EARLY BRONZE AGE POTTERY MANUFACTURE IN WESTERN ANATOLIA: Identifying Hybrid Technologies through X-ray Analysis

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Abstract

An emerging set of studies on the application of the potter's wheel in the wider ancient Near East indicates that it was often employed in combination with other methods of pottery making, especially during the early stages of its use. Due to absence of research focusing on this topic, our knowledge of the early use and succeeding developments of wheel technology in central and western Anatolia (c. 2500-2000 cal BC) is at present very limited. Thus, the main purpose of this study is to supply additional information on the diversity of pottery-manufacturing techniques through X-ray analysis of ceramic samples recovered from the Early Bronze Age settlement layers of Küllüoba (Eskişehir, Turkey), a settlement mound with a long and well-documented stratigraphic sequence. The use of the potter's wheel allowed pottery to be produced in larger quantities to meet an increasing demand, which hints at a new political and commercial formation, and its relatively early occurrence in Küllüoba seems to be contemporary with the appearance of archaeological evidence for long distance trade. The significance and appropriateness of using the term "wheel-made" with regards to Anatolian EBA pottery — a term often linked with standardization and mass production — is also discussed.

INTRODUCTION

Although intensive research has been carried out on the topic of the diversity of prehistoric pottery-making technologies in the regions of the Levant, Iran and the Aegean (Roux-Courty 1998; Roux 2003; Roux 2008; Berg 2009; Berg 2011a; Berg 2011b), so far no comprehensive research has yet been done for Anatolian assemblages. In Anatolia, comparative pottery analysis has only been undertaken in modern ethnographic studies (Güner 1988), and although X-ray analysis on Hittite pottery exists (Ertem et al. 1999), it is focused on defining the inclusions rather than manufacture techniques. As general practice, most pottery specialists classify ceramics as either hand-made or wheel-made, but the above-mentioned research has shown that in the early stages of pottery production a range of different techniques were often used on the same pot and that the wheel was used in different steps of the manufacturing process (Roux and Courty 1998). One of the earliest ethno-archeological studies, focused on modern Mexican potters, demonstrated that contrary to widespread belief various discrete methods of pottery manufacturing were concurrently employed (Foster 1959). This was a turning point for further investigations on the topic, and more recent research carried out with X-Radiography have since then confirmed that multiple techniques were often employed to make pots in prehistoric periods (Berg 2008, 2009, 2011a; Courty et al. 1995; Henrickson 1991; Rice 1987; Rye 1981; Roux

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et al. 1998). Using a potter's wheel made with two discs without pivot stone recovered from late third millennium BC layers at Tel Yarmouth (southern Levant), recent experimental analysis provided important technological information on third millennium BC wheels. Attempts to produce pottery with the original *tournette* seem to suggest that, in absence of the pivot stone, the early potter's wheels did not have enough rotative kinetic energy (RKE) to manufacture the vessels all at once on the wheel (Roux et al. 2009). According to Berg's study, ceramic production that exclusively employed potter's wheel was limited to vessels with heights up to 12 cm in Bronze Age Crete (Berg 2011a). In this sense, we can characterize the wheel as a complementary instrument in production process of pottery rather than a defining tool. The term wheel-made, as far as prehistoric pottery is concerned, should thus not necessarily mean that the vessel is shaped on the wheel from beginning to end of the manufacturing process (i.e. 'wheel-throwing'); instead, it implies a hybrid method comprising techniques such as finishing handmade pottery on the wheel ('wheel-shaping'), throwing only the rim of the vessel separately on the wheel ('wheel-shaping'), and finishing on the wheel a pot that was made by a coiling technique ('wheel-coiling').

Therefore, the aim of this article is to find out whether the same hybrid techniques were also in practice during the Early Bronze Age (henceforward, EBA) in the Anatolian peninsula, a land-bridge that played an important role in cultural interactions between upper Mesopotamia and the Aegean (Efe 2007; Şahoğlu 2005; Rahmstorf 2006; Özdoğan 2007). In order to achieve this, visual inspection and X-radiography was performed on early EB III pottery samples unearthed at Küllüoba, an important center situated on the main communication route between inland Anatolia and the Troad (Fig. 1). The extensively excavated and radiocarbon-dated stratigraphic sequence has shown that Küllüoba's occupation also covers the phase of diffusion of the potter's wheel in the area, c. 2400-2200 cal B.C. (Efe and Fidan 2008) (Fig. 2) and it is therefore the ideal case study to approach the matter in Anatolia.

Archaeological Background

Surface surveys and excavations, particularly those carried out in recent years in western Anatolia, have provided new clues regarding the establishment of an important trade network between Mesopotamia and western Anatolia from the mid-third millennium B.C. onwards. In this period, trade relations appear to have intensified between Cilicia and Troy along a route crossing inland western Anatolia, at roughly the same time when the wheel technology was applied for the first time on local wares in the area (Efe 2007). This suggests that western Anatolian potters may have adopted the technology from Cilicia, where local wheel-shaped pottery was already produced at the site of Tarsus-Gözlükule in Ubaid and post-Ubaid levels, i.e. around the mid-fourth millennium B.C. (Goldman 1956: 76, 83, 87, Fig. 340). This hypothesis is strengthened by typological analysis carried out on ceramics from Küllüoba that indicate close similarities between its early EB III pottery assemblages with those of Tarsus. During the early EB III (c. 2400-2200 cal B.C.), the use of the potter's wheel on local ceramics (essentially restricted to incurving rim bowls, tankards, depa, platters, necked jugs and amphorae) appeared in the area defined as "Great Caravan Route" by Efe (Efe 2007), while further east (e.g. at Kültepe) the first wheel-made pottery was most probably import (Türkteki 2010). Evidence of early production of wheel-made pottery occurs also at other western Anatolian sites, for example in Aphrodisias, where "EB 2-4" levels yielded substantial quantities (Joukowsky 1986, 358-62), at Kaklık Mevkii cemetery area A (Topbaş et al. 1998, 42, 69, 73) and in Karataş-Semayük, where the wheel-made pottery is represented by very little amounts and only limited to forms such as incurving rim bowls, two-handled tankards and depas (Eslick 2009: 249). In Beycesultan there is a single wheel-made plate from level XIII, then after an occupation hiatus wheel-made pottery is significantly present in level XII, i.e. late EB III (Lloyd and Mellaart 1962: 179, 200-14). Recent excavations in Laodikeia indicate that the potter's wheel in this region appeared towards the end of early EB III (Umay Oğuzhanoğlu pers. comm.), a trend confirmed by research carried out at Liman Tepe on the eastern Aegean coast (Şahoğlu 2002) and nearby Ulucak Höyük (Çilingiroğlu et al. 2004: 15-16). The wheel-made pottery that marked the beginning of the EB III in western Anatolia is mostly seen in the Upper Sakarya Valleys, Phyrgian Plateau and Eskişehir Plain. Aside from the east Marmara-Troy route, the use of the wheel is rather limited or absent to the West and East of this route at least before to 2200 BC (Türkteki 2010). During the early EB III (2400-2200 BC), wheel-made pottery represented only 10-20% of the whole assemblage at most sites. What is interesting is that, with very few exceptions represented by "Syrian" bottles and beakers, the adoption of wheel production techniques from Upper Mesopotamia/Cilicia did not bring with it Mesopotamian wares, forms and styles to western Anatolia (Türkteki 2012). Lack of research has meant that very little is known about pottery manufacture in Early Bronze Age western and central Anatolia, though the existence of pottery workshops is attested by the scantily-published evidence from Kumyer Mevkii (Tırpan & Gider 2011: 386-387) and Seyitömer (Bilgen 2011); a single rotative stone disk was further discovered in the EBA levels at Troy during Schliemann excavations (Schmidt 1902: 306 no. 9275). The only detailed study on the earliest use of the potter's wheel and its spread during the late EBA has been done by the current author (Türkteki 2010, 2012).

THE ARCHAEOLOGICAL EVIDENCE FROM KÜLLÜOBA

The site of Küllüoba, under excavation since 1996, is a medium-sized settlement (ca. 5 ha) with an uninterrupted EBA sequence situated near Eskişehir in inland north-western Anatolia and close to an important natural route connecting the Marmara sea and the Troad with the central Anatolian plateau (Efe 2007; Şahoğlu 2005, Fig. 2). The more extensively investigated EB II levels yielded a large public complex (Fig. 3) dated c. 2600-2500 cal. B.C., which is so far the earliest one to have been identified in western Anatolia, and an extensive lower town (Efe and Fidan 2008; Fidan 2012, Fig. 1). The pottery of Küllüoba from different phases of the Early Bronze Age has also been studied in considerable detail (Ay 1999; Sarı 2011; Türkteki 2010). According to precise comparisons based on pottery and other finds, we can suggest the synchronization shown in figure 2 between the early EB III phases of Küllüoba and Troy, supported by several radiocarbon dates from both sites (Efe 2007: Fig. 18; Türkteki 2010: Fig. 10; Türkteki 2012).

At Küllüoba, wheel-made pottery appears for the first time in Phase IIIC (in a level archaeologically contemporaneous with Kültepe level 13 and Troy IIc) and gradually increases in the succeeding IIIB and IIIA phases, from ca. 3% of the total production to ca. 13% (Fig. 4). This phase is also marked by the first appearance of red-coated wash and plain wares. The latter is particularly interesting because it occurs in tight association with wheel-made pottery and is in clear contrast with the previous Late Chalcolithic and EB I-II ceramic traditions of slipped/burnished surfaces. Its employment can be plausibly explained by the fact that the water used during production did not necessitate the pot to be further slipped. At the same time, forms such as the depas, "Trojan A2" platters and amphorae are added to the repertoire and they are increasingly shaped on the wheel in the succeeding phases III B and III A (Türkteki 2010). According to statistical analysis, the Trojan A2 platter is the most commonly manufactured form on the wheel at Küllüoba, just as at Troy (Türkteki 2012) (Fig. 5).

While sizes of other form groups vary considerably, the diameter of the platters varies from 18 to 22 cm. According to the analysis of Berg on the Knossian pots, over 80% of wheel-thrown pottery is smaller than 10 cm (Berg 2009: 167, Fig. 4).

Analytical methodology

The basic X-ray method can be described as the penetration of an object by electromagnetic radiation. When the applied radiation is transmitted through the object a grayscale image showing atomic density and thickness is reflected onto photographic film or a monitor (Berg 2011a: 1). This method is used in many forms of scientific examination ranging from simple radiographs to detailed MRIs and to industrial applications for the quality control of the produced materials. This method is also used for the detailed investigation of metal objects, paintings and documents (Lang & Middleton 2005), and has more recently been used by several researchers of ancient pottery in order to determine the manufacturing process and fabric composition (see Rye 1977, Berg 2009; Carr 1993; Henrickson 1991). The main purpose of this study is to apply the X-ray method on EBA Anatolian pottery to supply information on manufacturing techniques such as coiling and wheel-throwing, and combined methods such as wheel-coiling (similar earlier studies include Rye 1977; Rice 1987; Berg 2008, 2009).

On the X-ray images, the small black gaps in vessel walls represent air voids formed inside the clay during kneading (Berg 2009). Such voids, as well as minerals and inclusions that can be seen under X-ray, form in a certain direction according to the primary forming technique used (Fig. 6, Rye 1977; 1981; Berg 2009). According to Rye and Berg, diagonal voids are characteristic of wheel-throwing, while coiling and wheel-coiling are characterized by horizontal voids. With this method it has thus been possible to determine the manufacturing techniques of the examined samples, the original surfaces of which cannot be visually assessed as the surfaces are slipped.

Vessels entirely thrown on the wheel were made from a single lump of clay that was progressively shaped and stretched upwards with the help of rotative movement applied on the wheel, causing the vessel wall to get increasingly thinner in the upper part (Berg 2008: 1181). This process is recognizable on the X-ray images by the changes in colour from darker gray at the bottom of the pot to lighter gray towards the top, as for example appreciable in Fig. 8a (Berg 2009: 143). The spiral-like rotative movement impressed on the pot is further detectable from the direction of the elongated voids that tend to be diagonally aligned towards the upper part of the vessel. According to Rye, the angle formed by these diagonal voids depends on the speed of the wheel, with values between 20-30° being produced by slow wheel (tournette) and values above (30-45°) indicative of fast wheel (Rye 1977). However, Berg's studies have shown that there may be different arrays even on the same pot (Berg 2008: 1180). Circular voids are present in open vessels and in the bottom parts of closed vessels due to the tighter radius of the vessel, as visible in Fig. 10 (Rye 1977: pl. 3). In vessels made with coiling or other-hand-made techniques, the wall thickness is overall less regular, and this can be identified in the X-ray image by irregular colour changes across the different areas of the wall. In hand-made pots, voids tend to be more abundant because of insufficient kneading, voids are horizontal (following the progressive addition of coils) and coil seams can generally be identified by the existence of deep grooves (called rillings) that are the outcome of overlapping of two distinct coils. While parallel ridges on the inner surface of a pot are generally described as wheel-marks, they can have been produced also by the pressure applied by the potter's fingers (or a cloth) in an attempt to smooth the surface, and thus should not be automatically considered markers of wheel-throwing technique.

In vessels that were manufactured with combined techniques, the potter's wheel was used to join, thin or smooth the walls that were created with handmade techniques (Berg 2008: 1181). Four different types of combined techniques collectively termed as "wheel-shaping" (coil building, coil joining, wall thinning and pot shaping) can be identified, and where most likely employed to provide a stronger join and to smooth the surface irregularities (Roux & Courty 1995). These mixed methods can be identified on the X-ray analysis by the co-occurring presence of markers normally attributed to either wheel- or hand-made manufacture.

For this study, 16 out of 10.236 recorded sherds from stratified EB III levels were chosen as representative samples to be subjected to X-Ray analysis on the basis of their size, ware and possible manufacturing techniques. However, high-quality images that could provide sufficiently precise indications of manufacturing techniques were obtained only for 6 of the sampled sherds (discussed below). While this is not a statistically significant dataset, it provides at least a preliminary assessment on the variety of different manufacturing techniques employed at Küllüoba.

The device and shooting parameters used on the samples in this study were:

X-ray device: ERESCO
Shooting Parameters
X-ray Energy = 55 kV
Tube Focus — Film Distance: 680 mm
Tube Current: 3MA
Duration: 100-120 s.
Film: Agfa, D4
Chemical Bath: Manual

ANALYSIS

The oldest piece among the studied examples (Cat. No. KO-1) belongs to the lower part of a depas cup from Phase III B (Fig. 7a-c). Several small diagonal voids are clearly detectable in the clay matrix (Fig. 7a) and were formed during the shaping on the wheel, while the darker bands that might be incorrectly interpreted as coil seams are in all likelihood result of tearing the wall during wheel-throwing, a phenomenon that occurs when the clay is wet and is pulled upwards too quickly.

The next example (Cat. No. KO-2) is the bottom part of a depas cup from Phase III A (Fig. 8a-c). On the detailed X-ray image of this sample, many diagonal voids are clearly detectable and seem to form a 30° angle (suggestive of the use of a slow potter's wheel), though the small size of the sherd does not allow to reach a definite conclusion on this. The deep rillings seen with the naked eye on the interior surface are most probably caused by the pressure of the fingers while shaping. The collected evidence suggests that this piece as well is most probably wheel-thrown.

Another sherd (Cat. No. KO-3) belonging to a double-handled tankard in wash ware (Fig. 9a-c) comes from an early EB III votive pit, the exact phase of which could not be determined. On visual inspection, a fine rilling that can be seen on the interior of the neck indicates that the tankard was probably manufactured in at least two pieces. The lines seen on the X-ray image running diagonally show that only the top part of the vessel was wheel-thrown. On the lower part there are no clear voids, although it is likely that the lower section was handmade, and that the two separate pieces were later joined together and further smoothed on the wheel (i.e. wheel-shaped).

One interesting example (Cat. No. KO-4), found in another early EB III votive pit, is a fragment of the body, shoulder, and neck attachment of a necked jar (Fig. 10a-c). Through X-Ray analysis, this sherd can be roughly divided in three parts that were manufactured separately: in the lower part (the body), diagonal elongated voids suggest the use of wheel-throwing technique. Above the rilling, the middle section (the shoulder) shows horizontal voids and coil seams, but no parallel ridges: this suggest that this part was entirely hand-made with coiling technique. The upper part (the neck attachment) is instead characterized by diagonal voids indicative of wheel-throwing technique. With this evidence it is possible to surmise that larger vessels may in some cases have been made in different stages and with different techniques for the various parts of the pot.

Sample KO-5, the bottom part of a "Trojan A2" platter from a votive pit dated to phase III A (Fig. 11a-c), shows radial elongated voids arranged in circular fashion around the centre of the sherd, a pattern indicative of wheel-throwing technique. Many similar examples have been found in Küllüoba EB III levels (Türkteki 2010, 2012), though they have only been visually analyzed.

The last analyzed specimen (Cat. No. KO-6) is a jar base fragment from a votive pit dated to phase III A (Fig. 12a-d). Visual inspection of the sherd initially suggested that it might have been thrown on the wheel, given the presence of uninterrupted thin lines on the surface interpreted as wheel marks. However, the X-Ray image clearly shows the presence of coil seams (Fig. 12c), and the variations in the thickness of the wall as well as the spacing of seams suggest that the piece was not shaped on the wheel but entirely hand-made with coiling technique.

Discussion of the results

While the small size of the sampled dataset does not allow a statistical evaluation of the results, and more analyses are needed to confirm the observed trends, a preliminary assessment shows that during the early EB III phases of the Küllüoba (IIIC-IIIA, c. 2400-2200 cal BC) a range of techniques were employed in pottery manufacture. Visual and X-Ray analysis seem to indicate that, when the potter's wheel was employed, open shapes like platter KO-5 and small closed forms with simple profile like depa cups KO-1 and KO-2 were entirely produced on the wheel (wheel-thrown) and in a single piece. Small closed forms with a complex carinated profile like tankard KO-3 were instead wheel-thrown in two different pieces and later joined employing wheel-finishing techniques. On the other hand, larger closed vessels like KO-4 were manufactured in multiple parts and using different techniques on each section (from wheel-throwing to coiling), that were later joined together using wheel-finishing techniques. Employing data coming from the secure stratigraphy of the site, it also seems that different techniques were in use at the same time, and in particular wheel-thrown vessels occur in the same archaeological levels as wheel-shaped specimens.

Visual analysis performed by the author on over 10.000 sherds from Küllüoba IIIC-IIIA phases confirms the results presented here, and indicates that the "Trojan A2" platters and bowls with incurved rim were the most common shapes produced on the wheel, arguably because of their simple profiles and relatively small size. On the other hand, larger vessels like storage jars and pithoi continue to be hand-made, and in fact hand-made production remained dominant throughout the early EB III period (between 97% and 87% of the total assemblage), and the shapes of all wheel-made vessels (depa cups, tankards, "Trojan A2" platters and jars) are also well-represented in the hand-made repertoire with no detectable typological differences (Fig. 13) (Türkteki 2010, 2012).

The inability to produce complex or large closed vessels on the wheel in a single piece and the extensive use of coiling for bigger specimens suggest that the employed wheel had a low rotative kinetic energy characteristic of the slow wheel (*tournette*). This fits well with research from Upper Mesopotamian and Levantine contexts, where the use of the fast wheel became widespread only in the early second millennium BC (Roux 2008, 2009, Laneri 2011).

Conclusions

The analysis of the samples suggests that without the X-radiography it is sometimes difficult to establish beyond doubt the manufacturing techniques; in particular, visual inspection was often misleading on pots that were slipped, smoothed or produced with hybrid methods. As demonstrated here, it is likely that at least part of the pottery classified as wheel-made from western Anatolian excavations during this period were not actually entirely thrown on the wheel; instead, hybrid methods were most likely used, with the possible exception of "Trojan A2" platters and bowls. This craft hybridity of course raises doubts about the standard explanation for the introduction of the potter's wheel, i.e. to facilitate standardized or mass production.

Although faster than handmade techniques (cf. Berg 2011b), wheel-combined methods and the concurrent use of the *tournette* would not have allowed the production of standardized vessels, nor would have significantly increased the speed of their manufacture, a case that can be made particularly for complex or large shapes. On the other hand, examples of completely wheel-thrown A2 platters and bowls indicate that standardization may have been occasionally achieved. In the last two centuries of the third millennium BC both forms and fabrics converge across the entire western and central part of the Anatolian peninsula. This pattern may relate to the political restructuring of the area (Efe and Türkteki 2005). The low density of production with the potter's wheel in the whole early EB III period (200-250 years) can be related with the adaptation of the potters to the new technology and we might even think about the possibility that there existed mobile western Anatolian potters through whom standard forms were transmitted (Türkteki 2010, 2012). Thus the Early EB III period marks the very beginning of development towards standardization in pottery production in western Anatolia.

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Cat. No.	Trench	Inv. No	Shape	Ware	Phase	Context	Technique	Fig.
KO-1	Z19	400	Depas	Red Slipped	III B	Layer	Wheel-thrown	7a-c
Description: The paste is beige with mica inclusions. The surface is vertically burnished and dark red slipped. The interior surface is plain.								
KO-2	AC26	154	Depas	Red Coated	III A	Votive Pit	Wheel-thrown	8a-c
Description: The beige paste has mica inclusions. The surface is dark red slipped and brilliantly burnished. No slip on the interior surface.								
KO-3	AE19	228	Tankard	Wash	EB III	Votive Pit	Wheel-shaped	9a-c
Description: The beige paste has mica and small grit inclusions. Brown-washed and unburnished surface with discoloration.								
KO-4	U18	113	Necked Jar	Red Slipped	EB III	Votive Pit	Wheel-coiled	10a-c
Description: The gray paste has mica inclusions. Reddish brown slipped and burnished.								
KO-5	AC26	102	A2 Platter	Plain	III A	Votive Pit	Wheel-thrown	11a-c
Description: The beige paste has mica and grit inclusions. The surface is plain.								
KO-6	P22	20	Jug	Plain	III A	Votive Pit	Coiled	12a-d
Description: The beige paste has mica, shell and grit inclusions. The surface is plain. The seams of the coils and smoothing marks are clearly seen on the interior.								

Catalogue of analyzed pottery sherds.

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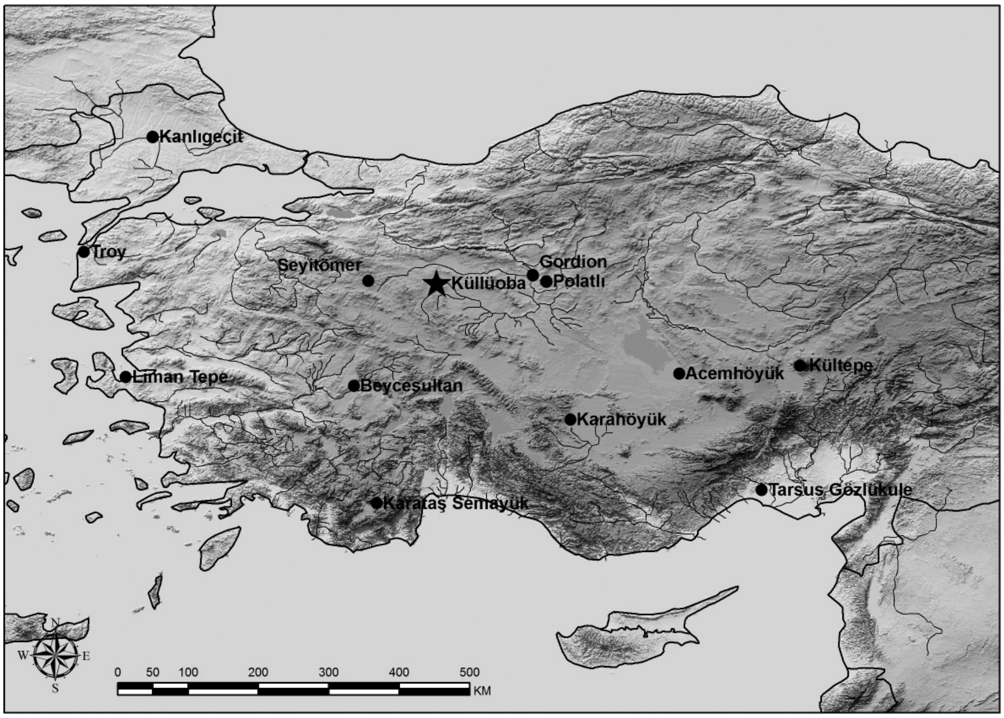


Fig. 1. Major EBA Sites in western Anatolia.

ANATOLIAN EBA CHRONOLOGY	KÜLLÜOBA			Troy
	Eastern Sector	C 14 Dates	Western Trenches	
Late EB III (transitional period into the MBA)	IIA	2044-1937 BC		
	IIB	2139-2110 BC		
	IIC	2198-2160 BC		
	IID			IV
	IIE			
Early EB III	IIIA	2314-2197 BC		III d
	IIIB			II g
	IIIC			II c
Late EB II	IVA			II a-b
	IVB			I k
EB II	IVC	2603-2487 BC		
	IVD			
	IVE			
	IVF		1	
EB I	VA			I g
	VB	2701-2620 BC	2	I f
	VC	2862-2809 BC		
Transitional Period into the EBA			3	
			4	
			5	I a
Late Chalcolithic			6	

Fig. 2. Chronological chart synchronizing the stratigraphies of Küllüoba (with calibrated C14 dates) and Troy.

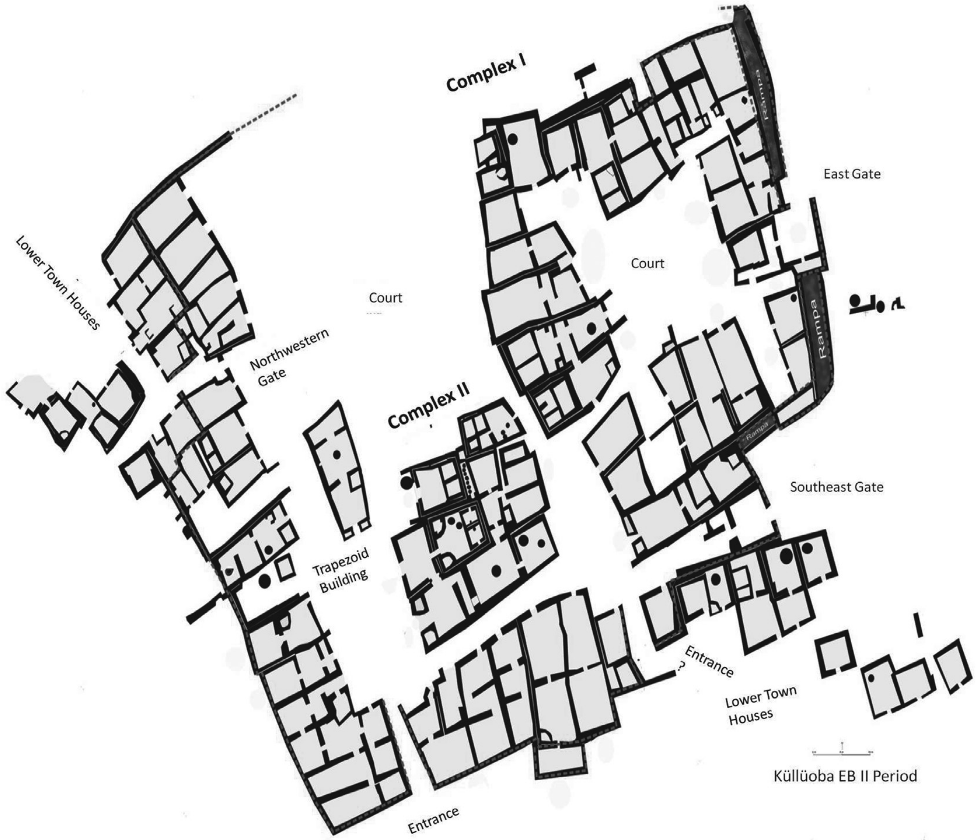
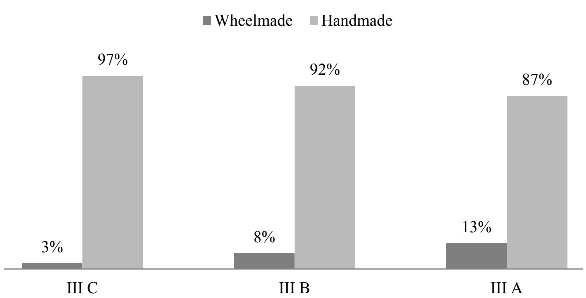


Fig. 3. Küllüoba EB II Settlement Plan.



	III C	III B	III A
Handmade	2770	2196	4376
Wheelmade	72	195	627

Fig. 4. Ratios of wheel-made and handmade pottery groups according to phases at Küllüoba (wheel-coiled, wheel-shaped and wheel-thrown samples are evaluated together).

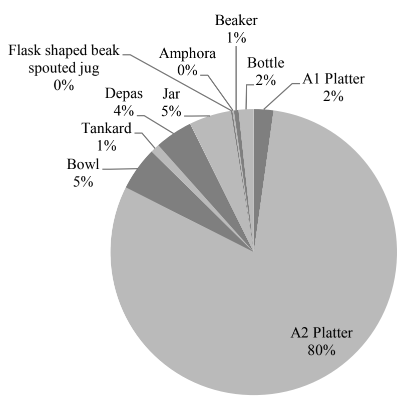


Fig. 5. Ratios of wheel-made forms of EB III pottery from Küllüoba.

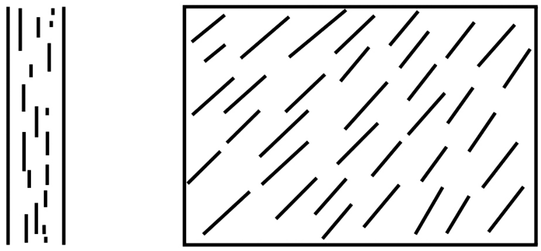


Fig. 6. Schematic drawing of radiograph of wheel-thrown pottery (after Carr 1990, Rye 1981, Middleton 1995, Berg 2008, Berg 2009).

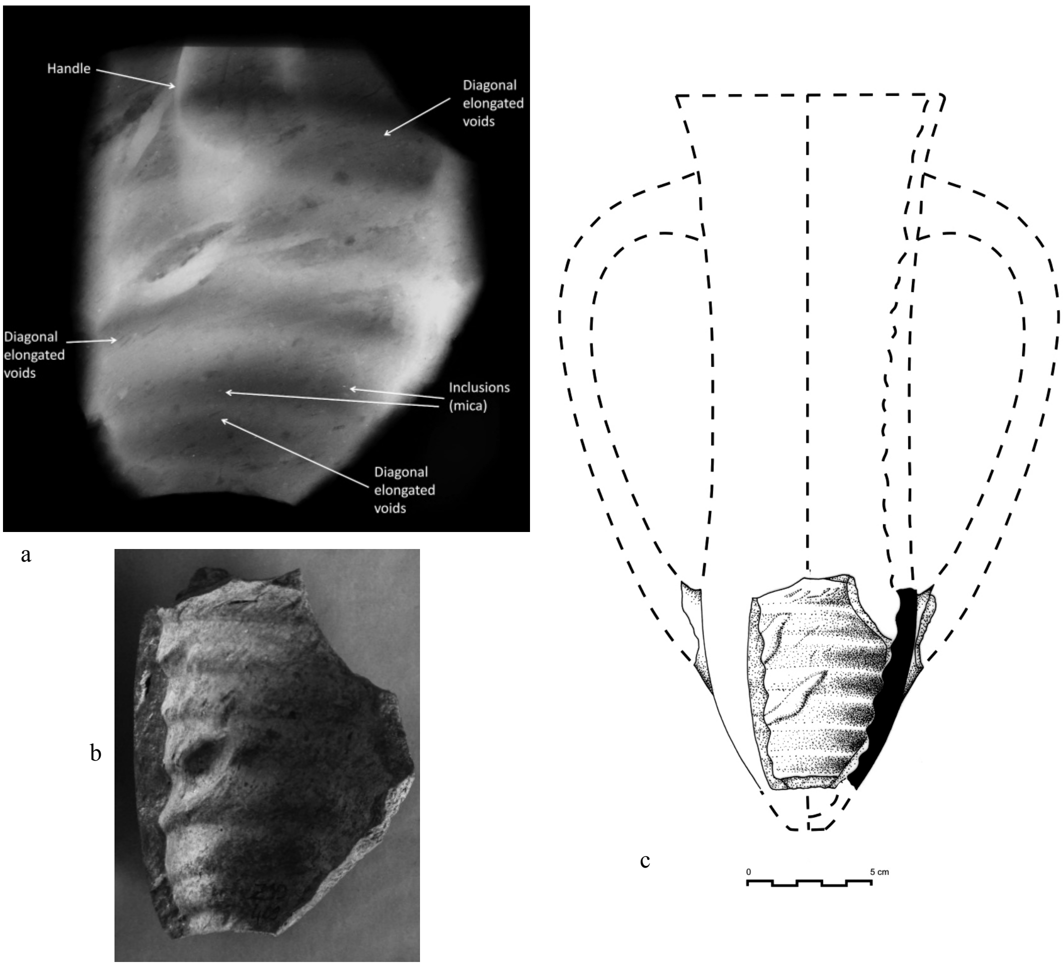


Fig. 7. Depas from Küllüoba (Cat. No. KO-1): (a) radiograph, (b) photograph, and (c) drawing.

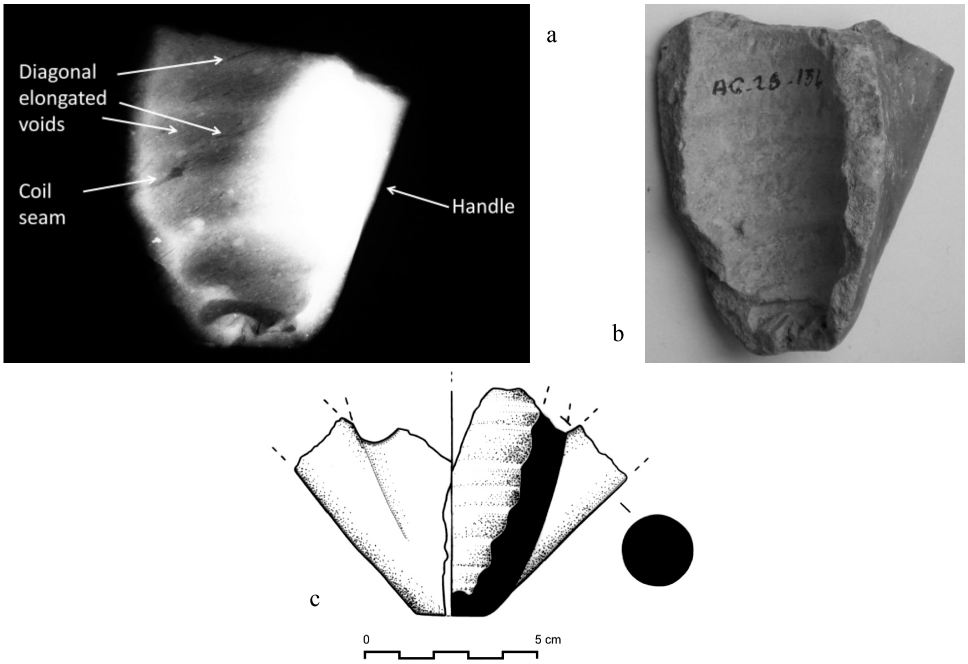


Fig. 8. Depas from Küllüoba (Cat. No. KO-2): (a) radiograph, (b) photograph, and (c) drawing.

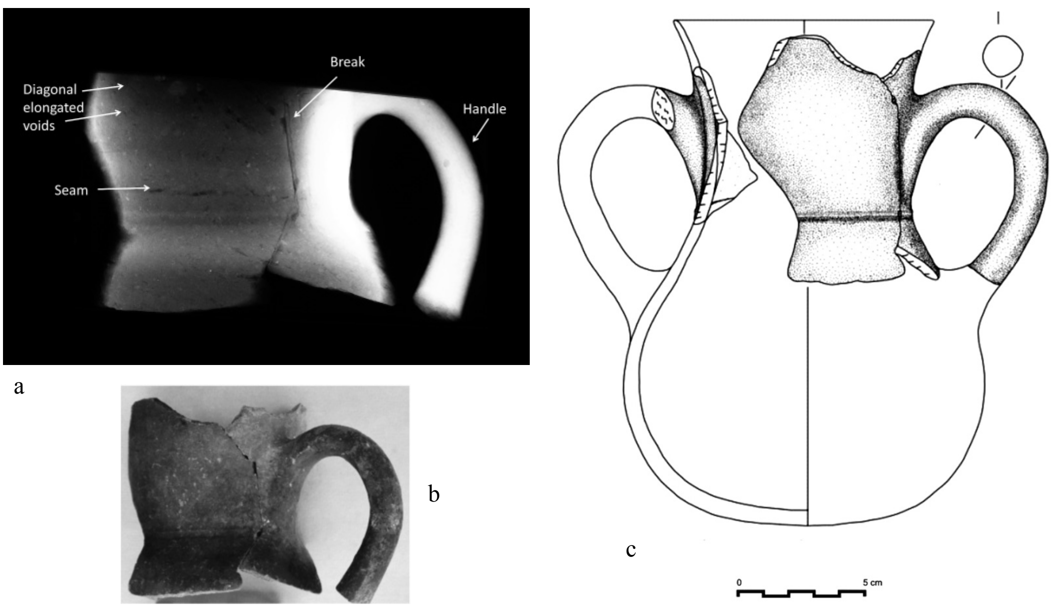


Fig. 9. Tankard from Küllüoba (Cat. No. KO-3): (a) radiograph, (b) photograph, and (c) drawing.

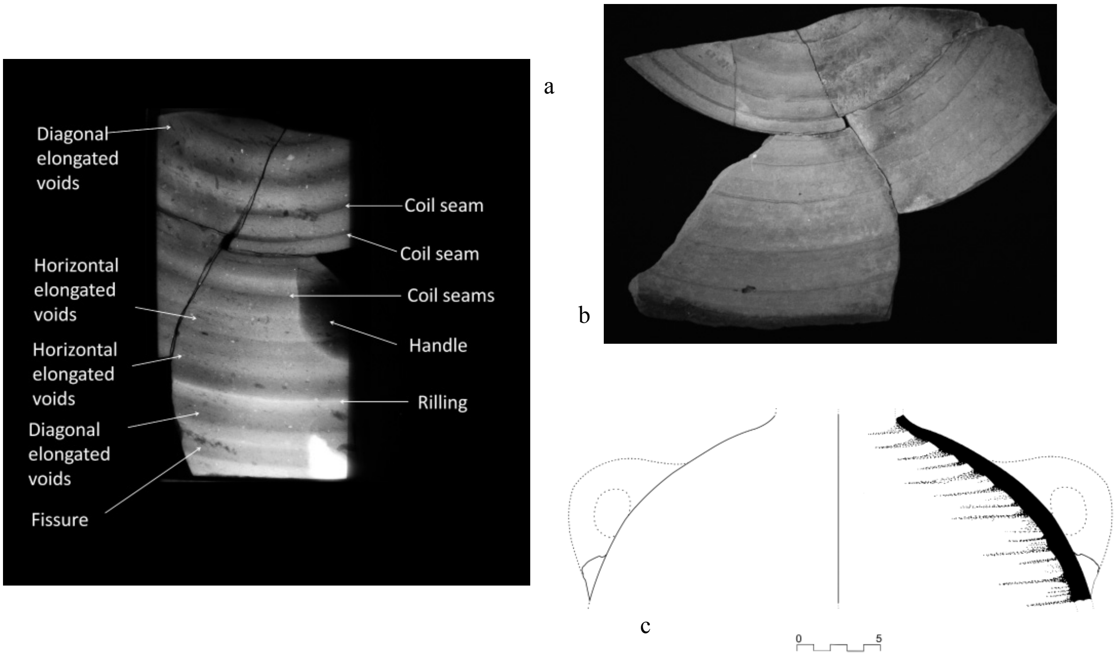


Fig. 10. Necked jar from Küllüoba (Cat. No. KO-4): (a) radiograph, (b) photograph, and (c) drawing.

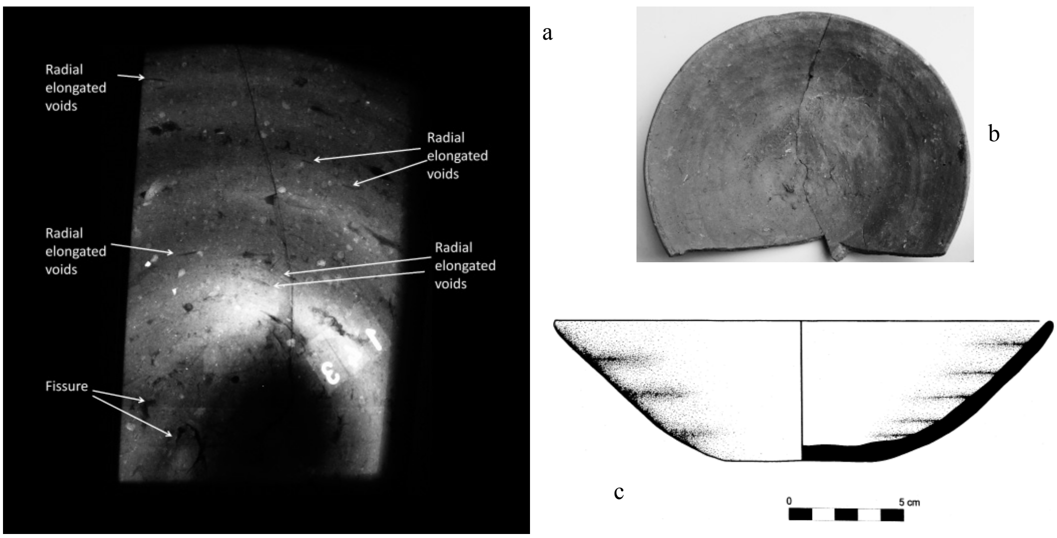


Fig. 11. A2 platter from Küllüoba (Cat. No. KO-5): (a) radiograph, (b) photograph, and (c) drawing.

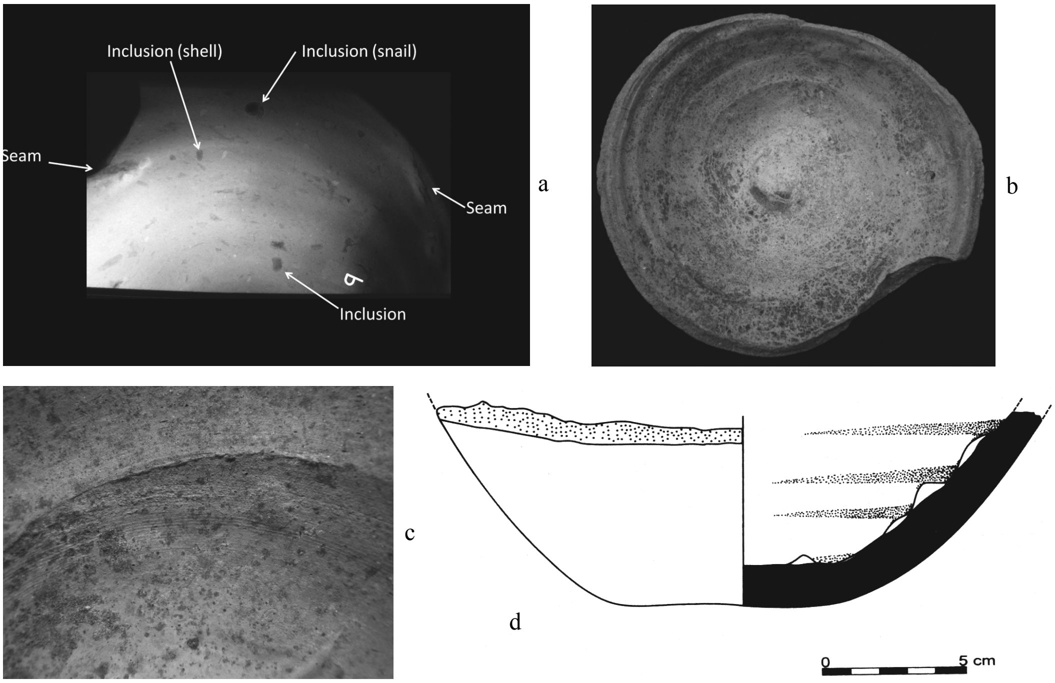
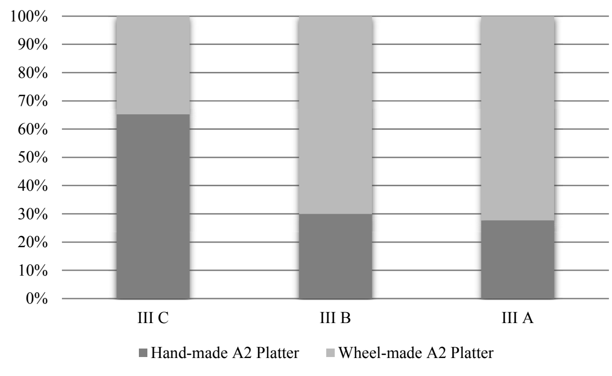


Fig. 12. Jar from Küllüoba (Cat. No. KO-6): (a) radiograph, (b) photograph, (c) detail of smoothing marks, and (d) drawing.



	Hand-made A2 Platter	Wheel-made A2 Platter
III C	45	24
III B	35	82
III A	140	366

Fig. 13. Percentages of hand-made and wheel-made A2 platter through the EB III phases in Küllüoba.