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Mailing address Barbaros Mah. Kocatepe Sok. No. 22
Kaleiçi 07100 Antalya - TURKEY
Tel: +90 (242) 243 42 74 • Fax: +90 (242) 243 80 13
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Contents

ADALYA 21, 2018

A Pottery Kiln from Tatarlı Höyük (Adana, Turkey) and its Implications for Late Bronze Age Pottery Production in Cilicia and Beyond

Gonca DARDENİZ – K. Serdar GİRGİNER – Özlem OYMAN-GİRGİNER*

Abstract

This article documents a Late Bronze Age II (1450-1200 B.C.) pottery kiln unearthed at Tatarlı Höyük, Adana (Turkey). This pyrotechnical installation, with its associated ceramic assemblage and production remains, offers an overview of the pottery kiln technologies in Cilicia during the end of the Late Bronze Age. The typological features of the Tatarlı Höyük pottery kiln presents encouraging similarities to northern Syrian and Mesopotamian updraft pottery kiln technologies rather than those of central Anatolia, even though the political and social influence of the Hittite Empire has been documented by ceramic and seal collections of the settlement.

Keywords: Pottery kiln, Tatarlı Höyük, Anatolia, Hittite, Late Bronze Age

Öz

Bu makalede Adana Ceyhan Ovası'nda yer alan Tatarlı Höyük'te ortaya çıkarılarak, Geç Tunç Çağı II'ye (MÖ 1450-1200) tarihlenen bir keramik fırını konu edilmektedir. Beraberinde bulunan cüruf ve keramik parçaları ile birlikte bu piroteknik ünite, Geç Tunç Çağı'nın son dönemlerinde Kilikya Bölgesi'ndeki keramik fırını teknolojisini değerlendirme olanağı sağlamaktadır. Tatarlı Höyük keramik fırınının teknolojik ve tipolojik ögeleri, Kuzey Suriye ve Kuzey Mezopotamya ile önemli benzerlikler göstermekle beraber, İç Anadolu'da yer alan Hitit başkenti ve dönemin Ege Dünyası ile benzer bir ilişki gözlemlenememektedir. Buradan hareketle bu çalışmada, keramik ve mühür külliyatı ile MÖ 14-12.yy.'da Hitit İmparatorluğu ile yakın politik ve sosyal ilişki içerisinde olduğu belirlenen Tatarlı Höyük'ün, üretim birimleri bakımından daha ziyade Kuzey Suriye ve Kuzey Mezopotamya bölgeleri ile olan teknolojik ilişkisinin muhtemel sebepleri de tartışılmaktadır.

Anahtar kelimeler: keramik fırını, Tatarlı Höyük, Anadolu, Hitit, Geç Tunç Çağı

Introduction

Because of pottery's use in daily cooking activities, its firing was one of humanity's earliest methods to use and control fire in order to manufacture durable wares out of (mostly) clay and water[1]. The earliest kilns were no more than simple bonfires, though over time technol-

* Dr. Gonca Dardeniz, Koç University, Research Center for Anatolian Civilizations, Istanbul. E-mail: goncadardeniz@gmail.com

Asst. Prof. Dr. K. Serdar Girginer, Çukurova University, Faculty of Science and Literature, Department of Archaeology, Balcalı Campus, Sarıçam-Adana. E-mail: kserdar.girginer@gmail.com

Research Assistant Özlem Oyman-Girginer (MA), Çukurova University, Faculty of Science and Literature, Department of Archaeology, Balcalı Campus, Sarıçam-Adana. E-mail: arinna55@gmail.com

ogy[2] certainly became more developed as the type and variety of pottery also became more sophisticated.

Solid archaeological data on pottery production and the construction of pottery kilns during the Late Bronze Age in Anatolia is vague. Even though archaeological material, i.e. pottery, is abundant, knowledge of pyrotechnical installations used in fire-related activities, especially for the manufacturing purposes of pottery or metals, are rare in archaeological contexts.

The lack of evidence of pottery kilns is generally due either to low archaeological visibility, poor conditions of preservation, or excavation strategies focused more on exclusive structures rather than workshop areas[3]. This article presents a Late Bronze Age II (hereafter LBII) pottery kiln uncovered at Tatarlı Höyük, Adana (Turkey), and explores its contemporaries within a wider archaeological context of Late Bronze Age Anatolia, northern Syria, northern Mesopotamia, and the Aegean, with the aim of understanding technological connections/relations through pottery production units.

Tatarlı Höyük is located on the Ceyhan plain of Adana, one of the strategic positions of Cilicia which connects coastal and northern Syrian and Levantine routes to inner central Anatolia (Fig. 1). On the fertile plain of Ceyhan, Tatarlı Höyük rises as a 37 m mound that extends 370 x 230 m on a basalt outcrop[4]. At the northern side of the mound there is a swamp area which once was a lake, most probably since the beginning of settlement in the area. Based on information gathered from Hittite documents as well as topographical, archaeological, philological, and glyptic evidence, Tatarlı Höyük has been proposed as the ancient site Lawazantiya[5]. Today, the mound is understood to have been one of the most likely locations of Lawazantiya[6].

The site reveals a rich material collection originating from prehistoric periods to the beginning of early Roman times. During this time interval, the second millennium B.C. strata has a significant importance in material evidence. The rich pottery assemblage of the Middle and Late Bronze Ages includes characteristic types such as Cypriot White Painted Pendant Line Style pottery fragments[7], bird-shaped offering pots, and Syro-Cilician Ware pitchers, as well as the northern Syrian and central Anatolian seal corpus[8] of the site. These not only show strong similarities to the 2nd millennium B.C. ceramic and seal repertoire of northern Syria, the Levant, Cyprus, and Anatolia, but also demonstrate the site's close connections to these regions[9].

The Tatarlı Pottery Kiln: Material Evidence

The pottery kiln – the subject of this research – was unearthed during the 2016 and 2017 excavation seasons at AY 186 trench, located at the eastern sector of the mound. In its archaeological context, the kiln is located in an open court of monumental Building C, discovered to have

1 Wertime 1973, 675.

2 Shepard 1956.

3 López Varela et al. 2001, 177; D'Agostino 2012, 422.

4 Girginer et al. 2010; Novak et al. 2017, 173-174.

5 Girginer – Collon 2014, 59.

6 Trémouille 2013, 407; Forlanini 2013; Forlanini 2015, 27; Novak – Rutishauser 2017, 138, 144.

7 Girginer-Oyman 2017.

8 Girginer – Collon 2014; Ünal – Girginer 2010.

9 Girginer – Collon 2014, 61.

an almost 30 m north-south extending wall. In the general setting of the settlement, Building C was unearthed on the western side of the Late Bronze Age temples located at the eastern part of the citadel (Fig. 2)[10]. It is also important to note that the exact function of Building C has not yet been identified. Future research planned at this sector of the mound will focus on understanding the function of the building as well as extensions of the pottery production area.

Trench AY 186 was unearthed in this open court area where the debris is mostly mixed. Eleven Hellenistic pits were found cutting the Middle Iron Age strata, which so far has created chronological problems at these levels. Below this mixed strata, a floor level dated to the LBII was unearthed. The dating of the floor was based on the *in situ* ceramic fragments, though radiocarbon dates are not yet available.

During the 2016 excavation season, a rounded feature was traced at the southwestern part of the trench. In and around this orange-beige, blackish and reddish-colored archaeological feature, fired mud bricks and fragments (Fig. 3), as well as burnt ceramic fragments and slag (Fig. 4), were collected. Some non-plastered holes, together with ashy and blackish soil, were also uncovered (Fig. 5)[11]. The pottery shards collected from this context were all dated to the LBII period. The pottery is representative of the standardized forms of the Hittite Empire period, including simple (Fig. 6.1)[12] and flat bowls (Fig. 6.2)[13], as well as plates (Figs. 6.3[14], Fig. 7.1-3)[15]. Some of the ceramic slag feature microstructural deformations due to the firing process (Fig. 7.2).

During the 2017 season, excavation at the AY 186 trench, where square VI-IX/e-k was completely unearthed to reveal the remains of the pyrotechnical installation, continued. Firstly, it was discovered that the rounded feature is what remains of the collapse of a pottery kiln dome, which originally featured a rectangular foundation. The heavily destroyed firing chamber (also known as the upper chamber), together with heavily burnt mud brick fragments and ceramic slag, were recovered at the area. The form of the kiln is mostly lost; however, some features such as ventilation holes and an ash pit have been detected. The mud-bricks were aligned linearly. Two holes, one at the northwest and one at the southeast side, were unearthed. Based on the alignment of the holes and the accumulation of the mud-bricks, the kiln spans 2.7 m^2, with approximately 1.5 x 1.8 m extensions. The holes suggest that it must have been rectangular and double decked. However, due to pits containing mixed Iron Age and LBII debris surrounding the kiln, further attestations could not be made (Fig. 8).

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10 Girginer et al. forthcoming.

11 Girginer et al., forthcoming.

12 Surface: 7.5YR 6/4, paste: 2.5Y 4/1; for parallels see Dupré 1983, pl. 5 nn. 15-16; Mühlenbruch 2014, Taf. 17, nn. 4-5.

13 Surface: 7.5YR 6/4, paste: 5YR 5/6; for parallels see Fischer 1963, Taf. 93, n. 841; Müller-Karpe 1988, Taf. 29, S1b, nn. 1-17; Goldman 1956, fig. 384, nn. 1127-1128; Dupré 1983, pl. 13, n. 78; Mühlenbruch 2014, Taf. 16, n. 9.

14 Surface: 7.5YR 6/4, paste: 5YR 6/6; for parallels see Fischer 1963, Taf. 99, n. 922; Korbel 1987, Taf. 25, n. 200; Müller-Karpe 1988, Taf. 42, Te1c n. 3; Parzinger-Sanz 1992, Taf. 36, n. 11, Taf. 40 nn. 19-20, Taf. 49, n. 13, Taf. 56, n. 10.

15 Fig. 7.1: Surface: 10YR 7/3, paste: 5YR 6/6; for parallels see Goldman 1956, fig. 384, n. 1121; Fischer 1963, Taf. 100, n. 910; Korbel 1987, Taf. 9 n. 187; Dupré 1983, pl. 20 nn. 121-122; Müller-Karpe 1988, Taf. 42, Te1c n. 4,6.

Fig. 7.2; for parallels see Fischer 1963, Taf. 100, n. 912; Taf. 101, nn. 914, 916; Müller-Karpe 1988, Taf. 42 Te1a n. 17; Parzinger-Sanz 1992, Taf. 20, n. 24; Taf. 26, n. 21; Mielke 2006, Taf. 71, n. 17.

Fig. 7.3: Surface: 7.5YR 6/4, paste: 7.5YR 7/4; for parallels see Goldman 1956, fig. 384, n. 1121; Fischer 1963, Taf. 100, n. 909; Müller-Karpe 1988, Taf. 42, Te1c n. 1; Parzinger-Sanz 1992, Taf. 22 n. 18, Taf. 30, n. 15, Taf. 34, n. 5, Taf. 38, n. 2, Taf. 41, n. 16; Mielke 2006, Taf. 70 nn. 1, 14.

In the firing (or combustion) chamber of the kiln, which is approximately 40-45 cm deep, orange-colored mud-bricks, indicating multiple exposures to fire, were recovered along with plastered pieces. The plastered mud-bricks are only plastered on one side, except for one or two small fragments which are plastered on both sides. These mud-bricks must have been the remains of a perforated floor which separated the combustion chamber from the firing chamber of the pottery kilns (Figs. 9, 10).

Recovered at the southern part of the kiln was a 26 cm-wide channel connecting the stoking chamber to a rounded stoking pit almost 1.5 m in diameter. The debris of the pit is composed of blackish soil, ash, some charcoal fragments, and ceramic slag. The floor of the pit was found to be composed of compacted soil.

The remaining archaeological features strongly indicate that the Tatarlı pottery kiln is an almost-square mud-brick, double-decked updraft installation. The updraft kilns contained a fireplace – the traces of which were found at the western side of the pit full of ash[16] – where fuel could be burned and heat generated. The firing chamber of these types of kilns has the capacity to retain heat and features an exit used for a draft and the removal of hot gases[17]. The firing chamber of the Tatarlı pottery kiln could not be identified due to poor preservation conditions, though the orange- and red-colored mud bricks and ceramic slags uncovered during the 2016 season must have been the remnants of this chamber. The accumulation of *in situ* ceramic fragments and slag in and around the kiln indicates the abandonment of the installation, most probably after an improper pottery firing which must have led to the collapse of the kiln. The lack of any *in situ* complete pottery indicates the removal of successive firing products and the discardment of the remaining fragments.

Archaeometric analyses of ceramics and slag recovered around the Tatarlı pottery kiln and the massive basaltic outcrops around the mound are ongoing[18]. The first set of samples were analyzed with scanning electron microscope electron dispersive X-rays (SEM-EDX) and X-Ray Diffraction (XRD) methods in order to understand the mineralogical and microchemical characteristics of the artifacts. The preliminary results propose firing temperatures of 900-950° C, as well as possible use of local raw materials (such as basaltic inclusion) in the production of the ceramics in and around the pottery kiln[19]. These results are in concordance with the updraft kiln technology by which kilns can reach as high as 900-1050° C[20]. Additionally, similar mineralogical research conducted on the Late Hittite ceramics of the neighboring settlement Domuztepe (Karatepe Aslantaş region of Adana province) demonstrated around 1000° C firing temperatures and use of local raw materials, including both basaltic rock and soils. This might show a possibility of the continuity of pottery production by using local sources at Cilicia[21].

Discussion: The Tatarlı Pottery Kiln in Context and its Comparanda

The Tatarlı pottery kiln is so far the only excavated pyrotechnical installation at the mound dated to the LBII. Even though there is an oval mud-brick installation located at the western part of this kiln, the chronology of the installation needs further refining, due to the presence

16 Rhodes 1971, 13.

17 Rhodes 1971.

18 Asst. Prof. Dr. N. Kılınç Mirdalı and her team at Çukurova University (Adana, Turkey).

19 Kılınç Mirdalı et al. 2017, 581.

20 Rhodes 1971, 16.

21 Kapur et al. 1995; Akça et al. 2009.

of Hellenistic and Iron Age pits at its context. Furthermore, neither traces of repetitive firing nor any LBII ceramic shards were recovered at the oval installation; thus, research aimed at understanding the possible function(s) of this mud-brick installation is ongoing.

Although the Tatarlı pottery kiln is not well preserved, the information it provides about its time period is significant in understanding the social/artisanal aspects of pottery production in southern Anatolia – specifically Cilicia – in the 13th century B.C., a period during which the region was under the control of the Hittite Empire[22]. Even though the settlement was not confirmed as falling under Hittite dominance, the presence of high-ranking Hittites was confirmed by the discovery of a Hittite seal and a bulla[23]. Even though a single pottery kiln is far from enough to provide a complete understanding into the organization of production, a comparison of typologies with its neighboring regions could be used as parameters to better understand local and regional traditions.

Literature Review

A literature review on the LBII pottery kilns documented in Anatolia, Syria, Mesopotamia, the Levant, and the Aegean reveals that the pottery kiln typologies show similarities as well as distinctions from the Tatarlı pottery kiln. The best parallels to the Tatarlı pottery kiln were found in the southern Anatolian and northern Syrian regions, among which the sites of Tell Atchana, Tell Sabi Abyad, and Tell Barri are particularly important due to the well-preserved conditions of the kilns. On the other hand, pottery kilns recovered at central Anatolian and Aegean sites are more discrete than the typology of the Tatarlı pottery kiln.

Tell Atchana/Alalakh is located in the Amuq Valley of Turkey. Tell Atchana yielded eight pyrotechnological installations in LBIIa open craft quarter contexts[24]. Among those pyrotechnical installations, Installations 1 and 2 – double-decked, mud-brick, updraft pottery kilns with 2.0 x 2.6 m and 1.5 x 1.5 m horizontal extensions respectively – present strong similarities to the Tatarlı pottery kiln[25]. Chronologically, the pottery kilns of Tell Atchana were dated to approximately 1446-1341 B.C., based on both radiocarbon dating and typological studies of its ceramic corpus[26].

The archaeometric research conducted on the Tell Atchana pottery kilns, which displayed similar methods to Tatarlı Höyük, proposed firing temperatures of 750-1080° C and 750-800° C to 1150° C for Installations 1 and 2 respectively. Even though these results demonstrate a higher operational temperature for the Tell Atchana pottery kilns, it is important to note that these firing temperatures were detected mostly by using the mud-bricks and mud-brick lining rather than the ceramic fragments as samples. This firing temperature interval is also within the range of updraft kilns. Thus, we can suggest that the Tell Atchana and Tatarlı pottery kilns bear not only typological but also technological resemblances to each other, as confirmed by archaeometric studies on firing temperatures.

Another group of Late Bronze Age kilns similar to Tatarlı Höyük was unearthed at Tell Sabi Abyad in the Middle Assyrian Period (ca. 14th century B.C.) strata. Tell Sabi Abyad is located

22 Ünal – Girginer 2007, 146-154.

23 Ünal – Girginer 2010.

24 Yener – Yazıcıoğlu 2010, 37, fig 2.5.3.

25 Yener – Yazıcıoğlu 2010, 17; Dardeniz 2012; Dardeniz 2017.

26 Yener – Yazıcıoğlu 2010, 32-33; Dardeniz 2017, 26, tab. 13.

in the northern part of Syria, 500 km northeast of Damascus along the Balikh River[27]. Among its ten kilns, two of them, Kiln Q and Kiln L, are mud-brick, double-decked, updraft structures, with 2.27 x 1.73 m and 1.74 x 0.90 m firing chamber extensions respectively, and well-preserved ventilation holes[28].

At Tell Mishrife/Qatna, seven pottery kilns dating from the Middle Bronze Age to the Iron Age (two of which date to the Late Bronze Age) were discovered to display typological similarities to the Tatarlı Höyük pottery kiln. Rectangular mud-brick structures measuring 2.5 x 2.1 m, along with plastered mud-bricks, ash deposits, and pottery slag, were recovered at the two Late Bronze Age installations of Tell Mishrife[29].

Tell Barri, located in the Upper Khabur river basin in northeastern Syria, also yielded double-decked updraft kilns along with downdraft and a mix of updraft/downdraft examples. These pottery kilns were all dated to the 2nd millennium B.C. and were documented as LBIIa/Mitannian kilns[30]. With its 1.90 x 1.00 m dimensions and double-decked, mud-brick updraft structure, the well-preserved Kiln 20 of Tell Barri presents the closest parallels to the Tatarlı pottery kiln[31]. More examples of Late Bronze Age updraft kilns with rectangular plans were found at settlements in northern Iraq, such as Khirbet Hatara[32] located 40 km north of Mosul, and at Yorgan Tepe/Nuzi[33] situated 13 km southwest of Kirkuk.

Compared to the Tatarlı pottery kiln, Tell Atchana Installations 1 and 2, Tell Sabi Abyad Kilns Q and L, and Tell Barri Kiln 20 demonstrate similar typologies and structural details, such as the use of mud-bricks, double-decks, rectangular shapes, and ventilation holes, as well as the use of updraft technology, which facilitates better control over fire. Among these pottery kilns, the Tatarlı pottery kiln is the smallest in terms of its foundation area, with Tell Atchana Installation 1 being the biggest. Though this dimensional difference does not definitively point to a more advanced pyrotechnological capacity, it may reveal regional variations likely shaped according to needs.

Among these northern Syrian cultural counterparts, the Tatarlı pottery kiln representing Cilicia dated to a slightly later period. The unity and similarity of these pottery production features spanning over longer than a century signify the expansion of these typologies around the northern Syrian and northern Mesopotamian regions, as well as the expansion of the same technology to the Cilician plain. The abundant use of such constructions around these provinces may have been the result of a longstanding dominant tradition practiced by local potters.

The typology of pottery production units serves as a parameter of archaeological evidence showing the impact of regional traditions – in this case Mitannian tradition – on different elements of material culture. Tatarlı Höyük must have had close ties to the Hittites during the LBII, though archaeological finds such as the published seal corpus of 13 seals[34] indicate strong connections to Syrian cultures. As discussed above, the pottery kiln also demonstrates more of a Syrian-Mesopotamian character. In the meantime, Tell Atchana, Tell Sabi Abyad, and

27 Duistermaat 2008.

28 Duistermaat 2008, 489-492, 503.

29 Intilia 2003; Morandi Bonacossi 2008, 112.

30 D'Agostino 2012, 426.

31 D'Agostino 2008, 426, fig. 7.

32 Fiorina 1997, 43.

33 Starr 1939, 239, fig. 36; 240, pl. 22B.

34 Girginer – Collon 2014.

Tell Barri were under Mitannian influence during the 14th century B.C. and therefore reflected characteristics of Mitannian material culture[35]. As well exemplified by the LBII pyrotechnological installations of Tell Atchana, pottery production technology/traditions reflected Mitannian cultural elements[36], even though political control of this capital shifted from Mitanni to Hittite sometime around the LBII.

While demonstrating strong correlations to northern Syrian and northern Mesopotamian material cultures, Tatarlı Höyük maintained social, political, and economic relations with the Hittite Empire, as best represented by the seals found at the site[37], along with Hittite pottery such as votive vessels[38]. If the Tatarlı Höyük/Lawazantiya equation is confirmed as correct, this would add another dimension to the connection between the site's political/social history and the Hittites during the LBII period (especially circa 13th century B.C). Regardless of such an equation, however, Tatarlı Höyük and the Hittites (at least the Hittite capital) do not seem to be the part of the same technological tradition in terms of pottery production units.

Typologically and functionally, the best documentation of Late Bronze Age pottery kilns has been from Boğazköy/Hattuša[39]. Located in central Anatolia in the province of Çorum, Boğazköy/Hattuša was the capital of the Hittites (ca. 1650-1200/1190 B.C.), dominating the Halys basin and extending its power of influence to Syria in the second millennium B.C. Excavations in the upper city of Boğazköy/Hattuša yielded five pottery kilns (Ofen 1-5) dated to around the 13th century B.C.[40], which is approximately during the same time period as the Tatarlı pottery kiln. The archaeological context of the kilns in Boğazköy/Hattuša's upper city is worth noting here. The area where the kilns were erected was once the temple area with a number of temples. After the temples were abandoned or destroyed, the area assumed a more domestic role[41].

Architecturally, the updraft kilns of Boğazköy/Hattuša have stone foundations and mud-brick walls. Kilns 1, 2, 4, and 5 (Ofen 1, 2, 4, 5) were documented as having similar characteristics, with Ofen 1 (with its rectangular shape and combustion chamber measuring 4.0-4.5 m long, 1.0-1.5 m wide, and 0.8 m deep) being particularly well preserved[42]. The interiors of the kilns were plastered with mud, and the firing chamber, which displayed evidence of heavy firing, was filled with clay debris. It is important to note here that a coarse ware shard found in the kiln featured a hieroglyphic stamp on its handle[43]. Analysis of botanical samples collected from the floor of Ofen 4 indicated that the source of the fuel was oak wood, which is an efficient source of energy because of its ability to heat the kiln to high firing temperatures[44].

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35 Yener et al. 2010; Duistermaat 2008; D'Agostino 2012.

36 Dardeniz 2012; Dardeniz 2017.

37 Ünal – Girginer 2010; Girginer – Collon 2014.

38 Cf. Boğazköy: Parzinger – Sanz 1992, Taf. 22, n. 14 (Temple 15); Taf. 46, n. 32 (House 21); Taf. 51, nn. 9, 11 (House 24-30); Taf. 55, n. 16 (Kiln 8), Taf. 57, nn. 29-30 (Kiln 27); Fischer 1963, Taf. 119-120, nn. 1049, 1050, 1066. Kayalıpınar: Mühlenbruch 2014, Taf. 28, n. 39. Gözlükule: Slane 1987, pl. 143 n. 626 (LBA II), pl. 159, n. 696 (LBA IIb). Tell Atchana: Yener – Akar 2013, 269, fig. 6.

39 Müller-Karpe 1988; Mielke 2017, 12. Kuşaklı-Sarissa also yielded an updraft pottery kiln with an almost circular foundation dated to the Late Bronze Age. For a summary of Hittite pottery kilns, see Mielke 2016.

40 Müller-Karpe 1988.

41 Neve 1990, 118; Schoop 2003, 171.

42 Müller-Karpe 1988, 7, Taf. 63.1-5, plan 5.6.

43 Müller-Karpe 1988, Taf. 17, T 2c, 3.

44 Müller-Karpe 1988, 12.

In addition to the upper city, Büyükkaya also yielded two Late Bronze Age pottery kilns measuring 2.00 x 1.00 m and 90 x 50 cm and 1.35 m and 1.00 m in depth respectively[45]. Both kilns had apsidal foundations of firing pits blackened due to heavy firing. In the kiln debris, well-fired bricks were found, together with miniature vessel fragments. More than 40 pieces of miniature and votive vessels and their fragments were found in and around these kilns, providing a foundation for interpretation, such as the suggestion that these kilns were specifically used in miniature pottery production[46]. J. Seeher also suggested that these kilns belonged to Büyükkale's small-scale private production area[47].

In terms of pottery kiln features, the kilns at Boğazköy/Hattuša's upper city and Büyükkaya were constructed with similar architectural features in the Tatarlı pottery kiln and its northern Syrian and northern Mesopotamian counterparts, with the exception of the unique dimensions of Ofen 1 in the upper city. In terms of building strategies, the Syrian and Levantine installations were composed solely of mud-brick, whereas use of stone was crucial in the Hittite examples. The choice of building materials probably depended on local resources and the availability of raw materials connected to the geological character of the landscape. Because Tatarlı Höyük and its environs are rich in various types of stone, the sparsity of materials used in the pottery kiln construction at the site is remarkable.

Comparing building materials, size, and typology, we would like to point to the stylistic and dimensional similarities between the Boğazköy pottery kilns and the Minoan world. A Late Minoan I (16th century B.C.) pottery kiln from Kommos, Crete, regardless of dating almost three centuries earlier, shows significant similarities to Ofen 1 and Ofen 4 of Boğazköy. The Kommos kiln featured a stone, rectangular structure measuring 4.20 x 5.40 m in diameter, 2.70-3.20 m in width, and an average of 1.23 m in depth[48]. Another kiln, unearthed at Hagia Triada in southern Crete near Kommos and dating broadly to the same period (Late Minoan I), shows a similar typology[49]. The presence of similar architectural elements between the Hittite and Minoan, as well as the Mycenaean world, is not an extraordinary or unexpected find, since several other constructional plans and techniques such as cyclopean wall building, monumental city gates, and underground water resource management were documented as being influenced by one another[50]. However, detailed discussion of these similarities is beyond the scope of this paper, as an analysis of building techniques and typologies is insufficient in drawing conclusions concerning the introduction/diffusion of pottery production unit techniques among regions.

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45 Seeher 1996, 335-336, Abb. 3.

46 Seeher 1996, 337, Abb. 4-5.

47 Seeher 1996, 337.

48 Shaw 2001, 12, tab. 1.

49 Levi – Laviosa 1986; Tomasello 1996; Di Vita et al. 1984, fig. 277; Niemeier 1997; 2005; Dardeniz 2012, 91; Raymond 2006. It is necessary to underline here that both Miletus (Raymond 2006) and Kocabaş Tepe (Aykurt 2006), located in western Anatolia, yielded pottery kilns dated to the Middle Bronze Age. Among these two kilns, the Miletus pottery kiln is slightly similar to the Kommos kiln, regardless of its oval shape (Raymond 2006, 614), whereas the Kocabaş Tepe pottery kiln, with its horseshoe shape, is more distinct. Further discussion on Minoan kilns and their comparanda to Crete, as well as an extended summary of Aegean kilns, can be found in Evely 2000, Raymond 2006, and Aykurt 2006 respectively, with references cited.

50 Erol 2010.

Conclusions

Pottery kilns can be used as a proxy to observe the expansion of production techniques and traditions. As Moorey states, kilns and firing techniques might be related to local and cultural traditions, even at the household level[51]. Moorey's idea is illustrated by the example of Tatarlı Höyük, where the pottery kiln provides information on production at the local scale, and production technology at the regional scale.

The comparisons of the Tatarlı Höyük pottern kiln with those of its neighboring regions lead us to propose the existence of strong linkages between Cilicia and northern Syria/northern Mesopotamia in terms of pottery production units. Imported ceramics and other material evidence (e.g., seals) from those regions have already demonstrated a linkage, but similarities in kilns have added a new strand of evidence to the discussion. One intriguing fact here is that even though the ceramic assemblage recovered in association with the Tatarlı Höyük pottery kiln consisted of plates and bowls of the Hittite ceramic corpus, the kiln itself bears little resemblance to the Hittite pottery kilns. The Tatarlı Höyük pottery kiln is typologically and technologically closer to its so-called Mitannian counterparts. This might well suggest the presence of a Hurri-Mitannian character at Kizzuwatna (Cilicia), where Tatarlı Höyük appears to be a crucial settlement. Further excavations planned in the vicinity of the kiln will shed light on this suggestion.

Similarities and differences in comparative pottery kilns provide insight into the interpretation of continuous traditions and intercultural relations in production technologies. Even though updraft kilns featuring oval or rectangular plans have been suggested to be more Mesopotamian in type, with downdraft kilns being more characteristic of southeastern Anatolia and the Upper Khabur valley[52], Tatarlı Höyük in Cilicia and its comparatives in northern Syria demonstrate the existence of an updraft pottery kiln technology with similar typological characteristics.

In conclusion, the similarities between the pottery kilns could evidence shared/copied technological knowledge, as well as choices of material or production strategies. This will provide new ways in which to observe intercultural and intertechnological connections between Cilicia, central Anatolia, and surrounding regions, all of which adopted and harmonized various cultural elements for producing pottery in their own taste during the Late Bronze Age.

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[51] Moorey 1994, 144.

[52] D'Agostino 2012, 431.

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Fig. 1 The location of Tatarlı Höyük and its settlements mentioned in text

Fig. 2 Building C and location of the Tatarlı pottery kiln in the courtyard (drawing F. Tufan)

Fig. 3 Burnt mud-bricks and fragments recovered in and around the Tatarlı Höyük pottery kiln

Fig. 4 Ceramic slag found in association with the Tatarlı Höyük pottery kiln

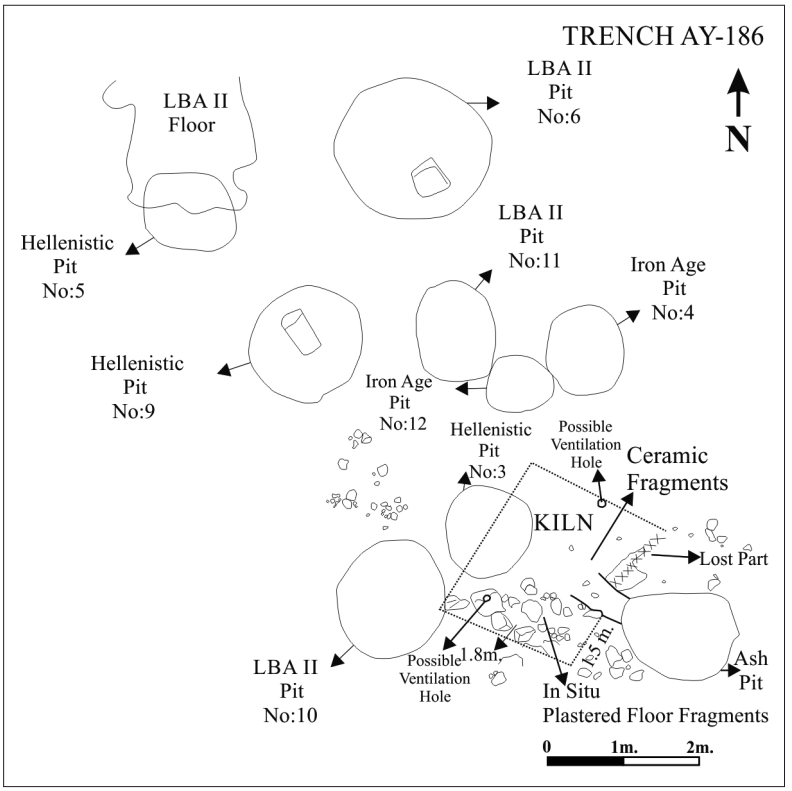

Fig. 5
Drawing of the Tatarlı pottery kiln with the archaeological features of the courtyard. The dashed line shows the possible extensions of the kiln (drawing F. Tufan)

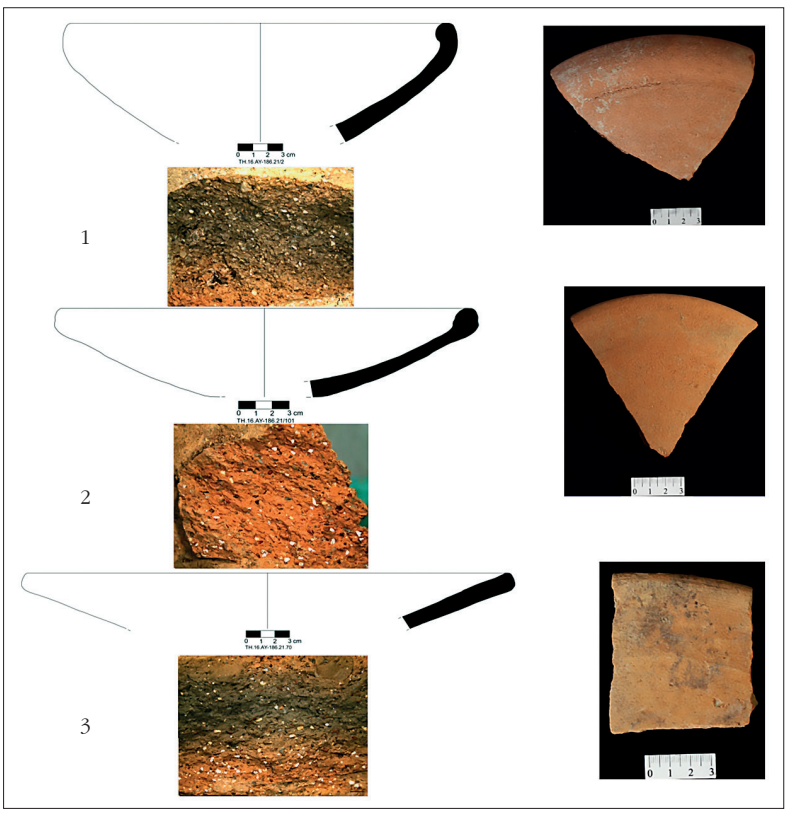

Fig. 6
Hittite type plates found in association with the Tatarlı Höyük pottery kiln and the floor level of the trench

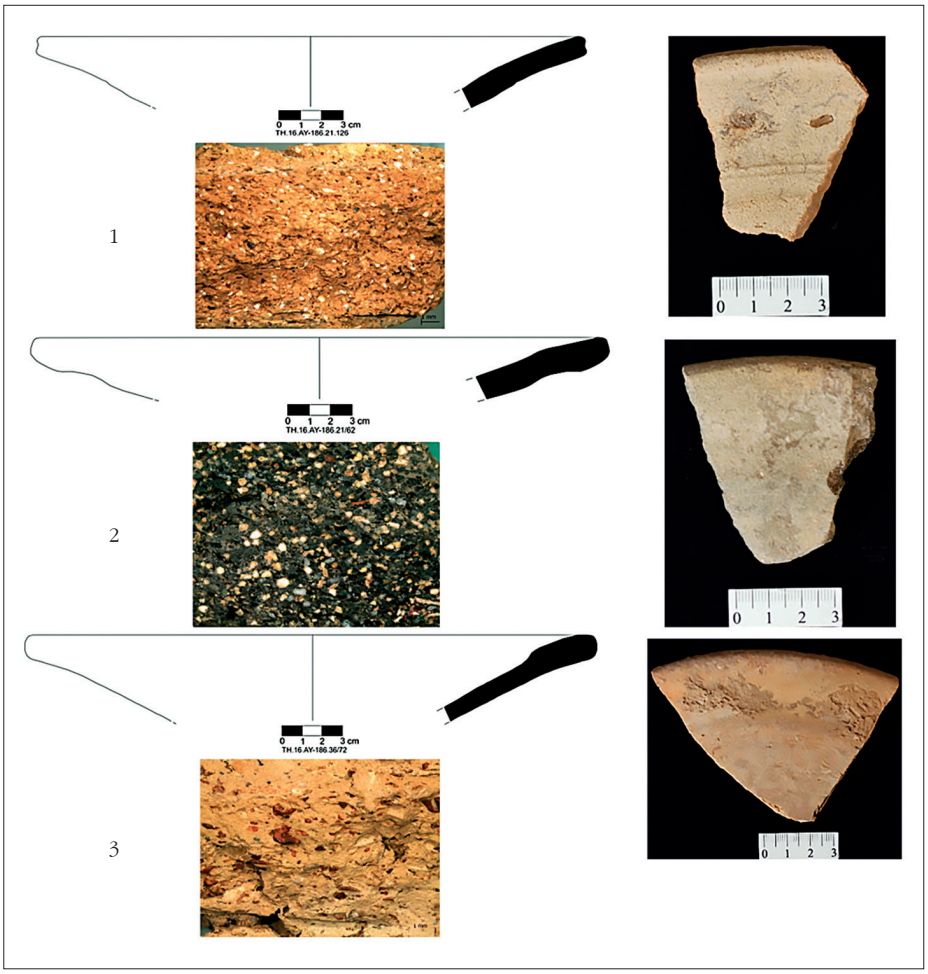

Fig. 7
Ceramics recovered around the pottery kiln

Fig. 8
Debris of the Tatarlı Höyük pottery kiln, shown with one preserved hole of the combustion chamber

Figs. 9-10
Plastered samples found in the kiln. Only one side of the mud brick samples were plastered, indicating use of a floor between combustion and firing chambers.