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# ARCHAEOLOGICAL EVIDENCE FOR AN EARLY SECOND MILLENNIUM BC POTTER'S KILN AT LIMAN TEPE*

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## I. Introduction

Liman Tepe is located on the southwest of the Bay of Izmir, in the Iskele District of Urla, across from Karantina Island (Fig.1). During the systematic excavations done at the settlement since 1992 under the directorship of Hayat Erkanal, cultural layers dated from the Late Chalcolithic Age to the Roman Period have been studied. The first building level of cultural layer IV appears to represent a transition phase, which incorporates all the pottery characteristics of the Early and Middle Bronze Ages within itself. It has been determined that this phase, which was identified as "Middle Bronze Age 5"[1] in the first publications regarding Liman Tepe and later as "Early Bronze Age IIIB"[2], is partially preserved at the

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[1] Hayat Erkanal – Sevinç Günel, "1994 Liman Tepe Kazıları", *Kazı Sonuçları Toplantısı*, 17/1 (1996), p. 309-310; Hayat Erkanal – Sevinç Günel "1995 Yılı Liman Tepe Kazıları", *Kazı Sonuçları Toplantısı*, 18/1 (1997), p. 240; Sevinç Günel, "Vorbericht über die mittel-und spätbronzezeitliche Keramik vom Liman Tepe", *Istanbuler Mitteilungen*, 49 (1999), p. 49-51.

[2] Vasıf Şahoğlu, "Liman Tepe Erken Tunç Çağı Seramiğinin Ege Arkeolojisindeki Yeri ve Önemi", *Yayınlanmamış Doktora Tezi*. Ankara Üniversitesi Dil ve Tarih- Coğrafya Fakültesi, Ankara 2002, p. 153-154.

settlement. Remains belonging to this phase have only been found in the north excavation area of the settlement. The locations of the unearthed architectural remains indicate that there were no orderly settlement plans in this phase, or at least that the settlement plans deteriorated in comparison with previous phases. This situation is very similar to what is seen at other contemporary settlements. The burnt layer that appears on nearly all the Liman Tepe remains of this period gives rise to the view that the incident which brought about the end of this period was most probably a settlement-wide fire[3].

## II. The Pottery Kiln

### 1. Condition of the Kiln and Shape

In Liman Tepe, during the excavations in 2012 at trench Z-7 on the southeast corner of the north excavation area, a pottery kiln was uncovered in the layer which was dated to the beginning of the 2nd millennium BC (Fig. 2-4). This pottery kiln, which has no correlation with any architectural remains of its period, was partially destroyed by the Classical Age well located to the west and the Roman Period cistern located to the south (Fig. 3). The top part of the kiln having been completely destroyed, only the bottom part (which is almost rectangular in form) has been preserved. The pottery kiln is 1.40 meters long in the northeast-southwest direction and 1.08-1.25 meters wide in the northwest-southeast direction, and its base is 5-18 cm thick. The leg which is located in the middle of the kiln and supports the grate is 1.40 meters long, 0.22 meters wide and has been preserved to the height of 0.16 meters. As can be understood from the small amount of the kiln's west side which has been preserved, the walls of the kiln were made with mud brick laid over medium- and large-size field stones at the bottom. The part of the kiln where the fire was lit is smeared with mud. According to the preserved remains of the pottery kiln, its mouth appears to have been located on the northeast side.

Since the form of the pottery kiln has not been well preserved, no comparisons can be made. However, the fact that no other pottery kiln dated to this period has been found during excavations and studies so far makes the Liman Tepe example significant.

### 2. Comparisons

A limited number of pottery kilns have been discovered to date in excavations and research in Anatolia. The earliest example was found at Tell Kurdu and dated to the Chalcolithic Period[4]. Pottery kilns from Seyitömer, were dated to the ensuing

[3] Ayşegül Aykurt, "The End of Early Bronze Age and Transition to the Middle Bronze Age in Liman Tepe", C. Doumas and O. Kouka eds., *The Aegean Early Bronze Age: New Evidence*, Athens. (in print).

[4] Kutlu Aslıhan Yener, "1999 Tell Kurdu Kazıları", *Kazı Sonuçları Toplantısı*, 22/1, 2001, p. 231, çiz. 3.

period of the Early Bronze Age III[5], and kilns at Gaziantep-Kalehöyük were dated to the end of the Early Bronze Age[6]. These earliest examples of Anatolian pottery kilns have simple forms. For the succeeding periods, in other words the 2nd millennium BC, the number of pottery kilns uncovered from excavations increased. Pottery kilns were uncovered in the rooms 553 and 554[7], at the first level of the Troia V settlement and they are dated beginning of the settlement V; second half of the 20th century[8]. Pottery kilns from Kocabaş Tepe[9], Panaztepe[10], Milet[11], Lidar Höyük[12], Kültepe I[13] and Şaraga Höyük[14] were dated to the Middle Bronze Age. Nearly round-shaped pottery kiln examples located in western Anatolia are similar in respect of their two or three grill legs (plaster). Late Bronze Age pottery kilns are known from Liman Tepe[15], Milet[16],

[5] Nejat Bilgen, *Seyitömer Höyük Kazısı* Ön *Raporu (2011-2012)*, Kütahya 2012, p. 97, res. 257.

[6] Fikri Kulakoğlu, Hamza Güllüce et al. 2008, "Gaziantep Kalehöyük Excavations", H. Kühne, R.M. Czichon, F.J. Kreppner eds., *Proceedings of the 4th International Congress of the Archaeology of the Ancient Near East. Volume 2: Social and Cultural Transformation: The Archaeology of Transitional Periods and Dark Ages, Excavations Report*, Berlin 2008, p. 348, fig. 15.

[7] Carl Blegen et al. *Troy II: The Third, Fourth, and Fifth Settlements*, Princeton University Press, Princeton 1951, pp. 265-267, figs. 214, 216, 282-283.

[8] Göksel Sacı, "Troia I-III, Die Maritime Troia- Kultur und Troia IV-V, Die Anatolische Troia Kultur: Eine Untersuchung der Funde und Befunde im Mittleren Schliemanngraben", *Studia Troica* 15 (2005), p. 86; Stephan W.E. Blum, "Troia an der Wende von der frühen zur mittleren Bronzezeit - Troia IV und V", M.O. Korfmann ed., *Troia: Archäologie eines Siedlungshügels und seiner Landschaft*, Verlag Philipp von Zabern, Mainz 2006, p. 143; Peter Pavuk "New Perspectives on Troia VI Chronology", M. Bietak, E. Czerny eds., *The Synchronisation of Civilisations in the Eastern Mediterranean in the Second Millennium B.C. III,* Wien 2007, fig. 1.

[9] Ayşegül Aykurt, "Kocabaş Tepe Seramik Fırını", A. Erkanal-Öktü, E. Özgen, S. Günel, A. T. Ökse, H. Hüryılmaz, H. Tekin, N. Çınardalı-Karaaslan, B. Uysal, F.A. Karaduman, A. Engin, R. Spieβ, A. Aykurt, R. Tuncel, U. Deniz and A. Rennie eds., *Hayat Erkanal'a Armağan. Kültürlerin Yansıması / Studies in Honor of Hayat Erkanal. Cultural Reflections*, Homer yayınları, İstanbul 2006.

[10] Armağan Erkanal, "Panaztepe Kazısının 1985 yılı Sonuçları", *Kazı Sonuçları Toplantısı*, 7/1 1987, p. 254, res. 3.

[11] Amy Raymond, "The MBA Hearths and Kiln at Miletus", A. Erkanal-Öktü, E. Özgen, S. Günel, A. T. Ökse, H. Hüryılmaz, H. Tekin, N. Çınardalı-Karaaslan, B. Uysal, F.A. Karaduman, A. Engin, R. Spieβ, A. Aykurt, R. Tuncel, U. Deniz and A. Rennie eds., *Hayat Erkanal'a Armağan. Kültürlerin Yansıması / Studies in Honor of Hayat Erkanal. Cultural Reflections*, Homer yayınları, İstanbul 2006.

[12] Harald Hauptmann, "Lidar Höyük 1981", *Türk Arkeoloji Dergisi*, XXXVI (1982), p. 95-96, fig. 5-6; Harald Hauptmann, "Lidar Höyük 1984", *Anatolian Studies*, XXXV (1985), p. 206.

[13] Sabahattin Ezer, "Middle Bronze Age Pottery Kiln at Şaraga Höyük", *Belleten*, LXXVII/278 2013, p. 9, fig. 12.

[14] Ezer, *ibid.*

[15] Hayat Erkanal, "Geç Tunç Çağı'nda Liman Tepe", A. Erkanal-Öktü, S. Günel and U. Deniz eds., *Batı Anadolu ve Doğu Akdeniz Geç Tunç, Çağı Kültürleri Üzerine Yeni Araştırmalar*, Ankara 2008, p. 92-94, 96, fig. 4; fig. 6.

[16] Wolf Dietrich Niemeier, "The Mycenean Potter's Quarter at Miletus", R. Laffineur, P. Betancourt eds., *Aegaeum* 16: *Texnh Craftsman, Craftsman and Craftsmanship in the Aegean Bronze Age* 1997.

Boğazköy[17], Tell Atchana[18] and Ziyaret Tepe[19]. During excavations, eight kilns from Milet and seven kilns from Liman Tepe[20] were uncovered. The number and large size of pottery kilns from Boğazköy and Milet show that non-need production occurred at these sites as well.

Outside of Anatolia, excavations in neighboring regions also provide results about pottery kilns[21]. The earliest examples are known from Mainland Greece at Dimini[22] and Olynthus[23], dated to the Neolithic period. For later periods, plenty of pottery kilns, mostly from Mainland Greece and Crete, have also been revealed[24].

Until recently, a general definition and comparison was made for similar kilns from Anatolia and the west Aegean. On the other hand, D. Evely examined the Cretan kilns based on forms[25], and W.D. Niemeier classified Milet pottery kilns according to their forms, size and the structure of the feet of the grill[26]. Unfortunately, as mentioned, the Liman Tepe kiln is not very well preserved and so to compare its form with that of these other kilns is not possible. However, the lack of pottery kilns dated to the 2nd millennium BC in Western Anatolia and the West Aegean makes this Liman Tepe example important.

### III. The Pottery Found Among the Remains of the Pottery Kiln

From the remains of the pottery kiln, sherds belonging to only fourteen pots have been uncovered. Four of these pots were shaped on the wheel and the remaining ten were shaped by hand. From these pots, it has been determined that bowls were kiln-dried better than jars, and that jars were more fragile than bowls.

[17] Andreas Müller Karpe, *Hethitische Töpferei der Oberstadt von Hattusa*, Hitzeroth Verlag, Hitzeroth Marburg 1988, p. 7-11, taf. 63-64, pln. 5.

[18] Kutlu Aslıhan Yener, *Tell Atchana, Ancient Alalakh Volume 1 The 2003-2004 Excavation Seasons*, Koç Üniversitesi Press, İstanbul 2010, p. 31, fig. 2.11-2.12.

[19] Timothy Matney, Michael Roaf et al. "Archaeological Excavations at Ziyarettepe, 2000 and 2001", *Anatolica*, XXVIII (2002), p. 61-62, Timothy Matney, Lynn Rainville et al. "Archaeological Investigations at Ziyarettepe, 2003-2004", *Anatolica*, XXXI (2005), p. 29, fig. 9.

[20] Liman Tepe Late Bronze Age pottery kilns being prepared for publication by author.

[21] See Aykurt, Kocabaş Tepe, footnote 9.

[22] George Ch. Chourmouziadis, "Ena eidikeumeno ergastirio keramikis sto neolithiko Dimini", *Archaiologika Analekta ex Athinon* 10 (1977), P. 207-225, fig.1-2; Hector William Catling, "Archaeology in Greece 1978-79: Dimini", *AR*, 1978-79 (1978-79), p. 24.

[23] George Emmanuel Mylonas, *The Neolithic Settlement: Excavations at Olynthus*, Johns Hopkins University Press, Baltimore 1929, p. 12, fig. 10-8.

[24] Aykurt, Kocabaş Tepe, see tab.2.

[25] Doniert Evely, *Minoan Crafts: Tools and Techniques*, Paul Åströms Förlag, Jonsered 2000.

[26] Niemeier, *ibid*, p. 348-352.

**1. The Wares**

When examined in terms of materials and technical characteristics, it has been found that the pottery discovered within the debris of the kiln consists of six groups.

**Red Slipped Ware:** A bowl with its rim thickened outwards and two jars with different necks fall into the red slipped ware group. These wheel-shaped wares have thin slips and burnished surfaces. The average-quality clay of the wares contains mica, limestone, sand, stone pieces and quartz.

Color of Clay: Pink (7.5 YR 7/4), very pale brown (7.5 YR 7/4)

Color of Slip: Light red (10 R 6/6)

Red-slipped pottery examples could be seen in large numbers in Liman Tepe within the layer under discussion.

**Red-Reddish Brown Multi-colored Ware:** Within the debris of the pottery kiln, only one bowl, with its rim thickened outwards, has been found from this pottery group. This wheel-shaped bowl has a firm and very slightly porous clay. Gold mica, silver mica, limestone, sand and stone inclusions have been discovered within the clay of this average-quality pottery. The surface of the bowl is thin slipped and burnished.

Color of Clay: Reddish yellow (5 YR 6/6)

Color of Slip: Reddish brown (2.5 YR 5/4, 5 YR 5/4), red (2.5 YR 5/6)

**Dark Gray Slipped Ware:** Within the debris of the pottery kiln, one hemispherical, shallow bowl with plain rim, and two bowls with flat mouths and plain rims have been discovered from the dark gray slipped ware group. These gray-colored, thin slipped wares are shaped by hand. Within the firm and very slightly porous clay of these average-quality pots, mica, stone, sand and limestone inclusions have been found. The surfaces of the wares are burnished.

Color of Clay: Matte black (10 YR 2/1)

Color of Slip: Dark grey (7.5 YR 4/1)

A very small number of examples have been found from this ware group within this architectural layer, dated to the beginning of the 2nd millennium B.C., at Liman Tepe.

**Yellowish Slipped Ware:** Only one, necked jar ranks among the yellowish slipped ware group. This thin-slipped and burnished jar has been shaped by hand.

Within the firm and very slightly porous clay of this average-quality jar, mica, stone, sand and limestone inclusions have been discovered.

Color of Clay: Pale yellow (5 Y 7/3), light brown (7.5 YR 6/4)

Color of Slip: Pale yellow (2.5 Y 8/3, 7/3, 7/4)

Very few examples of yellowish slipped pottery have been recovered. It has been observed that most of these examples are bowls.

**Matte Red-Reddish Brown Ware:** This pottery ware comprises the biggest group found within the remains of the pottery kiln. This group consists of jars with spherical bodies, incurved mouths, plain rims and vertical handles; jars with spherical bodies, incurved mouths, everted thickened rims and horizontal handles; jars with oval bodies, incurved mouths, everted thickened rims, vertical handles; and a pithos. The surfaces of these examples have been wet-smoothed and shaped by hand. Within the porous clay, mica, quartz, stone, sand and limestone inclusions have been found.

Color of Clay: Red (2.5 YR 5/6), yellowish red (5 YR 5/6)

Colour of Slip: Red (2.5 YR 5/6), yellowish red (5 YR 5/6)

A large number of matte red–reddish brown pottery examples have been recovered from the architectural layer under discussion within the settlement. It has been determined that these examples also belong to jar-type wares, just like the examples found in the debris of the pottery kiln.

**Coarse Cooking Ware:** Within this ware group, sherds of only one jar have been recovered from the debris of the pottery kiln. This jar, which is in shades of grey, has been shaped by hand. It has been determined that within the firm and very slightly porous clay of this average-quality jar, there are mica, stone, sand and limestone inclusions. The surface of the jar has been wet-smoothed.

Color of Clay: Matte black (10 YR 2/1)

Color of Slip: Dark gray (7.5 YR 4/1)

**2. The Forms**

As a result of the typological examination of the pottery recovered from the remains of the pottery kiln, three pottery forms – bowls, jars and a pithos – have been identified.

**Bowls:** Sherds of five bowls have been recovered from the debris of the pottery kiln. These bowls comprise three types.

*Shallow bowl with hemispherical body and plain rim* (Fig. 5:1, 15:1): One example of a shallow bowl with hemispherical body and plain rim has been found. This bowl, with a mouth 16 cm in diameter, falls within the dark gray slipped ware group.

*Bowls with flat mouth and plain rim* (Fig. 5:2-3, 15:2-3): There are two examples of bowls with flat mouths and plain rims. Of these bowls, which fall within the dark gray slipped ware group, just one bowl's rim has been measurable, at 11 cm in diameter.

*Bead rim bowls* (Fig. 6:1-2, 16-17): Two examples of these bowls, which are called "Bead Rim Bowls" in the technical literature, have been recovered. One of these examples is 15.2–26 cm in diameter and deeper than the other bowl. It has a horizontal handle on its shoulder. The two bowls fall within the group of red, reddish-brown multi-colored slipped wares.

These bowls appeared in Liman Tepe for the first time during this period. It has been observed that on some of the horizontal handles of the bowls there are bead-shaped bulges. Also, on the rims of some of the bowls, there is an "omega"-shaped embossed decoration. It has been determined that these bowls, which were used during Middle Bronze Age I and II in Liman Tepe, lost their popularity from the end of the Middle Bronze Age.

**Jars:** From the debris of the pottery kiln, seven jar sherds have been recovered. The types of only four of these jars have been identified.

*Jar with spherical body, incurved mouth and plain rim, vertical handles* (Fig. 7, 18): Only one example was found of the jar with spherical body, incurved mouth and plain rim. This jar, with vertical handles right below the rim, has a rim diameter of 18 cm. It falls within the category of matte red–reddish brown ware. Within the settlement, a small number of these jars have been recovered.

*Jar with spherical body, incurved mouth and everted thickened rim, horizontal handles* (Fig. 8, 19): The only example of this type, this jar has a spherical body, an incurved mouth, an everted thickened rim, a flat base and a horizontal handle located near the middle of its body. Having a mouth diameter of 27 cm and a base diameter of 8.4 cm, this jar was produced in the group of matte red–reddish brown ware. A small number of this type of jar have been found at Liman Tepe, and the first examples were recovered in this layer.

*Jars with oval body, incurved mouth and everted thickened rim, vertical handles* (Fig. 9, 20): There is only one example of this type of jar and it has a rim diameter of 31.8 cm. Being in the group of matte red–reddish brown ware, this jar has a vertical handle

right below its rim. Taking into consideration the material and technical characteristics, and the thickness of the part that touches the floor, a flat base (8 cm in diameter) recovered from the debris of the pottery kiln might belong to this jar.

*Jar with outcurved mouth and everted thickened rim, long neck* (Fig. 10, 21): Only the neck part of this jar has been preserved. This rim, which has a mouth diameter of 29 cm, shows this jar was part of the pale yellow slipped ware. A body part that has been found within the debris and is in the same ware group, and which belongs to a closed pot, could be evaluated alongside this rim.

*Examples of undetermined types*: Sherds of three different pots found within the debris of the pottery kiln were of types that could not be determined. One of these sherds is part of a neck and shoulder (Fig. 11, 22). It appears to have belonged to a necked jar. It has parallel lines under the neck, grooved at regular intervals. This example belongs to the red slipped ware group.

A body sherd with a vertical handle, which belongs to a closed pot, is the second example of the undetermined pottery types (Fig. 12, 23). On the body of this jar there are horizontal incised decorations running parallel to each other. These sherds, which are of the matte red–reddish brown ware group, appear to belong to a jar. This pot was shaped on a wheel.

Our last example is handmade and consists of a round base 9 cm in diameter and a great number of body sherds (Fig. 13, 24). These sherds, which are thought to belong to a jar, do not fit together. This jar belongs to the coarse cooking ware group.

**Pithos:** In the debris of the pottery kiln, one large and thick vertical handle sherd has been found (Fig. 14, 25). This handle, which should belong to a pithos given its size, is oval in cross-section. This handle falls into the group of matte red–reddish brown ware.

### 3. Comparisons and Dating

The transition period from the Early to Middle Bronze Age in Central Anatolia is called übergangsper*iode* (Transition Period to Middle Bronze Age) by W. Orthmann[27]. Orthmann splits the pottery of this period into two regions: the north and the south of Central Anatolia. The first of these regions covers the northern side of the Kızılırmak Bend, and the second, the southern area. Orthmann places the pottery examples recovered from Eskişehir, Kütahya and Beycesultan – Denizli on

[27] Winfried Orthmann, *Die Keramik der Frühen Bronzezeit aus Inneranatolien*, Verlag Begr. Mann, Berlin 1963, p. 10, 99.

the southern side of the Kızılırmak Bend[28]. When the pottery recovered from the debris of the pottery kiln and dated to the transition phase at Liman Tepe from the Early to Middle Bronze Age is compared with the surrounding cultural regions, the conclusions below are reached:

**Ankara-Kırşehir Areas:** From these regions, remains belonging to the transition phase from the Early to Middle Bronze Age have been recovered at the excavations undertaken in Gordion, Polatlı, Ahlatlıbel, and Çayyolu Mound of Ankara; and Kaman Kalehöyük and Yassıhöyük of Kırşehir. The bead-rim bowls discovered at the excavations in Gordion and Polatlı resemble the Liman Tepe examples. The bead-rim bowls found in the 18. layer of Megaron 10 in Gordion are red slipped and either of buff color with a clay that contains stones, or of orange color with a fine clay that contains mica[29]. Similar bowls recovered from 16–18 layers of Polatlı have buff and pink-colored clays, and some of them are burnished[30].

Besides bead-rim bowls, multiple crossed bowls[31] found in the layer contemporaneous with the pottery kiln in Liman Tepe also enable us to draw an analogy with Gordion and Polatlı. The multiple crossed bowls found in level 7 and layer 15 of Gordion[32] and in II phase, 12. layer of Polatlı[33] were also produced with the same understanding as the Liman Tepe examples[34].

Publications about the other centers mentioned above are insufficient. In a paragraph under the title 'pottery' in the publication by H.Z. Koşay regarding Ahlatlıbel, there is this statement: "The artifacts from which we can directly recognize the Old Hittite Period are like a continuation of the Copper Age", and that is the extent of the discussion on the transition layer from the Early to Middle Bronze

[28] Winfried Orthmann, *Frühe Keramik von Boğazköy: Aus Den Ausgrabungen am Nordwesthang von Büyükkale*, Verlag Begr. Mann, Berlin 1963, p. 50.

[29] Ann C. Gunter, *Gordion Excavations Final Reports III: The Bronze Age*, Science Press -Ephrata, Pennsylvania, Philadelphia 1991, p. 51, fig. 109, 116, 117.

[30] Seton Lloyd – Nuri Gökçe, "Excavations at Polatlı", *Anatolian Studies*, 1 (1951), p. 36, 37, fig. 6, group 2: 1-2, 9, 14, 18.

[31] Multiple-crossed bowls are interpreted as a variation of red-crossed bowls. The red-crossed bowls which appeared in Anatolia for the first time during Early Bronze Age III are seen in a wide geographic area. Apart from Anatolia, the red-crossed bowls also disappeared from surrounding cultural areas at the end of the period. (For the distribution of red-crossed bowls, see: Seton Lloyd – James Mellaart. *Beycesultan I: The Chalcolithic and Early Bronze Age Levels*, British Institute of Archaeology at Ankara, London 1962, p. 254-255, 257, map. X; Manfred Korfmann, "Red Cross Bowl. Angeblicher Leittyp für Troja V", R. M. Boehmer and H. Hauptmann eds., *Beiträge zur Altertumskunde Kleinasiens. Festschrift für Kurt Bittel*, Philipp von Zabern, Mainz am Rhein 1983, p. 294, abb.1.

[32] Gunter, ibid, p. 20, 25, pl. 13:52, pl. 18:97.

[33] Lloyd – Gökçe, ibid, p. 51-52, fig.13:13-14; Orthmann, *Inneranatolien*, p. 134, taf. 38:8/70-71.

[34] Aykurt, Liman Tepe.

Age[35]. As for the excavations done at Çayyolu Mound, even though it is mentioned that in trench H5 pottery examples were found belonging to the Early Bronze Age / Middle Bronze Age transition period, there was no further information given regarding that pottery[36].

Layer IVa of Kaman Kalehöyük in Kırşehir has been dated to the transition period from Early to Middle Bronze Age. In publications regarding Kaman Kalehöyük, it has been mentioned that Alişar III pottery and hand-made pottery has been recovered from this layer, and also that this layer is contemporaneous with Kültepe III-IV, Boğazköy Lower City 5, Nordwest Hang 9[37]. Furthermore, the II. level discovered during the excavations done in the same region, in Yassıhöyük, was also dated to the transition period from Early to Middle Bronze Age. $C^{14}$ analysis done on burned wood samples taken from the remains of a burned building from this level gives the dates 2261–2202 B.C. It is mentioned that though most of the pottery found in this layer is handmade and red slipped, there is also wheel-made and red-slipped pottery present. In addition to this, though not *in situ*, the intermediate pottery which is linked with this layer is also associated with the same layer. In the publication about Yassıhöyük there is mention only of a beak-spouted large jar, a pointed-based large jar and a funnel as vessel forms. The red-slipped pottery which was a typical ware group of its period and which was found in Yassıhöyük could be compared to the Liman Tepe examples[38].

**Kayseri and Niğde Areas:** From the studies done on this region, pottery belonging to the transition period from Early to Middle Bronze Age was found during the excavations in Kültepe and Acemhöyük. Among the pottery examples unearthed from layers III-IV of Kültepe and dated to the transition period, there were bead-rim bowls. These examples have been evaluated as belonging to the groups called Alişar III pottery and Hittite pottery[39].

[35] Hamit Zübeyr Koşay, "Türkiye Cumhuriyeti Maarif Vekaletince Yaptırılan Ahlatlıbel Hafriyatı", *Türk Tarih Arkeoloji ve Edebiyat Dergisi*, sayı 2 1934, p. 12.

[36] Melih Arslan "Çayyolu Höyüğü Kurtarma Kazısı 2011", *Türk Eskiçağ Bilimleri Enstitüsü Haberler*, Ocak 2012/sayı 33 2012, p. 21.

[37] Sachiro Omura, "1996 Yılı Kaman Kalehöyük Kazıları", *Kazı Sonuçları Toplantısı*, 19/1 1998, p. 318; Sachiro Omura, "1998 Yılı Kaman Kalehöyük Kazıları", *Kazı Sonuçları Toplantısı*, 21/1 2000, p. 219, Drawing 9.9-13; Sachiro Omura, "2001 Yılı Kaman Kalehöyük Kazıalrı", *Kazı Sonuçları Toplantısı*, 24/1 2003, p. 12.

[38] Masako Omura, "Yassı Höyük Kazıları 2011", *Kazı Sonuçları Toplantısı*, 34/1 2013, p. 314-316.

[39] Kutlu Emre, "Pottery of Levels III and IV at the Karum of Kanesh", K. Emre, B. Hrouda, M Mellink and N. Özgüç eds., *Studies in Honor of Tahsin* Özgüç*: Anatolia and The Ancient Near East*, Ankara 1989, p. 112, fig. AII:7-8, 11, 20; 17, fig. BII:45.

In Acemhöyük, the settlement VI. level and part of the V. level represent the transition period to the Middle Bronze Age. During the excavations to the south of Sarıkaya Palace, three rooms with unknown connections and a house with a kitchen were unearthed[40]. Due to the fact that pottery which maintains Early Bronze Age traditions has been recovered from this area in the VI. level along with finds which show characteristics of the Colonial Period, VI. level has been defined as the "Transition Period". Levels V. and IV. of Acemhöyük have been dated to the Early Phase of the Colonial Period, and N. Özgüç believes these levels correspond with the III-IV. levels of Kültepe Kaniş-Karum and the begining of the II. level[41]. It has been stated that the most important characteristics of the pottery of the Acemhöyük Transition Period have been stated as the continuation of the previous period's traditions, and increased mass production and form varieties, due to use of the wheel. During this time, along with the buff-colored pottery that is present starting from XII. level, cream, red and brown-colored pottery were also used. Alongside Early Bronze Age vessel forms, bowls with no handles, bowls with one or more vertical handle(s), dishes, base plates, two-handled jars, two-handled large vases, trays, funnels, cups, beak-spouted small pitchers and teapots with basket handles are mentioned as vessel forms[42]. In the light of this data, the red-slipped pottery and bowls with or without handles which are included in the Acemhöyük pottery, and which are among the typical pottery examples of the transition period from Early to Middle Bronze Age, were produced with the same understanding as the Liman Tepe examples.

**Çorum-Çankırı Areas:** Bead-rim bowls have also been recovered from the transition layers of Alacahöyük, which is one of the settlements located in Çorum. These red-slipped examples are similar to the Liman Tepe bowls[43]. As for Boğazköy, the 8b-d layers of the Nordwest Hang are dated to the transition period from Early to Middle Bronze Age. The bead-rim bowls found in the settlement within these layers are both handmade and wheel made; reddish brown, brown or red slipped; and bright-burnished[44]. Examples similar to the Liman Tepe bowl with spherical body, incurved mouth and plain rim are known from the 9. Layer of Nordwest Hang

[40] Nimet Özgüç, "Haberler: Acemhöyük'te 1977 Çalışmaları", *Belleten*, XLII/167 (1978), p. 541; Nimet Özgüç, "Haberler: Acemhöyük Kazısı 1979 Çalışmaları", *Belleten*, XLIV/176 1980, p. 621.

[41] Nimet, Özgüç, "An Early Bronze Age Jar from Acemhöyük", *Eretz-Israel Archaeological Historical and Geographical Studies vol. XXI, Ruth Amiran Volume,* Jerusalem 1990, p. 70.

[42] Atilla Türker, "Assur Ticaret Kolonileri Çağında Acemhöyük Çanak Çömleği", *Yayınlanmamış Doktora Tezi*. Ankara Üniversitesi Dil ve Tarih- Coğrafya Fakültesi, Ankara 2008, p. 210-214.

[43] Hamit Zübeyr Koşay, *Türk Tarih Kurumu Tarafından Yapılan Alacahöyük Hafriyatı, 1936'daki Çalışmalara ve Keşiflere Ait İlk Rapor*, Türk Tarih Kurumu Basımevi, Ankara 1938, p. 36, pl. XXIX, al.A. 182 and pl. XXXVIII.

[44] Orthmann, *Boğazköy*, p. 18, 32, 39, taf. 1:30, 33, taf. 20:185, taf. 21:194, taf. 31:282.

of Boğazköy[45], and similar examples to the bowl with oval body, incurved mouth, and everted thickened rim are known from the 8c-d layer of the Northwest Slope[46].

At the excavations in Resuloğlu, finds were recovered which were dated to the beginning of the 2nd millennium B.C. A small number of burial jars and large-burial jars have been unearthed from the 1. level of Resuloğlu Necropolis, dated to the 2nd millennium B.C.[47]. As a result of comparisons made with these burial jars and large-burial jars, it has been stated that this phase was contemporaneous with the III-IV phase of Kaniş Karumu, 5M of Alişar, Early Hittite of İkiztepe and 4. early phase of Alacahöyük. At the same time, it has been said that the latest settlement in Resuloğlu is dated to the very beginning of the 2nd millennium B.C.[48]. Apart from this data, no detailed information has yet been published regarding the pottery of the transition period to the Middle Bronze Age.

Another settlement located in the same region where a layer has been discovered belonging to the transition period from Early to Middle Bronze Age is Eskiyapar. The pottery recovered from the 6. layer of Eskiyapar is dated to the beginning of the 2nd millennium B.C.[49], and the ceramics unearthed from beneath the 6. layer are dated to the end of Early Bronze Age III[50]. There is no detailed information available about the pottery examples recovered either from the 6. layer or beneath that.

Although there have been finds from the transition period from Early to Middle Bronze Age recovered from the cemeteries of Balıbağı[51] and Salur in Çankırı, related publications are insufficient. The tombs discovered during the excavations in 2008 at the Cemetery of Salur are dated to the end of the Early Bronze Age III and the beginning of Middle Bronze Age (2100 – 1850 B.C.)[52]. There are no examples among the Salur Cemetery finds that can be compared to the Liman Tepe pottery kiln ceramics.

[45] Orthmann, *Boğazköy*, p. 28-29, taf. 15: 149, 151.

[46] Orthmann Boğazköy, p. 36, taf. 26: 245.

[47] Tayfun Yıldırım, "Resuloğlu Kazısı ve Anadolu Arkeolojisi'ne Katkıları", *1. Çorum Kazı ve Araştırmalar Sempozyumu*, 2010, p. 15.

[48] Yıldırım, *ibid*, p. 21.

[49] Tunç Sipahi, "2011 Yılı Eskiyapar Kazısı", *2. Çorum Kazı ve Araştırmalar Sempozyumu* 2012, p. 7.

[50] Tunç Sipahi, "2013 Çalışmalarının Işığında Eskiyapar Kazıları", *4. Çorum Kazı ve Araştırmalar Sempozyumu* 2014, p. 45, 51-52.

[51] Mustafa Süel, "Balıbağı 1988 Kurtarma Kazısı", *Türk Arkeoloji Dergisi*, 28 1989; Mustafa Süel, "Balıbağı 1990 Kurtarma Kazısı", *Müze Kurtarma Kazıları Sempozyumu*, II 1992.

[52] Resul İbiş – Sinan Durmuş, "Çankırı Salur: Orta Anadolu'nun Kuzeyinde Bir Eski Tunç Mezarlığı", *Anadolu*, 36 2010, p. 24.

**Kastamonu-Kınık Areas:** During the studies executed in Kınık and Tepecik of Kastamonu, finds have been recovered which belong to the transition period from Early to Middle Bronze Age. The II. layer discovered at the excavations in Kınık has been dated to a period between the end of the 3rd millennium B.C. and the beginning of the 2nd millennium B.C. The II. layer has two phases; in the 1. phase, red, reddish-brown, black and inside black–outside red-colored, all hand-made pottery was recovered, and in the 2. phase, besides the pottery that is a continuation of the pottery of the 1. phase, a few wheel-made pieces have been found. These pottery examples are comparable with the hand-made, bright black glazed pots and red-colored ceramics of Central Anatolian settlements[53]. The red-slipped ceramic from Kınık appears to have been produced with the same understanding as the Liman Tepe examples. According to the published materials, the Liman Tepe pottery kiln and the contemporaneous II. layer of Kınık do not show any other similarities.

A bead-rim bowl has been recovered from surface surveys done in Tepecik. This hand-made, red-brown burnished example with brown clay is similar in form to the Liman Tepe example[54].

**Samsun Area:** The bead-rim bowls recovered during the excavations in İkiztepe and Dündartepe in the Samsun region may be compared with the Liman Tepe examples. The layer in the 1. level of İkiztepe where "bead rim bowls" have been found is defined as "Early Hittite" or "Transition Period". These bowls contain minerals and their clay is in various shades of red, even tending to shades of brown. It has been observed that some of these bowls have a shiny, white ingredient in their clay, and some examples contain small stone pieces[55]. During the excavations in Dündartepe at the settlement called "Third Dündartepe Culture or Hittite Age", this type of bowl was recovered. It has been reported that the ceramics of the settlement, including the pottery mentioned, were wheel made, contain sand, and are red (in tones of red), brown, buff and white slipped[56].

[53] Aykut Çınaroğlu – Elif Genç, 2004, "Kastamonu-Kınık 2002 Yılı Kazısı", *Kazı Sonuçları Toplantısı*, 25/1 2004, p. 357, drawing 5; Aykut Çınaroğlu – Elif Genç, "2003 Yılı Kastamonu-Kınık Kazısı", *Kazı Sonuçları Toplantısı*, 26/1 2005, p. 279; Elif Genç, "Kastamonu Kınık Kazıları ve Yerleşimin Çevre Kültür Bölgeleri ile İlişkileri", E. Genç and D. Çelik eds., *Aykut Çınaroğlu'na Armağan*, İstanbul 2008, p. 107-108.

[54] Charles A. Burney, "Northern Anatolia Before Classical Times", *Anatolian Studies*, VI 1956, p. 200-201, fig. 130.

[55] Uluğ Bahadır Alkım, Handan Alkım, Önder Bilgi, *İkiztepe I. Birinci ve İkinci Dönem Kazıları (1974-1975)*, Türk Tarih Kurumu Basımevi, Ankara 1988, p. 22, 26, pl. III:1-3.

[56] Tahsin Özgüç, "Samsun Hafriyatının 1941-42 Yılı Neticeleri", *III. Türk Tarih Kongresi Raporları*, Ankara 1948, p. 405, pl. 8: 1, 7, 11.

**Eskişehir Area:** In Küllüoba, Bahçehisar and Aharköy in the Eskişehir Region, pottery examples belonging to the Transition Period have been recovered. In Küllüoba, IIE-A phases are dated to the transition period from Early to Middle Bronze Age. The red-slipped pottery examples seen in the transition period at Liman Tepe have emerged in Küllüoba in the IID phase of the settlement. Though most of the Küllüoba examples were wheel produced, a few hand-made examples have also been discovered[57]. Besides the red-slipped pottery, a few gray pieces defined as "İnegöl Gray Pottery" have been recovered from the transition period layers of Küllüoba. These examples have gray clay and dark gray slip and Efe assesses them as being imported[58]. These pottery examples appear to be the product of the same idea as the dark gray Liman Tepe pottery examples of this layer. In addition, the bead-rim bowls among the vessel forms found in the debris of the pottery kiln in Liman Tepe have also been recovered in the transition layer from Early to Middle Bronze Age at Küllüoba. This type of bowl was wheel made and red slipped in Küllüoba[59]. In addition, examples of three-legged jars with horseshoe-shaped handles[60] similar to those found in the layer contemporaneous with the pottery kiln at Liman Tepe are also known from the Early–Middle Bronze Age transition phase in Küllüoba[61]. Just as in Liman Tepe, in Küllüoba these jars also belong to the coarse cooking ware group.

The other two centers in the Eskişehir region are Bahçehisar[62] and Aharköy[63]. In both places, bead-rim bowls have been found among the pottery examples which were dated to the transition period from Early to Middle Bronze Age. It has been stated that these examples, which are similar to Liman Tepe examples, are fine red, reddish-brown slipped and burnished and that some of them were wheel shaped. In addition, similar examples of the "s"-shaped, one-handled cup[64], found in Bahçehisar and dated to the transition phase from Early to Middle Bronze Age, and the

[57] Turan Efe – Murat Türkteki, "The Stratigraphy and Pottery of the Period Transitional into the Middle Bronze Age at Küllüoba (Seyitgazi, Eskişehir)", *Anatolia Antiqua,* XIII 2005, p. 125; Deniz Sarı, "İlk Tunç Çağı ve Orta Tunç Çağı'nda Batı Anadolu'nun Kültürel ve Siyasal Gelişimi", *MASROP/ E-Dergi* 7 2012, p. 194.

[58] Efe-Türkteki, *ibid*, p. 126.

[59] Efe-Türkteki, *ibid*, p. 126, fig. 8b:8.

[60] Aykurt, Liman Tepe.

[61] Efe-Türkteki, *ibid*, p. 129, fig. 9b:13.

[62] Turan Efe, "Early Bronze Age III Pottery from Bahçehisar: The Significance of the Pre-Hittite Sequence in the Eskişehir Plain, Northwestern Anatolia", *American Journal of Archaeology,* 98 1994, p. 11, 31-32, fig. 15: 60-67.

[63] Efe, *ibid*, p. 28, fig. 3:11.

[64] Efe, *ibid*, p.14, 30, fig. 9:40.

three-legged jar with horseshoe-shaped handle[65] have been recovered from layers contemporary with the Liman Tepe pottery kiln.

**Denizli – Afyon Area:** During the excavations in Beycesultan of Denizli ve Kusura of Afyon, finds belonging to the transition phase from Early to Middle Bronze Age have been recovered. The VII-VI. layers of Beycesultan contain material belonging to this phase. The red-slipped and bright-burnished, hand-made and wheel-made pottery examples found within these layers can be compared with the Liman Tepe examples[66]. The bead-rim bowls of this ware group are also similar to Liman Tepe examples. The fact that there was also a cross motif drawn with red paint inside a bowl which had a similar form and which was found in the VII. layer is significant in terms of dating. In addition, it has been determined that some of the bowls of this type found at layer VIa are buff slipped[67].

Kusura is another center located in the region, and it belongs to the same period. The thick red-slipped pottery and the bead-rim bowls of Kusura reflect the same characteristics as the pottery found among the debris of the Liman Tepe pottery kiln[68].

**Troia:** Troia is another settlement that was inhabited during this phase. The red-coated ware and the gray ware found at the V. settlement of Troia are similar to the Liman Tepe examples. The red-coated ware is known in Troia by both its hand-made and its wheel-made examples[69]. The gray ware examples are also hand shaped and wheel shaped, and thick or thin slips of different shades of gray could be seen on their surfaces. Though a large proportion of the burnished pottery is light matte colored, it has been determined that some of the examples have a glossy finish. Also, a few examples have multicolored surfaces[70]. Among the vessel forms found at the V. settlement of Troia, there are also bead-rim bowls. These bowls belong to the thick red-slipped and gray ware groups[71]. In addition, similar examples of the three-legged jars with horseshoe-shaped handles found at a layer contemporaneous with the Liman Tepe pottery kiln[72] were also known from the V. settlement of Troia. Troia examples are also handmade. They are coarse cooking wares[73].

[65] Efe, ibid, p. 13, 27, 33, fig. 22:97-98.

[66] Seton – Mellaart, *ibid*, p. 200.

[67] Lloyd-Mellaart, ibid, p. 221-223, fig. P.57:26, 32-39; 221, 234-235, fig. P.63:2, 7,15-17; 231, 238-239, fig. P. 65:1-8, 10-11, 17.

[68] Winifred Lamb, "Excavations at Kusura Near Afyon Karahisar", *Archaeologia,* 86 1937, p. 16-17; Winifred Lamb, "Excavations at Kusura Near Afyon Karahisar: II", *Archaeologia,* 87 1938, p. 237, fig. 14/7, 11, 13.

[69] Blegen *et al. Troy II,* p. 254, 256, 260, 261, 269, 271, 275, 281, 286, 290, 292, 294.

[70] Blegen *et al. Troy II,* p. 118, 119, 235, 137-138, 249-251.

[71] Blegen *et al. Troy II,* p. 242, fig. 241:32.62, 36.720, 36. 1274, fig. 254:26.

[72] Aykurt, Liman Tepe.

[73] Blegen *et al. Troy II,* p. 245, 257, fig. 243: 36.867.

When the data is evaluated overall, it can be said that the pottery kiln of Liman Tepe is contemporary with Troia V, Beycesultan levels VII-VI, Kusura level II, Küllüoba level II, levels 9-8 of Nordwest Hang at Boğazköy, Kültepe levels IV-III, and Polatlı level II.

**IV. Conclusion**

The pottery kiln dated to the beginning of the 2nd millennium B.C. and unearthed in Liman Tepe is significant because it is one of the important examples from its period in Anatolia. Seven pottery kilns dated to the Late Bronze Age have been recovered from Liman Tepe in past years, again from the north excavation area[74]. Even though they are from a different period, five of the pottery kilns are similar to the pottery kiln dated to the 2nd millennium B.C. because they also have field stones at the bottom and large mud bricks used in their walls. The pottery kilns were all found in the same area, and from this fact it can be understood that the region was engaged in pottery production for a long time. As is well known, many pottery kilns have been unearthed in the city known as Klazomenai during the Archaic and Classical Periods. It has been determined that the region was an important center of Western Anatolia from the early periods onwards.

Sherds belonging to fourteen vessels have been found in the debris of the pottery kiln. Five of them belonged to bowls, eight to jars, and one to a large jar. Of these ceramics, the bead-rim bowls and necked jars were made on a wheel; the hemispherical and shallow bowl with plain rim, the bowls with flat mouths and plain rims, the jars without necks and the body part of a jar with only a horizontal handle attached were made by hand. When these pots are evaluated in terms of kiln drying, it has been determined that the bowls were kiln-dried better than the jars. When the pots are evaluated in terms of ware groups, it has been determined that the hand-shaped bowls belonged to the dark gray slipped ware group; one wheel-shaped everted thickened bowl and the necked jars belong to the red slipped ware group; and the hand-shaped jars without necks belong to the matte red-reddish brown ware group. In this context, it has been observed that the ingredients and technical characteristics of the pottery found within the debris of the pottery kiln are directly related to vessel forms.

Types of bead-rim bowls, the jar with spherical body-plain rim and vertical handle, the jar with spherical body and everted thickened rim, and jars with oval

[74] For the kilns discovered in 2006, see: Hayat Erkanal – Ayşegül Aykurt, "Liman Tepe 2006 Yılı Kazıları", *Kazı Sonuçları Toplantısı*, 29/3 2008, p. 227-230, pic. 4-5. Late Bronze Age pottery kilns unearthed in 2010-2012 are being prepared for publication by us.

bodies and everted thickened rims found in the debris of the kiln are important in terms of dating the kiln. In particular, the bead-rim bowls constitute the most characteristic form of their period in Anatolia. Plenty of examples have been recovered from the contemporaneous layers of Kültepe, Boğazköy, Alacahöyük, Küllüoba, Bahçehisar, Gordion, Polatlı, İkiztepe, Dündartepe, Aharköy, Troia and Kusura. In the layer contemporary with the kilns, a lot of examples of this type of bowl have been found. The jar with spherical body and plain rim, and the jars with oval bodies and everted thickened rims, of which similar examples are found in Boğazköy, rank among the dating materials of the layer.

The pottery kiln which was analyzed in this article constitutes one of the important examples discovered from excavations in Western Anatolia. As mentioned above, no other architectural remains related to its period have been unearthed around the pottery kiln, which is located in the northeast corner of trench Z-7 in Liman Tepe. It is possible that new data regarding the pottery kiln will be obtained from the excavations that will be done on the north and east sides of this area.

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Fig. 1


Early Bronze Age II
level
Classical Age
Well
Roman Period Cistern
Pottery Kiln 7

Fig. 2

Fig. 3

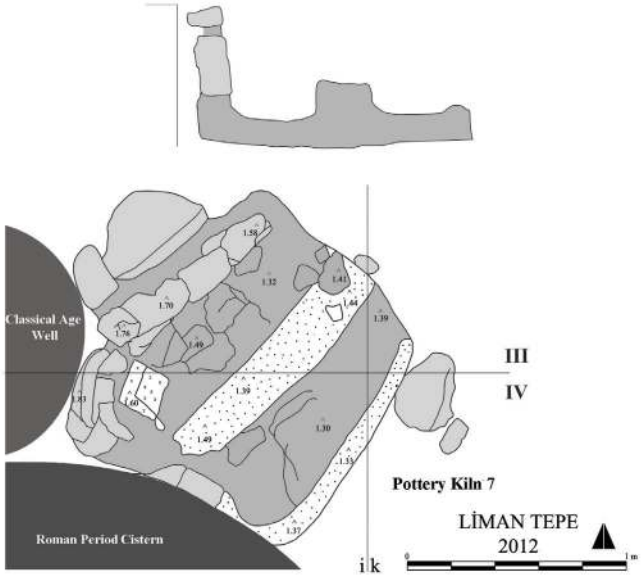
Classical Age
Well
Roman Period Cistern
III
IV
Pottery Kiln 7
LİMAN TEPE
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Fig. 4

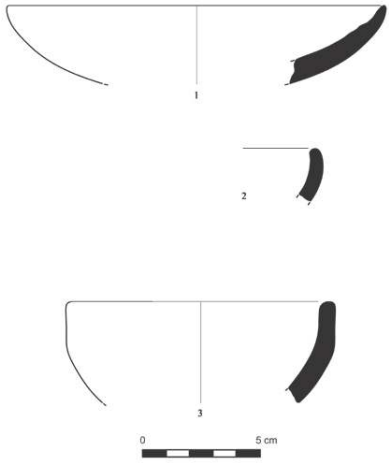



Fig. 5

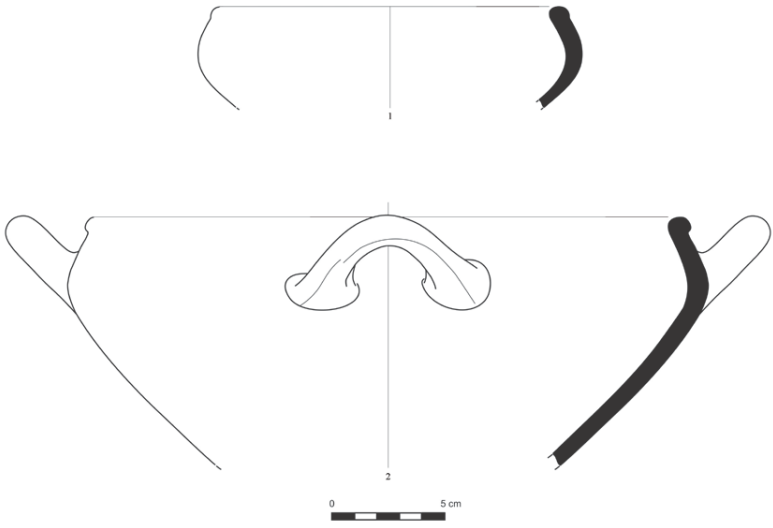
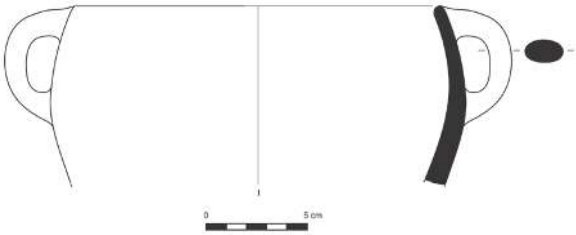



Fig. 6

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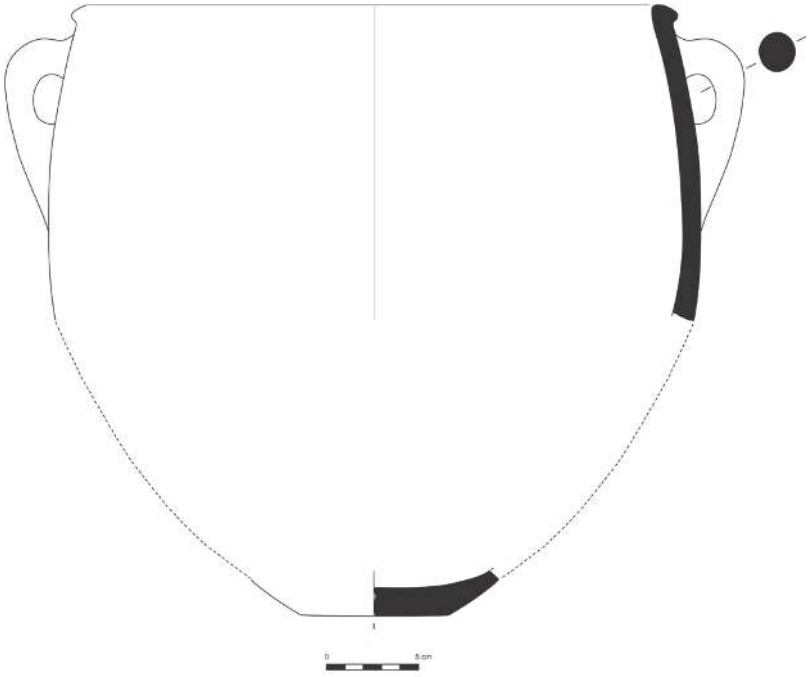

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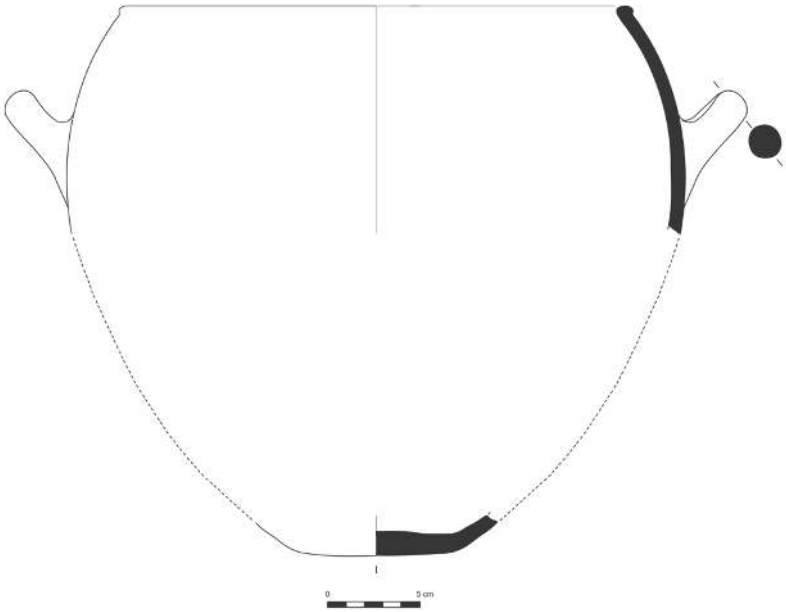


Fig. 9

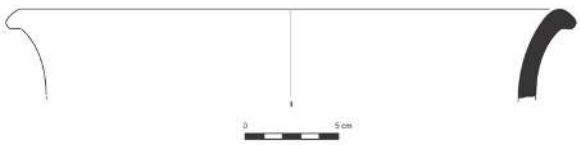


Fig. 10

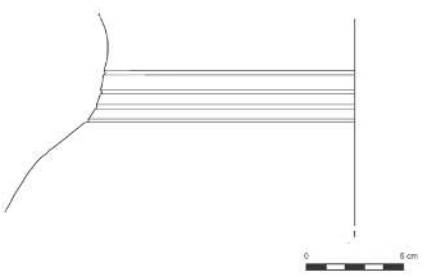

Fig. 11

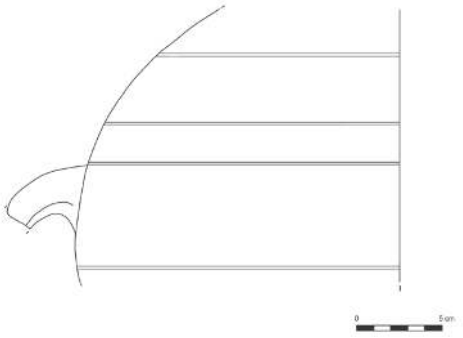

Fig. 12



Fig. 13

Fig. 14


Fig. 15

Fig. 16

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Fig. 24

Fig. 25