

V. Continuity and Change in an Early Bronze Age 1 Metal Workshop

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Abstract: This article concentrates on the functional analyses of a special room within the Early Bronze Age settlement at Çukuriçi Höyük on the central Aegean coast in Western Anatolia and the activities that took place inside this particular room. Based on detailed studies on the architectural remains and the finds assemblage, an attempt was made to determine the primary use and a possible change in the function of this building unit. Due to initial archaeological spatial analysis of the settlement, the intra-site spatial analyses discussed here can be seen in context of a settlement rich in metal processing with specialised craft activities. The detailed analysis of use and its sequential arrangement within a single room form *inter alia* the initial point for continuative socio-cultural interpretations, which form a key aspect within the exploration of the individual settlements at Çukuriçi Höyük.

Keywords: Western Anatolia, Çukuriçi Höyük, Early Bronze Age, intra-site-spatial archaeology, architecture, continuity and change, stratigraphy, function

Zusammenfassung: Dieser Artikel beschäftigt sich mit der Analyse der Funktion eines speziellen Raumes innerhalb der frühbronzezeitlichen Siedlung des Çukuriçi Höyük an der mittleren Ägäisküste in Westanatolien und der darin stattgefundenen Aktivitäten. Anhand von detaillierten Studien der architektonischen Hinterlassenschaften und des Fundensembles wurde versucht, die ursprüngliche Nutzung des Raumes sowie eine mögliche Veränderung dieser zu rekonstruieren. Durch bereits vorgenommene räumliche Analysen konnte festgestellt werden, dass sich der hier besprochene Raum im Kontext einer intensiv metallverarbeitenden Siedlung mit spezialisiertem Handwerk befindet. Die detaillierten Untersuchungen zur Nutzung und Nutzungsabfolge innerhalb eines Raumes bilden unter anderem die Basis für weiterführende sozio-kulturelle Interpretationen, welche einen Schwerpunkt in der Erforschung der einzelnen Siedlungen auf dem Çukuriçi Höyük darstellen.

Stichworte: Westanatolien, Çukuriçi Höyük, Frühbronzezeit, Intra-site-spatial Archäologie, Architektur, Kontinuität und Wandel, Stratigraphie, Funktion

The Early Bronze Age 1 occupations at Çukuriçi Höyük have been unearthed in two trenches (S1–S4 and M1; see Fig. 5.1) during investigations between 2007 and 2014 within the scope of research projects conducted by Barbara Horejs. Work was funded first by the Austrian Science Fund (FWF²⁹⁹), and since 2010 by the ERC Project “From Sedentism to Protourban Societies in Western Anatolia”.³⁰⁰

Within this project, many detailed studies were, or are, conducted. At this point, we would like to thank our colleagues for their great work and effort during the last years. We want to thank Danilo Wolf (University Halle) for identification of the rock raw materials, which were used for the buildings as well as the small finds, Christoph Schwall (OREA) for his work on the grinding stones of the Early Bronze Age and the Late Chalcolithic phases, Mathias Mehofer (VIAS) for the analyses of the metallurgical finds and features and Johanna Traumüller for the great basis work on the Early Bronze Age pottery.

The Bronze Age settlement can be divided into two phases named ÇuHö III and ÇuHö IV. Excavated structures and architectural remains identified via geophysical prospection provide insights

²⁹⁹ FWF Project nr. P 19859-G02.

³⁰⁰ START Project nr. Y 528-G19; ERC Starting Grant Project no. 263339.

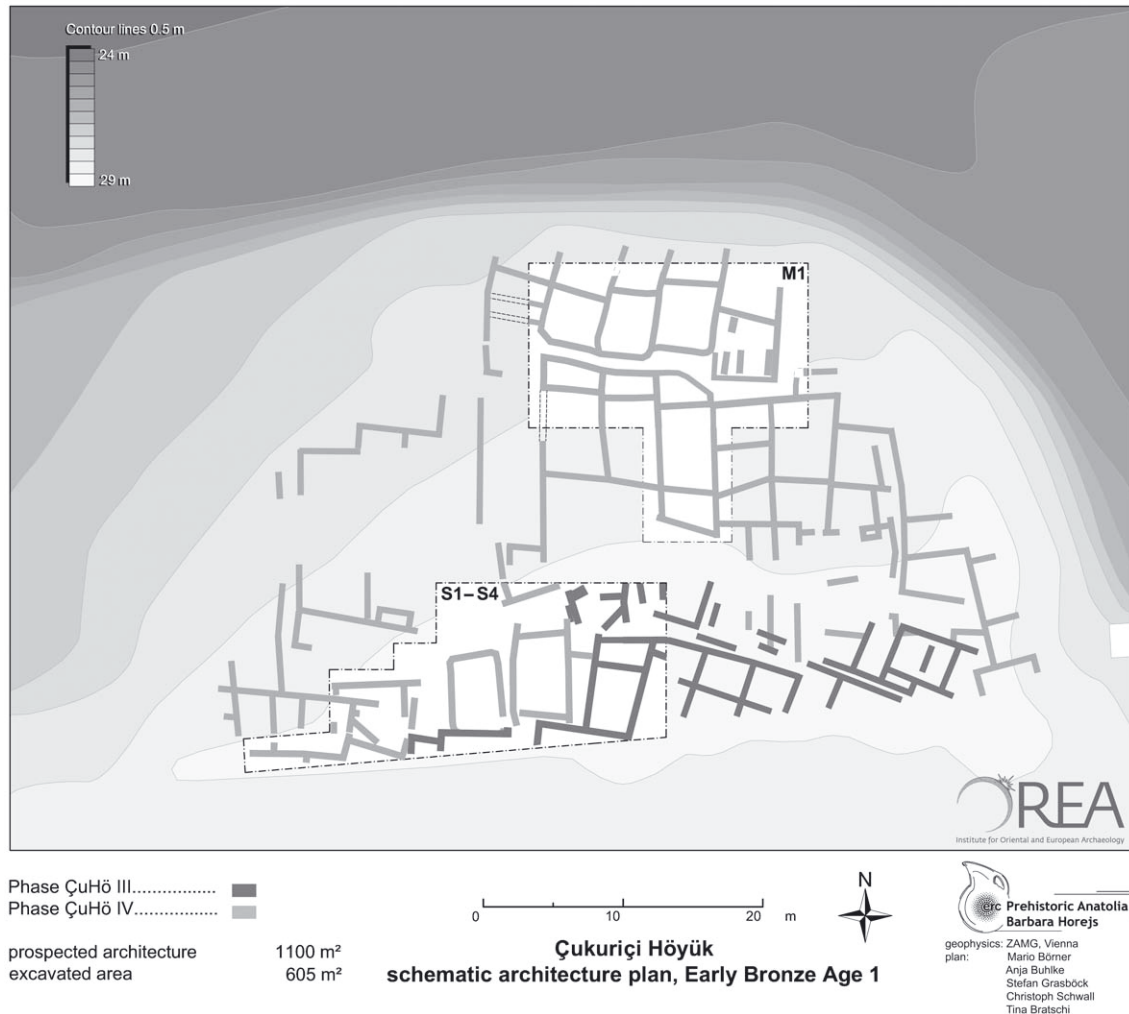


Fig. 5.1 Contour line plan of the tell surface with the architectural remains of the two settlement phases ÇuHö III and ÇuHö IV discovered in the trenches S1–S4 and M1 and via geophysical prospection (plan: M. Börner, A. Buhlke, St. Grasböck, Ch. Schwall, T. Bratschi)

into architectural properties of the buildings and the local Early Bronze Age 1 architecture as well as its stratigraphy. This stratigraphy provides insights into a room's chronology and history of usage. Furthermore, it can be used to identify the function of the single rooms. Among these excavated and analysed rooms, one very special room among the Early Bronze Age 1 occupation is room 18, which belongs to phase ÇuHö IV (see Fig. 5.2). As the only building with antae excavated so far on Çukuriçi Höyük, this room is distinctive due to its special shape and the cluster of special features inside the room itself, as well as adjoining structures outside the room. Another interesting feature is the chronology of certain periods showing special usage phases (so called 'use horizons'), which allow the possibility of observing continuity and change inside one room of a very special building.

V.1. Multifunctional Architecture and Usage at Çukuriçi – Insights into a Special Room

Architecture

Architectural remains of the Early Bronze Age 1 settlements at Çukuriçi Höyük are preserved at the settlement hill over an extent of approximately 1919 m². Remains have been identified via excavated structures and by geophysical prospection at the tells surface. The EBA occupation con-

sists of buildings composed by rectangular rooms of different shape, size and orientation. These buildings are arranged on streets running north-south as well as east-west. Stone plinths made of local stones form the foundation for the entire excavated EBA 1 architecture. Wall construction was most likely of mud bricks. Although no completely preserved mud bricks or other absolute evidence for this have been found, their usage can be assumed via analogies and the current state of research. The variety of buildings includes possibly free-standing structures as well as buildings attached to each other, forming huge complexes probably containing numerous houses and households. Inside these buildings, the rooms can be divided into several types, for example rooms for craft and domestic use. All types of rooms can be found in nearly every building, giving them the appearance of multifunctional edifices. Inside the rooms, a sequence of stamped clay floors with several features and installations belonging to each floor was found showing the usage of the room over a certain period.

In the following, a special room excavated in its entire extent shall be described, giving insights into its (multi)functional architecture and usage. Room 18 is located in the centre of the excavated area called trenches S1–S4 and surrounded by walls built of quarry stones.

Room 18 is of rectangular shape but with an irregular length and width and a north-south orientation. Its length varies from 6.13m in the east to 5.63m in the west and 3.7m in the south to 3.45m in the north, covering an area of almost 22m². It is unique in the existence of antae in the north of the building. The antae are of asymmetric length of 0.5m to 0.8m. No other building or room of the Early Bronze Age 1 habitation of Çukuriçi Höyük shows any similarities to this. Also unique are breaks inside the northern and the southern walls of the room. They are located in the north-eastern and south-western part of the walls. Although their purposes remain unclear, it can be said that the northern break at least was closed for some time (see Fig. 5.3), which cannot be exactly dated but must be after the construction of a pit with a stone platform in the area north of the room. The described room can be seen as the western part of a partially excavated building of settlement phase ÇuHö IV, connected to other rooms in the east and in the south (see Fig. 5.4).

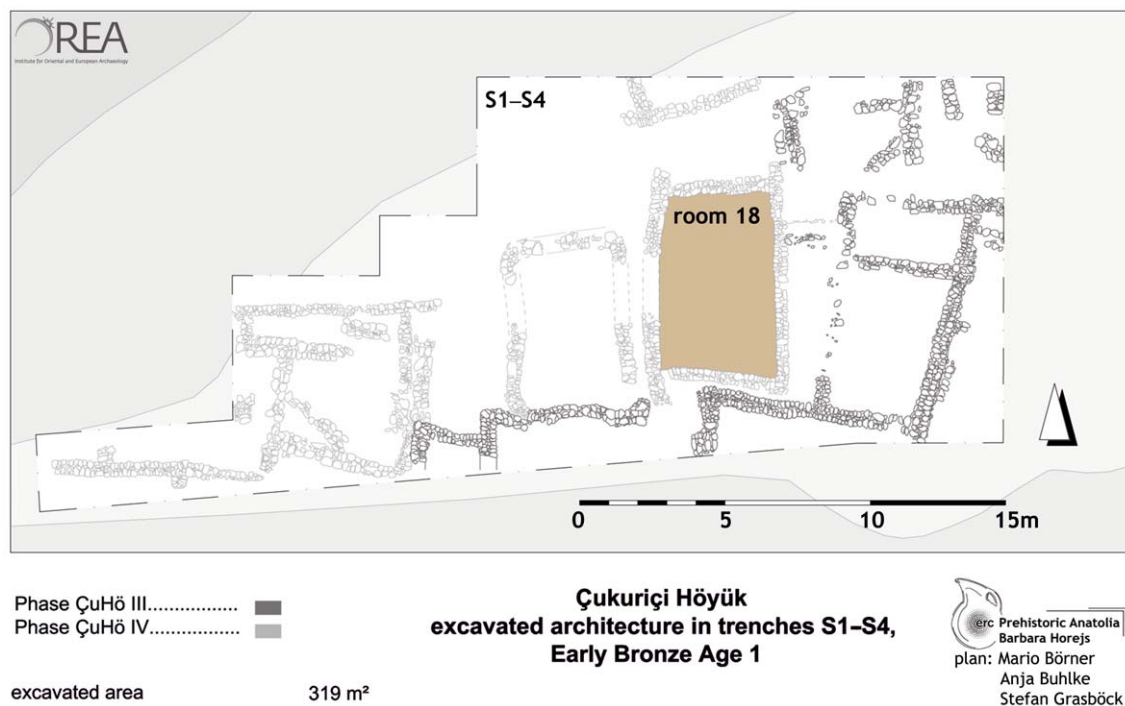


Fig. 5.2 Architectural plan of the trenches S1–S4 showing the two settlement phases and the location of room 18 described in the text (plan: M. Börner, A. Buhlke, St. Grasböck)



Fig. 5.3 View of the closed gap in the northern wall of room 18
(black: original wall; grey: filled in part)
(plan: M. Börner, St. Grasböck)



Fig. 5.4 Photograph showing the northern part of the room with the adjoining open space in the north and west as well as the connected stone platform and associated pit
(photo: N. Gail/ÖAI)

The eastern room is also partially excavated, although not in its entire extent, and connected to room 18 via an entrance, evidence for which is a hinge stone inside the stone plinth of the wall. The other neighbouring room in the south is only hypothetical and remains superimposed by layers of the younger settlement phase. Additionally there is no hinge stone inside the stone plinth but a gap inside the wall. A possible entrance inside the whole building can possibly be seen in the north. Here a hinge stone inside the stone plinth in connection to the neighbouring free space in the north may point to an entrance inside the building here (Fig. 5.5).

In the west, room 18 is separated from room 16 by a narrow space making both rooms part of separate buildings (Fig. 5.6).

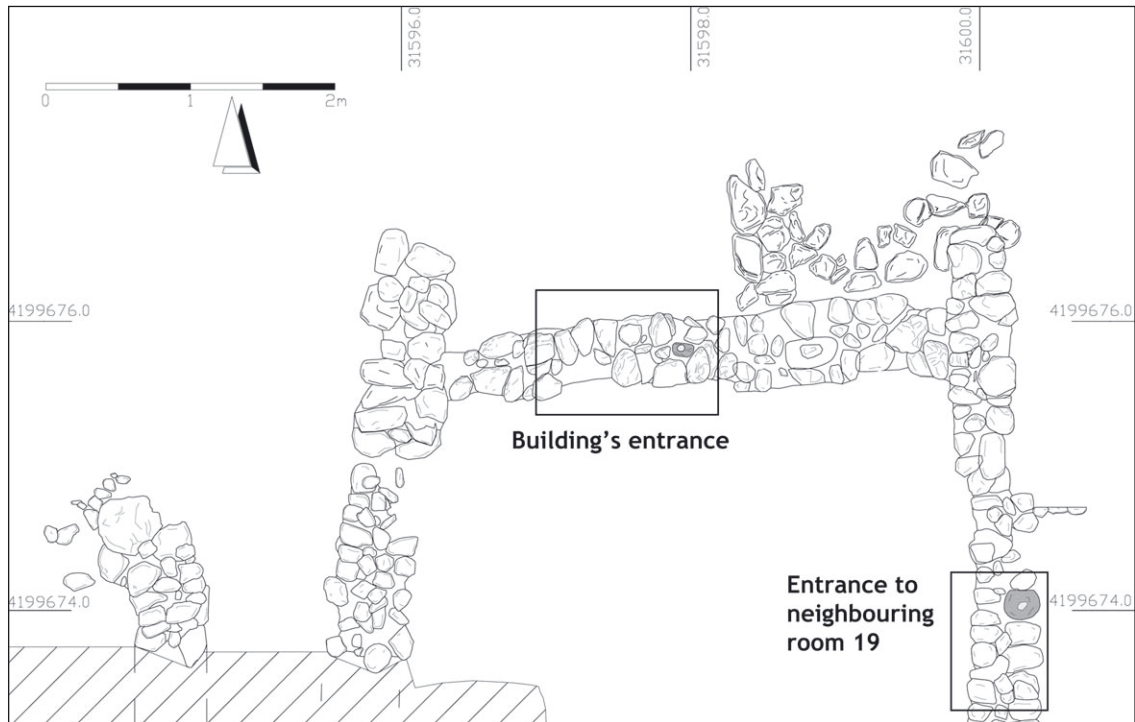


Fig. 5.5 Plan showing entrances into the room, which are assumed due to hinge stones built 'inside' the stone plinths of the walls
(plan: M. Börner, A. Buhlke, St. Grasböck)



Fig. 5.6 Overview photograph showing room 18 in context to other rooms and buildings of settlement phase CuHö IV
(photo: N. Gail/ÖAI)



Fig. 5.7 Photograph showing the stone platform constructed adjoining the southern wall of the room as one of the special features inside this building (photo: N. Gail/ÖAI)

The walls defining the room were all built directly on a flat area formed by levelling layers covering the preceding settlement phases. No building pits have been discovered here. In some cases, at other parts of the excavated area, parts of the older use horizons or building phases have been overbuilt by the walls. Although the room has not been completely excavated, it seems likely that all walls of room 18 have been built on the levelling layers of settlement phase ÇuHö IV. All stone plinths consist of quarry stones found near the tell.³⁰¹ The walls were constructed of two outer layers and a filling of smaller stones. It seems clear that these stone walls have been built without any technical aid because only stones of small and middle format³⁰² have been discovered. Inside the rooms several layers of stamped clay floors constructed on clay (levelling) layers have been discovered.

These floors can be separated into the following types:

- smoothed clay floors
- stamped clay floors with enclosures
- pebble stone surface fixing

³⁰¹ Oral note Dipl. Geol. Danilo Wolf.

³⁰² For the definition of small, middle and great format stones see Altwasser 2003, 61.

All these floor types can be found inside room 18 partitioned on several stratigraphic levels as part of the chronology of this spatial unit.

As a very special feature, a platform was constructed at the southern border of the room and was set directly in front of the wall. This platform is constructed of quarry stones that provide a work surface elevated several centimetres above the associated floor level.

Hearths are comprised of vertical standing stones in front of walls, enveloping a 30–50cm broad area. Layers of ash and burnt clay have been discovered in their nearer surroundings. Other installations are ovens and postholes. Both of these show special positions inside the room and can provide clues to roof types.

Stratigraphy, Use Horizons & Function

Several use horizons can be defined inside the room. Use horizons are a stratigraphic periodisation inside rooms defined by collectively exposed units of stratification, which can be seen in a functional context as well as large-scale deposits that start and end them. Three use horizons were excavated in room 18, chronologically A–C; an older use horizon (D) is postulated but was not excavated.

The youngest use horizon, A, is only preserved in a very small extent and contains a very small part of a stamped clay floor in the centre of the room as well as parts of burnt clay and ash in the northwest of the room. The stamped clay floor consists of yellowish light brown compact and hard argilliferous sand with small pebble inclusions up to 3cm in size, and is therefore categorised as the floor type of stamped clay floor with inclusions. The burnt clay and ash may represent an oven, but this remains unclear. In the southern part of the room, reddish clay debris could be found under the clay layer. A hinge stone was found inside this debris, giving another hint to a neighbouring room in the south, aside the walls, which can be tracked under the levelling layer of the settlement phase ÇuHö III in the south. This also means that room 18 had direct access to all neighbouring rooms. Unfortunately, the hinge stone was not found in situ so the exact position of the entrance cannot be reconstructed. Aside from this, a ceramic spool and a spinning whorl were found in this debris. These are the best references for the function of this use horizon and suggest a textile workshop during this use horizon. The poorly preserved oven could point to another or second function, but due to the preservation issues, no other reconstructions seem warranted at this point (Fig. 5.8).

The underlying use horizon, B, is fully excavated and provides the best insight into the architecture and function of the room. It was constructed on a large-scale deposit superimposing the older use horizon C. The corresponding stamped clay floor consists of smoothed, yellowish light-grey, compact and hard gritty clay with inclusions of quarry stones up to 4cm (Fig. 5.9).

Also parts of the use horizon are two ovens in the centre of the room, other parts of possible ovens in different parts of the room, for example in front of a wall, have only been observed in the northwest of the room but are in a very bad condition. Corresponding to this possible oven there are special floors. One is a stamped clay floor consisting of reddish-brown, gritty clay with inclusions of ash, charcoal and burnt clay. The other one is a pebble stone surface fixing.

Both floors could be seen in context to a poorly preserved oven that was built in front of a wall and was not part of the ovens in the centre of the room. Two examples of the other ovens can be found in the centre of the room. Their position is nearly in the centre of the room with a workspace of nearly two meters to the east and south as well as a free space of nearly one meter between each other. Their special position in the centre of the room runs in accordance with the position of postholes inside the room. Two postholes corresponding to this use horizon have been excavated in the northeast of the room showing a distance of about 30–50cm to the wall making them possibly part of a cantilever roof.

Other features of this use horizon are a possible hearth constructed of vertical standing stones in front of a wall in the southeast of the room. Next to this, a closed find context was excavated comprising ceramics, a clay basin and two grinding stones (Fig. 5.10).

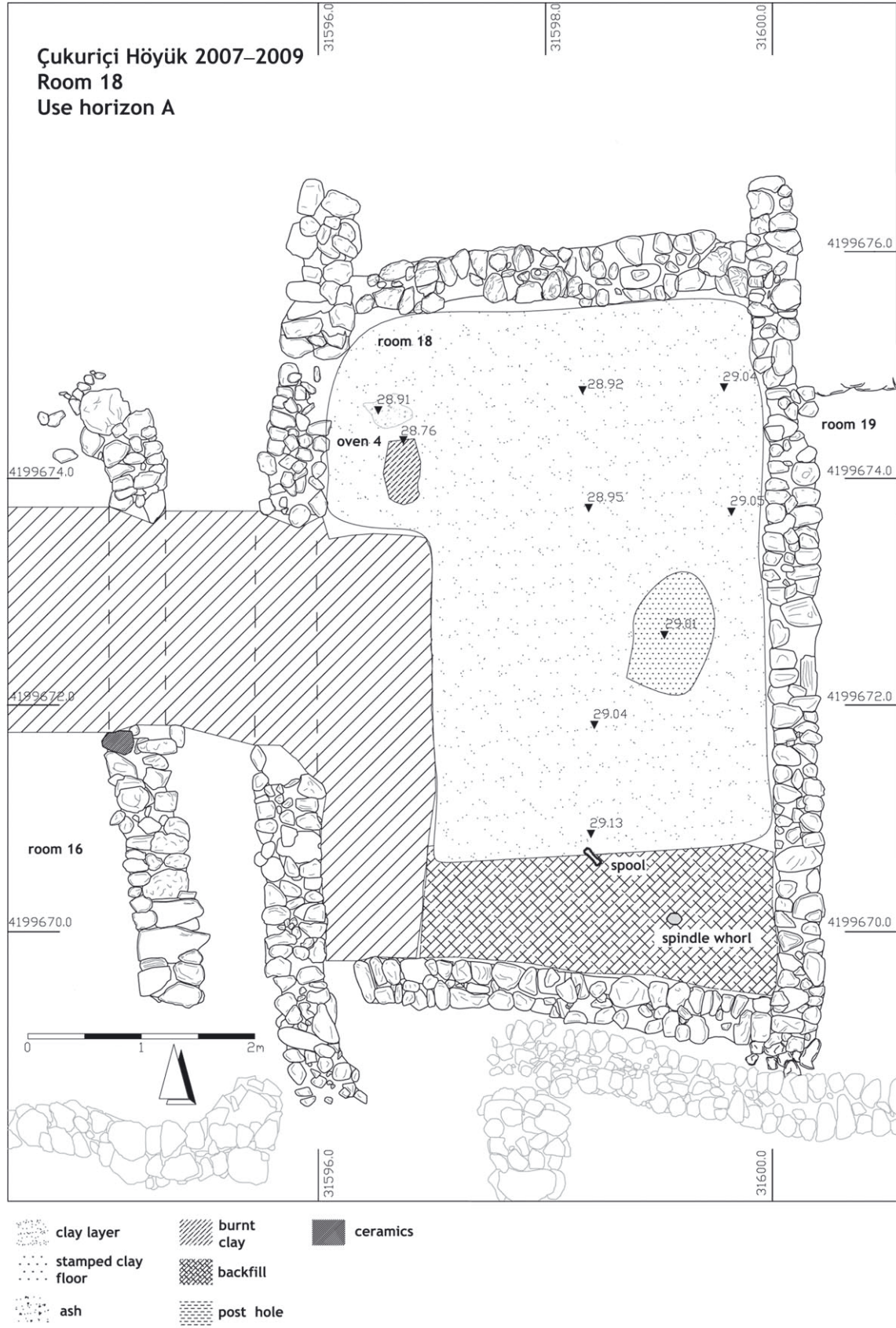


Fig. 5.8 The youngest use horizon A with all associated structures and the distribution of excavated small finds (plan: M. Börner, A. Buhlke, St. Grasböck)

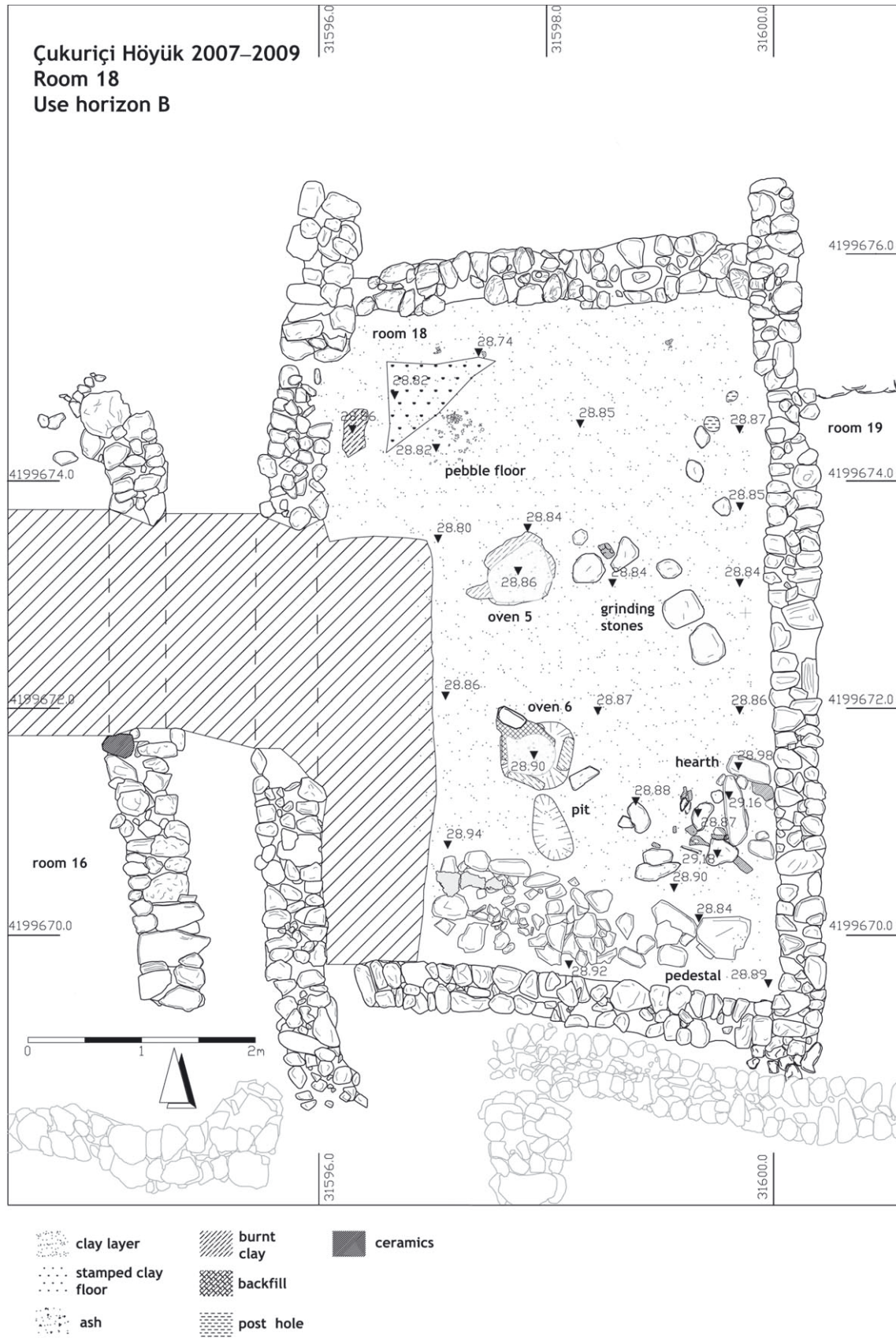


Fig. 5.9 Use horizon B with all the belonging structures and the mapping of excavated small finds (plan: M. Börner, A. Buhlke, St. Grasböck)

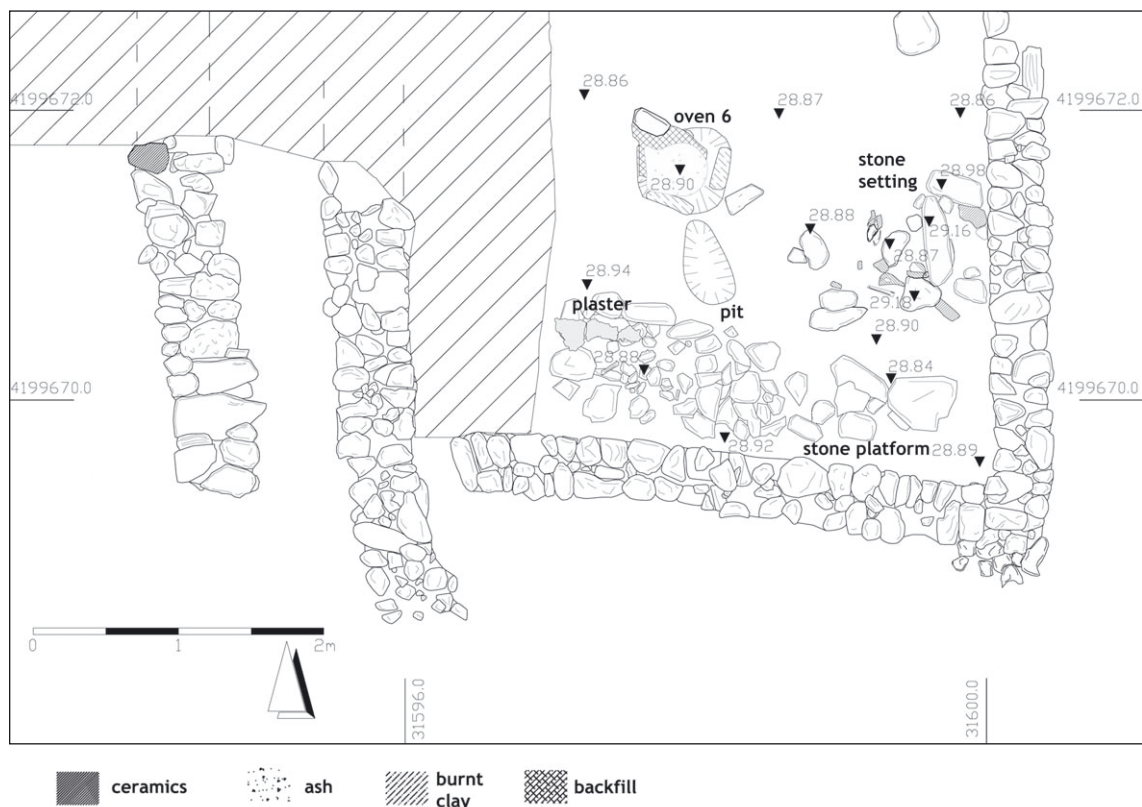


Fig. 5.10 Detailed plan of the cluster of structures and finds associated with use horizon B in the southern part of the room. Contents include an oven, stone structure, closed find context and the stone platform with plaster (plan: M. Börner, A. Buhlke, St. Grasböck)

The most interesting feature of this room is a pedestal constructed of quarry stones in front of the southern wall of the room. It was constructed at the very beginning of the room's use-life and remained in use until the abandonment of use horizon B. During this use horizon, it was covered with a plaster of clay with ochre brown painting. Its usage remains unclear, but at the end of this use level, it was covered by clay debris, which preserved the plaster (Fig. 5.11).

Investigations³⁰³ of the plaster revealed two plastering layers. The lower plastering layer is coarse mortar consisting of rock fragments up to 2cm in size (metamorphic quartzite and mica schist) and subordinated, incompletely burnt grains of marble bound with clay or loam (Plate 1). High levels of silicon, aluminium, potassium and iron in the chemical composition of this layer indicates the presence of ferrous clays (Plate 2A). The outer plastering layer is a smoothed, lime-bound fine mortar from 1–3mm thick with some marble grains ≤ 1 mm in size. The ochre brown colour of the exterior surface could be the remains of paint, or discoloration from the depositional environment. Chemical composition of this layer corresponds to pure quicklime (CaO; Plate 2B).³⁰⁴

³⁰³ The investigations were carried out by ao. Univ.-Prof. Dr. Johannes Weber, Institut für Kunst und Technologie, Universität für angewandte Kunst Wien. Methodology: vacuum impregnation with blue pigmented epoxide resin, petrographic thin sections, polarising microscopy with transmitted light and incident light, scanning electron microscopy in low vacuum, 20 kV accelerating voltage, back-scattered detector, elemental analysis with energy-specific x-ray-micro analytics.

³⁰⁴ Material knowledge examinations on two samples from Çukuriçi Höyük (Ephesos) © ao. Univ.-Prof. Dr. Johannes Weber, IATCS, Universität für angewandte Kunst Wien.



Fig. 5.11 Detailed photograph of the red painted plaster found on the stone platform inside room 18 (photo: N. Gail/ÖAI)

In the transition from the coarse to fine mortar layer, there is evidence for strong compaction by calcium carbonate as a product of the natural soil processes.

All these architectural features, as well as the variety of artefacts, show a very broad range of activities inside this room from a metallurgical- to a domestic-workspace.

The oldest excavated use horizon, level C, shows both similarities and differences (Fig. 5.12). It was also constructed on a large-scale deposit covering the entire preceding use horizon. The corresponding floor consists of yellowish brown, hard stamped gritty clay with charcoal and quarry stones. It is only preserved in the southwest portion of the room, and even there it is in very poor condition. The platform in the south of the room was also in use during this horizon and was possibly covered with a surface of hard cured clay, which was preserved in the north-east of the platform. Corresponding to this is the finding of a miniature vessel about 40 cm north of the platform. This fits perfectly to the observation of the clay surface on the platform, and suggests that it was not only for decoration, but also had a functional purpose. Several objects could have been put on the platform. In this special case, it is also possible that it held cultic objects. It is unclear whether the platform was also covered with a plaster and painted as it was during use horizon B.

The possible hearth in the south east of the room, as well as two or three ovens in the centre of the room, is similar to the antecedent use horizon B. The hearth is only preserved as several layers of burnt clay and ash but in nearly exactly the same position as the hearth of level B. Although the corresponding stone setting is missing, it can be seen as a hearth; the stones may have been removed and use for construction in the new use horizon. Postholes have not been excavated inside this use horizon and thought as to the roofing of the room can only be stated by analogies to the preceding level. The constant position of the ovens in the centre of the room, with the constant distance of about 2m to the walls in the west and east, and the position of the postholes showing a distance of about 30cm to the wall seem to support the assumption of a cantilever roof. This would give enough protected space at the edge of the rooms as well as enough highlighted space

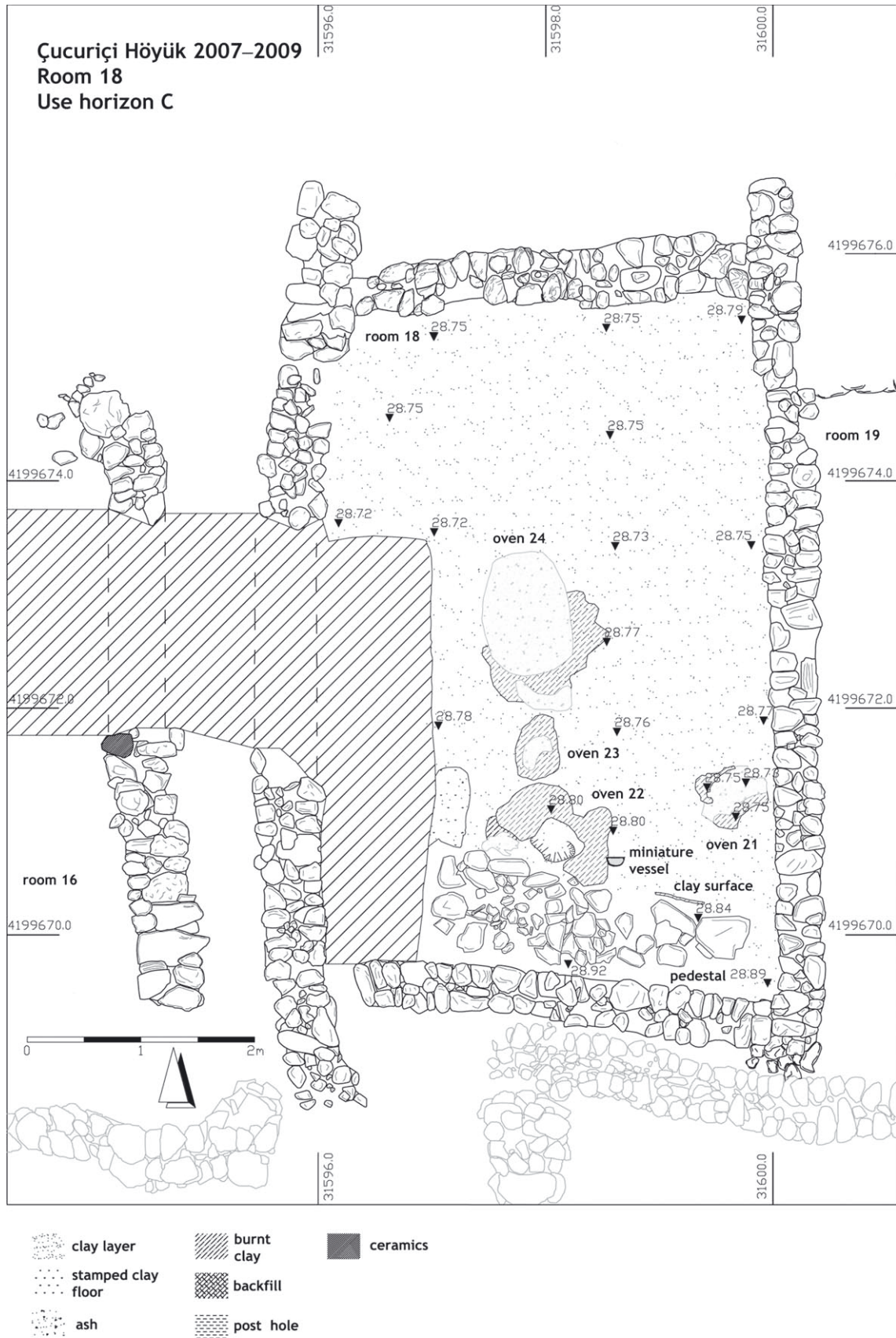


Fig. 5.12 The eldest excavated use horizon C with all the belonging structures and the mapping of excavated small finds (plan: M. Börner, A. Buhlke, St. Gräsböck)

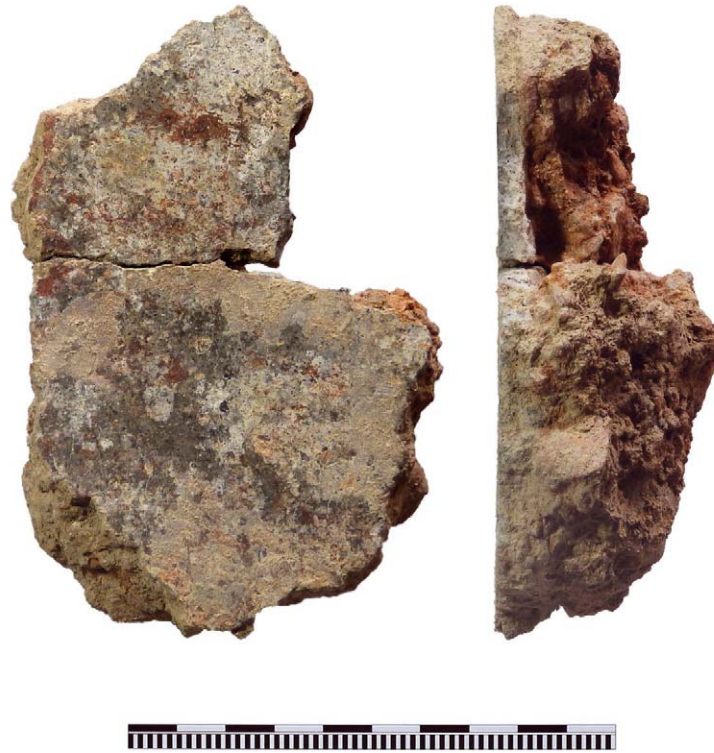


Fig. 5.13 Piece of plaster from, layer 707 (photos: E. Endarova, M. Röcklinger)

in the centre in connection with an appropriate air pipe. This conclusion seems adequate for both use horizons, B and C.

Although the room was not entirely excavated, another use horizon can be postulated. The clay layer that started in use horizon C came up against the pedestal, which was constructed on a thin layer of ash. More statements about this use level cannot be made but it points out that the pedestal was constructed at the very beginning of the room with a constant usage until at least use horizon B. A very interesting aspect is that a fragment of plaster was found on top or inside the uppermost layers of the mentioned pedestal. This suggests that the fragment was recycled here and used like the stones for levelling the pedestal. Two possibilities of its origin seem possible. First, the fragment could be part of a plaster of any other room or building, or second, that the fragment was a part of the plaster covering the pedestal during use horizon D. This is more plausible due to the good state of preservation of the plaster fragment. As we know, the platform had different coverings during the horizons C and B. It is possible that the pedestal also had a different plaster in horizon D (Fig. 5.13).

The described fragment is of irregular shape and measures $\sim 12.4 \times 7.5$ cm. Its thickness is max. 4.2 cm. The plaster's composition shows three layers. The inner layer consists of reddish clay with a lot of mineral temper (stones 0.3–2.5 cm). Over this is a ~ 0.7 cm thick grey slab with a flimsy layer of chalk between them. On top of the plaster, a reddish painting is assumed, although whether this is a painting or a slip must remain unclear because no detailed investigations were conducted.

Further Thoughts – ‘Intra-Room’ Studies on Continuity and Change and the Question of Generations

The above described use horizons provide insights into continuity and change inside the room. Although it was used as a workshop during all these phases, some differences can be seen in all these horizons. The two oldest excavated use horizons show the intensive usage of metallurgy

while there is no certain evidence for this craft in the youngest use horizon. During this phase, more or less clear evidence for textile industry emerges for the first time inside this room while marks of metallurgy decline. The platform, playing an important role in all antecedent horizons is now out of place and superimposed by a clay layer. These results point to an abrupt change in the chronology of this room, which may culminate in the abandonment of this settlement phase and the construction of the new settlement phase ÇuHö III.

These findings do not necessarily bring clarity to the question of the life span of use horizons, rooms or the generations working and living here. C¹⁴ dates point to a total life span of both Early Bronze Age 1 settlements of about 150 years maximum.³⁰⁵ It remains unclear if this time span can be divided into some 75 years for each settlement phase.

Because we observed a discontinuity in the chronology and function of room 18, an attempt is made here to connect each use horizon with a generation of inhabitants.

Traditionally, a generation is calculated, based on the time span from a woman's birth to the date of her giving birth, or in case of men, the time span between birth and fathering a child.³⁰⁶ Lacking any information about generations, we suggest a generation's duration to be the self-determined working life of a human being. This working duration must include self-determined work at the workshop or maybe also some kind of leading duty as maybe 'owner or responsible person'. According to this, a generation's duration would cover a time span of about 15–20 years. This period of time would cover the constancy from resuming the workshop to the point when giving them to the sub purchaser.

This would also correlate with the observations on the continuity and discontinuity of the use horizons. The two oldest excavated use horizons show a great consistency whereas the youngest horizon may have been part of a different workshop. This change could lead to the transition to settlement phase ÇuHö III, possibly as one of several reasons.³⁰⁷

V.2. Intra-Site Analyses and the Pottery Assemblage of Room 18

The ceramic spectrum of Early Bronze Age 1 Çukuriçi Höyük (Phases ÇuHö IV and III) is a homogeneous group in ware and shape, which is embedded in a regional context. Common shapes are for example so called 'Knickrandschalen', jugs with high beaklike spouts and dome-shaped shallow bowls. Tripod cooking pots also show a prevailing shape. The fabrics range from fine and middle-fine to coarse wares and can shift between reddish-brown to dark brown or to black surfaces. The surfaces themselves can be well smoothed, smoothed, burnished or in a few cases even polished. The ceramic inventory of room 18 possesses the typical pottery of an EBA building at Çukuriçi Höyük. The most common pottery types found inside room 18 are the 'Knickrandschalen (Sb3)', followed by narrow-mouthed vessels (N) and tripod cooking pots (Tc). It is important to mention that, these types are particularly easy to identify due to their characteristic profile within the complete early Bronze Age typology. For an overview of pottery types and variations out of room 18, see Plate 3. For the overall typology see Plate 4.

Chronology

The entire EBA pottery assemblage is handmade and according to its shape can be associated with Troy I, the cemetery of Yortan, and the phases XIX–XVII of Beycesultan.³⁰⁸ Based on these comparisons, the two most recent settlement phases of Çukuriçi Höyük (IV and III) can be dated to the

³⁰⁵ Horejs – Weninger 2016, 133.

³⁰⁶ Parnes 2005, 241.

³⁰⁷ For further discussion of the settlement phases see Grasböck et al. in preparation.

³⁰⁸ Horejs 2011, 161.

beginnings of the Early Bronze Age (EBA 1 by T. Efe³⁰⁹) and consequently to the first centuries of the 3rd millennium BC³¹⁰ in relative chronological terms.

Ceramic shapes, typical for later phases of the EBA, such as wheel made plates or *Depata Amphikypella*,³¹¹ are not attested at Çukuriçi Höyük.

The assumed maximum duration of the Early Bronze Age settlement at Çukuriçi Höyük is based on the ¹⁴C-data, more precisely on the sequence of particularly short-lived samples and can be fixed between 2900 and 2750 calBC. This date can be synchronised with the revaluation and the modelling of the Troy Ib/c tree-ring sequence (calBC 2780), thus placing phases ÇuHö IV and III in the earliest Early Bronze Age, which means EBA 1.³¹²

The ceramic types, as already mentioned above, can roughly be correlated with Troy I, Beycesultan XIX–XVIII and Aphrodisias-Pekmez LC4–EB1/2 (?), Yortan, Emporio V–IV, Thermi I–IIIA and Poliochni (most notably with phase blue), as well and form a horizon that includes at least 200 years and corresponds in its core to the EBA 1.³¹³

Spatial Analysis

The methods of spatial archaeology on the micro-level of a single building or, as in this case, a single room, is often used in Aegean Bronze Age research and is used inter alia as the base for continuative socio-cultural interpretations.³¹⁴ The underlying assumption of this method is that the single elements of a house together form a (housing-) unit. The analysis of these units can lead to a reconstruction of their function and the activities that took place inside, as well as giving some hints as to why and how rooms or buildings were abandoned.³¹⁵ For these multidimensional spatial analyses, the artefact distribution and distribution patterns play an essential role.³¹⁶

A correlation between the finds and their use is only possible if one can understand their entire context, including architecture, depositional processes, dumping etc. The use of pottery can be deduced from their shape. While narrow shapes are used for storage over a longer period, open and deep shapes are used for contents that need to be easily accessible. Jugs and shallow bowls are used for serving food or liquids.³¹⁷

According to M. B. Schiffer,³¹⁸ one can differentiate between three different types of waste. Primary refuse always stays at its place of production or place of use whereas secondary refuse describes finds found in their ultimate disposal location. The third group (de facto refuse³¹⁹) is formed by objects, which were left behind after the abandonment of the room or building and were not disposed of formally. These groups give us hints about activities within an area and about the methods and possible reasons why an area was abandoned. Primary refuse shows the exact position of an activity zone and the kinds of activities that took place, and therefore pos-

³⁰⁹ Efe 1988, fig. 98.

³¹⁰ Horejs 2011, 162.

³¹¹ Horejs et al. 2011, 43.

³¹² Horejs et al. 2011, 43; Horejs – Weninger 2016, 137.

³¹³ Blegen et al. 1950; Lloyd – Mellaart 1962; Sharp Joukowsky 1986; Korfmann – Kromer 1993, 164–169; Horejs et al. 2011, 41.

³¹⁴ E.g. Whitelaw 1982; Pullen 1985; Sanders 1988; Becker 1995; Kouka 2002; Hänsel – Aslanis 2010, 89–102.

³¹⁵ Clarke 1977; Bailey 1990.

³¹⁶ Cf. Kouka 2002, 11.

³¹⁷ Cf. Riemer 1997, 117–131.

³¹⁸ Schiffer 1972, 161; Rathje – Schiffer 1982, 116; Schiffer 1983, 679, 685; Schiffer 1985, 24, 29; cf. Hayden – Cannon 1983, 126; Murray 1980, 492, 494.

³¹⁹ Schiffer 1972, 159–162; Schiffer 1976, 30–34, 56–68; Kent 1980, 220–221; Keeley 1982, 802; Stevenson 1982, 241–260; Schiffer 1983, 679–686; Kent 1984, 169–171; Carr 1984, 108–110; McManamon 1984, 228–234; Deal 1985, 269; Schiffer 1985, 18–29; Rosen 1986, 92–114; Schiffer 1987, 57–62, 335–336; Metcalfe – Heath 1990, 794; Bartram et al. 1991, 98, 136, 141; Kent 1992, 649–650; Tomka 1993, 14–21; Lightfoot 1993, 165–174; Joyce – Johannessen 1993, 138–151; Sullivan 1995, 180; McKee 1999, 38; Blum 2002, 133–135; Blum 2003, 222–231.

sesses great potential for reconstructing social, economic and demographic circumstances.³²⁰ Because the origin of single finds within the settlement and especially within the fillings of the room is not clear at the first sight, intensive examination of depositional processes forms the base for spatial analyses to differentiate between the aforementioned refuse types. In the case of room 18, primary refuse and de facto refuse are summed up as possible in situ assemblages, which allow us an interpretation of the room's use.³²¹ Through the analysis of the depositional processes, these assemblages show a strong relation to the use and function of the room. From this, it was possible to make statements about the activities that took place in this special building unit.

Depositional Processes

The analysis of the pottery assemblage from room 18 is based on 1871 pottery sherds. This includes 248 diagnostic fragments, wherein only sherds with a certain minimum size from around 2cm and preservation from minimum 5% in diameter (rim and base) were used for the statistical recording of the diagnostic sherds. Before these recordings, we tried to match the single pieces as far as possible in order to reconstruct the shape of the vessels. All the other sherds were counted and characterised by their average size. The pottery was found in three different use horizons (A, B, C) with their floors (layer numbers 574, 1006, 1009+634+635 and 1099), seven ovens (oven 4, 5, 6, 21, 22, 23 and 24) and the filling layer of pit 659. In the two postholes (layer numbers 723 and 724) located in room 18, no pottery was found.

Use Horizon C

Only a few fragments (9 diagnostic and 251 body sherds) (see Fig. 5.12) compose the pottery assemblage of the oldest excavated use horizon (C). As can be seen in Fig. 5.14, horizon C is the one with the fewest preserved fragments. A high percentage of the material is highly fragmented, with eroded surfaces and old, eroded breaks. Their average small size and the bad state of surface preservation lead to the conclusion that they were moved several times, and are therefore not in situ. An exception is pottery assemblage 1073. These 10 body- and 3 diagnostic sherds are preserved in larger size and were found lying horizontally on the surface of levelling layer 1069. Because of this particular position, these fragments can be seen as the only possible in situ accumulation of this use horizon. Because no mends were possible, these sherds do not allow continuative analysis concerning the function and use of this room. All in all the pottery indicates a use horizon that was generally cleaned before constructing a new floor.

One special find, a miniature vessel with a flat base, a vertical body and a rounded rim, deserves to be addressed separately. Although it was found in levelling layer 1069, we assume that this piece belongs to the oldest excavated phase of the room, because of its good preservation, which would be less likely if the vessel was moved. Its specific use remains unknown but it could be associated with the pedestal as a cultic object or, of course, as a functional object (Fig. 5.14).

Use Horizon B

In the following use horizon (B), the sherds are generally badly preserved, highly fragmented to very small pieces and show eroded surfaces. An exception are the sherds from the layers 630 ('Fundlage'/ assemblage) and 1009+634+635 (stamped clay floor) where larger pieces are preserved. In all, 80 diagnostic pieces and 482 body sherds were found in this horizon.

³²⁰ Blum 2012, 272.

³²¹ Blum 2012, 273.

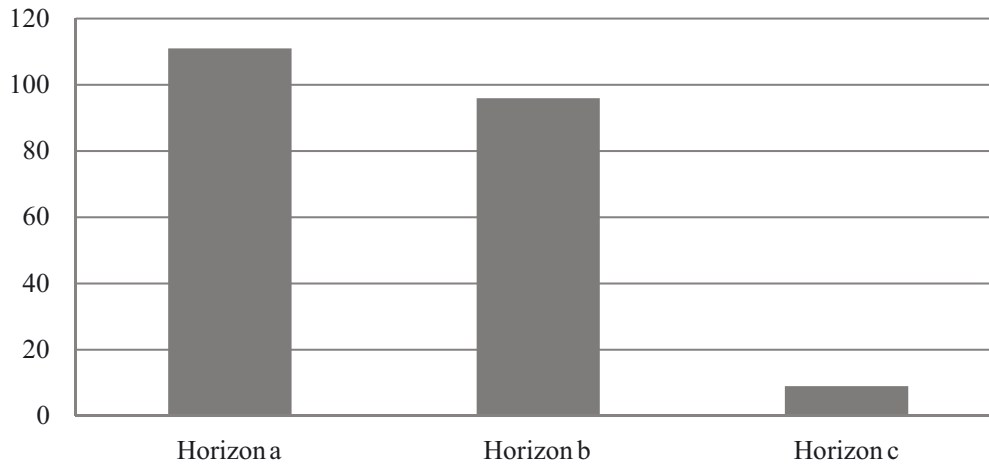


Fig. 5.14 Pottery fragment distribution, use horizons A–C [n=216] (graphics: M. Röcklinger)

Special features are two ovens, a pit and the previously mentioned stamped clay floor. Two pottery assemblages are also peculiar in this use horizon (see Fig. 5.9).

The small and irregular pit 659 offers only one badly preserved pottery fragment and a surprisingly well-preserved half-finished metal object. Due to this very small quantity of finds, and the different state of preservation, it is unclear if these finds belong to the primary filling of the pit or to the filling layer 606, which is the next stratigraphic layer above it.

The two ovens, oven 5 and 6, also did not contain many finds. In oven 5, two diagnostic and 13 body sherds have been excavated. The ash bed (705) contained a “Knickrandschalen” rim fragment. Although this fragment is preserved up to 18%, it is likely that it is relocated because of the badly preserved surface and the fact that no refitting was possible with the other sherds out of this oven. The other oven yielded 7 tiny body sherds, which were recovered during flotation of the oven wall (986). It can be assumed that these two ovens were backfilled while preparing the overlying floor and were not used for garbage disposal. An interpretation of the sherds found in these two ovens as an oven foundation or bedding is unlikely because of their average small size and their position within the ovens.

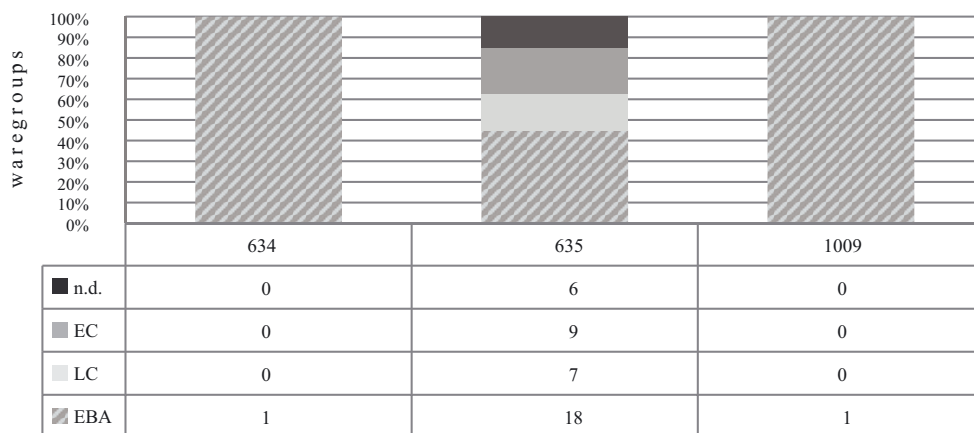


Fig. 5.15 Ware-group distribution in floor 634=635=1009, use horizon B [n=42] (n.d. = not defined; EC= Early Chalcolithic; LC = Late Chalcolithic, EBA = Early Bronze Age) (graphics: M. Röcklinger)



Fig. 5.16 Group-photo pottery room 18
(photo: N. Gail/ÖAI)

The only layer with a statistically more relevant number of sherds in this use horizon is the stamped clay floor (1009+634+635) with its 43 diagnostic and 287 non-diagnostic sherds. In general, these sherds are better preserved in size and surface conservation than are those in other layers. Of note is that more than 50% of the diagnostic sherds in this layer date earlier than in the Early Bronze Age or cannot be defined (Fig. 5.15). On the one hand, this could be a hint that material from an earlier (Chalcolithic) and uncovered part of the settlement was used to build a new floor in room 18, implying that the settled area changed through time. On the other hand, it is possible that inhabitants used soil excavated from pits inside the Early Bronze Age area or material of the room itself, to construct new floors.

The two pottery assemblages (630 and 1072) show better preserved pottery fragments and should be presented more precisely:

Pottery assemblage 630 comprises 4 diagnostic and 27 body sherds. These sherds were uncovered next to a possible hearth on the eastern wall of room 18, on top of the stamped clay floor. It is unclear if these partly large preserved sherds were found in situ or not. Their position, which is not horizontal/parallel to the floor, and the fact that no refitting was possible with these fragments, leave us uncertain about the processes by which this assemblage was deposited. It is possible that these vessels were standing on the position where they were found and were disturbed and spread about while raising a new floor. Alternately, they may have been added from outside or from another place within this room. On the same level next to oven 5, a ceramic vessel, probably used for metalwork, and two complete grinding stones were found. In contrast to the pottery fragments, these special finds suggest intentionally placed or left over objects.

The second pottery assemblage, 1072, was found on top of oven 21 of use horizon C and is composed by 14 body sherds, some shells (*Cardiidae*) and some charcoal. In comparison to the bulk of sherds in this room, these sherds are preserved as large pieces, although the surfaces and the breaks are eroded. Nevertheless, it was possible to do some refitting. In comparison to the two ovens in use horizon B, this assemblage is most probably related to the use of room 18.

Use Horizon A

The youngest excavated use horizon is composed by an oven (oven 4), a possible floor (574) and a levelling layer (575=960=976) (see Fig. 5.8). Here an overall number of 129 diagnostic and 745 body sherds were found. With regard to the oven, only the absence of finds could be documented. The possible floor contained 2 rim sherds and 51 body sherds that on average are preserved as large pieces. The surfaces and the breaks are eroded. Despite the average large size of the sherds, it cannot be stated with certainty that they were found in situ. It is likely that they were brought into the room from outside while the floor was being raised.

In summary, the analysis of the depositional processes shows that only a few sherds can be seen as being in situ. The bulk of the fragments were found in levelling layers or in the clay floors whereupon their origin cannot be identified with certitude. This shows the picture that all three excavated use horizons in room 18 were cleaned before constructing the single floors and only a few finds were left inside the room.

In the following part, spatial analysis based on these possibly in situ sherds is attempted in an effort to determine function of this room in its use horizons.

Spatial Analysis

Use Horizon C

As already mentioned, the pottery assemblage is composed by only nine diagnostic sherds. On basis of the pottery and the analysis of the depositional processes, it can only be said that this use horizon was generally cleaned before constructing the new floor. No statement about the function of the oldest use horizon can be made on basis of the pottery (Fig. 5.16).

Use Horizon B

The next, more recent use horizon (B), with its two ovens in the centre, a possible hearth and the pedestal with plaster of clay and red painting, is more suitable for a spatial analysis. The unit offers 80 pottery fragments of which 5 diagnostic sherds (pottery assemblage 630) can be used for this study; even acting on the assumption that the sherds found in the floors also belong to this period, the number of diagnostic sherds totals only 23 pieces. The most common shapes are shallow bowls (dome shaped shallow bowl and so called 'Knickrandschalen' with obliquely inward rounded down and thickened, regularly rounded and obliquely inward rounded lips), followed by narrow-mouthed vessels (with a concave and a convex downcast rim with regularly rounded, horizontal rounded and to the inside swollen lip) and tripod cooking pots (with rolling and funnel-shaped rims and regularly rounded or rounded down to the outside lips and feet with flat and trapezoid bases). Jars and deep bowls are represented with 9% and 4%, respectively (Fig. 5.17).

These shapes can be related to preparation with 48%, to consumption with 35% and to storage with 17%. If we consider that these 17% are made up of two rim fragments and seven feet,

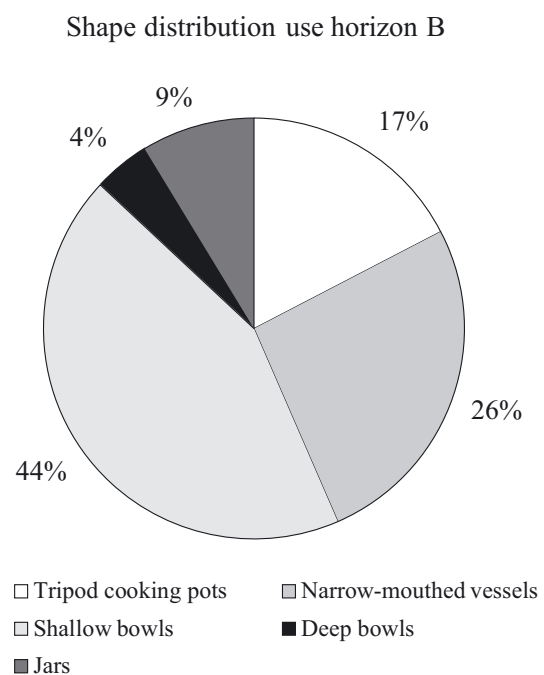


Fig. 5.17 Shapes in use horizon B [n=23]
(graphics: M. Röcklinger)

one can see that this does not suggest the great importance of food preparation (Fig. 5.18).

Based on the definition of the interpretation of architecture by A. Schachner,³²² and the aforementioned definition of certain functions of pottery shapes (Fig. 5.19) provided by H. Riemer,³²³ the spatial analysis leads to following picture:

Generally, the pottery assemblage of room 18 bears resemblance to other Early Bronze Age buildings at Çukuriçi Höyük. If one takes a closer look, however, one can see that storage vessels are in the minority, followed by vessels for preparing food. Shapes attributed to the function of ‘consumption’ are represented more strongly, constituting the bulk of all shapes with 48% (70 fragments in total). Overall, the surfaces

of shapes for consumption are fine burnished to polished, surfaces for the other two function groups are not that finely prepared but are at least burnished. A characteristic of the so-called Knickrandschalen is a very smooth dark surface and often a black or dark brown slip.

The pottery assemblage (630) found right next to the stone construction on the eastern wall, is composed of a vertical handle, probably of a Stamnos, a rim fragment of a ‘Knickrandschale’ and a flat base, probably belonging to a jug. These fragments can be allocated to the function of consumption (shallow bowl and jug) and storage (Stamnos). Their position next to this stone construction leads us to the interpretation of a hearth. One can imagine that the Stamnos was used to warm meals that were partitioned with the jug and consumed with the shallow bowl. The assemblage draws the picture of daily life in context of a metal processing workshop. Since almost no vessels for preparing food were found, this feature allows us to assume that in this room, better to say in this specific use horizon, metal processing rather than food preparation was dominant. Another hint for this interpretation is the small amount of tripod cooking pots, which are common in this period of the settlement. Only five rim fragments and ten feet were counted in the entire use horizon (all layers) which makes a minimum of six individual tripod cooking pots.³²⁴ In addition, other shapes associated with food preparation (all together five fragments) are underrepresented according to the amount in other Early Bronze Age rooms at Çukuriçi Höyük. The most likely explanation for the composition of the pottery assemblage is that the craftsman used the hearth and the pottery found next to it to warm meals and drinks. The Stamnos could have been used to store beverages consumed with the bulk of shallow bowls (44% of all shapes) (Fig. 5.19).

Another special feature of this use horizon is the stone pedestal with its red painting (see Fig. 5.11). The finds connected to the pedestal are two fragments of a dome-shaped bowl, one fragment of a tripod cooking pot and one of a narrow-mouthed vessel. Furthermore, a pounder was found near this specific feature. Unfortunately, these findings do not allow us to make any statement about a specific use of this pedestal. One possible interpretation could be as a cultic feature, for example, an altar or a sacrificial ‘table’. Regrettably, no analogies from other sites are currently known, making it hard to find a clear interpretation for this installation. A profane

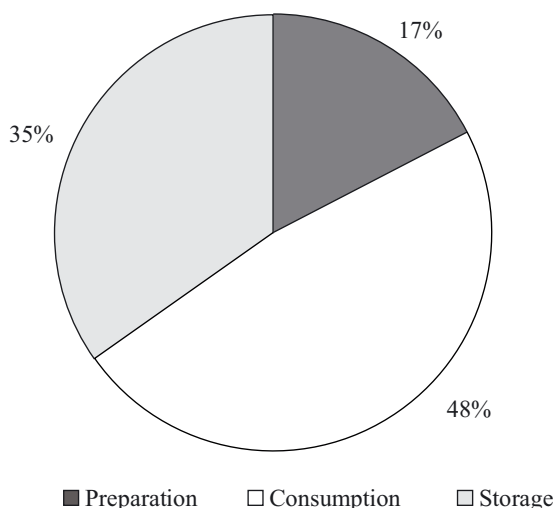


Fig. 5.18 Functional distribution in use horizon B [n=23]
(graphics: M. Röcklinger)

³²² Schachner 1999a, 6.

³²³ Riemer 1997 (storage, preparing and processing, serving or presenting).

³²⁴ Number of minimum individual results from typological analysis.

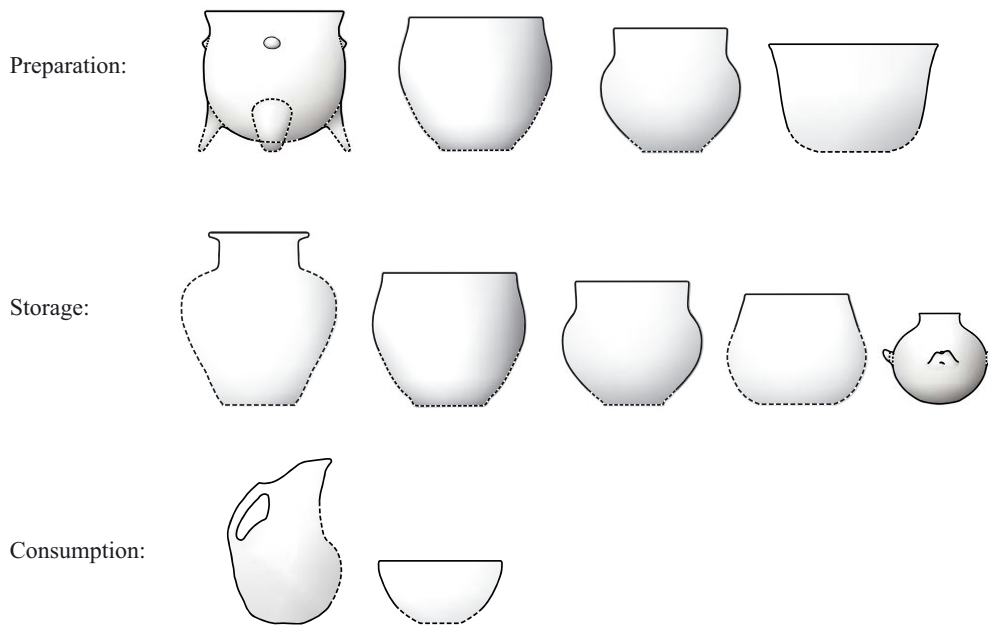


Fig. 5.19 Functional interpretation of pottery shapes (drawings: M. Röcklinger)

usage is unlikely especially because of the red painting and its uniqueness within the EBA settlement at Çukuriçi Höyük.

Use Horizon A

In contrast to the two older horizons, the youngest use horizon (A) cannot be connected only to a metal workshop; textile production also seems to be important in this room. First of all the position of the ovens changed and the number of ovens decreased. Use horizon B with four ovens and horizon C with two ovens show a stronger connection to metal processing. The only metal objects found in this horizon, a needle, a fragment of a possible needle and a fragment of a mould, were located in a levelling layer (575=960=976) and in a filling layer (606), and cannot be unequivocally related to the use of the room. Small finds related to textile production are a spindle whorl and a spool-shaped and pierced ceramic object (606). These are the first proof of textile production in

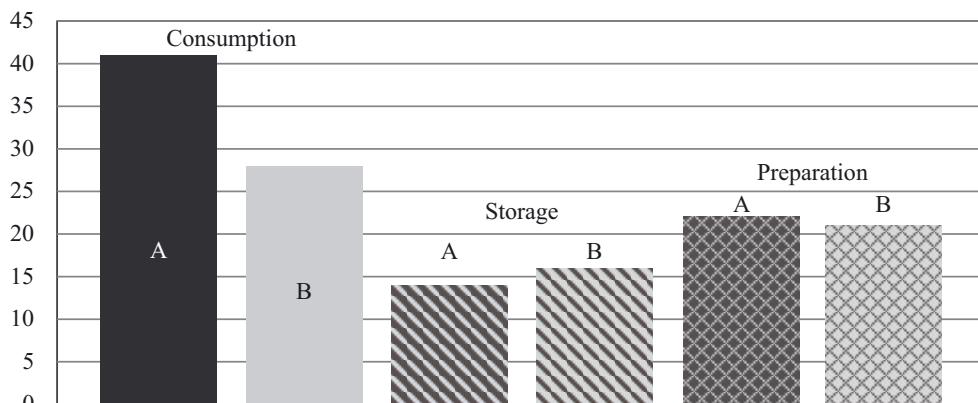


Fig. 5.20 Functional distribution (use horizons A and B) [n=142] (graphics: M. Röcklinger)

room 18. The pottery assemblage draws the picture of a workshop. 53% of the pottery fragments can be assigned to the function of ‘consumption’, 18% to the function of storage and the remaining 29% to prepare food. The allocation of functional groups shows a change in the activities of this use horizon. Preparing food became more important or more common in this phase of use. The small finds can be associated with textile processing and support the interpreted change in function (Fig. 5.20).

V.3. Conclusion

As described above, the EBA 1 settlement at Çukuriçi Höyük shows an area of very dense architecture. Geophysical prospection indicates that the settlement developed in size from the Chalcolithic to the Early Bronze Age 1. If the spatial expansion came with an increase of inhabitants has to remain unclear due to the present state of research. Investigations of structural engineering aspects suggest that the settlement itself (at least at some parts of the settlement) developed from a very open and dispersed settlement structure to this dense state. This process leads to a different appearance of the settlement during phase ÇuHö IV, from diffuse to dense housing. How long this process took cannot be said, but it is clear that it was completed during phase ÇuHö IV and was adopted with no remarkable modifications in ÇuHö III. Both settlements (phase ÇuHö III and IV) show a uniform appearance in its architecture and in its pottery assemblage. A levelling layer, varying in its thickness, separates the two settlement phases. The buildings are composed by rectangular rooms with stone plinth walls and a mud brick structure on top. Although only a few objects that can be interpreted as bricks were found within the Early Bronze Age 1 layers, mud brick walls can be assumed as the most plausible wall construction for Çukuriçi Höyük settlements III and IV, as they are known from other EBA settlements. The raw materials used for these buildings, according to geoarchaeological analyses conducted by D. Wolf, derive from the immediate vicinity of the settlement. Common features within the single rooms are stone pedestals, ovens, hearths and postholes. A flat roof, the common roof type for Anatolia, is proposed as the most probable roof solution. Within an area of around 25m² in room 18, the above presented archaeological records show broad scattered special architectural features. Diverse floor types in certain parts of the room surround special installations. The special roof type in connection to a planned adjustment of the oven in the centre of the room and the other special installations inside the room imply that the spatial unit was a workshop. The pottery assemblage in room 18 is composed by 1871 fragments and fits into the typical Early Bronze Age assemblage of the settlement. Until now, no typological separation between the two EBA settlements could have been identified. As a result of the investigation on deposition processes inside room 18, it can be assumed that the material used for erecting the superimposed floors also originated from the settlement and the site itself, from the preceding use horizons of phase ÇuHö IV as well as the ancestral phases of the Neolithic and Chalcolithic. An indication for those events is the large quantity of Neolithic or Chalcolithic pottery fragments found within the EBA 1 layers. The subsequent pottery analyses of use horizons C and B in room 18 suggest a workshop, supporting the interpretations of the architecture (see Fig. 5.20). From an architectural view, workshops are defined as rooms showing special architectural features. Furthermore, they contain a similar inventory during the different use horizons and need to show the features of market-orientated production.

The pottery analysis suggests that at least in use horizon B food was sometimes prepared or reheated. Primarily, due to the bulk of finds and the pottery, the room was used as a metal workshop. Multifunctional features, like the ovens, leave open to debate the possibility that this horizon had a domestic function. During the two older use horizons (C and B) the use of the room continued. Evidence is the location of the special features like the ovens or the stone pedestal, which were built or used at the same place in both horizons, and the compilation of the finds. The pedestal shows a plastering in every use horizon, but also a unique appearance that

changed in every period. Therefore, the pedestal is the best example for continuity and change and unifies all these aspects. A change in the use of room 18 can also be recognised in the youngest excavated use horizon (A) with its increasing importance of food preparation and the small finds associated with textile production. It is interesting to see that not only the materials in the workshop changed, from metal to textile, but also that cooking gained in importance. At this point one should not be misled that textile production may be associated with preparing food or that we can see a change in the composition of the craftsman, for example from male to female. Textile production is a specialised craft within the Early Bronze Age settlement, and cannot be considered a daily life practice like preparing, consuming or storing food. The intensity with which textile production was carried out in room 18 is not clear, but it seems that this craft played a small part in the use of this building unit. As already mentioned above, the only evidence of this craft comes from the youngest use horizon (A) which could not have been excavated in total because of stratigraphic reasons (partly dug off during the excavation undertaken by the Efes Museum in Selçuk in the 1990's and the bad state of preservation due to the collapse of the building).

All these aspects make the room a special spatial unit of multifunctional architecture and usage. First, room 18 is the only room in the entire excavated area having antae: whether this was for structural or aesthetic reasons remains unclear. Second, the room shows the features of a continuing use and configuration. Use horizons C and B in particular show great similarities. The continuing use of the pedestal, as well as the similar number of ovens and their position inside the room, are striking. This continuity points to a very consistent appearance and use of the room during its older use horizons. Later, during the last (youngest) use horizon one can monitor a possible discontinuity. Despite poor preservation, one can see some striking arguments for this. Obviously, the pedestal was not in use any more and decreasing use of ovens is observed. Parallel to the decrease in ovens is an increase in finds, which are evidence for other craftsmanship. This could possibly be seen in the context of generations. Up to now, the examined cultural remains do not show evidence for any sex related division of work at EBA 1 Çukuriçi Höyük (Fig. 5.21).

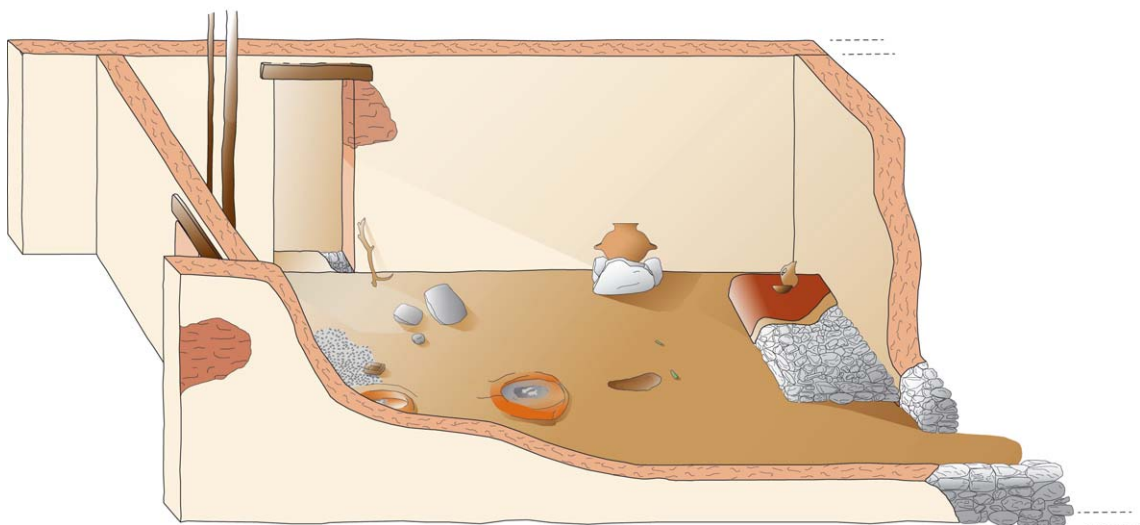
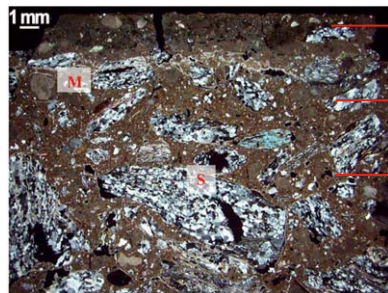
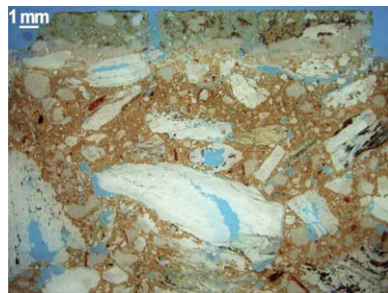
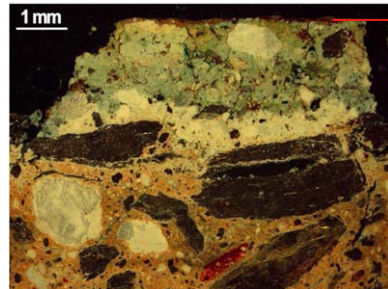
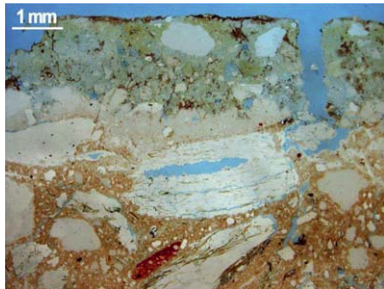


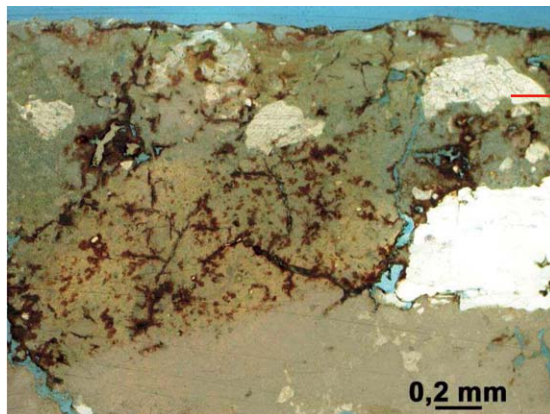
Fig. 5.21 Reconstructed depiction of room 18, use horizon B
(graphics: M. Röcklinger)



fine mortar with marble grains and lime
 secondary compression by calcium carbonate
 coarse mortar, ferrous clay, silicate- [S] and marble-grain [M], partially compressed by calcium carbonate

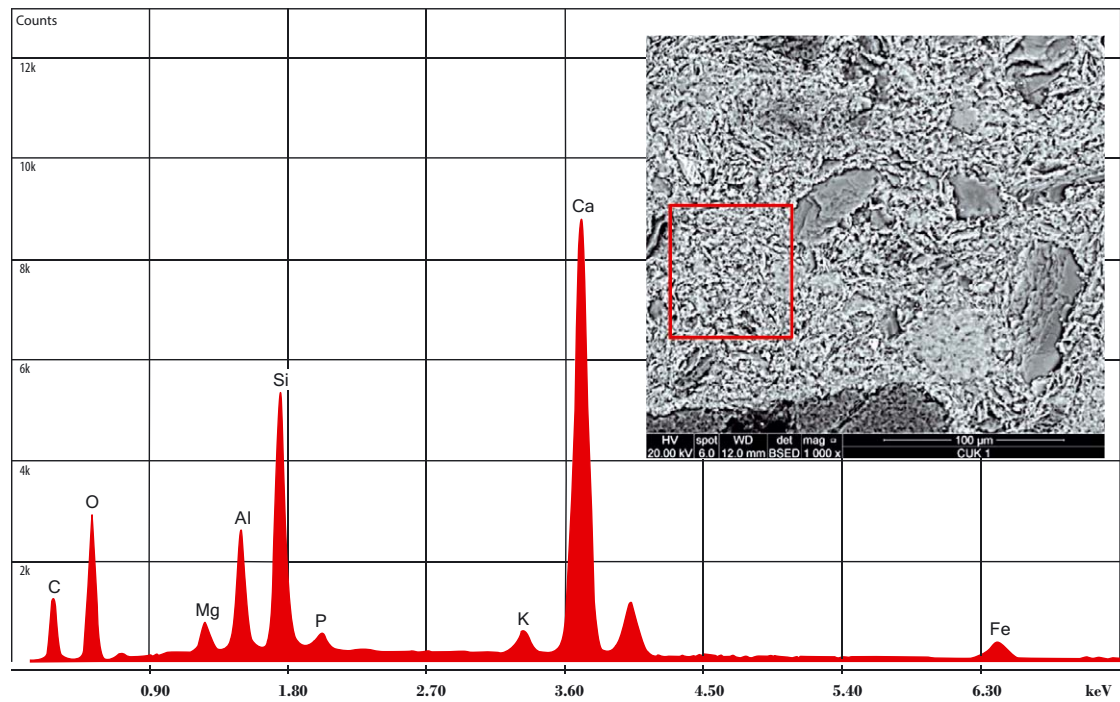


fine mortar with coating or painting

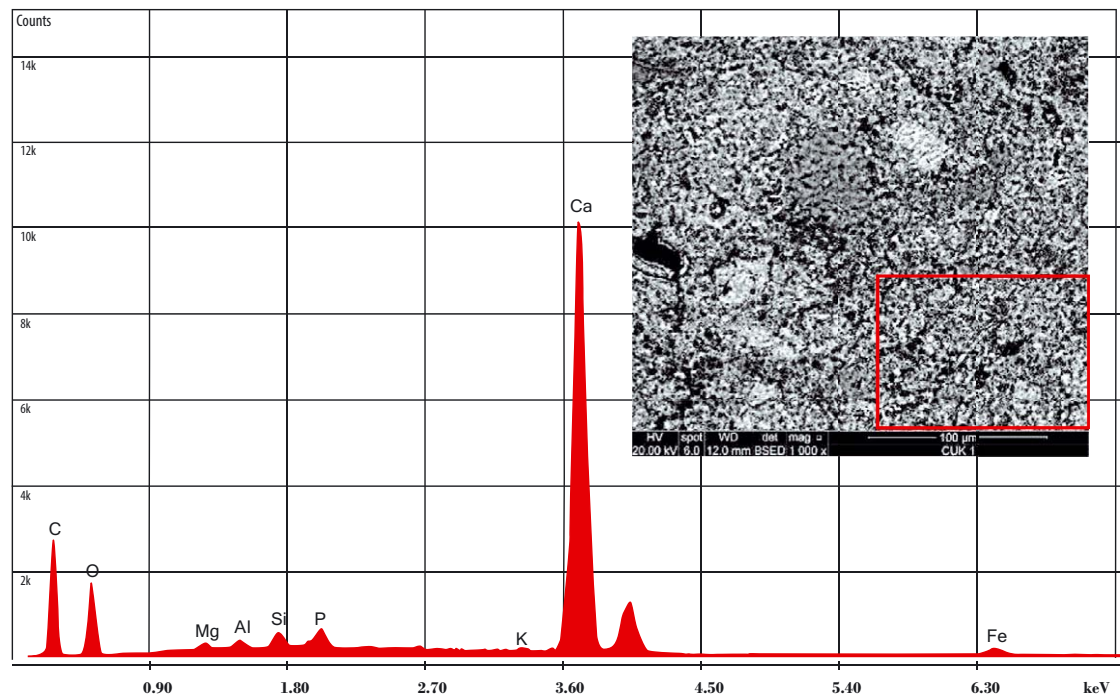


fine mortar with cracks and illuviated iron hydroxide which match the coating in composition and shade

Plate 1 Thin sections of the plaster showing its layering (photos: J. Weber)



A



B

Plate 2




















A) The high amount of Si, Al, K and Fe in the chemical composition of this layer indicates to the presence of ferrous clay. The high Ca peak is due to post-depositional processes of calcium carbonate accumulation

B) The chemical composition of the lime-bound fine mortar corresponds to pure quicklime (graphics: J. Weber)

Shape	Amphora	Tripod cooking pot	Narrow-mouthed vessel			Neckjar		Jug		
Type	A2	Tcp1 Tcp2	N1	N2	N3	NJ1	NJ2	Jug 1		
Variation	A	D, F, O, A, D	A, B, D, A, D, I, A	A, D, I, A	A	A, D	A	A		
UHA	x	x	x, x, x, x, x, x	x		x	x	x		
UHB		x	x, x, x, x, x	x	x		x	x		
UHC		x								
Shape	Shallow bowl			Jar						
Type	Sb1	Sb3	Sb4	Sb6	Sb8	Db2	J1	J2	J3	J4
Variation	A, I, K	A, N	P	A, N	A	B	B	A, B, F	D	B
UHA	x, x, x	x		x	x			x		x
UHB		x	x	x		x	x	x	x	
UHC	x									

Plate 3 Types and variations occurring within use horizons A–C (graphics: M. Röcklinger)

TYOLOGY

	A2 Amphora with cylindrical neck and outside horizontal folded rim		Sb3 Carinated shallow bowl with a rim contracting heavily inward
	Tcp1 Tripod cooking pot with slightly curved wall		Sb4 Open-mouthed shallow bowl
	Tcp2 Tripod cooking pot with funnel-shaped rim		Sb6 Narrow-mouthed shallow bowl
	N1 Narrow-mouthed vessel with concave neck		Sb8 Funnel-shaped shallow bowl
	N2 Narrow-mouthed vessel with conical neck		Db2 Deep bowl with slightly curved body
	N3 Narrow-mouthed vessel with convex neck		J1 Jar with flaring rim and slightly curved body
	Nj1 Neckjar with cylindrical neck		J2 Jar with a concave upper body
	Nj2 Neckjar with curved neck		J3 Jar concave and downcast upper body
	Jug1 Jug with cylindrical neck		J4 Bucket-shaped jar
	Sb1 Dome shaped shallow bowl		

RIM TYPOLOGY










	A rounded		K bevelled inside and thickened outside
	B thinned		N bevelled inside
	D squared		O bevelled outside
	F billowed inside		P inside thinned
	I thickened outside		

Plate 4 Typology and rim typology room 18 (graphics: M. Röcklinger)

References

Altwasser 2003

E. Altwasser, Die Erschließung von Mauerwerk als historische Quelle, in: H. W. Böhme – O. Volk (eds.), Burgen als Geschichtsquelle. Kleine Schriften aus dem Vorgeschichtlichen Seminar Marburg 54 (Marburg 2003) 55–65.

Bailey 1990

D. W. Bailey, The living house. Signifying continuity, in: R. Samson (ed.), The Social Archaeology of Houses (Edinburgh 1990) 19–48.

Bartram et al. 1991

L. E. Bartram – E. M. Kroll – H. T. Bunn, Variability in camp structure and bone food refuse patterning at Kua San hunter-gatherer camps, in: E. M. Kroll – T. Douglas Price (eds.), The Interpretation of Archaeological Spatial Patterning. Papers presented at a Symposium organized at the 52nd Annual Meeting of the Society for American Archaeology held in May 1987 in Toronto, Ontario. Interdisciplinary Contributions to Archaeology (New York, London 1991) 77–148.

Becker 1995

C. Becker, Zur Rekonstruktion von Aktivitätsmustern in spätbronzezeitlichen Haushalten, untersucht am Fundmaterial aus Kastanas (Nordgriechenland), Prähistorische Zeitschrift 70, 1995, 96–114.

Blegen et al. 1950

C. W. Blegen – J. L. Caskey – M. Rawson – J. Sperling, Troy I. General Introduction. The First and Second Settlements (Princeton 1950).

Blum 2002

St. W. E. Blum, Vom Hausfleiß der Trojaner, in: R. Aslan – St. Blum – G. Kastl – F. Schweizer – D. Thumm (eds.), Mauerschau. Festschrift für Manfred Korfmann (Remshalden-Grunbach 2002) 105–151.

Blum 2003

St. W. E. Blum, Işıklar. Ethnoarchäologische Untersuchungen zur Formation und Transformation archäologischer Siedlungskontexte, Studies in Ethnoarchaeology 1 (Remshalden 2003).

Blum 2012

St. W. E. Blum, Die ausgehende frühe und die beginnende mittlere Bronzezeit in Troia. Archäologische Untersuchungen zu ausgewählten Fundkomplexen der Perioden Troia IV und Troia V, Studia Troica Monographien 4 (Darmstadt 2012).

Cameron –Tomka 1993

C. M. Cameron – St. A. Tomka (eds.), Abandonment of Settlements and Regions. Ethnoarchaeological and Archaeological Approaches. New Directions in Archaeology (Cambridge 1993).

Carr 1984

Ch. Carr, The Nature of organization of intrasite archaeological records and spatial analytic approaches to their investigation, in: M. B. Schiffer (ed.), Advances in Archaeological Method and Theory 7 (Orlando 1984) 103–222.

Clarke 1977

D. L. Clarke (ed.), Spatial Archaeology (London 1977).

Deal 1985

M. Deal, Household pottery disposal in the Maya highlands. An ethnoarchaeological interpretation, Journal of Anthropological Archaeology 4, 1985, 243–291.

Efe 1988

T. Efe, Demirciküyük III.2. Die Keramik 2. C. Die Frühbronzezeitliche Keramik der jüngeren Phasen (ab Phase H) (Mainz 1988).

Grasböck et al. in preparation

St. Grasböck – T. Bratschi – B. Horejs – Ch. Schwall, Çukuriçi Höyük 4. Stratigraphie und Architektur der frühbronzezeitlichen Siedlungsphasen ÇuHö IV und III (in preparation).

Hänsel – Aslanis 2010

B. Hänsel – I. Aslanis, Das prähistorische Olynth. Ausgrabungen in der Toumba Agios Mamas 1994–1996. Die Grabung und der Baubefund, Prähistorische Archäologie in Südosteuropa 23 (Rahden/Westf. 2010).

Hayden – Cannon 1983

B. Hayden – A. Cannon, Where the garbage goes. Refuse disposal in the Maya highlands, *Journal of Anthropological Archaeology* 2, 1983, 117–163.

Horejs 2011

B. Horejs, Neues zur Frühbronzezeit in Westanatolien, in: F. Blakolmer – C. Reinholdt – J. Weilharter – G. Nightingale (eds.), *Österreichische Forschungen zur Ägäischen Bronzezeit 2009. Akten der Tagung vom 6. bis 7. März 2009 am Fachbereich Altertumswissenschaften der Universität Salzburg (Vienna 2011)* 157–172.

Horejs – Weninger 2016

B. Horejs – B. Weninger, Early Troy and its significance for the Early Bronze Age in Western Anatolia, in: E. Pernicka – S. Ünlüsoy – St. W. E. Blum (eds.), *Early Bronze Age Troy. Chronology, Cultural Development, and Interregional Contacts. Proceedings of the Conference at the University of Tübingen, 8th–10th May 2009, Studia Troica Monographien 8 (Bonn 2016)* 123–145.

Horejs et al. 2011

B. Horejs – A. Galik – U. Thanheiser – S. Wiesinger, Aktivitäten und Subsistenz in den Siedlungen des Çukuriçi Höyük. Der Forschungsstand nach den Ausgrabungen 2006–2009, *Prähistorische Zeitschrift* 86, 2011, 31–66.

Joyce – Johannessen 1993

A. A. Joyce – S. Johannessen, Abandonment and the production of archaeological variability at domestic sites, in: Cameron – Tomka 1993, 138–153.

Keeley 1982

L. H. Keeley, Hafting and retooling. Effects on the archaeological record, *American Antiquity* 47, 1982, 798–809.

Kent 1980

S. Kent, Activity Areas. An Ethnoarchaeological Study of Spatial Patterning (PhD Diss., University of Washington, Ann Arbor 1980).

Kent 1984

S. Kent, Analyzing Activity Areas. An Ethnoarchaeological Study of the Use of Space (Albuquerque 1984).

Kent 1992

S. Kent, Studying variability in the archaeological record. An ethnoarchaeological model for distinguishing mobility patterns, *American Antiquity* 57, 1992, 635–660.

Korfmann – Kromer 1993

M. Korfmann – B. Kromer, Demircihüyük, Beşik-Tepe, Troia. Eine Zwischenbilanz zur Chronologie dreier Orte in Westanatolien, *Studia Troica* 3, 1993, 135–171.

Kouka 2002

O. Kouka, Siedlungsorganisation in der Nord- und Ostägäis während der Frühbronzezeit (3. Jt. v. Chr.), *Internationale Archäologie* 58 (Rahden/Westf. 2002).

Lightfoot 1993

R. R. Lightfoot, Abandonment processes in prehistoric pueblos, in: Cameron – Tomka 1993, 165–177.

Lloyd – Mellaart 1962

S. Lloyd – J. Mellaart, Beycesultan I. The Chalcolithic and Early Bronze Age Levels, *Occasional Publications of the British Institute of Archaeology at Ankara* 6 (London 1962).

McKee 1999

B. R. McKee, Household archaeology and cultural formation processes. Examples from the Cerén site, El Salvador, in: P. M. Allison (ed.), *The Archaeology of Household Activities* (London, New York 1999) 30–42.

McManamon 1984

F. P. McManamon, Discovering sites unseen, in: M. B. Schiffer (ed.), *Advances in Archaeological Method and Theory* 7 (Orlando 1984) 223–292.

Metcalfe – Heath 1990

D. Metcalfe – K. M. Heath, Microrefuse and site structure. The hearths and floors of the Heartbreak Hotel, *American Antiquity* 55, 1990, 781–796.

Murray 1980

P. Murray, Discard location. The ethnographic data, *American Antiquity* 45, 1980, 490–502.

Parnes 2005

O. Parnes, Es ist nicht das Individuum, sondern es ist die Generation, welche sich metamorphosiert. Generationen als biologische und soziologische Einheiten in der Epistemologie der Vererbung im 19. Jahrhundert, in: S. Weigel – O. Parnes – U. Vedder – St. Willer (eds.), *Generation. Zur Genealogie des Konzepts – Konzepte von Genealogie* (München 2005) 235–260.

Pullen 1985

D. J. Pullen, *Social Organization in the Early Bronze Age Greece. A Multidimensional Approach* (Bloomington 1985).

Rathje – Schiffer 1982

W. L. Rathje – M. B. Schiffer, *Archaeology* (New York 1982).

Riemer 1997

H. Riemer, Form und Funktion. Zur systematischen Aufnahme und vergleichenden Analyse prähistorischer Gefäßkeramik, *Archäologische Informationen* 20, 1997, 117–131.

Rosen 1986

A. M. Rosen, *Cities of Clay. The Geoarchaeology of Tells. Prehistoric Archaeology and Ecology* (Chicago 1986).

Sanders 1988

D. H. Sanders, Architecture. The neglected artefact, in: E. B. French – K. A. Wardle (eds.), *Problems in Greek Prehistory. Papers presented at the Centenary Conference of the British School of Archaeology at Athens, Manchester, April 1986* (Bristol 1988) 489–498.

Schachner 1999

A. Schachner, Von der Rundhütte zum Kaufmannshaus. Kulturhistorische Untersuchungen zur Entwicklung prähistorischer Wohnhäuser in Zentral-, Ost- und Südostanatolien, *British Archaeological Reports. International Series 807* (Oxford 1999).

Schiffer 1972

M. B. Schiffer, Archaeological context and systemic context, *American Antiquity* 37, 1972, 156–165.

Schiffer 1976

M. B. Schiffer, *Behavioral Archeology* (New York 1976).

Schiffer 1983

M. B. Schiffer, Toward the identification of formation processes, *American Antiquity* 48, 1983, 675–706.

Schiffer 1985

M. B. Schiffer, Is there a “Pompeii Premise” in archaeology? *Journal of Anthropological Research* 41, 1985, 18–41.

Schiffer 1987

M. B. Schiffer, *Formation Processes of the Archaeological Record* (Albuquerque 1987).

Sharp Joukowsky 1986

M. Sharp Joukowsky, *Prehistoric Aphrodisias. An Account of the Excavations and Artifact Studies. Vol. 1: Excavations and Studies* (Providence 1986).

Stevenson 1982

M. G. Stevenson, Toward an understanding of site abandonment behaviour. Evidence from historic mining camps in the Southwest Yukon, *Journal of Anthropological Archaeology* 1, 1982, 237–265.

Sullivan 1995

A. P. Sullivan III., Behavioral archaeology and the interpretation of archaeological variability, in: J. M. Skibo – W. H. Walker – A. E. Nielsen (eds.), *Expanding Archaeology. Foundation of Archaeological Inquiry* (Salt Lake City 1995) 178–186.

Tomka 1993

St. A. Tomka, Site abandonment behavior among transhumant agro-pastoralists. The effects of delayed curation on assemblage composition, in: Cameron – Tomka 1993, 11–24.

Whitelaw 1982

T. M. Whitelaw, The settlement at Fournou Korifi Myrtos and aspects of Early Minoan social organisation, in: O. Krzyszkowska – L. Nixon (eds.), *Minoan Society. Proceedings of the Cambridge Colloquium 1981* (Bristol 1983) 323–345.