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Von der Sesshaftigkeit zur komplexen Gesellschaft: Siedlung, Wirtschaft, Umwelt

FORSCHUNGSCLUSTER 1

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Beginnings – New Research in the Appearance of the Neolithic between Northwest Anatolia and the Carpathian Basin

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Çukuriçi Höyük – Various Aspects of its Earliest Settlement Phase

by Alfred Galik – Barbara Horejs

Prehistory in the Ephesos Region

Western Anatolia and especially the region of İzmir have recently attracted considerable attention in prehistory after decades of almost no interest in this field by archaeologists. While central, southern and eastern Anatolia as well as the entire Aegean area and southeast Europe belonged to the core of prehistoric archaeology, western Anatolia remained

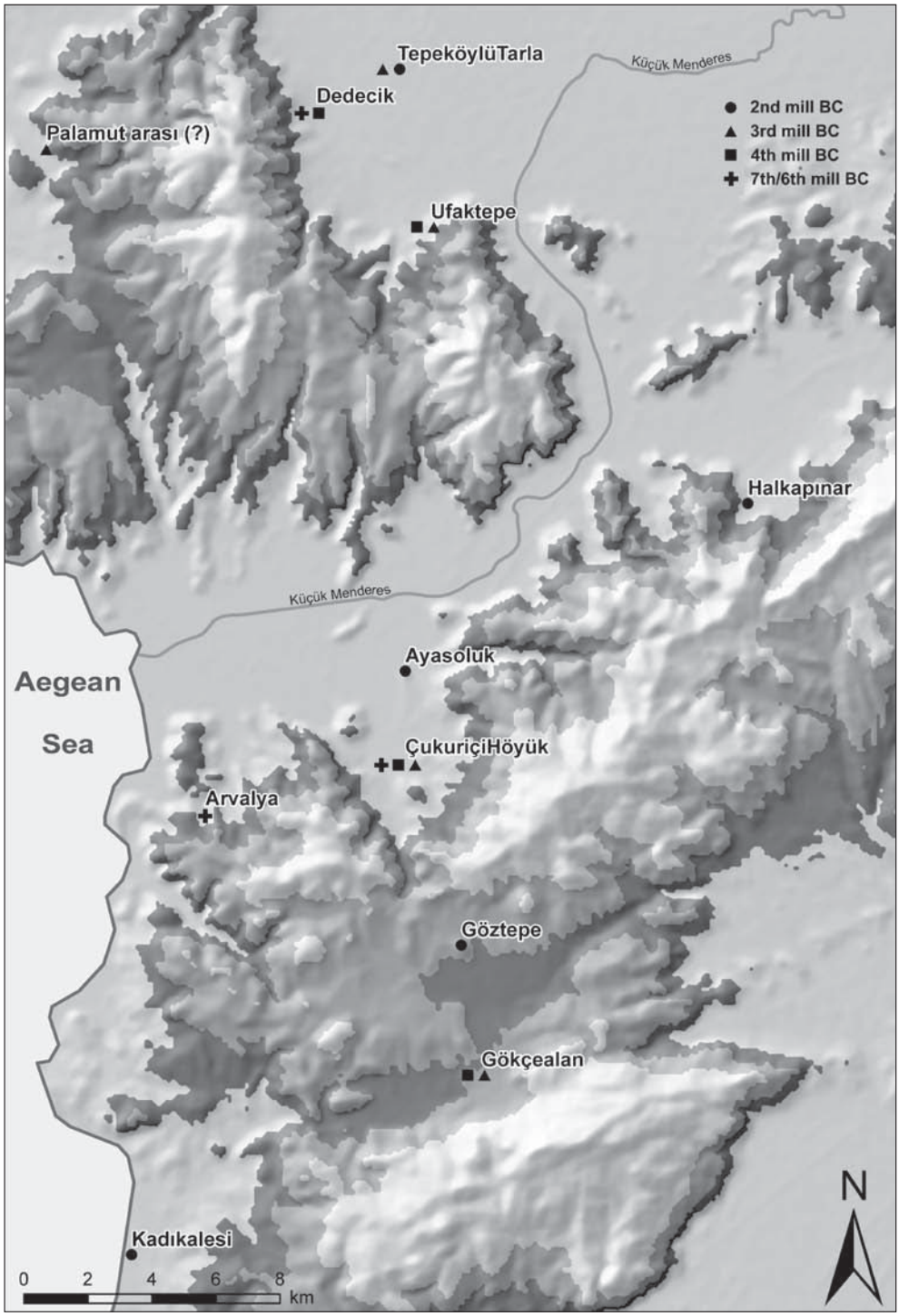

Fig. 1 Prehistoric sites in the lower Küçük Menderes region in chronological differentiation (after Meriç 2009 with additions). Map by B. Horejs and Ch. Kurtze.

at its periphery[1]. For the last two decades the picture has gradually changed regarding the coastal area due to new investigations conducted by different research teams from the Çeşme peninsula down to the region of Didyma[2]. Archaeological research at the central Anatolian coast has traditionally focused on the famous cities of Antiquity with their well-preserved Greek and Roman ruins like in Ephesos, where the Austrian Archaeological Institute has been excavating for more than 100 years. As in many other antique centers on the central coast (e.g. Pergamon[3]), only the historical periods have been systematically and intensely investigated, leading to a fragmentary knowledge on prehistory in general.

During extensive surveys by Recep Meriç in the 1980s in the region of the Küçük Menderes (Kaystros) valley, surface finds and sites of different periods including prehistory were collected and recorded[4]. Based on his recently published results, which were completed by rescue excavations by the local museum in Selçuk, the present picture of prehistory in the region might be summarized in the following way (Fig. 1): Almost half of the prehistoric sites located at most 15–20 km out of Ephesos date to the 2nd millennium BC (Middle and Late Bronze Age) as seen in Halkapınar (excavated)[5], Ayasoluk/Artemision (excavated)[6], Göztepe (surface finds)[7] and Kadıkalesi/Anaia (mixed deposits)[8] south of Küçük Menderes and Tepeköylü Tarlası (surface finds)[9] north of the river. Another five sites can be dated in Late Chalcolithic and/or Early Bronze Age periods (4th – 3rd millennium BC)[10]: Gökçealan (surface finds)[11], Ufaktepe (surface finds)[12], Dedecik-Heybelitepe (excavated)[13] and possibly Palamut arası (surface finds)[14]. Finally, two Late Neolithic/Early Chalcolithic

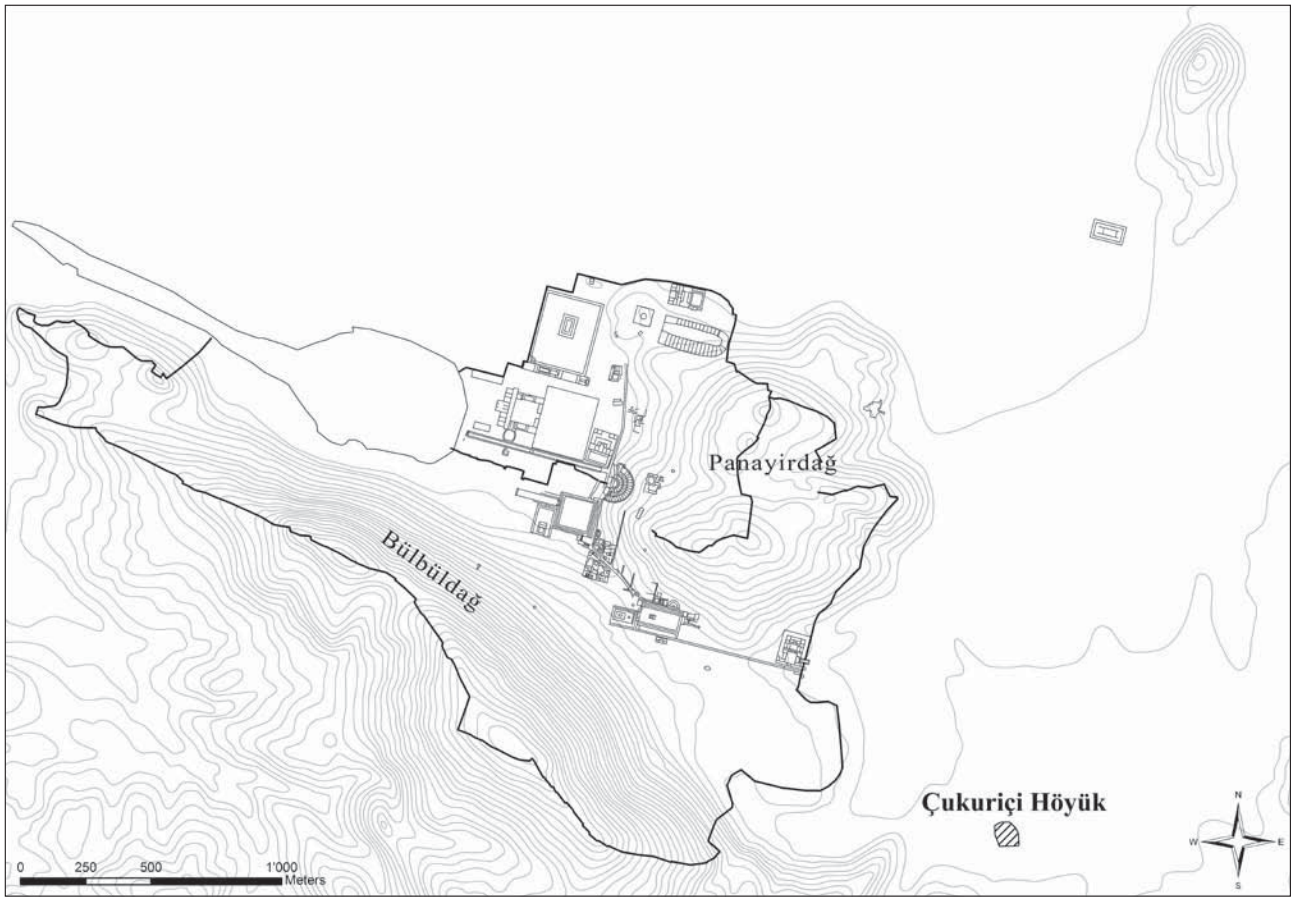

Fig. 2 Topographical map with antique Ephesos and Çukuriçi Höyük. Map by Ch. Kurtze.

1 Cf. Lichter 2005, 59–64.
2 For example, the large-scale project IRERP focused on excavations at Liman Tepe, Panaz Tepe, Baklatepe and Çeşme Bağlararası directed by A. and H. Erkanal (Erkanal 2008a; Erkanal 2008b; Şahoğlu 2007; annual excavation reports KST); Miletus (Parzinger 1989; Voigtländer 1983; Niemeier 2007); Bademgediği Tepe near Metropolis (Meriç – Mountjoy 2002; Meriç 2003; Meriç 2007 and Tavşan Adası near Didyma (Bertemes – Hornung-Bertemes 2009).
3 Horejs forthcoming.
4 Meriç 2009.
5 Late Bronze Age necropolis with currently three investigated graves: Meriç 2009, 70 f.–71 fig. 59–62; pl. 12–13, K115–K117; Horejs 2008c.
6 Excavations in Artemision by A. Bammer, at Ayasoluk by M. Büyükkolancı summarised with literature s. Horejs 2008c, 120 f.
7 Meriç 2009, 31; pl. 10, K99.
8 Mercangöz 2002; I would like to thank the excavation director for her intensive guided tour and useful information. Discussion of further supposed sites of 2nd millennium BC s. Horejs 2008c, 121 f with footnotes 118–124.
9 Meriç 2009, 65; pl. 10, K104–105.
10 Clear differentiation between both periods seems problematical to the author at present due to the lack of closed contexts in the region, especially if the sites are dated by surface finds. The duration of chronologically characteristic pottery types like cheesebowls or Troy A12-bowls is unclear at the central Aegean coast until stratigraphically defined assemblages are excavated, radiocarbon-dated and published.
11 Meriç 2009, 31 f.; pl. 2, K20. K22; pl. 3, K34.
12 Meriç 2009, 64; pl. 1, K10–K11; pl. 3, K36; pl. 4, K48; pl. 5, K53. K54. K61. K65.
13 Herling et al. 2008, esp. 16–26.
14 Only one single pottery fragment with no further description of the site is published (Meriç 2009, pl. 3, K32).

(late 7th/6th millennium BC) settlements are known – Arvalya Höyük and Dedecik-Heybelitepe; the latter has been stratigraphically excavated by Clemens Lichter[15]. Surface finds from Arvalya Höyük have been collected and published by Adil Evren and Çengiz İçten of the museum in Selçuk[16]. This possible tell settlement appears to be covered by meters of alluvium, is intersected by a modern street and furthermore affected by recent pits and its current use as a farm. Although the perennial surveys of Meriç provide a first insight into the prehistory of the region, the lack of systematic excavations in the vicinity of Ephesos has prevented any further basic research so far. For this reason, the former director of Ephesos excavations, Friedrich Krinzinger, initiated a new research program intended to particularly concentrate on prehistoric sites in this micro-region. This interdisciplinary project, funded by the Austrian Science Fund[17], started in 2007 and is focused foremost on a tell site named Çukuriçi Höyük, located around 1 km southeast of ancient Ephesos (Fig. 1–2).

Excavations at Çukuriçi Höyük

Çukuriçi Höyük was first investigated in 1995 in a brief rescue-excavation in the form of two small test trenches conducted by Evren and İçten. According to the excavation report[18], no traces of architecture or stratigraphic layers could be detected; the published material dated it to the Chalcolithic and Early Bronze Age periods but offered no clear context[19]. During the following years a large part of the hill was dug away, leveled, planted with fruit trees and irrigated. These massively destructive measures ultimately had the result, amongst others, that Çukuriçi Höyük became the focus of our perennial project. Furthermore the site is not only located very close to the river and the Aegean[20], but also to Ephesos itself without showing any intensive usage after prehistory until the 20th century AD.

By means of trial excavations in 2006, the hill was preserved to a height of at least 4.5 meters above the ground level of the surrounding cultivated area with an extension of approx. 80 × 100 meters. Two separate areas have been ex-

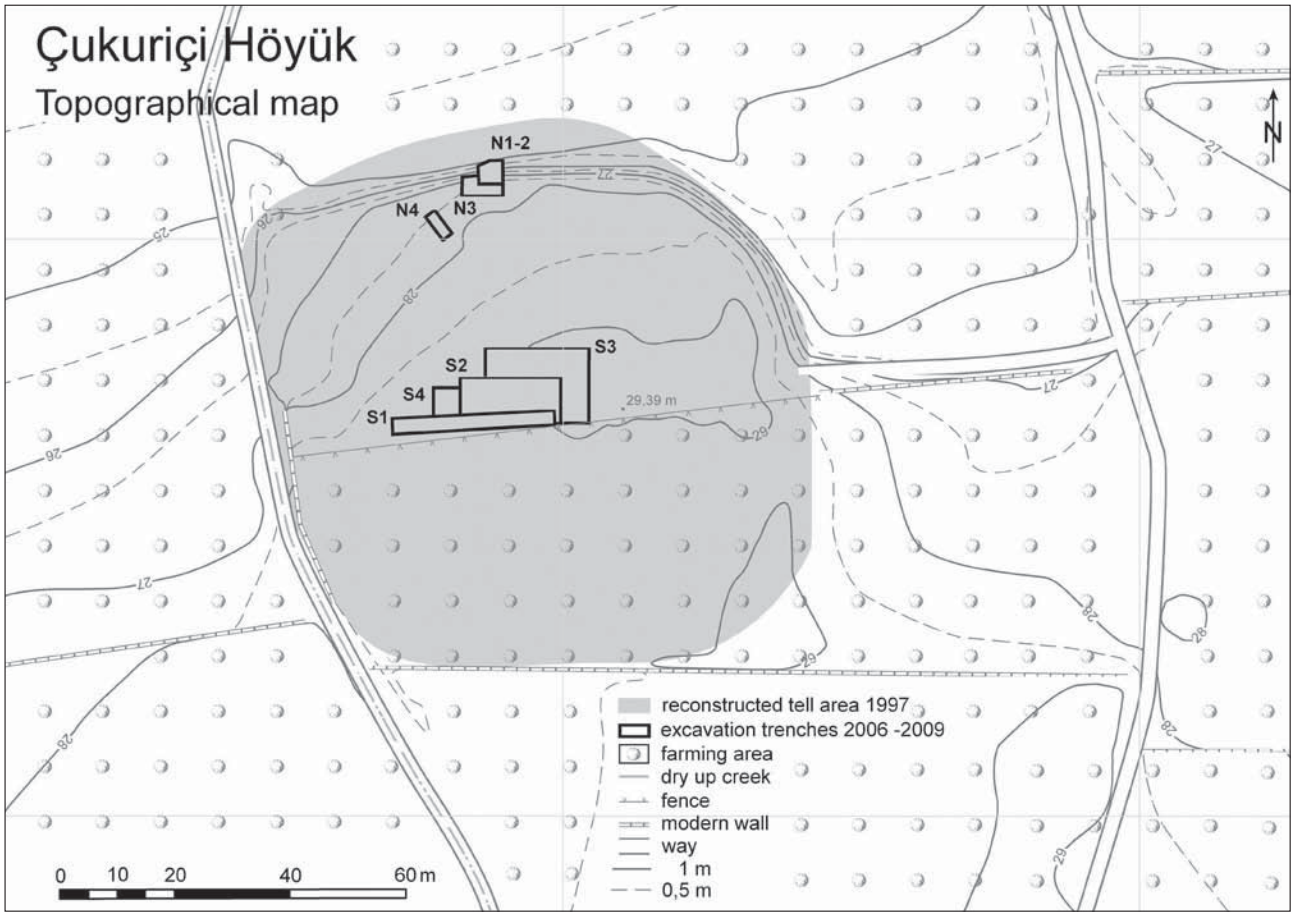

Fig. 3 Topographical map of Çukuriçi Höyük with reconstructed size and excavated trenches. Survey A. Buhlke, Ch. Kurtze, R. Turck. Cartography by A. Buhlke.

15 Herling et al. 2008, esp. 16–22.
16 Evren –İçten 1997, 117 f.
17 FWF-Project no. P 19859-G02.
18 Evren – İçten 1997, 112–116; 128 fig. 8.
19 Evren – İçten 1997, 121–127 fig. 3–7; 129 fig. 9–11; 130–131 fig. 12–15.
20 Although the exact course of the coastline during the past millennia is unclear, we know at least that the area of the antique city was silted up in the 2nd millennium BC at the latest (Kraft et al. 2005). New geological drillings on the plain around Çukuriçi Höyük were conducted by H. Brückner (University of Marburg) and his team in 2008, followed by a broader geographical project in 2009, which should provide further information in the future.

cavated so far, one in the middle of the northern boundary (northern trenches N1–N4) and one at the current southern end of the tell (southern trenches S1–S4); these areas are not yet stratigraphically linked yet (Fig. 3). Çukuriçi Höyük currently reveals at least five settlement phases[21], which can be dated to the Late Neolithic/Early Chalcolithic, to Late Chalcolithic and Early Bronze Age periods[22]. The oldest settlement phase is designated ›ÇuHö VIII‹ and was excavated in the northern trenches (N1–N2) at the level around the present-day foot of the tell in a very limited area of only 4 × 3.5 m[23].

Deposits and Assemblages of Phase ÇuHö VIII

Settlement phase ÇuHö VIII is composed of different deposits, which can be reconstructed as remains of simple house architecture. Coarse raw and local stones were used for two almost parallel stone foundations in an east-west direction (Fig. 4). Mud walls without burnt bricks upon these stone foundations could barely be recognised[24]. The parallel stone foundations are complemented by other settlement elements like posthole, pit and a coeval thick stamped clay floor with more than one level demonstrating two living horizons upon its foundation (Fig. 4). The fragmentary archaeological remains could be reconstructed as part of a piece of architecture, probably a small rectangular room or house, but due to the limited excavated area, its exact shape and size cannot yet be determined. Comparable layers of stone rows covered by mud deposits could be detected along the attached profiles of the northern border of the tell located at the same level with the walls of phase ÇuHö VIII. Therefore, further settlement remains in an eastward and westward direction can

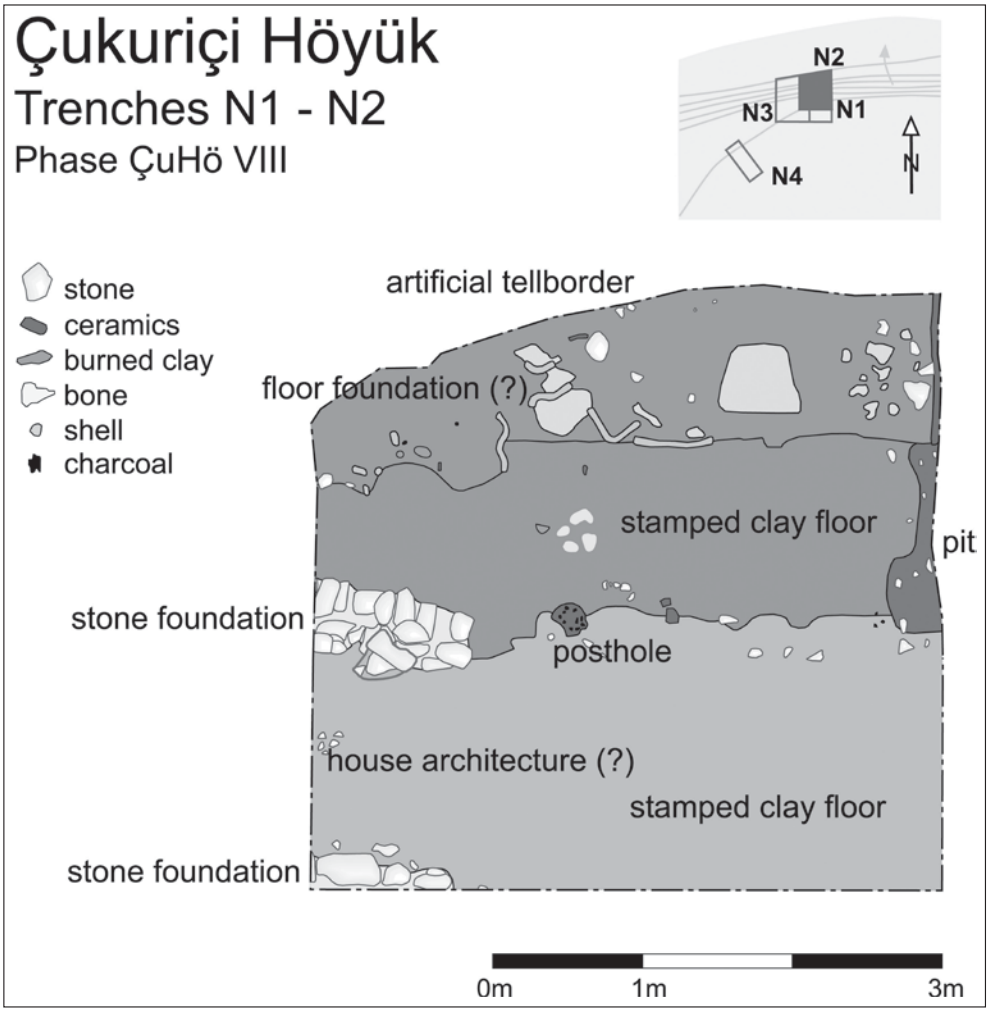

Fig. 4 Deposits of settlement phase ÇuHö VIII: architectural remains and different using horizones. Drawing by A. Buhlke, B. Horejs, A. Nordmeyer.

21 A settlement phase includes all layers and stratigraphical units from its beginning to different using horizons and renovations up to its destruction and abandonment (after Hänsel 1989, 55–57; fig. 8).

22 For further information about methods of excavation and dating with details about the younger phases s. Horejs 2008a; Horejs 2008b; Horejs 2009.

23 The northern trenches were excavated to get an idea of the principle chronological time span of the site, which is why only a small but deeper area was excavated.

24 Compare digital drawing of this distinct mud-level upon the stone foundations in Horejs 2008b, 94 fig. 4.

be assumed. The northern boundary of these remains is artificial and was probably caused by a bulldozer. The area excavated had been covered by a destruction level and a layer of debris sealing the whole phase[25]. The following architectural phase designated as ÇuHö VII can be dated to the Late Chalcolithic period[26]; hence a long hiatus between phases ÇuHö VIII and VII – at least in this distinct area of the settlement – has to be postulated.

Pottery of ÇuHö VIII

Although the excavated area of Phase ÇuHö VIII is very limited, nearly 500 characteristic fragments[27] of around 1,700 pottery sherds have been found. The assemblage contains a homogenous spectrum of very high quality ceramic in comparison to the other periods at Çukuriçi Höyük. It predominantly consists of fine or medium wares; only a small amount can be categorized as coarse ware, based on its porosity and temper[28]. Aside from two singular pieces, the entire pottery ensemble is unpainted and monochrome.

The whole assemblage could be classified in altogether 13 wares based on hardness, porosity, break, color, temper and surface treatment that can be combined in five main groups. The predominant group of wares is finely porous, bright orange, red or reddish-brown slipped with a highly burnished and polished surface and represents more than 40% of the whole assemblage. Second most common with a proportion of around 27% is a group of fine ware with grey to grey-brown color, which is not slipped, but burnished (traces of burnishing are visible). The third group of fine wares is characterized by beige or creamy blunt slip covering red surface with no further treatment in an amount of approx. 7%. Only around 10% can be categorized as coarse wares, of which one-third is impressed decorated and designated as Impresso ware. Its decoration can be coarse with deep impressions or thin and shallow, but always unconnected and covering the whole body. Painted pottery is only represented by a couple of body sherds, red slipped with creamy-white dots on the surface.

As with the makes, the spectrum of shapes contains a clear and homogenous repertoire. Most common are open vessels, mainly deep bowls, with a smooth s-profile or a slightly curved wall and out-curving or rounded rims (Fig. 5a – b). Deep bowls with straight and thin walls do not appear very often (Fig. 5c). The second group of shapes is represented by slightly more hole-mouth jars with a more or less conical neck and a simple rounded or everted rim (Fig. 5d – e). One well-preserved example of hole-mouth jars was deposited directly in the older horizon of the stamped clay floor. This miniature pot was originally provided with four vertical tubular lugs vertically perforated, three of them

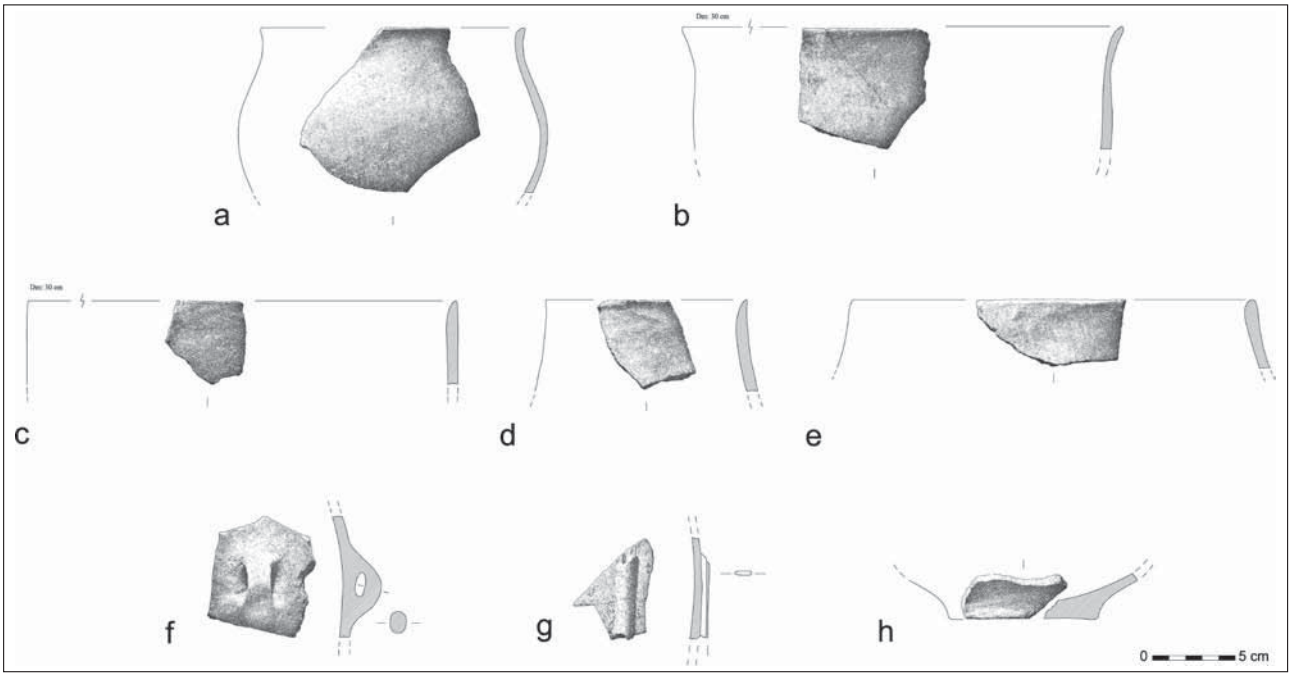

Fig. 5 Spectrum of shapes of phase ÇuHö VIII (a. 06/23/1/1. b. 06/26/1/5 c. 06/26/1/13 d. 06/112/1/5 e. 06/114/1/2 f. 06/11671/30 g. 06/116/1/40 h. 06/26/1/27). Digital drawings by Th. Urban.

25 Cp. Horejs 2008b, 94 fig. 4 with sequence of the layers.

26 Radiocarbon measurements of two short-living samples date to the second half of 4th millennium BC (publication in preparation).

27 Detail publication of all finds of the Chalcolithic periods at Çukuriçi Höyük with all statistics is in preparation at present. Characteristic fragments include rims, bases, handles and decorated bodysherds.

28 Classification based on differentiation of sherd-break as finely porous means no pores or scarcely any pores are visible to the naked eye (0.12–0.25 mm), medium porous that occasional pores are recognisable (0.25–0.5 mm) and coarse porous with pores larger than 0.5 mm.

still preserved (Fig. 6). As far as we can tell from partly very small rim fragments, all the vessel types seem to have a circular mouth. The few handles are simple vertical or formed as plain or vertically perforated lug-handles or knobs. Vertical tubular lugs are mainly short and relatively wide (›Röhrenösen‹), rarely long and narrow (›Schnurösen‹) and finally, the base of all jars is mainly disc-shaped (Fig. 5f – h).

Regarding analogies in shapes and fabrics of the assemblage in phase ÇuHö VIII, two regions are promising, the Lake District in southwestern Anatolia and the vicinity of İzmir as well as the neighboring Aegean islands. For example, the almost completely preserved miniature hole-mouth pot (Fig. 6) can be compared with similar jars in Höyücek TD[29] and Bademağacı EN II[30]. Both examples show comparable semi-globular bodies and four vertical and short tubular lugs at transition to the neck. While the Çukuriçi sample stands on a disc-shaped base, its analogies in the Lake District have rounded or flat bases. Further similarities can be detected with two jars in Ulucak IVb concerning the principle shape, but with differences in the distinct formed neck[31]. Principally similar hole-mouth jars with a globular body and four vertically pierced lugs placed on the shoulder can be found in the Upper Cave of Agio Gala[32] as well as in Ilıpınar X[33], where they are characterized by Laurens Thissen as reliable chronological markers for the oldest pottery on the site and compared with Lake District finds (Hacılar, Höyücek, Bademağacı)[34].

The characteristic elements of the Çukuriçi assemblage of monochrome red-slipped burnished pottery in combination with bowls with smooth s-profile, conical necked pots, disc bases and tubular lugs as at Çukuriçi Höyük can be detected at different sites in the Lake District, as in Bademağacı (EN II)[35], Höyücek (mainly TD?)[36], Kuruçay (mainly 11)[37] and Hacılar I[38]. It should be pointed out that all these settlements are characterized by a versatile spectrum of shapes and decorations,

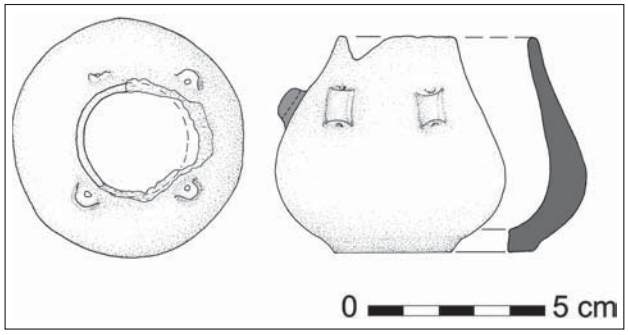

Fig. 6 Narrow-mouth jar with four vertical tubular lugs (06/165/1/102). Drawings by B. Horejs and J. Traumüller.

which does not appear in ÇuHö VIII. Unsurprisingly, the best analogies for our assemblage can be found on the central Aegean coast and its hinterland[39]. The essential material features of ÇuHö VIII are well comparable with the assemblages of Ulucak (V–) IV[40], Yeşilova III[41], Ege Gübre[42] and Dedecik-Heybelitepe A[43]. Further analogies can be found in Agio Gala Lower Cave, unfortunately without a clear stratigraphical context[44].

Aside from the typological analogies, the composition of wares and fabrics seems important in understanding the structures of relations in a chronological and cultural sense. The earliest horizon on the central Aegean coast has been characterized by Ulf Schoop as »Monochromkeramische Agäisgruppe« and by Lichter as »WARP« (»Westanatolisch Rot Polierte Keramik«)[45], which both describe the spectrum of Çukuriçi Höyük quite well. Apart from the dominant red slipped burnished wares it should be stressed that also unslipped grey and grey-brown as well as creamy slipped wares exist in smaller amounts, which show strong connections to e. g. Ulucak V – IV, especially V late and IV early phases[46].

Other Categories of Finds in ÇuHö VIII

The spectrum of small finds is conspicuously limited compared to the amount of pottery. This fact might be best explained by the limited excavated area[47]. Although the ensemble of knapped stone artifacts is rather small with only 26 pieces in total, the lithics offer some information[48]. All artifacts are obsidian[49], except one flint and one chert object. Chemical analyses performed on ten of the obsidians revealed that all of them originated from the Cycladic island of Melos, specifically six from the site of Adamas and four from Demenegaki[50]. Due to the total lack of cores and only rare occurrence of production debris, it can be stated that the knapping site is not located within the excavated area, which is hardly surprising in a living quarter. Nine of the artifacts are medial blades with parallel edges, four of those without further modifications or traces of use. In total 18 modified artifacts were identified. These include two scrapers, the rest

29 Duru – Umurtak 2005, pl. 64, 6 (different mouth).
30 Duru 2008, 61 fig. 117a.
31 Çilingiroğlu et al. 2004, fig. 25. 27–28; Çilingiroğlu – Çilingiroğlu 2007, fig. 6.
32 Hood 1981, fig. 31, 186.
33 Thissen 2001, 15 f.; 90 fig. 4; 95 fig. 9–10. – Instead of tubular lugs these pots are equipped with pierced knob handles.
34 Thissen 2001, 15.
35 Duru 2008, 56 f. fig. 112–113; 61 fig. 117.
36 Duru – Umurtak 2005, pl. 99–100. 102; Duru 2008, 62 fig. 118; 64 fig. 120.
37 Duru 1994, 20 f.: Type no. 8, 9 (level 11), 24 (level 13–9); 24: Type no. 7 (level 11), 10–11 (level 11); 101 f.; pl. 34–57. 97; Duru 2008, 55 fig. 111; 68 fig. 124.
38 Mellaart 1970.
39 My sincere thanks to A. and Ç. Çilingiroğlu, Z. Derin and H. Sağlamtimur for intensive discussions and important advice at a workshop in Istanbul University in March 2009.
40 Çilingiroğlu et al. 2004, 38–41; fig. 21–25 (Ulucak IVa – b); Çilingiroğlu – Çilingiroğlu 2007, fig. 6 (Ulucak IV); 24–25 (Ulucak V).
41 Derin 2007, fig. 8–10 (Yeşilova III. 1–8).
42 Sağlamtimur 2007, fig. 6a. 7–9.
43 Herling et al. 2008, 21 f. fig. 4.
44 Hood 1981.
45 Schoop 2005; Lichter 2005; Lichter 2006.
46 My sincere thanks to Ç. Çilingiroğlu for showing me the material.
47 The ensemble contains a few ceramic discs, simple bone artefacts and a clay stamp (publication in preparation).
48 Lithics of all phases are under study by M. Bergner.
49 Horejs 2008a, fig. 17.
50 Bergner et al. 2008.

shows mostly unilateral retouched edges which are interpreted as sickle blades. According to Max Bergner it can be concluded that the majority of the knapped stone artifacts are obsidian sickle blades with relatively little production waste. The obsidian is of Melian origin and the knapping site appears to be outside of the excavated area.

Dating and Chronology

The ceramic features considering fabric and shape and their analogies indicate a dating of Çukuriçi Höyük VIII in the horizon of Ulucak IV (IV early/V late?), Yesilova III, Ege Gübre and Dedecik-Heybelitepe A. Although these sites represent a multiplicity of different phases in this period, the limited excavated area of Çukuriçi VIII avoids a distinct synchronisation for now. To date it seems that ÇuHö VIII can be synchronized with features of both Ulucak V and IV and EN II in the Lake District. But due to the lack of some characteristic elements (anthropomorphic vessels, storage jars, and particularly, small finds) and regarding the small amount of pottery, statistical analysis of relations of particular fabrics in the assemblage could lead to a possibly distorted image. Therefore Çukuriçi VIII should be dated to the early Chalcolithic period with possible late Neolithic features in the assemblage until further areas are excavated in the future.

This relative chronological position of ÇuHö VIII is confirmed by a set of radiocarbon dates of different kinds of material. The final analysis by Bernhard Weninger is still being evaluated, but a preliminary dating around 6000 BC and possibly up to 6200 BC seems acceptable. These dates fit rather well in the chronology of the Lake District and the central Aegean coast. While only some years ago a lack of high quality radiocarbon dates in western Anatolia compared to other regions avoided a clear dating of the region, which was pointed out by Thissen[51], this gap is about to be slowly filled[52]. Following recent publications and discussions[53], the dating of Pottery Neolithic permanent settlements in western Anatolia seems to differ between the Marmara-Black Sea region, the central Aegean coast and the Lake District, of which the latter one seems to be oldest, whereas the dating is shifting backwards with each new or further excavated site (e.g. Bademağacı and Ulucak). Only a few settlements in western Anatolia date as early as the first half of the 7th millennium BC or even older[54], but most have to be dated to the second half of 7th millennium BC[55]. The four sites of Ulucak, Ege Gübre, Yeşilova and Dedecik-Heybelitepe represent the oldest Neolithic/Early Chalcolithic horizon presently known on the central Aegean coast, dating back to the mid (Ulucak) and late 7th millennium BC[56]. Even though there are no updated ^{14}C-dates for Agio Gala on Chios[57], it is clear regarding relative chronological terms based upon pottery analogies that this site is part of the same cultural horizon, in which Çukuriçi Höyük VIII should also be placed.

Preliminary Results from Zoological Studies (by Alfred Galik)

The geographical and the chronological position of Çukuriçi Höyük contributes new insights and additional information to the checkered pattern of Neolithic and Chalcolithic husbandry derived from other sites situated in the Sea of Marmara area and southeastern Europe. However, the Neolithic achievements shifted some way from southeastern Anatolia westwards, and further investigations at Çukuriçi Höyük can bring some new results as a possible base for a transition along the Aegean coast line.

As the investigations are still ongoing at Çukuriçi Höyük, the results presented here must be considered as preliminary. However, the archaeozoological material is summarized according to the main chronological units, although the excavations revealed alternating structures of settling and abandonment of the architectural structures. The chronological sequences start at Late Neolithic/Early Chalcolithic and go up to the Early Bronze Age. The major part of the material comes from Early Bronze Age Phases ÇuHö IV and III. In order to compare the remains from Early Bronze Age with Late Neolithic/Early Chalcolithic finds, both phases will be summarized.

At the base of Çukuriçi Höyük the earliest layers were discovered at the beginning of the excavation activities, but then the emphasis was placed on the Early Bronze Age levels at the top of the Höyük. Nevertheless, the findings of the first excavation season accumulated in a frequency which allows for developing some considerations on the Late Neolithic/Early Chalcolithic subsistence in comparison to the better represented Early Bronze Age remains. As the excavations were carried out in the Early Bronze Age part of Çukuriçi Höyük intense flotation of sediment samples was carried out. The remains obtained from the sieve residues are excluded from this discussion to achieve a better comparability with the Late Neolithic/Early Chalcolithic and Early Bronze Age remains. The results will be placed in another publication.

The Late Neolithic/Early Chalcolithic remains of domesticates dominate the sample (Fig. 7–8), but mollusks and game appear in a noticeable representation. The Early Bronze Age sample reveals a completely different pattern. Mollusks outweigh the animal distribution in NISP as well as weight (Fig. 7–8). The representation of domestic animal remains probably mirrors a minor importance in exploitation in the Early Bronze Age.

The quantification of game seems to be similar in both chronological units and reflects an analogous exploitation of wild animals. Birds, fishes and crustaceans reveal the ex-

51 Thissen 2005, esp. fig. 1.
52 Data recently collected by Clare et al. 2008, 14 fig. 4; 24 fig. 9; 31–34.
53 e.g. Lichter 2005; Schoop 2005; Özdoğan 2006; Özdoğan 2007a.
54 Radiocarbon dates for all sites in the Lake District summarized by Duru 2008, 11–19.
55 Summarized graphically by Özdoğan 2007b.
56 Çilingiroğlu – Çilingiroğlu 2007, 363 f.
57 Hood 1981. Besides missing radiocarbon dates, the stratigraphy and an evaluation of assemblages in the Upper and Lower cave are also still under discussion (cp. Schoop 2005, 248–252).

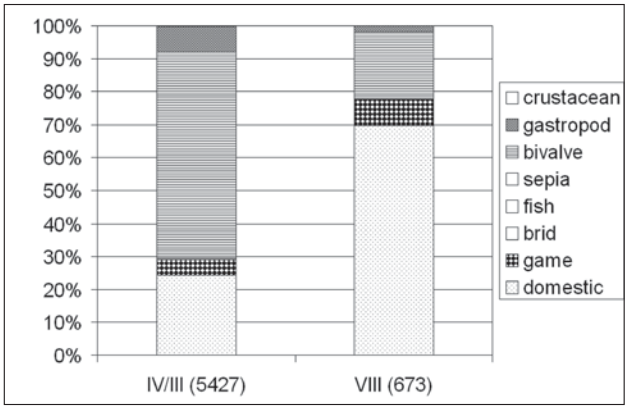

Fig. 7 Quantification of animal remains from Çukuriçi Höyük based on NISP.

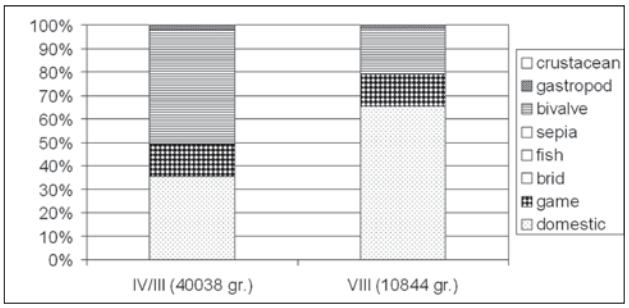

Fig. 8 Quantification of animal remains from Çukuriçi Höyük based on weight in gram.

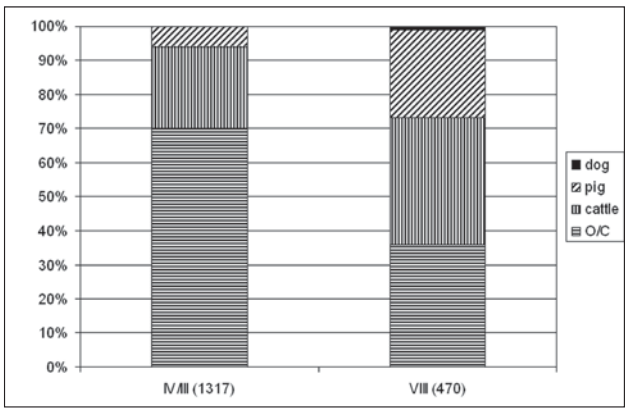

Fig. 9 Quantification of the major domesticates including dog from Çukuriçi Höyük based on NISP.

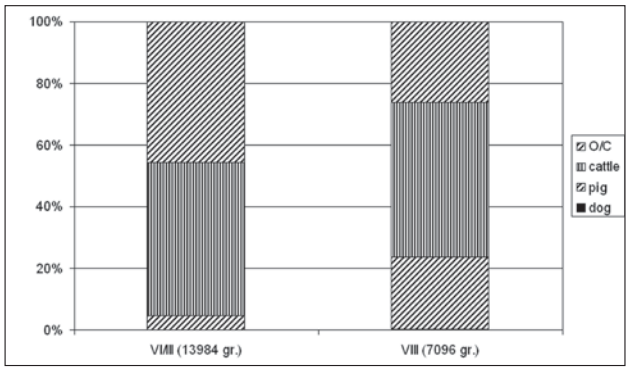

Fig. 10 Quantification of the major domesticates including dog from Çukuriçi Höyük based on weight in gram.

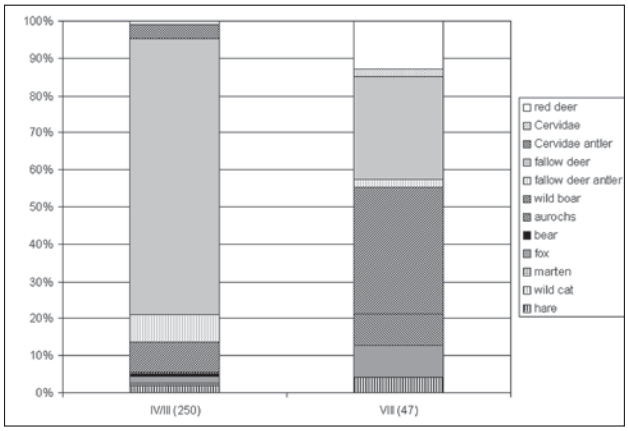

Fig. 11 Quantification of small and large game from Çukuriçi Höyük based on NISP.

ploitation of natural resources for the nutrition of the Early Bronze Age inhabitants. The wild birds represent two areas of hunting. On the one hand water birds like ducks, geese and pelican were caught and on the other hand quail (*Coturnix coturnix*) indicating hunting of small birds in an open countryside. The Early Bronze Age fish remains indicate inshore fishing activities for fishes like gilthead bream (*Sparus aurata*) and parrotfish (*Sparisoma cretense*). Finds of sometimes rather large shark and ray remains may indicate fishing in open waters and an outstanding find is the sting of a large stingray (Dasyatis sp.).

Among the major domesticates a few dog remains are present in Phase VIII as well as in the Early Bronze Age assemblage. Although butchering marks are absent, a tibia shows traces of burning at its fractured shaft. Therefore, it could be considered that people sometimes consumed dog meat. The quantification of the three major domesticates in Phase VIII of Çukuriçi Höyük reveals a rather balanced exploitation pattern even considering bone weight (Fig. 9–10). The Early Bronze Age sample reflects a change in use of domesticates. Pigs decrease drastically and ovicaprines became more important, indicated by a more or less equal bone weight with cattle remains (Fig. 9–10).

The Late Neolithic/Early Chalcolithic game remains are represented in lower amounts, but red deer, fallow deer and a higher quantity of wild boar and some specimens of aurochs appear in the sample (Fig. 11). The ›possible‹ aurochs remains are generally proven only by a few and rather small fragments. The observed Late Neolithic/Early Chalcolithic pattern changes completely in the Early Bronze Age, as fallow deer becomes the dominant taxon of the game fauna (Fig. 11). Up to now remains of brown bear occurred only in the Early Bronze Age assemblage. Hunting of small game can also be reflected by few percentages in both assemblages. Most important were probably hare and fox. Marten and wild cat can be proven only by a few specimens in the Early Bronze Age assemblage.

Late Neolithic/Early Chalcolithic and Early Bronze Age bivalve fauna obviously indicate completely different exploitation behavior, not only in the massive increase of shells in the Early Bronze Age assemblage but also in the frequencies of exploited species. In the Late Neolithic/Early Chalcolithic as-

semblage (NISP 138) Noah's ark shell represents 58%, spondylus 18%, oysters and a few examples of blue mussel 2.9% and 16% indicate exploitation of edible cockles. In the Early Bronze Age (NISP 3387) edible cockle (*Cerastoderma glaucum*) outweigh the assemblage with more than 90%, besides a large variety of species like Noah's ark shell (*arca noae*), corneous wedge clam (*Donacilla cornea*), bearded arch shell (*Barbatia barbata*), blue mussel (*Mytilus galloprovincialis*), oyster (*Ostrea edulis*), pen shell (*Pinna nobilis*), spiny cockle (*Acanthocardia tuberculuata*), razor shell (Solen sp.), spondylus (*Spondylus gaederopus*), carpet shell (*Tapes decussatus*) and venus shell (*Venus verrucosa*). Investigations on the mollusk fauna of Troy revealed similar pattern for Early Bronze Age Troy[58].

In Phase VIII of Çukuriçi Höyük only 10 purple snail shells and two limpets can be counted, whereas the Early Bronze Age assemblage (NISP 423) indicates a more intense exploitation of marine gastropods not only for nutritive reasons but probably also the collection of small shells as raw material for ornaments. However, the main part is represented by limpets (patella sp.), followed by ceriths (*Gourmya vulgata*) and purple snail (*Hexaplex trunculus*) and other species like dove shell (*Columbella rustica*), top shells (Gibbula sp., monodonta sp.), barley snail (*Barleeia rubra*), whelk (*Buccinulum corneum*), dog whelk shell (*Hinia reticulata*), conus (*Conus mediterraneus*), purple dye murex (*Bolinus brandaris*) and a few edible garden snails (Helix sp.). So far, Çukuriçi Höyük has revealed no evidence of purple dye production like that in Troy[59].

The shift in faunal composition from arboreus taxa like pigs, red deer and wild boar to taxa preferring more open land habitats like ovicaprines or fallow deer may give a hint of a change of vegetation. Similar results are described from Ilıpınar[60], where deforestation took place from Neolithic to Chalcolithic. According to the faunal exploitation pattern it seems plausible that Late Neolithic/Early Chalcolithic as well as Early Bronze Age inhabitants had access to the sea. However, in ancient times and still today a gradual silting-up of the Küçük Menders Bay can be assumed and observed. Thousands of years ago the shore line was a completely different shape[61]. In Late Neolithic/Early Chalcolithic times people collected mainly bivalves living in rocky habitats. The high abundance of fossorial bivalves in the Early Bronze Age might also be a clue for the deforestation of this region, which probably induced a high input of sediment and created new sandy biotopes on the shoreline adjacent to Çukuriçi Höyük.

In case of husbandry Çukuriçi Höyük may reveal an intermediate position in comparison to northern and southern sites. The focus in late Chalcolithic Pekmez[62] near Aphrodisias was probably more on ovicaprines and pigs, while the amount of pig decreases in the Early Bronze Age sample. Other Neolithic and Chalcolithic sites like Fikirtepe[63], Ilıpınar[64] and Menteşe[65] reveal that cattle and ovicaprines were the most exploited species, whereas in the late Chalcolithic of Top Tepe[66] ovicaprines dominate the assemblage. In Chalcolithic Arslantepe[67] ovicaprines and cattle were important and in the Early Bronze Age an increase of ovicaprines is observable. The Chalcolithic remains of Hassek Höyük[68] illustrate another pattern; ovicaprines were most abundant followed by pigs, and in the Early Bronze Age assemblage pigs appear to be of more importance than ovicaprines. However, it seems that from Early Bronze Age onwards the preference of breeding ovicaprines starts to spread from the southeastern Anatolian sites[69], in Demircihüyük[70] via Turkish Thrace[71] up to sites on the Greek mainland like Agios Mamas[72] and Kastanas[73]. As Buitenhuis[74] stated in 1994, there is a rather high diversity in animal husbandry between Neolithic and Chalcolithic sites and phases, and it is hard to argue on the basis of faunal remains that there is a common cultural background of the societies. This may depend on geographical and climate reasons or on the preference of certain species in societies. However, future investigations on material obtained from modern excavations will have the potential to shed some more light on these crucial questions.

Conclusion and Perspectives

Excavations in a small and deep trial trench on the northern boundary of Çukuriçi Höyük revealed a settlement phase (ÇuHö VIII) with few remains of stone and mud-architecture dating to the Early Chalcolithic period. The assemblage of around 1700 pottery fragments shows distinct parallel features with sites in the Lake District as well as the neighboring İzmir region, where the excavated settlements of Ulucak, Ege Gübre, Yeşilova and Dedecik-Heybelitepe as well as Agio Gala at Chios represent the Late Neolithic/Early Chalcolithic horizon. In addition to distinct analogies of the Çukuriçi assemblage to these sites, radiocarbon dates indicate a dating around 6000 BC. However, in order to gain a deeper understanding of early Çukuriçi Höyük concerning questions of architectural systems and settlement structures, handling of different resources and raw materials and stages of development, further excavations in the future are indispensable. Geological drillings that have been conducted by Helmut Brückner and his team since 2008 demonstrate the high potential of the tell for further research. Considering the promising appearance of a few meters of deposition underneath phase ÇuHö VIII we anticipate cultural layers of this settlement of earlier stages than suggested by the current ^{14}C-dates[75].

58 Çakırlar 2008, 97.
59 Çakırlar 2008, 97; Çakırlar 2007, 173.
60 Buitenhuis 2008, 206.
61 Kraft et al. 2005, 127; Kraft et al. 2007; Brückner et al. 2005, 98.
62 Crabtree – Monge 1986, 184.
63 Boessneck – von den Driesch 1979, 69.
64 Buitenhuis 2008, 208.
65 Gourichon – Helmer 2008, 437.
66 Buitenhuis 1994, 143.
67 Bökönyi 1983, 582.
68 Stahl 1989, 164.
69 Yakar 2001, 434.
70 Rauh 1981,15; Boessneck – von den Driesch 1987, 55.
71 Benecke 1998, 176.
72 Becker – Kroll 2008, 115.
73 Becker 1986, 248.
74 Buitenhuis 1994, 143.
75 Publication in preparation.

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