



AN ANATOLIAN TYPE METAL HAMMER-AXE FROM BODRUM MUSEUM OF UNDERWATER ARCHAEOLOGY AND SOME REMARKS ON THE DEVELOPMENT, PRODUCTION AND SYMBOLIC VALUE OF THIS TYPE

BODRUM SUALTI ARKEOLOJİ MÜZESİ'NDEN ANADOLU TİPİ METAL BİR ÇEKİÇ BALTA İŞİĞİNDE BU TİPİN GELİŞİMİ, ÜRETİMİ VE SEMBOLİK ANLAMI ÜZERİNE BAZI DÜŞÜNCELER

Hakkı Levent KESKİN

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Abstract

The shaft-hole axes represent one of the most important groups of metal weapon industry during the Anatolian Early Bronze Age. While they appear as numerous examples in various forms at different regions, they provide important information in terms of chronological issues and regional interactions. An unpublished hammer-axe located at the Bodrum Museum of Underwater Archaeology represents a distinct form of shaft-hole metal axes. In consideration of the Bodrum example, this study aims to reveal the origin and the development scheme of this particular type, and also tries to answer some questions regarding their production techniques and the ways of usage. The examination of similar examples as a whole group clearly shows that this form was developed as a unique west Anatolian type after the midst of the 3rd millennium BC and to a certain extent, spread to other regions. The contextual information gathered from some well stratified examples also reveal that these artifacts had symbolic meanings as a reflection of power and rulership of the individuals with a certain status in the society.

Öz

Anadolu'da Erken Tunç Çağında çok sayıda örnek ve farklı tiplerle temsil edilen sap delikli baltalar bu dönem metal silah endüstrisinin en önemli gruplarından birini oluşturmaktadır ve gerek kronolojik gerekse bölgelerarası ilişkiler açısından önemli veriler sunmaktadır. Bodrum Sualtı Arkeoloji Müzesi'nde bulunan ve daha önce yayınlanmamış bir çekiç balta, sap delikli metal baltaların özel bir tipini temsil etmektedir. Bu çalışma, Bodrum örneğinden hareketle bu tipin köken ve gelişim çizgisini ortaya koymak yanında olası üretim teknikleri ve kullanım biçimlerine yönelik soruları da cevaplamayı amaçlamaktadır. Benzer örneklerin bir bütün halinde değerlendirilmesi, bu tipin Batı Anadolu'ya özgü bir form olarak MÖ 3. Binyılın ortalarından sonra geliştiğini ve kısmen diğer bölgelere de yayıldığını net bir şekilde ortaya koymaktadır. Kimi örneklerin sağlam kontekstlerinden elde edilen bilgiler de bu tip eserlerin, toplumda belirli bir statüdeki bireylerin sahip oldukları güç ve iktidarın bir yansıması olarak sembolik anlamlara sahip olduğunu göstermektedir.

1. Introduction

The Early Bronze Age (*henceforward* EBA) in Anatolia, which roughly corresponds to the 3rd Millennium BC, was a period of radical changes and progresses observed in all aspects of material culture. The developments in the field of mining and metalworking were among the most important ones and, in some way, most affective on a societal level. The high numbers of metal artefacts and the variety of forms and techniques, as well as production-related finds throughout the whole peninsula represent the extraordinary level achieved by this very industry for this particular period, more specifically for the second half of the millennium (EBA II onwards). Although this phenomenon can be observed on a much wider

geographical area, and denominated as *Metall-Shock* (Schachermeyr 182) or *Metallurgy Explosion* (Branigan 105-114) by some scholars to emphasize the sudden abundance and wide circulation of metal items, Anatolia has a long tradition as an exceptional region, where earliest metallurgical activities started as early as in the 8th millennium BC (Lehner and Yener; Yalçın, “Ancient Metallurgy...”). This long tradition, but more importantly its precociousness, as stated by Yener et al. (375) gave Anatolia a pioneering role in this field.

From EBA II onwards most of the metal artefacts from Anatolia come from graves or the so-called “*Hoard Finds*”. Leaving regular or ordinary objects aside, sophisticated forms and/or those produced from precious metals from such contexts are often interpreted as an indication of ranking and affluent classes (Yakar 452; Zimmermann, “Frühmetallzeitliche Eliten...”). The high number and character of such finds is also an exhibition of the deposition of wealth. Thus, metal items do not give sole information on typological, chronological and cross-cultural issues, but they also provide important data on the structure and the organization of the society itself. Metal weapons lay in the centre of these, since they were valuable objects both as a raw material and in terms of their symbolic meanings often related to prestige and power. In Anatolia the first evidence of this fact comes from Arslantepe in Eastern Anatolia (Fig. 1). Nine swords and twelve spearheads in a cache of finds recovered from the so-called “Hall of Weapons” and dated to the late 4th Millennium BC (Di Nocera Fig. XIII.3, 1-5, 9, XIII.6, 1) represent most probably the symbolic power of the ruler class. This expression finds its way through the succeeding period in the finds of the “Royal Tomb”. A total number of 64 metal pieces recovered from the tomb, dated to the beginning of the EBA, include also a high number of swords, daggers and spearheads (Di Nocera Fig. XIII.4, 10-22), again reflecting the wealth and symbolic value of power of the ruler. Later, this phenomenon is widely attested during the second half of the 3rd Millennium BC in numerous sites, best reflected by the famous treasure finds from Troia and Royal Graves of Alacahöyük (Sazcı; Zimmermann, “Early Bronze Age...”).



Fig. 1: Map showing the major sites mentioned in the text

Within the context of Anatolian metal industry shaft-hole axes represent one of the most important groups of metal weapons during the EBA. The variety of forms helps to understand the development schemes for local and regional types, but also provides insights on the dynamics of cultural interactions with neighbouring zones. The axe from Bodrum Museum of Underwater Archaeology, which is the subject of this study, represents a specific form called as hammer-axe. From a morphological point of view these types consist of three components: the blade with a cutting edge, the blunt butt forming the hammer and finally the shaft-hole, which incorporates both parts. Beside the overall shape, typological assessments are mainly based on the form of the blade and both on the length and the section of the hammer part.

While the rear part may have served as a counterbalance to compensate the axe, traces of wear suggest that they must have been used as a hammer for heavy actions such as crushing (Gernez 249). This dual character makes it difficult to distinguish the exact character and function of this type, thus in many typological works they are listed among tools (Branigan 23; Deshayes 263); but some studies

also emphasize the possibility of their use as weapons (Przeworski 119), especially based on the find contexts and circumstances (Gernez 249).

During the Anatolian EBA, metal hammer-axes are represented in a variety of forms – not to mention the numerous other examples of shaft-hole axes – and some types clearly reflect an indigenous character and development scheme for particular regions. This fact was best expressed by Stronach in his classical work on Anatolian EBA metal weapons in 1957 (118) as, “*The independent character of the early Anatolian metal industry is well illustrated by the fact that the first shaft-hole axes of metal imitate the local form of stone hammer-axe and bear no resemblance to contemporary Mesopotamian models*”. Although numerous excavations and discoveries after this publication brought up plentiful new materials and enriched the inventory of shaft-hole axes related to other regions, Stronach’s conclusion seems to be still valid for Anatolian hammer-axes.

The Bodrum axe represents a distinct form of hammer-axes (Fig. 2-3), which seems to be unique for and developed in western Anatolia, as will be explained below. The examination of both previously and recently published materials as a whole group will help to reveal the development and distribution of this type in a detailed manner. A critical assessment on possible production techniques and the information gathered from find contexts also give some clues to identify their function and helps to properly analyse them from a social perspective.

2. Material

Inv. No.: 1072, Bodrum Underwater Archaeological Museum

Material: Copper based (No analysis available)

Length: 13,3 cm

Width (blade-max): 7,00 cm

Thickness (blade-max): 0,45 cm

Width (hammer-max): 3,00 cm

Shaft-hole diameter: 2,3 cm

Description: Intact. Hammer-axe with a convex, splayed blade and blunt butt. Circular shaft-hole, with distinct mouldings round the top and bottom edges. The sides of the blade and the butt extend both concavely towards the edges. Fan-shaped blade has a quadrangular, while the butt has an octagonal section. Both the cutting edge and the butt show traces of wear due to intensive use. The cracks on

both sides of the shaft-hole moulding are possibly due to same reason. The slight deviation of the blade from the longitudinal axis and irregularities on the shaft-hole are also signs of deformations due to heavy use. Cast as a single piece then finished by hammering. Heavily corroded.



Fig. 2: Hammer-axe from Bodrum Museum of Underwater Archaeology, photo by the author.

The axe was purchased in 1964 from İzzet Salcı, an antiquity dealer based in Yatağan (a district in Muğla province) with no further information about the exact find spot. However, museum records show that the same person brought many artefacts – including prehistoric material – in several occasions with designated find spots of Yatağan and Turgut (Fig. 1). Both locations are known for EBA cemeteries (Boysal; Tırpan 79), which were partially excavated during the late 1960s and 1970s or extensively looted. Another large EBA cemetery is located at Damlıboğaz (ancient Hydai) near Milas (Fig. 1), which was subject to intensive looting and its materials are now scattered in regional museums (Keskin and Yıldız 200). All these

cemeteries have also produced metal weapons, currently stored at Bodrum Museum; and some of them display characteristics of the later EBA types¹. The axe was sold along with three other objects; two of them were a terracotta lamp and a small marble statuette, both from classical periods. The fourth item was a large, red-slipped, hemi-spherical bowl with two horizontal handles (Inv. No. 1075). With a 28,5 cm rim diameter and 11 cm depth, this pan-like vessel also displays EBA characteristics in terms of form, production and surface treatment. The find spot for this find was given as Hacı Bayramlar village near Turgut. The mound bearing the same name 500 m east of the village was also destroyed by looting activities and excavated in a limited manner during a short campaign in 1971-72, which revealed the traces of an archaic settlement (Serdaroğlu 77ff).

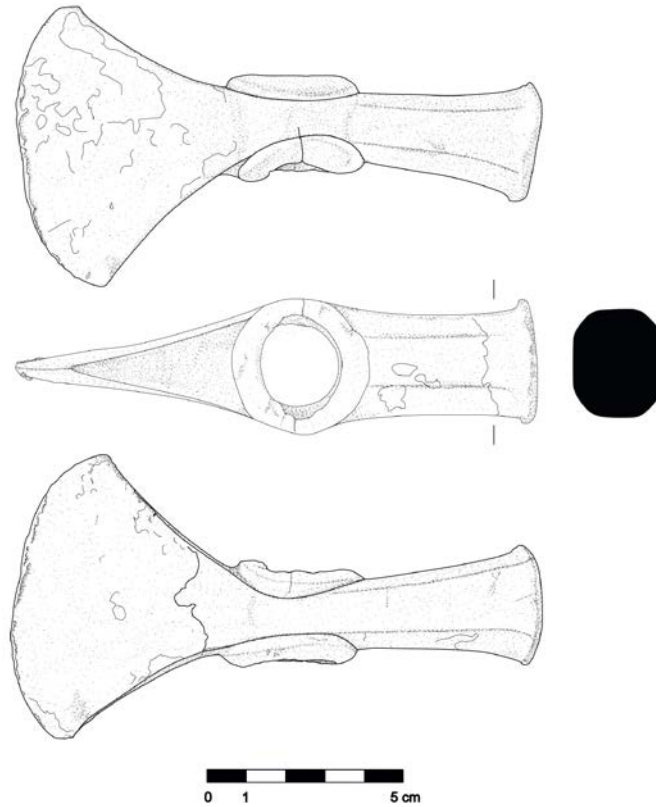


Fig. 3: Hammer-axe from Bodrum Museum of Underwater Archaeology, raw drawings by the author; digitized and processed by Emine Akkuş-Koçak.

¹ Above-mentioned finds, including the axe presented here were studied within the frame of the project “The Early Bronze Age in South-eastern Anatolia” carried out by the author and Mehmet Yıldız. This project aims to reveal the overall character of the region during the EBA, based on numerous artefacts located in the museums of Muğla and its districts.

The find spot information given for the above mentioned vessel may be viable for the whole group and it is a well-documented fact that in this very region same areas were used as burial grounds both for the EBA and Archaic periods, sometimes mixed to and/or lying on top of each other. Thus, it is possible to conclude that the axe was more likely a burial gift deposited in one of the cemeteries in the close vicinity and found its way to the museum by illicit excavations.

3. The Distribution of Parallel Finds

The distribution of this specific type seems to be concentrated in western Anatolia; which also supports to seek the possible origin in this region. Among the parallel finds, the first example comes from Bakla Tepe in central coastal region (Fig. 1). This axe was recovered from a pithos burial belonging to an adult female (Keskin, "MÖ III. Binyılın Sonuna Kadar..." 148, Res. 5) and displays the same typological features, as the splayed blade, hammer part with octagonal section and round mouldings around the shaft-hole (Fig. 4, a; Fig. 5, a). The EBA cemetery of Bakla Tepe is one of the largest and extensively excavated ones in western Anatolia. Although it still awaits the final publication, preliminary results date the cemetery in the late EBA II and early EBA III periods, based mainly on pottery typology (Erkanal and Özkan 19; Şahoğlu 173). A unique seal recovered from the same grave (see below for the discussion) finds its best parallel from Trapesa Cave in Crete (Platon 519, Nr. 438) and was dated to the Early Minoan III period by the excavators (Pendlebury, Pendlebury and Money-Coutts 101, No. 9, Fig. 21, 9), which also supports a late dating of Bakla Tepe axe within the chronological horizon of the cemetery.

The second example was found at Demircihöyük-Sarıket cemetery (Fig. 1) further east on the inland zone (Seeher 54, Abb. 49, G.494.b, Taf. 19, 2). The find comes from a simple inhumation burial belonging to a young female of 15-20 years old (Seeher 122). Beside the similarity observed on overall shape, same typological features are also present in this specimen, namely the hammer part with octagonal section and round mouldings (Fig. 4, b). Based on pottery evaluations Seeher suggested that the cemetery should be contemporary with the last third of the nearby settlement (Phases K/L to P: EBA II, Seeher 222). However, some graves seems to be later and represent Phase Q, which corresponds to late EBA II and early EBA III. The ¹⁴C dates from the settlement for the former period indicates a time interval between 2650-2500/2450 BC and the absence of some specific forms

at the cemetery, such as *depas amphikypellon*, wheel-made plates and vessels with patterned reserve-slip decoration, is interpreted as an evidence of contemporaneity of the majority of the graves with these settlement phases (Seeher 222). On the other hand, a B2 type jug, found in the same grave with the axe, has no parallels at the settlement, while sherds resembling the same type were found only at the latest phases of Q and P and compared with EBA III examples from other sites (Seeher 40). When this fact and the presence of later graves mentioned above are taken into account, this particular grave, thus the axe most probably belongs to the latest horizon of the cemetery and can be dated to the EBA III, or after 2400 BC, which also complies with the relative dating of Bakla Tepe example.

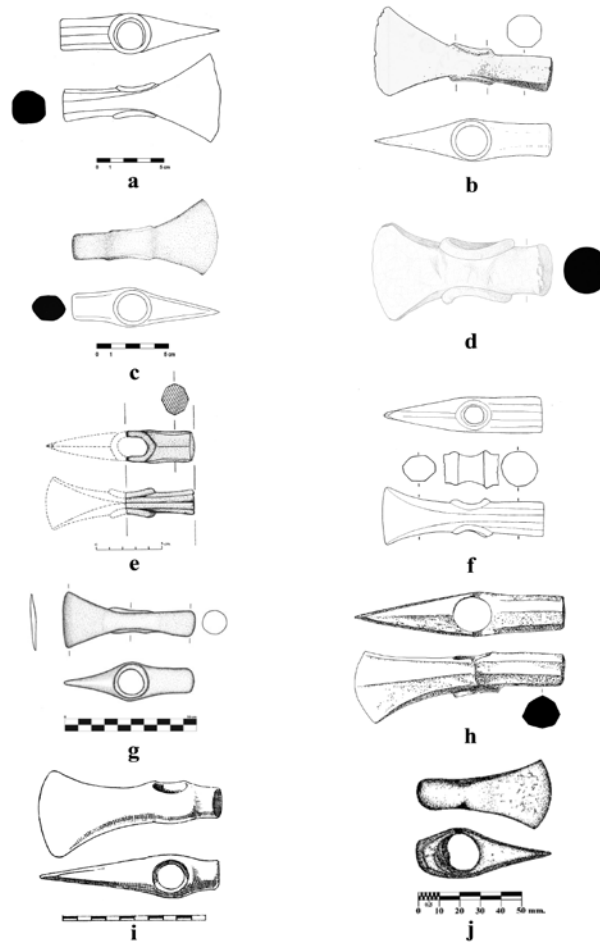


Fig. 4: Hammer-axes from different sites

a: Bakla Tepe (after Keskin, *Izmir Bölgesi Maden...* Lev. 4, 26); **b:** Demircihüyük-Sarıket (after Seeher Abb. 49, G.494.b); **c:** Yortan (after Kâmil Fig. 88, 336); **d:** Dedekuyusu Höyük (drawn after Tül 49 by Emine Akkuş-Koçak); **e:** Resuloğlu (after Yıldırım Şekil 4); **f:** Sadberk Hanım Museum (after Anlağan and Bilgi 76); **g:** Afyon Museum (after Fidan et al. 64); **h:** Tell Yunatsite (after Avilova and Mishina Fig. 1, 12); **i:** Polatlı (after Lloyd and Gökçe Fig. 14, 13); **j:** Isparta Museum (after Çetin Fig. 6).

The third example was found during P. Gaudin's excavations at Yortan cemetery (Fig. 1) in Balıkesir (Collignon 810) at the beginning of the 20th century. Except being a burial gift, unfortunately we don't have precise information about the exact context of the find. While the hammer part is slightly shorter, it has an octagonal shape and round mouldings around the shaft-hole as well (Fig. 4, c), and bears traces of wood inside the hole (Kâmil 110, Fig. 88, 336). According to Kâmil, who studied and published the Yortan material, the mouldings may be an indication of a later date than the EBA II (22); and he concluded that all metal items from the cemetery were most probably associated with Class B or C pottery of the cemetery, which he dates to EBA II and III, respectively (39; 18-19 and Table 2). This was also suggested earlier by Przeworski (120), who proposed a dating around 2300 BC for the Yortan axe.

The other examples from western Anatolia are either chance finds or purchased by museums, probably deriving from illicit excavations. Although they provide no contextual data, their presence allows us to follow some typological variations in terms of regional differences and to set up a more or less accurate distribution pattern over western Anatolia.

First of this group was found in 1974 as a chance find on the surface of Dedekuyusu Höyük in Aydın province (Fig. 1), currently located at Milet Museum (Tül 49). While the general shape and the round mouldings around the shaft-hole resemble the previous examples, the hammer part is much shorter and has a circular section, which probably represents a regional variation (Fig. 4, d, Fig. 5, b). The pottery sherds collected from the surface of the mound shows that it was occupied during the Late Chalcolithic and EBA periods (Tül 42ff).

The second example is located at Sadberk Hanım Museum in İstanbul (Fig. 4, f, Fig. 5, c). Apart from the same morphological features, the ridges on both sides of the blade, which forms a quadrangle section and the section of the hammer part, described as a sixteen-sided polygon appear as typological variations (Anlağan and Bilgi 76, No. 41)². Based on the similarities with Yortan axe it was dated to the EBA and central Anatolia was proposed for the probable origin (Anlağan and Bilgi 76; Yıldırım 462). However, it should be noted that at the time of this publication Yortan axe was the only comparable material and on the contrary to central Anatolia, where numerous shaft-hole axes were present and displaying a variety of

² A closer examination of the photograph at the publication does not exclude the possibility that this item might represent an octagonal section as well.

forms, not a single metal axe was known from western parts of the country. In the light of the current distribution of similar finds, it wouldn't be wrong to postulate, that this axe also should have been originated from western Anatolia.

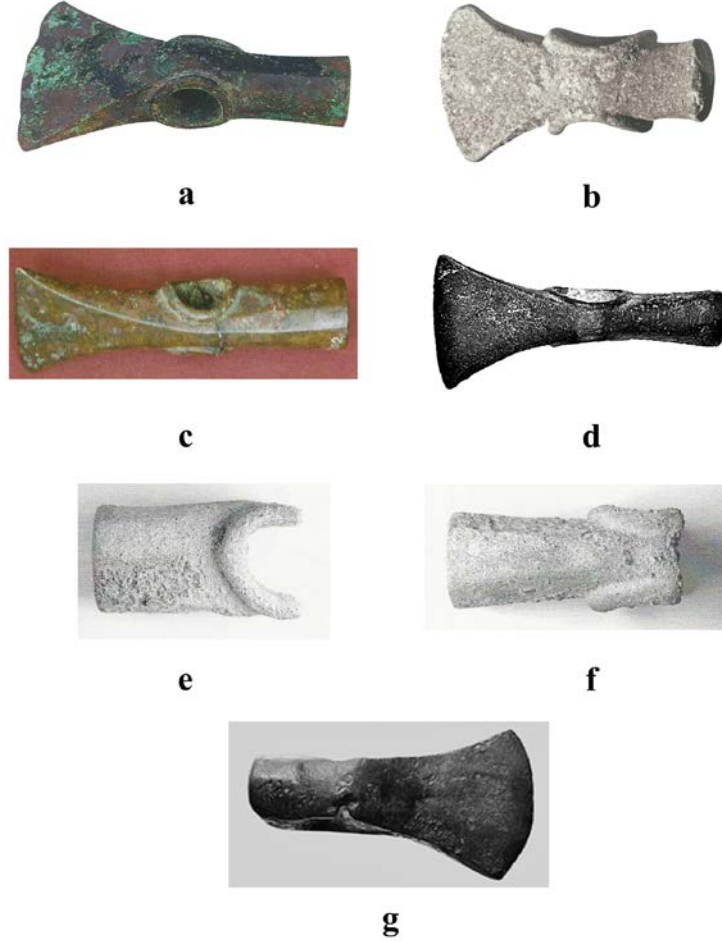


Fig. 5: Hammer-axes from different sites

a: Bakla Tepe (after Şahoğlu and Sotirakopoulou 282); **b:** Dedekuyusu Höyük (after Tül 49); **c:** Sadberk Hanım Museum (after Anlağan and Bilgi 76); **d:** Afyon Museum (after Fidan et al. Fig. 2, 7); **e-f:** Resuloğlu (after Yıldırım Res. 4, a-b); **g:** Isparta Museum (after Çetin Fig. 6).

The most recently published example of this group comes from Afyon Museum (Fig. 1), with the same find spot information (Fig. 4, g, Fig. 5, d). All typological features remain the same, except the hammer with a circular section (Fidan et al. Fig. 2, 7 and 64, Kat. No. 7; but cf. fn. 2 here). Based on similar finds from Sariket and Yortan cemeteries this axe was dated to the second half of the 3rd Millennium BC (Fidan et al. 57).

The only example outside western region comes from Resuloğlu cemetery in northern central Anatolia (Fig. 1), where different types of shaft-hole axes were recovered from graves. A typologically similar axe among them was discovered in a pithos burial (Yıldırım 461, Şekil 4, Resim 4, a-c) and was deliberately broken before being deposited in the grave, which is a common custom at this cemetery and nearby ones, observed on many metal vessels and weapons (Yıldırım and Ediz 59). Although only half of the axe was preserved and the blade is missing, the round mouldings around the shaft-hole and the hammer part with octagonal section leaves no doubt that this item represents the same type (Fig. 4, e, Fig. 5, e-f). The preserved half of the shaft-hole seems to be completed in an oval form rather than circular, which might be interpreted as a sign of deformation or a typological variation. Based on mainly pottery typology the cemetery is relatively dated to the later phases of the EBA and the proposed date especially for shaft-hole-axes of different types is given as an interval of 2300-2100 BC (Yıldırım 458, 462).

Apart from aforementioned examples, similar finds from several museums are also reported (qtd. in Seeher 54, fn. 172). This list includes finds from Konya, Karaman, Manisa and Afyon museums (Fig. 1). Although we do not have neither additional information nor representation of these finds, the Afyon example should be the one that was recently published by Fidan et al. and discussed above. In this case other examples may also be interpreted as representing the same or a similar form; but should be taken with precaution, since they lack the information on the actual find spot and their contexts.

Two more examples from Anatolia are worth mentioning in this study. While they show slight differences in terms of typological features, they may be taken as regional variations of this type, hence provide important information regarding the development and possible origin of this type (see below). First of them comes from Polatlı near Ankara (Fig. 1). Even though the overall form represents the type of the same hammer-axe (Fig. 4, i), the rear part with a circular section is much shorter and the round mouldings are missing (Lloyd and Gökçe 60, Fig. 14, 13). Although it is unstratified, the EBA levels at Polatlı are generally placed into the second half of the 3rd Millennium BC and said to be contemporary with Troia II. The axe was also dated in this interval, based on both the pottery sequence of the site and the close analogies with Alacahöyük silver axe and stone hammer-axes from Troia Treasure L (Lloyd and Gökçe 60). A long dagger from the same site with a distinct central

flange resulting in a hexagonal section, which is an indication of a developed type, also speaks for this dating, and even for a later one (Lloyd and Gökçe Fig. 14, 12).

The last example was purchased by Isparta Museum (Fig. 1) with the find spot information given as Sütçüler district in the same province (Çetin 122, 136, Fig. 6). This miniature example resembles the Polatlı axe in overall form, while the hammer part differs with rectangular section (Fig. 4, j, Fig. 5, g).

While this type seems to be unique especially for western Anatolia, a similar find from Tell Yunatsite from Bulgaria, in western Thrace (Fig. 1), presents important information on the distribution of this type and the interactions between two regions. The axe (Fig. 4, h) was discovered during the Bulgarian-Russian expedition conducted at the site between 1982-2001. Except the appearance of the round moulding only on one side, all typological features are the same (Avilova and Mishina 183, Fig. 1, 12). This object was found in the Horizon II, which is placed into the EBA III of relative Bulgarian chronology (Avilova and Mishina 185). There are no ¹⁴C data available for this horizon, however the radiocarbon dates from the preceding period gives a *terminus post quem* for this level and makes it possible to date between 2290-2040 BC (Avilova 5).

4. Some Remarks on Possible Proto-types and Development Scheme of Hammer-Axes in Anatolia

Since Anatolian examples appear at a relatively later date during the second half of the 3rd Millennium BC compared to other regions, it may be useful to have a closer look at those development to seek for the possible origin and/or influences.

When we approach the subject from a wider geographical perspective the metal shaft-hole implements appear as early as in the 5th Millennium BC in southeast Europe – more specifically in the Balkans and Carpathian basin – and continued to be used for a long time period in many different types (Govedarica; Rosenstock, Scharl and Schier). A similar situation can also be followed in the northern regions of Black Sea and Caucasus, starting at a slightly later period (Hansen). The hammer-axes represented among these types display a rich variety of forms and widely distributed all over these regions. Although it is occasionally cited that Anatolian forms derived from or influenced by Balkan examples, it is hard to admit this fact regarding the typological features and more importantly the chronological differences.

As for eastern regions, Mesopotamian examples of this type seem started to be produced by the end of the 4th Millennium BC. There are no metal axes from this period, however clay models from several sites (Lloyd, Safar and Frankfort 151, No. 2 and 5, Pl. XVIII, 2 and 5; K. Schmidt 13) are considered to be exact copies of metal ones, thus as an indication of the existence of this types in this period. While they come from unstratified or not securely dated contexts, three metal axes – one from Susa in Iran (Talon 315), two others from southern Mesopotamia (M. Müller-Karpe, “Zur Metallverwendung...” 137, Abb. 1-2) – are interpreted as the early representatives of this form and dated to the late 4th Millennium BC. The limited numbers of Late Chalcolithic moulds for shaft-hole axe-adzes from Iran also supports this opinion (Tepe Ghabristan: Boroffka 252, Fig. 6, 1-2; Arisman: Helwing 60, Fig. 4).

Considering Anatolian shaft-hole axes we encounter a different line of development. Among various forms represented in numerous centres from different regions some types clearly reflect regional interactions and can simply be identified as imports or inspired forms, however as for the hammer-axes, which constitutes the subject of this study, there seems to be a different scheme. This particular form appears to be native to Anatolia and represented with several sub-types. Therefore it will be more appropriate to search for the origin and follow the development of this type in Anatolia. In this context, stone axes bearing similar forms provide important information.

Comparable stone examples appear with the beginning of the 3rd Millennium BC in west Anatolian sphere. A large number of examples from Poliochni on Lemnos, which can be included within the west Anatolian cultural *koine*, show that similar forms in stone were produced throughout the whole EBA (Bernabò-Brea, *Poliochni I* Tav. CII, 1-3, Tav. CLXXXIII, 1-11; Bernabò-Brea, *Poliochni II* Tav. CCLX, 1, 4-5). A halfly preserved example from Troia I with a wide and splayed cutting edge (Schliemann 277, Nr. 91) is also a good candidate for the prototypes of metal forms. However, the most spectacular stone examples appear in the so-called “Treasure L” from Troia (Sazcı 278ff). Beside typological information they provide, the chosen raw materials (possibly jadeite, nephrite and lazurite) and decorations also speak for the extraordinary and symbolic character of this items, most probably related to power. While the raw materials point to distant regions, many unfinished examples of this type at Troia are a direct evidence of a local production as well (H. Schmidt Nos. 7182-7195). When suggested chronological intervals are

taken into account, metal shaft-hole axes from several sites from central Anatolia bearing similar forms (Özgüç, *Maşat Höyük Kazıları...* 34, Şek. 87 and 89, Lev. 70, 1-2; Koşay, *Türk Tarih Kurumu Tarafından...* Lev. CLXVI, Res. 1; Bilgi, *Anadolu Dökümün Beşiği* 62) can be interpreted as metal imitations or descendants of this type. Another interesting feature on Trojan stone axes is the faceted appearance of the rear hammer part. The same feature observed on our form may be interpreted as an evidence of transition from stone counterparts to metal types.

This transition or the interaction between stone and metal types is best evidenced by a stone hammer-axe from Yortan. The exact details of this diorite axe, which was found also during Gaudin's excavations, are not clear enough, since it was published in an insufficient photograph with a large group of different objects (Collignon Pl. 1); however, it seems to be an exact copy of our form (Bittel 16), only with a shorter hammer part with a circular section, thus resembles the Dedekuyusu axe in every detail, except the round mouldings around the shaft-hole, while this absence seems reasonable for a stone product. In light of this development scheme summarized above and the distribution map of current examples, it wouldn't be inaccurate to postulate that this type of hammer-axe emerged and developed in west Anatolia and partially spread to other regions thereafter.

Another type of a hammer-axe from Bakla Tepe cemetery may provide valuable insights on the development line of such examples (Fig. 6, a-c). This miniature axe was found in a poorly preserved infant burial and represent a unique case as produced from lead (Keskin, "MÖ III. Binyılın Sonuna Kadar..." 148, Res. 4, a-b). Similar copper-based types, which represent the simplest form of hammer-axes, first appear in southeast Europe during the 5th Millennium BC and they are usually classified within the Pločnik type (Schubert 277). Five lead axes from several EBA Aegean sites – including Bakla Tepe example – were recently discussed by Georgakopoulou in light of a recent find from Dhaskalio on Keros (Fig. 1). Although they represent different forms, all of them are miniature examples, produced from the same material and four of them come from burial contexts. She rightly questions their functional use as proper axes, considering both their size and the raw material and mentions the opinion of an experienced silver-goldsmith that these were made as toys for a child and possibly a metal-smith's relative (681). Considering that both Bakla Tepe axe and another example from Samos on Chios (Milojčić 52, No.2, Taf. 21, 4, Taf. 50, 11) were recovered from child burials this

seems a reasonable explanation and offers another perspective on the symbolic use of hammer-axes.

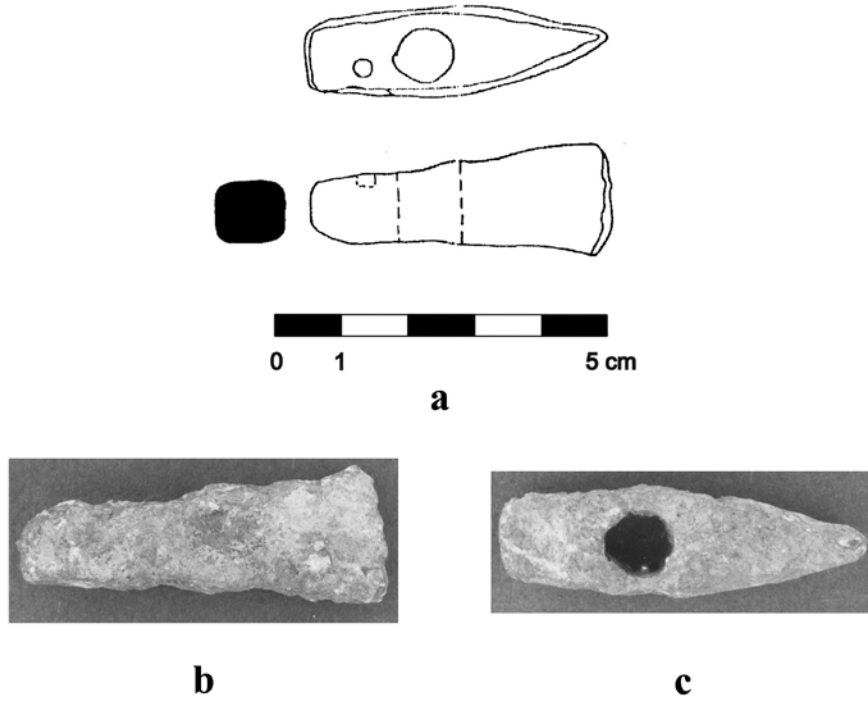


Fig. 6: Lead hammer-axe from Bakla Tepe

(a: after Keskin, *İzmir Bölgesi Maden...* Lev. 4, 25; b-c: after Keskin, “MÖ III. Binyılın Sonuna Kadar...” Res. 4, a-b).

On typological grounds, more or less contemporary and similar examples to Bakla Tepe find come from the west Aegean as well. Unfortunately all of these finds are unstratified and makes it hard to derive chronological conclusions. The find spot for the first item of this group was given as Levadeia in Boetia and is usually dated to second half of the 3rd Millennium BC since the earlier studies on the subject (Deshayes 267, No. 2106; Tripathi 44; McGeehan-Liritzis 69, Cat. No. 257). Other two examples come from the Finlay Collection of the British School at Athens and the find spots for them are given as Mesolonghi and Athens (Phelps, Varoufakis and Jones 178, Fig. 1,4, Pl. 22, 4-5). Phelps et al. consider these types as probable imports and offer two regions for their possible origin, namely the Balkans (Pločnik type) and Anatolia; adding that the former option is more plausible, thus enabling to place the finds somewhere in the 4th Millennium BC (179ff).

If this assumption is correct, one may predict that this simple Balkan form was transferred via the west Aegean to Anatolia and the İzmir region on the coast, where Bakla Tepe is located, lies in a favourable position for such a transition and

the appearance of some metal forms from the Balkans in this region from the beginning of the 3rd Millennium BC is well documented (Keskin, “Anadolu’da Ele Geçen...”). However, it is not possible to speak for certain, since the west Aegean examples come from unstratified contexts. On the other hand, stone counterparts representing this simple form also appear in many west Anatolian sites from the earlier phases of the EBA onwards, which might be interpreted as an indication of a local development.

In addition to a possible Balkan origin or influence on Anatolian hammer-axes, Caucasus has been also referred as a second possibility (Gernez 255). Although they represent certainly different chronological horizons in light of recent studies, the relation and mutual interaction between central Anatolia – especially Alacahöyük– and Maikop culture (northern coasts of Black Sea in general) were often expressed in the earlier studies, significantly in terms of metal artefacts. Yet some forms of metal axes from this region seem to have a possible influence on some Anatolian examples (Deshayes 266, No. 2102; Chernykh, Avilova and Orlovskaya Fig. 5, 26; Hansen Fig. 10, 5 and 8), which for instance can be observed on the axe from Polatlı; however later development of this type is more likely native and seems to be occurred in western Anatolia.

5. An Assessment of Probable Production Techniques

For the production of shaft-hole implements many techniques have been proposed, including forging as well. Although this technique is evidenced as early as in the 5th Millennium BC for some products (Yalçın, “Anfänge der Metalverwendung...”), it is most unlikely that it was used for shaft-hole axes according to recent studies. Even though casting seems to be the appropriate mean of production, there is hardly a full consensus on which method(s) was used. The oldest method used to produce shaft-hole implements was open-mould casting. Such moulds from Late Chalcolithic levels from several sites in Iran, mentioned above, represent the earliest evidence of this production technique and were used to produce mostly axe-adzes. However, this type of casting is more appropriate to produce simpler objects, which show a full symmetry and have minor details. Regarding our form, especially the round mouldings around the shaft-hole and the faceted hammer part; the use of another method seems more plausible. The remaining alternatives are the use two-piece or bi-valve moulds, lost wax technique and sand-casting.

With the second half of the 3rd Millennium BC, bi-valve moulds of shaft-hole axes appear at numerous sites in Anatolia, more densely in eastern and south-eastern regions (Arslantepe: A. Müller-Karpe Taf. 42, 1-3; Norşuntepe: Hauptmann, “Die Grabungen auf dem Norşuntepe” 68, Lev. 32, 4; Hauptmann, “Norşuntepe Kazıları” 28, Lev. 10 Kültepe: Özgüç, *Kültepe-Kaniş II..* 43, Lev. 89, 2:a-c; Maşathöyük: Emre 23, Fig. 86, a-b, Pl. XX, 5, a-b; Gavurhöyük: Koşay, *Keban Projesi Pulur...* No. 837, Lev. 110; Küllüoba: Fidan 257 Şek. 9, a-b). While such pieces represent various forms of axes, clay cylinders, which were used to create the shaft-hole during casting process, were also recovered at Norşuntepe in the same contexts and their dimensions fit well to those on the moulds (K. Schmidt 48, Taf. 43, 555-559). The distribution pattern of bi-valve moulds during the EBA interestingly excludes some regions, such as Mesopotamia, Iran and Syria, where numerous metal axes were present for this period. This brought Schmidt to the conclusion that metal axes in these regions might have been produced primarily by lost wax or sand-casting methods and that a similar situation was valid for west Anatolia and the Aegean as well (41ff).

Unfortunately it is not easy to determine the use of both techniques, since they hardly leave traces, accessible in the archaeological record; however it may be possible to make some assumptions, even to a certain extent, through indirect evidence. West Anatolian sites provide valuable insights on this very subject, as well. A clay mould from XXXX level at Poliochni was apparently produced as a lost wax pattern (Bernabò-Brea, *Poliochni I* Tav. LXXXV, d) and two more examples from Thermi on Lesbos (Lamb 121, No. 367, Fig. 37 and 134, No. 601) – one from Town IV, the other unstratified but bearing a similar form – were interpreted by some scholars in the same way and regarded as a direct evidence of the use of this technique in this region from the beginning of the 3rd Millennium BC onwards (Branigan 82; de Jesus 41; A. Müller-Karpe 155). A parallel find from Troia (H. Schmidt 267, No. 6768) can also be included in this list, even though a dating in the EBA is questionable (cf. A. Müller-Karpe 155, Taf. 61, 4).

As for the sand-casting the situation is more complex. Along with being a relatively simpler and faster method, all desired details can easily be rendered and the outcome can be used as a pattern for further products. Despite these advantages, in most of the early studies its application during the prehistoric periods was simply ignored, since it was thought that this technique started to be used in much later periods. However, recent studies after 1980s started to question

the possibility of this method for these periods. According to Davey a clay model of an axe-head – found among other metalworking tools at Tell Edh Dhiba'i in the Isin-Larsa period – is a possible evidence for sand-casting and this identification was largely confirmed by the discovery of an associated clay core to be used to create the shaft-hole (178ff, Fig. 5, 21-22, Pl. c and d). Although Davey's suggestion was taken suspiciously by some scholars (cf. Moorey 268) as the evidence is not solid enough, further evidence was supplied by M. Müller-Karpe, who conducted experimental studies in the 1980s in Baghdad with a metal-smith, who was still using this technique to produce metal keys. According to him, the use of this technique can be recognized by some distinct features observable on the surface topography of the artefacts (especially a lumpy surface) and he argued that some of the EBA Mesopotamian metal axes were produced by this method ("Der Guss in der verlorenen" 187, Abb. 19-20). Furthermore, he claimed that the clay axe models of the Late Chalcolithic period, mentioned above, were actually patterns for sand-casting rather than imitating metal counterparts, thus this technique was in use as early as at the end of the 4th Millennium BC (192).

Considering the examples presented in this study, it is hard to reach to a certain judgment in the absence of metallographic examinations and further analyses. Only for the Sariket axe, lost wax method was proposed as a probable production technique, but without any solid evidence or further interpretation (Massa, McIlpatrick and Fidan 70 and Tab. 3). Since all specimens are heavily corroded, it is hard to identify surface features mentioned by M. Müller-Karpe; however some traces at the hammer parts of Bodrum and Bakla Tepe axes and around the shaft-hole in the latter may be interpreted in such a way. Apart from these, the round mouldings around the shaft-hole and the faceted hammer part observed in this type seem to be the most important elements, which might help to identify the proper production method.

The earliest examples of shaft-hole axes with round mouldings around the hole first appear among south-eastern European types in the late 5th Millennium BC. Examples with round mouldings on both sides represent the Crestur and Székely-Nádudvar types (Schubert 277-78; Vulpe Taf. 5, 44, 47-48). According to Heeb, who studied southeast European shaft-hole axes in a very detailed manner, these both types were probably cast in bi-valve moulds with shaft-hole in place and finished through forging (239). On the other hand, the fact that no such moulds were discovered in this region despite the abundance and wide circulation of metal

axes from earlier periods onwards, was also interpreted by K. Schmidt (41) as an indication of the use of lost wax and/or sand-casting methods during these early periods in this very region.

Turning back to Anatolian hammer-axes, the use of lost wax or sand-casting methods or both of them seem more reasonable, specifically considering the ease and speed they would offer in rendering the round mouldings and the faceted hammers. On the other hand, it is equally possible that the types with circular hammer section were produced in bi-valve moulds.

6. Reflections of Social Status and Power: Symbolic Values of Hammer-Axes

As best represented by Trojan stone examples and the silver specimen from Alacahöyük this type of axes appear as significant and prestigious objects having symbolic values and probably displaying the social status. Among the finds presented in this study, some examples as burial gifts from well-stratified contexts provide valuable insights on this very subject.

Although there are some limited data from Sarıket cemetery, it is not possible to reconstruct a clear distribution pattern of the graves or burial finds reflecting a hierarchy or social stratification. However, the grave, in which the axe was discovered, must belong to an important person, since it represents the only find of this type in the whole cemetery. Another important point is that this is the only female grave with such a heavy weapon³.

Even though avoiding an absolute judgment, Seeher mentions the existence of some gender-oriented finds in the cemetery and states that the mace-heads and stone battle-axes were mostly associated with male burials, whereas clay whorls, whether they were used as spindle-whorls or as ornamental objects, were found in female graves. However, he also states that it may not be as easy or accurate as it seems to judge on the gender or the social status of the deceased. His most interesting and related comment is on the presence of the hammer-axe in the grave of a young woman. He claims that the presence of the axe might be interpreted both as a reflection of a young warrior woman (amazon) or as a farewell gift of a father to his beloved daughter, by placing his valuable and personal belonging to her grave and adds that both alternatives are equally possible (29).

³ The only exception is Grave 305, belonging to a 20-40 years old female, where a simple dagger blade was found along with some other objects: Seeher 102, Abb. 37, G. 305, g).

For a wide geographical scope and different periods metal weapons are usually thought to be associated with male burials or identity. Similarly different types of shaft-hole axes from Resuloğlu cemetery are reported to be found mostly in male graves. However, a contrary case is also evident for the Anatolian EBA in considerable numbers. At İkiztepe on the Black Sea coast there are a significant number of females buried with different types of weapons (Bilgi, "Distinguished Burials..." Pl. 21, 25 and 33). Likewise the metal shaft-hole axes from female graves at Ahlatlıbel in central Anatolia (Koşay, "Ahlatlıbel Hafriyatı" 76 and 93-95) provide additional information and more importantly the possible relation between this type of weapons and women.

Within this frame, the find context of Bakla Tepe axe reflects a unique and as much as an important case. The axe was found in a pithos grave belonging to a female of 35-40 years old; and both the position of the grave and the anthropological evidence suggest that this individual had an important status within the society, thus also speaks for the symbolic value of the axe itself. While burying multiple persons in a single container is a widely attested custom at the cemetery, this large pithos constitutes the sole example with a single burial, especially as a vessel of this size (Massa and Şahoğlu 168). While the pottery recovered from the grave outreach the other examples from the rest of the cemetery in terms of their sizes, the singularity of the axe within the cemetery is also paralleled by the unique ivory seal, which is an indication of possession (Erdal 340; Şahoğlu 176). More importantly, the anthropological investigations revealed the existence of a trepanation performed on the skull of this elder woman (Erdal 338ff).

Starting with the Mesolithic period this procedure is well documented in a wide geographical area and time interval, and was performed both as a medical surgery to handle with cranial trauma or in a symbolic and ritual way (Gresky et al. 678ff). The examinations on Bakla Tepe skull show that this procedure represents an unfinished, thus probably a symbolic trepanation (Erdal 340ff, Res. 4-6). The contextual information of the grave and the finds together with the anthropological evidence as a whole suggest that this grave belonged to a very important individual within Bakla Tepe society. This can also be implied to the presence of the axe in this grave and interpreted as a reflection of the power and rulership of this identity. It also creates a solid ground for a parallel explanation of the axe and its owner at Sarıket cemetery.

The studies on the southeast European examples show that the shaft-hole axes appear more likely in hoard finds, whereas other types of weapons were preferred as burial gifts. Thus, shaft-hole implements and more specifically hammer-axes are usually regarded as tools and their deposition in large groups are thought to be associated with their material value and male identity and power (Maran 281ff; Hansen 146; Rosenstock, Scharl and Schier 99; Heeb 256-57). On the other hand, Anatolian examples reflect a unique situation for this region, while they come from burial contexts and belong to females, as shown by Bakla Tepe and Sariket examples. The reason behind the appearance of certain new elements observed in the material culture with the beginning of the 4th Millennium BC in southeast Europe is usually sought by the migration of different groups into the region; and one of the most radical changes of this transformation is sometimes expressed as the emergence of a patriarchal society and linked to the arrival of Indo-European tribes (Gimbutas 1991). On the contrary, Anatolia has a more powerful and long-lasting matriarchal tradition, which might have been resulted in the dynamics behind this contrast.

7. Conclusion

As discussed in detail and summarized above, this type of hammer-axes presented in this study reflects a distinct form among shaft-hole axes, which emerged in western Anatolia in the second half of the 3rd Millennium BC. While it was most probably originated and developed after stone counterparts, this progress must have taken place somewhere between the late EBA II and early EBA III, in terms of west Anatolian relative chronology. In the light of our current corpus this period may correspond to an interval between 2400-2300 BC. The proposed dates for Resuloğlu and Yunatsite examples, which represent the evidence outside the core area, are also consistent with this dating. While the overall shape and some morphological features are commonly shared by most examples, some nuances should be interpreted as regional variations rather than chronological differences. Merely, the examples with a hammer part of circular section may represent a slightly earlier form, and this may also indicate a difference in the production technique, as mentioned above.

The contextual information gathered from Bakla Tepe and Sariket examples clearly reveals that, beside their functional use, these axes had a symbolic value, which was probably related to power and status. The traces of wear observed on Bodrum, Sariket and Bakla Tepe examples, both in the cutting edge and in the

hammer part, show that these artefacts were not only and specifically produced to be deposited in the graves, but they were also used probably as a reflection of this symbolic power during the lives of burial residents. Based on these examples, it would not be wrong to postulate that the museum finds also come from burial contexts. This type of hammer-axes, which represent a distinct form within the strong tradition of the Anatolian EBA metal industry, also provides important insights on the relations and interactions of western Anatolia with other cultural zones. Future studies to be performed on this very subject, particularly metallographic examinations and detailed analyses regarding the production technique, will apparently help to further understand the technological dimensions and the line of development.

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