

## THE LATE CHALCOLITHIC SETTLEMENT OF BARCIN HÖYÜK

*Fokke Gerritsen, Rana Özbal, Laurens Thissen, Hadi Özbal, Alfred Galik*<sup>1</sup>

### INTRODUCTION

This report presents the Late Chalcolithic levels at Barcın Höyük,<sup>2</sup> located in the Yenişehir Basin in the eastern part of the province of Bursa (figure 1). Excavations began in 2005 and earlier reports have appeared in this journal and elsewhere (Roodenberg, van As and Alpaslan Roodenberg 2008; Gerritsen and Özbal 2008, 2009, 2010). The Barcın Höyük Excavations take place in the context of the long-term regional research project ‘Early Farming Communities in the Eastern Marmara Region’, carried out by the Netherlands Institute for the Near East and the Netherlands Institute in Turkey.

The earliest levels encountered so far at the site are Late Neolithic, dating to the mid to late seventh millennium. Excavations reveal that there was a hiatus in occupation, thereafter, spanning more than two millennia. Settlement on the mound resumed in the Late Chalcolithic period, probably during a relatively short period at the beginning of the fourth millennium BC. The research priorities set for the upcoming seasons of excavation, focusing on the Neolithic levels, make it unlikely that major remains from the Late Chalcolithic period will be encountered. A presentation of the findings at this stage in the research project seems to be in order, therefore, also in light of the fact that presently Late Chalcolithic settlements are still very poorly known in northwest Anatolia.

The site of Barcın Höyük (figure 2) consists of two low mounds connected by a saddle, and covers a total area of about 2 hectares. The eastern, larger and higher, mound rises to about 4 meters above the plain. Surface finds indicate that prehistoric occupation was concentrated at the eastern mound. Geographically, Barcın Höyük is situated at the transition from the basin proper to the lowest extremities of the hill range to the north. Wetlands, terrain suitable for arable farming, and upland environments would all have been within easy walking distance from the prehistoric settlement.

<sup>1</sup> FG: Netherlands Institute in Turkey, Istanbul; RÖ: TÜBA (Turkish Academy of Sciences) Postdoctoral fellow, Istanbul University; LT: Thissen Archaeological Ceramics Bureau, Amsterdam; HÖ: Boğaziçi University, Istanbul; Alfred Galik, University of Veterinary Medicine, Vienna. LT contributed the section on the ceramics, HÖ on the axe, AG on the faunal remains; FG & RÖ are the authors of the other sections.

<sup>2</sup> Although the site appears as Barcın Höyük in some publications, its proper spelling is Barcın after a village in the vicinity. Before excavations began, several publications used the designation Yenişehir II, while topographical maps give the name Üyücek.

## THE FEATURES

Late Chalcolithic features have been identified in four adjacent trenches: M10, M11, L11 and L12 (figure 2). Preservation of features is generally poor, due to the fact that they are in the uppermost zone of the deposits where ploughing and especially rodent burrowing has been most destructive. In addition, in some places the Late Chalcolithic features were disturbed by pits of Early Bronze Age, possibly Iron Age, and Byzantine date. In L12 and L11, burial pits of a Byzantine cemetery did some further damage. Nonetheless, a partial settlement plan appears in which the overall layout and some of the details are clear (figure 3). The main elements that have been identified are two houses, several ovens and hearths, a ditch, a number of postholes, and two jar burials and one inhumation burial. This first section presents the features by category. Stratigraphy and phasing are discussed below.

Vertically, almost all features belonging to the Late Chalcolithic occupation phase are part of a deposit that is about 50-65 cm in depth (figure 4). The absence of a thicker build-up of deposits suggests that the total duration of the Late Chalcolithic occupation phase was relatively short, presumably not spanning multiple centuries. At present there is one radiocarbon date of  $4990 \pm 40$  BP, giving an approximate date for the Late Chalcolithic settlement of 3800 cal BC (Roodenberg, van As and Alpaslan Roodenberg 2008:55, 62). If occupation continued into later phases of the Late Chalcolithic period, its settlement remains have been completely destroyed by ploughing and soil removal.

### **Postholes and post-built structures**

Most postholes were encountered in M11 (n=30); a handful also appeared in L12 (n=4) and M10 (n=8). There is a clear difference in the concentration of postholes in the interior and the exterior of the area surrounded by the ditch (figure 3). During the excavations, postholes were generally recognized because of the softer soil of their fill. Once a posthole was recognized, its sides and bottom were easily distinguishable when removing the fill. It is possible that some postholes have gone unnoticed, however, because of the numerous animal burrows cutting through the same deposits.

The postholes are of a variety of different sizes, ranging in diameter between 13 and 34 cm. Their depths are variable, between 9 cm and 1.6 m from the level at which they were first observed. In very few instances remnants of the wooden post could be recognized as vertical columns of slightly different colour within the posthole matrix.

The overall stratigraphy demonstrates clearly that all postholes discussed here belong to the Late Chalcolithic period. The existence of two or more building phases of post-built structures within the Late Chalcolithic period is hinted at by the fact that the tops of postholes were identified at different levels (between ca. 227.60 and 227.10 meters), but cannot be otherwise confirmed.

The only location where a set of postholes forms a quadrangular shape that can be interpreted as a framework for a building is placed within the eastern ditch segment in M10 (documented in 2006). This structure consists of three pairs of postholes, 1.3 to 1.5 m apart. The structure measures 3.0 by 1.2 meters. Nothing is known of its above-ground

construction or associated surfaces. The distribution of postholes in M11 shows no convincing linear or quadrangular constellations, leaving open the question of the nature of the structures that were built here.

### **The ditch and its modification**

Excavations in M10, L11 and the northwest corner of M11 yielded remnants of a ditch. This feature measures on average 2.6 m in width and had a preserved depth of 40 cm. In section, the gently sloping sides and broad base can be clearly seen (figure 4). The ditch was filled with layers of fine silty sediments, varying between greenish-grey, light grey and light brown in color. The charcoal sample that produced the radiocarbon date mentioned above was retrieved from the ditch fill in trench M10. It is possible that rainwater was channelled off by the ditch, or that it held water in wet seasons. Given its location on the higher slopes of the mound, it is unlikely that the ditch had year-round standing or running water in it.

The plan of the ditch follows a rough curve, and forms a northern and western boundary for the main concentrations of Late Chalcolithic features. It continues for an unknown distance beyond the eastern edge of M10, and may well have surrounded a round or oval area. This area would have had a minimum diameter, judging from the known curve, of about 40 meters.

The function of the ditch cannot be determined with certainty, but its position in relation to the Late Chalcolithic features suggests that it formed a settlement boundary. Clearly, this would have had a largely symbolic character. For defensive purposes or even to restrict humans and animals to pass across, it would have served poorly.

Complicating the interpretation of the ditch as a settlement boundary is its absence in trench L12. It did not extend all the way to the south section of trench L11 and did not recur in the excavated northern half of L12. Several explanations are equally possible. The ditch may have been removed by slope erosion predating the Byzantine graves that were concentrated in L12, or it may have been dug away by Byzantine grave diggers. It is also possible that the ditch did not extend further south than trench L11, or that it had an interruption at this point and continued further to the southeast.

Until further excavations provide more evidence regarding the extent of the ditch, our assumption is that it demarcated the boundary of the settlement. Ditches have been recognized within and around Neolithic and Chalcolithic settlements in northwestern Turkey, and may have had different functions (İlçin: Roodenberg 2001: 2-3, figure 2; Aktopraklık: Karul 2009: 5, figure 8; Aşağı Pınar: Karul *et al.* 2003: 108-111).

After a partial refilling of the ditch, which probably took place gradually judging from the thin layering of the deposits in the fill, the channel was altered and restructured. This is most notable in M10, where the remaining depression was extended to the north to form a rectangular, semi-subterranean space (figure 5). There were no indications for standing walls or posts, and it is unclear whether there was any kind of roof. However, the space had clearly been used as an activity area, with a surface defined by white ash lenses (locus M10:62) and a small hearth (locus M10:61).

### **Mudbrick houses and associated surfaces**

The excavations revealed two Late Chalcolithic structures of mudbrick, one in M11 and another in L12 (figure 3). Both were extremely poorly preserved and disturbed by animal burrowing. Excavations in M11 yielded two mudbrick walls at right angles (loci M11:13 and M11:14), located in the west of the trench. They were preserved to only about 2 rows of mudbricks high (about 16 cm). Both walls appear to have been about 50 cm wide. Wall M11:13, which is approximately 3.5 meters long, abruptly ends in the south where there may have been a door opening. Remnants of mudbricks that are visible in the southernmost part of the east section of trench L11 may be the continuation of this wall. From the corner with wall M11:13, wall M11:14 extended about 2 meters towards the northwest, but poor preservation makes it difficult to define its exact dimensions. No indoor surfaces associated with these walls were found.

Whereas the actual mudbrick wall remnants in L12 were challenging to identify as they were only visible as compacted, ‘bricky’ discolorations in the soil, fragments of the floors inside the structure were well preserved, especially in the northeast of the trench (locus L12:82). Multiple surfaces appeared between 227.30 and 227.00 in L12, suggesting either that there were several superimposed mudbrick structures in this location, or, more likely, that the floor of a single structure was replastered and maintained over several use-phases. A small basin-like circular depression with a 12 cm diameter is probably associated with the surfaces.

A few intact mudbricks were discovered south of the structure in L12, between a few possible postholes. Their relationship with the postholes, if any, and with the mudbrick structure to the north is difficult to assess.

### **Ovens and hearths**

Excavations of the Late Chalcolithic levels in trenches L12, M10 and M11 yielded several ovens and hearths. The five ovens had diameters between 2 and 3 meters, whereas three hearths measured between 80 and 100 cm across. Although not preserved, another distinguishing feature is probable that ovens were covered by a (domed) roof, whereas hearths may have contained a fire with a low perimeter wall only.

The best preserved oven (locus M11:04, figures 3, 6) has an irregular keyhole-shaped plan. Its walls were between 10 and 15 centimetres thick and were made (at least in places) of small mudbricks. Access into the interior was presumably from the keyhole extension. The floor of the oven consisted of a thick layer of fire-hardened clay into which large numbers of potsherds were placed horizontally. This feature, probably improving the heat retention of the oven, characterizes all the ovens and some of the hearths. Against the southwestern wall segment of the oven, aside from the extension, a circular hearth was situated (locus M11:09, figures 3, 6).

After a brief phase of debris accumulation which sealed the oven and hearth, a new oven (also locus M11:04) was constructed in the same location. The walls of the higher oven were not preserved *in situ* although the high quantities of burnt loam pieces surrounding the structure suggests that it too would have been encircled by a mudbrick

wall. Nonetheless, the floor of this oven was well preserved and yielded three incidences of floor re-paving with ceramic fragments.

In the southeast corner of trench M11, an irregular area of orange-red burnt loam was recognized as remnants of another oven (locus M11:06). Its mudbrick wall construction can be seen in the section drawings (figure 4).

Two ovens in the northwest quadrant of L12 (loci L12:89 and L12:90, figure 3) were heavily disturbed by Byzantine graves. Their proximity to the plough zone further led to their deterioration. Only a small segment of the wall of the eastern oven could be identified. Both ovens were characterized by several superimposed hard-fired clay surfaces incorporating large numbers of potsherds. Their diameters were approximately 2 metres. Whether both ovens were used simultaneously, or whether one replaced the other is unclear. An interesting observation is that both of these adjacent ovens are located precisely where one would have expected the ditch to pass through. If they postdate the ditch, then it is strange that no evidence for its presence was noted when the ovens were removed. It is equally possible that the ditch ended before it reached L12 and that these ovens are actually contemporaneous with the architectural phase related to the ditch.

A total of three circular hearths were excavated in the Late Chalcolithic levels: one each in L12, M10 and M11. Although their floors were enclosed, it is possible that the perimeter was constructed as a low ridge rather than a wall reaching up to a high dome-shaped roof. No fragments of fired clay walls resembling *tandır*-oven walls were encountered. The floor of the hearth in M10 was constructed with a layer of burnt loam over horizontally placed potsherds which almost all were from a single vessel. This large platter (diameter ca. 40 cm, figure 8:6) was probably smashed in this location to serve as the hearth floor.

## Burials

Three burials have been found that date from the Late Chalcolithic period, two infant jar burials and one simple inhumation of a young adult male. The latter and one of the jar burials were excavated during the 2005 and 2006 campaigns, and have already been published and will only be summarized here briefly.

The inhumation burial was found in M10. The body was placed on its left side in a contracted position. Physical anthropological study by Alpaslan Roodenberg indicates that this was an adult male who died when ca. 25-30 years of age (Roodenberg, van As and Alpaslan Roodenberg 2008:57).

The 2006 jar burial was found in L11 and contained a poorly preserved baby skeleton. Screening of the soil in the thick-walled jar yielded about 50 small bone beads, suggesting that the infant wore a necklace (Roodenberg, van As and Alpaslan Roodenberg 2008:57).

In 2009, another jar burial (locus M10:111) appeared unexpectedly from the east section of trench M10, after excess water from sprinklers in an adjacent field ran down the trench side for a night. The crushed but reconstructable jar and contents could be salvaged while still in the section, but proper excavation was impossible. A cursory investigation showed that the burial was that of an infant about one year in age (J. Pearson

personal communication 2009). From the soil inside the jar, two tiny beads made of a white stone were retrieved, 3 mm in diameter and 1.8 mm thick.

#### STRATIGRAPHY AND PHASING

Stratigraphic observations of superimposed and intersecting features indicate that the settlement went through several changes within the Late Chalcolithic period. These observations are not enough to separate all features and deposits into discrete phases, but it is possible to propose a partial sequence.

Figure 4 shows the east, south and west sections of M11 and the west section of M10. Between 227.75 and 227.25 meters (as measured on the east section of trench M11), a relatively thin horizon of lighter grey soil over a darker grey-brown soil horizon runs through the profile and was in fact encountered throughout trenches M10, M11 and L11, and less clearly also in L12. This has been interpreted as a developed soil with an E (eluviation) horizon overlying a B (subsoil) horizon. While pedological study of this phenomenon is ongoing, current evidence indicates that the developed soil represents the latest Late Neolithic mound surface, on which much later the Late Chalcolithic inhabitants built their settlement. The long hiatus between both periods would have enabled soil formation to take place. In stratigraphic terms, the developed soil provides a clear *terminus post quem* for the Late Chalcolithic remains.

The earliest Late Chalcolithic features are (at least some of) the many postholes that were encountered in M11 (figure 3). One posthole (locus M11:32) was found underneath one of the mudbrick walls (locus M11:13), two postholes were found underneath the fired clay floor of oven locus M11:04, and two more appeared underneath the ashy deposits (M11:08) around this oven. In L11 there are several deep and irregularly shaped pits that were observed after the ditch fill had been excavated. Presumably they predate the digging of the ditch, but pottery found in them dates them to the Late Chalcolithic period. Contemporaneity with the postholes is possible but could not be established.

The ditch, the two houses, and the ovens in M11 are probably contemporaneous, judging from the spatial organization of these features (figure 3). From oven locus M11:06 several superimposed, irregular surfaces extended to the west and south, but not as far as the nearby house. The smaller hearth (locus M11:09) was built on top of one of the surfaces running up against the wall of the large oven, indicating that the hearth was a slightly later addition.

After the ditch went out of use and was partly filled in, a semi-subterranean space was created in M10, partly dug into the ditch fill, partly extending to the north. The stratigraphic sequence can be clearly seen in the west section of M10 (figure 4). A circular hearth and fragments of surfaces indicate an activity area, which postdates the ditch but may well have been in use while the houses in M11 and L12 were still inhabited. Although a stratigraphic connection is missing, the post structure that was dug into the refilled ditch in M10 may well have been in use at the same time as the semi-subterranean space, given their close proximity and location with the ditch.

Jar burial locus M10:111 was dug into the uppermost fill layers of the ditch, and thus also postdates its use and refilling. The second Late Chalcolithic jar burial and the inhumation burial could not be linked stratigraphically to other features.

Finally, the stratigraphic position of the hearth and ovens in L12 in relation to the ditch is difficult to ascertain. As discussed above in the section presenting the ditch, it is possible that the ditch was not encountered in L12 because it had disappeared as a result of slope erosion or Byzantine grave pits. In this scenario, the fact that ovens and hearth were not completely dug away in Byzantine times indicates that they lay underneath, and thus predated the ditch (and consequently, the houses). In an alternative scenario, the hearth and ovens of L12 were set in a semi-subterranean structure dug into the filled-in ditch, similar to the M10 example. It cannot be ruled out that we failed to identify the ditch in our excavations in L12, given the overall poor preservation. However, the fact that the feature was relatively easy to identify in other trenches makes this scenario less likely.

The following provisional phasing can now be proposed, based on the observations presented above. From oldest to youngest:

#### *LC phase 1*

Post structures in M11, ovens and hearth in L12, and pits in L11.

#### *LC phase 2a*

Ditch, mudbrick structures, and ovens and hearth of M11. Probably also some of the postholes of M11 belong to this phase.

#### *LC phase 2b*

Semi-subterranean structure with hearth and post structure in M10. There is no concrete evidence to confirm this, but it seems likely that the mudbrick houses continued to be inhabited during the use of the structures in the disused and partially refilled ditch.

#### *LC phase 3*

Burials.

### LATE CHALCOLITHIC CERAMICS FROM BARCIN HÖYÜK

The Late Chalcolithic pottery from Barcın Höyük has only been cursorily studied and awaits both a better sample and a more in-depth investigation. What follows should be seen as a preliminary assessment, still lacking quantification and fabric analysis. The current report is based on an assessment of ca. 1000 sherds.

#### **Technological aspects**

The assemblage comprises two ware groups distinguished primarily by surface treatment. A plain burnished ware (PBW) of black, occasionally brown colours has wall thicknesses varying between 8 and 10 mm. Vessel surfaces are smooth and medium to



high burnished on the insides and outsides, but individual strokes are visible; the lustre occasionally acquires a graphite-like shimmering (although no graphite seems to have been used). More commonly, diluted clay slips, naturally containing fine mica flecks, are routinely applied all over the vessels' inside and outside walls. Occasionally, individual burnish strokes appear as blackish lines over a greyish-brown background that is also burnished, as if these darker strokes represent a final finishing burnish. In mixed deposits, Late Chalcolithic PBW body sherds are difficult to distinguish from Late Neolithic body sherds when the latter have a mixed sand fabric (quartz and feldspars). Dishes, bowls, jugs and jars are all preferably plain burnished.

By contrast, most of the pots (in the strict sense) belong to a coarse ware group (CW), where vessel surfaces are generally untreated, remaining roughish with a sandpapery feel. Vessel insides are smoothed mostly, and outsides are cursorily burnished at most. Exterior colours vary between pale brown, greyish and pale orange; interior colours are greyish while cores are black. Wall thicknesses are between 10 and 13 mm.

Two main fabric groups are macroscopically discerned (using a 10x hand lens). A fibre-tempered fabric with probably several subgroups depending on the amount of organic additions is used for all vessel categories. Coarse Ware pots are preferably manufactured from a coarse variant, having a gritty texture with abundant, fine-medium-sized, angular, shiny quartz, yellowish and brown feldspars, and ill-sorted fibre non-plastics in variable degrees of quantity, from sparse to dense. As can be observed from the burnt-out cavities on vessel surfaces and fractures, these fibres can be quite long (up to 8 mm) and are often thin and curvilinear, suggesting grassy plants rather than (chopped) chaff or straw. Less coarse variants of this fabric with much smaller amounts of fibres seem to have been used preferably for the paste of PBW vessels, although this needs confirmation by further analysis. A second main fabric group is mineral-tempered only, fibres being absent. This sandy fabric is composed of dense, well-sorted amounts of fine to medium sized, angular or subangular grains of quartz and feldspar interspersed with ill-sorted, sparse, larger grains of sand. This fabric was used for manufacturing PBW vessels.

The basic manufacturing technique used is the coiling method, which especially in the CW is well visible. Lips were rounded or slightly pointed in the case of the large dishes. These large dishes are composite-built using moulds and coiling (see below). Whether the moulds were of the internal or external type is not clear, since dish surfaces were carefully finished on both sides by adding an all-over diluted clay slip, which was subsequently well burnished in order to acquire smooth surfaces. Lug handles on CW pots were attached by means of the plug method (figure 11:3). The presence of fire clouds on several vessels of diverse categories and ware groups suggests the Barcın Höyük Late Chalcolithic pottery was fired in open fires. Black, non-oxidised cores between sharp margins occurring especially among the fibre-tempered fabrics hint at brief firing periods, with rapid cooling in the air of the ready vessels.



## Categorisation

A preliminary categorisation of the assemblage suggests a division into open and closed forms, each grouping subdivided into three basic-level categories: dishes, bowls and basins on the one hand, and jars, jugs and pots on the other hand.

### *Dishes*

Large, shallow unrestricted forms are a very common feature in the Barcın Höyük Late Chalcolithic assemblage. The inverted-rim dishes (figure 7:3) have diameters approaching 40 cm and may have been made in a mould. The majority of dishes is consists of the carinated variant, the shoulder-rim sections of which are everted in varying degrees, and may be straight (figure 7:4-5), or more often concave in section (figure 7:6-7; figure 8). All examples display a slight, offset ridge on the interior where lower body and shoulder are joined (cf. figure 8:6), and I assume the parts below the carinations to have been manufactured in moulds since coils could not be observed.<sup>3</sup> The shoulder-rim sections will have been added separately and were made using the coiling method (cf. figure 7:2,4,5). Diameters of these carinated dishes vary between 32 and 40 cm; the lips tend to be rounded or tapering towards the top. The complete dish from figure 8:6 displays strong use-wear traces on its exterior base.

### *Bowls and basin*

Deep and incurving bowls are rather rare at Barcın Höyük (figure 9:1-2). The CW deep bowls (figure 10:2-3) and the CW basin (figure 10:1) do link up with the CW holemouth pots and may have played an additional role in food processing and/or cooking. They seem to have come without handles or lugs.

### *Jars and jugs*

Very rare as well, the rim fragment of figure 9:3 is reconstructed as having two opposite strap handles, probably connecting the rim and shoulder. The analogy is with the one-handled jugs and two-handled jars from the Ilıpınar Phase IV burial ground assemblage (Roodenberg, Thissen and Buitenhuis 1989-1990, figures 17:3; 18:1), which have funnel-shaped necks and globular bodies, including flat-sectioned strap handles. Sections of such handles do occur occasionally in the Barcın Late Chalcolithic assemblage, one of them attached to a convex-sectioned body sherd indicating a globular body as well. Single examples of a jug and a jar are present in CW (figure 10:4 and 10:5 respectively).

### *Pots*

Apart from a unique example of a PBW lugged pot (figure 9:4), CW holemouth pots with two opposing lug handles plugged in just below the rims are very common in the Barcın Late Chalcolithic (figure 10:6; figure 11). They have uneven walls and seem to have been made rather quickly without too much attention being paid to surface finish

<sup>3</sup> Cf. also Seeher 1987:39 on similar dishes from Demircihöyük, although he does not mention the mould aspect.

and general appearance. Bases were flat: from trench M11 comes a base fragment with a diameter of 14 cm, and, importantly, showing an inside which is cracked due to heating. This evidence, as well as the general shape and the two sturdy lugs on the rim top suggest that these vessels served as cooking pots.

## Evaluation

The Late Chalcolithic occupation at Barcın Höyük is presently the only one in northwest Anatolia that has yielded reliable archaeological contexts. Good parallels with the assemblage exist at Demircihüyük, but this site's material is not tied stratigraphically. Here, what Seeher called 'Ware F' and 'Ware G', are fully comparable to Barcın Höyük's PBW and CW, respectively (cf. Seeher 1987:21f., 38ff.). Characteristic categories at Barcın such as the inverted-rim dishes, the carinated dishes and the CW holemouth pots are prominently represented in the Demircihüyük corpus as well (Seeher 1987, pls. 24-28).

The Barcın Höyük material has also strong relations to the burial pottery from the Ilıpınar Phase IV cemetery (cf. Roodenberg, Thissen and Buitenhuis 1989-1990:92f.). Especially the inverted-rim dishes and the one- and two-handled jugs and jars from Ilıpınar link up to similar pieces at Barcın Höyük. The Barcın Höyük CW finds a parallel in a CW pot with two strap handles from an Ilıpınar burial (Roodenberg, Thissen and Buitenhuis 1989-1990:110, figure 18:2). The peculiar 'tulip beakers' from the Ilıpınar burial field are not found at Barcın.

Farther away from the Yenişehir-Eskişehir basins parallels become weaker, although general correspondences can be drawn. At Late Chalcolithic Beycesultan near Denizli in Aegean Turkey, carinated dishes from levels XXVII and upward, for instance, are compatible with Barcın Höyük (Lloyd and Mellaart 1962, figures P8:6-7, 11; P.10:3-8, 16-20). More generally, the assemblage structure of Beycesultan Late Chalcolithic resembles the Barcın Höyük assemblage in its categorical simplicity constituted by large dishes, jugs and jars and coarse ware holemouth pots.

While not having the large carinated dishes, the Late Chalcolithic assemblage of Bağbaşı in the Elmalı region further south, has some conceptual correspondences in the coarse ware with very crude and simple bucket shapes (Eslick 1992, pls. 24-34), the way in which lugs are 'plugged' into the vessel walls (Eslick 1992, pls. 49:161; 50:167; cf. Barcın, figure 8:3), and another type of large dishes (Eslick 1992, pl. 17).

From Turkish Thrace, parallels for the Barcın Höyük dishes may be found at the sites of Kavaklı and Yumurta Tepe (Erdoğu 1998, figures 2-3), although the material stems from survey evidence only.

Barcın Höyük's Late Chalcolithic assemblage thus appears to fit within a larger area spreading over northwest, west and southwest Turkey, sharing similar attitudes towards manufacture, vessel size, proportions, and assemblage structure. Such conceptual correspondences may well reflect shared attitudes towards vessel use, presentation and manipulation, as well as to shared categorisation concepts.

## LATE CHALCOLITHIC SMALL FINDS

The Late Chalcolithic levels yielded few small finds from stratigraphically secure contexts. While most of the objects made of clay, bone and stone are not characteristically Late Chalcolithic in date and would probably not be out of place in Late Neolithic contexts, our excavations yielded at least one metal axe (see below) which is distinctively Late Chalcolithic and for which several comparatives exist.

The Late Chalcolithic bone tool assemblage is quite rudimentary when compared with the finer examples known from the Late Neolithic levels at this site. To date, only awls and spatula fragments have been discovered in the later phase. At least one bone spoon fragment also appeared in Late Chalcolithic contexts but it is unclear whether this is an intrusive find mixed in from earlier levels. In addition to bone, excavations of this phase yielded a pierced shell pendant.

Among the clay objects sling pellets are by far the most numerous. They often seem to have rounded biconical ends and are made of dense fine clays. The clay objects also include several figurine fragments, although these are all very poorly preserved. One interesting find is the miniature unbaked clay vessel which on its inside shows the nail impressions of its maker. A conical token is another clay find that could be assigned to the Late Chalcolithic. Interestingly, the only other object that could be categorized as a token was a small spheroid made of white stone, probably marble. Stone was used for other objects and vessels as well. Excavations yielded a fragment of a small cup with flaring sides, also probably of marble. Harder stones were used for the production of stone axes, of which at least two can securely be dated to the Late Chalcolithic phase. The Late Chalcolithic was a time when metal axes were slowly beginning to replace their stone predecessors. The copper axe BH2175 from M11 is an important and characteristic artefact that allows us to situate the Late Chalcolithic settlement at Barcın Höyük within a broader cultural setting.

## ARCHAEOLOGICAL ANALYSIS OF A FLAT AXE FROM BARCIN HÖYÜK

During the 2007 excavation season, a flat axe with a broken butt was recovered (BH 2175) from the Late Chalcolithic level of trench M11. The axe had a highly flared and partly rounded cutting edge with straight sides (figure 12). The blade has a rectangular cross section. It has a broken butt so the original length cannot be determined but its current dimensions are 7.7 by 2.3 by 0.6 centimetres and it weighs 68 grams. The axe had been cast in an open mould, after which the final shape was produced by extensive hammering. This would also have resulted in considerable hardening. When found, the surface was encrusted with a thick patina. Moulds, slag or other materials indicative of local metal production have not been found at Barcın Höyük to date.

Flat axes were probably used both as a domestic implement and as a weapon. They first appeared in the fifth millennium BC, in the Near East, Anatolia and in southeast Europe. Generally, they are produced by casting in open stone or clay moulds to give a rough form, which is then hammered to attain the final shape. They come in a

variety of size and shapes and are sometimes difficult to differentiate from chisels. Some standard forms appear over a wide geographical area.

### Comparisons

One of the earliest examples of a metal axe was recovered at Yumuktepe (Level XVI), dating to the Chalcolithic period (c. 5000 BC). This axe has a rounded cutting edge with a tapering side ending in a small rectangular butt. Metallurgical investigation indicates it was made by casting almost pure copper smelted from copper ores (Yalçın 2000). Pernicka *et al.* (1997) report on two flat axes, similar in form with long straight-sided blades and flared round cutting edges from Bulgaria: one of them is from Mezdra (VR-A1-2859) and dates to the Bulgarian Middle Chalcolithic while the other comes from the Late Chalcolithic Durankulak Cemetery (Grave 623, K1301). Both axes were made using almost pure copper, weighing 620 and 309 grams respectively. Also made from almost pure copper is a flat axe from the Chalcolithic levels of Kuruçay (Duru 1983). This axe has a similar flared cutting edge but concave sides ending in a rectangular flat butt. Although it dates to the Early Bronze Age, the flat axe from the Thermi excavations in Lesbos provides another close parallel to the Barcın Höyük axe (Lamb 1936, 29.9, 172, Pl. XXV). It also has a highly flared round cutting edge with straight sides, and had a broken butt like the Barcın Höyük axe.

The closest parallels to Barcın axe, both in typology and date, are the three axes from Ilıpınar's Phase IV Late Chalcolithic cemetery (ILIP 89/24, ILIP 88/33, ILIP 88/32). All three axes are flat and have highly flared cutting edges and straight sides and were made using arsenical copper (Begemann *et al.* 1994). They had arsenic concentrations ranging between 2.17 – 2.87 %. This is in accordance with the simultaneous appearance of arsenical copper artefacts across the Near East, Anatolia and Central Europe during the fourth millennium BC. The arsenical copper artefacts from Chalcolithic İkiztepe (Özbal *et al.* 2002) and Arslantepe (Palmieri *et al.* 1999) represent the most exquisite examples from Anatolia. While the production technology of arsenical copper is still debated, the Ilıpınar samples appear to be made by smelting arsenic-containing copper ores. The production technology of arsenical copper is still a matter of debate, but it has been concluded that the Ilıpınar axes had been made by smelting copper ores that contained arsenic. Lead isotope analysis of the Ilıpınar samples indicates that the closest possible ore sources are in the Serenceören region in the mountains of Çatal Dağ, located about 60 km southwest of Ilıpınar (Begemann, Pernicka and Schmitt-Strecker 1994).

### Elemental composition and lead isotope ratios

The chemical analysis and lead isotope ratios of Barcın axe are given in table 1 and 2 respectively. The Barcın axe, like the Ilıpınar samples, is composed of arsenical copper with 3.58% arsenic.<sup>4</sup> The high levels of arsenic, silver and nickel indicate that it is

<sup>4</sup> We would like to express our special thanks to Dr. Ünsal Yalçın (Bergbau-Museum Bochum) for the elemental and lead isotope analysis of axe BH2175.

made from smelted copper. Comparison of the trace element distributions with those of the Ilıpınar samples shows a very close match. Even though this may indicate a similar ore source, the silver and gold concentrations of the Barcın axe are considerably lower and the lead isotope ratios have a different signature from the lead isotope ratios of the main cluster of Chalcolithic artifacts from Ilıpınar. Together these data suggests that the ore source for the Barcın axe was different from that of the Ilıpınar samples.

#### THE LATE CHALCOLITHIC FAUNAL REMAINS FROM BARCIN HÖYÜK

This report is based on a small Late Chalcolithic sample (number of identified specimens, i.e. NISP is 2554; see table 3). Domesticates dominate the assemblage. When the remains of “Lsm” (unidentified remains of large sized mammals like cattle) and “Msm” (unidentified remains of medium sized mammals like ovicaprines) are included, domesticates comprise roughly 90% of the faunal material. It is likely that the large majority of Lsm and Msm consists of the main domesticates.

Livestock farming, therefore, was the most important means through which the inhabitants obtained their protein supply. Other activities like game hunting, fishing and collecting molluscs were certainly not insignificant but contributed to the nutrition only in a minor way (table 4). The Late Chalcolithic inhabitants of Barcın Höyük hunted small game like hare and fox, as well as large game like wild boar and fallow deer. This exploitation pattern is not unlike that from the Early Chalcolithic levels of Ilıpınar (Buitenhuis 2008).

Livestock management in the Late Chalcolithic was based mainly on cattle and ovicaprines. Their relative importance depends on whether NISP (figure 13) or bone weight (figure 14) is selected for quantification. When calculated using bone weight, cattle comes forth as an important food source. The NISP figures, especially when the “Msm” values are included, indicate that ovicaprines were significant to the diet as well.

Among the ovicaprines, sheep appears to have been a favoured meat supply over goat. Similar patterns occur in the faunal assemblages from Menteşe and Ilıpınar (Gourichon and Helmer 2008; Buitenhuis 2008). Although pigs yield a relatively high bone weight, the apparent low NISP values probably argue for a less extensive exploitation of this species. Remains of a middle-sized dog type supplement this Chalcolithic faunal assemblage.

Cattle were undoubtedly exploited for meat in the Late Chalcolithic, yet the high quantities of adult cattle present at Barcın Höyük might point to dairying and the use of traction-power (figure 15). Pigs were used in this period extensively for meat production; piglets were slaughtered when they were barely a year old, while most of the individuals were culled before they reached adulthood, presumably after they had produced litter. The age structure of ovicaprines resembles the culling profile of pigs rather than of cattle, but the higher percentages of subadults and adults suggest they were also kept for their secondary products.

Identification so far indicates that bird hunting was practiced at Late Chalcolithic Barcın Höyük. Large and medium sized birds like cranes and ducks dominate the assemblage while smaller birds are absent (table 4). Evidence of freshwater fish exploitation is scarce, but this could be a result of excavation strategies. Molluscs appear to be quite common in this assemblage and may, like at Ilıpınar and Menteşe (table 4; Gourichon and Helmer 2008, Buitenhuis 2008), be indicative of nutritional strategies. Evidence shows that both large edible land snails and freshwater molluscs like *Unio* sp. and *Vivipaprus* sp. were exploited. As in Ilıpınar, the euryhaline blue mussel supplemented the diet. However, Barcın Höyük's Late Chalcolithic levels appear to lack marine shells, which were abundant at Ilıpınar. Instead, like at Menteşe, marine molluscs show surface modification. It is likely that oyster, scallop and edible cockle shells were collected dead at the beach and brought to the site for their raw material.

Overall, this small Late Chalcolithic animal assemblage contributes to a better understanding of the ecological and agricultural developments in the Chalcolithic Period in northwestern Turkey. Like the sites already mentioned in the greater Marmara Region, Barcın Höyük seems to fit the general picture of an agricultural community that also exploited terrestrial and, to a certain extent, aquatic resources.

## DISCUSSION AND CONCLUSION

The significance of the findings presented above is directly related to the scarcity of stratigraphically intact contexts from Late Chalcolithic settlements in west and northwest Turkey (Schoop 2005: 228). To find even a handful of settlements that yield comparisons for the structural features of the settlement, the ceramics and the small finds, the gaze necessarily needs to range as far as the Lake District to the south and Turkish Thrace to the north.

From an assessment of the ceramic traditions at Barcın Höyük, it appears that there were similarities across this broad region in attitudes towards pottery manufacture, vessel size, proportions, and assemblage structure. On top of this shared foundation, specific ceramic traditions appear to have developed within smaller regions. The closest parallels for the wares, shapes and assemblage composition of the Barcın Höyük ceramics are found in a relatively small region which includes Demircihüyük to the southeast and Ilıpınar to the northwest. Ilıpınar's Late Chalcolithic remains comprise a cemetery, whereas the Demircihüyük finds do not come from stratigraphically reliable contexts. In other words, the Barcın Höyük remains presented here, fragmentary as they are, give us a first view of a Late Chalcolithic settlement in the Marmara region.

The settlement consisted of rectangular mudbrick houses, apparently single-roomed. In addition, there appear to have been structures built with timber frames. There was at least one rectangular semi-subterranean structure, which was probably not roofed. There were outdoor ovens and hearths in the vicinity of the houses. The faunal evidence presented above suggests that the settlement was inhabited by a farming community that relied on animal husbandry and occasional hunting. Undoubtedly crop farming was a major source of nutrition as well, but this is still under investigation.



A ditch appears to have marked the boundary of the settlement, although certainly not throughout the history of the Late Chalcolithic occupation, given that a semi-subterranean structure was situated partly inside the refilled ditch. More extensive excavations are necessary to determine whether the ditch did indeed form a settlement boundary and whether there was a circular organization of the houses within the settlement. If so, this would resemble the situation now known from the Early Chalcolithic levels of Aktopraklık (Karul 2009: 5, figure 8).

Strikingly, extensively investigated sites such as Aşağıpınar and Aktopraklık have not yielded evidence for Late Chalcolithic occupation. This raises questions about the density of occupation in the Marmara Region at this time. Based on current knowledge, major centres such as İkiiztepe along the Black Sea and Arslantepe in the Euphrates Region and possibly Beycesultan in southwestern Anatolia, appear to be absent in northwest Turkey.

#### REFERENCES

- Begemann, F., E. Pernicka, and S. Schmitt-Strecker, 1994 – Metal finds from Ilıpınar and the advent of arsenical copper. *Anatolica* 20: 203-219.
- Buitenhuis, H., 2008 – Faunal remains from the late Neolithic and Early Chalcolithic levels. In: J. Roodenberg and S. Alpaslan Roodenberg (eds), *Life and death in a prehistoric settlement in Northwest Anatolia. The Ilıpınar excavations III*, 205-218. Leiden: Nederlands Instituut voor Het Nabije Oosten.
- Duru, R., 1983 – Kuruçay Höyüğü kazıları. 1981 Çalışma Raporu. *Anadolu araştırmaları* 9: 13-40.
- Erdoğu, B., 1999 – The Late Chalcolithic pottery from the sites of Kavaklı and Yumurta Tepe in the province of Edirne, Eastern Thrace. *Proceedings of the Prehistoric Society* 65: 457-464.
- Eslick, C., 1992 – Elmalı-Karataş I. The Neolithic and Chalcolithic periods: Bağbaşı and other sites. Bryn Mawr: Bryn Mawr College.
- Gerritsen, F., and R. Özbal, 2010 – Geç neolitik tarımcılar: Barcın Höyük. *Aktüel arkeoloji* 13: 51.
- Gerritsen, F., and R. Özbal, 2009 – Barcın Höyük kazıları 2007. *Kazı sonuçları toplantısı* 30(3): 457-464.
- Gerritsen, F., and R. Özbal, 2008 – Barcın Höyük kazıları 2007. *Türk Eskiçağ Bilimleri Enstitüsü Haberleri* 25: 23-24.
- Gourichon, L., and D. Helmer, 2008 – Etude de la Faune Neolithique de Menteşe. In: J. Roodenberg and S. Alpaslan Roodenberg (eds), *Life and death in a prehistoric settlement in the Northwest Anatolia. The Ilıpınar excavations III*, 435-446. Leiden: Nederlands Instituut voor Het Nabije Oosten.
- Karul, N., Z. Eres, M. Özdoğan and H. Parzinger (eds), 2003 – Aşağı Pınar I: Einführung, Forschungsgeschichte, Stratigraphie und Architektur. *Archäologie in Eurasien* 15. Mainz: Phillip Von Zabern.
- Karul, N., 2009 – Kuzeybatı Anadolu'da anahatlarıyla Neolitik-Kalkolitik dönemler, *Türk Eskiçağ Bilimleri Enstitüsü Haberleri* 28: 1-6.
- Lamb, W. 1936 – Excavations at Thermi in Lesbos. Cambridge: Cambridge University Press.
- Lloyd, S., and J. Mellaart, 1962 – Beycesultan I. The Chalcolithic and Early Bronze Age levels. London: British Institute of Archaeology at Ankara.
- Özbal, H., N. Pehlivan, B. Earl and B. Gedik 2002 – Metallurgy at İkiiztepe. In: Ü. Yalçın (ed.), *Anatolian Metal II*, 39-48. Bochum: Deutsches Bergbau-Museum Publications.
- Palmieri, A.M., M. Frangipane, A. Hauptmann and K. Hess, 1999 – Early metallurgy at Arslantepe during the Late Chalcolithic and the Early Bronze Age IA-IB periods. In: A. Hauptmann, E. Pernicka, T. Rehren and Ü. Yalçın (eds), *The beginnings of metallurgy, Der Ansschnitt, Beiheft* 9: 141-148.



- Pernicka, E., F. Begemann, S. Schmitt-Strecker, H. Todorova and I. Kuleff, 1997 – Prehistoric copper in Bulgaria. Its composition and provenance. *Eurasia antiqua* 3: 41-180.
- Roodenberg, J., 2001 – Stratigraphy and architecture of phases X and IX. In: J. Roodenberg and L. Thissen (eds), *The Ilipinar excavations II*, 1-11. Leiden: Nederlands Instituut voor Het Nabije Oosten.
- Roodenberg, J., and S. Alpaslan Roodenberg (eds), 2008 – Life and death in a prehistoric settlement in Northwest Anatolia. *The Ilipinar excavations III*. Leiden: Nederlands Instituut voor Het Nabije Oosten.
- Roodenberg, J., A. van As, S. Alpaslan Roodenberg, 2008 – Barcın Hüyük in the Plain of Yenişehir (2005-2006): A preliminary note on the fieldwork, pottery and human remains of the prehistoric levels. *Anatolica* 34: 53-60.
- Roodenberg, J., L. Thissen and H. Buitenhuis, 1989-1990 – Preliminary report on the archaeological investigations at Ilipinar in NW Anatolia. *Anatolica* 16: 61-144.
- Schoop, U.D., 2005 – Das anatolische Chalkolithikum: eine chronologische Untersuchung zur vorbronzezeitlichen Kultursequenz im nördlichen Zentralanatolien und den angrenzenden Gebieten. *Urgeschichtliche Studien* 1. Remshalden: Bernhard Albert Greiner.
- Seeher, J., 1987 – Demircihüyük III. Die Keramik I. Mainz: Philip von Zabern.
- Yalçın, Ü., 2000 – Frühchalkolitische Metallfunde von Mersin-Yumuktepe: Beginn der extraktiven Metallurgie? *TÜBA-AR* 3: 111-130.

Element	Concentration (ppm)	Element	Concentration (ppm)
Ag	320	S	61
Sb	32	Fe	46
Te	7.1	Co	2.0
Au	0.7	Ni	105
Pb	46	Zn	15
Bi	3.3	Sn	8.5
Hg	12	Se	46
P	2.0	As	3.58%

Table 1: Axe BH 2175: elemental composition.

Isotope	Ratio
$^{208}\text{Pb}/^{206}\text{Pb}$	2.048
$^{207}\text{Pb}/^{206}\text{Pb}$	0.8280
$^{207}\text{Pb}/^{204}\text{Pb}$	15.75
$^{206}\text{Pb}/^{204}\text{Pb}$	19.02
$^{208}\text{Pb}/^{207}\text{Pb}$	2.474
$^{208}\text{Pb}/^{204}\text{Pb}$	38.95
$^{204}\text{Pb}/^{206}\text{Pb}$	0.05259

Table 2: Axe BH 2175: lead isotope ratios.

Locus	Trench	NISP
5	M11	671
8	M11	162
11	M11	1
12	M11	1
15	M11	832
16	M11	3
39	M11	1
56	M10	181
57	M10	1
58	M10	1
59	M10	2
60	M10	79
61	M10	1
62	M10	18
63	M10	128
64	M10	36

Table 3: Faunal remains: list of loci and trenches from which Late Chalcolithic faunal remains are included.

	Bos Taurus	Ovicaprines	Ovis	Capra	Suid	Dog	Sus Scrofa	Dama dama	Lepus	Red Fox	"Lsm"	"Msm"	Mammals Indet.	Unid. Med. Birds	Anatine	Grus-Crane	Helix landsnail	Unio	Viviparus sp.	Myt, blue mussel	Cerast, cockle	Oyster	Pecten Glaber
Indeterminates												1	6										
Longbone											247	319		1									
Antler								1															
Cranium frags.	27	15	2	2	50	2		2			3	65											
Hyalia	2	1																					
Mandibula	19	23			24	2					2	7											
Teeth	30	37			23																		
Scapula	19	33	4	1	26						16	23											
Humerus	19	30	3	5	20	1	1		1	1													
Antebrachium	1			2																			
Radius	12	25	5	2	7	2		1							1								
Ulna	4	6	3	1	9	2																	
Carpus	2																						
Metacarpus	6	9	1	1	4	1									1								
Vertebra	2										27	17											
Vert. Cervical	23	14	4		1		1																
Vert. Thoracic	15	18			7			2															
Vert. Lumbar	8	6			6																		
Vert. Caudal	2				1																		
Costa	31	44	1		32				1		109	126											
Coxa	13	18	4		12			1				1											
Os sacrum	1	2				1																	
Femur	14	18	1	1	8																		
Patella	1																						
Tibia	14	36	2	4	11	1		2	2														
Fibula					2																		
Talus	7		4	1	1			1															
Calcaneus	8	5	4		1				1														
Tarsus	4																						
Metatarsus	10	15	1	1	2	1																	
Metapodium	16	6	1	1	2	1																	
Phalanx prox.	9	6	3	1			1	1															
Phalanx med.	13	1			1			1								1							
Phalanx dist.	8		1																				
Os sesamoideum	2																						
Core of shell																	38		1		1		
Valve																		21		18		1	3

Table 4: Faunal remains: species and parts of the body.

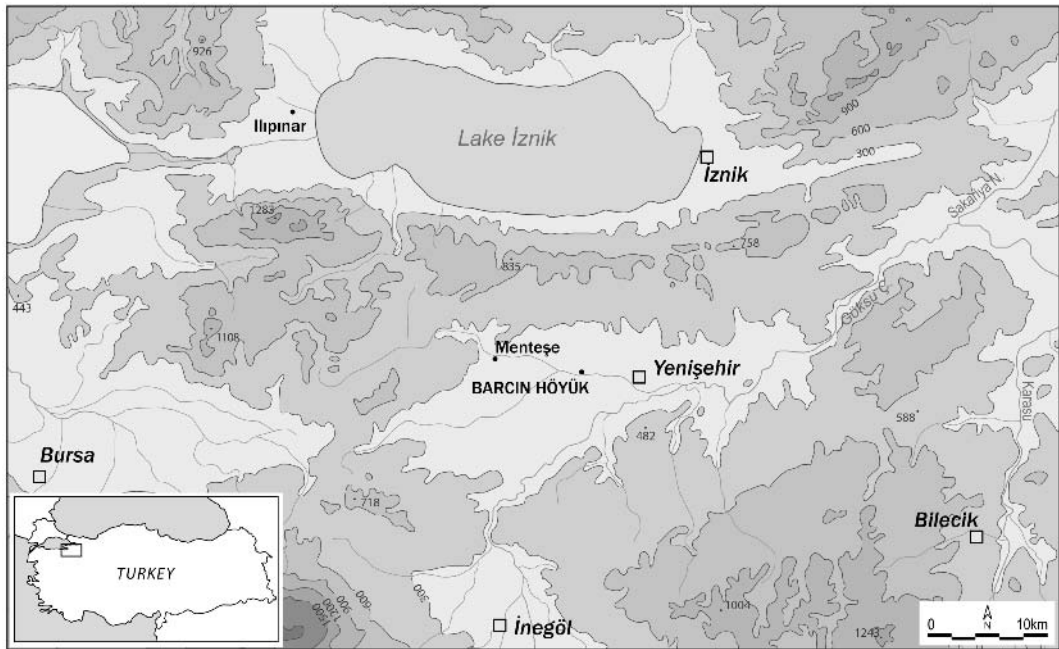


Figure 1: The location of Barcın Höyük in the Yenişehir Basin.

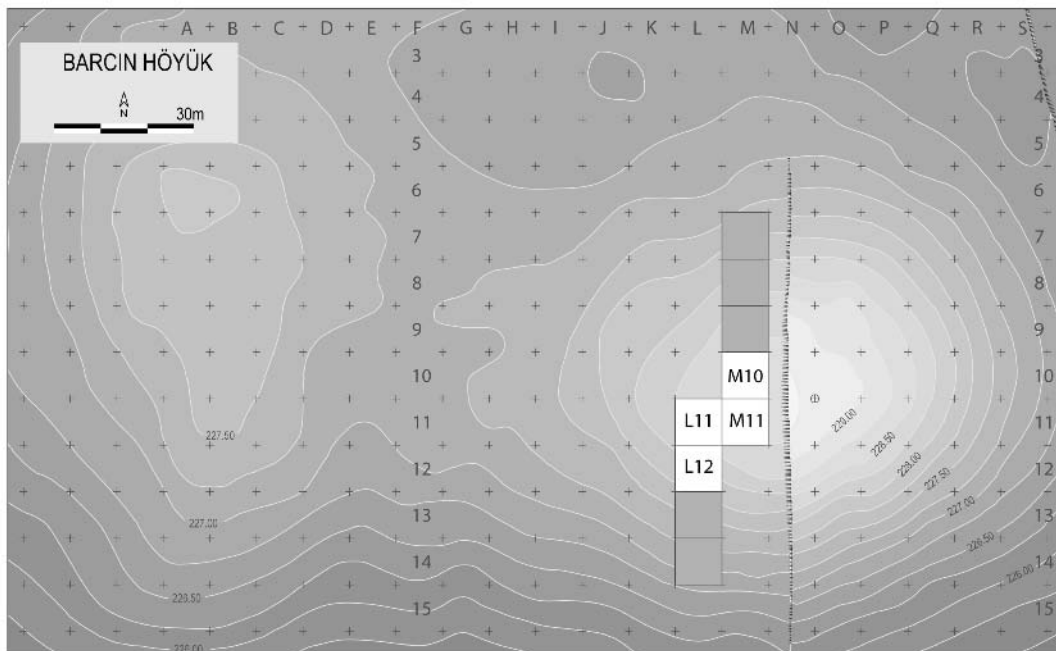


Figure 2: Elevation plan of Barcın Höyük with excavation trenches.

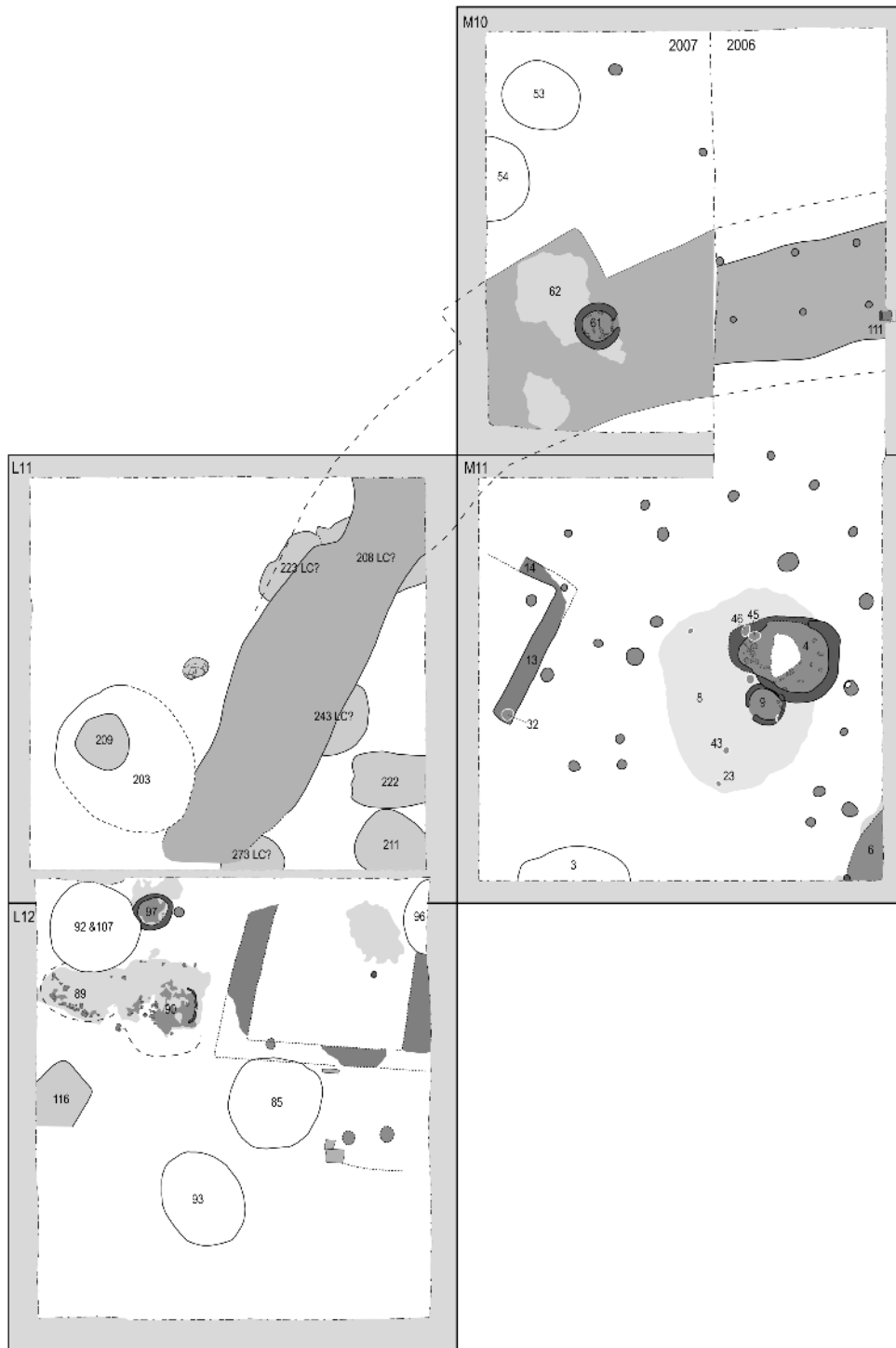


Figure 3: Overview of Late Chalcolithic features in trenches L11, L12, M10 and M11.

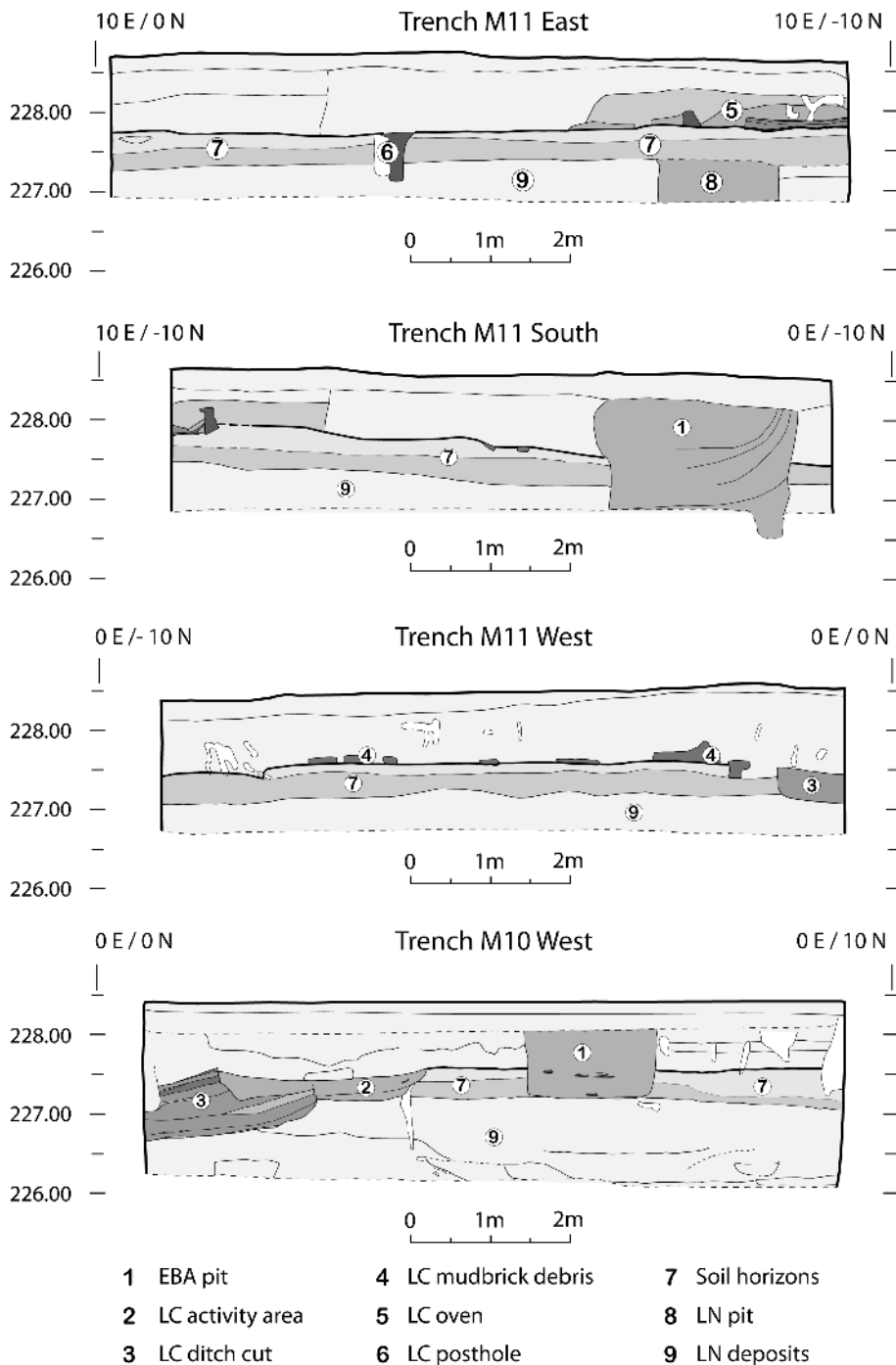


Figure 4: Section drawing of the east and south profiles of trench M11 (above) and the west profiles of M11 and M10 (below). The upper boundary of the Late Neolithic palaeosol is indicated as a thickened line.

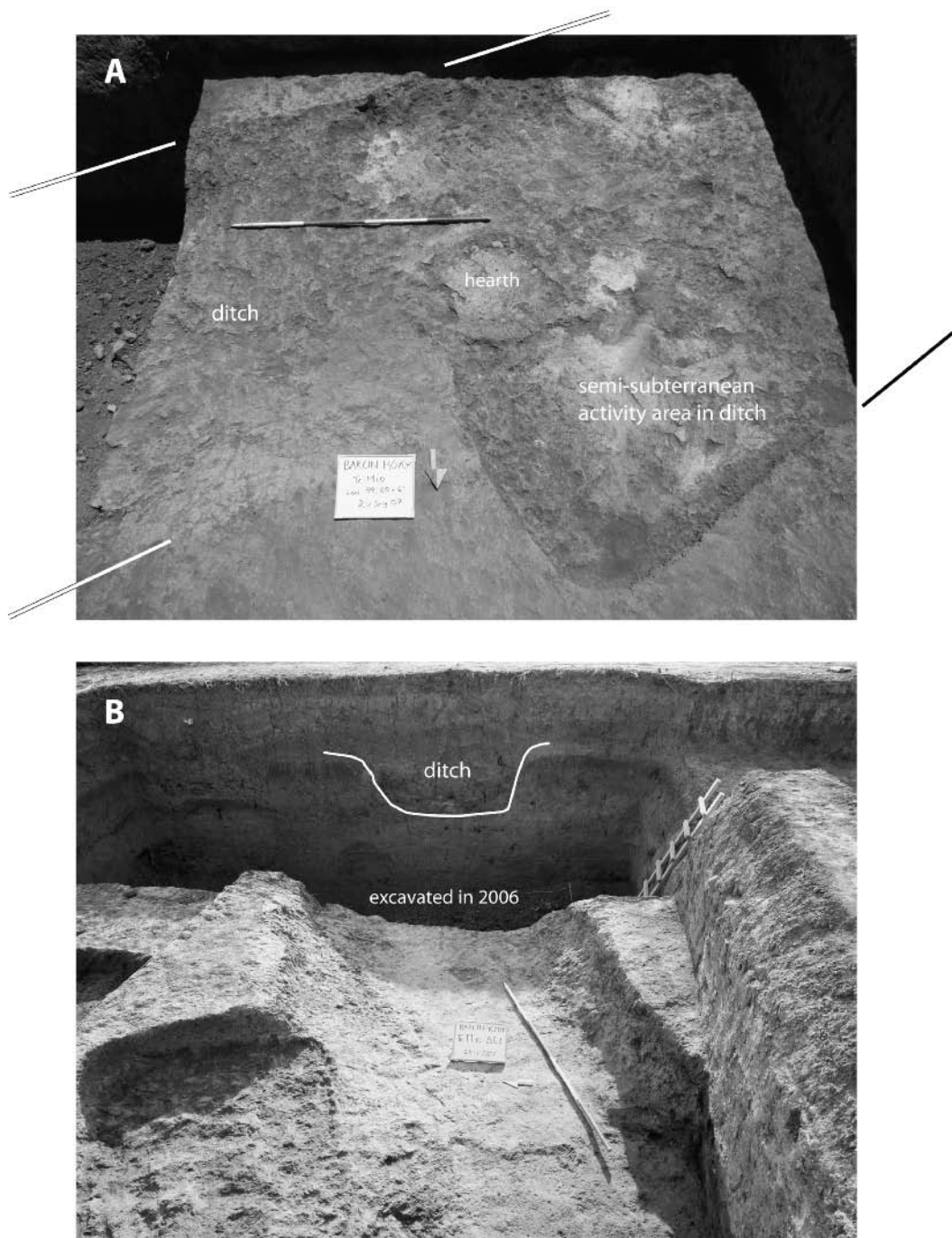


Figure 5: A: Trench M10 with partly refilled ditch into which semi-subterranean area with surface and hearth has been cut (photo taken from North); B: Trench M10 with ditch completely excavated. The semi-subterranean area extends to the left (after removal of hearth). The deeper area in the background represents the deep sounding M10-SS of 2006. The ditch is indicated in the East profile of M10 (photo taken from West).





Figure 6: Oven M11:04 and adjacent hearth M11:09 in trench M11.

## CATALOGUE OF CERAMICS

*Reference system:* e.g., M10/BH 2755: trench/Barcın Höyük registry number.

*Abbreviations:* I=interior; E=exterior; D.=rim diameter (in cm, followed by percentage of radius preserved); H.=height (in cm); l.b./m.b./h.b.=low-, medium-, high burnish; h.a.p.=handle attachment place.

*Colour codes:* all references to *Munsell Soil Color Charts* (2000 edition).

### Figure 7

1. M11/BH 3007. PBW hemispherical dish. D. 28/10%. E l.b., I m.b., E grey black, with black/grey burnish strokes. Black fractures.
2. M11/BH 2391. PBW hemispherical dish. D. 33/10%. I+E h.b., black + E fire clouds. Limestone/calcite, poss. crushed shell, sparse fine chaff.
3. M10/BH 2048. PBW inverted-rim ('antisplash') dish. D. 38/10%. I+E m.b., black with grey burnishing strokes.
4. M11/BH 2809. PBW carinated dish. D. 32/20%. I h.b., dark brown, E m.b., brown; fine chaff; three joining fragments.
5. M11/BH 3020. PBW carinated dish. D. 38/10%. I abraded, surface flaked off; E m.b., brown.
6. M10/BH 2615. PBW carinated dish. D. 34/10%. I+E m-h.b., I blackish, E brown-black; I+E dense mica shimmering; possible clay slip.
7. M11/BH 2809. PBW carinated dish. D. 36/20%. I+E m.b., I dark brown, E brown + some fire clouding. Long fibres, clearly coil-made top part, below carination mould made. Four joining fragments.



**Figure 8**

1. M11/BH 2809. PBW carinated dish. D. 31/10%. I m-h.b., black, E l-m.b., brown, mica shimmer.
2. M11/BH 2809. PBW carinated dish. D. 32/30%. I+E m.b., brown-black. Some chaff. Four joining fragments.
3. M11/BH 2186. PBW carinated dish. D. 33/10%. I well-smoothed, m.b.; E above carination well-smoothed, m.b., below l.b. 5YR 5/4 (reddish brown).
4. M10/BH 2348. PBW carinated dish. D. 35/20%. I+E m.b. in horizontal strokes; six joining fragments, some of which are black, others brown. E lower body is scraped, pared down. Some large quartz inclusions (4-11mm).
5. M10/BH 2615. PBW carinated dish. D. 35/10%. I m.b., E m-h.b., blackish. Fibres (long grasses).
6. M10/BH 2983. PBW carinated dish. D. 40/100%. H. 9.0-10.5. Complete, restored. I+E m.b., abraded. Long fibres. 5YR 5/3-4/3 (reddish brown). E base use-wear.

**Figure 9**

1. M10/BH 2348. PBW hemispherical bowl. D. 21/20%. I+E l-m.b. in horizontal strokes. 10YR 7/4 (very pale brown)-10YR 6/4 (light yellow brown).
2. M10/BH 2614. PBW incurving bowl. D. 24/10%. I l.b., E m.b.; grey black.
3. M10/BH 2324. PBW two-handed jar. D. 13/10%. I+E m.b., grey. Dense mica shimmer I+E.
4. M10/BH 2622. PBW lug-handled pot. D. 14/10%. I+E l.b., grey brown.

**Figure 10**

1. M10/BH 2048. CW basin. D. 30/10%. I+E smoothed, brownish with black smoke clouds. Large fibres.
2. M11/BH 2809. CW deep bowl. D. 31/10%. I+E l.b., orangey brown, black core. Large fibres.
3. M11/BH 2809. CW deep bowl. D. 33/10%. I+E l.b., brown, black core. Large fibres.
4. M10/BH 2614. CW jug with loop handle. D. 15/10%. I+E smoothed only; E greyish, I orange brown. Uneven walls, chaff.
5. M11/BH 2809. CW jar. D. 14/20%. I l.b., E smoothed only, brown, black core. Dense fibres. Rim use-wear.
6. M10/BH 2348. CW pot. D. 24/30%. I smoothed, l.b., E smoothed only. Some mica shimmer, very dense straw/chaff temper (fibres about 8mm long). 7.5YR 5/4 (brown). Unevenly walled, rim abraded at places, slightly brittle, may be refired slightly.

**Figure 11**

1. M10/BH 2614. CW pot. D. 27/10%. I+E scraped, smoothed, l.b., brown, black core; long fibres.
2. M11/BH 3019. CW pot with two opposing lugs. D. 24/20%. I+E smoothed only, brown, black core, long fibres.
3. M10/BH 2614. CW pot with two opposing lugs. D. 18/20%. I heavily scraped vertically, E attempts at burnishing. Grey-brown, black core. Very irregular walled.
4. M10/BH 2348. CW pot with two opposing lugs. D. 16. I+E smoothed only, brown; black core; long fibres. Unevenly walled, rim attritioned.

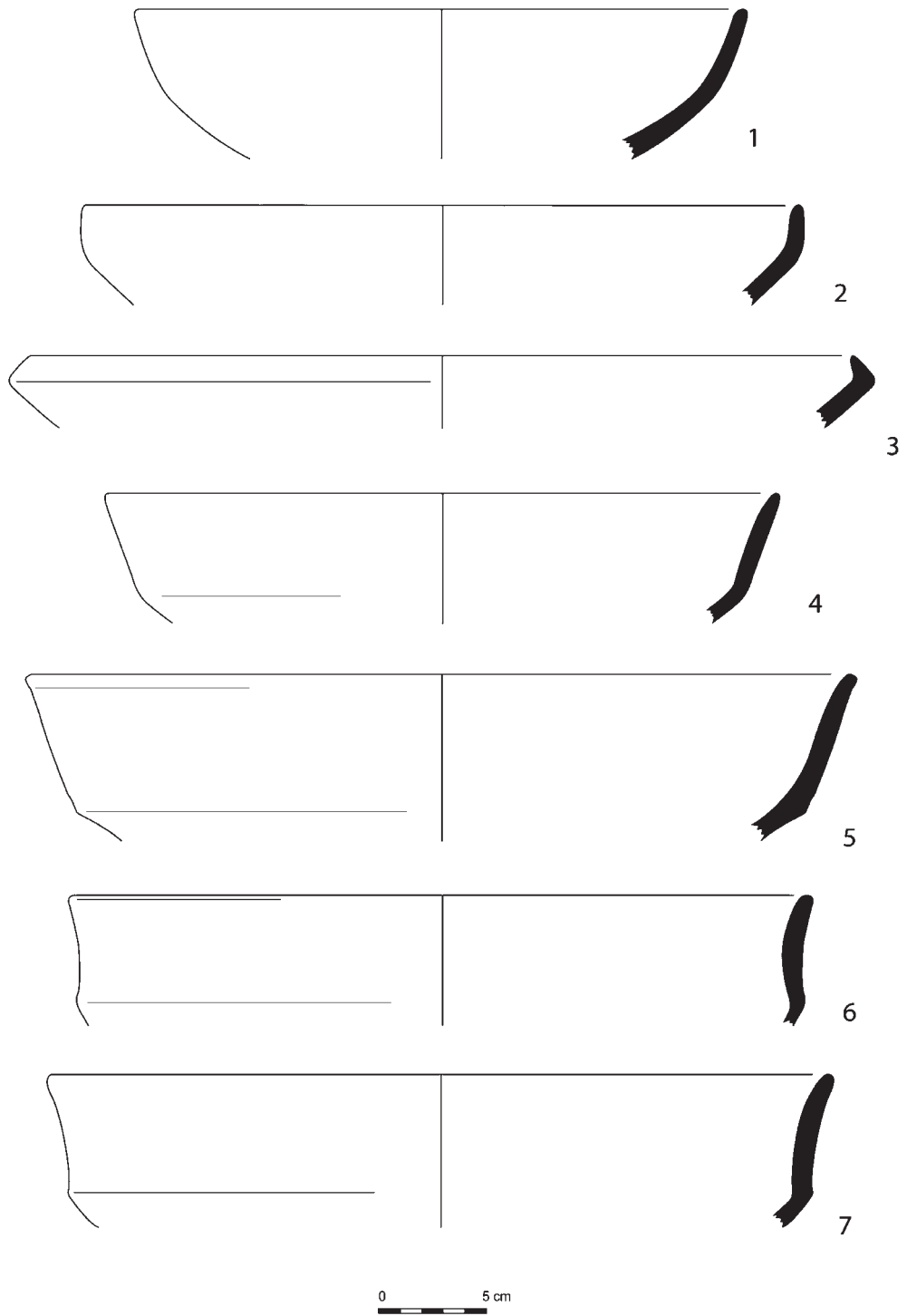


Figure 7: Barcın Höyük, Plain Burnished Ware; 1-7: dishes.

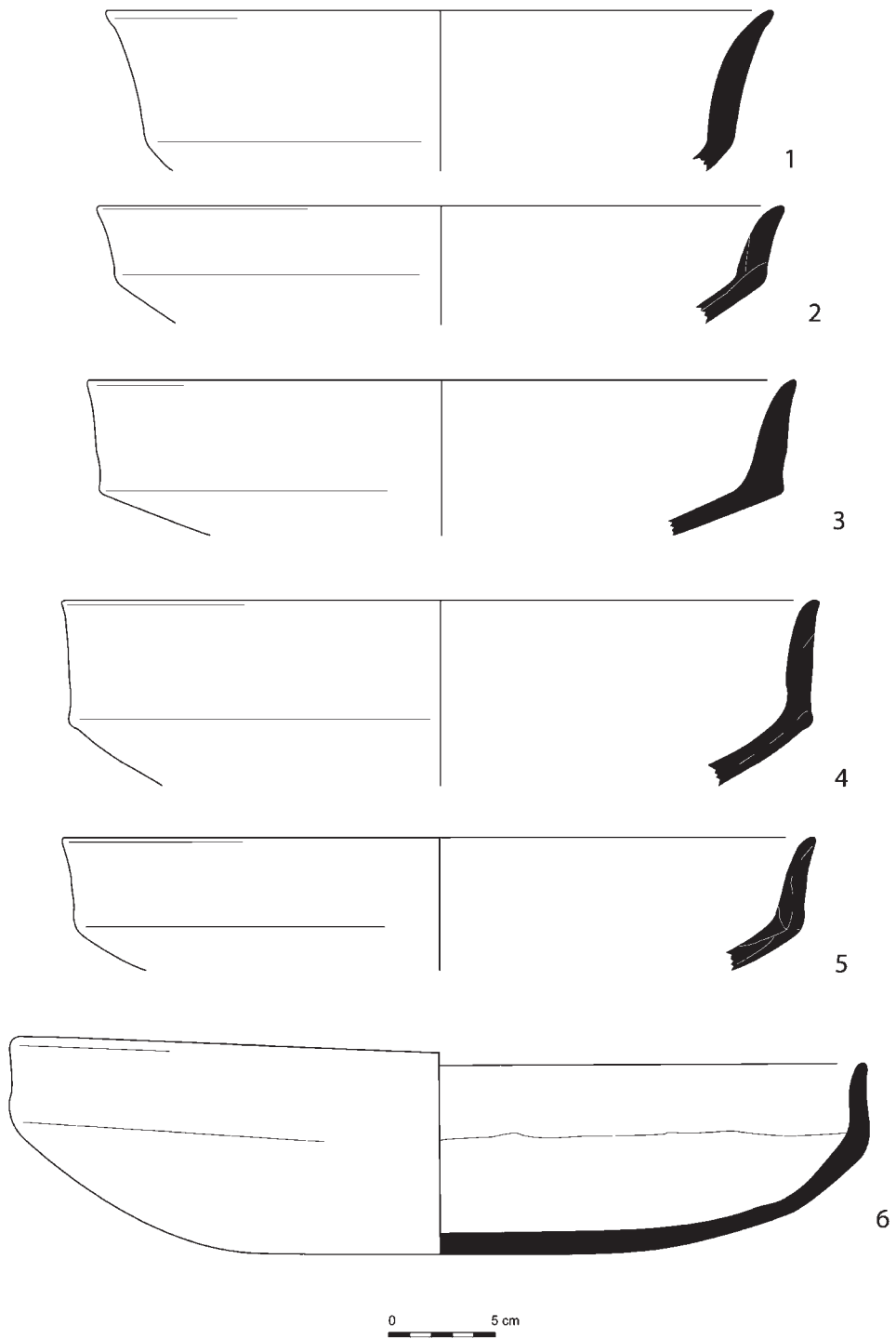


Figure 8: Barcın Höyük, Plain Burnished Ware; 1-6: dishes.

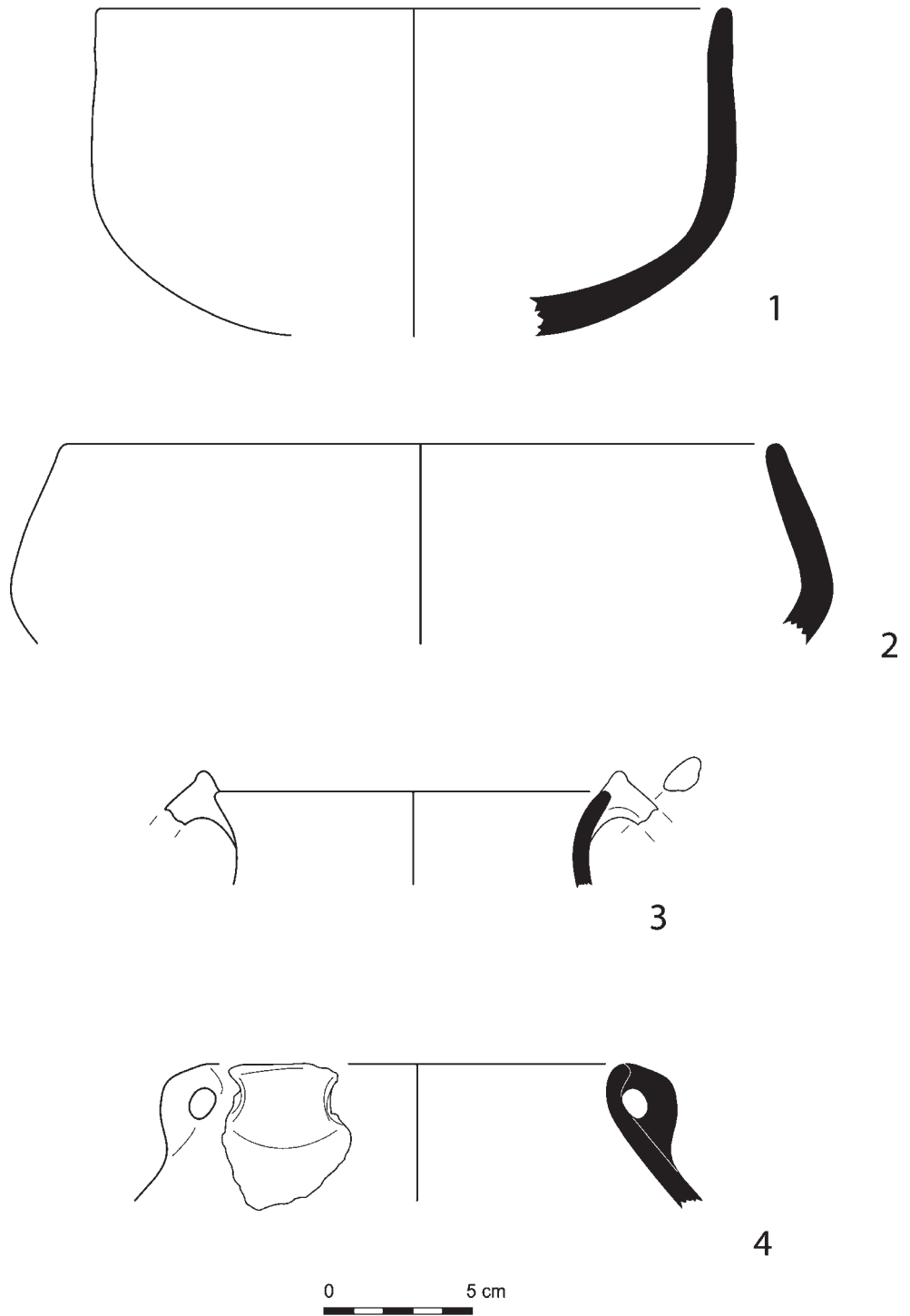


Figure 9: Barcın Höyük, Plain Burnished Ware; 1-2: bowls; 3: jar; 4: pot.

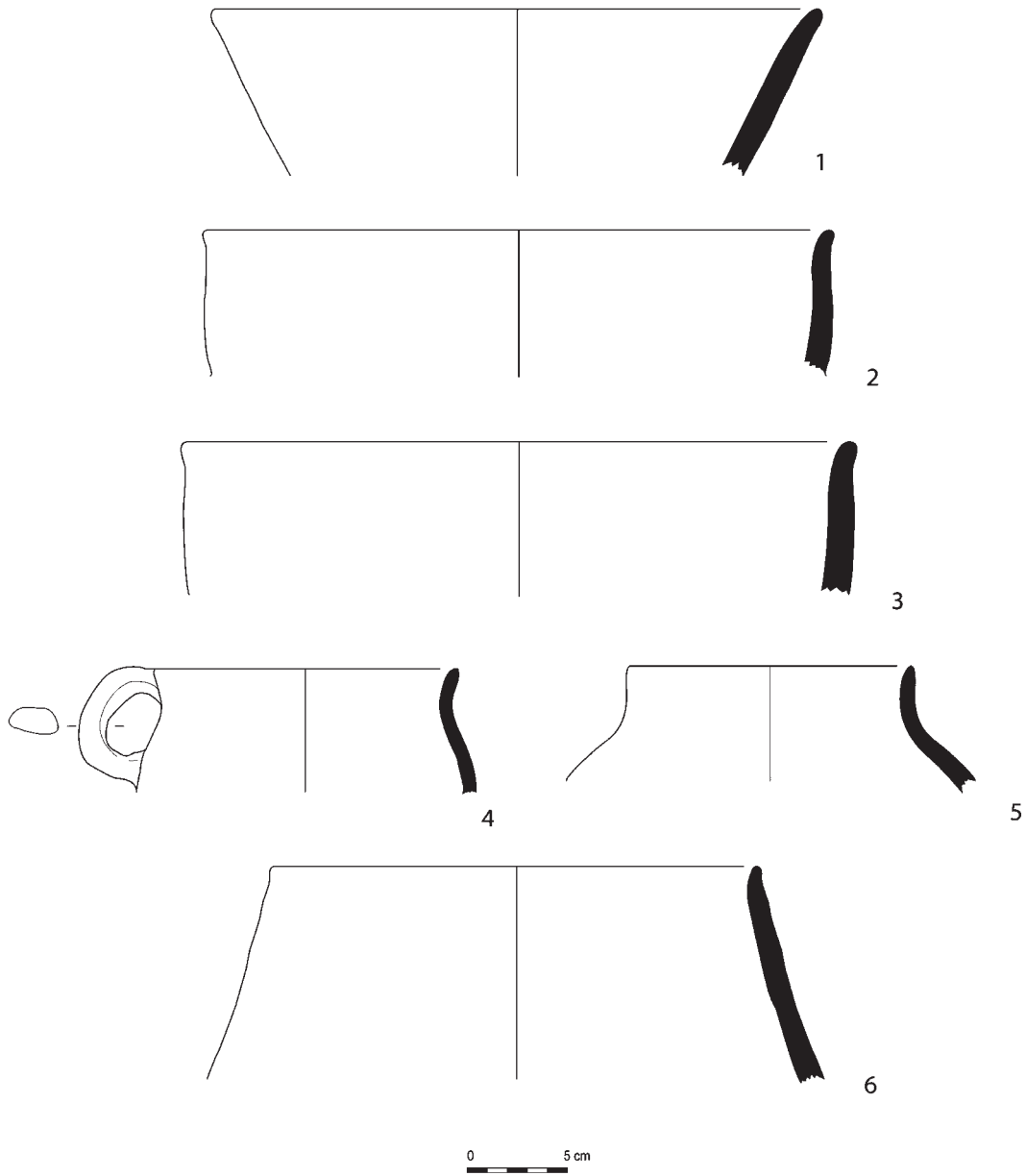


Figure 10: Barcın Höyük, Coarse Ware; 1: basin; 2-3: bowls; 4: jug; 5: jar; 6: pot.

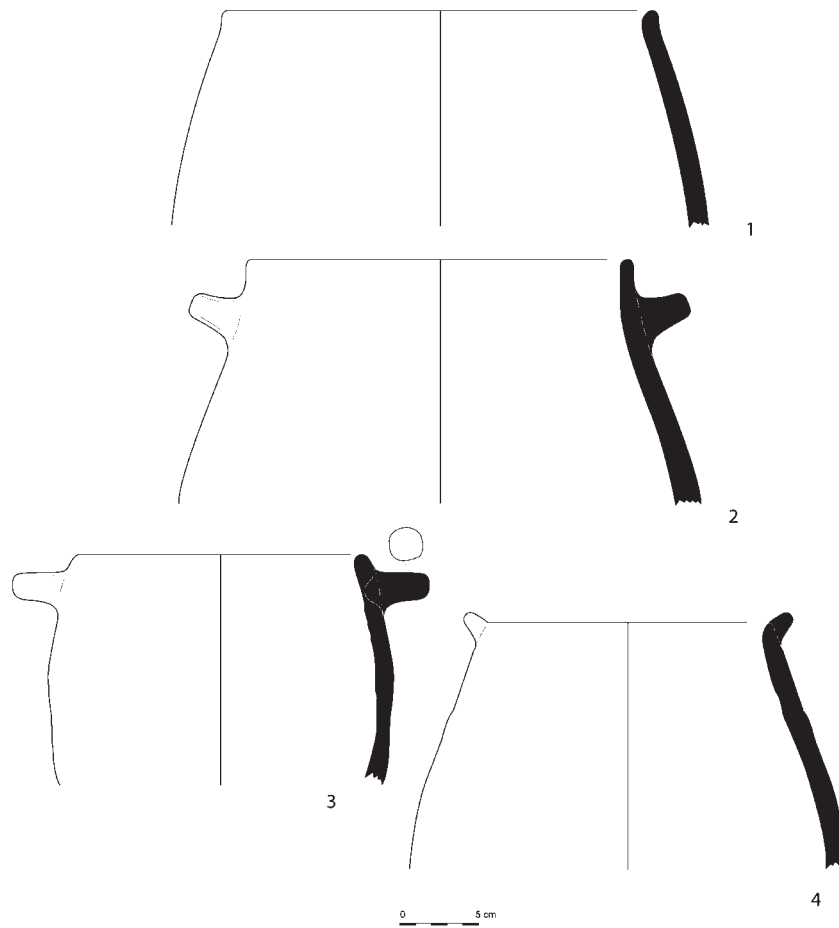


Figure 11: Barcın Höyük, Coarse Ware; 1-4 pots.

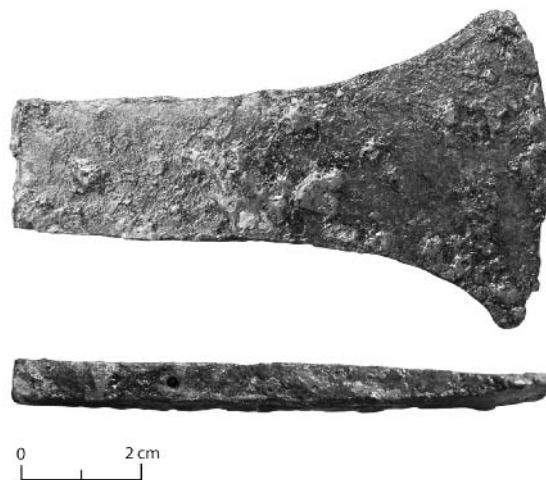


Figure 12: Photo of axe BH2175 after conservation.

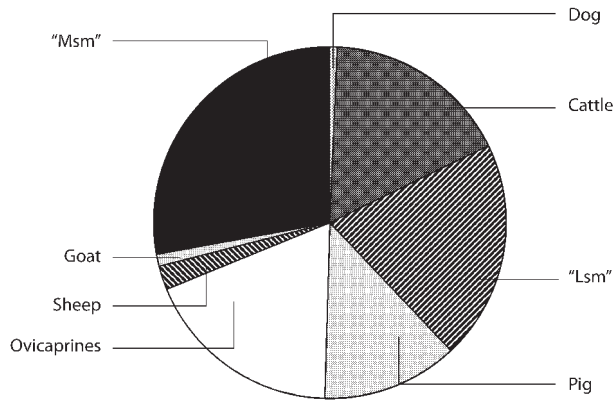


Figure 13: Quantification of the major domesticates by means of NISP.

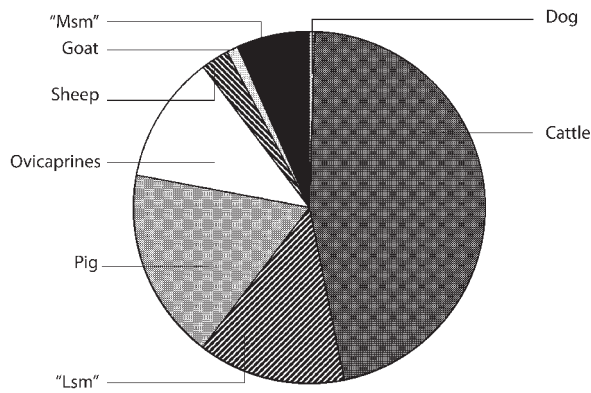


Figure 14: Quantification of the major domesticates by means of bone weight.

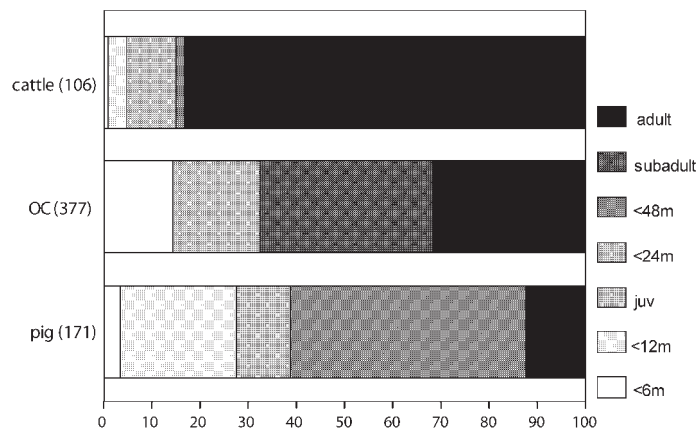


Figure 15: Culling profiles of the major domesticates.