Ernst Pernicka, Sinan Ünlüsöy,
Stephan W. E. Blum (eds.)

Early Bronze Age Troy

Chronology, Cultural Development, and Interregional Contacts

EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN

UNIVERSITY OF
CINCINNATI

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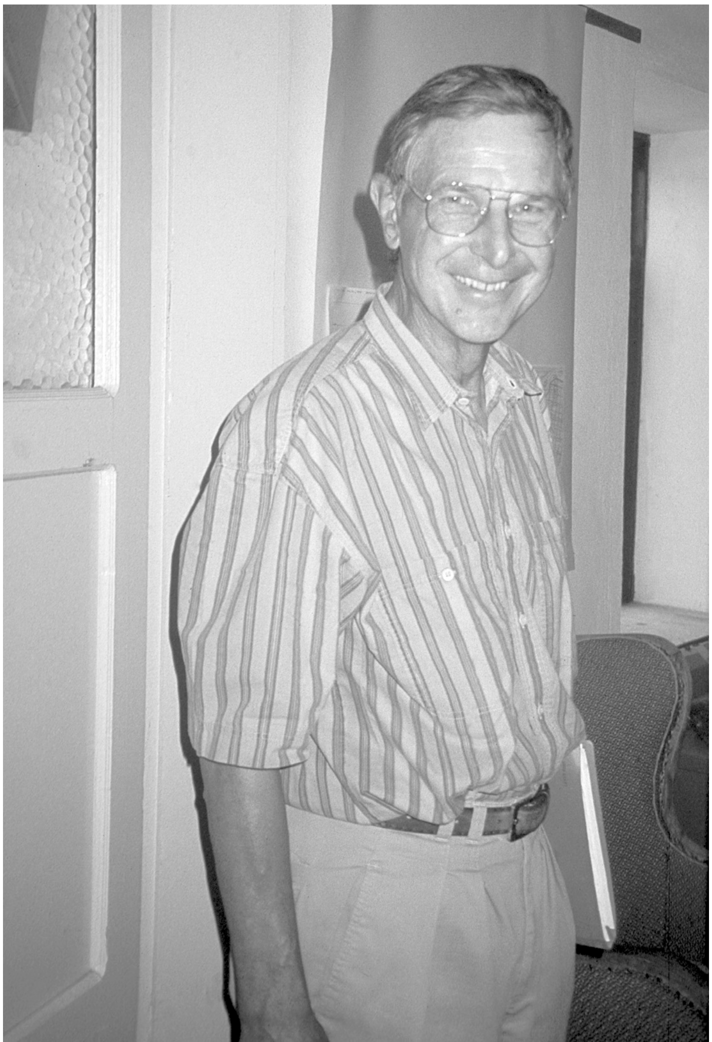

In memoriam
Hans Günter Jansen

1929–2013

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Preface

Ernst Pernicka

Troy has been of outstanding importance for EBA archaeology ever since the discovery and excavation of the site by Heinrich Schliemann. Partly due to the paucity of archaeological research on EBA Anatolia, Troy has long been considered as the only key site for Western Anatolia and the Northern Aegean. However, as a result of recent excavations at other contemporary sites (e. g., Liman Tepe, Yenibademli, Küllüoba), it has become clear that Troy was not the only significant EBA settlement in this region and that its position as a key site is due for a re-examination. To explore the similarities and diversities of Early Bronze Age cultures across the Northern-Aegean and Western Anatolia, an international conference entitled »Early Bronze Age Troy: Chronology, Cultural Development and Interregional Contacts« was held in early May 2009 at the University of Tübingen. Besides the general aspects of chronology and stratigraphy, it addressed themes such as the emergence of stratified societies, concepts of EBA economy and trade, production and distribution of raw materials and craft specialization with special reference to Troy itself.

After the untimely death of Manfred Korfmann who directed the new series of excavations until 2005 I was asked by the university to resume the responsibility for the research at Troy. This was not an easy task although I was associated with the project from the beginning in 1988, but rather from the outside and more as an adviser than a true member of the team. I gratefully acknowledge the help of many colleagues to get a grip of this enormous task but Hans Günter Jansen in particular formed a solid rock for me whose advice was always welcome and important on which I could rely on in every aspect. Hans Günter served as director of the Troy Foundation at the University of Tübingen and accompanied our research with deep knowledge and sympathy and, last not least, with outstanding generosity. It is for this reason the editors as members of the excavation team dedicated this volume to his memory.

After a successful career as physicist in an international computer company Hans Günter Jansen began a new one in the field of applied physics in archaeology. He took this very serious and indeed began formal studies of prehistoric archaeology at the University of Tübingen in 1984 where he also met Manfred Korfmann. When the new excavation project as one of the major goals of the research was the Lower City of Troy, whose existence was suspected since Heinrich Schliemann but was never really confirmed in the field. It was Jansen who suggested a large-scale geophysical prospection of the area south of the citadel of Troy and immediately began himself with this enormous task in view of the instrumentation then available. In the years between 1988 and 2001 an area of around 50 hectares was surveyed by Jansen himself and other specialist in physical prospection. As a result it was possible to outline the »city plan« with an orthogonal street system with *insulae* of the Hellenistic and Roman periods (Troy VIII and IX) together with the western Hellenistic city wall over a length of 400 m. But the most important discovery was the outline of the Late Bronze Age (Troy VI and VIIa) Lower City, which is represented not by a wall as originally assumed but by a ditch of 4 m width that extends over a length of more than one kilometer as has later been shown by excavations.

Besides his scientific achievements in archaeology, not only in Troy, Hans Günter Jansen was an indispensable member of the Troy team in a time when computers began to be applied at a regular and large scale also in archaeology. Here he could combine the knowledge of his two professional careers by creating a homepage of the project for the internet and improving its public visibility in every respect.

Finally, as managing director of the Troy Foundation he used his wide-ranging contacts to find supporters and donators and actually made considerably donations himself. He continued to participate in the excavation campaigns every summer and was highly respected as archaeologist and geophysicist. He was awarded the honors medal of the University of Tübingen and in 2002 also the Bundesverdienstkreuz, an order of the Federal Republic of Germany. He remained interested in the progress of research at Troy until the last field campaign in 2012. He died on 25 February, 2013. We will remember him as a warm-hearted friend and knowledgeable colleague.

Finally, we want to express our gratitude to the Deutsche Forschungsgemeinschaft (DFG) for long-term support of the Troy project and the Institute for Aegean Prehistory (INSTAP) for financial support for the publication of this volume.

Tübingen, March 2016

Early Troy and its significance for the Early Bronze Age in Western Anatolia

Barbara Horejs – Bernhard Weninger

Abstract

The impact of early Troy on Western Anatolia is discussed by presenting the problems and opportunities experienced while attempting to establish a relative and absolute chronology for Çukuriçi Höyük, a site recently excavated in the lower Kaystros Valley. Following a short description of the settlement and its stratigraphic sequence, the discussion focuses on selected pottery assemblages from rooms 19 (phase ÇuHö IV) and 1 (phase ÇuHö III), and from parallel sites. The result of the analysis is a synchronisation of both settlement phases with Troy I, Beycesultan XIX–XVII, Aphrodisias Pekmez LC4–EB1/2, Yortan, Emporio V–IV, Thermi and Poliochni blue and the relative dating of Çukuriçi Höyük IV–III to EBA 1. An independent absolute chronology for this site is possible thanks to 10 radiocarbon dates presented here. The actual date for both phases can be fixed between 2900 and 2750 calBC, which corresponds to Troy I early in particular. In a next step, the results are used as a basis for the re-evaluation of surveys previously carried out in the Kaystros valley. Finally, the possible consequences for the chronological integration of the so-called Yortan group are discussed with the addition of recent findings from surveys conducted in the lower Kaykos Valley.

Introduction

Although »Troy […] cannot represent the whole of Anatolia, in which Troy is one site in one area of one region, nor indeed the Aegean itself« as D. French summarised concisely (French 1997: 590), the significance of Troy still remains unbowed. Not only does the Aegean coast of Western Anatolia still benefit from this key site, but due to comparable ecological and geographical conditions, Troy is of special importance for this particular region. Apart from Troy's political role and its historical interpretation in the Late Bronze Age, it primarily represents the only continuous stratigraphic sequence of an extensively excavated tell in the entire region, with the added bonus of having yielded a radiocarbon dated sequence spanning the entire Bronze Age. For these reasons, Troy might be still characterised as unique and outstanding among prehistoric sites in Western Anatolia and the Aegean.

The significance that Troy holds for the current research into the Early Bronze Age in the 3rd mill. BC demands that a differentiated view is taken. The main cultural characteristics of the developed Early Bronze Age period in Western Anatolia appear more or less clear, thanks to numerous studies carried out at excavations in Troy itself (Blegen et al. 1950) and at other sites including Liman Tepe, Bakla Tepe (Erkanal 1999; 2008a; 2008b; Erkanal and Erkanal 1983; Erkanal and Günel 1997; Şahoğlu 2005; Şahoğlu 2006; Şahoğlu 2007; Oybak-Dönmez, 2006), Demirçihüyük (Korfmann 1983; Efe 1988), Küllüoba (Efe 2007), Aphrodisias (Joukowsky 1986), Iasos (Pecorella 1984) and Beycesultan (Lloyd and Mellart 1962). As O. Kouka demonstrated, the coastal sites were culturally linked to the Eastern Aegean, which she defined as the »*North-eastern Aegean Koine*« encompassing the islands of Lemnos, Lesbos, Chios, Samos, Thasos, Samothrace, Imbros, Tenedos, Skyros and Rhodes (Kouka 2002; 2008a; 2008b). On the other hand, the Anatolian coastal sites from the developed 3rd mill. BC were strongly connected to Inner Anatolia as is indicated by the material culture and architectural features, especially well known from Troy II–III (Korfmann 2001: 361–365). Moreover the entire region participated in supra-regional processes starting around 2600/2500 BC and described as a »*period of inter-*

national spirit« (Renfrew 1972), during which different elements of innovation were brought to the Aegean from the Middle East, the Levant and Anatolia (e. g. Maran 1998; Rahmstorf 2006). One of the features that define the »period of corridor houses« in the Argolid (Maran 1998) and in other contemporaneous central places throughout Kouka's »North-eastern Aegean Koine« (Kouka 2002) is the model of a specific type of geographical and sociopolitical centralisation.

In contrast to the developed EBA, during which Troy was just one of a series of archaeologically investigated sites, our knowledge of the Western Anatolian coast in the first half of the 3rd mill. BC is almost entirely based on Troy I. A project recently launched in two different coastal regions, i. e. in the Kaykos and Kaystros Valleys, focuses, amongst other things, on the cultural processes that took place in this preceding period of the early 3rd mill. BC. These processes provided the essential conditions for the emergence of proto-urban centres in the developed 3rd mill. BC. Although a model of the individual stages of development in settlements from c. 3000–2600/500 BC has been put forward (Kouka 2002: 299 f.), there is a lack of strong evidence in Western Anatolia so far. Only a small number of sites from this period have been excavated (cp. French 1997: esp. 579–583); the lack of data from this 500 year period complicates the formulating of a convincing theory concerning the cultural development in the early stages of the Bronze Age. The situation is even more unsatisfying when it comes to the 4th mill. BC, or the Late Chalcolithic period in Anatolian terms. The theoretical concept of an independent Copper Age is not supported in all regions of Europe and intensive discussions, mainly in the 1980s and 1990s, did not produce any widely accepted results, especially regarding Greek prehistory (e. g. Maran 1998; Alram-Stern 2004). In contrast to the Aegean world, the Chalcolithic as a terminologically and chronologically fixed period between 6000 and 3000 BC is common in Anatolian prehistoric research. Its origin in Eastern and Central Anatolian contexts as well as its significance from the point of view of cultural history was convincingly argued by U. Schoop (2005). Apart from a small number of sites (e. g. Kiliktepe, Milet I, Altınkum Plajı, Mersim Dere III, Kumtepe, Liman Tepe) so far, no lengthy stratigraphic sequence with evaluative data from closed contexts exists for this period on the Western Anatolian coast. As a result, it is difficult to differentiate between the Late Chalcolithic and the early stages of the Early Bronze Age based solely on material assemblages. The consequences of this lack of archaeological research are clearly reflected in the old debate about the so-called »Yortan Culture«, named after a cemetery excavated in the very early 20th century in the upper Kaykos Valley (Kâmil 1982). First of all, its definition as an »archaeological culture« must be seen against the background of mid 20th century scientific research (Bittel 1950; Lloyd and Mellaart 1962) and requires re-evaluation. Surveys conducted in the Kaykos Valley since 2008 have provided new data on which to base the discussion (Horejs 2009b; 2010b. In press a. In press b).

Moreover, the discrepancies in the dating of the Yortan horizon by different scholars demonstrate rather well the principal problems with defining the whole region in the first half of the 3rd millennium BC (cp. e. g. Bittel 1950; Podzuweit 1979; Korfmann 1981; Efe 1988). Current studies on the cultural processes that occurred during this period must take into account these basic chronological problems, which can only be solved by excavating closed settlement deposits that are embedded in stratigraphic sequences and will yield radiocarbon dates. Excavations currently underway at Çukuriçi Höyük in the Kaystros (*Küçük Menderes*) Valley are the first step towards a resolution in this discussion.

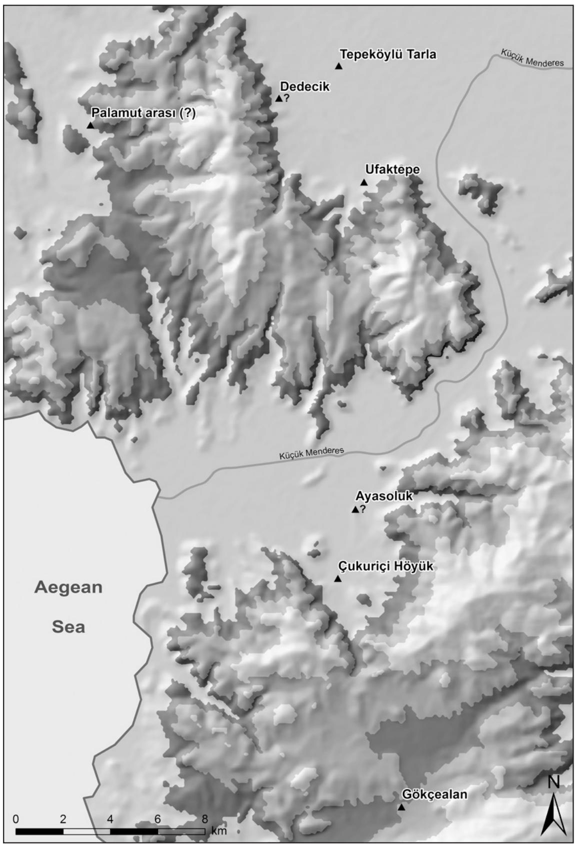
The lower Kaystros (Küçük Menderes) Valley in the 3rd mill. BC

Extensive surveys undertaken in the 1980s by R. Meriç (2009) in the region of the Kaystros Valley, brought to light a handful of sites dating from the Early Bronze Age. Based on these surveys and two additional excavations, six sites with possible traces from the 3rd mill. BC have to date been identified in the lower valley (fig. 1):

1. Gökçealan: surface finds (Meriç 2009: 31 f.; pl. 3, K34)
2. Ufaktepe: surface finds (Meriç 2009: 64; pl. 3, K36; pl. 4, K48; pl. 5, K53. 54. 61. 65)

3. Palamut arası (?): one pottery fragment found on the surface (Meriç 2009: pl. 3, K32)
4. Tepeköylü Tarlası: surface finds (Meriç 2009: 65; pl. 4, K42. 47; pl. 5, K55; pl. 7, K78–80)
5. Dedecik-Heybelitepe (?): excavated by C. Lichter and R. Meriç (Herling et al. 2008: 16–26); although the excavators date the upper of the two levels (*Schicht B*) to the Late Chalcolithic, they also presume that there is an as yet undetected EBA settlement phase among the deposits, which is represented currently only by a small number of ceramic finds.
6. Ayasoluk: excavated by M. Büyükkolancı (e. g. Büyükkolancı 2007); while no deposits of the EBA were identified, a few finds including a lid and a clay stamp might be seen as evidence for a 3rd mill. BC occupation (Büyükkolancı 2006: 77. 82).

Fig. 1: Sites of 3rd millennium BC (Early Bronze Age) in the lower Kaystros valley (after Meriç 2009 with additions; map by B. Horejs/Ch. Kurtze).



Neither the surface finds nor the unstratified material from the excavations offered much information; it appears, however, that mainly the early stages of the EBA are presented there. Only at Tepeköylü has pottery from the developed EBA, for example a few fragments of wheelmade bowls, been identified (Meriç 2009: pl. 7.K78–80; 8, K81–83). In contrast, most of the ceramic finds from the other sites suggest a chronological link to Troy I (in contrast: Meriç 2009: 126–127). The best arguments for an early date of these ceramic finds can be found in Çukuriçi Höyük, a tell-site located c. 1 km southeast of Antique Ephesos.

Excavations funded by the Austrian Science Fund (FWF-Project no. P 19859–G02) were mounted at Çukuriçi Höyük between 2007 and 2009, and are due to be continued in the near future as part of an interdisciplinary interregional project (START Project Y 528–G19; ERC Project 263339). Five settlement phases have been defined so far, dating from the Early Chalcolithic (6200–6000 BC), the Late Chalcolithic (second half of the 4th mill. BC) and the Early Bronze Age periods (Bergner et al. 2008; Horejs 2008a; Horejs 2008b; Horejs 2009a; Horejs 2010a; Galik and Horejs In press; Horejs et al. In press).

Early Bronze Age Çukuriçi Höyük

The settlement layers excavated to date in what is today the southern part of the tell (trenches S1–S4) dated mainly from the Early Bronze Age. Based on geophysical surveys and old aerial photographs these layers are presumed to have originally formed the centre of the tell (Horejs 2008a: 92; fig. 2). Two architectural phases, defined as ÇuHö IV and III, consisted of rectangular houses with one or more rooms, some of them joined together to form vast buildings (fig. 2). It has been suggested that their primary use was residential, but that they also served as workshops for copper processing (Horejs et al. In press). This contribution will focus on the relative and absolute dating of both settlement phases and their possible connection with Troy. While each room of the lower and therefore earlier phase ÇuHö IV was composed of several occupation surfaces represented by renewed or repaired floors or changing installations, which cannot always be

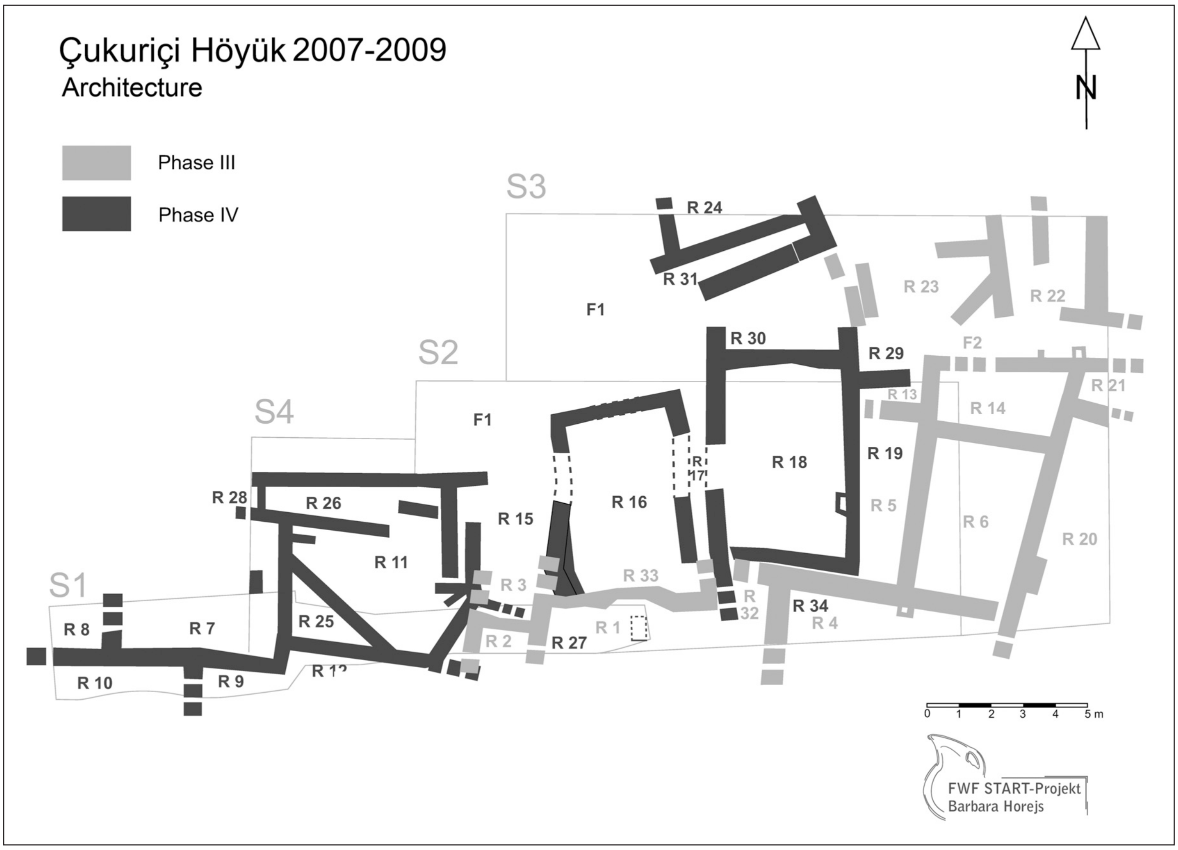


Fig. 2: Schematic plan of EBA architecture excavated in trenches S1–S4 at Çukuriçi Höyük (plan by M. Börner/A. Buhlke/B. Horejs).

linked to each other in detail, their main features, such as the walls, remained in constant use. Moreover, all settlement structures of ÇuHö IV were covered by levelled layers providing bases for ÇuHö III constructions, resulting in a clear distinction between the two phases. These levelled layers represent the end of ÇuHö IV (as well as the beginning of ÇuHö III) and consequently also provide a *terminus ante quem* for this period of occupation.

Selected pottery from room 19 of settlement phase ÇuHö IV may serve as a key assemblage typical of the ceramic assemblages from the entire phase (fig. 3). The fragments selected here came from two stratigraphic units (SE 595 and 636), located between two stamped clay floors, one of which overlay a child burial, which has already been published (Horejs 2010a: 168 f. 175 fig. 7). The most common pottery types were undecorated burnished grey or grey brown bowls with short, thin and inverted rims, with or without small but thick handles or lug-like handles in different positions, mainly situated directly below the carination (see the examples from room 19, fig. 3: 1.2.4). A few fragments of so-called ›cheese-bowls‹, defined as open vessels with a row of small holes around the rim (fig. 3: 3), were made of coarse fabric with hardly smoothed surfaces. Both open and closed grey burnished vessels sometimes exhibited incised decoration, like the fragment from room 19 with a pattern consisting of horizontal zigzags and dots (fig. 3: 5). Coarse ware was represented mainly by tripod cooking vessels, usually red burnished, some with a red slip, some without (fig. 3: 6.7). The remains of a neonate were found in room 19 in a typical tripod with a smooth s-profile that appears to have been used as a funerary vessel in a secondary function (Horejs 2010a: 175 fig. 7). A small number of *Askos* type jugs (cp. Horejs 2010a: 175 fig 8c) or jugs with smoothly worked beak-shaped spouts were also found in phase ÇuHö IV, typically with red slipped and burnished surfaces.

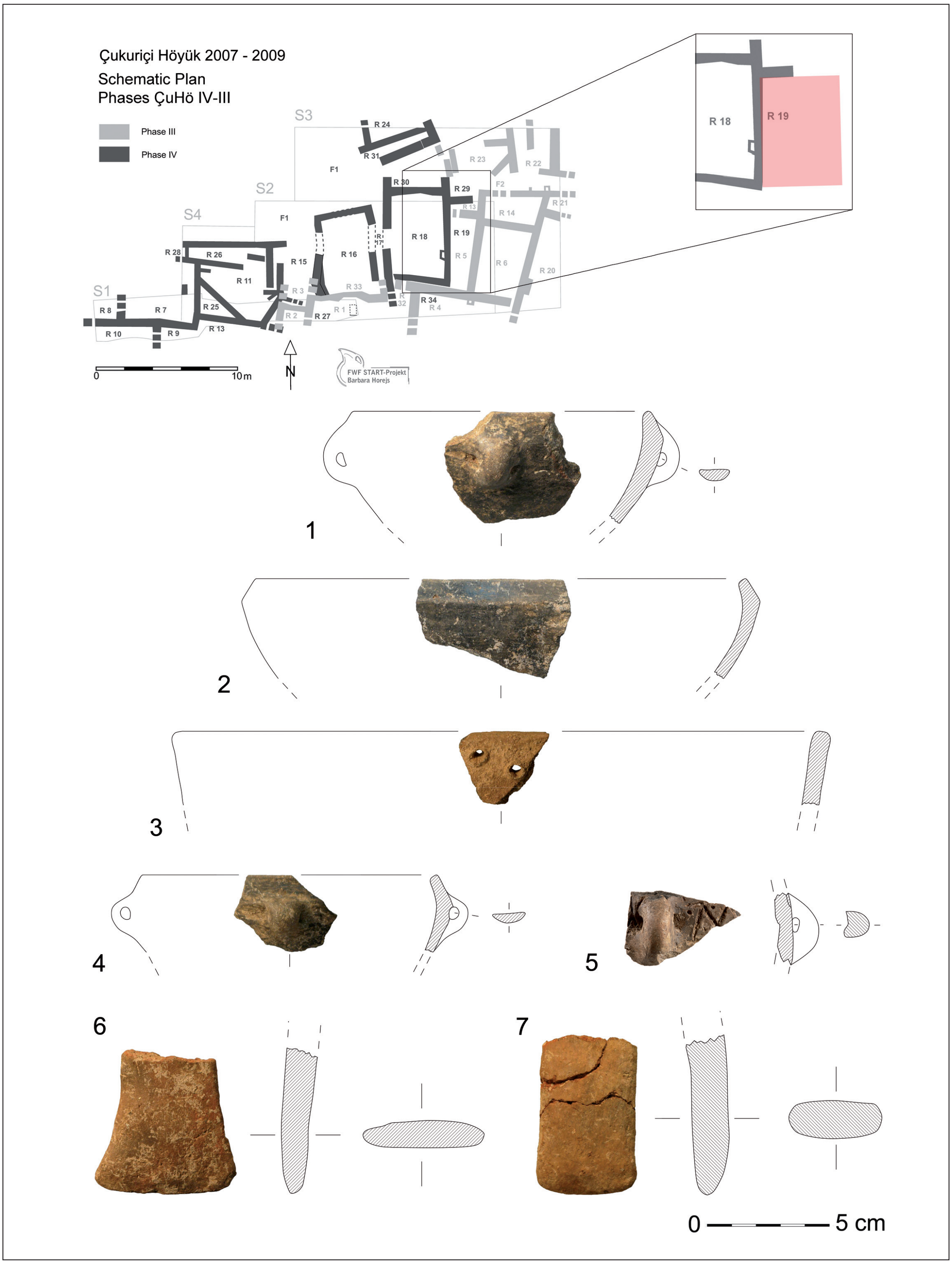


Fig. 3: Selected pottery assemblage of room 19 in settlement phase ÇuHö IV (1. ÇuHö 08/595/1/3; 2. ÇuHö 08/636/1/2; 3. ÇuHö 08/595/1/5; 4. ÇuHö 08/636/1/58; 5. ÇuHö 08/595/1/5; 6. ÇuHö 08/636/1/94; 7. ÇuHö 08/636/1/97).

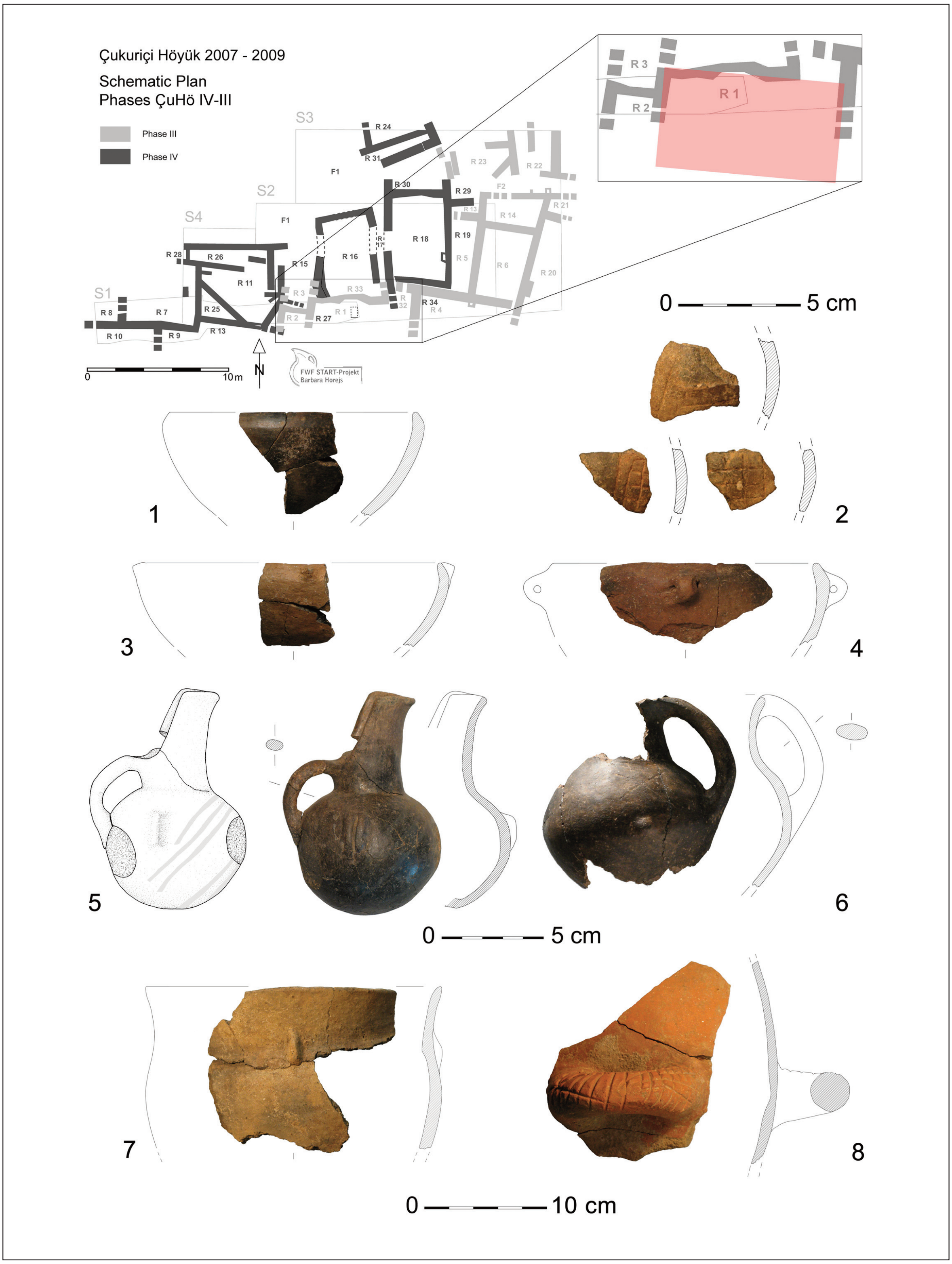


Fig. 4: Selected pottery assemblage of room 1 in settlement phase ÇuHö III (1. ÇuHö 07/368/1/9; 2. ÇuHö 07/400/1/21–23; 3. ÇuHö 07/368/1/2; 4. ÇuHö 07/379/1/3; 5. ÇuHö 07/354/1/401; 5. ÇuHö 06/218/1/11; 6. ÇuHö 06/218/1/1; 7. ÇuHö 07/354/1/1202).

Relative dating of Çukuriçi IV and III

Troy is obviously the main contender for analogies with Çukuriçi IV and III. As in Çukuriçi IV, Troy type A12 bowls in a similar fabric were very popular in Troy I, particularly in the early and middle sub-periods of Troy I, while less so in the later stages (Blegen et al. 1950, 60 figs. 258–261). Differences can be seen in the position of the lugs, which in Troy were mainly situated above the carination. So far, only little information on Troy I from the recent excavations under the direction of M. Korfmann has been published. In G. Sazcı›s study of the deposits from square D7 below a Troy IIc wall, the assemblages are presented as »*Maritime Troia-Kultur*«, dating from Troy I–III. Its »earlier phase«, not clearly defined chronologically, also includes A12 bowls (Sazcı 2005: 38 f. pl. 2, 3). Although, confusingly, these deposits are termed as II1–II4, they appear in part to represent Blegen's Troy I (early? middle? late?), because of their direct location on solid rock as well as the predominance of characteristic Troy I fabrics in the assemblages (Sazcı 2005: 41.43.46–47). Following Ch. Frirdich's convincing proposition concerning a possible simultaneous occurrence of Troy I and II fabrics, especially in Troy I late and II early (Frirdich 1997), a clear distinction of these newly excavated deposits remains difficult. Comparable types of bowls already occurred in Kumtepe IB (Sperling 1976: 340 fig. 20, 615–617), which appears to date from the end of the Late Chalcolithic, as argued convincingly by U. Schoop (Schoop 2005: 243–246. 253–263), and were also popular in Kumtepe IC (Sperling 1976: 347 fig. 23, 715–717).

In Beycesultan XIX–XVII such bowls were identified as a very common and most distinctive shape (Lloyd and Mellaart 1962: 121 fig. P.14.20–25; P.15.12–17, 28–35). Although this type was still popular in levels XVI and beyond, it was usually decorated in those levels with elaborately worked lugs, handles or knobs (Lloyd and Mellaart 1962: 141 figs. P.22 and P.23). So far, such bowls have not been found at Çukuriçi Höyük. Similar bowls were also found in the cemetery of Yortan (Kâmil 1982: 82; pl. 3; fig. 23, 1–3) and in Aphrodisias Pekmez, most frequently in the Late Chalcolithic 3–4 (Joukowsky 1986: 318 tab. 99; 353 fig. 300,7; 355 fig. 301,5; 551 fig. 396,15; 559 fig. 402,17; 563 fig. 405,23). Parallels with Eastern Aegean islands can be detected in Thermi I–V (Lamb 1936: figs. 26, 1–4; 28, 2; pl. 11), in Poliochni blue (e. g. Doumas and Angelopoulou 1997: 544 fig. 1; Cultraro 2004: 24 fig. 4) and in Emporio V–IV (Hood 1981: 176 f. 369–377). In addition to the similarities regarding both shapes and fabrics in Emporio V–IV, lugs or ›lug-like‹ handles were occasionally set below the carination, which corresponds to the Çukuriçi bowls (Hood 1981: 369 f. fig. 167,995). The popularity of handmade grey-burnished bowls with inverted rims on the Central Aegean coast of Western Anatolia is furthermore demonstrated by survey finds for instance from Arapkahve near Torbalı (Meric 1982, 104 fig. 106) and from the Çeşme Peninsula (Caymaz 2008: 8 f. figs. 5–7.10), which of course does not provide us with any information about their chronological position.

Other types from phase ÇuHö IV are rather difficult to date in clear relative terms within the Aegean coastal areas. Cheese bowls (fig 3,3) in a similar coarse fabric were generally popular in the Late Neolithic and Chalcolithic periods, as seen in Emporio X–VIII (Hood 1981: 247–249; fig. 119), in Gülpınar (Takaoğlu 2006: 302 fig. 11,32) in mixed deposits at Milet I/II (Heroon III: Parzinger 1989: 422 fig. 3,1), in Agio Gala Upper Cave/upper levels (Hood 1981: 37 f. fig. 20, 91–93), in Tigani IV (Schoop 2005: pl. 155,1) and in Beşik-Sivritepe (Schoop 2005: pl. 157,9). Later examples of cheese bowls have been found in Emporio V–IV (Hood 1981: 37) and they appear to have been used – albeit not in great numbers – until the EBA II in the Cyclades and in Crete (Karantzali 1996: figs. 2c; 121a).

Closed vessels with incised decorations were represented by only a few sherds at Çukuriçi Höyük IV (fig. 3,5), where decorated pottery was generally rather rare. This fact, again, can be compared with Troy, where »*relatively little of the pottery is decorated*« […] and »*decorated pieces are most numerous in the early strata*« of Troy I (Blegen et al. 1950: 77). At Emporio incised decoration was not common in VII–VI, but increased in V–IV, corresponding in style and shape to Troy Ia–c (Hood 1981: 233). Incised pottery was unusual in Beyecultan XIX–VII and very rare in the later levels (Lloyd and Mellaart

1962: 116. 135–139). Horizontal zigzag lines accompanied by dots find their closest parallel on a small jar from the cemetery of Yortan (Kâmil 1982: fig. 25, 22).

Simple tripod cooking pots are hardly useful as a chronological indicator due to their occurrence from the Chalcolithic period to the Iron Age, but could offer information about local or regional style preferences. Numerous tripod feet found at Çukuriçi Höyük were generally of a simple rectangular shape or had a wider base (figs. 3, 6–7). These kinds of tripod feet might represent a local style on the Central Aegean coast and further inland, as they were also found in Beycesultan (Hood 1981: 122 fig. P.16, 16), Aphrodisias (Joukowsky 1986: 559 fig. 402, 30.35) and Milet I/II (Parzinger 1989: 422 fig. 3,7). At Emporio V–IV such feet existed alongside the more common pointed variants (Hood 1981: 393 fig. 71f). Further north, pointed feet appear to have been the only type used, as can be seen in Thermi (Lamb 1936: fig. 26) and Troy I (Blegen et al. 1950: fig. 235, 25–29; fig. 237, 33–35; fig. 242, 19–23; fig. 245, 34–37). Although one rectangular foot from the Late Chalcolithic Kumtepe IB is known (Sperling 1976: pl. 76, 558; Schoop 2005: pl. 157, 6), the Trojan pointed feet clearly predominated in northern assemblages. Such Trojan feet have not been discovered at Çukuriçi Höyük so far, which might point to regional stylistic differences between the Northern and Central Aegean coast.

In conclusion, pottery types from room 19 of phase ÇuHö IV presented here can be compared to those from Troy I (mainly early–middle?), Beycesultan XIX–XVII, Aphrodias Pekmez Late Chalcolithic 4, Yortan, Emporio V–IV, Thermi all phases (?) and Poliochni, mainly the blue period. However, before combining these results with the radiocarbon dates, a pottery assemblage from the following phase ÇuHö III should be discussed in brief.

The latest occupation surface in room 1 was stratigraphically sealed by destruction layers possibly brought about by an earthquake (Horejs 2008a: 99 f. fig.10, b. e). Although the architecture of phase ÇuHö III was practically destroyed in recent times by a bulldozer, room 1 can be reconstructed as part of a vast building complex with a minimum of 11 units (fig. 2). Fig. 4 presents a selection of finds from room 1. The burnished bowls with short inverted rims discussed above were still very common, handmade in a grey to grey-brown fabric and sometimes had lug-like handles below the bend or knobs below the mouth (fig. 4,1.3.4). Incised decoration was still rare (fig. 4,2), and coarse ware continued to be mainly represented by tripod cooking pots or simple pots that were sometimes decorated with vertical applications on the rims or necks (fig. 4, 7). Large closed jars with grooved decorated handles had already appeared in the earlier phase ÇuHö IV and were still in use in phase III (fig. 4, 8). Finally, beak-spouted jugs continued to be used in phase III and were made either in a simple red-slipped ware or in a grey fabric with knobs, applications and white painted decoration (fig. 4, 5.6; Horejs 2008b: fig. 15; Horejs et al. In press: fig 3). Overall, decoration on ÇuHö III pottery remained rather restrained. The entire pottery assemblage appears to have changed only marginally and mainly in terms of the statistical combination of fabrics, which have not yet been analysed; however, the main features continued on from phase ÇuHö IV to III.

The closest parallels for white painted grey polished jugs (fig. 4, 5) were found in the cemeteries of Yortan (Kâmil 1982: e. g. fig. 46,170–173) and Babaköy (Bittel 1939–41: 8 fig. 1–2). Besides the similarities regarding the shapes, fabrics and painting, the Yortan jugs were also decorated with knobs or vertical applications on the shoulders. The pattern from the Çukuriçi example with up to three parallel zigzag lines can be reconstructed as a continuation of these parallel finds. The basic type of decoration using white paint on dark polished surfaces and its chronological significance was discussed by J. Seeher with reference to the Demircihüyük pottery, (see especially ware H: Seeher 1987: 68–70). Because pottery with white paint on dark surfaces existed in the Chalcolithic period and in the Bronze Age (Schoop 2005: 299 f.) and due to the lack of adequately dated contexts in some of the sub-periods, its first appearance and possible continuity in some regions of Central and Western Anatolia has been widely debated (cp. Efe 1989–1990 with Schoop 2005: 300). Although it only occurred in small amounts, it is clear that pottery with white paint on dark surfaces was used in the early stages of the EBA throughout the Central Aegean coast and associated islands, as seen in Thermi I–V (Lamb 1936: 78. 82) and Emporio,

ÇuHö Phase	Relative Dating	Sample	Lab Code	$\partial^{13}C$ [‰ PDB]	^{14}C-Age [BP]	Material	Calibrated Age 95%-Confidence [calBC]
III	EBA1 (-2?)	06/207/11/1	VERA-4651	-23.3	6685 ± 40	4 Grains	5680–5520
		07/377/11/1	VERA-4654	-14.5	4285 ± 30	5 Grains	2940–2860
		09/891/11/1	Erl-14523	-26.8	4252± 37	Charcoal	2970–2730
		09/909/11/1	Erl-14525	-27.5	4116 ± 40	Charcoal	2920–2520
III	FBZ 1 (Levelling Layer)	08/520/11/2	Erl-14516	-27.2	4120 ± 38	Charcoal	2920–2520
IV	EBA 1	07/388/11/1	VERA-5025	-20.3	7145 ± 40	Ovis/Capra (Humerus)	6080–5960
		08/540/11/2	VERA-5024	-20.1	4100 ± 40	Bos primigenius f.taurus (Humerus)	2930–2490
		08/574/11/1	VERA-5125	-22.9	4195 ± 35	9 charred Grasses	2950–2630
		08/614/11/1	Erl-14518	-26.5	4412 ± 40	Charcoal	3260–2860
		08/627/11/1	Erl-14517	-26.3	4186 ± 34	Charcoal	2940–2620
		08/681/11/1	Erl-14519	-27.3	4089 ± 38	Charcoal	2920–2480
		08/1004/11/1	Erl-14524	-27.8	4242 ± 36	Charcoal	2960 – 2720

Fig. 5: Radiocarbon Dates from Çukuriçi Höyük Phases IV and III, also showing the results of ^{14}C-age calibration for single samples (column »Calibrated Age«).

where this type of decoration was most popular in periods VII–VI. Numbers declined in Emporio V–IV, where only a small number of perhaps imported vessels (?) were found (Hood 1981: 225). This ware also occurred in Beycesultan XIX–XVII, albeit not in very large numbers (Lloyd and Mellaart 1962: 116). White paint was frequently used in Late Chalcolithic Aphrodisias, disappeared during EBA 1, only to reappear in EBA 2 (Joukowsky 1986: 310). Jugs with similar white painted triple zigzag lines circulating the bodies of the vessels were found in the cemetery of Iasos (e. g. grave 86; Pecorella 1984: fig. 3, 24; pl. 47, 189–190). Finally, 21 examples in total are known from Troy I early–late, decorated with similar patterns of diagonal lines in a dull white paint on grey or black polished wares (Blegen et al. 1950: 79). In summary, the few vessels from Çukuriçi Höyük with white paint on dark surfaces fit in well with the Western Anatolian and Eastern Aegean pottery assemblages and, moreover, demonstrate the popularity of this specific ware on the Central Aegean coast during the EBA.

Two assemblages from rooms 19 and 1 from settlement phases ÇuHö IV and III have been briefly presented and discussed. Distinctive changes in the pottery types or characteristic stylistic differences from one phase to the next have not been identified in the pottery. Therefore one may conclude that the homogenous range of pottery does not represent a long period of time and, unfortunately, cannot be dated more precisely by relative chronological means. Both phases can only very generally be associated with Troy I, Beycesultan XIX–XVII, Aphrodias Pekmez Late Chalcolithic 4 to EBA 1/2 (?), Yortan, Emporio V–IV, Thermi all phases (?) and Poliochni (mainly blue period?), which together cover more than 500 years in absolute terms (e. g. Korfmann and Kromer 1993: esp. 164–169). The often postulated slow dynamic of material development during Troy I prevents a more accurate correlation which, therefore, can only be brought about by independent radiocarbon dates from Çukuriçi Höyük.

Absolute Dating of Çukuriçi Höyük IV and III

So far 12 different carbon samples of these phases have been dated by the ^{14}C-AMS-technique (Accelerator Mass Spectrometry) at the ^{14}C-AMS-Laboratories of Erlangen and Vienna. Four of these samples are from ÇuHö III, seven are from ÇuHö IV, and one sample is from the levelling layer dividing these phases (fig. 5). Absolute dating in this report is

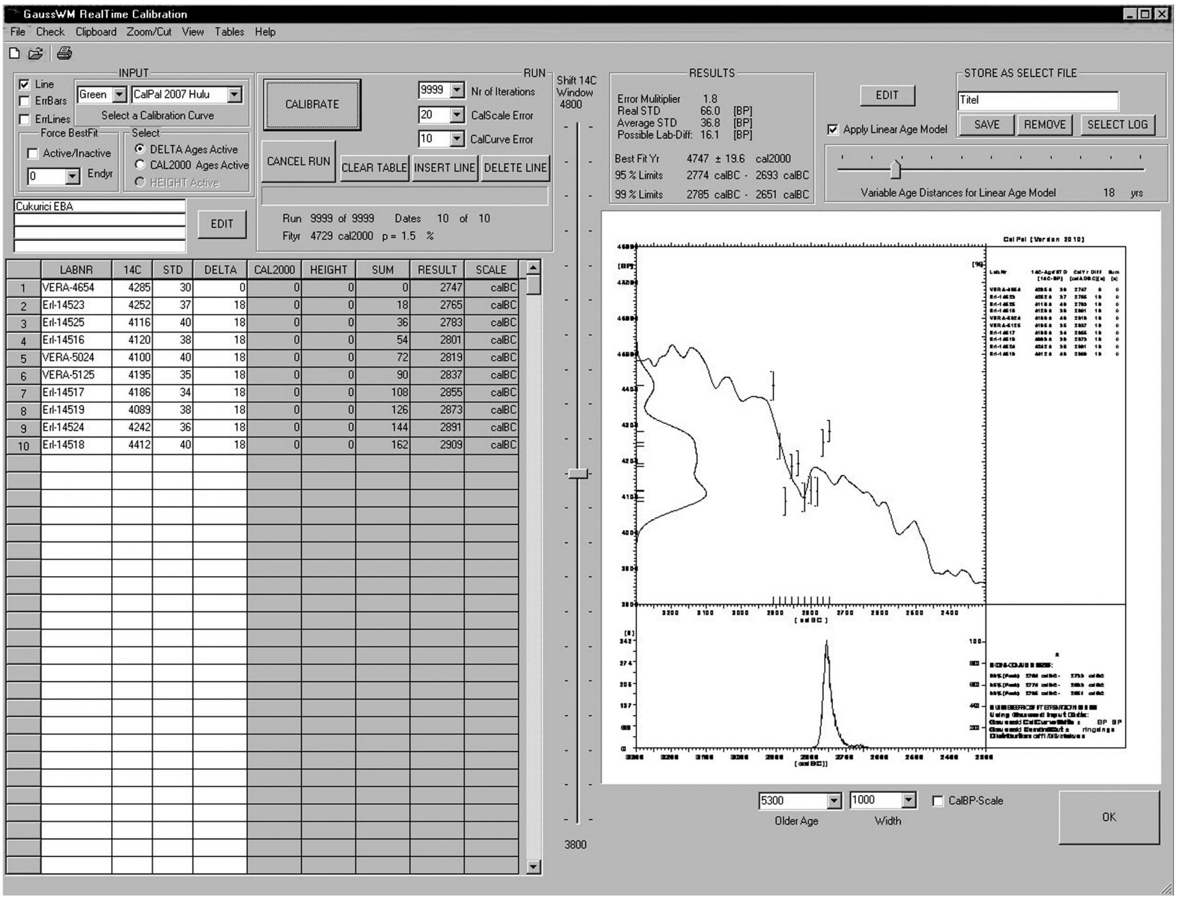


Fig. 6: Screen dialog for application of Monte Carlo Wiggle Matching, as integrated in CalPal ^{14}C-age calibration software.

based on tree-ring calibrated ^{14}C-ages, with results referenced to the calendric time scale [calBC] (years before Christ). Conventional ^{14}C-ages are given on the ^{14}C-scale with units [BP]. Archaeological ^{14}C-ages are provided as measured (conventional) ^{14}C-age values together with the corresponding laboratory code (e. g. Erl-14524: 4242 ± 36 BP). Radiocarbon determinations discussed in this report have been age-calibrated by employing the presently recommended INTCAL09 data (Reimer et al. 2009). Tree-Ring calibrated ages are given as 95 %-confidence intervals (in fig. 5 column »Calibrated Age«. This citation corresponds to recommendations of the Radiocarbon Community (most recently: Reimer et al., 2009). In statistical processing of ^{14}C-ages and construction of archaeological age models, aimed at constraining the single sample ages, we use CalPal software (Weninger and Jöris 2008) along with a refined software dialog for Monte Carlo Wiggle Matching as shown in fig. 6. Following a discussion of the statistical and stratigraphic properties of these ^{14}C-ages, we here provide a radiocarbon-based age model for the Çukurici Early Bronze Age (EBA) strata. The results are shown in fig. 7. They were derived by methods describe in the following.

As shown in fig. 5, the stratigraphically older EBA phase ÇuHö IV is represented by four AMS-dates on potentially long-lived charcoal (Erl-14524,-14519, -14517, -14517) as well as by two dates on short-lived samples (VERA-5125,-5024), which were processed on grass and bone. The stratigraphically younger EBA phase ÇuHö III is represented by three charcoal samples (Erl-14516,- 14525,-14523) and one short-lived grain sample (VERA-4654). Our approach now is to construct an archaeological age model based on available stratigraphic, taphonomic and biological (growth span) sample information. Clearly, in developing this age model, the highest priority must be given to the short-lived samples. In the initial data-screening, therefore, we used the three ^{14}C-ages (VERA-5125, -5024, -4654) on single samples (grain, grasses, bone) to calculate some preliminary calendric ages for the phase boundaries. Suffice it to say that, aiming at the highest possible chronological resolution, even such single-sample calibrated ages on short-lived materials are of little (conclusive) help in attaining a high-resolution chronology. This is due to the multitude of wiggles in the high-precision ^{14}C-age calibration curve, which make the Radiocarbon dating method essentially blind towards the targeted (decadal scale) time resolution. But they do support the application of filtering, in search of outliers. This applies to VERA-4651 (6685 ± 40 ^{14}C-BP) and VERA-5025 (7145 ± 40 ^{14}C-BP). Although deriving from the EBA strata, these two dates are many thousands of years too old and obviously represent samples reworked from the directly underlying Neolithic settlement. These discrepant ages represent the tell-typical phenomenon of material relocation between different settlement phases. Having exempted these two outliers (as judged from the EBA dating perspective) from the present analysis, we modelled the remaining ten dates that have calibrated age values within the age-range expected for the EBA.

Already as a result of these initial screening studies, as they are based on the ^{14}C-ages for annual samples, we concluded that earliest (possible) begin of ÇuHö IV would be ~ 2900 calBC, and the latest (possible) end of ÇuHö III would be ~ 2740 calBC. However, to derive further conclusive support for this hypothesis requires application of more advanced statistical methods. In a second step, therefore, by including the ^{14}C-ages on the long-lived charcoal ^{14}C-ages, the next aim must be to confirm and (if possible) refine these initial boundaries. The main point at stake, and which we hope to demonstrate below, is that – in combination – essentially all EBA dates from ÇuHö phases III and IV lead to the same (or similar) conclusions. Whether analysing the data phase by phase, or by analysing the data in stratigraphic sequence, even taking out further (hypothetical) outliers for explorative reasons, the moment we assume that the dated samples are all not »too far apart in time« (on a scale of a few decades up to ~ 200 years), in each case we achieve chronological results as stated above. The hypothesis, to be as specific as possible, is that the two Çukuriçi phases most likely date *somewhere* within the interval 2900–2750 calBC. This implies a *maximum* span of 150 yrs for the combined length of the two phases, or 75 yrs on average for each of the two phases. Needless to say, should we find reason to drop the basic assumption that the total settlement span for ÇuHö IV and III is *within* the range of 0–200 years, then the majority of following arguments become obsolete.

Assuming this basic assumption is valid, it is necessary to evaluate whether a further shortening of this time span is supported by the ^{14}C-data. From an archaeological perspective, with house-use phases in prehistoric periods typically limited to ~ 50 yrs, this hypothesis is quite acceptable. The same assumption is all more plausible, from the perspective of radiocarbon dating. At Çukuriçi the majority of ^{14}C-measurements were processed on potentially long-lived charred wood samples. The source of such samples will be (for example) construction beams, posts, or wooden furniture, in which case the cutting activities can only have earlier dates than implied by the ^{14}C-ages taken at face value. It is further likely that inner rings of beams were dated, not the outer (targeted) rings. In addition, the finite time-of-use of the wooden buildings (or their burnt wooden infrastructure) is to be allowed for, which may also amount to many decades. Given little factual knowledge of the individual sample taphonomy, for archaeo-biological reasons we can nevertheless be confident that the majority of these effects will affect the data in the same direction i. e. the majority of dated samples will be younger, and their overall age spread will be smaller than apparent. Stated differently, there is a high chance that these effects will artificially *extend*, and a very low chance that the effects will *shorten* the settlement timespan. The second point also applies to the influence of any prevailing (theoretical) radiometric errors. Notably, any variability of ^{14}C-ages not already explicitly covered by the standard deviations (e. g. due to unidentified carbon sample contamination, interlaboratory differences etc.), as well as chance (stochastic) dating errors due to the limited number of dates, will also induce a wider spread of ages and an artificial extension of the time interval at stake. As a realistic approach, we may assign some (few) ^{14}C-decades to such (hypothetical) errors. Altogether, we have every reason to assume that the real settlement time-span is significantly smaller than 200 years.

Looking closer at the ^{14}C-ages, the dated contexts, and dated materials (fig. 5), it appears that the envisaged reduction of the time-span we assign to ÇuHö phases IV and III indeed does find support in the data. Before continuing, let us first differentiate in terminology between the (statistically) reliable but (archaeologically) rather inconclusive *dating* of single samples, and the more targeted precise *positioning* of ^{14}C-ages on the calibration curve, that can be achieved by the combination of archaeological and of statistical considerations. The problem to be addressed is that, due to the shape of the calibration curve in the age range under study (3000–2500 calBC), the *dating* based on single ^{14}C-ages produces unacceptably wide age ranges (centennial calendric scale), despite the fact that the available ^{14}C-ages have much higher (decadal scale) precision, although on the wrong (^{14}C-) scale.

What this discussion means from a methodological view-point is that, in combining ^{14}C-radiometric and archaeological data, we must undertake efforts to translate the available qualitative observations (e. g. stratigraphic sequences, know sample growth periods into quantitative (numeric) records.

Çukuriçi Höyük III

As mentioned above, the dating for ÇuHö III is mainly due to the position of (short-lived sample) VERA-4654 (4285 ± 30 BP) relative to the INTCAL09 tree-ring calibration curve and, in particular, in relation to the raw data of the laboratories Belfast, Seattle, and Pretoria, from which the INTCAL09 calibration curve is constructed (fig. 7). The specific position (in fig. 7 ~ 2740 calBC) that we assign to VERA-4654 is supported by the charcoal dates from the same phase. Significantly, the corresponding ÇuHö III charcoal dates (which for taphonomic reasons we expect to be older than short-lived sample VERA-4654), lie satisfactorily close to the calibration curve in the time interval 2820–2740 calBC. If as *Gedankenexperiment* we would opt for an ~ 160 year older position for VERA-4654 on the calibration curve at ~ 2900 calBC, which is technically possible, then the entire set of ÇuHö III charcoal dates is immediately forced into a similar (older) age positions. But this option would produce calibration readings for essentially all the charcoal ages, and such an alternative hypothesis is at conflict with the INTCAL09 data.

Çukuriçi Höyük IV

The same conflict applies to the data from ÇuHö IV. Not only would an earlier dating for (short-lived) samples VERA-5125 and VERA-5024 than provided in fig. 7 (stippled lines) at ~ 2810 calBC and ~ 2850 calBC would move the corresponding ^{14}C-ages unacceptably far away from the calibration curve. At the same time accepting such earlier readings for the two short-lived samples would immediately destroy the otherwise quite acceptable readings for the long-lived samples from this phase. Again, the argument is that the positioning of the two ÇuHö phase IV short-lived samples as near as possible to the calibration curve is well-supported (although again not ultimately proven) by the relative positions of the long-lived charcoal dates from the same phase. To this point, it is worth mentioning that the ^{14}C-ages from ÇuHö phase IV all have very similar ^{14}C-ages. They range from the oldest (on the ^{14}C-scale) date of 4242 ± 36 BP (Erl-14524) to the youngest ^{14}C-age 4089 ± 38 BP). There is one exception that is Erl-14518 (charcoal) which has a significantly older ^{14}C-age of 4412 ± 40 BP. In the final age model we have placed this date at the very begin of ÇuHö phase IV.

Çukuriçi Höyük IV and III (Combined)

Due to the direct stratigraphic superposition of the two EBA phases, the above arguments all remain valid when we combine the dates of Çukuriçi Höyük IV and III. As shown in fig. 7, with this measure we achieve a highly consistent and robust age model, both in terms of sample stratigraphy, taphonomy, as well by statistical considerations. It is important to note that the exact (decadal scale) positioning of each individual sample (as shown in fig. 7)

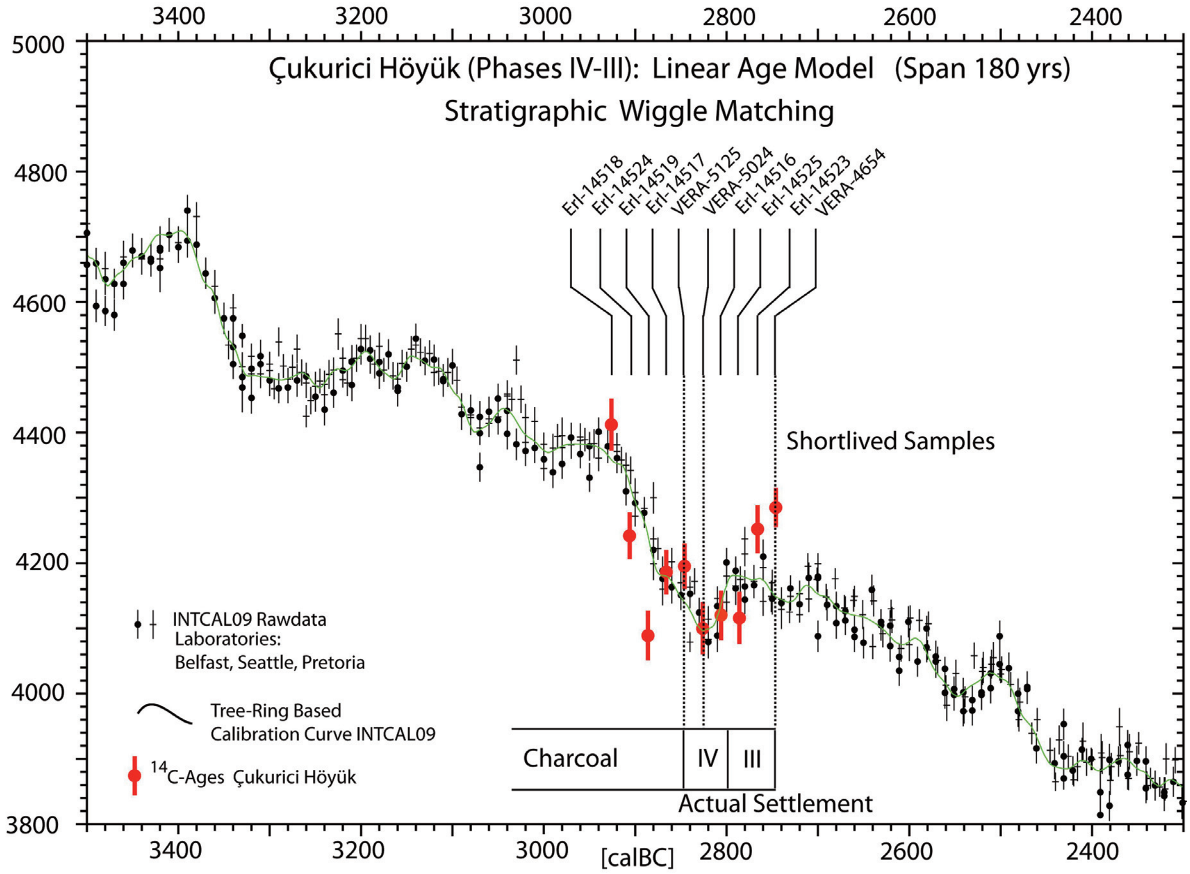


Fig.7: Linear stratigraphic age model for radiocarbon dates (fig. 5) from Çukuriçi Höyük Phases IV and III based on 20 calendric year separation of stratified samples, in comparison to INTCAL09 calibration curve (thin line; Reimer et al., 2009) and INTCAL09 raw data (bar length ± 1) of laboratories Belfast, Seattle, and Pretoria. The Çukuriçi Höyük ^{14}C-sequence is best-fitted to the calibration curve using statistical (Monte Carlo) procedures. The graph shows the final (central) age model, that is derived by application of statistical procedures (cf. text).

is of secondary importance, Any (surely existing) model errors are covered by the statistical approach (Monte Carlo) we apply, in which both the relative stratigraphic position and numerical calendric-scale age distances of all samples are varied at random a large number of times. To illustrate this point, in applying the method of Monte Carlo wiggle matching, we do not only test the validity of any one age model, but instead run through some N = 10000 different age models and then take the average (statistically central) age model as the most likely (statistically robust) result. The main result of these studies is that the actual settlement activities (in contrast to the ^{14}C-ages of dated samples) can be fixed (with sub-centennial precision) between 2900 calBC and 2750 calBC.

Çukuriçi Höyük IV and III and Troy

Let us now compare the results achieved for the EBA at Çukuriçi with the EBA at Troy. The radiocarbon analysis at Çukuriçi indicates a high likelihood that both settlement phases III and IV must date within some quite brief (~ 100 yrs) time-span. The derived age boundaries of 2850 and 2750 calBC clearly imply a positioning of ÇuHö III and IV within the early stages of Troy I. The implication is further that we may expect a correlation of ÇuHö III and IV with some actually quite limited section of Troy I. To begin, the Çukuriçi ages correspond well with the early Subperiod I of EBA Troy (Troy Ia–c), which is known to date between 2920 and 2700 calBC (Korfmann and Kromer 1993: 164–165). However, this

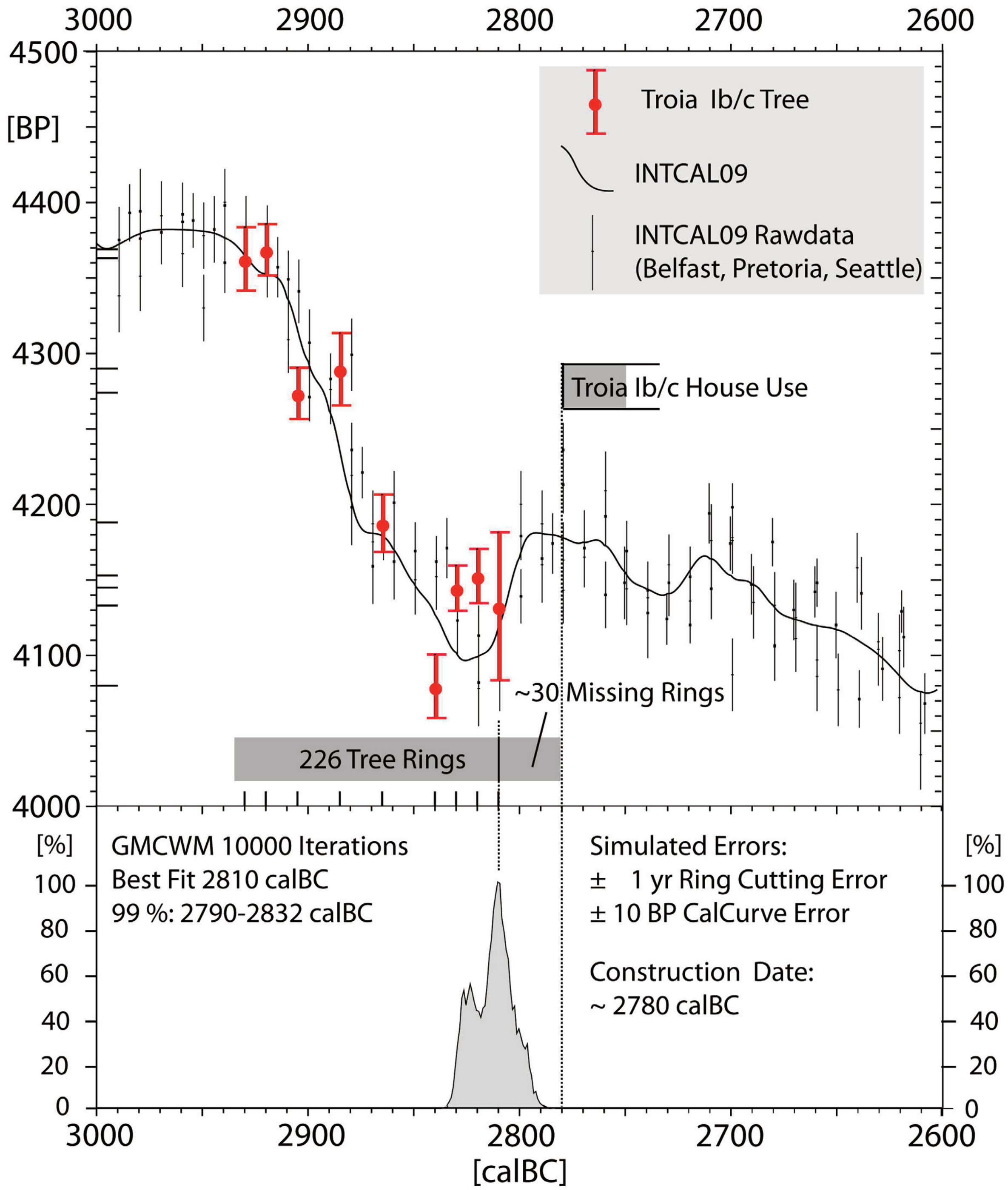


Fig. 8. Dendrochronological wiggle matching of radiocarbon dates from Troy, according to the tree-ting sequence shown in Korfmann – Kromer 1993. The as best-fitted to the calibration curve according to statistical (Monte Carlo) procedures. The graph also shows tree-ting based ^{14}C-age calibration curve INTCAL09 (thin line) according to Reimer et al., (2009) and underlying high-precision ^{14}C-rawdata (± 1 error bars) of laboratories Belfast, Seattle, and Pretoria (source: http://www.radiocarbon.org/IntCal09.htm).

dating was achieved, at large, on the basis of ^{14}C-ages for wood-charcoal. For this reason there still exist major problems for the dating of EBA Troy, and notably for Troy II (Manning 1997; Unlüsoy 2010).

Fortunately, and in strong contrast to the still today problematic dating of Troy II, the dating of Troia Ib/c has some quite outstanding reliability, since it can be based on high-precision wiggle matching of an extended tree-ring sequence. Indeed, even if the exact phase (Ib or Ic) from which the tree derives, is stratigraphically not as well restricted as we would like (Korfmann and Kromer 1993), this tree still today offers the most precise of all available dates for the West Anatolian EBA (Weninger 1995). For sake of completeness, we have therefore recalculated the best-fitting age of this tree, using the method of Monte Carlo Wiggle Matching, to allow for the recent advances made in construction of the ^{14}C-age calibration curve (Reimer et al. 2009). The results are shown in fig. 8. As it appears, due to the precision of the Heidelberg measurements, there can be little doubt that the tree was cut at some time around 2780 calBC. Allowing for some 30 (maybe) missing rings on the overall 226 long tree-ring sequence, this implies that Troy I architectural phases b or c were occupied around 2780 calBC, perhaps extending by some (few) decades to younger ages. But this is exactly (allowing for a few decades older or younger) the date/s we achieve for ÇuHö phases III and IV.

In conclusion, the derived Çukuriçi boundary ages for the two ÇuHö phases (III and IV) have their highest likelihood of running parallel with Troy I phases b-c (and perhaps d). We note, finally, that in relative periodical terms the settlements of Çukuriçi Höyük IV and III can be partially synchronised with EBA 1 (after Efe 1988) not including the initial stage of this period.

The lower Kaystros Valley, Troy and the area in between

To date, seven sites in the lower Kaystros Valley have been dated to the Early Bronze Age (fig. 1: Gökçealan, Ufaktepe, Palamut arası (?), Tepeköylü Tarlası, Dedecik-Heybelitepe (?), Ayasoluk, Çukuriçi Höyük), one of which has been excavated and the stratigraphic sequence of its contexts studied. This sequence from Çukuriçi Höyük, dated both in relative and absolute terms, spanned only a relatively short period of time during EBA 1 between 2900 and 2750 calBC. These settlements and their assemblages have given us a rare opportunity to re-evaluate the surface finds from the lower Kaystros region, recently published by R. Meriç (Meriç 2009) and summarised above. The majority of these surface finds were bowls that can be partially linked with ÇuHö IV and III (e. g. Ufaktepe: Meriç 2009: pl. 5, K53.54). With the exception of Tepeköy, no distinct evidence pointing to EBA 2 and 3 can be detected in the range of types (Meriç 2009: pl. 7, K78–80; pl. 8, K81–83); however, the site does illustrate the developed 3rd mill. BC in the region.

Moreover, the fact that other EBA pottery types were found in Troy I but not in Çukuriçi Höyük IV and III assemblages could be a sign of a broader range, possibly with a chronological dimension. It should be pointed out that Çukuriçi assemblages containing hundreds of bowls with inverted rims (Trojan type A12) did not yield any examples with horizontal cylindrical lugs between carination and lip (cp. Blegen et al. 1950: fig. 260–261). Their absence from Çukuriçi Höyük could have been seen as a characteristic feature of the local style in this region, however their appearance at neighbouring sites such as Tepeköylü and Ufaktepe (Meriç 2009: pl. 4, K47–48) demonstrates that they were indeed used in the lower Kaystros Valley. This distinct subtype of A12 might be a chronological indicator representing a possible earlier stage of this period in Tepeköylü and Ufaktepe, which to date has not been discovered at Çukuriçi Höyük.

What ever way this absence is interpreted, the preliminary results gained from the study of EBA Çukuriçi Höyük in the wider context of the lower Kaystros Valley allows us to draw some general conclusions. The settlement phases IV and III in Çukuriçi can be linked to Troy I early and verify almost beyond doubt its absolute date. The common domestic pottery can be integrated into the generally known framework of wares and shapes with some indications as to local stylistic features in EBA 1 as represented by the specific kinds of tripod feet discussed above. Furthermore, there was an apparent connection with Yortan material, which could now

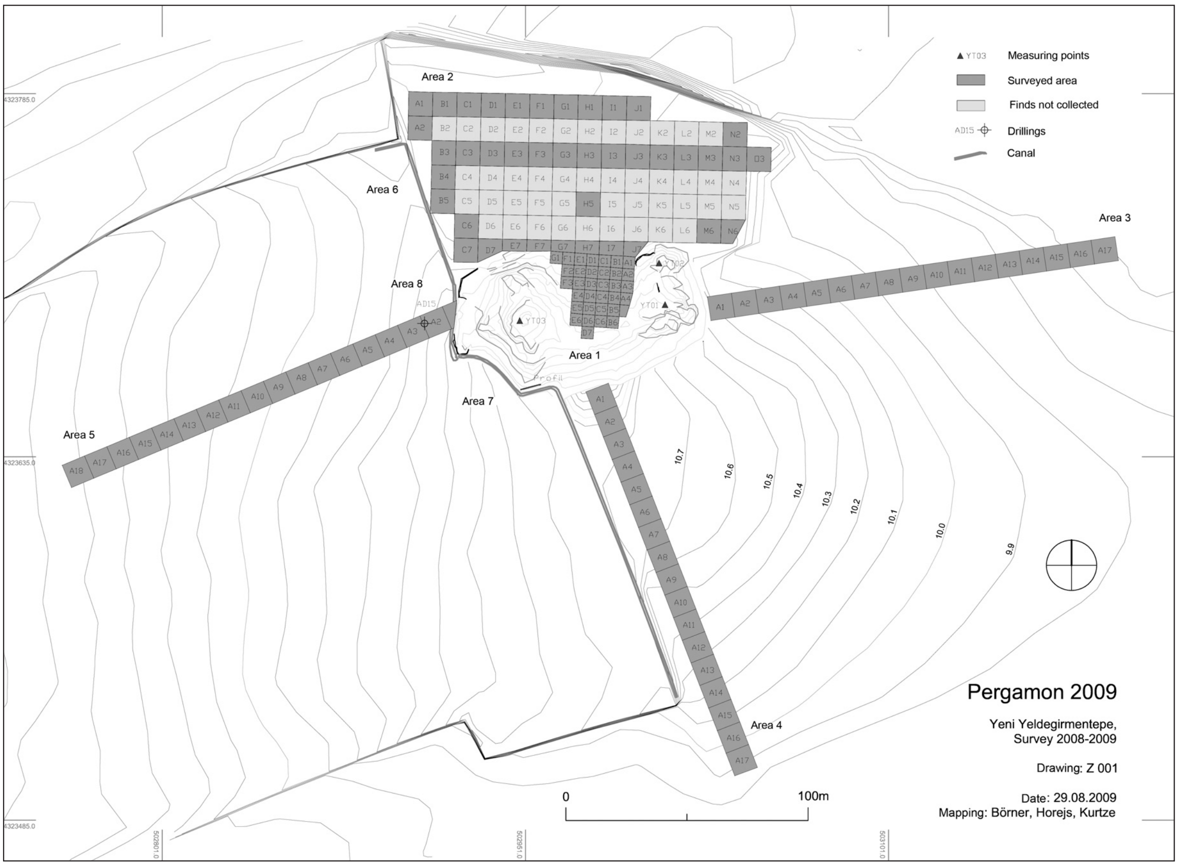


Fig. 9: Topographical map of EBA Yeni Yeldeğirmentepe in the Kaykos valley (by M. Börner/B. Horejs/Ch. Kurtze).

be used in reverse for dating those cemeteries more precisely with the help of the Çukuriçi radiocarbon dates, which brings us to this region.

In contrast to D. French, C. Renfrew and Ch. Podzuweit (summarised in Podzuweit 1979: 70–73 and Seeher 1987: 157), but in accordance with e. g. K. Bittel (1950) and in part with J. Seeher (1987) the connection between the Çukuriçi and Yortan assemblages suggests a date during EBA 1 or early Troy I (excluding the initial phase?) as discussed above. Supporting evidence can be found in Demircihüyük phase D (EBA 1), which shows some similarities with the Yortan horizon and for several reasons must be synchronised with Troy I early–middle following J. Seeher (1987: 156–163, esp. 157). Seeher's chronological positioning of Demircihüyük D based on the comparison of assemblages of mainly stratigraphic sequences from various sites have been confirmed by an extensive radiocarbon programme with 64 dates covering the entire settlement. Phases E1–M are dated to 2850–2600 BC (Weninger 1987; Korfmann and Kromer 1993: 139 f.), which constitutes a *terminus ante quem* for the earlier phase D. It appears justified to place the beginning of the Yortan group in EBA 1 in the sense of Troy I early. Naturally, this approach does not offer any information about the duration of the Yortan horizon. This question can only be answered by excavated stratigraphic sequences at the site itself.

Additional information can be also expected to emerge from a survey project launched in 2008 in the Kaykos Valley in co-operation with the excavation of Pergamon (F. Pirson). Based on the study of material from previous surveys conducted by K. Bittel (Bittel 1950) and J. Driehaus (Driehaus 1957), an intensive survey carried out at the settlement of Yeni Yeldeğirmentepe (fig. 9; fig. 10: 18) and other field surveys in the lower valley, preliminary results con-

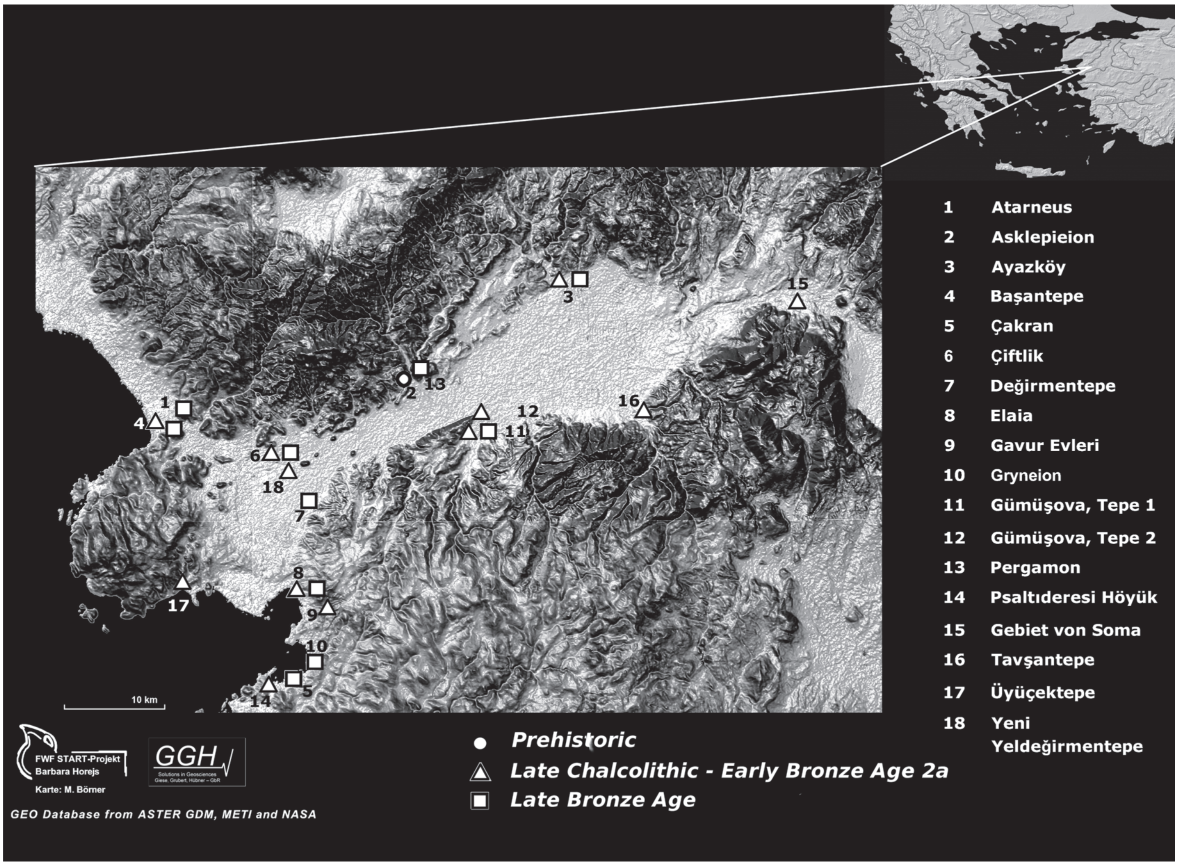


Fig. 10: Prehistoric sites in the lower Kaykos valley (after Horejs 2010b: Fig. 9).

cerning the EBA can be summarised as follows (Horejs 2009b; Horejs 2010b; Horejs In press a): So far, 12 sites dating from this horizon are known in the lower Kaykos Valley (fig. 10). The majority of ceramic finds are grey or black burnished bowls, some with inverted rims (fig. 11, a–c), in part comparable with Çukuriçi Höyük IV–III. A considerable amount of large heavy bowls with thickened inverted rims and sharp carinations find closer parallels in Troy I (Blegen et al. 1950: fig. 260–261) or might even date from Late Chalcolithic times (cp. Sperling 1976: 340 fig. 19, 614–615; Seeher 1987: 39). Although typical Late Chalcolithic types such as bowls with rolled rims have not appeared to date, this period cannot be categorically excluded as discussed in the introduction. Furthermore, bowls with inversed rounded shoulders occurred (fig. 11, d–e), also boasting horizontal lugs or lug-like handles similar to type A16 in Troy I (Blegen et al. 1950: fig. 263–264). Together with other elements discussed elsewhere (Horejs 2010b: 54–61), it has been suggested that these 12 sites dated from EBA 1–2a (after Efe 1988), possibly with Late Chalcolithic phases. Typical decorated jugs or small closed jars such as those from the cemeteries in Yortan and Babaköy have not been found so far, although it is evident that they were also used in settlement contexts, as seen in Çukuriçi Höyük III. In contrast to the Kaystros Valley, no evidence of the developed EBA has to date been found. The entire pottery range from the lower Kaykos Valley could be defined as relatively limited in terms of its shapes and wares with some similarities with the north (Troy I) and south (Çukuriçi Höyük IV–III).

This contribution focused on the relative and absolute chronology in Western Anatolia and the impact of early Troy, and closes with some remarks on the consequences of the cultural links described. The

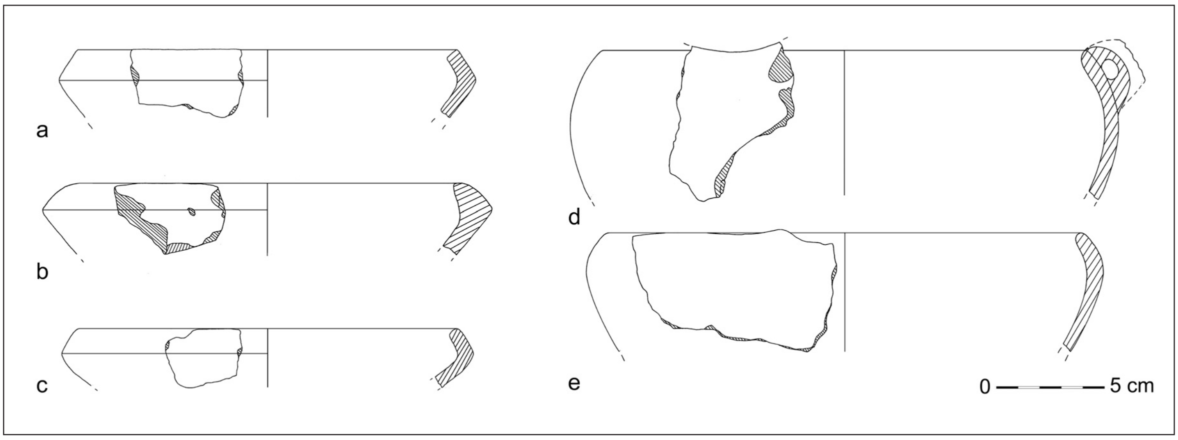


Fig. 11. Characteristic bowls with inverted rim (a–c) or rounded shoulder from Yeni Yeldeğirmentepe (after Horejs, In press a).

material assemblages from Çukuriçi Höyük IV–III can be linked with the Eastern Aegean islands (Lemnos and Chios) and therefore support Kouka's model of an EBA »Eastern Aegean Koine« on the one hand as discussed in the introduction. However there appears to have also been a strong connection with the Western Inner Anatolian pottery style as indicated by links to Beycesultan and Aphrodisias Pekmez as well as to the Kaykos Valley with its Yortan group in the north. Neither of the two regions are part of Kouka's »Aegean model« and are mainly interpreted from a cultural point of view in the context of a Western Anatolian tradition with mutual influences in the EBA, especially in Troy and the Troad, and in the Eskişehir region (e. g. Lloyd and Mellaart 1962; Mellink 1986; Seeher 1987; Efe 1988). The survey finds from the lower Kaykos Valley in conjunction with the cemeteries and the excavation results from Çukuriçi Höyük IV–III in the lower Kaystros Valley reflect a material style in EBA 1, which can be incorporated into a broader Western Anatolian horizon with some links to the Eastern Aegean islands. As suggested above, regional differences along the coast are still defined mainly via similarities with or differences from Troy. From this perspective, one would agree with D. French's statement quoted at the beginning. Until other important coastal sites are published to a similar standard as this key site in the Troad, the impact of Troy is not likely to decrease, neither for Western Anatolia nor the regions beyond.

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Troy has been of outstanding importance for Early Bronze Age archaeology ever since the discovery and excavation of the site by Heinrich Schliemann. Partly due to the paucity of archaeological research on EBA Anatolia, Troy has long been considered as the only key site for Western Anatolia and the Northern Aegean. However, as a result of recent excavations at other contemporary sites, it has become clear that Troy was not the only significant EBA settlement in this region and that its position as a key site is due for a re-examination. To explore the similarities and diversities of EBA cultures across the Northern-Aegean and Western Anatolia, an international conference entitled »Early Bronze Age Troy: Chronology, Cultural Development and Interregional Contacts« was held in early May 2009 at the University of Tübingen. Besides the general aspects of chronology and stratigraphy, it addressed themes such as the emergence of stratified societies, concepts of EBA economy and trade, production and distribution of raw materials and craft specialization with special reference to Troy itself.

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