

# ANATOLIA ANTIQUA ESKİ ANADOLU

XV



INSTITUT FRANÇAIS D'ETUDES ANATOLIENNES GEORGES-DUMEZIL

DE BOCCARD

2007

Önder İPEK\* and Thomas ZIMMERMANN\*\*

## ANOTHER GLIMPSE AT “HATTIAN” METALWORK? – A GROUP OF BRONZE AGE METAL ITEMS FROM BEKAROĞLU KÖYÜ, DISTRICT OF ÇORUM, TURKEY<sup>1</sup>

The Çorum district in Central Anatolia, although well known for its rich pre-classical heritage, with 2<sup>nd</sup> millennium centers like İnandıktepe, Boğazköy (Hattusa), Ortaköy (Sapinuwa) and Alaca Höyük, and ever growing evidence for a dense Early and Middle Bronze Age occupation, is still essentially archaeologically unknown. Only the new explorations conducted at Yörüklü/Hüseyindede, a site that yielded substantial information on this region's cultural setting and ritual significance in the early 2<sup>nd</sup> millennium B.C., have revealed the still largely buried potential of the “Hatti heartland”, a key region for the formation of early elites in that general time<sup>2</sup>. Regarding this existing lacuna, however, prehistoric science owes much to the field surveys conducted since 1996 by Tayfun Yıldırım and Tunç Sipahi, to record prehistoric settlement traces in the immediate Çorum and northwestern Çankırı *koine*<sup>3</sup>. Vivid Bronze Age activities are attested for the entire district, and partly destroyed Early Bronze Age burials are likewise reported for the vicinity of Bekaroğlu Köyü, the alleged findspot of the metal implements discussed below<sup>4</sup>.

In addition, our impression of 3<sup>rd</sup> millennium metalworking in (Northern) Central Anatolia seems to be strongly biased by a source-based discrepancy: The splendid inventories from the Alaca

Höyük “Royal Burials”, with their date and cultural affiliation still subject to discussion<sup>5</sup>, and comparable material from partly or entirely looted places like Horoztepe and Oymaağaç-Göller<sup>6</sup>, strongly contrast with the very little data available for contemporary sites in their periphery<sup>7</sup>. This is especially true of the North of the Çorum district beyond the modern city of Merzifon, which links together the Central Anatolian plateau with the hinterland of the Black Sea coast and therefore was a likely contact zone for Central Anatolian and Pontic cultural traditions to meet. Only recently has this area been subject to further investigations<sup>8</sup>, with metal production and consumption being still one primary research objective for further projects in this “arena for cultural contact”<sup>9</sup>. Indeed, even a more holistic approach to identify and interpret shifting traditions and technologies for metalworking previous to the emergence of the Hittite kingdom, like that recently attempted for Western Central Anatolia<sup>10</sup>, fails due to the scarce amount of data available.

In that context, the finds from Bekaroğlu Köyü that we discuss here, might provide a further jigsaw piece to get going the puzzle of Central Anatolia-Pontic interactions in the Early Bronze Age, despite the unknown circumstances of their recovery.

\*) Çorum Archaeological Museum.

\*\*) Bilkent University, Department of Archaeology and History of Art.

1) We would like to extend our gratitude to Director İsmet Ediz from the Çorum Archaeological Museum for supporting the publication of the Bekaroğlu finds, and the Turkish Directorate for Monuments and Museums for issuing the research permit. We are equally indebted to Ben Claasz Coockson, Bilkent University, for preparing the artwork, and Julian Bennett, Bilkent University, for proofreading the manuscript and his inspiring comments on some technical aspects of the findings.

2) Yıldırım 2000; cf. especially the recovery of two relief vases at Hüseyindede (Yıldırım 2000: 60ff.; Yıldırım 2006).

3) Sipahi 2003; Sipahi and Yıldırım 1997: 19ff.; 29 map; Sipahi and Yıldırım 2000; Sipahi and Yıldırım 2001; Sipahi and Yıldırım 2005; Yıldırım & Sipahi 1999; Yıldırım & Sipahi 2004.

4) Tayfun Yıldırım, personal communication.

5) Orthmann 1967; Özyar 1999; Özyar 2000; Mansfeld 2001; Gerber 2006: 379ff.

6) Özgüç and Akok 1958; Özgüç 1978: 89ff.; Özgüç 1980.

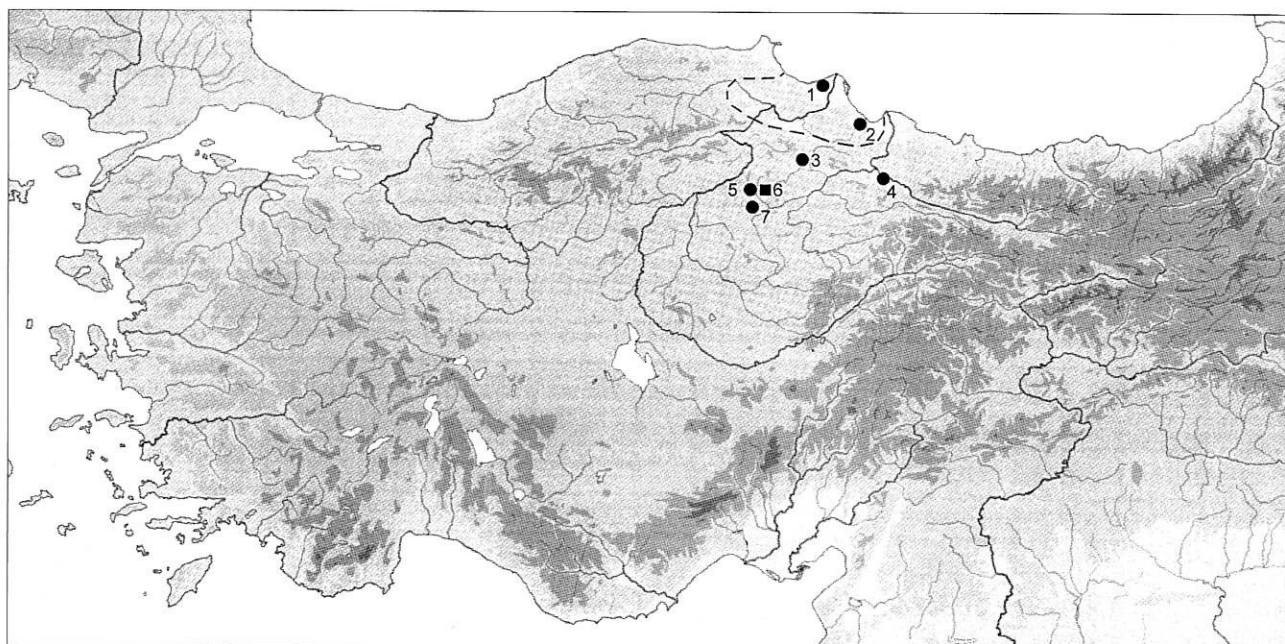
7) Zimmermann 2006: 274ff.

8) Matthews 1998; Matthews 2004.

9) Matthews 2006.

10) Efe 2002: 51ff.; Efe and Fidan 2006: 15ff.; esp. 21ff.





**Fig. 1 : Map showing the provincial capital Çorum, major Central Anatolian EBA findspots mentioned in the text and the estimated extend of the “Central Black Sea Cultural Region” (dotted line, after Efe 2006): 1) İkiztepe; 2) Düdartepe; 3) Oymaağaç/Göller; 4) Horoztepe; 5) Bekaroğlu Köyü; 6) Çorum; 7) Alaca Höyük.**

### THE METAL OBJECTS FROM BEKAROĞLU (Fig. 2)

On October 6 1998, the archaeological museum in Çorum, North Central Anatolia obtained and inventorised a group of 10 metal implements, found at Bekaroğlu Köyü, district of Çorum, roughly 25 kms West of the provincial capital (Fig. 1). The circumstances of the discovery remain largely unknown, however, records suggest that the ten metal artefacts sold to the museum were found at once, as a chance find during agricultural activities, and not randomly collected from different contexts. The identical spotted brownish-green patina structure on all the 10 objects would additionally support the hypothesis of a “closed” assemblage, however tentative this observation must be, considering the absence of any trustworthy archaeological account on their recovery, and the lack of burial remains recorded in the immediate vicinity of Bekaroğlu Köyü (*supra*). After all, an evenly balanced chemical composition of the soil could

equally provoke a similar or identical patina matrix on objects not buried together. However, it cannot be entirely excluded that this cache of metal artifacts represents one of the very few metal hoards so far recorded in the Anatolian Early Bronze Age<sup>11</sup>.

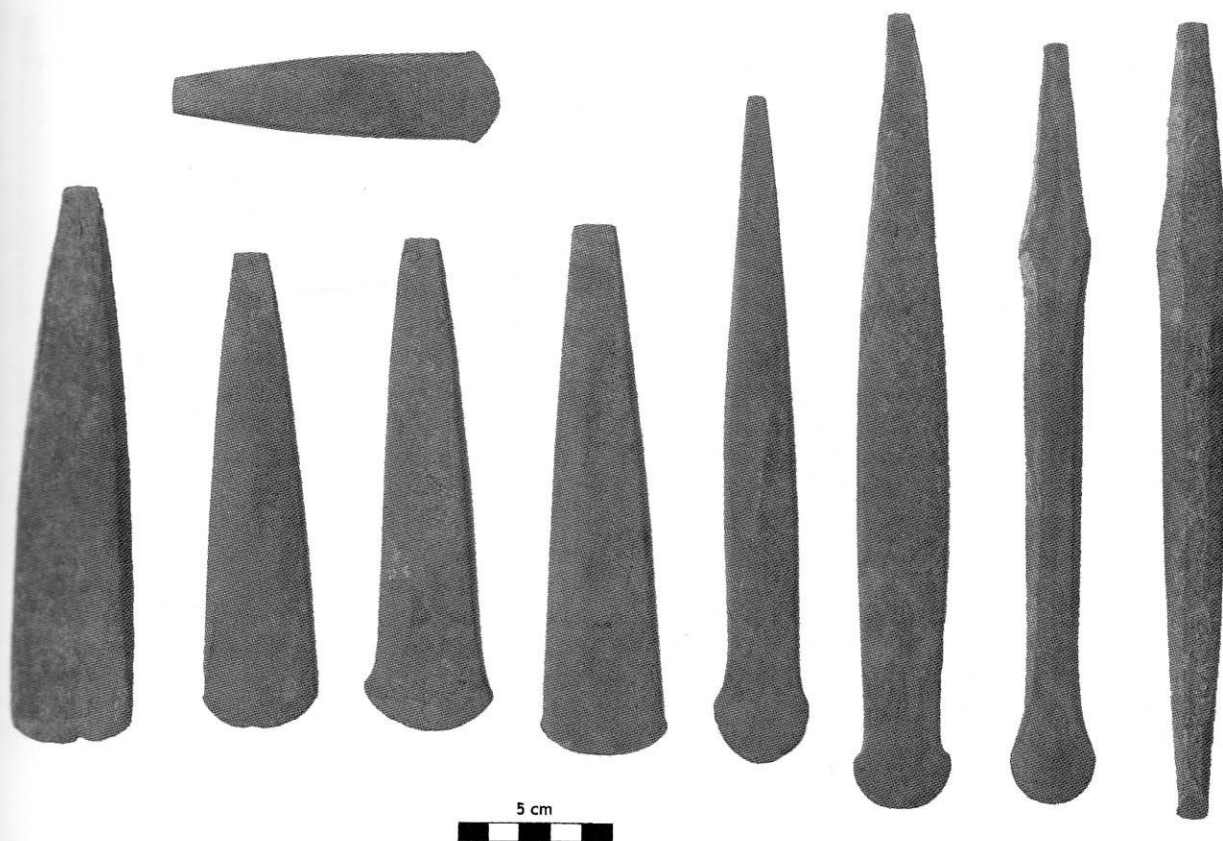
The group of heavy implements that forms the Bekaroğlu Köyü assemblage consists of the following objects:

**1.** Inv.-No. 1-1-98. Tanged spearhead; parabolic blade; faceted ricasso, round tang, tip bent; weight: 305.4 g; measures: 37.7 x 4.8 x 1.2 cms max (Fig. 6).

**2.** Inv.-No. 1-2-98. Chisel; slim trapezoid neck; slim long rectangular body; flaring crescentic blade; weight: 227.2 g; measures: 21.5 x 3.1 x 1.0 cms max (Fig. 4a).

**3.** Inv.-No. 1-3-98. Chisel; slim trapezoid neck, slightly bent; slim, slightly flaring body; flaring crescentic blade; weight: 383 g; measures: 25.7 x 3.2 x 1.0 cms max (Fig. 4b).

<sup>11</sup> The hoards from Eskiyaar (Özgüç and Temizer 1993), a recently discovered cache of wrapped metal jewellery, weapons and tools from EBA III-context at Kinet Höyük, Hatay province (Gates in press), and the much earlier implement hoard with a silver ring from Beycesultan (Lloyd and Mellaart 1962: 280ff.; Zimmermann 2005: 194ff.) are strictly speaking the only securely documented Anatolian metal hoards coming from professionally observed archaeological contexts.



**Fig. 2 : The metal assemblage from Bekaroğlu Köyü.**

4. Inv.-No. 1-4-98. Massive chisel; faceted, bulging body; small flaring blade; weight: 468,8 g; measures: 25.6 x 2.3 x 1.8 cms max (Fig. 5a).

5. Inv.-No. 1-5-98. Chisel with faceted body; trapezoid upper part; straight lower section; flaring crescentic blade; weight: 375.7 g; measures: 24.5 x 2.8 x 1.7 cms max (Fig. 5b).

6. Inv.-No. 1-6-98. Flat axe; parabolic body; slightly curving blade with coarse use and wear traces; weight: 478.8 g; measures: 17.8 x 1.4 x 4.0 cms max (Fig. 3a).

7. Inv.-No. 1-7-98. Flat axe; trapezoid body; flaring crescentic blade; weight: 239 g; measures: 15.9 x 4.2 x 0.9 cms max (Fig. 3b).

8. Inv.-No. 1-8-98. Flat axe; slightly parabolic body; slightly flaring crescentic blade; weight: 252.7 g; measures: 17.1 x 4.1 x 0.9 cms max (Fig. 3c).

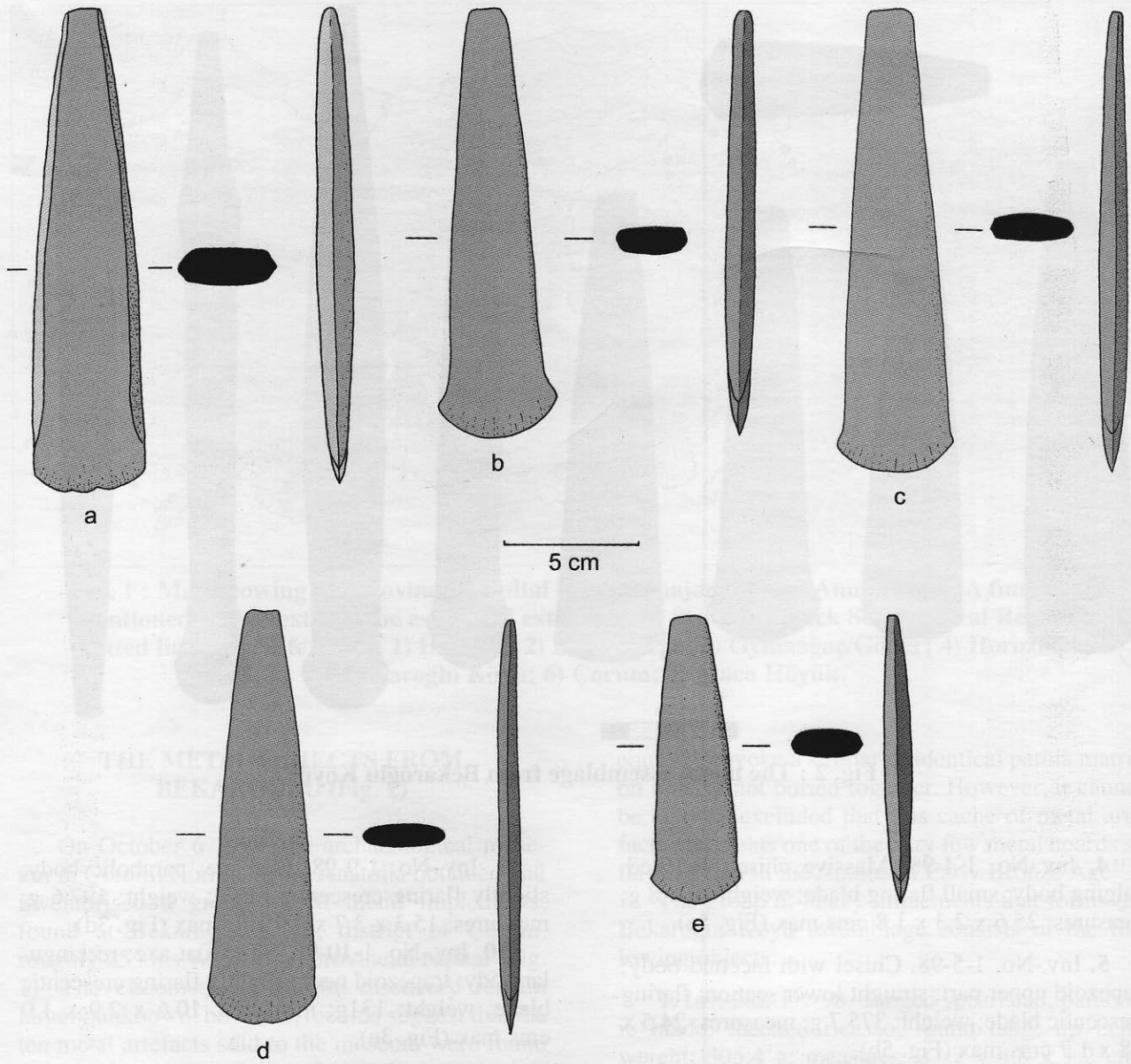
9. Inv.-No. 1-9-98. Flat axe; parabolic body; slightly flaring crescentic blade; weight: 197.6 g; measures: 15.3 x 3.7 x 0.9 cms max (Fig. 3d).

10. Inv.-No. 1-10-98. Short flat axe; rectangular body; trapezoid neck; slightly flaring crescentic blade; weight: 131g; measures: 10.6 x 2.9 x 1.0 cms max (Fig. 3e).

#### **Flat axes or chisels (Fig. 3a-e):**

Objects Nos. 6-10 represent simple flat axes or chisels with either crescentic or, in the case of Nos. 7, 8 and 10, slightly flaring blades. Use-and-wear traces on the blades and necks of these items are not significant enough to discuss their possible function in detail, although ancient damage of the blade of items Nos. 6 and 9, where smaller parts have splintered off might testify to heavy hitting or hammering. Additionally, the asymmetrically worn blade of item No. 6 suggests that it was used as a chisel for wood or even metal<sup>12</sup>. Their very basic

12) Müller-Karpe 1994: 159ff.



**Fig. 3 : Flat axes or chisels from Bekaroğlu Köyü:**  
a) 1-6-98; b) 1-7-98; c) 1-8-98; d) 1-9-98; e) 1-10-98.

shape does allow them to be pinned down more precisely spatially and chronologically, since Near Eastern axes of this type and size were widely in use in the 3<sup>rd</sup> and 2<sup>nd</sup> millennium B.C.<sup>13</sup>. Known from several Bronze Age sites in Central Anatolia, flat axes or chisels with flaring blades are likewise attested along the Central Black Sea littoral and its hinterland, as finds from the Amasya museum illustrate<sup>14</sup>.

#### Long flat chisels (Fig. 4a-b)

Implements Nos. 2 and 3 can be classified as chisels with a long flat body and a flaring crescentic blade; the blades of both objects show no conspicuous indications as to reveal their primary use, although the slightly distorted body of No. 2 and the bent neck of No. 3 might testify to heavy hammer hits on the chisels body during metal or wood-

13) Özgüç 1978: 33.

14) Özgüç 1978: 33; Pl. 69,3-6.



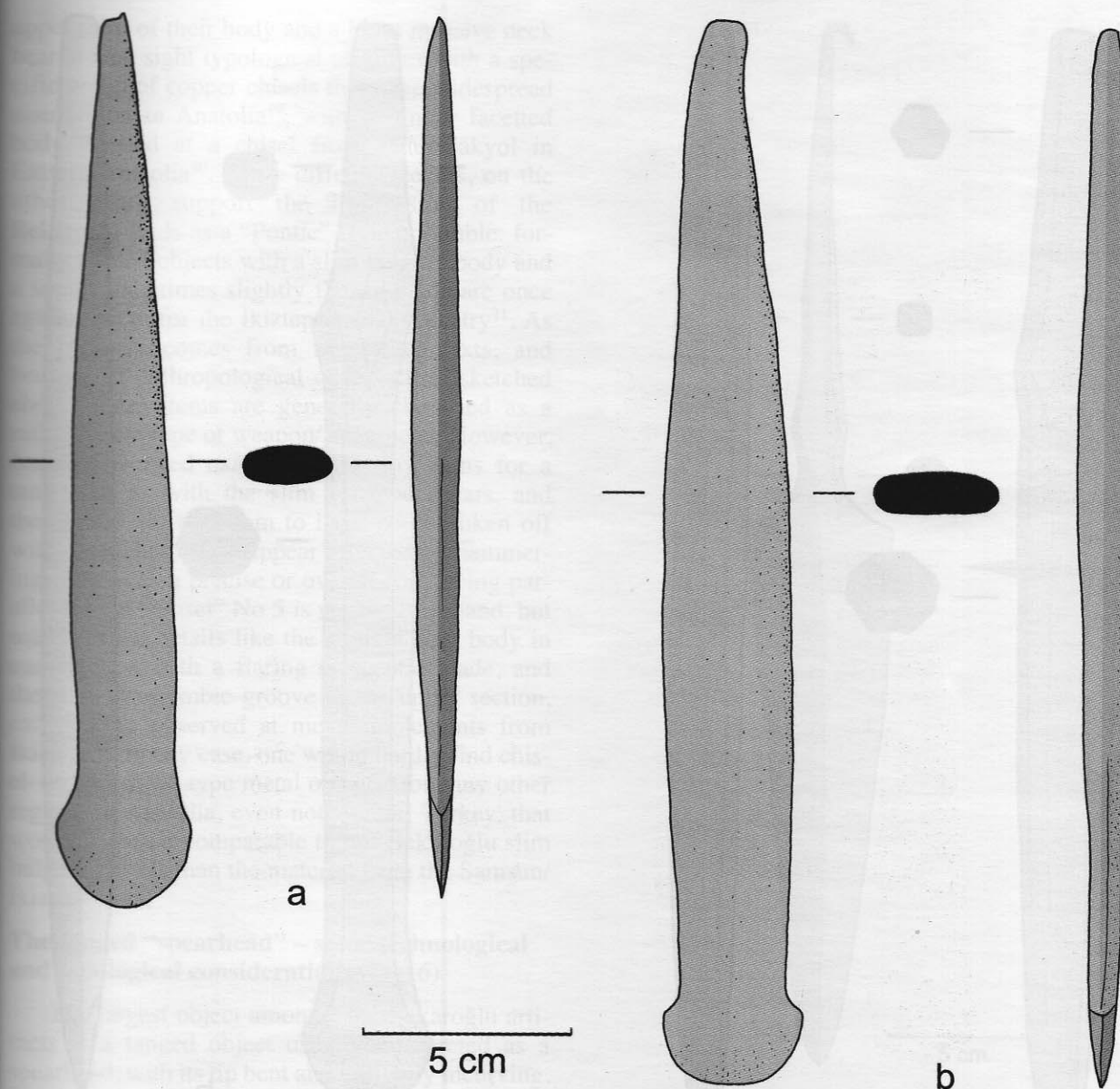


Fig. 4 : Long chisels from Bekaroğlu Köyü:  
a) 1-2-98; b) 1-3-98.

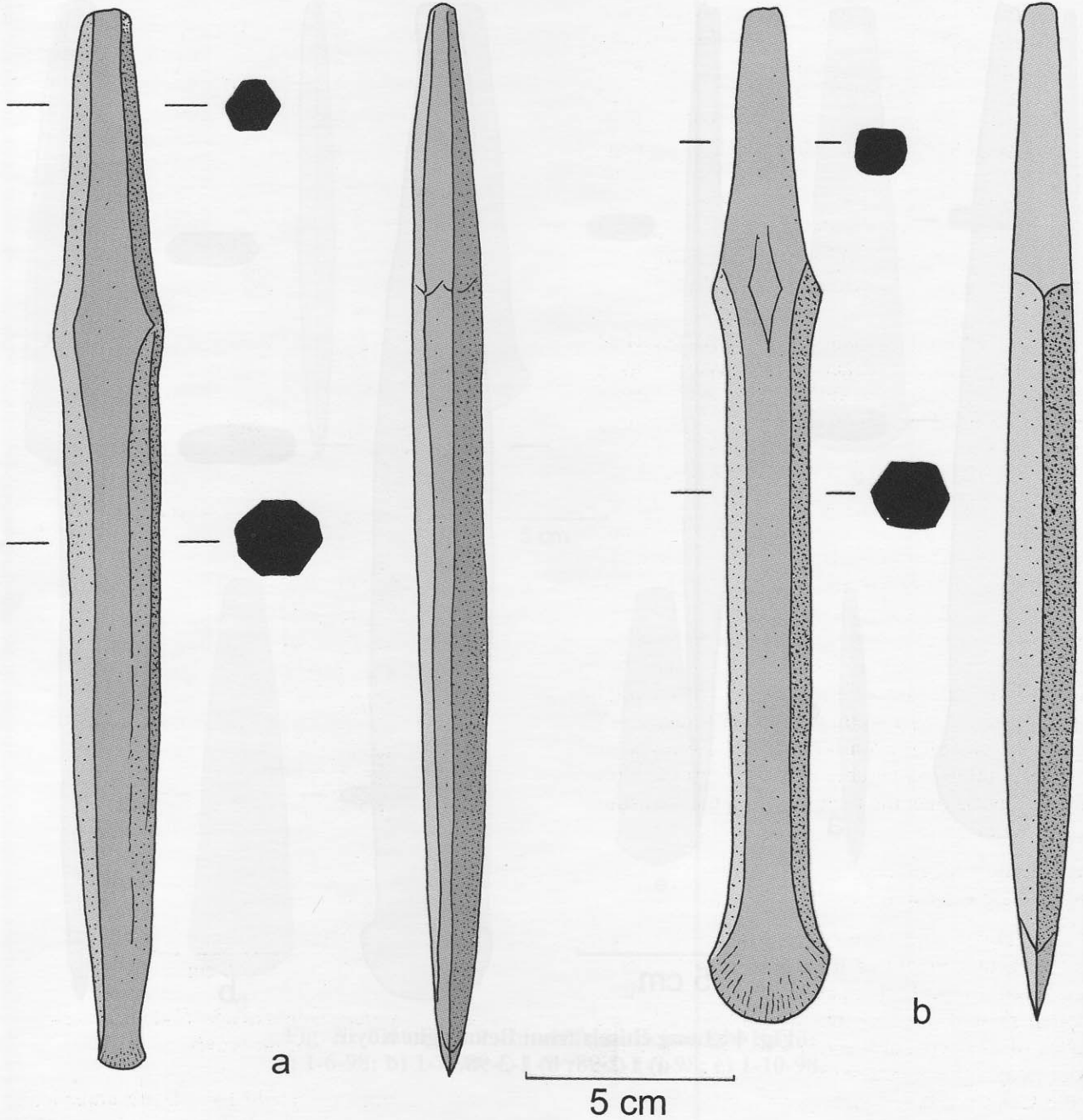
working activities<sup>15</sup>. Their shape, on the other hand, allows a much more precise spatial containment: Chisels with such features described above, specifically number 3 with a trapezoid-shaped upper third, are well known from metal inventories unearthed at İkiztepe, Bafra, district of Samsun, the only site in the Turkish Central Black Sea region

excavated and published on a large scale<sup>16</sup>. In most cases such metal- or woodworking tools come from graves dated to “EB III” or “transitional” (late 3<sup>rd</sup> and early 2<sup>nd</sup> millennium B.C.)<sup>17</sup>. Considering again their functional aspects, their frequent association with late Early Bronze Age burials from the large İkiztepe cemetery suggests an alternative use as a

15) Müller Karpe 1994 : 166; Pl. 66,9; 67,21; 73,28.

16) Alkim, Alkim and Bilgi 1988; Alkim, Alkim and Bilgi 2003.

17) Bilgi 1984: 47; 91 Fig. 14,66; Bilgi 1990: 215 Fig. 16,225-227,246; Müller-Karpe 1994: Pl. 67,20,21; Bilgi 2005: 137 Fig. 34.36. – actually only a very small number of stylistically comparable finds seems to come from places different than İkiztepe itself, however lacking a reliable archaeological context (cf. Bilgi 1990: 210, Fig. 20,454,455).



**Fig. 5 : Facetted chisels from Bekaroğlu Köyü:**  
a) 1-4-98; b) 1-5-98.

heavy weapon, a hypothesis that gets further support from recent anthropological investigations of injured human skulls from this site, where some of the lethal blows might have been caused by exactly such chisels with broad crescentic blades<sup>18</sup>.

**Facetted heavy chisels or “spearheads”**  
(Fig. 5a.b)

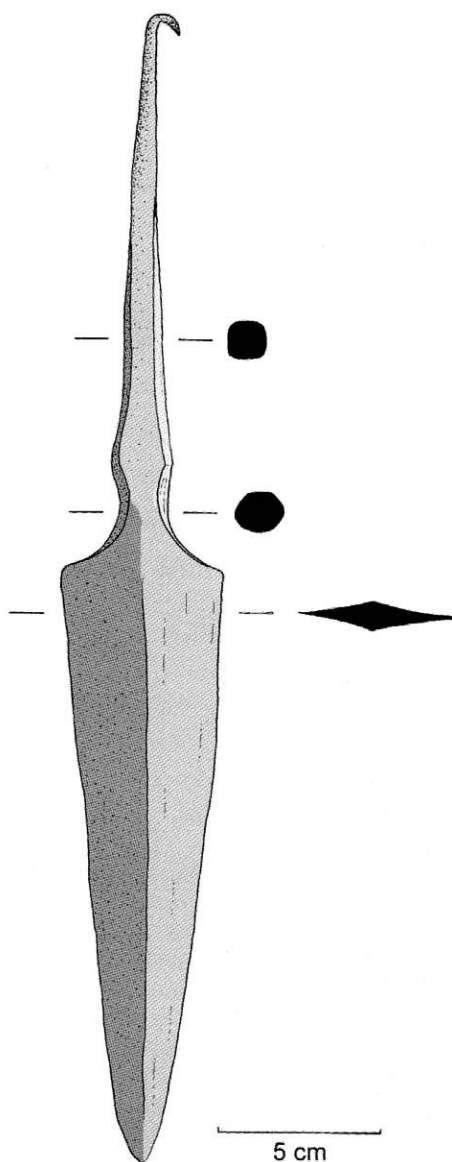
Two remarkably shaped objects, Nos. 4 and 5, with the characteristic rhombic swelling in the

<sup>18</sup>) Anthropologist Yılmaz Erdal, Hacettepe University, Ankara, personal comment. The publication of this specific anthropological aspect is currently in progress.

upper third of their body and a blunt massive neck bear at first sight typological affinities with a specific group of copper chisels that have widespread distribution in Anatolia<sup>19</sup>, with a similar faceted body attested at a chisel from Pulus-Sakyol in Eastern Anatolia<sup>20</sup>. Some different details, on the other hand, support the impression of the Bekaroğlu finds as a "Pontic" style ensemble: formally related objects with a slim bulging body and a small, sometimes slightly flaring blade are once again typical for the İkiztepe metal industry<sup>21</sup>. As the majority comes from funeral contexts, and because of anthropological observations sketched above, these items are generally classified as a rather exotic type of weapon/ spearhead. However, our two faceted examples lack any signs for a tang-shaft as with the slim İkiztepe spears, and their necks do not seem to have been broken off with force, but rather appear affected by hammering. That said, a precise or overall convincing parallel for the "chisel" No 5 is not ready at hand, but many formal details like the straight slim body in combination with a flaring crescentic blade, and the shallow rhombic groove in the upper section, can be best observed at metal implements from İkiztepe<sup>22</sup>. In any case, one would hardly find chisel- or spearhead-type metal objects from any other regions in Anatolia, even not Central Turkey, that would be better comparable to our Bekaroğlu slim bulging chisels than the material from the Samsun/ İkiztepe area.

#### The tanged "spearhead" – some technological and typological considerations (Fig. 6)

The largest object amongst the Bekaroğlu artifacts is a tanged object usually interpreted as a spearhead, with its tip bent and a slightly incurving, swollen ricasso between blade and tang (No. 1). Blades of this type, although known from a much wider geographical context<sup>23</sup>, are likewise attested in the Central Black Sea region<sup>24</sup> and at İkiztepe itself<sup>25</sup>. The weapon has almost no use-and-wear traces, the parabolic blade showing only very tiny scratches that might result from recent cleaning, and it especially underwent no frequent resharpen-



**Fig. 6 : Tanged "spearhead" (1-1-98) from Bekaroğlu Köyü.**

ing, a procedure that would have left a conspicuously narrowed incurving blade, as visible at many "spearheads" from e.g. İkiztepe (Fig. 7a.b)<sup>26</sup>. Developing this observation a little bit further, one might ask why it would be necessary to sharpen the

19) Müller-Karpe 1994: 165ff.; Pl. 69.

20) Müller-Karpe 1994: Pl. 69,10.

21) Bilgi 1984: 87 Fig. 10; 58 Fig. 11,27,28; Bilgi 1990 : 204ff. Figs. 5,23,26; 6-9; 10,68,69; Bilgi 2001: 95 Fig. 67,h1a-c; 98 Fig. 67,h2-5.

22) Cf. Bilgi 2001: 95 Fig. 67,h1b,h1c.

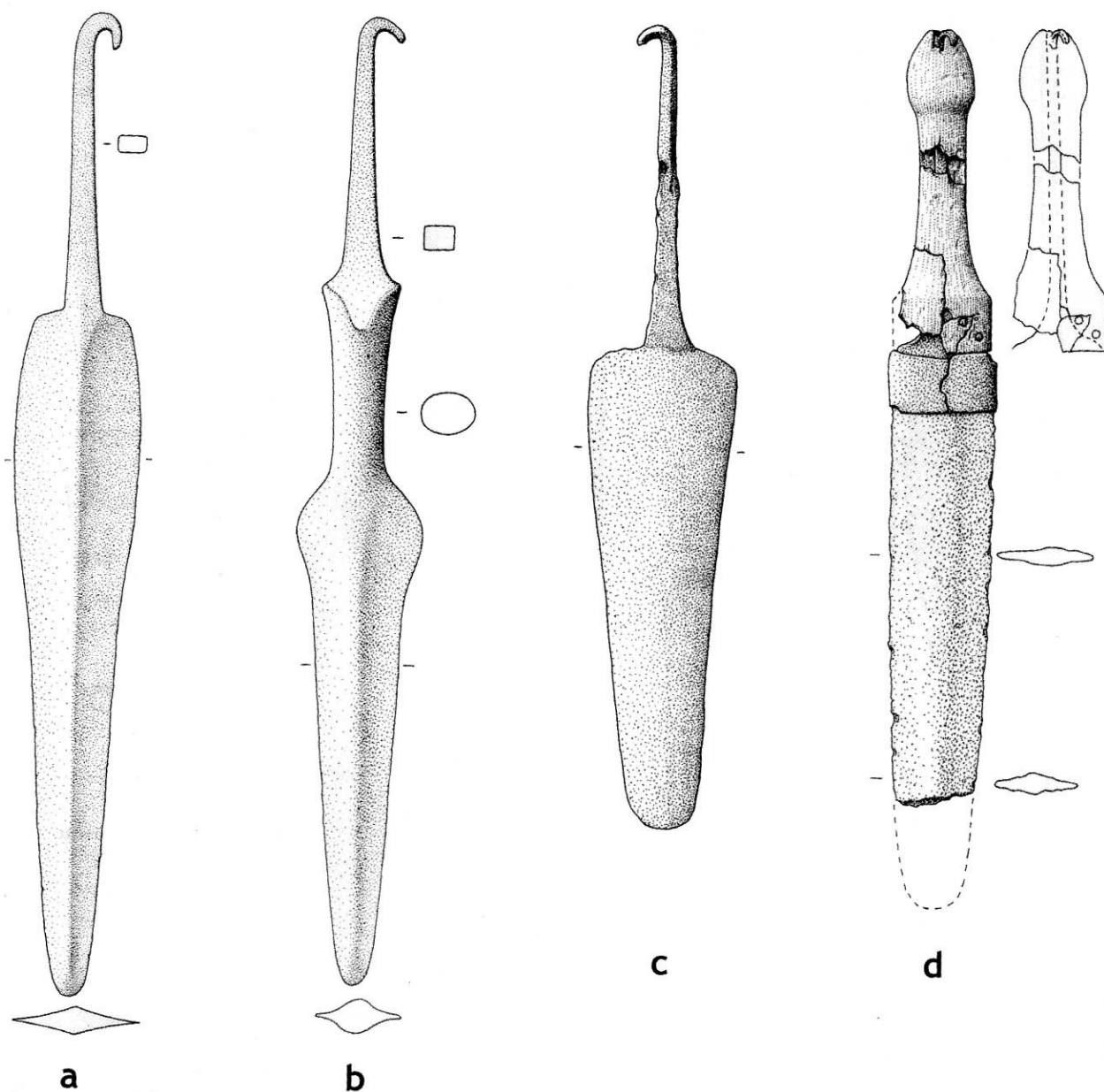
23) Cf. Stronach 1957: 113ff.

24) Note the similar swollen ricasso of a spearhead from Dündartepe (Özgüç and Akok 1957: 217; Fig 25).

25) Bilgi 1990: 202ff. Figs. 2-4; 5,20-24.

26) Cf. for example Bilgi 1990: 209 Fig. 10,70-73.





**Fig. 7 : Early Bronze Age “spearheads” with resharpened blades from İkitztepe (a-b), and Late Bronze Age “hooked tang daggers” (c-d) from the Levant (a-b after Bilgi 1990; c-d after Shalev 2004) – not to scale.**

edges of a long-range throwing or thrusting weapon like a spear, a procedure that makes more sense for short-distance blades of multifunctional items like knives or daggers.

Furthermore, the u-shaped, bent tip of the tang, likewise present on many other similar blades, defies explanation in terms of how the blade could be shafted efficiently. To fit the bent end into a “lateral niche [...] to keep the blade in position when

[...] sharply withdrawn from an opponent”<sup>27</sup>, as proposed by David Stronach, does not sound convincing at all, since it is rather difficult to imagine how such a hafting could be practically accomplished while preparing a wooden rod serving as the shaft for a spearhead.

We propose therefore to identify such “spearheads” with slim tangs and bent tips not as long-range weapons, but as short hafted stabbing imple-

27) Stronach 1957: 104.

ments, or daggers, designed for immediate confrontations, the tip of the tang bent to "(consolidate) the joint between the hilt and the blade". This is convincingly argued by Sarel Shalev for the Late Bronze Age Canaanite "hooked tang [sic!] daggers" (Fig. 7c-d)<sup>28</sup>, which, though considerably later in date, display the same technical details, especially the bent end and the hand-length of the tang, as is best illustrated by the example with a preserved ivory handle and a bent tang tip from El-Far'a South (Fig. 7d).

Consequently, although further implications of this belief on the fighting tactics and the development of weaponry in Anatolia are not the scope of this paper, a general typological and functional reassessment of blades with long tangs and a bent end does seem necessary and will be examined in further studies.

By way of conclusion, the metal objects from Bekaroğlu Köyü, despite lacking archaeologically observation during their recovery, nevertheless provide some substantial insights into the cultural

setting, or better still the cultural interaction of late 3<sup>rd</sup> millennium Hatti, the Central Anatolian heartland prior to the Hittite succession. The implements, especially the long chisels or slim stabbing weapons, show clear affinities with objects produced in the Samsun area, with the bulk of such items coming from the site of İkiztepe itself. This stylistic *koine* that seemed rather isolated in its typological and technological setting (excluding some artifacts that have a more common and widespread shape)<sup>29</sup>, has to be extended now as far to the South as the northern vicinity of Çorum, or at least interactions with this Central Pontic metalworking zone can now be attested with this "Hattian" core region. Nonetheless, only further research in the Northern Anatolian borderland, complementing the ones sketched at the beginning of this paper, will definitely shed more light on its cultural setting in the 3<sup>rd</sup> millennium B.C., and contribute to a more holistic picture than is possible so far<sup>30</sup>.

Ö.İ. and Th. Z.

## REFERENCES

- Alkım, U. B., Alkım, H. and Bilgi, Ö., 1988 : *İkiztepe I. Birinci ve İkinci Dönem Kazıları*, Ankara.
- 2003 : *İkiztepe II. Üçüncü, dördüncü, beşinci, altıncı, yedinci dönem kazıları (1976-1980)*, Ankara.
- Bilgi, Ö., 1984 : "Metal Objects from İkiztepe-Turkey", *Beiträge zur Allgemeinen und Vergleichenden Archäologie* 6 : 31-96.
- 1990 : "Metal Objects from İkiztepe-Turkey", *Beiträge zur Allgemeinen und Vergleichenden Archäologie* 9-10 : 119-219.
- 2001 : *Metallurgists of the Central Black Sea Region. A New Perspective on the Question of the Indo-Europeans' Original Homeland*, Istanbul.
- 2005 : "Orta Karadeniz Bölgesi MÖ 2. Binyıl Metal Silahları", *V. Uluslararası Hititoloji Kongresi Bildirileri. Çorum 02-08 Eylül, 2002. Acts of the Vth International Congress of Hititology. Çorum, September 02-08, 2002*, Ankara : 119-149.
- Efe, T. and Fidan, M. E., 2006 : "Pre-Middle Bronze Age Metal Objects from Inland Western Anatolia: A Typological and Chronological Evaluation", *Anatolia Antiqua* 14 : 15-43.
- Efe, T., 2002 : "The Interaction Between Cultural/Political Entities and Metalworking in Western Anatolia during the Chalcolithic and Early Bronze Ages", *Anatolian Metal II. Der Anschnitt Beiheft* 15, Bochum : 49-65.
- 2006 : "Anatolische Wurzeln – Troia und die frühe Bronzezeit Kleinasien", *Troia. Archäologie eines Siedlungshügels und seiner Landschaft*, Mainz : 15-28.
- Gates, M. H., in press : "2005 Season at Kinet Höyük (Yeşil-Dörtöyl, Hatay)", *Kazı Sonuçları Toplantısı* 28, Ankara.
- Gerber, C., 2006 : "Zur Stratigraphie der Fürstengräber von Alaca Höyük : Neue Einsichten in ein altes Problem", *Studies in Honor of Hayat Erkanal. Cultural Reflections*, Istanbul : 379-388.
- Lichter, C., 2006 : "Varna und İkiztepe : Überlegungen zu transpontischen Kulturbeziehungen im 5. und 4. Jahrtausend", *Studies in Honor of Hayat Erkanal. Cultural Reflections*, Istanbul : 526-534.
- Lloyd, S. and Mellaart, J., 1962 : *Beycesultan Vol I. The Chalcolithic and Early Bronze Age Levels*, London.
- Mansfeld, G., 2001 : "Die 'Königsgräber' von Alaca Höyük und ihre Beziehungen nach Kaukasien", *Archäologische Mitteilungen aus Iran und Turan* 33 : 19-61.
- Matthews, R., Pollard, T. and Ramage, M., 1998 : "Project Paphlagonia : Regional Survey in Northern Anatolia", *Ancient Anatolia. Fifty Years' Work by the*

28) Shalev 2004: Pl. 8; 9,93.

29) Bilgi 1990: 173ff.

30) Cf. Yakar 2006.

*British Institute of Archaeology at Ankara, Exeter* : 195-206.

Matthews, R., 2004 : "Salur North : An Early Bronze Age Cemetery in North-Central Anatolia", *A View From the Highlands. Archaeological Studies in Honour of Charles Burney. Ancient Near Eastern Studies Suppl. 12*, Herent : 55-66.

– 2006 : "An Arena for Cultural Contact: Paphlagonia (North-Central Turkey) through the Ages", paper given at the conference "Transanatolia", British Museum, London, April 1 2006.

Müller-Karpe, A., 1994 : *Altanatolisches Metallhandwerk*, Neumünster.

Orthmann, W. 1967 : "Zu den 'Standarten' aus Alaca Hüyük", *Istanbuler Mitteilungen* 17 : 34-54.

Özgüç, T., 1978 : *Maşat Höyük Kazıları ve Çevresindeki Araştırmalar. Excavations at Maşat Höyük and Investigations in its Vicinity*, Ankara.

– 1980 : "Çorum çevresinden bulunan Eski Tunç Çağı eserleri. Some Early Bronze Age Objects from the District of Çorum", *Belleten* 44 : 459-466; 467-474.

Özgüç, T. and Akok, M., 1957 : "Horoztepe eserleri. Objects from Horoztepe", *Belleten* 82 : 201-209, 211-219.

Özgüç, T. and Temizer, R., 1993 : "The Eskiypar Treasure", *Aspects of Art and Iconography: Anatolia and its Neighbors. Studies in Honour of Nimet Özgüç*, Ankara : 613-628.

Özyar, A., 1999 : "Reconsidering the 'Royal' Tombs of Alacahöyük : Problems of Stratigraphy According to the Topographical Location of the Tombs", *TÜBA-AR* 2 : 79-85.

– 2000 : "Noch einmal zu den Standartenaufsätzen aus Alacahöyük", *Anatolian Metal I. Der Anschnitt Beiheft 13*, Bochum : 101-112.

Shalev, S., 2004 : *Swords and Daggers in Late Bronze Age Canaan*. PBF IV,13, Stuttgart.

Sipahi, T., 2003 : "2001 Yılı Çorum ve Çankırı Bölgeleri Yüzey Araştırması", *20. Araştırma Sonuçları Toplantısı* 2 : 275-284.

Sipahi, T. and Yıldırım, T., 1998 : "1996 Yılı Çorum Bölgesi Yüzey Araştırmaları", *15. Araştırma Sonuçları Toplantısı* 2 : 19-40.

– 2000 : "1998 Yılı Çorum Bölgesi Yüzey Araştırması", *17. Araştırma Sonuçları Toplantısı* 2 : 31-40.

– 2001 : "1999 Yılı Çorum Yöresi Yüzey Araştırması", *18. Araştırma Sonuçları Toplantısı* 2 : 101-112.

– 2005 : "2003 Yılı Çorum ve Çankırı İlleri Yüzey Araştırması", *22. Araştırma Sonuçları Toplantısı* 2 : 353-364.

Stronach, D., 1957 : "The Development and Diffusion of Metal Types in Early Bronze Age Anatolia", *Anatolian Studies* 7 : 89-125.

Yakar, Y., 2006 : "The Ethno-Cultural Affiliation of the North Anatolian Early Bronze Age", *Studies in Honor of Hayat Erkanal. Cultural Reflections*, Istanbul : 809-814.

Yıldırım, T., 2000 : "Yörüklü/Hüseyindede: Eine neue hethitische Siedlung im Südwesten von Çorum", *Istanbuler Mitteilungen* 50 : 43-62.

– 2006 : "Eski Hitit Çağı'na ait yeni bir kült vazosu", *Anadolu Medeniyetleri 2005 Yılı*, Ankara : 339-370.

Yıldırım, T. and Sipahi, T., 1999 : "1997 Yılı Çorum Bölgesi Yüzey Araştırmaları", *16. Araştırma Sonuçları Toplantısı* 1 : 433-450.

– 2004 : "2002 Yılı Çorum ve Çankırı İlleri Yüzey Araştırmaları", *21. Araştırma Sonuçları Toplantısı* 2 : 305-314.

Zimmermann, T., 2005 : "Zu den frühesten Blei- und Edelmetallfunden aus Anatolien – Einige Gedanken zu Kontext und Technologie", *Der Anschnitt* 57 : 190-199.

– 2006 : "Kalınkaya – A Chalcolithic-Early Bronze Age Settlement and Cemetery in Northern Central Anatolia. First Preliminary Report: The Burial Evidence", *Anadolu Medeniyetleri Müzesi 2005 Yılı*, Ankara : 271-311.