INSTITUTUM TURCICUM SCIENTIAE ANTIQUITATIS
TÜRK ESKİÇAĞ BİLİMLERİ ENSTİTÜSÜ

Colloquium Anatolicum

23

• 2024 •

INSTITUTUM TURCICUM SCIENTIAE ANTIQUITATIS
TÜRK ESKİÇAĞ BİLİMLERİ ENSTİTÜSÜ

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COLLOQUIUM ANATOLICUM
23

ISSN 1303-8486
E-ISSN 3062-133X

COLLOQUIUM ANATOLICUM dergisi, TÜBİTAK-ULAKBİM Sosyal Bilimler Veri Tabanında taranmaktadır.

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Tasarım ve Uygulama
Bahadır Erşık

Kapak Fotoğrafı
Yerin Bora Uysal, Elbistan Karahöyük Silindir Mühür

Baskı/Printing
Oksijen Basım ve Matbaacılık San. Tic. Ltd. Şti.
100. Yıl Mah. Matbaacılar Sit. 2. Cad. No:202/A Bağcılar-İstanbul
Tel: +90 (212) 325 71 25 Fax: +90 (212) 325 61 99 - Sertifika No: 29487

Yapım ve Dağıtım/Production and Distribution
Zero Prodüksiyon Kitap-Yayın-Dağıtım Ltd. Şti.
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İçindekiler

Rescue Excavations of a Stone Cist Grave at Açıkköy, Mardin: An Archaeological and Archaeometric Evaluation

Mardin, Açıkköy Taş Sanduka Mezarı Kurtarma Kazısı: Arkeolojik ve Arkeometrik Değerlendirme

Bilcan GÖKCE – Esra KAÇMAZ LEVENT – Mahmut AYDIN*

DOI: 10.58488/collan.1460312

Keywords: Stone Cist Grave, Cylinder Seal, Ornamental Pins, Early Bronze Age, Ninevite 5, Jemdet Nasr

In 2015, Mardin Museum conducted salvage excavations at the site of a stone-cist grave, found by illicit diggers in Açıkköy village of Nusaybin district in modern Mardin province. This study presents an archaeological evaluation of the grave structure and its contents, and the results of archaeometic analyses conducted on the ceramic and metal objects deposited as grave goods. In terms of its structure and burial customs, the grave displays characteristics known from cist graves found within the upper Tigris basin. Ceramics belong to Ninevite 5 incised-excised ware and simple ware. Other significant finds in the grave are metal objects including an awl, ornamental pins, and a seal. Comparable examples of the awl and the pin types are attested in the region and neighboring regions, and the seal is engraved in Jemdet Nasr style. Elemental composition analysis of the metal objects demonstrate that they were made of copper (Cu) with arsenic (As) content in high enough proportions to indicate intentional alloying. In the light of its archaeological assemblage, we may conclude that this cist grave is dateable to Early Bronze Age I (3200-3000 BC) and it must have belonged to a high-status individual of the local elite.

Anahtar Kelimeler: *Taş Sanduka Mezar, Silindir Mühür, Süs İğneleri, Erken Tunç Çağı, Ninive 5, Cemdet Nasr*

Mardin ili Nusaybin ilçesinde bulunan Açıkköy taş sanduka mezarında Mardin Müzesi tarafından 2015 yılında kurtarma kazısı gerçekleştirilmiştir. Taş sanduka mezarı ve bu mezarda ele geçmiş olan pişmiş toprak ve metal eserler makalenin konusunu oluşturmaktadır. Mezar, mimari ve ölü gömme gelenekleri bakımından Yukarı Dicle Havzası'ndan bilinen diğer taş sanduka mezarlarla ortak özellikler sergiler. Buluntulardan çanak çömlekler Ninive 5 dönemi seramik grubunun çizi-oyma bezemeliler ve basit kaplar grubunu oluşturur. Diğer önemli buluntular arasında ise bız, süs iğneleri ve mühür gelir. Bız ve süs iğnelerinin benzerleri hem yerel kültürde hem de çevre kültür bölgelerinden bilinmektedir. Mühür ise üslup olarak Cemdet Nasr özellikleri taşır. Ayrıca metal eserler üzerinde yapılan arkeometrik analizler neticesinde, bunların yüksek oranda bakırdan (Cu) üretildiği, Cu içeriğinin yanı sıra tüm eserlerde alaşıma bilinçli olarak arsenik (As) katıldığı tespit edilmiştir. Yerel bir elite ait olduğu düşünülen taş sanduka mezar arkeolojik veriler ışığında, Erken Tunç Çağı I'e (MÖ 3200-3000) tarihlenebilir.

Hakeme Gönderilme Tarihi: 28.03.2024, Kabul Tarihi: 07.11.2024

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Introduction

Southeastern Anatolia as a geographical region of the Republic of Türkiye is defined in the north by the crescentic bend of the Anti-Taurus mountains, which constitutes a natural boundary, and in the south by the Turkish-Syrian border that runs east-west across the Syrian plain (Karadoğan, Özgen 2006). The volcanic Karacadağ massif divides "Southeastern Anatolia" topographically into two sectors: the "Middle Euphrates Sector" in the west and the "Tigris Sector" in the east (Sözer 1967: 4-5; Atalay, Mortan 2003: 363, 399; Yılmaz 2003: 5). Mardin lies in the Tigris basin, located in the eastern part of Southeastern Anatolia. Mardin province is bordered by Siirt, Batman, and Diyarbakır provinces to the north, Şanlıurfa to the west, Şırnak to the east, Syria to the south, and Iraq to the south-east, east of the Tigris River; and the province lies in a highland region with its northern skirts descending into the Diyarbakır basin and is southern skirts descending into the Syrian plains. This highland region is known as "the Mardin-Midyat Threshold" (historically Tur Abdin) (Kozbe, Güngör 2022).

Southeastern Anatolia constitutes a strategic transitional zone from the north to the south between the Anti-Taurus range and the Mesopotamian lowlands (Yılmaz 2003: 5). For this reason, the region was inhabited since early prehistory. The socio-political structure that began to emerge in the region the early 3rd millennium BC was essentially a rural system sustained by an agro-pastoralist subsistence basis, as is demonstrated by a settlement pattern that consists of small towns and villages scattered across the plains and along the foothills of the Anatolian highlands. Certain changes are observed in the archaeological record of the early 3rd millennium BC in the region (Sagona, Zimansky 2009: 178). Particularly striking is the reduction in the average site size and an increase in the number of settlements that is observed in this phase. This change in the settlement pattern in the early 3rd millennium BC may also be indicative of a preferred use of trade routes through the Khabur Valley and the Tigris basin, rather than the Euphrates. These lines of evidence suggest that the settled populations spread into the rural areas (Rothman, Fuensanta 2003: 595, 597). In the later stages of the 3rd millennium BC, transformation of the socio-political systems and advances in metallurgy become the hallmarks of the Early Bronze Age III period. In this phase, large urban centers (e.g., Titriş Höyük, Samsat, Lidar, and Kazane) emerged in Southeastern Anatolia, and the region came under the domination of the Akkadian Empire (Sagona, Zimansky 2009: 179). Additionally, in the 3rd millennium BC economic, technological, and social developments in the Syrian and Mesopotamian cultural spheres also influenced the developments in Southeastern Anatolia, resulting in the creation of a cultural interaction sphere in a vast region that extends from the Eastern Anatolian highlands in the north, across southeastern Anatolia, and to northern Syria and the Mesopotamian Plain in the south (Yılmaz 2006: 58).

Many excavation and survey projects have been conducted by Turkish and international teams within the boundaries of the modern Mardin province over the decades,

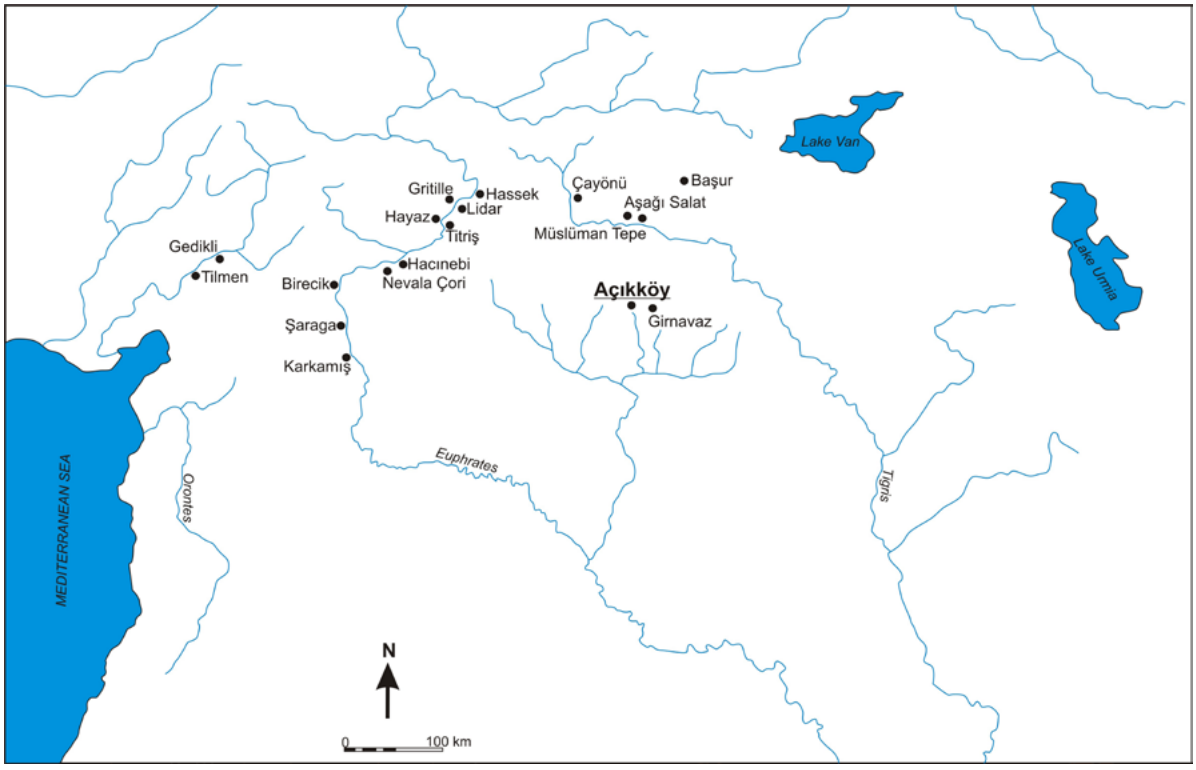

Figure 1. *Map of Southeastern Anatolia showing the location of Açıkköy and Early Bronze Age sites where cist-graves have been found (adapted from Yılmaz 2003, Map 2)*

which have contributed significant archaeological collections to the Mardin Museum. The museum's collections also include unprovenanced artifacts purchased or requisitioned from local individuals and assemblages unearthed by the museum's salvage excavations at archaeological sites threatened by development or illicit excavations. The archaeological finds from the salvage excavations conducted at Açıkköy, which constitute the subject of this study, are part of the museum's collections, and we hope that their analysis and evaluation here will be a valuable contribution to scholarship on the region's archaeological heritage.

Excavation projects in the region have provided (and continue to provide) significant information about burial customs and grave types of the 3rd millennium BC. In the light of these findings, it has been observed that, "the southeastern region had burial customs that changed through time in a broadly linear fashion from the Early Bronze Age Ib to the Early Bronze Age III" (Sagona, Zimansky 2009: 178). The burial record of the region is diverse and includes simple inhumation graves, jar and pithos burials, cist graves, and chamber tombs, which were (as opposed to other burial types) not attested to in Anatolia in earlier periods (Sagona, Zimansky 2009: 179). The stone cist grave unearthed at Açıkköy, evaluated in this study, is significant in this regard, and adds interesting nuances in terms of grave construction and grave finds to the repertoire of cist graves in the region.

Materials and Methods

A stone cist grave discovered by illicit digging activity in Açıkköy village of Nusaybin district in Mardin province and subsequently investigated by archaeological salvage excavations conducted by Mardin Museum in 2015, together with the ceramic and metal objects found in association with this grave constitute the materials of this study. Ceramics found at the grave site include one small jar and one bowl. Metal objects consist of one awl, four ornamental pins, and one cylinder-seal.

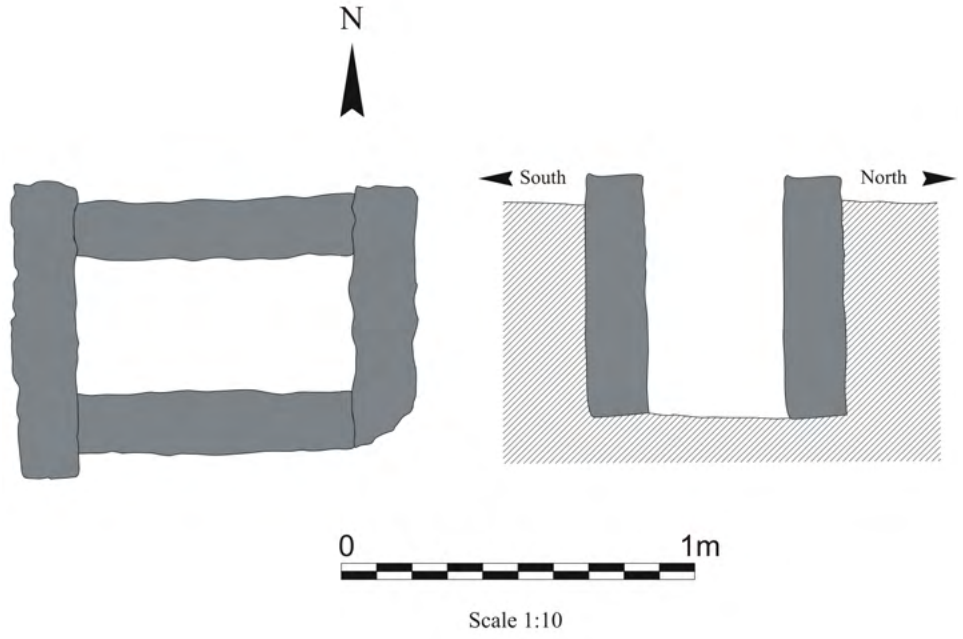

Figure 2. *Açıkköy cist grave, general view*

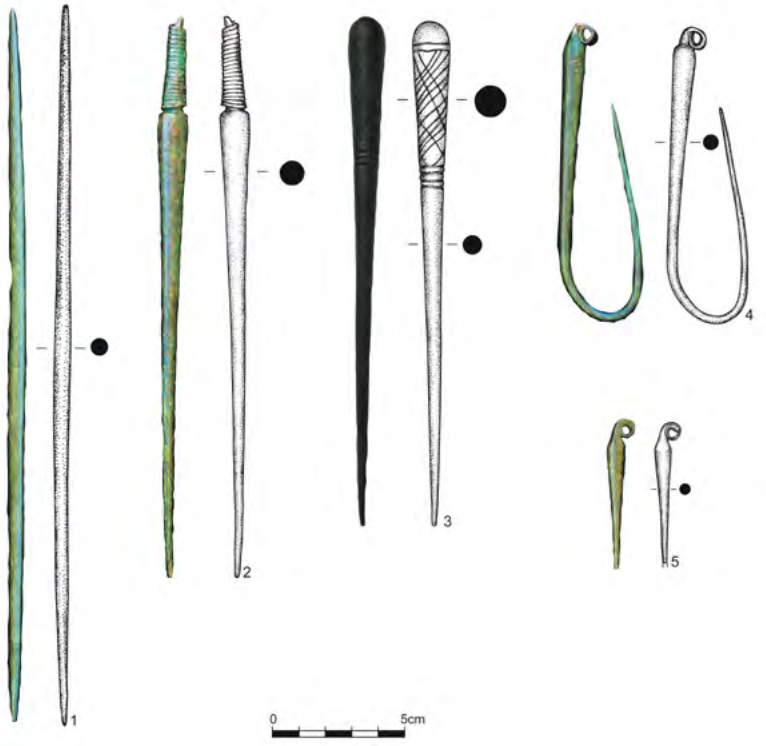

Figure 3. *Metal objects found in the Açıkköy cist grave: (1) awl, Inv. No. 01, (2) pin with coil headed, Inv. No. 02, (3) mace-shaped pin with twist-decorated neck, Inv. No. 03, (4) rolled headed pin with bent stem, Inv. No. 04, (5) rolled headed pin with ribbed neck, Inv. No. 06*

For the archaeological evaluation of material culture finds from the stone-cist grave at Açıkköy, first, the finds were assessed within a regional framework and comparable examples of the objects were identified in the published archaeological record of the region and neighboring regions. Grave construction was also assessed in comparison with other known cist graves in the region. This comparative perspective allowed us to contextualize the grave culturally and draw regional comparisons in terms of burial customs. Additionally, elemental composition analyses were conducted on the finds from the grave utilizing an Olympus (Delta Premium) portable energy-dispersive X-ray florescence (P-EDXRF) spectrometer, which allows for in-situ and non-destructive analysis of archaeological objects. In some cases, P-EDXRF analysis was conducted on multiple spots on the surface of the same object for assessing the reliability of the analysis, for determining the homogeneity of the alloy within the artifact, and for detecting traces of the manufacturing methods, and each analytical reading was assigned an individual sample number (Table 1). X-ray florescence analysis allows us to empirically document which elements are present in what ratios in the make-up of the raw materials that the object was manufactured from. The most important aspect of P-EDXRF spectrometry is that the analytical readings are taken from the surface of the artifacts without having

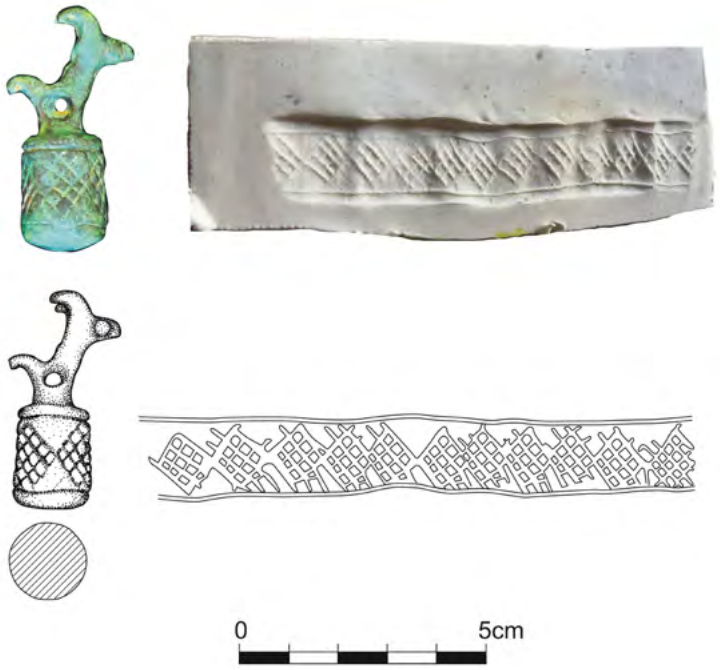

Figure 4. *Seal (Inv. No. 05) found inside the Açıkköy cist grave*

to remove a sample, and the most important aspect of a P-EDXRF analyzer is that it is a compact and portable instrument, which can be brought into museum facilities and excavation projects, and therefore analysis can be conducted in situ without having to relocate the object.

Construction of the Stone Cist Grave at Açıkköy Tepe

The burial record of the Early Bronze Age (EBA) in southeastern Anatolia displays a wide diversity of grave types including simple inhumation graves, jar burials, pithos burials, chamber tombs, shaft graves, cist graves, and urns (Yılmaz 2003: 59-69). In systematic excavations conducted at archaeological sites in southeastern Anatolia, stone cist graves and mudbrick cist graves were found among other grave types at Hassek Höyük (Behm-Blancke 1985: 53, Abb. 7-8; EBA I-II), Gritille (Ellis 1983: 119; EBA I-II), Hayaz (Rodenberg 1981: 94; EBA II-III), Lidar Höyük (Hauptmann 2003: 61; EBA II), Titriş (Laneri 2007: 246; EBA I-III), Hacınebi (Stein *et al.* 1997: 115; EBA I), Nevali Çori (Mısır 1992: 202; EBA I), Gedikli (Yılmaz 2003: 14-16; EBA I-II), Tilmen (Alkım 1962: 455-456, Figs. 28, 30, end of the EBA), Birecik cemetery (Sertok, Ergeç 1999: 90; EBA I-II), Şaraga (Sertok, Kulakoğlu 2002: 110-111; early EBA), and Karkamış (Woolley, Barnett 1952: 218; EBA I-II) located in the Middle Euphrates Sector of the region and at Aşağı Salat (Şenyurt 2002: 447-448, Fig. 8; Akçay 2005: 24-25; EBA I), Başur Höyük (Batıhan 2014: 26-28; 3100-2900 BC), Çayönü (Çambel, Braidwood 1980: 21; early

and mid-EBA; Yılmaz 2024), Müslüman Tepe (Ay *et al*. 2013: 277-279; EBA I-II), and Girnavaz (Erkanal 1991: 282) located in the Tigris Sector of the region (Fig. 1).

For the construction of cist graves, first, an oval or rectangular pit was dug into the earth and the four sides of this pit were aligned with limestone (or less frequently basalt) slabs. There are occasional examples of cist graves, in which only three sides of the pit are aligned by stones. Cist graves generally have a rectangular or less frequently a square floor plan. The floor of a cist grave can be simply a packed-earth floor, or it may be paved with river pebbles, ceramic sherds, mudbricks, or stone slabs. The top is usually covered by a single stone slab or several flat-shaped stones (Ensert 1995: 196-223; Yılmaz 2003: 64; Akçay 2005: 24-25). Generally, adults and multiple individuals are found buried in larger cist graves, while children are buried in small cist graves (Yılmaz 2003: 59-69). In cist graves, the deceased are generally interred in a flexed (*hocker*) position accompanied by grave gifts. In the context of the Bronze Ages in southeastern Anatolia, researchers agree that cist graves would have belonged to individuals and families who were members of the middle and upper social classes (Yılmaz 2003: 64-65).

The stone cist grave that is the subject of this study was discovered by illicit excavations in a fallow field about 100 m east of the outer limit of the Açıkköy neighborhood in the Nusaybin district of modern Mardin province (Fig. 1); and soon after, archaeological salvage excavations were initiated by Mardin Museum at the site. The cist grave is orientated East-West, and it is built of stone slabs that are 1.20 cm long, 50 cm tall, and 10 cm thick. For the construction of the grave, first, a pit was dug directly into the ground. Then, flat limestone slabs were laid laterally aligning the sides of the pit. The edges of the slabs were aligned seamlessly. The top of the grave was covered with several fragments of limestone slabs. The floor of the grave was not paved, meaning that the deceased and the gifts were interred directly on top of the earthen floor. The soil that was excavated out of the grave was very fine-grained, which indicates that this soil deposit is secondary, and it results from the accumulation of the soil that has seeped into the grave through the crevices between the stone slabs over the millennia that it had remained closed. Because the skeletal remains were found disarticulated and scattered inside the grave, it was not possible to identify the deceased's burial position (Fig. 2). It is significant that the Açıkköy stone-cist grave bears close similarities with other known Early Bronze Age cist graves in southeastern Anatolia. Because this grave is not associated with any architectural remains, it is most likely part of an extramural cemetery, as is known in the region in this period. Therefore, if excavations were to be continued in the areas surrounding the Açıkköy stone cist grave, we would expect to find more stone cist graves in this neighborhood.

Grave Finds from the Açıkköy Stone Cist Grave

Material culture finds found in association with the stone cist grave consist of baked-clay and copper-alloy objects deposited as burial gifts. Baked-clay objects associated with the

grave are two ceramic vessels and copper-alloy objects in the grave consist of one awl, four ornamental pins, and one cylinder seal. Skeletal remains in the grave were in a severely disturbed state and therefore it was not possible to establish the original locations of the burial gifts at the time of deposition. Below, we present an evaluation of metal finds followed by an evaluation of ceramic finds.

Metal Finds

Pins made of animal bones and antler are known in the archaeological record beginning with the end of the Palaeolithic. Usually, such pins made of organic materials were not used as ornamental items but as perforating tools. These perforators used for piercing organic materials like leather are called "awl" in archaeology (Tekin 2018: 119). Beginning with advances in metalworking in the Bronze Ages, awls were made of metals, as well. A

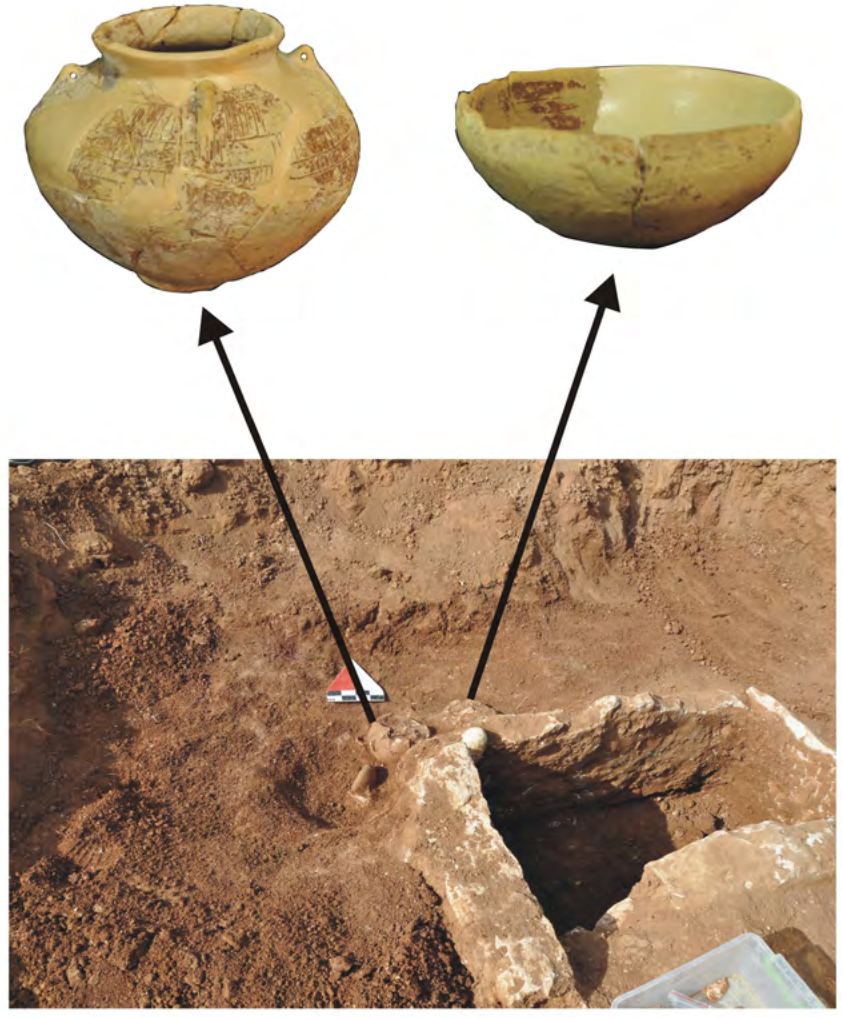

Figure 5. *In-situ excavation view of ceramic vessels found outside the Açıkköy cist grave, adjacent to its*

metal awl was found in the stone cist grave at Açıkköy (Fig. 3.1). The awl (Inv. No. 1) is made of a copper alloy, and it is 25 cm long. It is shaped as a long cylinder that tapers to a pointed tip on both ends.

Four ornamental pins with varying head forms were found close to the floor surface of the stone cist grave. The first pin is a coil headed pin (Inv. No. 02). The pin is 20.5 cm long, and its neck is decorated with a diagonally twisted coil, in which twenty turns can be counted (Fig. 3.2). The second pin (Inv. No. 03) is a mace-shaped pin, but the head of the pin is decorated with incisions as if to resemble a coil headed pin. The pin is 18 cm long. Its neck is decorated with linear incisions cross-cutting each other diagonally, creating a twisting pattern, and there are three horizontal ridges just below the twist (Fig. 3.3). The remaining two pins in the grave are rolled headed pins (Inv. No. 04 and Inv. No. 06). The first rolled headed pin is 5.0 cm long (Fig. 3.4) and the second is 10.5 cm long (Fig. 3.5). In both specimens, the head is simple and consists of a single fold. The stem of the pin with Inv. No. 06 is bent (Fig. 3.4), and this shape does not appear to be a result of post-depositional damage. Therefore, the bent shape must have been intended and most likely related with usage. In all the ornamental pins found in the grave, the stem is cylindrical, the tip is pointed, and the stem tapers narrowing down from the head towards the tip.

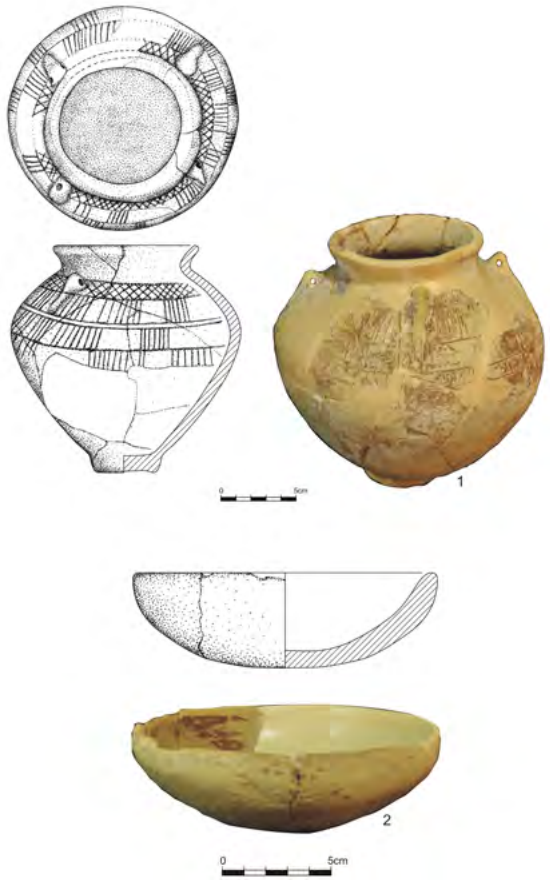

Figure 6. *Ceramic vessels from the Açıkköy cist grave site*

Close parallels of the coiled headed pin (Inv. No. 02; Fig. 3.2) in the Açıkköy cist stone grave are known from grave M-38/5 at Aşağı Salat mound (Akçay 2005: 52, pl. 73/5, Pl. 74/5) and burial 2 at Siirt/Başur Höyük (Sağlamtimur, Massimino 2018: 332, 341, Fig. 7), both of which are dated to Early Bronze Age I. No closely comparable example was encountered in the published sources for the mace-shaped pin (Inv. No. 03; Fig. 3.3). Nevertheless, this pin can be considered to belong to the same type as a similarly shaped pin found at Norşuntepe (Palumbi 2008: 251, Fig. 6.26:3) and another one found in burial

3 at Başur Höyük (Batıhan 2014: 69, Pl. 21), both dated to the Early Bronze Age I. As for the remaining two pins in the grave, which are rolled headed pins, they belong to a pin type that was in use in the region for a long time from the Early Bronze Age to the Roman Empire period. Rolled headed pins found in Anatolia, northern Iraq, northern Syria, Iran, Lebanon, and the Caucasus usually have a pointed tip and a cylindrical stem that has an even diameter throughout its entire length (Klein 1990). The stem of the rolled headed pins from the Açıkköy cist grave, however, is wider at the top and tapers down narrowing towards the tip. In Anatolia, this ornamental pin type is known from grave M-40 at Aşağı Salat Höyük (Akçay 2005: Pl. 18/1-3, Pl. 78/5, Pl. 79/5) and burial 2 at Siirt/Başur Höyük (Batıhan 2014: 71, Pl. 23), and in Iraq, similar pins were found at Tell Mohammed Arab (Bolt, Green 2003: Fig. 21.13). All these contexts are dated to Early Bronze Age I.

The last metal object among the grave goods in the Açıkköy cist grave is a copper-alloy seal, which can be considered as a status marker and an individually owned object (Fig. 4). The seal (Inv. No. 05) has a stout cylindrical body and a prominent handle. The handle is shaped as a mountain goat and has a string hole. The lateral impression surface of the cylindrical body is bordered at the top and the bottom by a single, continuous, horizontal groove. The area bordered by these grooves is decorated with diagonal cross-hatchings that create a fish-net pattern. Such cylinder seals with an animal figure appliqued at the top are known from Early Bronze Age I burials at Başur Höyük. At Başur Höyük, the repertoire of animals seen on the seals include bird, goat, and bull. The cylindrical body of these seals are decorated with compositions made up of human figures, animal figures, hybrid creatures, and geometric patterns. The site's excavators have observed that in the Başur Höyük assemblage, especially the seals with geometric motifs are similar in style to Jemdet Nasr glyptic, while the seals bearing figurative compositions of humans, animals, and hybrid creatures appear to constitute a local glyptic style (Sağlamtimur 2017: 6, 16, Fig. 15; Sağlamtimur *et al.* 2019: 206-207, Fig. 2/g-I). According to Sağlamtimur, "when compared with the number of deceased individuals interred in the grave, the number of cylinder seals in the grave appears too high to have been personal objects owned by the interred individuals, and therefore, it is not yet clear whether these objects were used as individual seals, prestige objects, or ceremonial objects; however, considering the diversity and uniqueness of figurative and geometric motifs on them, it is likely that they were designed to serve a specific function" (Sağlamtimur 2017: 6, 16, Fig. 15). In addition to Tigris basin sites, this type of seal is known from settlements in the Euphrates basin. In fact, at Arslantepe, a seal/pendant (?) with a zoomorphic handle was found together with other small finds inside a niche in the fortification wall (Di Nocera 2013: 127, Fig 10.1). Likewise, at Hassek Höyük, in pithos grave 670, dated to Early Bronze Age I, a cylinder seal with a handle in the form of a mountain goat was found (Dede 2014: Pl. 45.1). Additionally, a similar seal was found in the Early Bronze Age Birecik cemetery (Sertok, Ergeç 1999: 93, Fig. 9/H). The zoomorphic handle of the seal found in the Açıkköy stone

cist grave renders this specimen comparable to the examples known from Başur Höyük, Hassek Höyük, Birecik Cemetery and Arslantepe. Also, important to note is that the fish-net pattern on the impression surface of the seal from the Açıkköy grave is reminiscent of seals engraved in the Jemdet Nasr style of this period (Teissier 1984: 121; Moller 1992: Pl. 41).

Ceramic Finds

Ceramic finds from Açıkköy stone cist grave are fewer than the metal finds. The two ceramic vessels from the salvage excavations at the site were found deposited carefully next to each other just outside the northwestern corner of the grave (Fig. 5). The first ceramic vessel is a small jar that is 17 cm tall and has a rim diameter of 11.5 cm. The jar has a simple everted rim, a short neck, a globular body, a ring-base, and four equidistant, horizontally perforated string-hole lugs placed on the shoulder. The shoulder of the jar is divided by parallel lines into three decorative bands. The upper band is filled in with diagonal cross-hatched incisions and the second and the third bands are filled in with groups of six parallel, vertical incisions (Fig. 6.1). The vertical and horizontal lines are very regular and perfectly parallel, indicating that they were probably incised with a tool while the vessel was turning on the potter's wheel. The decoration style is representative of the incised-excised ware. The second vessel is a plain bowl in simple ware. The bowl is 4.5 cm high, and its rim diameter is 14 cm (Fig. 6.2). The bowl has a simple rim, simple profile with a gently curve, and a flat base. In both ceramic vessels, the fabric has sand and some chalk inclusions, and the paste is well-levigated. The surface of both vessels is wet-smoothed but not burnished. The fabric is light brown, and the vessels are slipped in a light reddish slip.

Paint-decorated jars like the jar found outside the Açıkköy cist grave have been found at Early Bronze Age settlements in southeastern Anatolia, northern Iraq, and northeastern Syria. In terms of its form, the closest parallels of the jar are known from Chagar Bazar and Tell Braq in northern Syria (Rova 1988: 223, C7). In terms of surface decoration, the closest parallels are found at Girnavaz (Uysal 1998: Şek. 10/a-b) in southeastern Anatolia, Nineveh (Rova 1988: 253, decoration no. 8) in northern Iraq, and Chagar Bazar (Mallowan 1936: Fig. 19/1) in northern Syria. Bowls like the bowl found at Açıkköy, which belongs to a different ware, are known from Girnavaz (Uysal 1998: Lev.14/6) in southeastern Anatolia and from Tell Leilan (Calderone, Weiss 2003: 214-215, Fig. 9/1-2) in Syria. Based on a comparative analysis of the pottery ware/decoration style and the typology of the associated metal artifacts with analogous material culture assemblages from other excavated contexts, it can be stated that these pottery vessels belong to the earliest phase of the Ninevite 5 horizon. Accordingly, findings at Açıkköy corroborates with further evidence that the Tigris sector of southeastern Anatolia lies within the influence area of the Ninevite 5 pottery horizon.

Archaeometric Analysis and Evaluation

For the P-EDXRF analysis of the metal and ceramic finds from the stone cist grave at Açıkköy, the following procedures were carried out:

- Surfaces of the objects were examined for dirt and contaminants.
- Dusty surfaces were cleaned mechanically using a soft brush.
- Considering the existence of contaminants that cannot be eliminated by mechanical cleaning of metals, a silicate filter was applied to the analyzer for minimizing the interference of the soil contaminants with the results.
- The spectrometer was set at an appropriate analysis time (in seconds) and the mode was set to Alloy Plus (for metal alloys) and Geochem (for elemental composition) and analyses were conducted by holding the P-EDXRF spectrometer over the analyzed object or by placing the object on top of the spectrometer.
- Utmost caution was taken to hold the objects stable for the entire duration of the analysis to ensure reliable results.
- Analytical results were recorded as they appear on the screen of the spectrometer at the end of each analysis in % and PPM.
- Facilitated by compatible software, the results recorded on the P-EDXRF instrument were transferred to the computer for statistical evaluation.

P-EDXRF analysis results from the six metal objects have helped us identify the main elements and the minor elements in the alloys. Accordingly, the results show that the objects with Inv. No. 01, 02, 03, and 04 were made from an alloy of two main elements: copper (Cu) and arsenic (As). The mean percentage of copper (Cu) content in the six analyzed objects is 93.49% and the mean for arsenic (As) is 4.38% (Table 1). A high iron (Fe) content (2.51%) was detected by the analysis of the awl (Inv. No. 1), which is exogenous and can be explained as surface contamination from a soil matrix with high iron content. Results show that the seal with Inv. No. 05, is distinct from the other analyzed objects, as it is made from a copper (Cu) and lead (Pb) alloy. And finally, the pin with Inv. No. 06 has a very high Cu content and a very low ratio of iron (Fe). When evaluated cumulatively, the results presented in Table 1 and figure 1 show that the main element used for producing all six metal objects in the grave is copper (Cu). Prehistoric metalsmiths alloyed copper with arsenic (As) to add strength to the objects. Lead (Pb), on the other hand, was added to the alloy (in the case of object Inv. No. 5) to decrease the melting temperature and to increase the viscosity of the molten metal. The minor elements detected in trace amounts by the P-EDXRF analyzer were silicium (Si) and phosphorus (P), which are surface contaminants from the soil matrix, and trace amounts of lead (Pb), which is residual from the natural lead content present in the copper ore.

At contemporaneous Başur Höyük, similarly, spearheads, ornamental pins, seals

and other metal objects were also made of copper alloyed with arsenic (As) for strength (Öztoprak 2019: 22-37); however, these artifacts are registered as "made of bronze" in the Mardin Museum inventory records. As can be seen in Table 1, copper (Cu) content in the analyzed artifacts from Açıkköy is very high. In studies on ancient metallurgy, the scientific consensus for identifying an alloyed metal object as bronze requires the alloy to contain a certain ratio of tin (Sn). However, no tin (Sn) content was detected in these objects by P-EDXRF analysis. In fact, analyzed metal objects from Başur Höyük excavations do not contain tin (Sn), either (Öztoprak 2019: 22-37).

P-EDXRF analysis results presented in Table 1 and in figure 7 show that the element represented with the highest percentage in all metal artifacts is Cu; that is, the main element that these artifacts are made of copper. The object with the highest ratio of Cu (96.71%) is the pin with Inv. No. 06, and even the copper content in the object with the lowest ratio of Cu (Inv. No. 01) is still as high as 91.60%. The statistical mean of the copper content in all analyzed objects is 93.49% (Table 1).

The element with the second highest ratio detected in the objects analyzed by the P-EDXRF spectrometer is arsenic (As, see in Table 1 and Fig. 7). The highest (6.24%) arsenic (As) content is detected in the pin with Inv. No. 03, the lowest (0.92%) arsenic content is attested to in the pin with Inv. No. 06, and the statistical mean of arsenic content in the analyzed objects is 4.38%.

The third element found in relatively high ratios by P-EDXRF analysis is iron (Fe, see in Table 1 and Fig. 7). The highest iron (Fe) ratio (2.51%) is detected in the awl with Inv. No. 01, the lowest (0.43%) in the pin with Inv. No. 04, and the statistical mean of iron content in all analyzed objects is 1.06%.

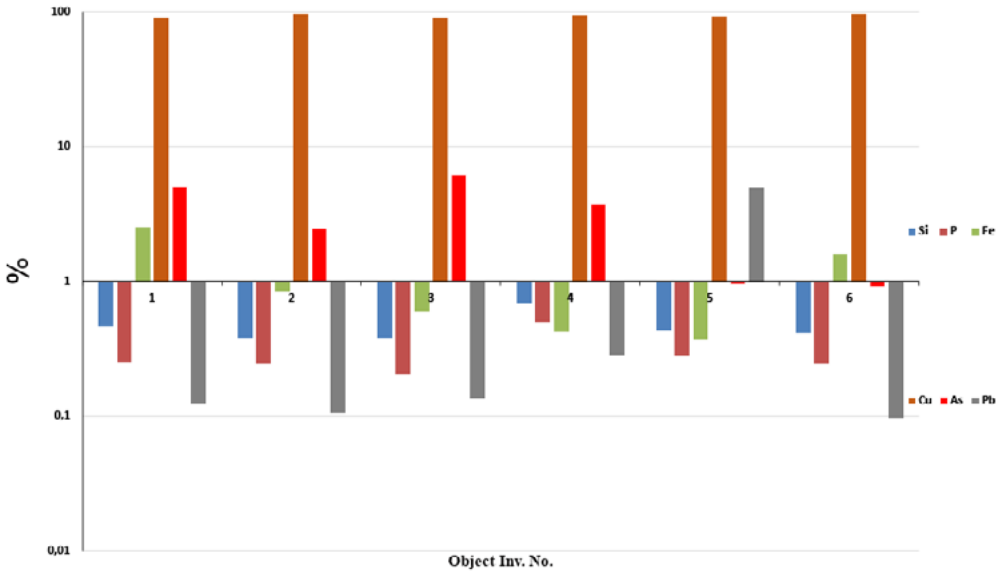

Figure 7. *Elemental ratios (%) of Cu, Si, P, Fe, As, and Pb in the analyzed metal artifacts*

The two ceramic vessels found at the grave site constitute the second group of objects analyzed in this study. P-EDXRF analyses were conducted on the red-colored and light-colored areas on the surfaces of the two vessels (Table 2). The objective of the analysis was to distinguish whether a special slip or a mineral pigment was added to the ceramic paste to attain the red color of the slip by comparing the plain and the red surface areas. However, there were no significant differences between the chemical compositions of the light-colored and red-colored areas. Analyses were conducted in Geochem and Alloy Plus modes, but neither showed the presence of an element that would act as a pigment in the slip. These analytical results corroborated the observation (see above) that the red surface color of the ceramic vessels is a result of the firing technique.

Sampled Object	Si	P	Fe	Cu	As	Pb
Inv. No. 01 (awl)	0.46	0.25	2.51	91.60	5.06	0.12
Inv. No. 02 (pin)	0.38	0.24	0.85	95.93	2.48	0.11
Inv. No. 03 (pin)	0.38	0.21	0.59	92.07	6.24	0.13
Inv. No. 04 (pin)	0.69	0.49	0.42	94.35	3.75	0.28
Inv. No. 05 (seal)	0.43	0.28	0.37	92.95	0.96	5.00
Inv. No. 06 (pin)	0.42	0.25	1.61	96.71	0.92	0.09

Table 1. *Results of elemental composition analysis by P-EDXRF*

Analysis Mode	Sample Number	Locus of Analysis	Mg	Al	**Si**	**S**	**Ca**	**Fe**
Geochem	S.2	exterior, calcified surface	3.23	5.90	**17.35**	**3.52**	**13.77**	**6.55**
Geochem	S.2	interior, red, plain surface	1.62	6.26	**15.30**	**4.78**	**17.01**	**5.34**
Geochem	S.2	exterior, red, plain surface	2.75	8.44	**18.29**	**1.63**	**14.04**	**5.75**
Geochem	S.1	exterior, red, decorated surface	1.61	6.55	**13.06**	**6.20**	**14.96**	**4.87**
Geochem	S.1	exterior, red, decorated surface	ND	4.45	**8.59**	**7.91**	**15.31**	**4.65**
Alloy Plus	S.1	exterior, red, decorated surface	ND	12.01	**18.09**	**45.60**	ND	**21.22**
Geochem	S.1	exterior, light-colored, decorated surface	2.36	4.09	**10.63**	**7.20**	**16.23**	**5.88**
Alloy Plus	S.1	exterior, light-colored, decorated surface	ND	10.91	**22.26**	**45.10**	ND	**19.28**

Table 2. *Results of P-EDXRF analysis of the fabric and the painted surfaces of ceramic sherds (ND: Not Detected)*

Conclusions

The location and the construction of the Açıkköy stone cist grave indicate that it was an extramural burial. While there are intramural stone cist graves at excavated settlement sites in the Tigris basin, there is also a strong tradition of extramural burials in south eastern Anatolia, as is once more exemplified by this recently discovered grave at Açıkköy. The Açıkköy stone cist grave is similar to the graves known from contemporaneous sites in the region in terms of construction method, structural form, and building materials. Grave finds consist of two ceramic vessels and four ornamental pins, one awl, and one cylinder seal made of copper-alloys. The two vessels were not deposited inside the grave but placed side-by-side outside the northwestern corner of the stone cist. These vessels may have been associated with the funerary feast and/or they may have been containing offerings. Leaving ceramic vessels for food offerings outside the grave seems to be a custom unique to Açıkköy amongst known sites in the Tigris basin.

Metal awls, ornamental pins and seals similar in raw material and typological form to the metal awls, pins and seals found in the Açıkköy tomb are known from the archaeological records of the Tigris basin and neighboring regions. Results of archaeometric analyses on these metal objects have shown that they were made of copper (Cu), represented in very high ratios, alloyed with arsenic (As). Unfortunately, due to the disturbed state of the grave, the original positions of these objects and their usage inside the grave could not be determined. It is possible, however, to evaluate the functions of the objects interred in the Açıkköy grave in the light of similar finds from sites in the Tigris basin and neighboring regions. Accordingly, the awl must have been used as a perforator for organic materials like leather; the ornamental pins would have been used as accessories for garments or for hair, and the seal with the animal-shaped handle may be regarded as a pendant or an item of personal significance rather than an administrative tool. In fact, the lack of other seals in the context strengthens this view regarding the personal significance of this object.

As a result of long-distance trade relations, the influence of the Uruk culture of southern Mesopotamia began to spread to neighboring regions in the mid-4th millennium BC. This cultural interaction is observable in the archaeological record of Elazığ-Malatya region and along the Tigris River in northern Iraq and the upper Tigris basin in Türkiye. After the dissolution of this trade system in the late 4th millennium BC, societies were restructured, and local cultures gained prominence in neighboring regions. This new social system that began to emerge in the early 3rd millennium BC led to the rise of a new local elite class, and inter-regional relations with neighboring cultures became important again, as it was the case in the mid-4th millennium BC (Sağlamtimur 2017, 7). The Early Ninevite 5 ceramics, the Jemdet Nasr style cylinder-seal, the awl and the ornamental pin types found at the Açıkköy stone cist grave, as well as the raw materials utilized in their production corroborate with evidence from other sites, which indicates that communities

inhabiting the upper Tigris River basin were in contact with neighboring regions, while maintaining their local character.

Considering that the Açıkköy stone cist grave contains the interment of a single individual only, the wealth and abundance of the grave gifts and grave offerings appear striking, and especially the presence of the seal indicates that the grave finds are associated with the high status of the individual rather than being the remnants of a funerary rite. These observations strongly suggest that the grave must have belonged to a local individual of elite status. While the high social status of the deceased is unquestionable, it is not possible to know whether they belonged to a political, military, or religious elite. Finally, in the light of comparable grave structures and grave finds from the region and neighboring regions, as discussed above, the Açıkköy stone cist grave can be dated to Early Bronze Age I (3200-3000 BC).

Acknowledgements

We thank Abdülgani TARKAN, Director of Mardin Museum, and Archaeologist Süleyman BAYAR, Assistant Director of Mardin Museum, for granting us permission to study, analyze, and publish the material culture remains unearthed by the salvage excavations they have conducted at Açıkköy, and we thank all museum staff for their kind assistance during our research at the museum. We also extend our gratitude to Prof. Ayşe Tuba ÖKSE and Prof. Gülriz KOZBE for sharing with us their expert opinion and suggestions about the evaluated ceramics, Burhan GÜLKAN for illustrating the finds discussed in this study, and Dr. Gökçe Bike YAZICIOĞLU for providing editorial assistance with the English translation and proofreading of this article.

Bibliography

Akçay, A. 2005
Aşağı Salat Höyüğü Erken Tunç I Mezarlığı'nın Kuzey Mezopotamya'daki Yeri ve Önemi. Gazi University, Department of Archeology (Unpublished Master's Thesis), Ankara.

Algaze, G., Breuninger, R., Lightfoot, C., Rosenberg, M. 1991
The Tigris-Euphrates Archaeological Reconnaissance Project: A Preliminary Report of the 1989-1990 Seasons. *Anatolica* XVII: 175-240.

Alkım, U. B. 1962
Tilmen Höyük Çalışmaları (1958-1960). *Belleten* XXVI: 447-715.

Atalay, İ., Mortan, K. 2003
Türkiye Bölgesel Coğrafyası. İnkılap Kitabevi, Istanbul.

Ay, E. 1993
Mardin Bölgesi Zergan Çayı *ve* Çevresi *Arkeolojik Değerlendirilmesi*. Hacettepe University, Department of Archeology (Unpublished Master's Thesis), Ankara.

- 1999
Yukarı Habur Bölgesi İki *Cırcıp Vadisi ve* Çevresinin *Arkeolojik Araştırması*. Hacettepe University, Department of Archeology (Unpublished Ph.D. diss.), Ankara.

Ay, E., Ay, A., Tarhan, M. Ç. 2013
Müslümantepe Kazıları 2005-2008. *Ilısu Barajı ve HES Projesi Arkeolojik Kazıları 2004-2008* Çalışmaları. Kültür ve Turizm Bakanlığı, Ankara: 273-302.

Batıhan, M. 2014
Başur Höyük Eski Tunç Çağı *Mezarları ve Buluntuları.* Ankara Üniversity, Social Sciences Institute, Department of Archeology, (Unpublished Master's Thesis), Ankara.

Behm-Blancke, M. R. 1985
Hassek Höyük. Vorläufiger Bericht über die Grabungen in den Jahren 1981-1983. *Istanbuler Mitteilungen* 34: 31-417.

Bolt, D. G., Green., A. 2003
The Burial of Dead. *The Origins of North Mesopotamian Civilization: Ninevite 5 Chronlogy, Economy, Society* (Subartu, Band 9). E. Rova, H. Weiss (eds.), Brepols Publishers: 519-547.

Calderone, L., Weiss, H. 2003
The End of the Ninevite 5 Period at Tell Leilan. *Subartu* IX: 193-220.

Çambel, H., Braidwood, R. 1980
Güneydoğu Anadolu Tarih Öncesi *Araştırmaları*. İstanbul Üniversitesi Edebiyat Fakültesi Yayınları, Istanbul.

Dede, M. G. 2014
Anadolu'da Bulunmuş Eski Tunç Çağı'na *Ait Silindir ve Damga Mühürler*. Ankara University, Department of Archeology (Unpublished Master's Thesis), Ankara.

Di Nocera, M. G. 2013
Organization of Production and Social Role of Metallurgy in the Prehistoric Sequence of Arslantepe (Turkey). *ORIGINI* 35: 111-142.

Ellis, R. S. 1983
The Gritille Project. *V. Kazı Sonuçları Toplantısı*: 117-123.

Ensert, H. K. 1995
Erken Tunç Çağı *Güneydoğu Anadolu ve Kuzey Suriye Bölgesi* Ölü *Gömme Gelenekleri Işığında Oylum Höyük Mezarları*. Ankara University, Social Sciences Institute, Department of Archeology (Unpublished Ph.D. diss.), Ankara.

Erkanal, A., Erkanal, H. 1989
Archaeologisher Überblich über die Provinz Mardin. *Studies in Honor of Tahsin* Özgüç, K. Emre,B., Hrouda, M. Mellink,, N. Özgüç (eds), Türk Tarih Kurumu, Ankara: 129-135.

Erkanal, H. 1991
1989 Girnavaz Kazıları. *XII. Kazı Sonuçları Toplantısı* 1: 277-293.

Genç, B., MacGinnis, J. 2022
A text of Shalmaneser I from Üçtepe and the Location of Šinamu. *Anatolian Studies* 72: 79-95.

Hauptmann, H. 2003
Lidar Höyük. *Arkeo Atlas* 2: 61.

Karadoğan, S., Özgen, N. 2006
Güneydoğu Anadolu Bölgesinde Tarımsal Üretimin Niteliği, Değişimi ve Dağılışının CBS Ortamında Analizi. *4. Coğrafi Bilgi Sistemleri Bilişim Günleri (13-16 Eylül)*: 1-9.

Klein, H. 1990
Untersuchung zur Typologie bronzezeitlicher Nadeln in Mesopotamien und Syrien. Schriften zur Vorderasiatischen Archäologie Herausgegeben von Winfried Orthmann Band 4. Saarbrücker Druckerei und Verlag, Saarbrücken.

Kodaş, E. 2022
Mardin İli Derik, Mazıdağı ve Savur İlçeleri 2020 Yılı Yüzey Araştırması Tarihöncesi Dönem Buluntuları: İlk Gözlemler. *Artuklu* İnsan *ve Toplum Bilim Dergisi* 7(2): 99-117.

Kozbe, G., Güngör, A. 2022
Mardin İli *Kültür Envanteri Artuklu-Ömerli Cilt 1*. Lasera Reklam Ajansı, Konya.

Köroğlu, K. 1998
Üçtepe *I-Yeni Kazı ve Yüzey Bulguları Isığında Diyarbakır*-Üçtepe *ve* Çevresinin *Yeni Assur Dönemi Tarihi* Çoğrafyası. Türk Tarih Kurumu Basımevi, Ankara.

Laneri, N. 2007
Burial Practices at Titriş Höyük: An Interpretation. *Journal of Near Eastern Studies* 66(4): 241-266.

Mallowan, M. E. L. 1936
The Excavations at Tall Chagar Bazar and an Archaeological Survey of the Habur Region, 1934-35. *Iraq* 3, 1-86.

Mısır, A. 1992
1990 Yılı Şanlıurfa Nevali Çori Kazısı. *2. Müze Kurtarma Kazıları Sempozyumu*: 201-209.

Moller, E. 1992
Ancient Near Eastern Seals in a Danish Collection. Museum Tusculanum Press, Copenhagen.

Ökse, T., A., Atay, E., Eroğlu, M.,Tan, Y. 2009
Ilısu Barajı İnşaat Sahasına Rastlayan Dicle Vadisinin Tunç ve Demir Çağları'ndaki Yerleşim Sistemleri ve Kültür Tarihi. *TÜBA-AR* 12: 25-48.

Özgüç, T. 1948
Ön *Tarih'te Anadolu'da* Ölü *Gömme Adetleri*. Türk Tarih Kurumu Yayınları, Ankara.

Öztoprak, H. 2019
Siirt Başur Höyük Kazısında Ele Geçen Bazı Metal Eserlerin Arkeometrik Karakterizasyonu." Master's thesis, Batman Üniversity.

Palumbi, G. 2008
The Red and Black Social and Cultural Interaction Between the Upper Euphrates and the Southern Caucasus Communities in the Fourth and Third Millenium BC. Studi di Preistoria Orientale (SPO) Volume 2. Rome.

Rodenberg, J. J. 1981
Hayaz Höyük Kazısının İlk Sonuçları. *III. Kazı Sonuçları Toplantısı*: 93-94.

Rothman, M. S., Fuensanta, J. G. 2003
The Archaeology of the Early Bronze I and II Periods in Southeastern Turkey and North Syria. M. Özdoğan, H. Hauptmann, N. Başgelen (eds), *From Villages to Cities: Early Villages in the Near East. Studies Presented to Ufuk Esin.* Arkeoloji ve Sanat Yayınları, İstanbul.

Rova, E. 1988
Distribution and Chronology of Nineveh 5 Pottery and Its Culture. Contributi e Materiali di Archeologia Orientale 2, Rome.

Sagona, A., Zimansky, P. 2009
Ancient Turkey. Routledge, New York.

Sağlamtimur, H. 2017
Siirt-Başur Höyük Erken Tunç Çağ I Mezarları Ön Rapor. *Arkeoloji Dergisi* XXII: 1-14.

Sağlamtimur, H., Massimino G. M. M. 2018
Wealth Sacrifice and Legitimacy: The Case of the Early Bronze Age Başur Höyük Cemetery (South-eastern Turkey. *Proceedings of the 10th International Congress on the Archaeology of the Ancient Near East Volume 1*, B. Horejs, C. Schwall, V. Müller, M. Luciani, M. Ritter, M. Giudetti, R. B. Salisbury, F. H. Mayer, and T. Bürge (eds.), Harrassowitz Verlag, Wieabaden: 329-342.

Sağlamtimur, H., Batıhan, M., Aydoğan, İ. 2019
Başur Höyük & Arslantepe: The Role of Metal Wealth in Funerary Customs at the Beginning of the Early Bronze Age. *I. Internatıonal Archaeology Symposıum Proceedıngs 4-6 Ekim 2018 / 4-6 October 2018*, N. Durak, M. Frangipane (eds.), Inönü University Press, Malatya: 203-215.

Sertok, K., Ergeç, R. 1999
A New Early Bronze Age Cemetery: Excavations Near the Birecik Dam, SoutheasternTurkey. Preliminary Report (1997-98). *Anatolica* XXV: 87-107.

Sertok, K., Kulakoğlu, F. 2002
Şaraga Höyük 1999-2000 Kazıları Sonuçları. *XXIII. Kazı Sonuçları Toplantısı*: 107-122.

Sözer, A. N. 1967
Güneydoğu Anadolu'nun Zirai Coğrafyası. Atatürk University, Erzurum.

Stein, G. J., Boden, K., Edens, C., Edens, P. J., Keith, K., McMahon, A., Özbal, H. 1997
Excavation at Hacınebi Turkey-1996: Preliminary Report. *Anatolica* XIII: 111-170.

Şenyurt, Y. S. 2002
Ilısu-Barajı Aşağı Salat Kazısı. *23. Kazı Sonuçları Toplantısı* 2: 445-453.

Teissier, B. 1984
Ancient Near Eastern Cylinder Seals from the Marcopoli Collection. University of California Press, Berkeley.

Tekin, H. 2018
Madeni Eser Tipolojisi. Bilgin Kültür Sanat Yayınları, Ankara.

Uhri, A. 2010
Anadolu'da Ölümün *Tarihöncesi: Bir Geleneğin Oluşum Süreçleri*. Sakin Kitap, Istanbul.

Uysal, B. 1998
Girnavaz Kazılarının Işığı Altında Anadolu'da Ninive V Seramiği. Hacettepe University. Social Sciences Institute, Department of Archeology (Unpublished Ph.D. diss.), Ankara.

Woolley, C. L., Barnett, R. D. 1952
Carchemish Part III: The Excavations in the Inner Town. The British Museum, London.

Yılmaz, C. 2024
Çayönü *Tepesi İlk Tunç* Çağ Çanak Çömleği. Çanakkale Onsekiz Mart University, Social Sciences Institute, Department of Archeology (Unpublished Master's Thesis), Çanakkale.

Yılmaz, D. 2003
MÖ III. Binde Güneydoğu Anadolu Bölgesinde Ölü *Gömme Adetleri*. Ankara University, Social Sciences Institute, Department of Archeology (Unpublished Master's Thesis), Ankara.

- 2006
Erken Tunç Çağı'nda Güneydoğu Anadolu'da Oda Mezar Geleneği. *Anadolu/Anatolia* 31: 57-69.