

A New Chalcolithic Hilltop Settlement in Volcanic Cappadocia: Preliminary Results of the Büyük Deller Excavation

[VOLKANİK KAPADOKYA'DA YENİ BİR KALKOLİTİK KAYA ÜSTÜ YERLEŞME: BÜYÜK DELLER KAZISI ÖN SONUÇLAR]

Pınar ÇAYLI

Anahtar Kelimeler

Büyük Deller, Güvercinkaya, Kalkolitik, Volkanik Kapadokya, Kaya Üstü Yerleşmesi

Keywords

Büyük Deller, Güvercinkaya, Chalcolithic, Volcanic Cappadocia, Hilltop Settlement

ÖZET

Büyük Deller, Aksaray ili, Gülağaç ilçesi, Demirci Kasabası'nın yaklaşık 1,5 km kuzeyinde, sarp kayalık bir yükselti üzerinde yer almaktadır. İlk olarak 1994 yılında Sevil Gülçur başkanlığında yürütülen "Aksaray, Nevşehir ve Niğde İlleri Yüzey Araştırması" sırasında tespit edilen yerleşmede kazılar 2021 yılında başlamıştır. Hellenistik dönemde bir kale olarak kullanılan Büyük Deller, Anadolu tarihöncesinin en az bilinen kentleşme öncesi sürecine ait olup, göreceli olarak Orta ve muhtemelen Son Kalkolitik döneme tarihlenmektedir. Son araştırmalar, MÖ 5200'lere gelindiğinde, bölgede Geç Neolitik'in devamı niteliğindeki Erken Kalkolitik ova yerleşimlerinin yeni bir yer seçimi anlayışıyla terk edildiğini göstermektedir. Büyük Deller'in çevresine hâkim konumdaki yer seçimi ve tarihöncesi toplumların kültürlerini biçimlendiren hammadde kaynaklarına yakınlığı dikkat çekmektedir. Yerleşmede, sürtme taş endüstrisinin yanı sıra standart dilgi üretimiyle yontmataş alet teknolojisi ve Güvercinkaya ve Köşk Höyük ile benzer koyu yüzü aklı çanak çömlek geleneği önem taşımaktadır. Aşağıda ilk sonuçlarına yer verilen Büyük Deller kazıları, kentleşme öncesi kalıcı yerleşimlerin oluşum sürecini anlamaya ve Kalkolitik Kapadokya'daki yerleşim modellerine yeni bir bakış açısı kazandırmaya yönelik yürütülmektedir.

ABSTRACT

Büyük Deller is located on a steep rocky outcrop about 1.5 km north of Demirci, in the Gülağaç district of Aksaray province. First identified in 1994 during the Aksaray, Nevşehir and Niğde Provinces survey directed by Sevil Gülçur, excavations at the site began in 2021. The site, which functioned as a fortress during the Hellenistic period, has been dated relatively to the Middle and, the Late Chalcolithic period, thus representing a relatively obscure phase of pre-urbanization in Anatolia. Recent research suggests that by 5200 BC, Early Chalcolithic settlements in the region were superseded by new patterns of settlement preferences. The strategic location and proximity to sources of raw materials of the site of Büyük Deller were of great importance to prehistoric communities. An extensive chipped stone and ground stone industry, with a particular emphasis on standardized blade production, has been revealed. The ceramic assemblage is notable for its preponderance of dark burnished wares, similar to those found at Güvercinkaya and Köşk Höyük, suggesting a connection with the Middle Chalcolithic. Excavations at Büyük Deller, whose initial findings are outlined below, are conducted with the aim of understanding the formation process of permanent settlements prior to urbanisation, thereby offering a substantial perspective on Chalcolithic Cappadocia settlement patterns.

History of Research

The study of prehistoric research in Central Anatolia commenced in the 1950s, with the documentation of numerous settlements in mountainous regions.¹ These studies yielded significant insights into the Neolithic and Palaeolithic periods. However, the available data remained inadequate to provide a comprehensive understanding of the Chalcolithic period in the region (Fig. 1). Research in Volcanic Cappadocia intensified in the 1990's. had undergone significant intensification.² Notable advancements in this field include the "Aksaray, Nevşehir ve Niğde Provinces Survey" (1993-2001), directed by Gülçur, and the excavations at Güvercinkaya, which commenced in 1996. These studies provided substantial insights into the Chalcolithic, a period that remains one of the least understood in Anatolian archaeology.³ The identification of the Büyük Deller settlement in 1994 during S. Gülçur's survey is also noteworthy. The investigations in question led to the attention being drawn to hilltop settlements that had been built on high rocky outcrops in the last quarter of the 6th millennium BC. This in turn resulted in the formulation of subsequent scholarly questions about the Chalcolithic in the region.⁴

In Volcanic Cappadocia, the initial phases of the Chalcolithic period are recognised through excavations at Tepecik-Çiftlik II (Niğde), Köşk Höyük I, and Gelveri-Yüksek Kilise (Aksaray).⁵ Güvercinkaya holds significant importance in comprehending Chalcolithic cultures in Central Anatolia, as it was here that the Middle and Late Chalcolithic periods were first identified in the region.⁶ The study of Chalcolithic settlement locations, fortification systems, and their relationship to surplus production and animal husbandry has become a central focus in Anatolian Chalcolithic research.⁷ Additionally, the analysis

of social stratification resulting from the subsistence economy has emerged as a significant argument within this broader context.

Since 2017, additional surveys have been conducted in the Niğde Province Çamardı, Ulukışla and Bor districts (A. Hacıoğlu)⁸ and in Aksaray (I. Demirtaş),⁹ extending the geographic scope of the research. Spanning an area of considerable topographical diversity, extending from the northern slopes of the Central Taurus Mountains to western Cappadocia, these projects seek to examine key elements of Chalcolithic societies and their environments, such as the density of settlements, strategies for settlement preferences, raw material procurement, and the presence of Late Ubaid influences. Additionally, these projects aim to address significant chronological gaps, particularly in understanding the transitions between the Neolithic and Early Chalcolithic periods, as well as the Late Chalcolithic and Early Bronze Age. The recently commenced excavations at Büyük Deller¹⁰ and Bekçi Tepe¹¹ build upon the knowledge gained from Güvercinkaya, offering new perspectives on the causes and consequences of Chalcolithic settlement preferences strategies for the region's social structure.

Geological Framework and Land Use

Geological research conducted on and in the vicinity of Büyük Deller hill has two primary objectives: firstly, to accurately characterise the geological formations in the area, and secondly, to evaluate the presence of stone artefacts in a geoarchaeological context. The bedrock of the study region constitutes the Central Anatolian Crystalline Complex,¹² comprising three predominant rock categories: the Central Anatolian Metamorphics, the Central Anatolian Ophiolites (overthrusting the metamorphics along tectonic contacts), and the Central Anatolian Granitoids (magmatic intrusions cutting through the first two groups).

1 Mellaart 1965, 1967, 1970; Todd 1980; French 1962, 1968.

2 Esin and Harmankaya 1999; Balkan-Atlı et al. 1999.

3 Gülçur 2012; 1999.

4 Demirtaş et al. 2023; Hacıoğlu 2019.

5 Bıçakçı et al. 2012; Öztan 2002; Özduvak 2012.

6 Gülçur et al. 2018.

7 The early fortification system, which serves as an important argument in defining social differentiation, is known from the settlements of Güvercinkaya (Levels I-II) (Gülçur et al. 2018) and Mersin-Yumuktepe

(Levels XVI-XV) (Caneva and Palumbi 2019) in Anatolian archaeology.

8 Hacıoğlu 2018.

9 Demirtaş et al. 2023.

10 Çaylı et al. 2023.

11 Hacıoğlu 2019.

12 Göncüoğlu and Toprak 1992; Göncüoğlu and Türeli 1993.

The lowest stratigraphic level of Büyük Deller is occupied by the Akmezar Ophiolite, which represents the Upper Cretaceous oceanic crust. This is unconformably overlain by the Karapınaryaylası Formation (Late Paleocene-Middle Eocene), which is composed of shallow marine conglomerates, sandstones, and limestones. Above this, again unconformably, lies the Kızılkaya ignimbrite of the Early Pliocene Hasan Dağı volcanics. Finally, Early Quaternary (Pleistocene) basalt flows from the Acıgöl volcanic formations unconformably overlie the succession of rock layers described above. The outcrops, contact relationships, and rock types in the region have been thoroughly documented by surveys. These surveys have revealed the presence of various rock types, including magmatic, metamorphic, ophiolitic, volcanic, and sedimentary rocks. Notably, the southern region surrounding Gülpınar, Gülağaç, and Demirci is distinguished by its abundance of volcanic rocks. Pyroclastic rocks (scoria, pumice, and vitric tuff) have been identified in the vicinity of Nenezi Dağ near Bekarlar village and around Sofular village, while ignimbrites are present in abundance between eastern Aksaray and Ağzıkarahan-Gülağaç. Vesicular basalts manifest as lava flows around Gülpınar village and in the proximity of Kayı Lake. Metamorphic marbles are exposed to the south of Mandama village and west of Aksaray (around Hamamboğazi and Mermerlik Tepe). Sedimentary rocks, conglomerates, sandstones, and limestones are exposed around Pınarbaşı village. Gypsum, representing evaporitic facies, is present near Sevinçli village and in the vicinity of Kalanlar neighbourhood in Aksaray. Furthermore, siliceous nodules or lenses of chert (a form of metamorphic rock) are found within the carbonate layers of the Karakaya Formation. Ophiolitic rocks extend widely between Ağzıkarahan, Osmanlı, and Demirci. Serpentinites are found in small outcrops, while granitic and gabbroic rocks are more prevalent in areas surrounding Yalnızceviz, Bebek, Tatlıca, Kalebalta, Büyükpörnek, Küçükpörnek, and Ozancık. Epidote minerals have been identified in the alteration zones of ophiolites situated to the north of Demirci. In order to ascertain potential raw material sources, a comprehensive classification of rock samples was undertaken, directly collected from the Büyük Deller summit. The samples included quartz, feldspar, gypsum, limestone, basalt, calcite, volcanic scoria,

iron-rich volcanic rocks, metamorphic rocks, and diabase samples from ophiolitic layers containing olivine, as well as volcanic rocks dominated by quartz that also bear epidote. The presence of fossil traces has been observed in Tertiary (Neogene) marl samples¹³.

The most prevalent raw materials for artefacts at Büyük Deller are presently understood to be ignimbrite, fine-grained basalt, gabbro, andesite, crystal tuff, and serpentinised peridotite (see Fig.13). Architectural evidence suggests that the local stones predominate and that they were extracted from the bedrock on which the settlement is located. The area designated as “Fortress Entrance” on the eastern slope, spanning a total area of 300m², exhibits clear indications of at least 5m depth of quarrying activity, with discernible cut marks present on the bedrock, suggesting the potential existence of a stone quarry (Fig.2-a-c).

The establishment of permanent settlements by prehistoric communities was contingent on several factors. Firstly, access to raw materials and water resources was imperative. Secondly, proximity to arable land and pastures was essential, as it ensured the availability of sustenance. Thirdly, the presence of biodiversity was crucial, as it provided abundant sources of food. The convergence of these factors was instrumental in the decision-making process of selecting a location for settlement. Consequently, regions that met at least some of these criteria exerted a strong pull on communities, influencing their choice of settlement site.

The ignimbrite outcrop on which Büyük Deller is situated (formed during the Tertiary period) covers an area of 17.5 hectares at the base, rising to a height of approximately 65 metres (Altitude, 1230 m) (Fig. 2-a). The formation tapers upwards, and is encircled by rocky protrusions. Excavations thus far have indicated the presence of cultural deposits upon these protrusions, with a maximum thickness of 5-10 m at the outermost point¹⁴. The site's strategic location in close proximity to the Karasu, the largest tributary of the Melendiz River, is of vital importance to the region's hydrological balance. Furthermore, its strategic position at a junction of historic roads - including those that were once used for Christian

13 Yıldız 2024: 410.

14 Çaylı et al. 2024: 410.

pilgrimage - makes it an invaluable archaeological resource. The alluvial soils created by the Melendiz River's branches support dry farming¹⁵. The site is also notable as one of the major sources of obsidian in the region, with Nenezi Dağ (1700 m) being situated approximately 13 km away in a direct line. Additionally, there are elevations of approximately 1300 m in the vicinity¹⁶. Furthermore, metamorphic rocks, which are favoured in ground stone industries, are readily available in the surrounding landscape.

The geographical location under scrutiny falls within the Central Anatolian flora of the Iran-Turan floral zone, which is distinguished by a rich taxonomic diversity.¹⁷ The archaeozoological records indicate the importance of the selection of sites for management strategies employed by pastoralists, suggesting a rapid expansion of sheep husbandry on the Central Anatolian plateau starting from the Late Early Chalcolithic period¹⁸. Salt is a crucial component in numerous activities, including food storage, preservation, pottery fabrication, animal husbandry, leather-working and insulation in buildings.¹⁹ The proximity of Büyük Deller to Tuz Gölü ("Salt Lake") is therefore of particular interest. The existence of favourable environmental conditions at this location is likely to have contributed to the establishment of a permanent settlement. The fundamental research question guiding this study is to ascertain why individuals selected a steep, rocky elevation during that specific historical period.

Across Central Anatolia and the Volcanic Cappadocia region, communities that had settled on plains or at the foot of mountains since the Neolithic began, towards the end of the sixth millennium BC, to choose more defensible high cliffs and valley slopes. These decisions influenced the spatial distribution of settlements and their capacity to support populations. The investigation of this settlement pattern has been conducted at two sites in this region: Köşk Höyük (Niğde) and Güvercinkaya (Aksaray). Despite

the cultural sequences not exactly overlapping, notable similarities have been observed in settlement preferences, settlement layout, and material culture between Middle Chalcolithic layers at Güvercinkaya I-II (5200-4810 BC) and Köşk Höyük I (5412-4910 BC).²⁰ Consequently, these two contemporary sites have significantly influenced recent research inquiries concerning the Chalcolithic in Central Anatolia.

The region's topography is reflected in the location of Middle or possibly Late Chalcolithic hilltop settlements in Aksaray, such as Güvercinkaya, Gelveri, Oluklunun Kaya, Mercimek Kayası, Kumluelma Mevkii, Bağlar Mevkii, and Büyük Deller. These settlements often occupy terraces on high rock outcrops overlooking a watercourse, typically connected by ancient or modern major or minor roads.²¹ The shared features of these sites prompt a deeper investigation into the rationale behind such settlement preferences during the periods they represent. Furthermore, the Aksaray Prehistoric Survey (AKYA) has identified two new hilltop settlements, Gülçur Kaya Üstü and Kayaninaltı, thereby further enriching the extant literature on the subject.

Surveys conducted in Niğde, extending beyond Aksaray, have revealed numerous Chalcolithic settlements, with some located on hilltops.²² In his study of Middle Chalcolithic settlements, Hacıoğlu proposes a classification system based on settlement strategies, distinguishing three categories: (1) permanent settlements on the edge of plains, (2) permanent settlements in mountainous valley systems, and (3) seasonal settlements in mountainous valley systems.²³ Evidence indicates that Early Chalcolithic plain settlements in Volcanic Cappadocia and north of the Central Taurus, which are continuous with the Late Neolithic, gave way to a new settlement preferences pattern between roughly 5500 and 5200 BC. Köşk Höyük and Bekçi Tepe, both located on the plain's edge, feature Late Neolithic and Early Chalcolithic layers, while Güvercinkaya and Büyük Deller, situated in valley systems, contain Middle and Late Chalcolithic contexts, representing atypical permanent settlements.

15 Baylak 2019: 4762.

16 Erturaç et al. 2017.

17 Örün and Tekşen 2014.

18 For herd animal husbandry on the Central Anatolian Plateau during the Chalcolithic period and the central role of animals in the social changes of these societies, see also Arbuckle 2012: 302, 309.

19 Erdoğu et al. 2003.

20 Çaylı 2017.

21 Gülçur et al. 2010: 9; 2012: 217-218; 2003: 498.

22 Hacıoğlu 2019:25-29.

23 Yener 1993; Hacıoğlu 2019: 31-33.

The topographical features of hilltop settlements in the vicinity of more substantial, permanent sites are characterised by the presence of shallow deposits. These deposits may have served as seasonal or temporary sites connected to pastoral activities. The topography of high, flat areas, dissected by watercourses, is conducive to the herding of livestock. Typically situated at altitudes between 900-1200 m above sea level, these “low uplands” can be conceptualised as part of a village, pasture economy in the Chalcolithic period. In the volcanic region of Cappadocia, these mesa-like formations continue to play a role in transhumance practices today, underscoring their historical and contemporary significance. The close proximity of these rocky outcrops to fully established permanent settlements is noteworthy. One notable example is Gülçur Kaya Üstü,²⁴ identified during the AKYA (Aksaray Prehistoric Survey) project and located about 8.5 kilometres in a direct line from both Güvercinkayaşı and Büyük Deller. This distance falls within the commonly proposed 10 km daily activity radius for human and livestock mobility, which comprises all ecological elements, including geology, climate, water, raw material sources, arable soils, and pastures.²⁵

Gülçur, Demirtaş, and Hacıoğlu’s surveys across the region from north of the Central Taurus to western Cappadocia have revealed approximately 25 comparable hilltop sites at relatively close intervals, which appear to illustrate deliberate settlement preferences. The prevailing underlying factors behind this settlement pattern, which was observed during the Middle Chalcolithic reorganization of pastoral economies (characterised by an increase in the number of sheep and goats), are believed to include the transformation of wool into a valuable economic resource, the accumulation of agricultural surpluses and the protection of these surpluses behind fortifications.²⁶ These themes have been the subject of extensive analysis at Güvercinkayaşı, which is now regarded as a key reference point. The initiation of the Büyük Deller excavations was driven by two primary motivations. Firstly, to investigate the incentives for founding a permanent settlement in a

bounded, defensible area during the pre-urban phase in Anatolia. Secondly, to establish another reference point that can test the Güvercinkayaşı data.

Archaeological Research ²⁷

Applying the principles of relative dating, stratigraphic evidence indicates two main occupation phases. The first phase is estimated to have taken place during the Middle Chalcolithic period (5200-4800 BC) and the second during the Hellenistic period (from the late 4th century to the 1st century BC). The site’s strategic location on a naturally defensible volcanic elevation bestows a panoramic view of the surrounding area. During the Hellenistic period, a local ashlar wall was erected to fortify the site (Fig.2-c). A damaged tumulus was identified at the summit plateau, while other notable features, including a cistern, rock-cut tombs, a stepped altar, and other carved elements on the southern slope, collectively suggest that there was continued use in later periods.

The architectural elements that were predominantly observed during the fieldworks on the eastern slope, where prehistoric material was thoroughly examined during the survey, are attributed to the Hellenistic period (Fig.2-c). During the course of the excavations, which were limited in scope, bedrock was discovered on the outer face of the Hellenistic fortification wall in areas where the fill thickness was low (approximately 1 m) (7-8-9/M-N, Fig.2-b, Fig.4, Fig.6). The Chalcolithic Period data were also found in these limited areas.²⁸

²⁷ The excavation at Büyük Deller was initiated in 2020 as a museum excavation under the direction of the Aksaray Museum Directorate. Since 2021, the excavations have been conducted with the approval of the Republic of Turkey Ministry of Culture and Tourism, General Directorate of Cultural Heritage and Museums, under the designation of a Presidential Decree excavation. This undertaking has been overseen by an international team led by Dr. Pınar Çaylı from the NEVU Archaeology Department.

²⁸ In a specific segment of a test trench conducted within the confines of the inner fortification wall, extending beyond the slope delineated in plan square 14/O, Chalcolithic period materials were identified in the vicinity of a Hellenistic-period stone pavement, situated at a depth estimated to be approximately 2.3 meters. (Tüysüz et al. 2024: 52, Levha 3b).

²⁴ Altitude: 1165–1172 m; Cultural Deposit Thickness: 50 cm; Cultural Deposit Spread: 800 m².

²⁵ Gülçur et al. 2010:10.

²⁶ Gülçur et al. 2018.

Excavations were conducted on the northern and southern flanks of the 300-square-metre split rocky area (8-9/L-M-N), which has been identified as the fortress entrance²⁹ in the centre of the eastern slope (Fig.2-b, c). In the area to the north of the entrance, and situated beneath the shallow fill on the cliff, dark-faced burnished vessels were discovered in situ, accompanied by six post-holes with a diameter of approximately 15 cm (Fig.4; Fig.3-b). The post-holes, which are oriented in an east-west direction, have yet to be contextualised within the broader architectural framework. The hypothesis that there are counterparts of the post-holes under the Hellenistic period walls is one that merits further investigation. Such post-holes are typically indicative of walls or roof structures composed of lighter materials, such as wattle-and-daub. The initial phase of Güvercinkaya (layer 0) and the Middle Chalcolithic (I-II) have been observed to feature architectural elements that are also frequently encountered in the previously mentioned layers of Güvercinkaya structures. The presence of these elements can be traced back to the Early Chalcolithic period.³⁰ In the pioneer phase, which is hypothesised to have been utilised by the first inhabitants of Güvercinkaya, it is proposed that the settlement was constructed using a lightweight material similar to wattle and daub.³¹ During the surveys conducted in the region, these rock hollows were identified in the exposed parts of the bedrock in the majority of the Middle Chalcolithic settlements on the rock.³² Although the post-holes found at Büyük Deller do not yet have a spatial context, they continue an architectural understanding that is often found in the rocky hilltop settlements.

Another in-situ architectural feature in the area is a kiln, which has been damaged by erosion.

Despite being in poor condition, the kiln is still identifiable as such due to the presence of a horse-shoe-shaped wall and a thick plaster floor. It also contains broken pottery fragments embedded in the intermediate layers for insulation purposes; these techniques have been identified in similar kilns in Layers I-II at Güvercinkaya (Fig.3-a, Fig.4).³³ In this area, approximately 2 metres north-west of the kiln, an in situ Chalcolithic pithos was unearthed on a flat ground where the bedrock was broken into corners. The vessel is characterised by a dark core, burnished surface, egg-shaped base, short flaring neck, and a moderately globular body. It closely resembles storage pots from the Middle Chalcolithic period at Güvercinkaya. The pot's capacity is estimated to be approximately 60 litres, making it comparable to the "large storage vessels" identified at Güvercinkaya.³⁴ Two artefacts, a well-shaped andesite pestle (Fig.5-e) and a partially knapped piece of obsidian (Fig.5-c) (flake core?/Kayırlı, 10,5x9.05x3.09 cm), were positioned opposite each other beneath the pithos's base. However, it is also possible that their careful placement under the pithos has a symbolic meaning. The spatial context of the post-holes surrounding the in-situ pithos and kiln remains unclear (Fig.4, Fig.5-a, b, d).

In front of the south wing of the fortification wall, adjacent to the entrance of the fortress, cleaning works were initiated in an area of approximately 15m². Subsequent to the completion of the primary one-metre stratum of filling, the materials and architectural elements from the Hellenistic period were meticulously removed. Intensive Chalcolithic artefacts began to emerge in trench 6-7/M-N (Fig.6-b). The excavation was continued by limiting the area to approximately 2m², and in addition to dense obsidian and bone fragments, as well as numerous handstones, abraders³⁵, and pottery sherds were found (Fig.7-a, b). As the area was subjected to further excavation, a layer of ashy material was exposed. Finds of a similar nature were recovered from the context, which was approximately 50–70 cm thick, and the bedrock was reached. The presence of the same artefact types was detected beneath layers

29 Further excavations are required to ascertain the precise nature of the entrance to the fortress. The rocky area, which has been split and contains fill deposits ranging in thickness from approximately 2 to 5 metres, appears to have been structured with a stepped system built from large stone blocks. This forms a ramp that provides access to the summit plateau. Cut marks on the rocks suggest that this area was also utilised as a stone quarry, and it is evident that local stones were used in the architecture.

30 Hacıoğlu 2019: 22.

31 Gülçür et al. 2018: 44 Abb. 3.

32 Hacıoğlu 2019: 29, 30.

33 Gülçür 2004:162, Fig. 18.

34 Çaylı 2018: Cilt II, 51, Tablo 4.

35 All of the abraders came from this area, see Fig.14; Fig.7-c

of ash extending into bedrock (Fig.6-a). The obsidian cores exhibited single striking platforms, while the assemblage included flakes, blades, a spearhead, scrapers and products from each stage of production, including micro-debitage in sieve residues. The presence of multiple hammer stones suitable for knapping suggests that this area was a site for the production of obsidian artefacts (Fig.7-c, d, e, f). By the conclusion of the excavation season, only approximately 10m² had been explored, indicating the probable extension of the workshop into adjacent, yet unexcavated, grid squares. No architectural remains were discovered, though primary evidence suggests obsidian tool production. However, the presence of abraders, polishers, antler sleeves, and small axes from a variety of raw materials indicates a multi-purpose, open-area workspace.

While it was initially hypothesised that the artefacts recovered from the site had been deposited there by natural erosion, the absence of Hellenistic period material and the coexistence of data belonging to the chipped stone production chain support the definition of ‘obsidian workshop area’. It is also noteworthy that this field of area is situated on the same plane as the in-situ finds were unearthed to the north of the fortress entrance, which was inhabited during the Chalcolithic period (Fig.4).

During the excavations at Büyük Deller, the majority of artefacts, which were predominantly deposited by the eastern slope flow, were discovered out of context. However, some parallels with contemporaneous and/or earlier settlements show cultural continuity.

Pottery

Pottery represents the most prevalent category of artefact. With the exception of a small number of large jars and pots that have been found in situ, the majority of ceramic fragments have been recovered from fill deposits. Four primary ware groups have been identified.

The initial group encompasses the majority of the extant material, comprising black burnished wares with a bichrome core (W-I, Fig. 8-a). The vessel forms include a modest number of hemispherical or carinated bowls, in addition to pots with concave-necked or hole-mouth forms. Applied horned or knobbed handles and raised bands emerge more frequently than incised

decoration; a few specimens exhibit incisions with white paste infill. The ware characteristics and forms displayed here exhibit strong parallels with the Middle Chalcolithic Güvercinkaya I-II, Köşk Höyük I, and Bekçi Tepe. The second group consists of a smaller set of well-refined clay pasted red-slipped sherds with oxidized sections, primarily pots and bowls (W-II, Fig. 8-b). A third group, which is also small in number, features red-brown burnished surfaces with fine vegetal and grit temper (W-III, Fig. 8-c). This group includes a horned handle, a form significant for its capacity to trace the chronological development of prehistoric handles in Anatolia, as attested in various cultural zones from as early as the first half of the sixth millennium BC.³⁶ However, in Volcanic Cappadocia, such handles rarely appear on black burnished wares, which are characteristic of the Middle Chalcolithic. The presence of horned handles is typically indicative of the Late Chalcolithic in Central Anatolia’s Kızılırmak Basin, and they become more common in the Early Bronze Age.³⁷ The fourth group comprises wares that are buff or orange-surfaced, tempered with fine vegetal and minimal mineral inclusions (W-IV, Fig. 8-d). One piece of particular note features a raised rectangular lug on its exterior surface, bearing a resemblance to black burnished bowls from Güvercinkaya, yet distinguished by its red-slipped interior.

A small number of sherds have been observed to contain deliberate inclusions of obsidian, within the clay. This phenomenon has not been recorded at Güvercinkaya, but it is evident in a Late Chalcolithic storage vessel base at Bekçi Tepe³⁸ and in some Late Chalcolithic sites in the South Caucasus.³⁹ Consequently, certain ceramic characteristics at Büyük Deller, including the increased utilisation of light-coloured pastes, red slip, horned handles, and obsidian-tempered clay, suggest a site chronology extending from the Middle Chalcolithic to its final phases, and potentially beyond (Fig. 8-c-right; Fig.9).

The pottery at Büyük Deller bears a strong resemblance to the black burnished Middle Chalcolithic wares of the Güvercinkaya Layers I-II, Köşk

³⁶ Mellaart 1975: 68, 69; Caymaz 2013.

³⁷ Thissen 1993: 209-212, 216.

³⁸ Hacıoğlu 2019: 26.

³⁹ Bahşaliyev et al. 2024: 19.

Höyük Layer I, and Bekçi Tepe. The presence of large vessel fragments, such as pots and storage jars (Fig.10-e-i), is predominant, with smaller bowls being less abundant (Fig.10-a-d). The presence of rare instances of white-filled incised chevron motifs and applied decorations serves to echo similar material found at Güvercinkayası.⁴⁰

Chipped Stone Tools⁴¹

All chipped stone finds were recovered from the eastern slope, with the assemblage consisting exclusively of obsidian, apart from a single thick, cortex-bearing flint flake. Macroscopic examination points primarily to Göllüdağ (Kömürcü) and Nenezi obsidian sources.

The characteristic attributes of Central Anatolian Pre-Pottery Neolithic obsidian technology, including ridge-backed (Naviform) cores and cores with cortex on dorsal surfaces, are evident in the Chalcolithic assemblage at Büyük Deller. The assemblage encompasses both early-stage and finished cores, indicating the employment of indirect percussion and single-platform blade cores in order to produce blades exhibiting uniformity. The toolkit comprises blades, scrapers, spearheads, borers, and notched tools (Fig. 11-a-d), along with “mirror” pieces (Fig. 12). Of particular note is the presence of some pieces that reflect the two-striking-platform “Y-shaped” core concept used since the Neolithic, thereby demonstrating continuity in technology into the Chalcolithic. The presence of abundant small flakes (micro-debitage) further confirms on-site knapping⁴². The comprehensive evidence gathered thus far indicates that every stage of production is represented at Büyük Deller, with a particular emphasis on blade production.

Ground Stone Tools

Excavations at Büyük Deller have revealed a modest collection of ground stone artefacts, including lower grinding stones, mortars, pestles, flat axes, burnishers, portable door jambs, sling stones (Fig. 13) and abraders (Fig.14).⁴³ A pre-

liminary analysis suggests that, with the exception of a few pieces, local stone sources were utilised in the production of these artefacts. The site exhibits notable parallels with Neolithic and Chalcolithic sites across Central Anatolia, both in terms of typology and technology. Significantly, a group of six ignimbrite abraders from the obsidian workshop area, each exhibiting grooves of varying lengths, numbers, and orientations, are noteworthy. Such tools are hypothesised to have been used for sharpening stone tools with cutting edges or for working bone or wood. The 61 specimens from Güvercinkayası are mostly groove-free.⁴⁴

Other Finds

The obsidian mirrors unearthed at Büyük Deller are of particular interest within the context of the site’s small finds. The presence of mirrors is documented as early as the mid-seventh millennium BC at sites such as Çatalhöyük, Tepecik-Çiftlik, Köşk Höyük, Akarçay Tepe, Sırçalı Tepe, Domuztepe, and Güvercinkayası, spanning the Late Neolithic through Early and Middle Chalcolithic periods.⁴⁵ Despite the ambiguity surrounding their function, it is hypothesised that their primary function was to serve a reflective purpose. At Büyük Deller, one mirror is intact and possesses a small perforated lug, while two are fractured. Their round faces measure 4–8 cm in diameter, and their front surfaces are left unpolished (Fig. 15-b).⁴⁶ Mirrors from Güvercinkayası exhibit analogous features; one example possesses a perforation its small lug. As the mirrors at both sites were recovered from fill contexts, their exact use remains difficult to interpret.

An analysis of Anatolia’s earliest stamp seals reveals a significant corpus that dates back to the early phases of the Pottery Neolithic (c. 6700 BC) at Çatalhöyük. These seals appear sporadically across different cultural zones through the end of this period (Çatalhöyük, 6700 BCE; Büyük Deller, date). The seal from Büyük Deller adds to the corpus. A wide variety of hypotheses have

⁴⁰ Demirtaş 2019.

⁴¹ Preliminary assessments were made by Nurcan Kayacan.

⁴² Çaylı et al. 2023: 444, Res. 14/5

⁴³ A polishing stone made of fine-grained flint (Fig. 11) (near Armutlu-Hasan Dağı) and a flat small axe (Fig. .11) (the closest source for Aksaray being the

Kayseri-Yeşilhisar peridotites).

⁴⁴ Řídký et al. 2019: 406, 408, 421, Fig. 5, Fig. 12.

⁴⁵ Demirtaş and Çaylı 2021: 26; Balcı and Altınbilek-Algöl 2019: 556, 562.

⁴⁶ Demirtaş and Çaylı 2021: 19, Fig. 4; Balcı and Altınbilek-Algöl 2019: 567 Fig. 1-3, 568 Fig. 4-5.

been advanced to explain the function of such artefacts. These hypotheses include the following: that the seals served to mark ownership (of goods or livestock); that they functioned as personal items worn like amulets; or that they were used to apply paint or pigment motifs onto surfaces such as textiles or plaster. The majority of prehistoric seals in Anatolia are terracotta, although bone or stone examples also exist.⁴⁷ The seal from BüyükDeller is made of rhyolite. It has a conical body with a small depression at the apex for attaching a bone or wooden handle. Its circular sealing surface features a spiral motif created by pairs of shallow and deeper incised lines (Fig. 15-a). Terracotta seals with handles are well documented in the archaeological literature, being particularly prominent features in both the Late Neolithic and Early Chalcolithic layers across Anatolia.⁴⁸

In the Late Neolithic and Chalcolithic settlements of Anatolia, there is a continuous presence of anthropomorphic terracotta figurines that range from schematic to naturalistic in their depiction. These figurines have traditionally been interpreted through the lenses of religion or gender, with contemporary approaches emphasising that the function of these figurines cannot be fully explained by typological and anatomical details alone.⁴⁹ The terracotta figurine from Büyük Deller, which is found outside of a clear context, exhibits naturalistic features, characterised by a buff paste. It portrays a seated female form with short, wing-like arms at shoulder height, legs drawn up to the abdomen, a prominent

waistline, and broad hips. In contrast to examples from Antalya-Burdur,⁵⁰ Çatalhöyük,⁵¹ and Çukurkent⁵² (also echoed at Güvercinkayası),⁵³ which frequently exhibit a separate socket for an attachable head, the Büyük Deller figurine does not feature such a socket.

Discussions and Preliminary Evaluation

The Chalcolithic period is one of the least understood periods of Anatolian prehistory. In the last three decades, knowledge of the Chalcolithic in Aksaray's volcanic highlands, encompassing the area around Büyük Deller, has expanded, revealing the emergence of hilltop settlements from the mid-sixth millennium BC onwards. One hypothesis suggests that communities relocated to defensible high cliffs and valley slopes for security reasons, and in order to safeguard surplus agricultural produce, thus avoiding the use of farmland. Data from the Middle Chalcolithic Layers I–II at Güvercinkayası, where a defensive wall bisects the settlement, support this perspective and provide a model of the complex socio-political changes that preceded urbanisation in Anatolia.

The strategic selection of the site by Büyük Deller, which was purposefully chosen for its views and proximity to essential raw materials, yet lacked direct integration with the surrounding plains, is likely instrumental in the establishment of a permanent settlement. The proximity of the site to frequently used pasturelands by nomadic herds-men is also a notable factor. These environmental advantages now form the foundation for the research questions to be investigated at Büyük Deller. The results of ongoing archaeozoological analyses are expected to shed light on the interplay between Middle Chalcolithic economics, settlement strategies and herd management.

Although the majority of artefacts come from slope deposits and are thus out of context, preliminary observations suggest parallels with materials known from contemporaneous (and earlier) sites, alongside indicators of later Chalcolithic phases. The most abundant category of artefact is handmade, burnished pottery, which is

47 Yıldız 2022: 33-64, Tablo: 3. 2; Demirtaş 2015: 24, 29-31.

48 Typological and spiral motif parallels of the Büyük Deller example can be observed at the settlements of Çatalhöyük (Türkcan, 2006: 177, Fig. 8. 2/21, 22, 24; 179, Fig. 8. 4/2) and Ulucak (Çilingiroğlu 2009: 13, Fig. 4. 1, 5) in Anatolia. At the settlements of Tepecik-Çiftlik (Bıçakçı et al. 2012: 132, Fig. 56), Dedecik-Heybelitepe (Lichter and Meriç 2012: 138, Fig. 3/5), and Bademağacı (Duru 2016: 161, Resim 648-651), examples featuring incised concentric circles on the stamping surface, which can be typologically associated with the Büyük Deller seal, have been found. All comparable examples are made of fired clay, with the exception of those from the Lakes Region, which feature perforated handles for suspension. The Chalcolithic Büyük Deller example is distinguished from these by its limestone material and its suitability for use with a separate handle.

49 Atakuman 2017: 86-88.

50 Duru 2016: 146, Resim 515, 516; 147, Resim 521, 522, 526.

51 Meskell and Nakamura 2006, Şek. 1; 114-115; 126.

52 Özkan and Erdalkıran: 29, Res. 6. 2.

53 Gülçur and Kiper 2007: 124, Fig. 10.

technologically and typologically akin to Middle Chalcolithic Güvercinkaya (Layers I-II), Köşk Höyük (Layer I), and Bekçi Tepe. However, the rise of light-coloured pastes, the presence of red slip, horned handles, and obsidian tempering point to the presence of additional ceramic traditions. These substantial elements support the hypothesis that Büyük Deller might have two chronological phases, extending into the final part of the Middle Chalcolithic.

Local resources were heavily employed in both the chipped stone and ground stone industries. The analysis of the chipped stone assemblage reveals the dominance of obsidian, underscoring the presence of a well-developed production sequence that employs blade technology on a large scale. The presence of a wide variety of obsidian mirrors, which are rarely encountered in Anatolia and the Near East, points to the existence of highly skilled artisans specialising in the production of these mirrors at Büyük Deller. The presence of abraders from the obsidian workshop and various polishers in close proximity suggests that multiple craft activities were conducted in this area. Macroscopically, it appears that both Büyük Deller and Güvercinkaya exploited the same obsidian sources, raising new questions about cultural interaction, reflected also in parallels seen in pottery and small finds.

Anatolia's earliest stamp seals first attested at Çatalhöyük (c. 6700 BC) continue into the Chalcolithic. The seal at Büyük Deller, of rhyolitic composition, is noteworthy given the prevalence of terracotta seals. This observation suggests a continuity in seal usage, albeit with a shift in raw material selection. The terracotta figurine, exhibiting naturalistic features, bears resemblance to known Late Neolithic examples from Antalya-Burdur and the Konya Plain, suggesting a degree of cultural continuity across broader regions.

Excavations at Büyük Deller are expected to provide significant data that will contribute to a comprehensive understanding of Anatolian pre-urban developments and help define the later stages of the Chalcolithic in the region. A more precise chronology will be determined once deeper excavations into Chalcolithic deposits and radiocarbon dating are conducted. The site's strategic location, situated between the northern slopes of the Central Taurus Mountains and

western Cappadocia, underscores its significant potential as a new regional reference point for Chalcolithic studies.

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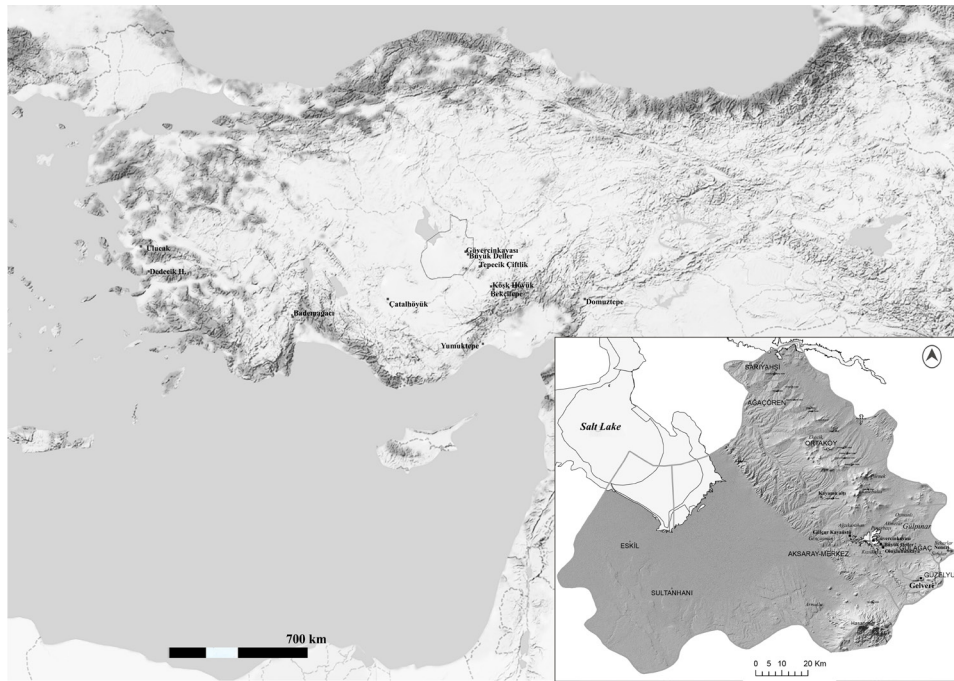
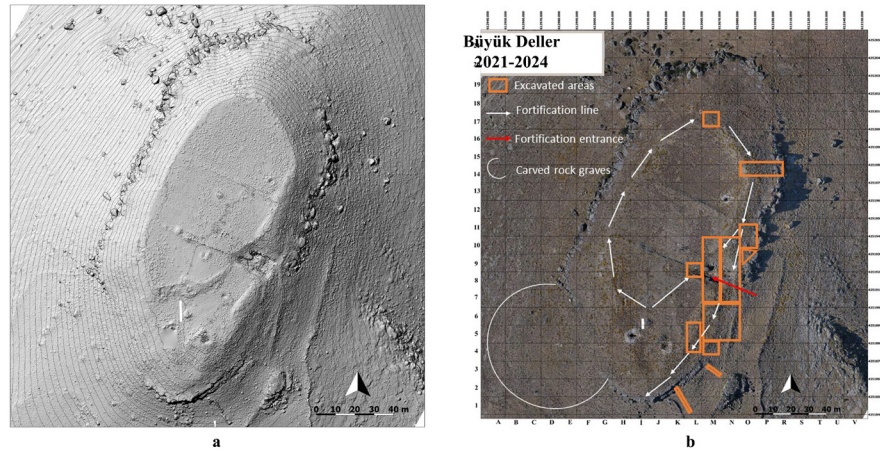


Fig. 1. Sites mentioned in the text (Prepared by I. Demirtaş)



c (The workshop and the Chalcolithic finding area)

Fig. 2. a Aerial photograph of Büyük Deller; 2-b Trench layout and site plan in 2021-2024; 2-c Excavation area on the eastern slope (Büyük Deller archive)

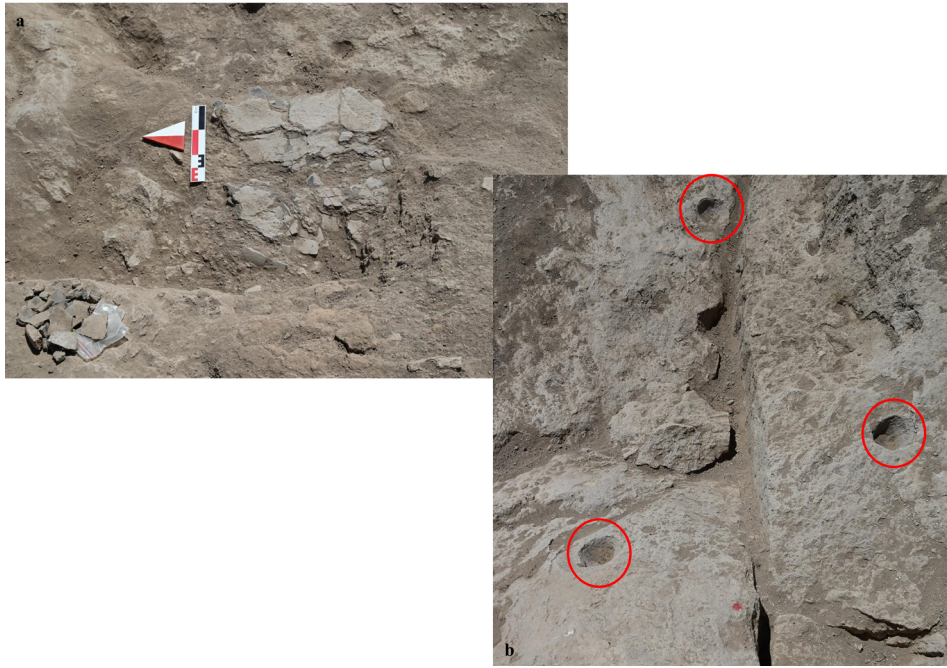


Fig. 3. a The remains of oven and horseshoe-shaped moulding; 3-b Standardised postholes (Büyük Deller archive)

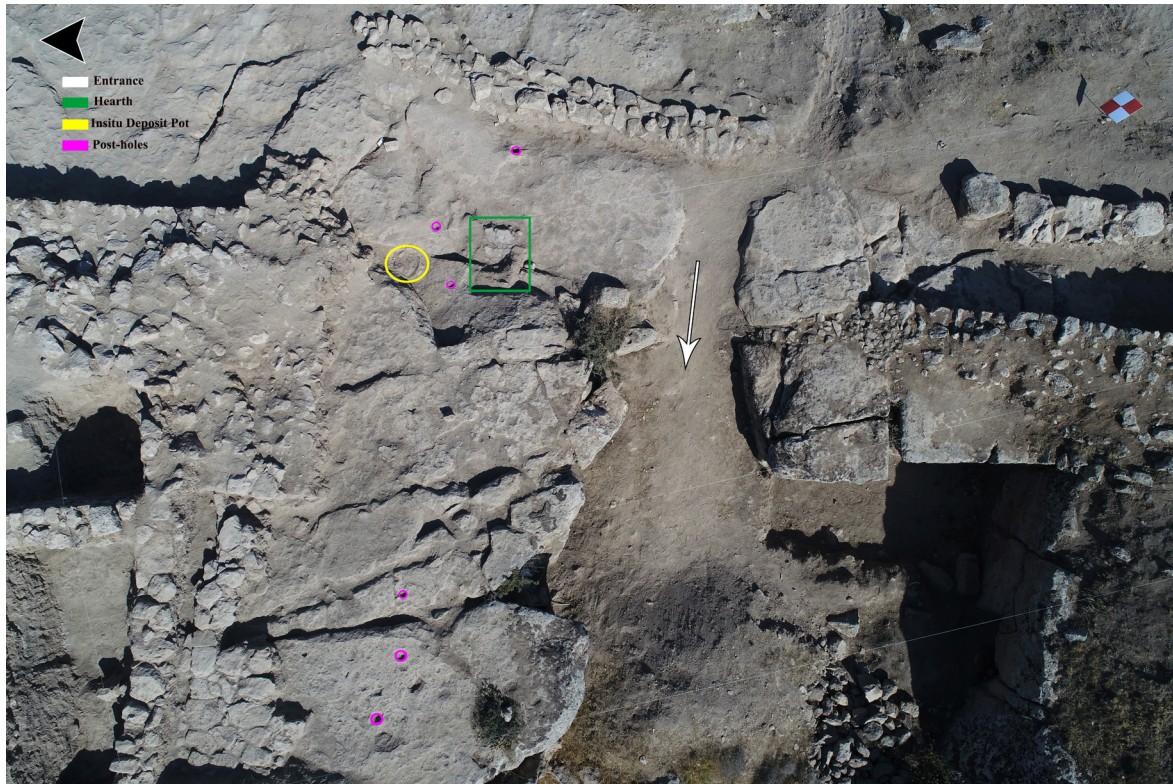


Fig. 4. The Chalcolithic finding area (hearth, post-holes, pot) (Büyük Deller archive)

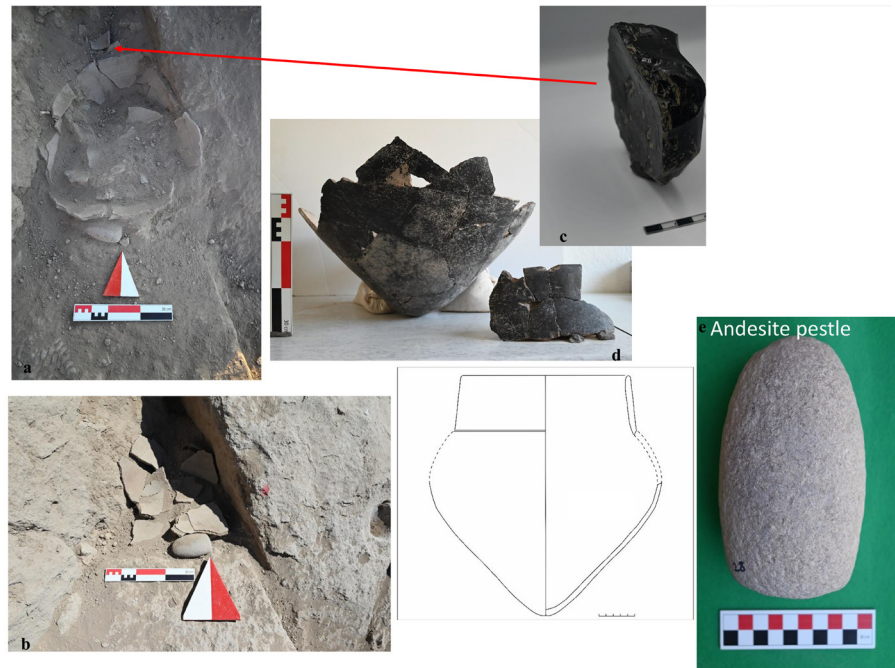


Fig. 5. In-situ finds (Büyük Deller archive)

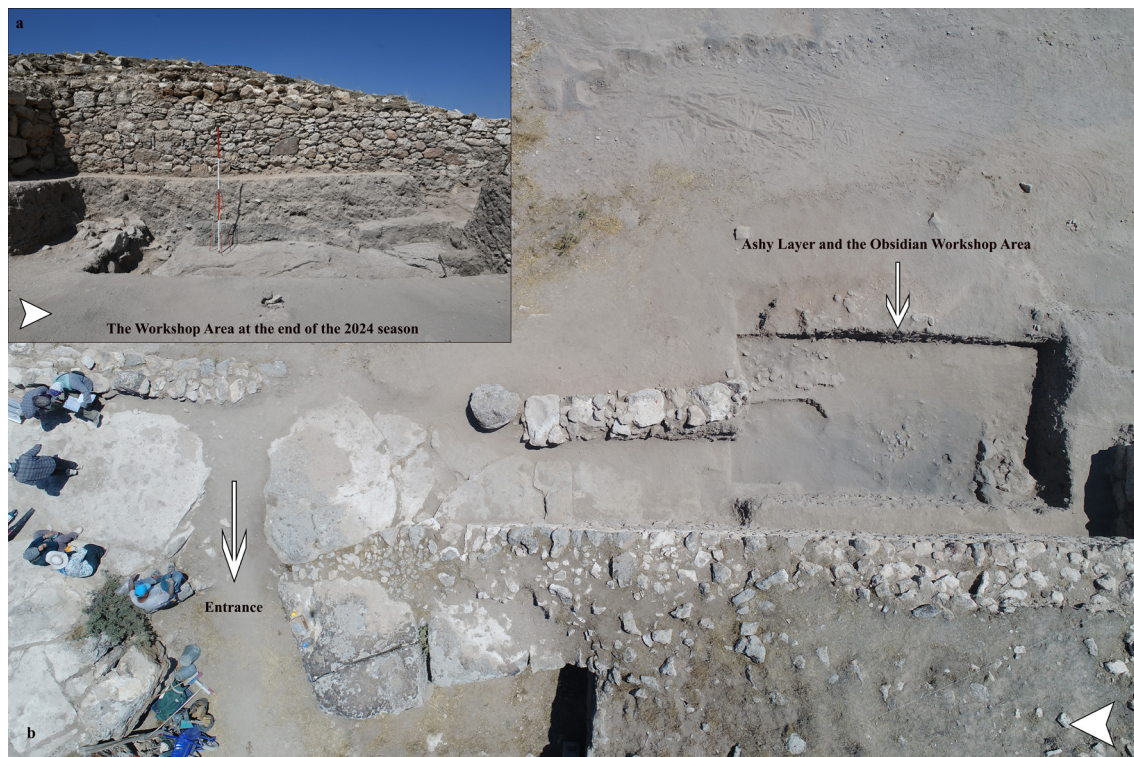


Fig. 6. Obsidian workshop area (Büyük Deller archive)



Fig. 7. Finds from obsidian workshop area (Büyük Deller archive)

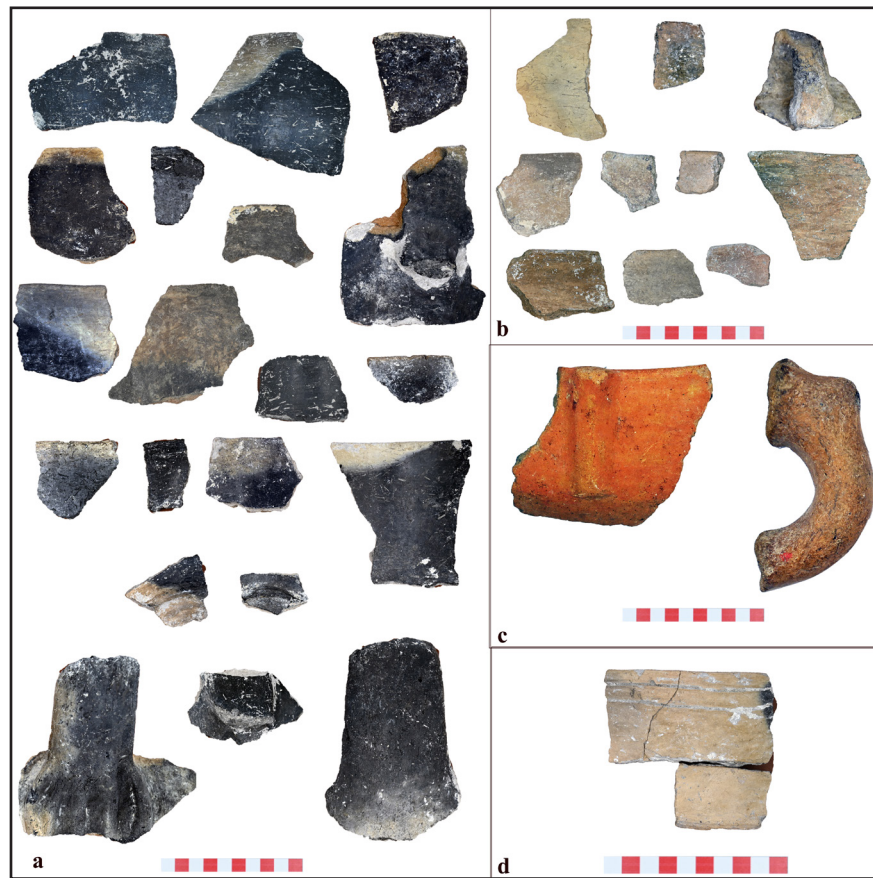


Fig. 8. Chalcolithic Period pottery ware groups (Büyük Deller archive)

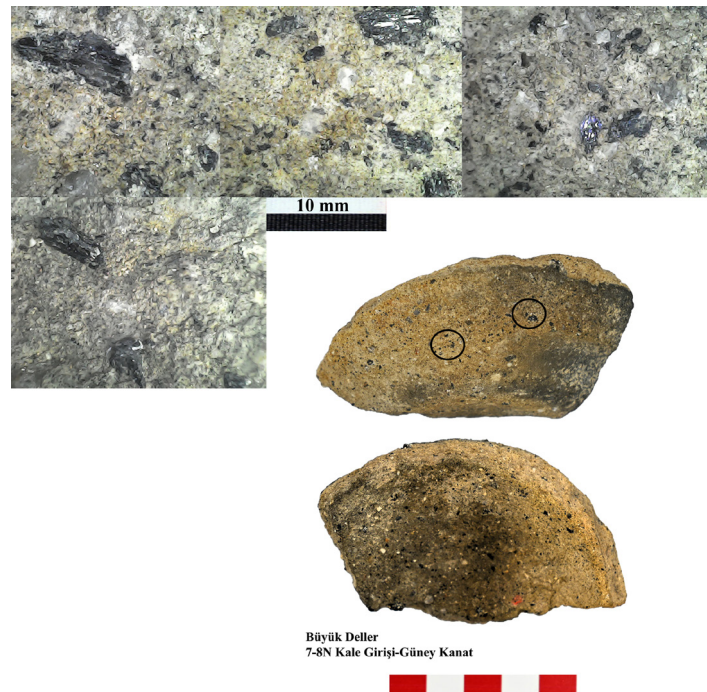


Fig. 9. Obsidian tempered sherd (Büyük Deller archive)

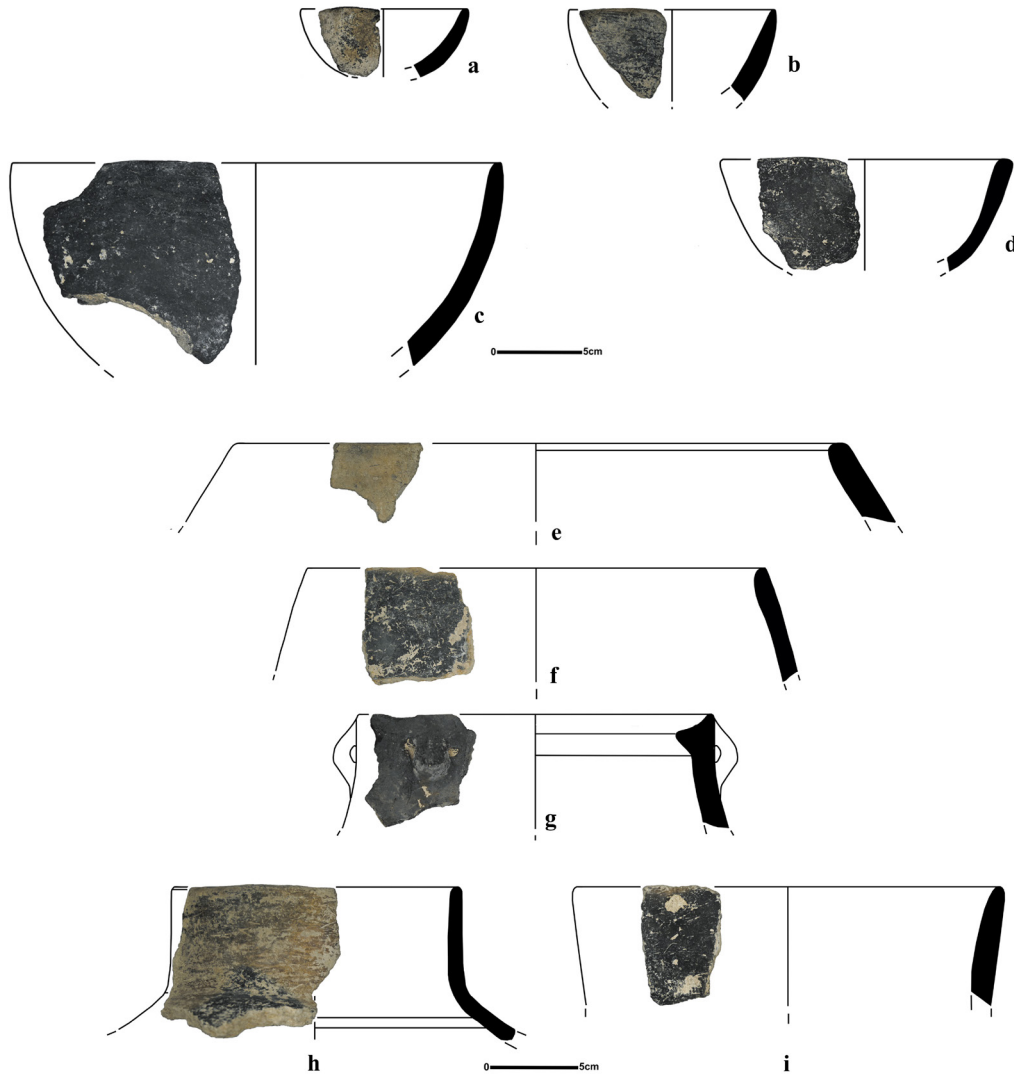


Fig. 10. Chalcolithic Period vessel forms (Büyük Deller archive/Drawn by I. Demirtaş)



Fig. 11. Chipped stone finds (Büyük Deller archive)



Fig. 12. Obsidian mirrors (Büyük Deller archive)

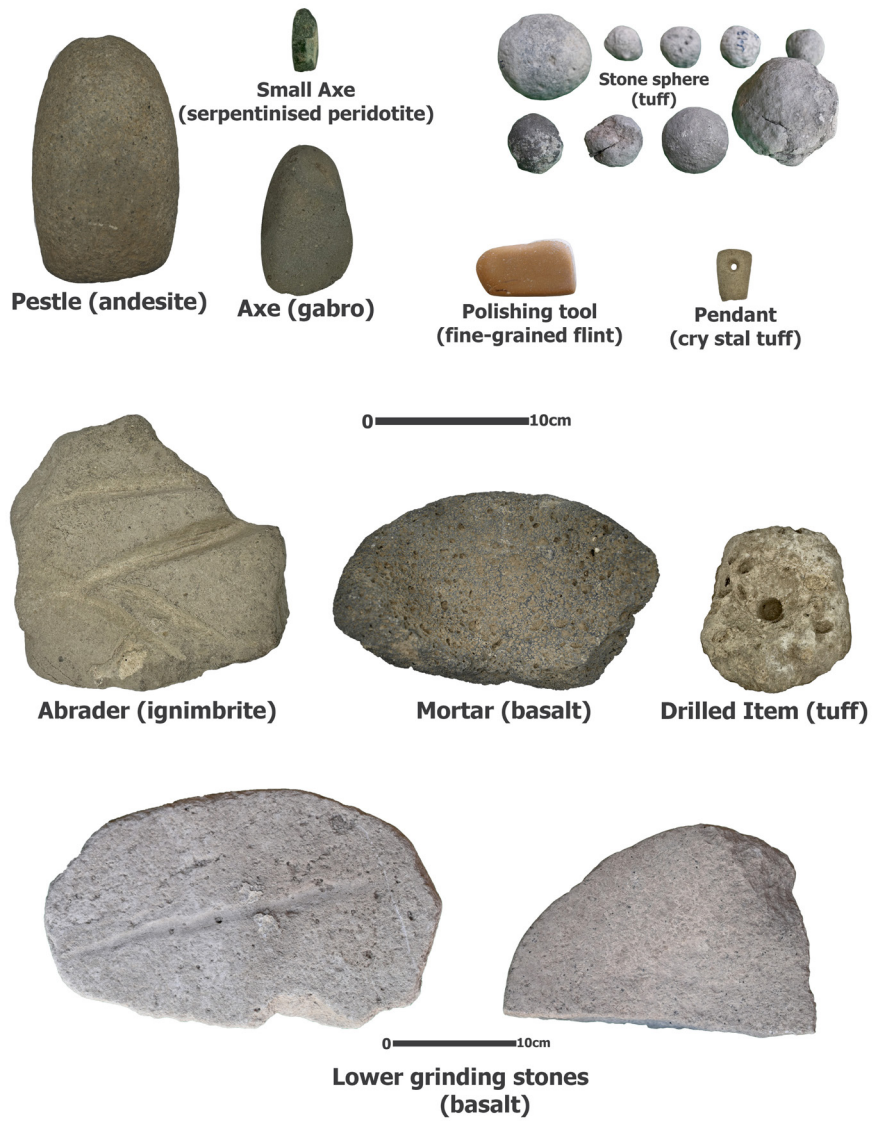


Fig. 13. Groundstone finds (Büyük Deller archive)



Fig. 14. Abraders (Büyük Deller archive)



Fig. 15. a: Stamp seal (Büyük Deller archive); b: Figurine (Büyük Deller archive)