

[Search Antiquity \(https://www.cambridge.org/core/journals/antiquity\)](https://www.cambridge.org/core/journals/antiquity) [Subscribe \(https://www.cambridge.org/core/journals/antiquity/subscribe\)](https://www.cambridge.org/core/journals/antiquity/subscribe)

[Submit a Paper \(/submit-paper\)](/submit-paper) [Contact \(/contact\)](/contact)

A REVIEW OF WORLD ARCHAEOLOGY

/)

[HOME \(/\)](#)

[ABOUT \(/ABOUT\)](/ABOUT)

[LATEST ISSUE \(/LATEST\)](/LATEST)

[ANTIQUITY OPEN \(/OPEN\)](/OPEN)

[ALL ISSUES \(/ISSUES\)](/ISSUES)

News from the Hatti Heartland - The Early Bronze Age Necropoleis of Kalinkaya, Resuloğlu, and Anatolian Metalworking Advances in the late 3rd Millennium BC

Tayfun Yildirim and Thomas Zimmermann

Since the late Tahsin Özgüç's pioneering study on this subject (Özgüç 1948), much data has been added on Anatolian Chalcolithic and Early Bronze Age burials, mainly in western and southeast Turkey (Wheeler 1974; Laneri 1999; Sertok & Ergeç 1999; Erkanal & Özkan 1999; Seeher 2001). However, analysis of their features and reports on the larger cemeteries have rarely focussed on pathology and social structure of

Article details

First published in:

Issue 309, Volume
80
September 2006

Other Project Gallery articles from this issue:

The beginnings of salt extraction in Europe (sixth millennium BC): The salt spring of Moriez (Alpes-de-Haute-Provence, France) (</projgall/morin309>)



(/projgall/zimmerman309/images/figure1-large.jpg)

Figure 1. Location of Resuloğlu and Kalinkaya.

Click to enlarge.

current Anatolian prehistoric communities (cf. Seeher 2000). Current excavations of a necropolis at Resuloğlu and the analysis of earlier research at the Kalinkaya cemetery, both in Central Anatolia's Çorum district, are together taking new approaches to the social and cultural structure of northern Central Anatolia, the 'Land of Hatti', before the Hittite impact of the early 2nd millennium BC.

The modern village of Kalinkaya is located c.3 km northeast of Alaca Höyük (Figure 1).

Geographically situated on the northern fringes of the Central Anatolian plateau, at c.1 300 masl, the immediate vicinity is characterised by limestone outcrops and wadis cutting deep into the hills slopes, their arable soil today eroded but providing

rich farmland in the Anatolian Early Bronze Age. After reports in 1971 that prehistoric burials in Kalinkaya's Toptaştepe area were being systematically looted, the Museum of Anatolian Civilisations (Ankara) and its director R. Temizer carried out two rescue seasons here (1971 & 1973). The lower southern area of the Toptaştepe mound produced an EBA graveyard immediately overlying Chalcolithic deposits that followed the naturally sloping mound's surface. Three different types of burials coexisted here: simple earth graves, cist graves and pithos graves, with the richest inventories belonging to either women or children (infans I/ II). All were found in the same area, with no signs of specific spaces reserved for a specific burial type. Their even horizontal distribution in the same stratigraphic horizon and the funerary assemblage testifies to a limited chronological range in the (late) Early Bronze Age period (2,300-2,250-2000/1,950 BC) (Zimmermann 2006).

Together with pottery and a rich variety in stone beads, grave goods included a large number of metal objects: stabbing weapons, tools and ritual equipment (Figure 2). Animal statues and an abstract ceremonial standard resemble those found in the 'royal' tombs at Alaca Höyük [Arık 1937: Pl. 270 (CCLXX), Al.1080; Koşay 1938: 124 Pl. 96.97 (from burial 'C'); some details also recall

A monumental Middle Bronze Age building at Salat Tepe on the Upper Tigris (Turkey)
(/projgall/okse309)

Calibrated Dates from San Jacinto 1 in stratigraphic order (strata 10-20) using OxCal version 3.10 (Bronk Ramsey 2005)
(/projgall/oliver309)

Palaeolithic cave art in West France: an exceptional discovery: the Margot Cave (Mayenne)
(/projgall/pigeaud309)

Quantifying the threat to archaeological sites from the erosion of cultivated soil
(/projgall/wilkinson309)

Beaker age bracers in England: sources, function and use
(/projgall/woodward309)

Search the Project Gallery
(<http://www.antiquity.ac.uk/open>,



Cite this article

Tayfun Yildirim & Thomas Zimmermann. 2019
News from the Hatti Heartland - The Early Bronze Age Necropoleis of Kalinkaya, Resuloğlu, &

standard types attributed to 'Horoztepe' or Nallıhan near Bolu (cf. Muscarella 1988; Zimmermann 2005: 468-70). These items show direct ties with early urban centres like Alaca Höyük, though technically not of such high quality. The silver coating of one Kalinkaya bull statue's eyes (Figure 2), however, required advanced metalworking skills; and unlike the 'Horoztepe' parallels and many others from looted cemeteries in the northern central provinces of modern Turkey that surfaced from the antiquities' market, Kalinkaya's finds can be studied within their full archaeological context.

The Resuloğlu cemetery, under excavation since 2003, and its nearby settlement are situated within the borders of Uğurludağ district in Çorum province, roughly 90 kms west of Kalinkaya (Yıldırım & Ediz 2005). The graves lie on a ridge between two mound-type settlements, 630 masl, on the top of the ridge facing to the southeastern mound. The settlements control an important strategic location overlooking the Delice River valley, from Kavsut in the south through Kula, where it meets with Kızılırmak (Halys) river. Building activities just to the north of the cemetery area can be explained as a result of population increase of Resuloğlu people. Graves so far unearthed at Resuloğlu belong to three types: pithoi, cists and jars (Figure 3).



(/projgall/zimmerman309/images/figure2-large.jpg)

Figure 2. Bull statue and ceremonial standard from Kalinkaya burials.

Click to enlarge.

Anatolian Metalworking Advances in the late 3rd Millennium BC. *Antiquity* Project Gallery 8C
<http://www.antiquity.ac.uk/projgall/zimmerman309/>



(/projgall/zimmerman309/images/figure3-large.jpg)

Figure 3. Jar burial from Resuloğlu with metal finds in situ.

Click to enlarge.



(/projgall/zimmerman309/images/figure4-large.jpg)

Figure 4. Shafthole axe from Resuloğlu with preserved wooden shaft.

Click to enlarge.



(/projgall/zimmerman309/images/figure5-large.jpg)

Figure 5. Jewellery from Resuloğlu.

Click to enlarge.

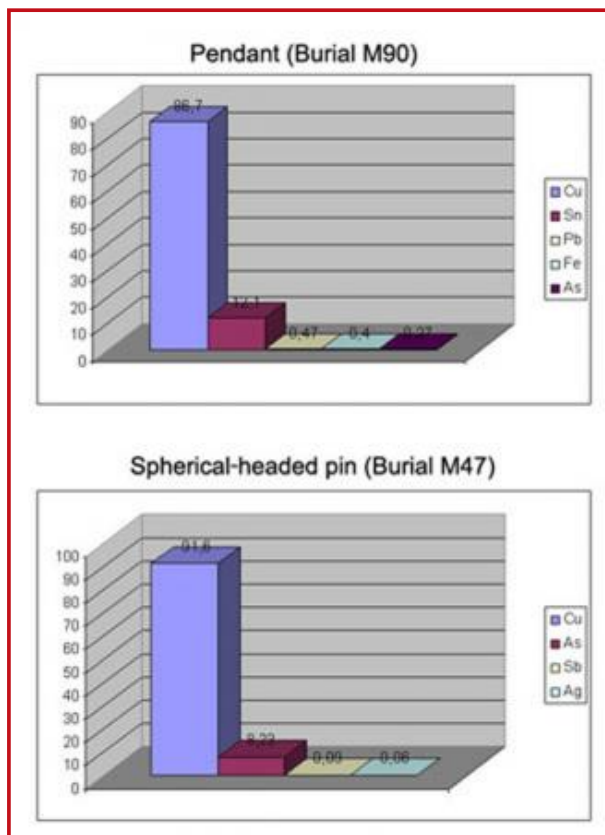
Unlike Kalinkaya, no examples of simple earth burials have yet been found. Burial gifts comprise mostly pottery, metal vessels, weapons and jewellery. So far, no objects related with religion or cult have been found, whereas these were a significant phenomenon of the Kalinkaya burial complex. Preservation is, however, excellent: the sockets of some shaft-hole axes still contain pieces of wooden shafts (Figure 4). The many necklaces, all of highest quality, show remarkably close typological and technological parallels with the Kalinkaya jewellery (Figure 5). Pendants and beads were likewise made in a wide variety of

materials: frit, faience, marine shells, stone, limestone, malachite, carnelian, arsenical mineral (Uzonite), copper/bronze, silver, gold and occasionally electrum.

Thanks to a cooperation with Bilkent University's Department of Chemistry (Hasan Erten) and the Turkish Nuclear Research and Training Centre in Sarayköy (Abdullah Zararsız), X-Ray Diffraction (XRD) and destructive X-Ray Fluorescence (XRF) are revealing the chemical composition of the Resuloğlu metals with highest accuracy. This analysis is a crucial facet of our collaboration: although Early Bronze metallurgy was partly studied analytically by Ufuk Esin and Prentiss de Jesus (Esin 1969; De Jesus 1980), and intensive source surveying has been carried out in recent decades (cf. Seeliger *et al.* 1985; Wagner *et al.* 2003: 476-94), the rich metal evidence from (Northern) Central Anatolia still lacks a reliable modern database. Questions about what different alloys were used, and what possible metal sources were exploited to guarantee a secure

supply for the northern Central Anatolian metalworking communities in the late 3rd millennium BC, are still not sufficiently answered. The first results show surprisingly high concentrations of tin and arsenic (Figure 6), a phenomenon that will be pursued further in the longer run of this scientific project.

The evidence of the Kalinkaya and Resuloğlu cemeteries documented so far yields much potential for further discussion in a still barely investigated region. Styles and technologies allow correlations with nearby sites like Alacahöyük and other, partly looted findspots such as Yenihayat, Balıbağ, Oymağağaç and Göller (cf. Özgüç 1978: 31-36; 89-99; Süel 1989; Emre 1996; Yıldırım 2001). But weapon and jewellery styles point also to parallels with goods produced by West Anatolian and Mesopotamian communities. However, the style of some jewellery from Balıbağ, Resuloğlu and Kalinkaya clearly testifies to craftsmen being capable of producing their own, unique shapes; in doing so, this region, despite the long distance contacts with Near Eastern societies, underlined its original 'Hattian' cultural setting.



(/projgall/zimmerman309/images/figure6-large.jpg)

Figure 6. Results from destructive XRF-scannings of Resuloğlu metal items [small pendant (burial M90) and spherical-headed pin (burial M47)]. Note the high concentrations of tin and arsenic.

[Click to enlarge.](#)

References

- ARIK, R. O. 1937. *Alaca Höyük Hafriyatı. 1935 deki Çalışmalara ve Keşiflere ait İlk Rapor*. Ankara: Türk Tarihi Kurumu.
- DE JESUS, P. 1980. *The Development of Prehistoric Mining and Metallurgy in Anatolia*. Oxford: British Archaeological Reports.

- EMRE K. 1996. The Early Bronze Age at Maşat Höyük, in H. I. H. Prince Takahito Mikasa (ed.) *Essays on Ancient Anatolia and Syria in the Second and Third Millennium B.C.*: 1-29. Wiesbaden: Harrasowitz.
- ERKANAL, H. & T. ÖZKAN. 1999. Bakla Tepe Kazıları. Excavations at Bakla Tepe, in T. Özkan & H. Erkanal (ed.) *Tahtalı Barajı Kurtarma Kazısı Projesi. Tahtalı Dam Area Salvage Project*: 12-42; 108-138. Izmir: T. C. Kültür Bakanlığı.
- ESİN, U. 1969. *Kuantatif spektral analiz yardımıyla Anadolu'da başlangıcından Asur kolonileri çağına kadar Bakır ve Tunç madenciliği*. Istanbul: Istanbul University.
- KOŞAY, H. Z. 1938. *Alaca Höyük Hafriyatı. 1936 daki Çalışmalara ve Keşiflere ait İlk Rapor*. Ankara: Türk Tarihi Kurumu.
- LANERI, NICOLA. 1999. A Funerary Tradition of the Middle Euphrates Valley during the IIIrd Millennium BC. *Anatolica* 25: 221-241.
- MUSCARELLA, O. W. 1988. *Bronze and Iron. Ancient Near Eastern Artefacts in the Metropolitan Museum of Art*. New York: The Metropolitan Museum.
- ÖZGÜÇ, T. 1948. *Die Bestattungsbräuche im vorgeschichtlichen Anatolien*. Ankara: Veröffentlichungen der Universität von Ankara.
- 1978. *Maşat Höyük Kazıları ve Çevresindeki Araştırmalar. Excavations at Maşat Höyük and Investigations in its Vicinity*. Ankara: Türk Tarihi Kurumu.
- SEEHER, J. 2000. *Die bronzzeitliche Nekropole von Demircihöyük-Sarıket. Ausgrabungen des Deutschen Archäologischen Instituts in Zusammenarbeit mit dem Museum Bursa, 1990-1991*. Tübingen: Ernst Wasmuth.
- SEELIGER, T. C., E. PERNICKA, G. A. WAGNER, F. BEGEMANN, S. SCHMITT-STRECKER, C. EIBNER, Ö. ÖZTUNALI & I. BARANYI. 1985. Archäometallurgische Untersuchungen in Nord- und Ostanatolien. *Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz* 32: 597-659.
- SERTOK, K. & R. ERGEÇ. 1999. A New Early Bronze Age Cemetery. Excavations near the Birecik Dam, SE Turkey. Preliminary Report (1997-98). *Anatolica* 25: 87-107.
- SÜEL, M. 1989. Balıbaşı/1988 Kurtarma Kazısı. *Türk Arkeoloji Dergisi* 28: 145-150.
- WAGNER, G. A., I. WAGNER, Ö. ÖZTUNALI, S. SCHMITT-STRECKER & F. BEGEMANN. 2003. Archäometallurgischer Bericht über Feldforschung in Anatolien und bleisotopische Studien an Erzen und Schlacken, in T. Stöllner, G. Körlin, G. Steffens & J. Cierny (ed.) *Man and Mining-Mensch und Bergbau. Studies in honour of Gerd Weisgerber on occasion of his 65th birthday*: 475-494. Bochum. Der Anschnitt Beiheft 16.

- WHEELER, T. S. 1974. Early Bronze Age Burial Customs in Western Anatolia. *American Journal of Archaeology* 78: 415-425.
- YILDIRIM, T. 2001. Yenihayat Eski Tunç Çağı Mezarlığı. *Türk Arkeoloji ve Etnografya Dergisi* 2: 1-8.
- YILDIRIM, T. & İ. EDİZ 2005. 2003 Yılı Resuloğlu Mezarlık Kazısı. *Kazı Sonuçları Toplantısı* 26: 193-196.
- ZIMMERMANN, T. 2005. Anatolische 'Isisklappern' - Eine Randnotiz zu einigen bronzzeitlichen Sistren aus Alaca Höyük und 'Horoztepe', Türkei. *Archäologisches Korrespondenzblatt* 35: 467-472.
- 2006. Kalınkaya - A Chalcolithic-Early Bronze Age Settlement and Cemetery in Northern Central Anatolia. First Preliminary Report: The Burial Evidence. *Anadolu Medeniyetleri Müzesi 2005 Yıllığı*: 271-311.

Authors

Note: Author information correct at time of publication

- **Tayfun Yıldırım:** Ankara University, Faculty of Languages, History and Geography, Department of Near Eastern Archaeology, Ankara, Turkey (Email: tayfun30@hotmail.com)
- **Thomas Zimmermann:** Bilkent University, Faculty of Humanities and Letters, Department of Archaeology and History of Art, 06800 Bilkent, Ankara, Turkey (Email: zimmer@bilkent.edu.tr)

[Home \(/\)](#)

[About \(/about\)](#)

[Latest Issue \(/latest\)](#)

[Antiquity Open \(/open\)](#)

[All issues \(/issues\)](#)

[Search Antiquity](#)

(<https://www.cambridge.org/core/journals/antiquity>)

[Subscribe](#)

(<https://www.cambridge.org/core/journals/antiquity/subscribe>)

[Submit a Paper](#)

([/submit-paper](#))

[Contact \(/contact\)](#)

[Privacy Policy \(/privacy\)](#)

[Terms and Conditions](#)

([/terms](#))

[Site Map \(/sitemap.xml\)](#)

[Admin Login](#)

([/user/login?](#)

[current=projgall/zimmerman309](#))

All materials copyright Antiquity Publications Ltd. © 2017

Antiquity, Department of Archaeology

Durham University, South Road, Durham, DH1 3LE

e: assistant@antiquity.ac.uk (mailto:assistant@antiquity.ac.uk) | t: +44 (0)191 3341125