broad base
F 2		conical base
F 3		cylindrical base
H 1	Vertical handle	broad section
H 2		round section
H 3	Horizontal handle	
H 3A		attached on rim, high-standing
H 13		oval section
H 4	Horned handle	
Kn 1	Knobs	vertically pierced
Kn 2		horizontally pierced
AB 1	Applied bar	vertical bar
Knha 2	Knob handle	broad with grooves
Knha 3		high-standing and vertically pierced
Knha 4		deeply saddled and double pierced
Knha 5		slightly saddled and pierced
Knha 6		pointed
Baha 2	Bar handle	horizontal and pierced
Lug 1	Cord lug	at rim, horizontal
Lug 1B		at rim, horizontal – saddled
Lug 2	Tubular lug	horizontal – on wall
Lug 3A		short
Lug 3B		long
Leha 3	Ledge handle	triangular
Leha 5a		winged – perforated
Leha 7		special shape
DWF 1	Decorated wall fragment	painted
DWF 2a		impresso – groove
DWF 2e		impresso – punctures
DWF 3		pattern burnished
DWF 4		circle pattern

Fig. 6. Description of EBA vessel types from the Madra River Delta (M. Röcklinger/OeAI).

Shallow bowl 4 (Sb4) is narrow-mouthed and has a smooth inverted rim, forming a round convex shoulder (Fig. 2). At Yeldeğirmenitepe, 14 fragments were found during excavations and one piece during the intensive surface survey. In the course of the intensive surface survey at Hüyüktepe, five fragments of this type were found. With 20 fragments in total, this type forms the second largest group within the MRD pottery assemblage. Shallow bowls of this type occur



Fig. 7. Map showing the main compared sites as well as additional sites on Lesbos (1: Eresos, 2: Makara, 3: Chalakies, 4: Agios Bartholomaïos, 5: Profitis Ilias) (M. Röcklinger/OeAI).

Appl.	Lug 1	Lug 1B	Lug 2	Lug 3A	Kn 1	Kn 2	Kn 3	AB 1	Knha 4	H 3	H 3A	H 13	DWF 2a	DWF 3
Type														
Sb 1a	x		x											
Sb 1b	x	x		x		x		x				x		
Sb 2	x						x				x			
Sb 3		x								x				
Sb 4		x	x										x	x
Sb 6a					x				x					
Db 4								x						

Fig. 8. Correlation between vessel types and applied handles/applications present at the Madra River Delta (M. Röcklinger/OeAI).

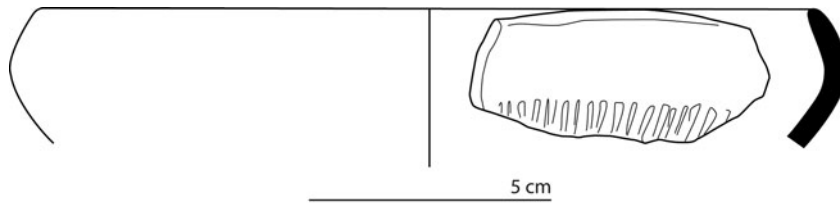


Fig. 9. Shallow bowl with possible pattern burnished decoration from the Yeldeğirmenitepe excavation (YYT-3-1-003 (#2)) (digital drawing: M. Röcklinger/OeAI).

in combination with Lug 1B and Lug 2 as well as grooves (type DWF 2a). A particularly interesting piece from Yeldeğirmenitepe shows a (possible) very simple pattern-burnished decoration, consisting of parallel lines, on the outside of the bowl (Fig. 9). Usually the tradition of pattern-burnished decoration is characteristic for the Middle Chalcolithic period, dating mainly to the fifth millennium BC, but later finds attest a longer duration at distinct sites in western Anatolia until the fourth millennium BC (Schwall 2018, 251). As the authors did not have the opportunity to examine this sherd in person, it remains unclear whether the example from the MRD exhibits 'real' pattern burnishing, common burnishing traces, or even the remains of white paint, and it is hard to support a conclusion of 'Middle Chalcolithic' occupation in the MRD on the basis of this single piece. Overall, this shallow bowl shape finds its comparison in many of the compared sites dating to the EBA (see table 2 in our online archive) and therefore is a further indicator of a dating for the two settlements under study to the EBA 1 and 2.

The shallow bowl with straight sides (Sb2) is present with 15 fragments, nine from Yeldeğirmenitepe (six from the excavation, and three from the surface survey) and six from Hüyüktepe. Handles are attested on three individual pieces. One shows a high-standing and vertically pierced knob handle (Knha 3), another exhibits a horizontal cord lug on the rim (Lug 1) and the third one a horizontal, high-standing handle which is attached at the rim (H 3A). If we compare these findings with those from other sites, only one site (Emporio) shows a similar combination of shape and handle. At Emporio (VII–VI) there is an example of a shallow bowl with straight sides, combined with a knob handle 3. Other sites with similar vessel shapes are Aphrodisias-Pekmez (BA 1–2), Beycesultan (BA 1, 3), Chalakies on Lesbos (Lambrianides and Spencer 1997, 91–2, figs 7, 9) Heraion (EBA 1), Kanlıgeçit (KG2a/b), Karataş, Küllüoba (EBA 1) and Troy II. At Demircihüyük a comparable vessel shape was found in a disturbed layer (Q). As is the case for shallow bowl 4 (Sb4), this Sb2 bowl type is mainly found during EBA phases at the comparative sites.

Shallow bowl 5 (Sb5), which exhibits a flanged rim, is a particularly interesting shape (see Fig. 2). During the excavations and surveys at Yeldeğirmenitepe, two fragments of such bowls were found, whilst at Hüyüktepe six more fragments were found during the site's intensive surface survey. In the MRD no handles or applications were found in combination with this shape. Across sites in the broader region, examples of this particular shape are only known from Emporio (V–IV) and Troy I. It is worth noting also that at Emporio only three individual pieces of this type were found in total (Hood 1981, 185, type 18), and therefore it is not a shape which can be called 'typical' for that site. The lack of occurrences of this shape at other sites like Thermi on Lesbos, directly opposite the MRD, is also noteworthy. Only one possible example of such a shallow bowl was found on the island of Lesbos at Profitis Ilias (Lambrianides and Spencer 2008, 348, fig. 5:17), although it is not clear whether or not this item is a shallow bowl or a lid. During surveys in the Kaikos valley, type 5 shallow bowls came to light at several sites, as mentioned by J. Driehaus (1957, 84, fig. 4:4,8). Their dating to EBA 1 and the restricted geographical distribution lead to the interpretation of a very 'regionally specific' vessel type with limited distribution, mainly occurring in the MRD and the Kaikos valley, as well as at Troy.

In contrast to this particular shape, the dome-shaped shallow bowl (Sb3) is more prevalent in different regions and in different periods. The generally undiagnostic and simple nature of its shape makes it impossible to use as a chronological marker, and therefore the technology, ware



Fig. 10. Sb9a from Hüyüktepe (35HT-96-Y416) (photo: The Madra Çay Delta Archaeological Project).

and surface treatment play a major role in assigning these pieces to the EBA. In the MRD, only six pieces, two from Yeldeğirmenitepe and four from Hüyüktepe, were found. One of the fragments from Yeldeğirmenitepe was described as wheel made, and at Hüyüktepe two individual pieces exhibit a Lug 1B and one shows a type 3 handle. Examples with similar handles exist at Aphrodisias-Pekmez (BA 2), Emporio (II, V–IV) and Yortan, and, in general, comparable Sb3 bowl types are known at Çukuriçi Höyük (IV–III), Demircihüyük, Emporio (VII–I), Ilıpınar (EBA), Karataş (I–VI), Küllüoba (EBA 1), Liman Tepe (VI), Poliochni (*azzurro evoluto*), Thermi (I and II) and Troy.

The group of shallow bowl 7 (Sb7), which are conical or ‘funnel-shaped’ bowls, comprises five examples from the MRD (see Fig. 3). Three were found during excavations at Yeldeğirmenitepe and one during the survey of the same site, with the last piece deriving from the survey at Hüyüktepe. From the sites under study no applications or handles are attested. Across the broader geographical region, the best comparisons are found at Çukuriçi Höyük (IV), Candarlı (EBA 1), Demircihüyük, Emporio (VII–I), Karataş (I–VI), Küllüoba, Liman Tepe (VI–V), Poliochni (*azzurro evoluto*), Troy (I and II) and at the Agios Bartholomaios cave on Lesbos (Lambrianides and Spencer 2008, 347, fig. 4). At this last-mentioned site, the shape was described as a simple shallow bowl which can be dated to the Late Chalcolithic as well as the EBA (Lambrianides and Spencer 2008, 335, 338).

The next common shallow bowl type (Sb9) is an open-mouthed shallow bowl with a bevelled rim inside, and can be differentiated into two sub-types: one undecorated, and a decorated variant. The undecorated group (Sb9) is represented in five pieces, all coming from the Yeldeğirmenitepe excavations. The decorated version (Sb9a) consists of three fragments, all deriving from the Hüyüktepe surface survey. Piece 35HT-96-Y416 (Fig. 10) shows rhombic



Fig. 11. Sb9a from Hüyüktepe (35HT-96-Y959) (photo: The Madra Çay Delta Archaeological Project).

incisions with single deep, round impressions. Traces of white paste indicate some initial incrustation. Object 35HT-96-Y959 (Fig. 11) has simple zig-zag lines and shows no traces of any incrustation. Unfortunately, the third fragment was not drawn or photographed. Therefore, no assessment regarding the decoration can be made. No hand-holds, like the typical vertically pierced knobs, were found, which might be the result of the generally rather small size of the single fragments. Comparative examples for the undecorated variant are known at Çukuriçi Höyük (IV–III), Emporio (II–V), Kanlıgeçit (KG 2a/b), Kumtepe IC 2, Liman Tepe (VI), Poliochni (*azzurro archaico*), Thermi (III–IV) and Troy (I).

Decorated individual pieces were again found at Çukuriçi Höyük (IV–III), Emporio (V–IV, II), Kumtepe (IC 2, C 1c–d, C1a/B4), Poliochni (*azzurro evoluto*) Thermi (III) and Troy. Further examples derive from EBA Bakla Tepe and Çukuriçi Höyük Va (Schwall 2018, pls 49:1 and 41:1215), where the decoration is painted and not incised, and Beycesultan (EBA 1). If we take a closer look at the individual patterns, only the zig-zag line finds identical examples elsewhere: in Troy I (Blegen, Caskey and Rawson 1950, fig. 256:26), Emporio II (and probably Emporio IV) (Hood 1982, 443, fig. 199 [no. 1538], 444, fig. 200 [no. 1547], 533, fig. 234 [no. 2354]) and Kumtepe C1a/B4 (Korfmann et al. 1995, 268, fig. 26:5). The rhombic pattern with punctures finds no exact matches within the sites under comparison, although the rhombic pattern is quite common to the EBA stylistic tradition. In general, one can say that this shape becomes a ‘characteristic’ one for the EBA 1 in the east Aegean and western Anatolia (Blegen type A6; Blegen, Caskey and Rawson 1950, 58; cf. Schwall 2018, 198, 234). Nevertheless, its development can be traced back to the second half of the fourth millennium BC.

The least common shallow bowl is Sb6a, an open-mouthed vessel with a thickened inner rim. At the sites under study only three individual pieces were found, all deriving from the survey at Hüyüktepe. One example shows a vertically pierced knob underneath the rim. Another piece features a deeply saddled and double-pierced knob handle, sitting on the wall. Comparisons for this type are known from Aphrodisias-Pekmez (LC 3), Beycesultan (EBA 1), Emporio (VII–VI and I), Kanlıgeçit (KG 2a/b), Kumtepe (IB 4), Liman Tepe (VI) and Troy (I). According to the chronological assignment of the comparative examples, this shape dates to the transition of the ‘Late Chalcolithic’ to the EBA 1 period, fitting well the proposed dating of the two sites in the MRD.

Overall, the shallow bowls in the MRD assemblage exhibit the typical pattern for sites with an EBA occupation in western Anatolia. So-called *Knickrandschalen* (Sb1) are common in western Anatolia and are mostly made of dark brown, grey or even black fabrics, as one would expect for

EBA settlements. Since these shapes are relatively long-lived, starting already in the late fourth millennium (the 'Late Chalcolithic' period), a chronological assignment of the sites cannot be based solely on this vessel shape (cf. Schwall 2018, 234; Weninger 2002, 1050, fig. 5). Other important indicators for the dating of the settlements are the Sb5 and Sb9 shapes, which appear predominantly during EBA 1 elsewhere. Another important hint for the dating of the MRD ceramics is their technological method of production. Almost all of the presented shapes (except Sb6a and Sb9a) include some wheel-made, or at least slow wheel-made, sherds within the material under study, strongly indicating an occupation of the sites until EBA 2.

In terms of the regional connections visible, the shallow bowls with flanged rims indicate a strong 'local' horizon for the MRD's sites, since these shapes do not occur outside the MRD and the Kaikos valley (with the exceptions of a limited number of examples at Emporio and Troy). The absence of this remarkable and easily recognisable vessel type at Thermi is particularly noteworthy, and could possibly indicate a more remote connection between the island of Lesbos and the MRD than had been previously assumed (Lambrianides and Spencer 2008, 342).

Deep bowls

Deep bowls are, like shallow bowls, open-mouthed vessels with their greatest expansion at the rim. In contrast to shallow bowls, deep bowls are generally higher and can show a more strongly structured profile. Within the material under study in the MRD, several deep bowl types were differentiated, but only one could be assigned to third-millennium material culture with certainty. Deep bowl 4 shows, like shallow bowl 4, a narrow mouth with a rounded shoulder. A few examples of this shape were described as 'large diameter bowls' in the catalogue, already indicating a difference to the comparable small, shallow bowls also attested. It is important to mention that, since only short parts of the profiles are preserved, and the overall shape of the walls has to be reconstructed, the classification as a 'deep bowl' has to remain open to interpretation for some of the pieces found.

Within the MRD pottery assemblage, only three deep bowl fragments were found, coming from the excavation material at Yeldeğirmen-tepe. One example of this shape is YYT-3-2-008 (#1) (MRD cat. fig. 34) and exhibits two vertical bars attached slightly underneath the rim. Another catalogued example was described as showing a buff-grey surface and a brick-red ceramic core, which might indicate a later dating for this example (10YT/96/38; MRD cat. fig. 54). However, since no photo is available for this latter example, a more precise dating is not possible.

It is noteworthy also that, outside the MRD, no directly comparative examples were found for this particular shape across other sites in western Anatolia or in the east Aegean, although other bowl-shapes with inward-leaning rims exist. In comparison, shallow bowls of similar shape are more common (Hood 1981, 367, fig. 166; Schaus 1996, 62).

Jars

During the field work in the MRD, four different jar types were identified. As noted above for the deep bowls, only one type could clearly be assigned to the EBA. The others exhibit a less definitive profile and cannot be associated to a particular period with certainty. There are three examples of the type Jar 1, a narrow-mouthed tripod cooking pot. One of these is a very well-preserved example (Fig. 12) showing the fully preserved wall and the (broken) legs with an oval to broad cross section. As shown on the original drawing (Lambrianides and Spencer 2008, 353, fig. 21), a vertical handle, attached to the rim, is assumed for this vessel. Tripod cooking pots in general are very common during the EBA and can appear in different sizes and shapes. This particular type finds its best comparisons at Aphrodisias-Pekmez (BA 1), Demircihüyük (EBA), Thermi and Troy (I). However, since this type is a relatively unusual one, further statements about its chronology or (inter-)regional parallels cannot be made solely from this jar type.

Depas amphikypellon

The already-mentioned fragment of a possible *depas* vessel consists of a small, slightly convex base and the attachment of a vertical handle with probable round cross section. Unfortunately, no



Fig. 12. Well preserved tripod cooking pot from the Yeldeğirmenitepe excavations (YYT-1-057-1) (photo: The Madra Çay Delta Archaeological Project).

description was available for this piece. The issue of its fabric, style, colour and surface treatment therefore remains open. Since the original drawing depicted only one handle and no photographs are available, it is unclear whether this fragment really shows a *depa*s vessel or is, instead, another kind of cup or tankard. Comparisons with *depa*s vessels have shown that the bottoms are usually flat with a rather angular transition to the body. Only one particular vessel from Troy V (Blegen, Caskey and Rawson 1951, 242, A41) showed a similar shape to this vessel fragment. This Troy V example is described as a ‘tankard, resembling an hourglass in profile, with broad flat bottom [with] narrow waist [...] single handle curving from rim to lower part of body’ (Blegen, Caskey and Rawson 1951, 242–3), which summarises well the vessel from Yeldeğirmenitepe. Although no further comparative examples are available from other sites, this object suggests an occupation of the site at least during EBA 2 or even later.

Miscellaneous

Aside from the presented vessel types, several other EBA objects, ranging from lids to particular vessel parts (bases, handles and knobs) were found during the investigations in the MRD.

Lids

At Yeldeğirmenitepe, one well-preserved lid was found during the excavations (Fig. 13). It is an approximately circular lid with a protruding, double pierced cover plate (Lid 1), finding its best comparisons at Babaköy, Emporio (V–IV), Karataş, Thermi (II–IV) and Troy (II). Generally speaking, ‘snap-on’ lids in different variants are very common during the EBA in western Anatolia.

At Hüyüktepe, three flat lids were found. The first is an example of Lid 2, a simple flat lid with a central knob and two drillings facing each other. Comparable types have been found at Beycesultan, Liman Tepe (VI), Thermi and Troy (I, III). The third lid type (Lid 3, generally described as a flat lid with handhold[s]) was found twice at Hüyüktepe. However, since both of these lids are not fully preserved, a more precise assignment to a particular lid type within this broad definition is not possible. The first example of this Lid 3, 35HT/96/Film 31/Drawing [Çizim] 70 (MRD cat. figs 67, 81), shows one fully preserved central knob and four decussated bases (arranged in opposite pairs) for further applications. Similar handle settings on flat lids were found with four-armed crown-handles or lids with four high-pointed lugs (both found at Troy I; Blegen, Caskey and Rawson 1950, 74, F11 and 75, F18). For the MRD Lid 3, crown-



Fig. 13. Snap-on lid from the Yeldeğirmenitepe excavation (YYT-I-062-I Ben) (photo: The Madra Çay Delta Archaeological Project).

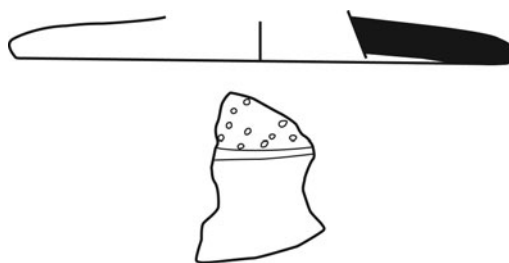


Fig. 14. Lid or 'fruit stand' base from Hüyüktepe (35HT-96-X271) (digital drawing: M. Röcklinger/OeAI).

handles with a central knob are most likely. The second Lid 3 example is preserved only as a small fragment and was described as a possible pedestal foot/base (Fig. 14). According to the drawing, this particular piece could either be the base of a so-called 'fruit stand', a predominant shape at Poliochni, or a flat, decorated lid. Since the sherd's horizontal curvature is not depicted in the drawing and also is not visible in the photo, no clear statement about the overall shape can be made. Furthermore, unless one has a significant enough state of preservation, lids and bases of 'fruit stands' can look very similar. According to the Poliochni vessels, the pedestals are rarely decorated with incised line patterns (Bernabò-Brea 1964, pl. XXIIa-j). The fragment of Hüyüktepe, in contrast, shows an incised, probably concentric, line and round punctures toward the middle of the object. As already mentioned, the 'fruit stand' is typical for Poliochni, but as Podzuweit (1979, 135) already summarised, no fragments of such a shape have been found in Troy or Thermi. Given the fact that the 'fruit stand' does not appear in the region and rarely has this style of decoration, it seems very unlikely that this fragment represents the first example of a 'fruit stand' for this area. The interpretation as a lid therefore seems most likely.

Bases

In general, vessel bases are usually rather undiagnostic and therefore not easy to assign to any one particular chronological period. In the MRD assemblage, seven different base types were classified. However, only one type and its sub-variant (the pedestal base and its fenestrated variant) represent base types which enable a more specific chronological assignment.



Fig. 15. Fenestrated pedestals from Hüyüktepe (left: 35HT-96-Y819a-b; middle: unknown; right: 35HT-96-Y226) (photo: The Madra Çay Delta Archaeological Project).

The fenestrated ring base (B6 A) is of particular interest. The shape appears during the ‘Middle Chalcolithic’ period (Schwall 2018, 254), being found from the fifth millennium BC onwards, and during the EBA examples are associated with shallow bowls with an inverted rim (*Knickrandschalen*), simple dome-shaped bowls or the shallow bowl type Sb9/9a (as at Troy I; Blegen, Caskey and Rawson 1950, 59, A7 and 61, A13). From the MRD fieldwork, two fragments from the Hüyüktepe surface survey can be categorised as B6 A bases (Fig. 15). The first one, 35HT/96/Y226 (MRD cat. figs 68, 78, Drawing [Çizim] 23), is made of a hard and gritty fabric with small gritty inclusions, and shows a black surface and core. The shape is short and undecorated with round fenestrations. The second example, 35HT/96/Y819a-b (MRD cat. figs 68, 90, Drawing [Çizim] 182), is also made of a hard and gritty fabric with small inclusions, and, as with the first example, its surface and core are black. In contrast to the first mentioned example, this second pedestal example is higher and decorated with incised zig-zag lines at the base and a field filled with herringbone pattern on the shaft, filling the space between the fenestrations. A third fenestrated pedestal is only known from a photo. Unfortunately, there is no object number, and, therefore, no further information is available. Comparisons for fenestrated pedestals are known from Demircihüyük, Emporio, Küllüoba (especially from phase VI; Efe and Ay 2000, 15 and 40, pl. 1), Poliochni and Troy.

The ‘basic’ version of this base type (ring base type B6) is represented by two examples at Hüyüktepe. The first is a simple and low ring base. The second example shows a pedestal with grooved decoration (35HT/96/Z618) (Fig. 16; MRD cat. figs 68, 89, Drawing [Çizim] 168). At the lower part, a horizontal simple grooved line is visible. A wavy line, worked in the same technique, is located above it. Although no exact comparisons were found for this latter fragment, other decorated pedestals were found at Thermi (III–IV) and Troy (I). At Thermi, the pedestal exhibits an incised lozenge pattern, covering the whole base (Lamb 1936, 117, 306, pl. X:306). At Troy, object 37.1140 is decorated with a zig-zag band, forming dot-filled triangles pointing downwards and a band of chevrons pointing to the right (Blegen, Caskey and Rawson 1950, 124, fig. 224 [no. 37.1140]). At Yortan, decorated pedestals are often combined with globular jars (Orthmann 1966, fig. 6:49; Kamil 1982, fig. 33:77–9), although, as already mentioned above, the example from Hüyüktepe supported a pedestal-bowl. Given the size of the Hüyüktepe base 35HT/96/Z618 and other known comparable bases, it is more likely that the MRD example once supported a pedestal-bowl rather than a globular jar, with examples of such pedestals known from Aphrodisias-Pekmez (BA 1–2), Emporio (VII–II), Kanlıgeçit (KG 2a/b), Kumtepe (IC 2), Poliochni (*nero, azzurro archaico*), Thermi (III–IV), Troy and Yortan.



Fig. 16. Decorated pedestal from Hüyüktepe (35HT-96-Z618) (photo: The Madra Çay Delta Archaeological Project).

Small finds

Spindle whorls

During the excavations at Yeldeğirmenitepe, 19 small finds were recorded (see Figs 17–19), the majority of which (nine individual pieces) are spindle whorls of different types. According to their shape, three typological groups can be differentiated.

The most frequently occurring is the biconical whorl (type I), which can be subdivided into three variants:

- Type IA, is of regular biconical shape with a greater height than diameter (YYT-I-026-I).
- Type IB is of regular shape with a more evenly distributed height-diameter ratio (YYT-I-048-I).
- The last type (IC) is of more roundish, or slightly irregular, shape (YYT-2-005-I, YYT-3-009-I, YYT-I-048-I).

The second type (II) shows a flat rounded biconical shape (YYT-I-022-I, YYT-3-007-I) and the last spindle whorl type (III) is of conical shape with a wide opening/depression on the upper side (YYT-I-025-I) forming an almost heart-shaped cross-section. During the intensive surface surveys, one type III spindle whorl was found at Yeldeğirmenitepe (10YT-96-81).

At Hüyüktepe, another example of a biconical spindle whorl was found during the surface survey (Fig. 20) which, on account of its colour, shape and the style of decoration (incised lines and punctures), fits well to the documented types from Yeldeğirmenitepe. A second spindle whorl from Hüyüktepe (35HT-96-B70), the precise shape of which is not recorded, was described as being of buff-grey clay with medium and small mica and calcite inclusions, and with a burnished (but not decorated) surface.

Four out of the nine spindle whorls from Yeldeğirmenitepe are decorated with incised lines on the upper side.

Of type IC whorls, two individual examples are decorated. The example from the Yeldeğirmenitepe excavation YYT-2-005-I shows four cross-positioned lines, starting from the central perforation and going to the width/transition of the whorl. Whether these lines were used as cord grooves, to stabilise the whorl on the spindle, or as simple decoration cannot be determined, as no further information about the surface, abrasion or preservation is available. If these lines are cord grooves, the spindle would have been used ‘upside down’, and the lines would therefore be on the lower part of the object. The interpretation of the lines as decorative can be supported by an example from Emporio II (Hood 1982, 639, fig. 288:24) which shows a similar decoration of four lines combined with fields filled with punctures. The other decorated

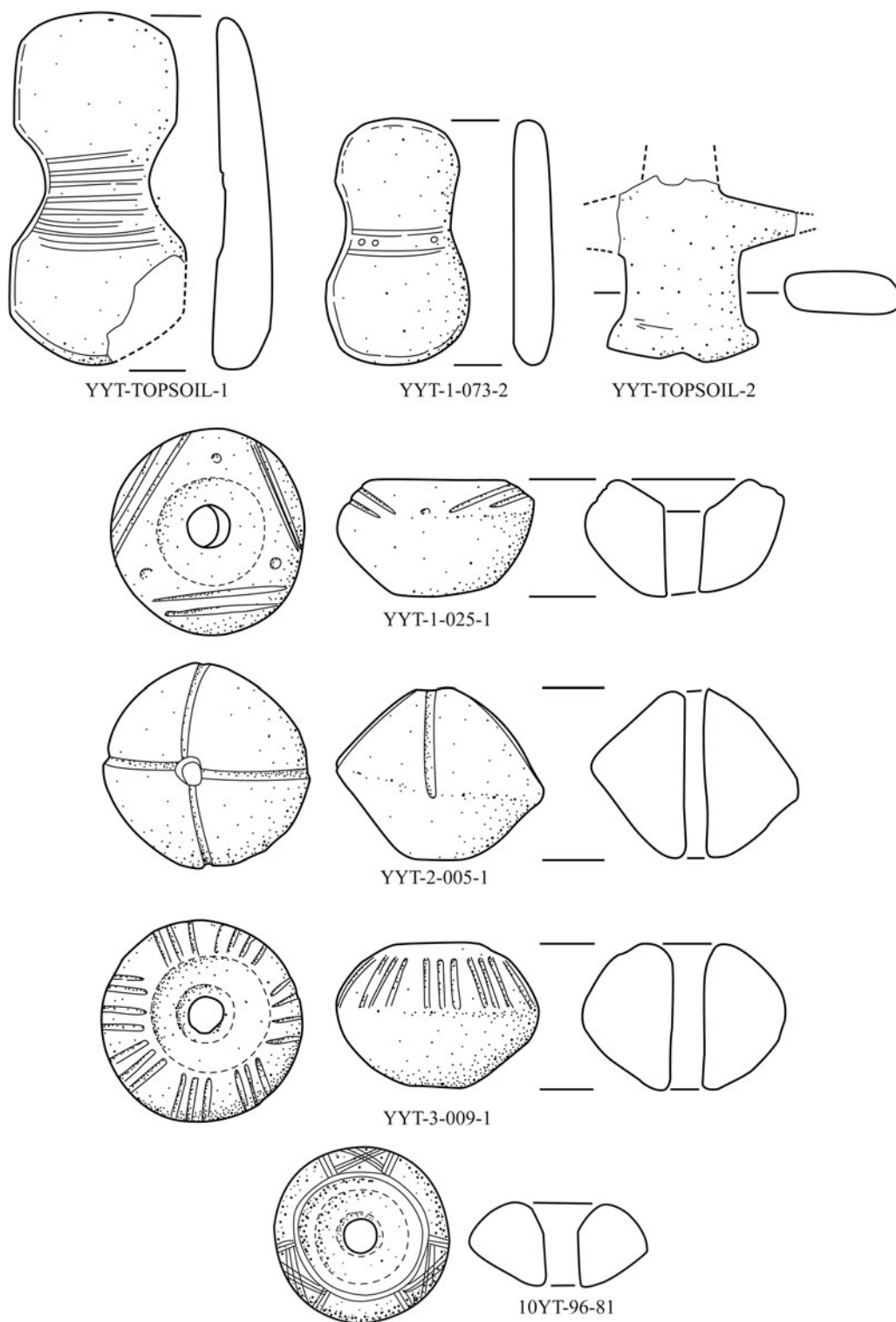


Fig. 17. Madra River Delta small finds (1:1).

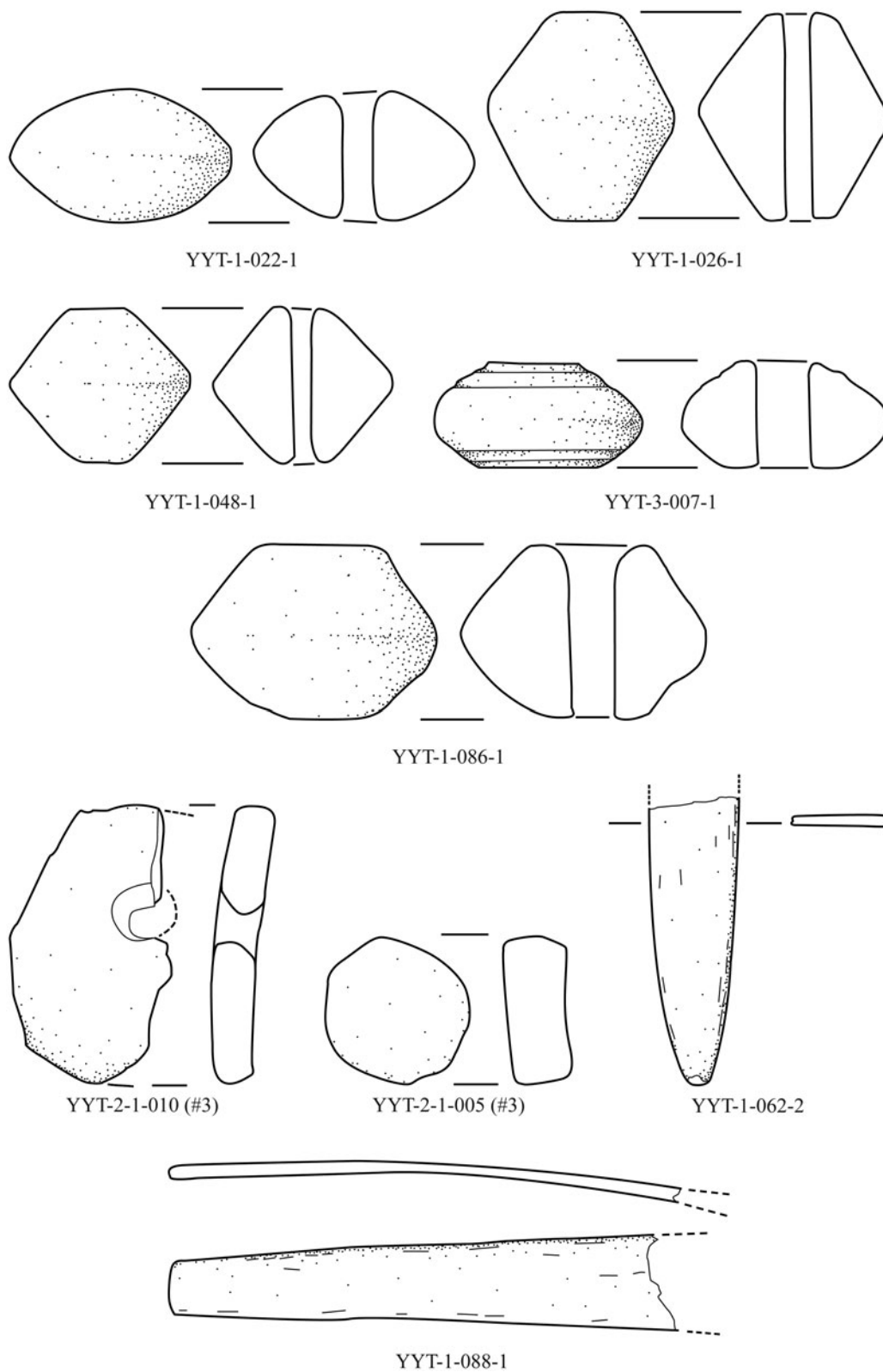


Fig. 18. Madra River Delta small finds (1:1).

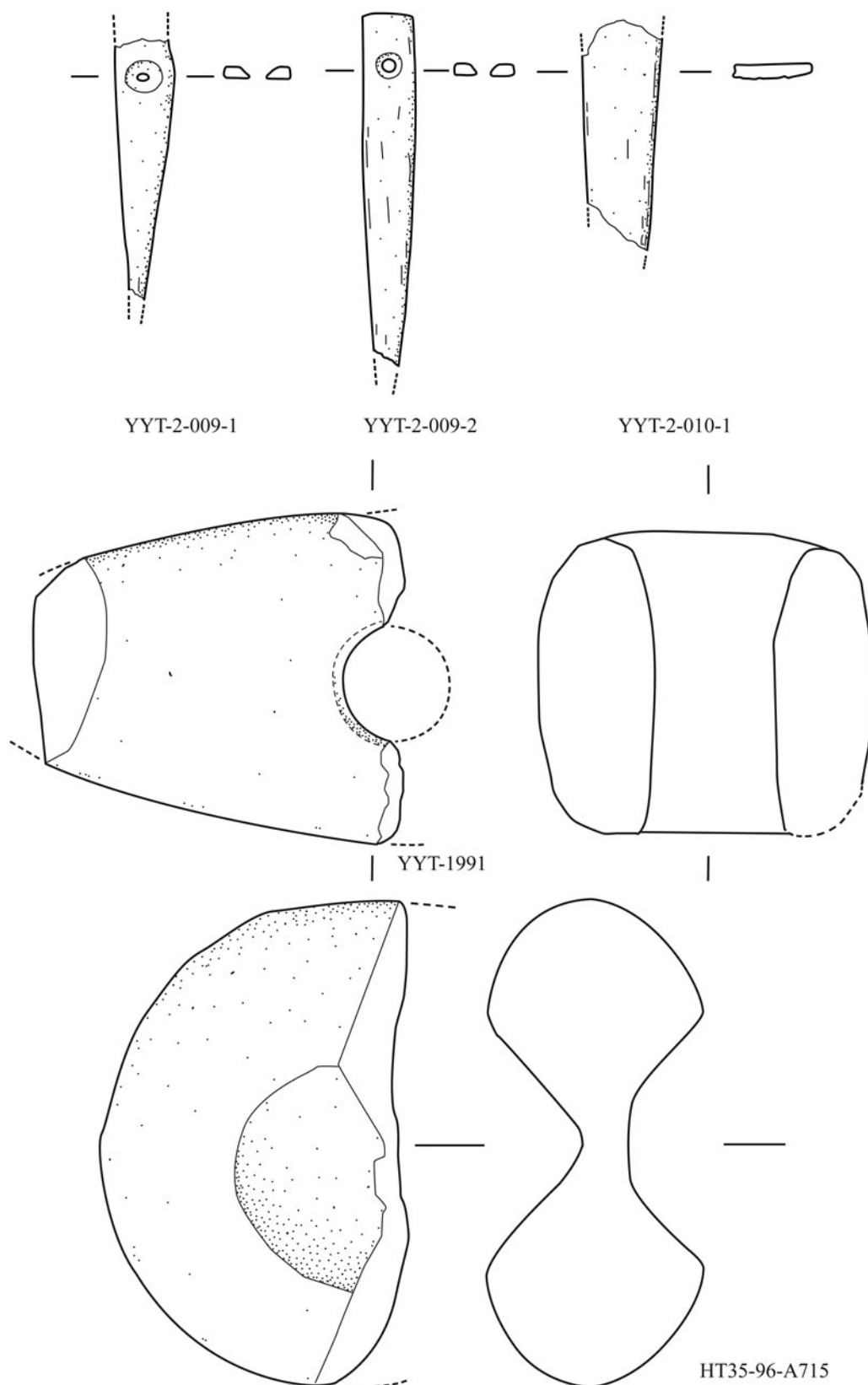


Fig. 19. Madra River Delta small finds (1:1).



Fig. 20. Spindle whorl from Hüyüktepe survey (photo: The Madra Çay Delta Archaeological Project).

example from the Yeldeğirmenitepe excavation (YYT-3-009-1) shows vertical bundles of three to four lines, covering the upper part of the whorl. Comparable decoration styles are known from Beycesultan VI (Lloyd and Mellaart 1962, 278 and fig. F.6:I) and Aphrodisias BA 4 (Joukowsky 1986, 386, fig. 312:11).

The other two decorated spindle whorls from Yeldeğirmenitepe belong to type III. The simpler decoration (YYT-1-025-1) shows three round impressions, positioned in a triangular fashion around the central perforation. The fields between these show pairs of lines, parallel to the 'point-triangle'. A similar decoration was found at Troy (Blegen, Caskey and Rawson 1950, fig. 367:35–277) dating to Troy II-d–g.

The most complex decorated whorl comes from the Yeldeğirmenitepe survey (10YT-96-81) and shows two concentric circles with three filled fields attached to them. Those are surrounded by a set of three parallel lines on their sides and are filled with two groups of three lines each, intersecting at the centre of the field.

The fabric of the decorated whorls was described as 'dark burnished, of typical Thermi/Troy I fabric' (Lambrianides and Spencer 2008, 340–1 and fig. 20), giving information about the appearance and the dating of these objects to the EBA. Further information regarding the texture, colour or weight were not recorded in the catalogue, and, therefore, no particular statement about the technological aspects of those objects can be made.

Studies by Ch. Britsch showed that the technical features of EBA spindle whorls from western Anatolia have an overall framework in relation to their weight (Britsch and Horejs 2014, 231). Biconical spindle whorls (in all their facets) were the prevailing shape during the EBA in western Anatolia (i.e. Blegen, Caskey and Rawson 1950; Lloyd and Mellaart 1962; Völlig 2008; Britsch and Horejs 2014, 231), but also the other types present at the two sites under study are also well known in that period (see Fig. 21).

Figurines

Other notable small finds from Yeldeğirmenitepe are three figurines, of which one is made of clay and two of marble (Fig. 17) (Lambrianides and Spencer 2008, 352 and fig. 18:1–3). Both marble figurines are flat and of rather simple abstract shape, typical for the EBA (Atakuman 2017, 87). For Troy, Blegen defined them as type 2 (Blegen, Caskey and Rawson 1950, fig. 127), where they are described as flat figures with 'head and body [...] separated only by lateral notches or indentations' (Blegen, Caskey and Rawson 1950, 27). Both examples from Yeldeğirmenitepe show incised horizontal lines and, in one case (YYT-1-073-2, Fig. 22 middle), additional round punctures, supporting the optical division of body and head.

Blegen noted that at Troy these idols are 'fairly common [and] usually of marble' (Blegen, Caskey and Rawson 1950, 27), and, although these idol types are not of the characteristic violin-

Type	Site	Citation
I	Troy	Blegen et al. 1950, fig. 128, 15
	Emporio	Hood 1982, 638, C
	Beycesultan	Lloyd and Mellaart 1962, 274, fig. F.5
	Poliochni	Bernabò-Brea 1964, pl. LXXXII, g, h
	Aphrodisias	Joukowski 1986, 373
	Demircihüyük	Obladen-Kauder 1996, 228, VI
	Kanlıgeçit	Özdoğan and Yılmaz 2012, 201, fig. 181, 7
	Thermi	Lamb 1936, 162, fig. 46; 163, fig. 47
II	Troy	Blegen et al. 1950, fig. 366, 36-24; fig. 128, 16
	Beycesultan	Lloyd and Mellaart 1962, 274, fig. F.5
	Kanlıgeçit	Özdoğan and Yılmaz 2012, 202, fig. 182, 1
	Aphrodisias	Joukowski 1986, 377, fig. 313, 2
	Demircihüyük	Obladen-Kauder 1996, pl. 94, 11
III	Troy	Blegen et al. 1950, fig. 222, 33-264; fig. 366, 35-220; fig. 128, 17, 23
	Emporio	Hood 1982, 638, D
	Aphrodisias	Sharp-Joukowski 1986, 376, fig. 312, 14

Fig. 21. Spindle whorl types from Yeldeğirmenitepe and selected comparable finds with references (M. Röcklinger/OeAI).



Fig. 22. Figurines from Yeldeğirmenitepe (left and middle: marble; right: clay) (photo: The Madra Çay Delta Archaeological Project).

shape from the Cyclades, Blegen did see affinities with Aegean types (Blegen, Caskey and Rawson 1950, 211). Comparable examples derive, for example, from Thermi II (Lamb 1936, pl. XXVI:31.98), Emporio (Hood 1982, 630, fig. 285:10,15), Beycesultan ‘X(?)’ (Lloyd and Mellaart 1962, pl. XXXII:4; 272, fig. F.4:9) as well as Troy I, where it was the most frequent figurine type (Blegen, Caskey and Rawson 1950, 37).

Both the marble figurines described here from the MRD derive from the excavations at Yeldeğirmenitepe. One (Fig. 22 middle; YYT-1-073-2) was found in a secure EBA context. The other one (Fig. 22 left; YYT-TOPSOIL-1) came from the ‘disturbed deposits near the top of the trench’ (Lambrianides and Spencer 2008, 340). Nevertheless, a dating to the EBA 1/2 for both of the ‘figure-of-eight’ shaped idols can be assumed (Takaoğlu 2011, 160). The clay figurine (Fig. 22 right; YYT-TOPSOIL-2) was also found in disturbed upper layers. Due to the particular shape of the legs, which suggests a ‘sitting’ figurine, and the unknown shape and style

of the ‘head’ (which is missing), no directly comparable examples were found. In general, schematic figurines are already known from the Early Chalcolithic (Schwall and Horejs 2017, 58) and are used until the EBA and even later (Erkanal and Şahoğlu 2012). Figurines made in clay, typical for previous periods, reappear in the late EBA 1 and become more common in the EBA 2 (Efe and Turkteki 2011, 228). Therefore, no clear statement about the dating and the typological assignment can be made for this individual piece, although the clay used indicates a dating to the EBA (Lambrianides and Spencer 2008, 340).

Other small finds

Other objects made of clay are a pierced (YYT-2-I-010 (#3)) and an unpierced (YYT-2-I-005 [#3]) disk, both found during the Yeldeğirmen-tepe excavations (Fig. 18; YYT-2-I-010 [#3], YYT-2-I-005 [#3]). The former is broken in approximately its half, and is of oval shape, whilst the latter is of round shape. Both discs were produced from vessel sherds, which can be seen in the curvature of the objects. Discs are widespread and appear in different periods, at Demircihüyük, for example, at least from the Neolithic to the Middle Bronze Age (Kull 1988, 208–10). The use and function of these objects is often discussed, and suggestions made include pendants, labels, lids, a stop for a drill, net-sinkers or spindle whorls (Obladen-Kauder 1996, 224). The last-mentioned use is the most common interpretation, although this view is not undisputed (Britsch and Horejs 2014, 234). However, irrespective of the function of these discs, they constitute an integral part of an EBA ‘toolkit’.

In the Yeldeğirmen-tepe excavations, five bone tools were also found, objects which are often connected to textile production (Figs 18–19). Two of these tools can be described as a spatula (YYT-I-062-2, YYT-I-088-1), another two as pierced needles (YYT-2-009-1, YYT-2-009-2) and the last one (YYT-2-010-1) cannot be assigned to a particular type due to its state of preservation.

The last small find to mention from survey work at Yeldeğirmen-tepe is the butt end of an axe (Fig. 19; YYT-1991). Unfortunately, except a drawing, no further information was recorded for this find. A literature review of such shapes revealed similar objects in Thermi (Lamb 1936, 183, figs 53:30.9, 184 and 54:32.23), Beycesultan (EBA) (Lloyd and Mellaart 1962, 270, fig. F.3:4) and *Poliochni azzurro evoluto* (Bernabò-Brea 1964, pls C:I,3 and CI:5).

From the Hüyük-tepe surface survey, in addition to the above-mentioned spindle whorls, two stone objects, one clay pendant and a metal object were found. Compared to other contemporaneous sites, stone tools were remarkably rare in the overall corpus found at Hüyük-tepe, although two were noted. The first stone object, HT35-96-A715 (Fig. 19), is a round stone object with a central depression, worked from both sides (Fig. 23). Similar finds from Thermi were described as a ‘hammer with rudimentary borings on either side’ (Lamb 1936, 19 and fig. 59:8) and as ‘hour-glass perforated mace head’ in Emporio (Hood 1982 and fig. 292:23). Baykal-Seeher (1996, 179, pl. 85:1–6) described similar objects from Demircihüyük as a possible base for a bow-drill. A second stone tool from the Hüyük-tepe survey (Drawing [Çizim] 120; Fig. 24) is also broken but can be interpreted as a pestle. The possible clay pendant (35HT-96-Z415; Fig. 24), possibly of use for weaving, is of irregular-oval shape, with a perforation at its upper end and is made of reddish-brown clay. Finally, the metal object (Drawing [Çizim] 91; Fig. 24), possibly the fragment of a needle or a simple wire, shows a green corrosion and therefore might be made of copper or a copper alloy (Figs 24–5). Due to a lack of further information regarding this material, and the unclear context of the finds (given that they were surface finds during the 1996 survey), no clear statement about the dating of these finds can be made.

According to their shape, and contemporary finds, a dating of all these additional small finds from the surveys at both the MRD sites and the excavation at Yeldeğirmen-tepe to the EBA can neither be denied nor confirmed. Nevertheless, the small finds presented here do offer evidence of everyday craft activities typical of an EBA settlement, even if we are unable to draw firm conclusions about the mode of production and the organisation of these crafts.



Fig. 23. Stone tool from Hüyüktepe (HT35-96-A715) (photo: The Madra Çay Delta Archaeological Project).

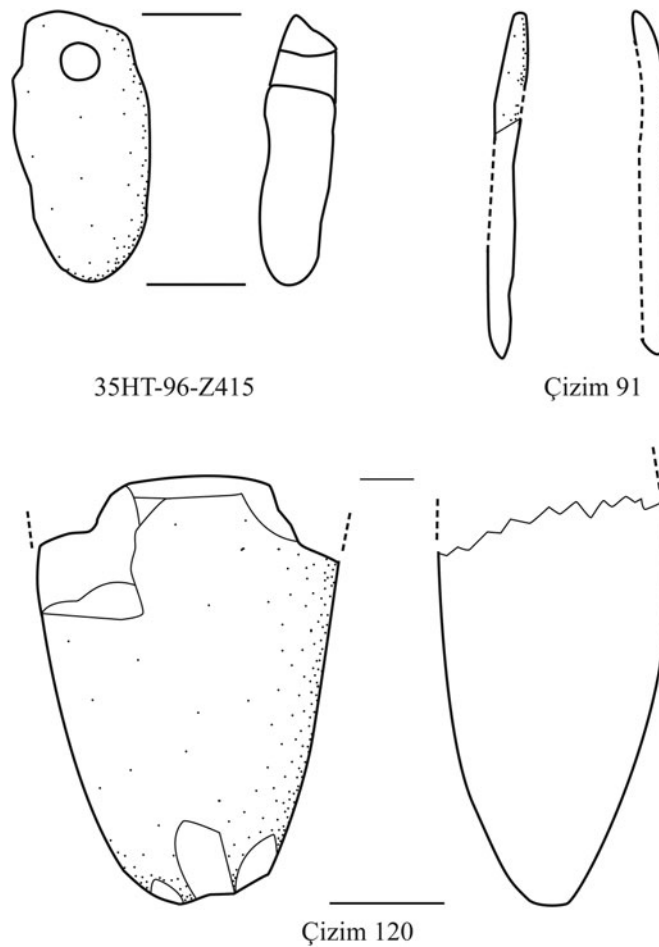


Fig. 24. Madra River Delta small finds (1:1).



Fig. 25. Clay pendant (35HT-96-Z415) and metal object (Drawing [Çizim] 91) from Hüyüktepe (photo: The Madra Çay Delta Archaeological Project).

PART C: CONCLUSIONS – CROSS-REGIONAL CONNECTIVITY IN THE MADRA RIVER DELTA OR ‘A PATH LESS TRAVELLED’?

We began the article with an objective of using the two sites in the MRD not only as a new case study for exploring EBA cultural connectivity at a geographically specific ‘touch-point’ of Anatolia and the Aegean, but also as a means to test previous hypotheses relating to the cultural coherence of the wider region in this period. Following the extensive evaluation of the MRD finds presented above, and their comparison to selected EBA sites in western Anatolia and the eastern Aegean islands, we are able to draw conclusions at both the macro level and also the more local level in respect of this issue of regional connectivity.

Before discussing the issue of ‘connectivity’, we should add a brief concluding comment on the chronology of the MRD material, as this issue inevitably impacts upon our observations on the regional connections. Currently, we are able to draw conclusions related to the dating of the MRD material in two ways: through typological comparisons, and also by looking at nearby sites explored in detail where precise chronologies have been established (e.g. Thermi on Lesbos). The former analysis is presented in detail in this article. The latter chronological guidance, from Thermi specifically, offers characteristic pottery shapes which have a relatively long lifespan, and indicates to us that the MRD material covers broadly the phases Thermi I to V in varying degrees. A more specific correlation to particular periods at Thermi, or even a period-to-period correlation, would only be possible with detailed calibrated radiocarbon dates (currently lacking for the MRD sites). The present position is that evidence for later, advanced EBA material is very limited in the MRD. For example, only a few (slow) wheel-made fragments and a fragment of a possible *depas* vessel are present. Our current conclusion, therefore, is that the *main* focus of occupation in the MRD appears to be in the earliest EBA, meaning EBA 1 (albeit with some later activity evident also). However, much more study and more excavation will be needed to confirm this hypothesis.

Turning to the issue of ‘connectivity’, at a macro level, one conclusion is that the material from the MRD published here, together with the already published small finds and figurines (Lambrianides and Spencer 2008, 352, figs 18, 20), paints a picture of a culture characteristic of EBA occupation in neighbouring regions. In other words, the present study of the pottery from the MRD, allied with our experience of previously conducted studies along the western Anatolian coast and on the eastern Aegean islands, supports the hypothesis of a strong coherence and interrelation across these areas during the EBA, comprising one general cultural horizon. The perspective of the MRD being part of this overall *koine* (Kouka 2002, 299) is also

visible from other finds in the MRD assemblage such as the ‘figure-of-eight’ shaped idols and the biconical spindle whorls.

Nevertheless, when one takes a detailed look at the pottery, one can recognise a difference in the *extent* of connections between sites across this broader region. In the case of the MRD, statements about connectivity must be made with caution, since no fully or large-size excavated site is available for the necessary detailed analysis, but it appears that what we can see in the material under study is a balance of the ‘regional’ and the ‘local’. Generally speaking, the material culture fits to the overall EBA 1 and 2 cultural spheres (c. 3000–2400 BC; cf. Efe 1988, 117, fig. 98) of western Anatolia and the eastern Aegean islands, represented by the numerous comparable vessel types, similar wares and surface colours, as well as the spindle whorls and other small finds from Yeldeğirmentepe and Hüyüktepe. However, balanced against this finding of broader ‘connectivity’, there are regular indications of more limited cultural horizons, or local creations which are rarely found elsewhere. For example, the presence of shallow bowls with flanged rims strongly indicates the embedding of a more local, regional phenomenon. Comparisons for that particular vessel shape can be found in the nearby Kaikos valley, indicating a possible local pottery group, but strong or very strong connections to other regions, either in western Anatolia or in the eastern Aegean, are impossible to detect. In addition, some of the combinations of shallow bowl shapes and handles from the MRD were noted above to be rarely found elsewhere, or were unique to the MRD, indicating some local experimentation and combinations which mark out distinct cultural patterning.

Following our detailed analysis, the primary impression from the MRD material culture is that of a relatively autonomous region with an absence of particularly intensive connections with other landscapes, and of a local cultural horizon, probably extending only as far as the Kaikos valley. Given this finding, it is interesting that the Kaikos valley has already been seen by other scholars as occupying a rather isolated position both during the Late Bronze Age (Mountjoy 1998; Niemeier 2007; Pavúk and Horejs 2018) and also in earlier periods (Horejs 2013, 114). The nearby MRD seems to present a similar picture, another example of ‘a path less travelled’, as we suggest in the title of the article.

In closing, we note that our findings indicate, we believe, the great value of additional ‘case studies’ being available to give intra-regional nuance to the broader east-Aegean–western-Anatolia cultural *koine*, in particular studies which can offer a perspective from the coastal ‘touch-point’ between the two areas. In this case, the inhabitants of the MRD in the EBA have left us a fascinating insight into a world where they created a uniquely ‘glocal’ material culture comprising some of their own unmistakable patterns and creations which never reached far beyond the delta, mixed with items which indicate their versatile, multi-layered and broader connections, indicating how they were embedded into a wider regional world. We believe that further exploration here holds great potential for further learning about regional and supra-regional patterns, filling an important gap between Izmir and the Troad.

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homeland’s history can represent at least a small gift back from us to them. This work is as much for them as for anyone else.

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APPENDIX 1: METHODOLOGY EMPLOYED FOR THE MADRA RIVER DELTA’S 1996 SURFACE SURVEY FIELDWORK

The 1996 intensive surface survey at Yeldeğirmentepe mound

Survey methodology

The 1996 intensive surface survey of the Yeldeğirmentepe mound took place on 26–7 September. Following previous inspection in 1989–91 (Lambrianides et al. 1996, 179), the intention of the 1996 work was to adopt a more intensive and systematic approach to recording the surface cultural remains at the mound. The work was made a priority in 1996 as we had learnt that the mound was soon to be further disturbed and at least part of its surface covered with gravel.

There were a number of factors which had a bearing on the methodology of intensive collection adopted at the Yeldeğirmentepe mound. First, it was not possible to survey the area immediately west of the perimeter fence in 1996 as a valuable cash crop of cotton was spread across a wide area right up to the base of the mound. Our strategy was also guided by the geological and geomorphological surveys carried out up to 1995 (Kayan and Vardar 2007a; 2007b). One conclusion from surface observations made during these surveys had been that it was only the immediate area of the mound itself (largely that now enclosed by the perimeter fence of the water-pumping station) where the prehistoric land surface was preserved. It appeared that post-EBA alluvial deposition in the delta around the mound (deposition which is extensive throughout the delta) would render wider surface inspection for prehistoric remains fruitless.¹⁰ This hypothesis was largely confirmed in the 1996 surface survey from the findings in the extensions of the survey to the south and east of the mound (as described below), and also by the results of work in 1997 when survey was possible over a significantly wider area west of the mound. In the latter work, apart from a small concentration of EBA material immediately west and north of the mound (due to the cutting of the mound itself; see below), only Byzantine, Ottoman and modern cultural material was located in the broader area (see Gök-Gürhan 2007). It was therefore decided for the intensive survey methodology of 1996 to concentrate on the part of the mound now enclosed by the perimeter fence of the municipal water-pumping station.

There were additional difficulties created in surveying the site from the disturbed nature of the mound. First, even though the area within the fence was likely to retain parts of the ancient land surface, this had been heavily disturbed, initially by the building of the windmill, and subsequently by the water-pumping station which had replaced it. This disturbance became clear during the excavation, but the result of digging deep into the mound to locate the foundations of the modern buildings, together with the installation of the water pipes, also needed to be borne in mind for the surface survey and the interpretation of sherd densities in each area.¹¹ The area near the western end of the enclosure (i.e. the higher areas of the mound) was also heavily

¹⁰ The results of the geomorphological work around the mound in 1997 confirmed this initial hypothesis from the earlier geomorphological work, indicating that significant alluvial deposits had accumulated in this part of the delta since the EBA (see Kayan and Öner 2007).

¹¹ We understand that in order to locate the foundations for the current water pumping facility it was necessary to dig down approximately 10 m into the mound. Presumably, similar significant disturbance had been caused also when the windmill had been built.

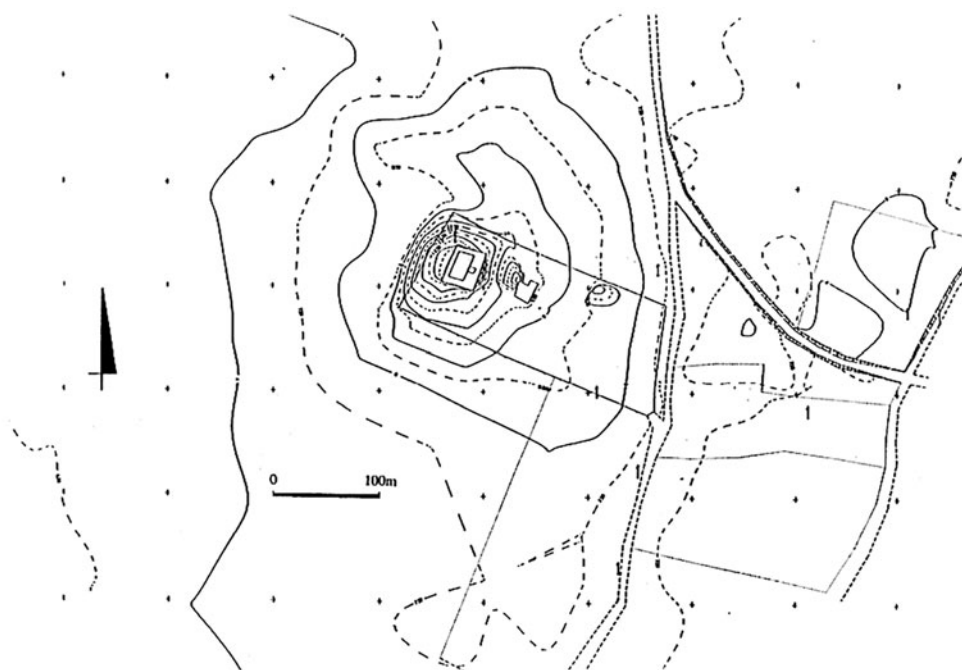


Fig. A1:1. Topographic plan of the Yeldeğirmentepe mound in the Madra River Delta, indicating the water-pumping station built on the highest point of the mound (the rectangular structure at the centre of the mound's contours). Source: The Madra Çay Delta Archaeological Project.

overgrown in the year when the survey was carried out, which made surface examination more difficult.

A further overall disturbance to the mound, as is clear from even a cursory look at any contour map of the mound (clear on Fig. A1:1), is the significant 'cut' running north-east to south-west, immediately to the west of the water-pumping building and enclosure, indicating that the mound has, in effect, been sliced in two. Nearly the whole of the western half of the mound has been destroyed, with a steep drop from what is now the summit of the mound along which the perimeter fence now runs, down to the fields to the west. Local inhabitants confirmed that approximately 50 years before the mound had indeed extended further to the west (perhaps for a further 40–50 m), but that in order to flatten the land for agricultural use this part of the mound was gradually eroded and ploughed into, creating the topography now apparent.¹² As noted above, when surface inspection was possible in this area immediately to the west in 1997, it was not surprising that artefacts including EBA sherds, shell and bone were visible in the immediate area below the 'cut' which would have been within the (now destroyed) western half of the mound.

In order to impose a systematic method of collection for the material, the area within the drilling station's perimeter fence was divided into four quadrants, with the two less disturbed quadrants (1 and 4) divided into 10 m grid squares. Total collections of cultural artefacts were made in the grid squares of quadrants 2 and 3. The surfaces of quadrants 2 and 3 were more disturbed due to the activity around the pumping station, and a collection of material was carried out in these areas without any attempt to sub-divide the areas further (see Fig. A1:2). In each area (grid square or quadrant), a total count of all artefacts was made, with collection of diagnostic pieces.

To fully explore the surface scatters, the 'drop-off' in the density of surface material as one moved off the main area of the mound, and the relation to the geomorphological work around

¹² An extension of a further 40–50 m to the mound in a westerly direction would be expected given the current contours on the east side of the mound, making in total a circular/oval form.

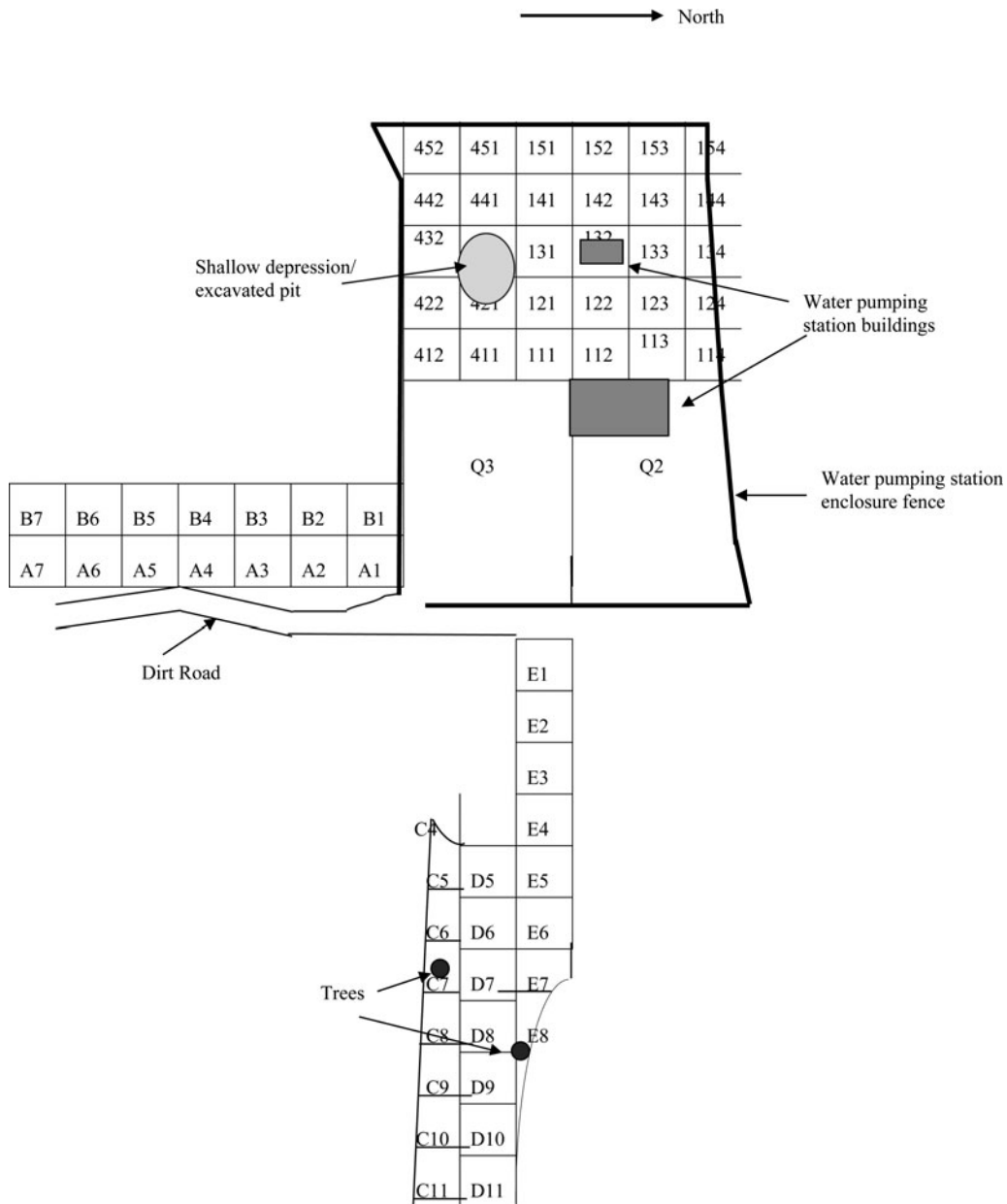


Fig. A1:2. Collection grid (based on 10 m squares) established over the Yeldeğirmenitepe mound for the intensive surface survey. Source: The Madra Çay Delta Archaeological Project.

the mound, two extensions were made to the grid of the 1996 survey (as indicated on Fig. A1:2). A first of 70 m x 20 m ran from the south-east corner of the fence immediately bordering the west side of the main dirt road running north-south beside the mound, intended to record the surface artefact scatter in the area where boreholes had been drilled in 1991 and 1995, both of which had located sub-surface deposits of cultural material (Lambrianides et al. 1996, 178–88; Kayan and Öner 2007, pl. 11; Kayan and Vardar 2007b, 26–30). A second extension to the grid (again with 10 m squares, except where this was not possible due to bordering roads, at squares C4–11) was laid out and collected on the east side of the road that borders the mound. This latter area was chosen as a result of the conclusions reached in the geological and geomorphological survey, which had hypothesised that this area extending east of the mound may have been a causeway

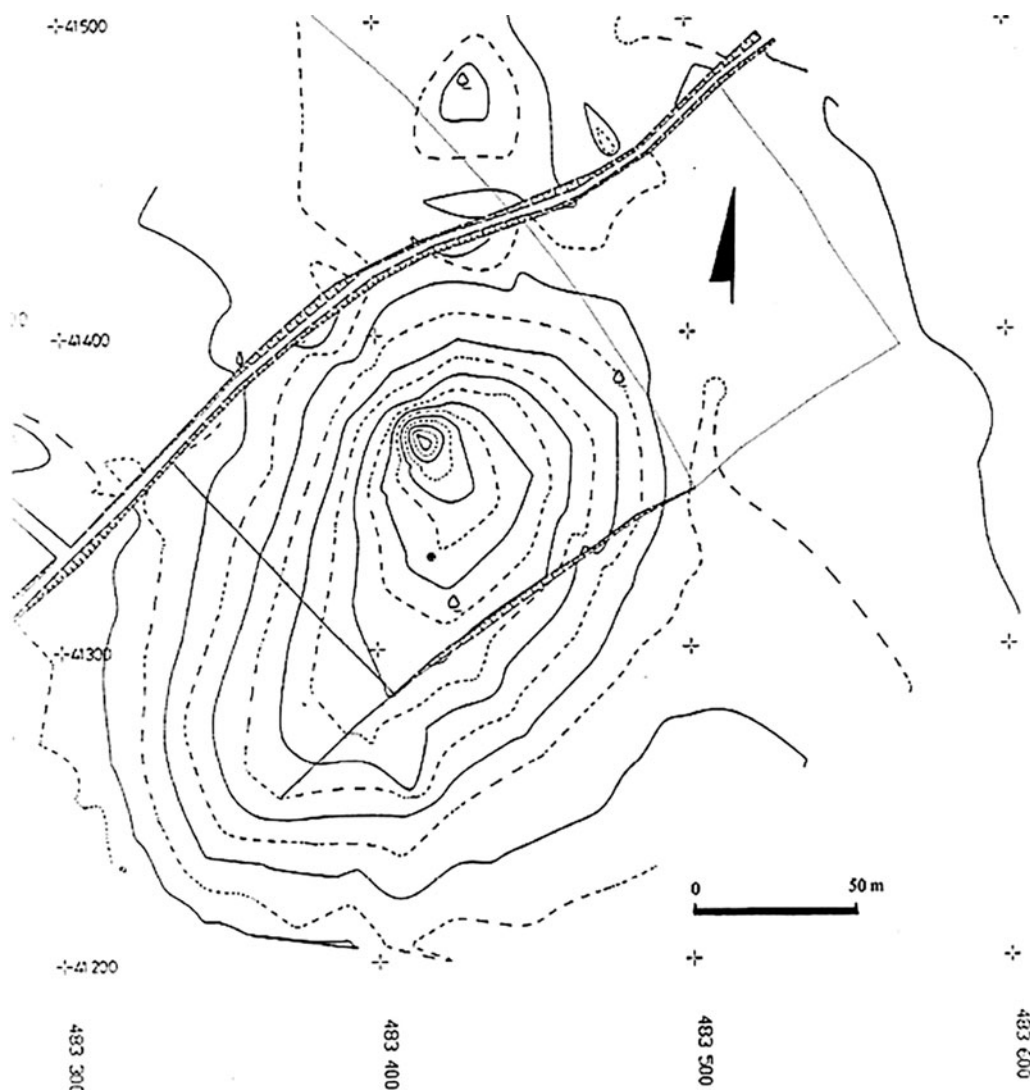


Fig. A1:3. Topographic plan of the Hüyüktepe mound in the Madra River Delta. Source: The Madra Çay Delta Archaeological Project.

between the mound and the mainland in the EBA (at a time when the mound was a coastal location) (Kayan and Öner 2007, 36–7, pls 9–12).

As noted above, in 1996 it was not possible to survey intensively the area to the west of the mound where a valuable cash crop of cotton was located, since this would also have been chosen as a third extension to the collection grid. EBA material was observed here in a more casual inspection in 1997 when the area was accessible. This material very close to this side of the mound included typical EBA ceramics similar to those found on the mound itself; *Cardium* sp. shells and also limpet shells were identified.

The findings from the 1996 intensive surface survey

Despite the heavily overgrown nature of the area within the perimeter fence (which allowed on average approximately 10 per cent visibility within the grid squares), significant amounts of ceramic material were located throughout the grid. It was not possible to detect any meaningful spatial patterns in the densities across the gridded area within the perimeter fence, and the diagnostic material appeared to be nearly exclusively of EBA date. Bone fragments were

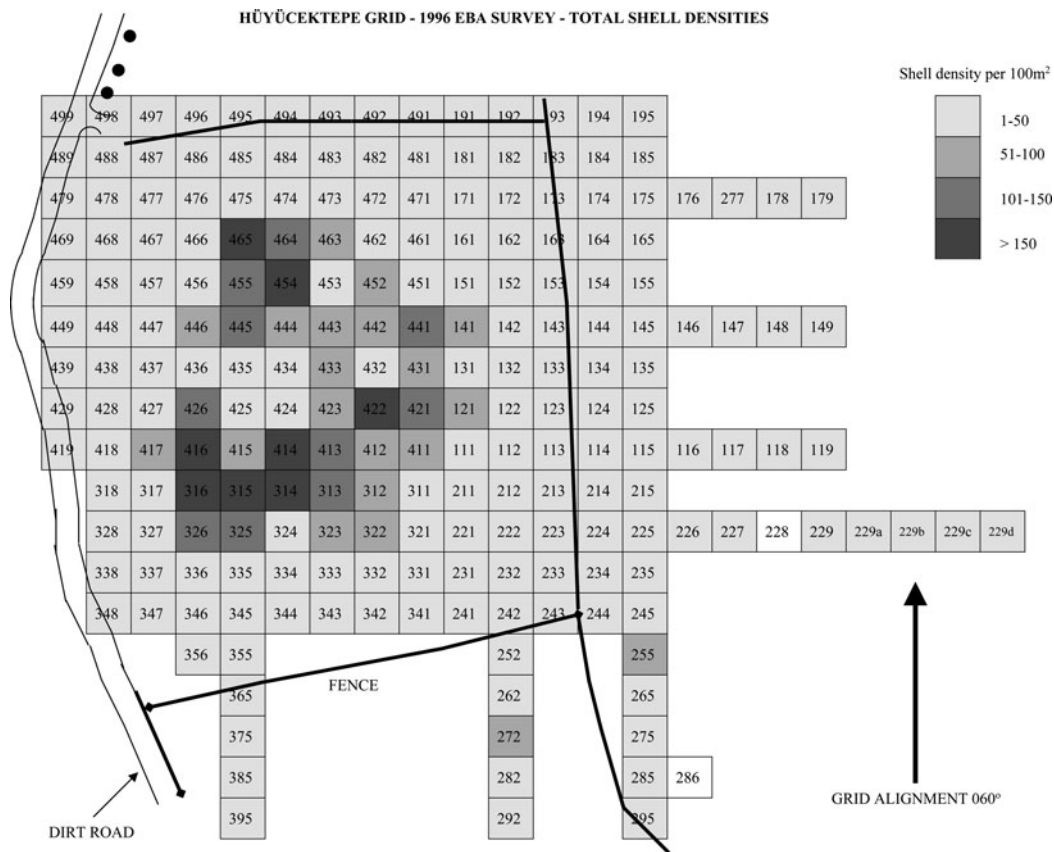


Fig. A1:4. Density of shell fragments found in the Hüyüktepe intensive surface survey.
Source: The Madra Çay Delta Archaeological Project.

retrieved, chiefly in the more central areas of the mound, findings which are not surprising given the burials of Early Modern date later detected in the 1997 excavation trenches near the surface of the mound. Shell fragments were also found, but these were in far smaller numbers than the sometimes extremely large numbers found at the Hüyüktepe mound (see below), and again were largely recovered from the central area of the Yeldeğirmenitepe mound.

In considering the surface survey collection methodology in relation to the geomorphological work at the site, one significant result was that the extensions to the survey grid to both the south and east of the mound indicated that densities of cultural artefacts did indeed drop immediately outside the central area of the mound within the water station's perimeter fence. Even with much better visibility in the survey grids in these two areas, there was only a very low density distribution of largely undiagnostic pieces. These findings seem to corroborate the geomorphological conclusions that the prehistoric land surfaces only exist today on the central areas of the Yeldeğirmenitepe mound, and as one moves away from the mound, they are soon buried far underneath the current land surface of the MRD.

The 1996 intensive surface surveys at Hüyüktepe mound

Survey methodology

In planning which method of surface survey to employ in the more detailed examination of the surface cultural remains at the Hüyüktepe mound in 1996, similar considerations were borne in mind as those referred to above regarding the Yeldeğirmenitepe mound. In particular, the findings from the 1991 and 1995 geological and geomorphological surveys that significant alluvial deposition had occurred in the delta since the EBA guided our surface survey to focus on the

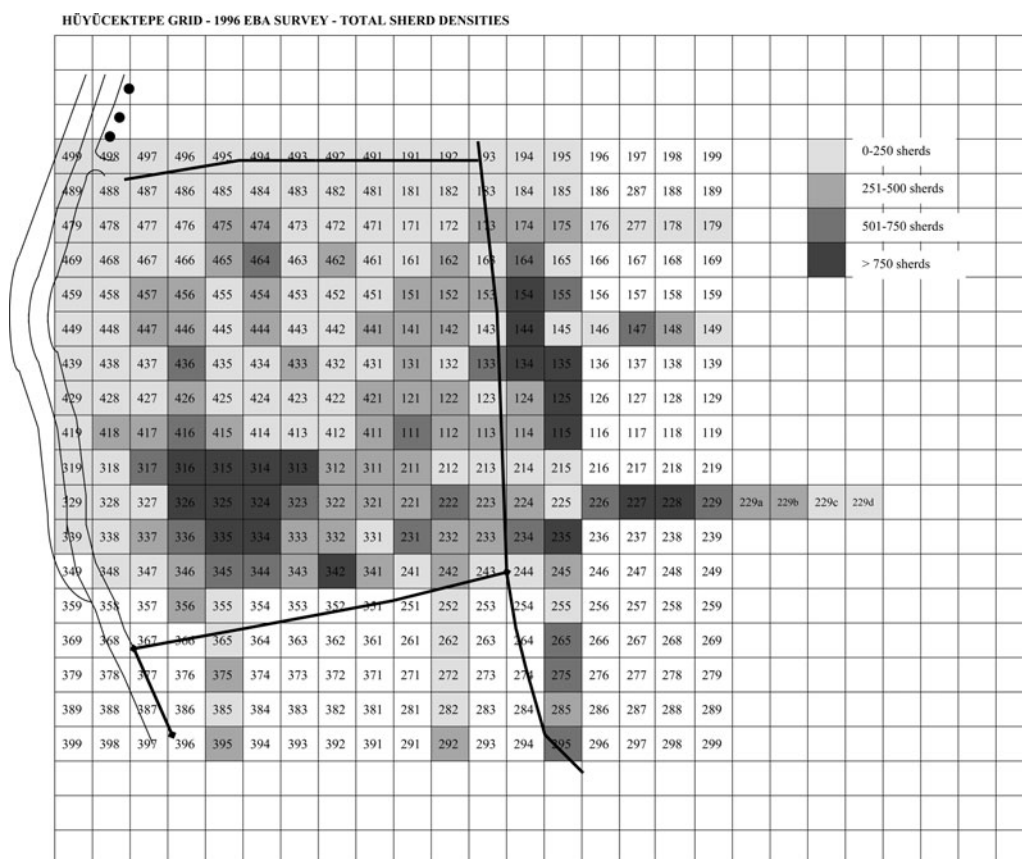


Fig. A1:5. Density of ceramic sherds found in the Hüyüktepe intensive surface survey.
Source: The Madra Çay Delta Archaeological Project.

mound itself rather than across the wider area. This logic was reinforced by the 1995 borehole drilled close to the south-west edge of the mound (Kayan and Vardar 2007b, pl. 5, borehole '95-or') which had revealed that within some 90 m of the edge of the west side of the mound – and some 80 m beyond the edge of any significant scatter of cultural material visible on the surface – sub-surface anthropogenic material was already buried by some 4–5 m of terrestrial deposits (Lambrianides et al. 1996, 184 and fig. 6). This evidence, showing clearly that even a short distance from the mound the ancient land surface of the delta was already deeply buried by later alluvial deposits, led us to focus specifically on the mound itself for our analysis of surface cultural remains since it appeared any results from a wider survey in this specific part of the delta would have limited purpose and meaning.¹³

The project's intensive surface survey of the Hüyüktepe mound (Fig. A1:3) was carried out in September 1996, and the method chosen for this study was the method already used elsewhere in the Aegean in intensive survey projects where denser concentrations of surface cultural material were examined following initial, more extensive surface survey.¹⁴ In this case, it was decided that the most suitable method of collection in order to maintain detailed spatial resolution for the material collected was the establishment of a 10 m grid over the overall area of cultural material,

¹³ What was also clear from the findings of borehole 1 drilled in 1995 was that the buried extent of the cultural material at the mound was much greater than that apparent solely from the surface of the mound. In other words, if the findings from borehole 1 could be taken as a reliable indicator of the extent of the cultural scatter, it implied that the actual diameter of the cultural scatter at the Hüyüktepe mound extended for approximately another 90 m in this direction.

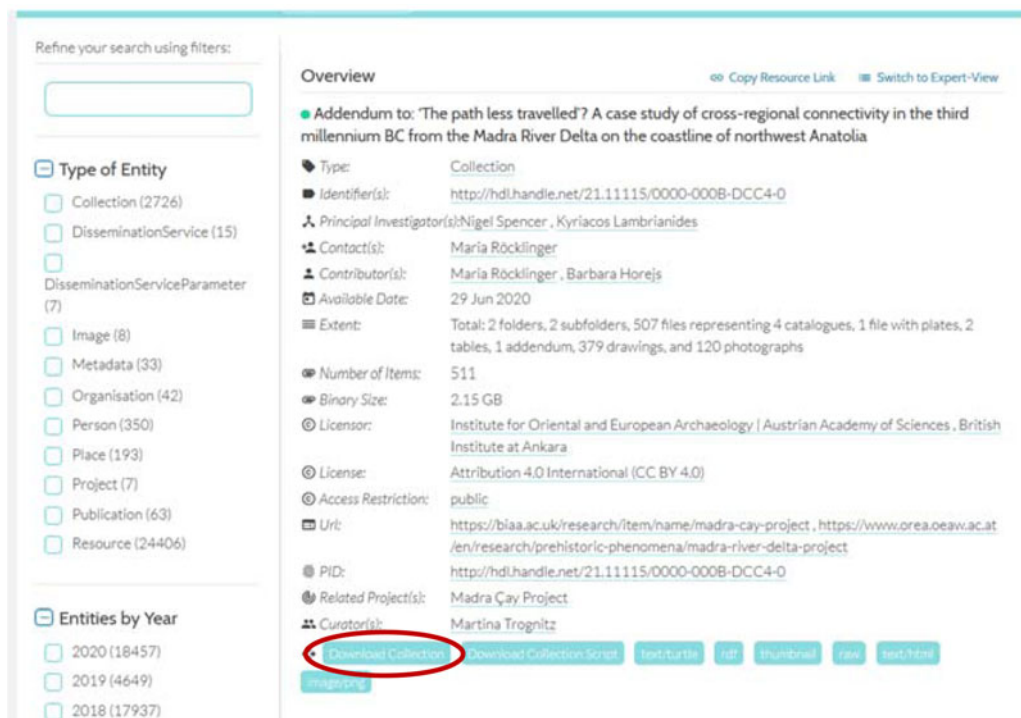
¹⁴ For a summary of these collection strategies, see notes 1–2 of the main article text.

divided into four 'quadrants' based upon a notional 'site centre' near the highest point of the mound (Figs A1:4–A1:5). Within each square all cultural artefacts were counted and recorded, with diagnostic items being collected for further analysis. The range of artefacts at the site included large numbers of *Cardium* sp. shells (especially in central areas of the mound; see Fig. A1:4), a broader scatter of ceramics (Fig. A1:5), chipped and ground stone, together with finds of metallurgical and stone artefacts. The finds are discussed above in detail, in Part B of the main article.

At the time when the survey was carried out, much of the central area of the mound was reasonably clear of ground-level vegetation. Hence, the 'visibility' readings taken for the grid squares in this main field were consistently high apart from a limited number of squares. A few young olive trees had been planted in the main field which comprised the central area of the mound, and many more were intensively cultivated in the field south-west of this field bordering the dirt road which ran all along the northern edge of the mound.¹⁵ The field to the south of these two fields possessed much more mature olive trees and was freshly ploughed.¹⁶

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¹⁵ It appeared that when the dirt road was formed it must have deliberately skirted the northern edge of the mound and did not cut through the surface cultural scatter, since examinations in fields to the north of it revealed no cultural artefacts at all.

¹⁶ This field is the one which in the survey constituted the edges of the grid in quadrants 1 and 2. The nature of the deep ploughing in this area probably led to enhanced sherd counts in these areas since the counts in many of the more central areas of quadrants 1 and 2 (e.g. the line of grid squares ranging from 193 down to 243) began to lessen significantly before the edge of the main field was reached.

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Μελέτη διατοπικών επαφών την τρίτη χιλιετία π.Χ. στο Δέλτα του ποταμού Madra, μια παράκτια περιοχή της Βορειοδυτικής Μικράς Ασίας

Πολλές υποθέσεις έχουν διατυπωθεί μέχρι σήμερα σε σχέση με τον βαθμό και τις κατευθύνσεις των πολιτισμικών διασυνδέσεων μεταξύ των διαφόρων περιοχών στα Δυτικά παράλια της Μικράς Ασίας και στο Ανατολικό Αιγαίο κατά την Πρώιμη Εποχή του Χαλκού (ΠΕΧ). Ωστόσο, η έλλειψη πρωτογενών δεδομένων από έρευνες πεδίου εμποδίζει την εξαγωγή ασφαλών συμπερασμάτων και την κατανόηση των μικροδιαφοροποιήσεων και λεπτών αποχρώσεων που διακρίνουν τα πολιτισμικά μοντέλα αυτού του τύπου. Ειδικότερα, δεν υπάρχουν ακόμη πρωτογενή δεδομένα από τα καθοριστικής σημασίας παράκτια σημεία επαφής των δύο περιοχών, καθόσον, όπως συνήθως συμβαίνει εκεί, σημαντικές γεωμορφολογικές αλλαγές συγκαλύπτουν τα υλικά κατάλοιπα. Το άρθρο εξετάζει το σύνθετο ζήτημα των παραλλαγών στις περιφερειακές δυνατότητες για επαφές κατά την ΠΕΧ με βάση τη μελέτη αδημοσίευτου υλικού από έρευνα πεδίου στο Δέλτα του ποταμού Madra, μία παράκτια περιοχή της Βορειοδυτικής Μικράς Ασίας. Τα ευρήματα της ανασκαφής και της επιφανειακής έρευνας, που διεξήχθησαν σε δύο τούμπες της ΠΕΧ στο Δέλτα στο πλαίσιο διεπιστημονικού ερευνητικού προγράμματος, παρέχουν την σπάνια ευκαιρία για τη διερεύνηση των δυνατοτήτων επαφών στην παράκτια αυτή περιοχή με τη μελέτη στοιχείων του υλικού πολιτισμού της ΠΕΧ, είτε πρόκειται για κατάλοιπα της αγγειοπλαστικής και υφαντουργικής παραγωγής είτε της ειδωλοπλαστικής. Το άρθρο επισημαίνει τόσο τον σύνθετο και απρόβλεπτο χαρακτήρα των διατοπικών πολιτιστικών διαδρομών, ορατών στην περιοχή του Δέλτα, όσο και τη σημασία τους – αλλά και τα περαιτέρω ερωτήματα που θέτουν – για τις πολιτισμικές διασυνδέσεις με τη γειτονική περιοχή του Βορειοανατολικού Αιγαίου.