# NEOLITHIC POTTERY FROM THE NEAR EAST

## PRODUCTION, DISTRIBUTION AND USE

Third International Workshop
on Ceramics from the Late Neolithic Near East
7-9 March, 2019 – Antalya

## PROCEEDINGS

Editors
RANA ÖZBAL – MÜCELLA ERDALKIRAN – YUKIKO TONOIKE

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# OFFPRINT

This volume is
dedicated to
the memory of
Olivier
Nieuwenhuyse

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By Rana ÖZBAL, Mücella ERDALKIRAN and Yukiko TONOIKE

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# ABBREVIATIONS LIST

| | |
|---|---|
| AAS | Annales Archéologiques Arabes Syriennes |
| AASOR | Annual of the American Schools of Oriental Research |
| ADAJ | Annual of the Department of Antiquities of Jordan |
| AJA | American Journal of Archaeology |
| AmerAnt | American Antiquity |
| AnAr | Anadolu Araştırmaları |
| AnatAntiq | Anatolia Antiqua |
| AnatSt | Anatolian Studies |
| AÜDTCFD | Ankara Üniversitesi Dil ve Tarih-Coğrafya Fakültesi Dergisi |
| Anmed | News Bulletin on Archaeology from Mediterranean Anatolia |
| AnnLiv | Annals of Archaeology and Anthropology (Liverpool) |
| APAD | Anadolu Prehistorya Araştırmaları Dergisi (Journal of Anatolian Prehistoric Research) |
| AST | Araştırma Sonuçları Toplantısı |
| BAR-IS | British Archaeological Reports-International Series |
| BASOR | Bulletin of the American Schools of Oriental Research |
| BIAA | British Institute at Ankara |
| BMMA | Bulletin of the Metropolitan Museum of Art, New York |
| BMusBeyr | Bulletin du Musée de Beyrouth |
| CAJ | Cambridge Archaeological Journal |
| BASOR | Bulletin of the American Schools of Oriental Research |
| CAJ | Cambridge Archaeological Journal |
| CurrAnthr | Current Anthropology |
| IEJ | Israel Exploration Journal |
| IstMitt | Istanbuler Mitteilungen |
| JAS | Journal of Archaeological Science |
| JAMT | Journal of Archaeological Method and Theory |
| JFA | Journal of Field Archaeology |
| JMA | Journal of Mediterranean Archaeology |
| JNES | Journal of Near Eastern Studies |
| KST | Kazı Sonuçları Toplantısı |
| MAC | Museu d'Arqueologia de Catalunya |
| MélBeyrouth | Mélanges de l'Université Saint Joseph, Beyrouth |

| | |
|---|---|
| OJA | Oxford Journal of Archaeology |
| OREA | Oriental and European Archaeology |
| PALMA | Papers on Archaeology of the Leiden Museum of Antiquities |
| PEQ | Palestine Exploration Quarterly |
| PPS | Proceedings of the Prehistoric Society |
| RANarb | Revue archéologique de Narbonnaise |
| TAS | Tematik Arkeoloji Serisi |
| TÜBA-AR | Turkish Academy of Sciences Journal of Archaeology |
| TürkArkDerg | Türk Arkeoloji Dergisi |
| UMUT | University Museum, the University of Tokyo |
| WorldArch | World Archaeology |

Chapter 7

# NEOLITHIC POTTING TRADITIONS AT ÇUKURİÇİ HÖYÜK

CLARE BURKE AND BARBARA HOREJS*

**Abstract:** This paper discusses the Neolithic ceramics from the important site of Çukuriçi Höyük, Western Turkey, detailing typological and technological elements. The results of the pottery analysis undertaken at the site so far, have highlighted the use of a range of different forming techniques, often in combination. It has also highlighted the use of multiple raw material types to make a varied range of shapes, all of which testify to long-held potting traditions, as well as demonstrating the high degree of knowledge and skill used to make these durable and well-finished pottery types. We discuss our results within the contexts of those from other sites, in terms of typological affinities, key technical elements related to vessel forming, and potential pottery use.

## Introduction and Site Background

The Neolithic is characterised by fundamental shifts in the way people lived, organized themselves, and the way they materialized their worldview through the production of new cultural objects, particularly the widespread adoption and development of ceramic containers. In this paper, we will discuss the Neolithic pottery excavated from the tell site of Çukuriçi Höyük, western Turkey, providing an overview of the pottery shapes and styles at the site. In addition, we discuss the early results from technological analysis relating to forming and firing methods, situating these trends with those from surrounding sites to place pottery production at Çukuriçi Höyük within a broader context.

The early founding of the site related with the pioneer phase of the first farmers in the region[1] offers the opportunity to analyse the production of ceramic vessels in the perspective of materiality within the Neolithisation process of the 7th millennium BCE. Frequently related with cultural terms, such as *Praekeramikum* as applied for Thessaly,[2] the impact and function of early pottery production represents a long-lasting topic in the early Neolithic Aegean. The new excavated data from early Neolithic sites in the İzmir region, such as Ulucak VI and Çukuriçi XIII, demonstrate the marginal role of ceramic vessel production in their founding horizons. Evidence for pottery is attested in the subsequent phases at both sites, dating after 6600 cal BCE. This particular situation allows a deep insight into the Neolithic societies' handling of this "new material" in aspects of adoption, adaptation, establishing local traditions and fulfilling their distinct needs.

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1 Horejs et al. 2015; Horejs 2019a.

2 See Reingruber et al. 2017.

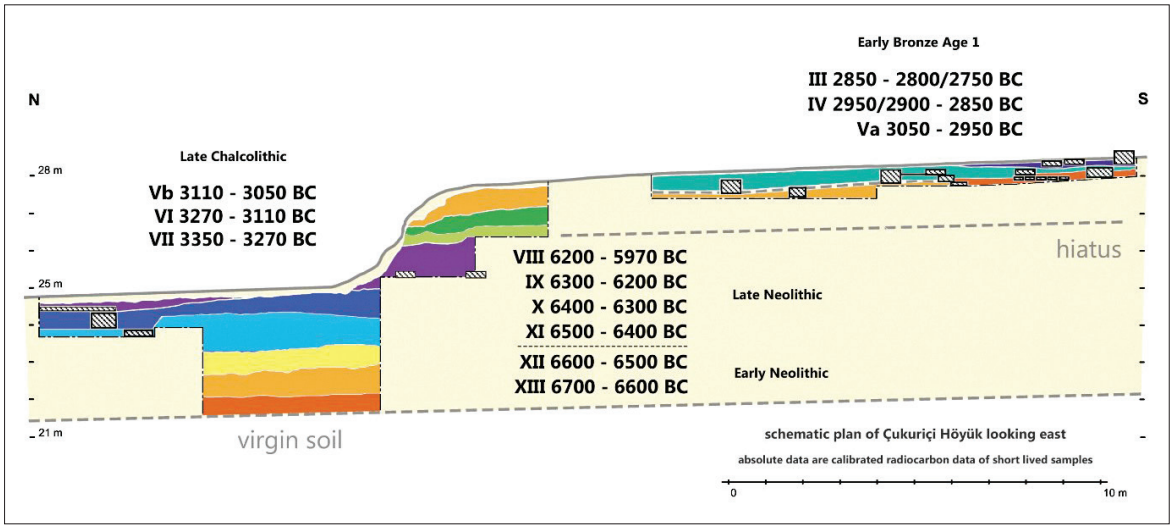


FIG. 7.1. Overview of chronological phases at Çukuriçi Höyük.
(Adapted from design by Ostmann, Schwall and Börner in Horejs 2017, 17, fig. 1.6).

The settlement of Çukuriçi Höyük was originally founded near the Aegean coast at a natural lagoon but is nowadays located in the east plain of Bülbüldağ, approximately 1 km south-east of the ancient city of Ephesos, near modern day Selçuk. Activity at the site dates from the Early Neolithic (6680–6600 cal BCE), with a continuous occupation until the Late Neolithic around 6000 cal BCE and is divided into 6 phases based on stratigraphic and architectural evidence of occupation and supported with absolute dating (fig. 7.1). This continuous inhabitation of the site was followed by a hiatus after the Late Neolithic, before the settlement was reoccupied in the Late Chalcolithic in the 4th millennium. The Neolithic settlements represent villages composed of houses, open spaces and activity zones with pyrotechnical installations, working and midden areas.[3]

As a tell site, Çukuriçi Höyük is characterised by the continuous accumulation of human debris from the construction and inhabitation of small structures, built one on top of the other following earlier building orientations, even when this construction technique caused structural problems and building collapse.[4] This continuity of building design and orientation suggests a shared idea of living arrangements between earlier and later occupants;[5] indeed this common worldview is also reflected in elements of the pottery shapes, styles, and crafting practices, at the site which are characterised by long held traditions.

## The Pottery

Analysis of the ceramics at Çukuriçi Höyük utilizes an integrated typological, macroscopic, microscopic and technological approach, supported with *chaîne opératoire* and *habitus*[6] conceptual frameworks. Initial investigation of the pottery was undertaken alongside the excavations, beginning with the formation of 'ware groups' by the co-author. Ware groups are based on a range of visual characteristics of the pottery, defined by the colour of vessel surfaces and breaks, surface treatment

[3] See contributions in Horejs 2017.

[4] Brami et al. 2016.

[5] Horejs 2019b.

[6] Leroi-Gourhan 1943, 1945; Mauss 2009; Bourdieu 2009.

types, and the nature of visible inclusions within the macroscopic fabric. The ongoing evaluation and definition of wares during the excavation years offered a framework for the first analyses aimed at characterising the raw materials used from the early Neolithic until the early Bronze Age period.[7] The author undertook a further study focused on the Neolithic material, examining the range of macroscopic fabric variation, and other technological features relating to forming, finishing and firing. Material was then sampled across the range and combination of shapes, macroscopic fabrics and technological features identified, for analysis using instrumental analytical methods (thin section petrography and scanning electron microscopy-SEM), complimented by spatial analysis, both of which are ongoing.

## *Typology and Style*

Typologically, the Neolithic assemblage is comparable to assemblages within western Anatolia and shares many forms and typological features with pottery from sites further north and south.[8] Comparative forms and finishes are found at Ulucak Höyük, Yeşilova Höyük, Ege Gübre, Barcın Höyük, Erbaba, Çatalhöyük, Hacılar, Menteşe, Ekşi Höyük and Aktopraklık,[9] amongst others. The range

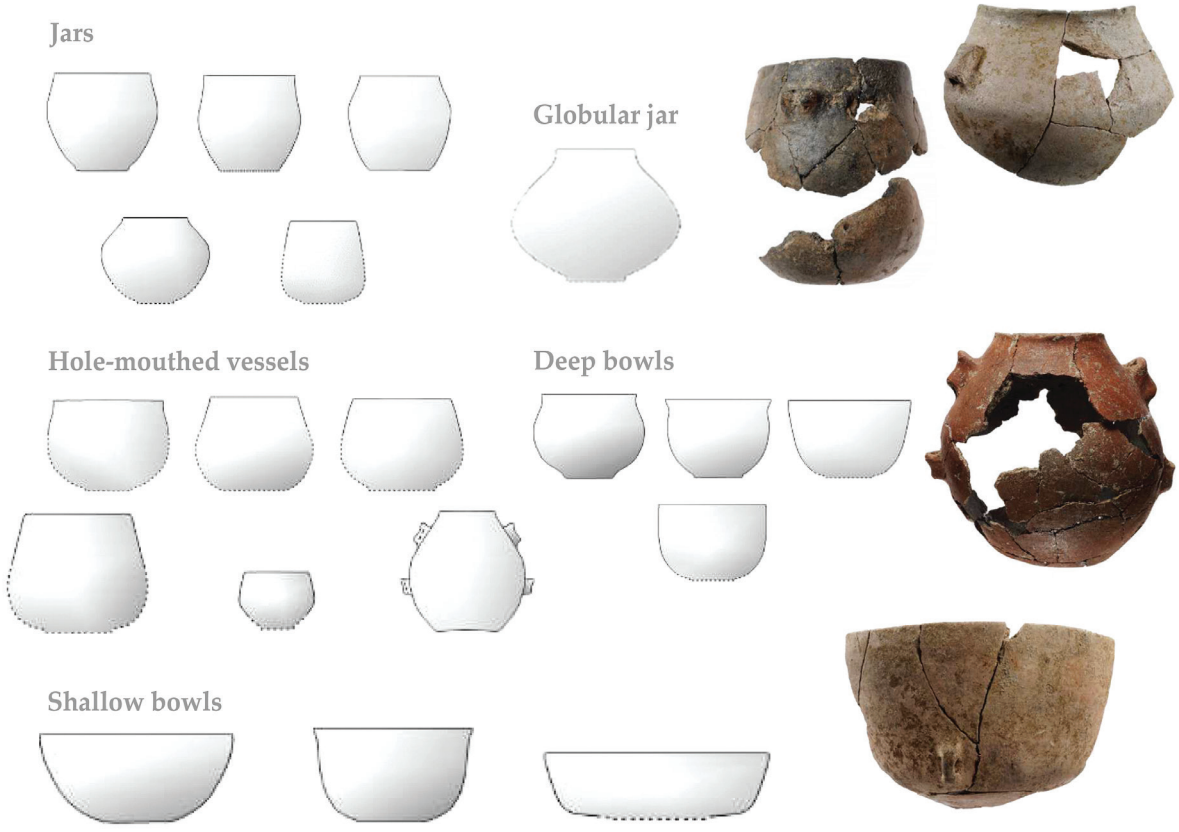


FIG. 7.2. Overview of the main Late Neolithic pottery shapes recorded at Çukuriçi Höyük (not to scale). (Profile illustrations by M. Röcklinger).

7 Peloschek 2017, 2019.

8 Horejs 2016.

9 Çilingiroğlu 2012; Derin 2011; Gerritsen et al. 2013; Özdöl 2012; Sağlamtimur 2012; Roodenberg et al. 2003; Dedeoğlu et al. 2017; Karul and Avcı 2011.

of simple shapes at Çukuriçi Höyük consists of larger jars and small globular jars, hole-mouthed / narrow-mouthed vessel types, with smaller amounts of deep bowls with s-profile, and shallow bowls, (fig. 7.2). Bases are mainly simple flat bases, rounded discs or oval-shaped, whilst vessel mouths are either oval or rounded depending on body shape, with oval mouths belonging to oval bodies. Handles most dominantly include single or double lug types, when they are horizontal, and usually curved upwards towards the rim. Vertical tubular lugs are elongated and sometimes very thin appearing in the late Neolithic, whilst basket handles, although present, are very rare.

The pottery dominantly displays monochrome exterior surfaces, in either red-brown-orange or cream-buff-brown colours (fig. 7.2). They are highly burnished or polished, with burnishing usually in a vertical direction (base to rim) although there are examples of horizontal, and combined vertical and horizontal burnishing, similar to that at Menteşe[10] and comparable with Neolithic pottery from other sites across Anatolia.[11]

It is notable that the interiors of vessels are often less highly burnished, with several poorly finished examples providing important information in relation to the range of hand forming methods used to make the pottery (discussed below). Although it has not been possible to identify *in situ* pottery production, stone and animal bone 'polishers' have been recorded, possibly associated with pottery burnishing,[12] similar to evidence from Çatalhöyük.[13] Over time, the lighter more buff-coloured pottery declines from Phase IX onwards, with a rise in red-brown vessels, whilst between Phases XI and X we see the introduction of painted vessels in the form of red linear thinly painted motifs on cream-buff exteriors. Similar trends are noted elsewhere with a shift from Cream Slipped Burnished Wares (definition by Çilingiroglu: CSBW) towards Red Slipped Burnished Wares (RSBW) evident in Ulucak V and IV, and cream vs. red pottery noted at Çatalhöyük. Painted Wares are also evident in the Anatolian Aegean Coastal Group as well as in the Lake District, such as in Hacılar. At Çukuriçi, alongside these new decorative elements, the practice of burnishing continues, indeed some examples of painted pottery appear to have been burnished or polished before the application of paint and final firing, perhaps indicating the merging of earlier and newer pottery finishing traditions.

To accompany the shifts in vessel colour, Impresso Wares are introduced at Çukuriçi appearing in Phase VIII. Examination of the Impresso Wares by the author has highlighted the use of different techniques, one possibly achieved with a finger or crescent shaped implement, and the other with an angular tool (fig. 7.3).

FIG. 7.3. Photograph comparison of two Impresso Ware vessels showing different shaped impressions. (Image: C. Burke).

10 Roodenberg et al. 2003, 26.

11 For example, in Aktopraklık C, Karul and Avcı 2011, 4.

12 Emra pers. Comm. March 2019.

13 Russel and Griffiths 2013, 290.

As discussed by Çiler Çilingiroğlu,[14] Impresso Wares are an indicator for eastern Mediterranean and Aegean connectivity around 6100 / 6000 BCE, which sits well with the dating of the Çukuriçi evidence. However, it remains as an open question, if these containers were related to special practices which could potentially explain the wide distribution of this style.

In terms of vessel shapes, the trends from Çukuriçi are similar to many other sites: jars, particularly narrow / hole mouth jars, are consistently the most dominant shape. Whilst the numbers of diagnostic pieces are quite small for some (early) phases, there appears to be a general trend for a decrease in narrow / hole mouth types over time, accompanied by an increase in bowls and deep bowls, which may indicate changes in consumption practices and the use of pottery.

Whilst detailed analysis of vessel function is ongoing, the shape and spatial distribution of different vessel types is consistent with activities related to storage, and probable food consumption. Significantly, the presence of several bases with charred residues on their interior indicates potential use for cooking or burning associated with other activities, for example tar production, which will be examined in more detail through residue analysis. Similar evidence for cooking has been noted at other sites, for example at Çatalhöyük where residue analysis confirmed the use of pottery for food preparation,[15] and at Barcın Höyük where petrographic examination of raw materials has been framed within investigation of their suitability for different cooking methods.[16]

## *Pottery Fabric*

Previous analysis of the raw materials within the pottery from Çukuriçi identified a narrow range of fabrics, the majority of which were compatible to the local area, and have a long history of use.[17] This work is currently being expanded by the author to form a spatial and diachronic examination of the pottery technology (forming, surface finishes, and firing) and its relationship to raw materials and typology. What is already clear from existing and new work is that unlike many other comparable Anatolian sites[18] and largely contemporaneous sites further afield such as Paliambela in Greece,[19] Çukuriçi pottery does not include organic tempering. Instead, pottery sampled in earlier work by Peloschek,[20] and more recently by the author, from Phases XII–VIII (c. 6600–5970 BCE) is dominated by mineral and rock-based pastes. The author has only identified organic temper in building materials indicating that clay pastes for structures were considered in different terms to those for pottery, although they both use the same base clay from the local area. A similar picture is presented from Menteşe Höyük and Barcın Höyük where the Neolithic pottery also doesn't appear to contain organic temper.[21]

Building on the earlier analysis of raw materials, it is clear that the Neolithic assemblage is dominated by three broad raw material groups in particular: schist-based pastes, those based on actinolite, and tremolite pastes related to asbestos and serpentinite. The choice not to use organic temper in pottery production is not only related to the different learnt practice of the Çukuriçi potters but also perhaps to the quality of the locally available raw materials they were using. It is very striking when

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14 Çilingiroğlu 2010.

15 Copely et al. 2005; Pitter et al. 2013.

16 de Groot et al. 2017.

17 Peloschek 2017, 2019.

18 Ulucak: Çilingiroğlu 2012; Çatalhöyük: Akça et al. 2009; Doherty and Tarkan 2013.

19 Papadakou et al. 2015.

20 Peloschek 2017.

21 Roodenberg et al. 2003, 37; de Groot et al. 2017, 545-48.

handling vessels made in the main fabrics that the pots are very durable (also evidenced from their good state of preservation), with the exception of weaknesses at the base due to forming methods discussed below.

The new program of investigation has also shown that the choice of different raw material groups is directly related to desired vessel colour, with the schist-based paste producing red-dark brown fired pottery and the actinolite-tremolite groups producing cream-buff fired pottery. Indeed, there is evidence that potters using these pastes attempted to slip vessels to alter their colour, e.g. those producing naturally red firing pottery used slips to make light buff coloured pottery and vice versa. Such early results highlight that colour was an important element in pottery production and consumption. They also indicate that all potters didn't necessarily have access to or a desire to use the same raw materials, so adapted their practices to include slipping, this despite the local availability of clays that would naturally produce both light and dark colours without the need for this new practice.

## *Vessel Forming*

Examination of vessel forming methods looked at breakage patterns, surface traces and the morphology of vessel walls.[22] In many cases, it was difficult to establish forming methods due to the use of burnishing, and later painted decoration, obliterating key visual evidence on vessel surfaces. However, there were examples of poorly finished pottery that provided key visual clues, in addition to characteristic orientation of voids and paste within sherds breaks and distinct undulations in vessel wall thickness. Taken together, the evidence indicates the presence of multiple hand building methods, consisting of coil, slab / flat coil, and drawing techniques, accompanied by limited evidence of paddle beating. The use of slab vs. coil techniques is evident from the vessel walls, with horizontal linear peaks and troughs in the thickness of the walls, and cracks or breaks providing evidence of relic coils, whilst the presence of finger marks show where the sides of vessels have been pinched and pulled upward after slabs and coils have formed the basic vessel shape. Other vessels displayed uneven vessel thickness in a broadly vertical or uneven fashion with distinctive pitting, more indicative of paddle beating. In examples with well-preserved vessel profiles or almost complete pots, it was possible to see that these methods were commonly used in combination.

Coiling and slab methods have been identified at a number of Neolithic sites in Anatolia, including Menteşe,[23] Ulucak Höyük,[24] Barcın Höyük,[25] Çatalhöyük,[26] and Ilıpınar,[27] alongside lesser evidence for pinching[28] and paddle and anvil techniques.[29] Indeed, the use of coil and slab pottery forming techniques in the Neolithic is well known across broad areas of the Aegean,[30] as well as in Neolithic pottery from the Near East,[31] highlighting the wide distribution of such techniques within Neolithic communities. What is notable is that at Anatolian sites, vessel construction is commonly done using a series of components put together in a similar way, suggesting a shared cognitive approach to how to make pottery.

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22 Rye 1981.

23 Roodenberg et al. 2003.

24 Çilingiroğlu 2012, 67.

25 Gerritsen et al. 2013, 60.

26 Yalman et al. 2013, 155-6.

27 Roodenberg et al. 2003, 24-5; Yalman et al. 2013; van As and Wijen 1995.

28 Roodenberg et al. 2003.

29 Çatalhöyük and Erbaba: Özdöl 2012, 31, 54; Ulucak: Çilingiroğlu 2012, 67; Barcın Höyük: Gerritsen et al. 2013.

30 See Dimini: Hitsiou 2003; Sesklo: Pentedeka and Kotsakis 2008; Sporades / Youra: Quinn et al. 2010; Pentedeka 2015, 272.

31 For example in Late Neolithic pottery from Shir, Nieuwenhuyse et al. 2018, 13.

FIG. 7.4. Examples of disc / slab attachments to make bases with smooth unscored joins (Images: C. Burke).

At Çukuriçi Höyük, the body of a vessel was commonly formed from a pinch pot or slab / coil pot that was pulled / drawn, and / or paddled to form a basic vessel shape, onto which the base, handles and any distinct rims were subsequently added before final vessel finishing, dominantly through burnishing but later also including incised (Impresso), or painted decoration. Thankfully for us, we can reconstruct this sequence through the way in which many elements of the pottery construction have fractured, particularly in relation to bases which come in two main types. The first was either a slab or coiled base onto which the slab / coil-built walls of the vessel were added, similar to the technique used by female potting communities in parts of Africa.[32] The second base-forming method at Çukuriçi was the addition of a disk or slab to an already rounded (convex) or partially flattened base of a preformed vessel. Both of these methods do not appear to have included an attempt to cement the clay together through scoring, and the separation of the base from the rest of the vessel appears to be quite common in the assemblage (fig. 7.4).

The disk method and its attachment to rounded base surfaces indicates that vessels were not always formed on a flat surface but rather by a slab of clay being laid over a rounded object, or within a shallow pit, with convex bases at other sites being taken as evidence for the use of a mould during base forming.[33] Subsequently, the disk was likely added to provide a more stable, and perhaps thicker / heavier base, to help the vessel stand upright. Interestingly, the use of both of these methods for base manufacture are noted at other Anatolian sites such as Barcın Höyük,[34] where walls were added to a slab / coil base, and at Ulucak where the discs from bases have been found associated with a pottery production area.[35]

In many examples, rims, like bases, also appear to have been added as a separate component, although generally rims are not well articulated. In all cases, lugs and handles were attached to the vessel before burnishing and not well-embedded into the vessel wall. There are also very few examples of scoring to help cement pieces together. Indeed, the absence of many attempts to plug handles into the walls of the vessel, or to score the clay of components to be joined (for example, disc bases and handles as noted at Menteşe),[36] suggests a limited degree of knowledge about the relationship between forming and areas of potential breakage, despite these evidently being a problem. It seems pottery did not form a substantial component of the material culture of the Çukuriçi Höyük

[32] Livingstone-Smith 2010, 2016.

[33] Menteşe: Roodenberg et al. 2003, 25; Ulucak: Çilingiroğlu 2012, 67.

[34] Gerritsen et al. 2013, 61.

[35] Çilingiroğlu 2012, 67; Çevik 2016.

[36] Roodenberg et al. 2003, 26.

community (as suggested by its relatively small proportions), and / or pottery may not have been regularly handled or in long term use; as such, breakage may not have been a particular concern and did not warrant experimentation with different forming and attachment techniques.

Significantly, there does not appear to be a distinctive diachronic development to the use of these different forming methods, which appear in the same phases. This would suggest the variability relates more directly to the presence of different approaches to pottery-making within one community. This contemporaneous presence of different potting traditions is also reflected in the paste recipes and raw material choices evident in the assemblage, as discussed above. Additionally, there does not appear to be a correlation between the use of particular paste recipes and forming methods; instead, multiple forming methods were used within a single paste recipe tradition. This would suggest that potting knowledge related to the choice of raw materials was dictated by colour but knowledge of forming methods was more widely shared. Indeed, it may have been that raw material procurement was undertaken by a more limited group of people whilst forming and using those materials was more widely distributed. This would suggest that pottery making was not undertaken in a standardized way, although a degree of standardization in terms of the range of shapes, colours and finish of the pottery is evident. Certainly, the presence of very similar-looking pottery at other sites suggests that communities had a shared idea of what pottery should look like.

What is notable is that when we consider the *chaîne opératoire* and *habitus* of potters at other Anatolian sites, we start to see many elements of shared practice beyond vessel shape —with forming using slab / coil techniques, vessel construction in components, particularly the distinctive addition of disc bases and building walls onto preformed bases, and the use of the same finishing methods. This suggests that the appearance of the vessels not only represents a shared cultural concept of what a pot should look like that was copied from place to place, but that potters at different sites shared elements of potting knowledge and technological *habitus* or practice. As potters learn their craft within the cultural context of what is the 'best' or 'right' way to make pottery, additionally informed by what pottery should look like in relation to how it is viewed and used by a cultural group,[37] strong similarities in multiple elements of a *chaîne opératoire* can indicate not only shared knowledge, choices and practice, but also evidence of spheres of contact and a degree of cultural coherence.[38] Indeed, recent network and similarity analysis by de Groot,[39] although not focused on technology, has shown a strong degree of correlation in terms of Neolithic pottery types and styles between sites in Western Anatolia, the Balkans and Greece, which she relates to the connectivity and the migration of people over the period.

## *Vessel Firing*

Turning now to one of the final stages of the *chaîne opératoire* of pottery production: firing. Much of the pottery displays mottled surface colours and dark firing cores, which indicate that the pottery was fired in mixed oxidising and reducing atmospheres and that firing was a short process. It is likely that the pottery was open fired / pit fired or fired in such a way where it was not possible to control the conditions and contact with fuel, resulting in dark or black areas on vessels. The firing conditions of the pottery from Çukuriçi Höyük will be examined further using other analyses at a later stage in the analytical programme, but it is likely that firing temperatures were below 800 °C, indicated by three key features. Firstly, the presence of a burnished surface—at high temperature ranges the vitrification

[37] Mauss 2009; Bourdieu 2009; Lemonnier 2002, 2; Dobres 2000.

[38] Mauss 2009; Bourdieu 2009.

[39] de Groot 2019.

of the ceramic would destroy the clay alignment that results in the burnished sheen, so burnished pottery is by necessity a low-fired technology. Secondly, the high degree of optical activity in many samples under the polarising light microscope indicates a low firing temperature (the higher fired a ceramic is, the more vitrified the clay paste and so the less optically active it is). Finally, the presence of calcite in some samples, which suggests a low firing temperature as calcite begins to degrade at around 750–800°C. Similarly, low firing temperature ranges have been put forward from other sites including Çatalhöyük[40] and Menteşe[41] where mottled colouration and uneven firing has also indicated some form of open firing practices. This again suggests elements of shared technological knowledge and practice between potters at different sites.

## Conclusions

This brief comparative exploration of the results from Çukuriçi Höyük in relation to typological and technological studies at other sites has indicated a level of shared practice and knowledge between Neolithic potting communities in Anatolia. Some of these similarities could be explained through potters seeing pots and copying their shape and finish, whilst others seem more deeply embedded in specific learnt practices that would be more likely the result of direct learning. Notably, the strong similarities in some elements of technological practice between sites does indicate a degree of contact in terms of sharing knowledge between potting communities, alongside the similarity of pottery styles more directly related to shared consumption choices and tastes. This may suggest that although there is limited evidence for small-scale pottery movement during this time, potters themselves and / or their knowledge and practice did move. Something not so unexpected for a period where the movement of people is widely attested.[42] However, these similarities cannot be generalised, with clear evidence for more nuanced choices at the site level in terms of raw materials as well as pottery types. This is most evident when we compare Çukuriçi Höyük, Ulucak and Barcın Höyük which all broadly share pottery styles and forming methods but where potters at Çukuriçi Höyük and Barcın Höyük did not consider organic tempering as part of their *chaîne opératoire*, unlike the potters at Ulucak. Such observations give us a tentative look at possible spheres of socio-technological interaction and individual choices to adopt or reject technological practices but require a much broader study beyond that of the present paper.

What is clear is the relatively small amount of pottery in comparison to the time span of occupation, which indicates that pottery did not form a fundamental part of the material culture of the Neolithic community, particularly in the earlier phases. Despite this, the potters at Çukuriçi were well skilled in their practice from the beginning, clearly understanding the properties of the raw materials they used to produce high quality finishes and relatively durable pottery with little evidence for experimentation, with the exception of slipping.

The next stages of the analysis at Çukuriçi are to compliment the ongoing technological work with an investigation of function through residue analysis, particularly looking at the vessels that show charred residues on their interior. It is hoped that through such an integrated approach that looks at the life of the vessel from its creation through to its use and deposition, we will better understand the role of pottery at the site and more generally in comparison to others with similar analyses. The ongoing spatial analyses are also expected to reveal a better insight into household practices and

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40 Franz and Ostaptchouk 2012; Camizuli 2008; Noll 1991.

41 Roodenberg et al. 2003, 27-30.

42 Hofmanová et al. 2016; Mathieson et al. 2018.

their potential differences. This integrative approach including shape, style, technology, function and spatial distribution appears promising for a better understanding of pottery in the Neolithic communities at Çukuriçi Höyük.

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