



New data for the Early Bronze Age Balkans-Anatolian interrelations: the axes from the Edirne Museum (Türkiye)

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ABSTRACT

Metal shaft-hole axes were an important status tool for the Balkan Bronze Age societies. These axes are spread over a wide geographical area and are divided into many different subclasses. One of these subclasses is the Veselinovo group. Several bronze axes were donated to the Edirne Museum in 2020, five of which were of Veselinovo I type. It was recorded that these axes were found in a field near the Uzunköprü district of Edirne province.

The geographical area where this type of axe is most frequently found is northern Greece, Thrace, the Carpathians, the steppe and forest-steppe regions of Ukraine, the Caucasus and Anatolia. These artefacts provide important information about the distribution routes of similar axes that spread in these regions in the Bronze Age.

Two axes with similar form have been recorded in Anatolia. One comes from northeastern Anatolia, close to the Caucasus Region, and the other is from inner western Anatolia. It is known that western Anatolia was in contact with the cultures of the Thracian region during the Bronze Age. The bronze axes in the Edirne Museum shed new light on this communication network. There is a very strong possibility that the Veselinovo I type axes from central western Anatolia were brought to the region from Thrace. It is noteworthy that the Uzunköprü-Keşan valley line in Eastern Thrace was decisive in the transport of this axe type from Thrace to Anatolia.

KEYWORDS

Bronze axes, Veselinovo I type, Bronze Age, Thrace, the Balkans, Anatolia

Introduction

The discovery of metal brought an important social change in human history. Metal objects are considered as status indicators that provide hints about the socio-economic structure of the studied period. In that vein, copper alloy/bronze axes are defined as strong status indicators among the Bronze Age material culture (Popescu 2006, 447). Another prominent item among the rich metallurgical inventory of the Bronze Age, is the axe type referred to in the literature as “single sharp-edged, hollow-sleeved”. This axe type, which spread rapidly throughout Eurasia from the beginning of the Early Bronze Age, developed into much more diverse shapes, in parallel with the macro-cultural changes experienced during the transition from the Early Bronze Age to the Middle Bronze Age, and continued to be used until the end of the period¹.

In the Balkans, copper axes technology dates to the second quarter of the 5th millennium BC. The axes with a single sharp edge and a rounded sleeve began to spread rapidly in the second half of

1 For the birth of shaft-hole axes as a new cultural element after the Chalcolithic Age, see: Băjenaru 2018, 127.

4th millennium BC (Băjenaru 2018, 122; Klochko et al. 2020, 9–15). However, they acquired a wide production and distribution network during the Early Bronze Age (Kleitsas 2018, 15; Klochko et al. 2020; Hansen 2021, 31; Dani, Kulcsár 2021, 334–335)².

Such a spread in the Balkans and its neighbouring areas is crucial for understanding the cultural distribution of metal technology in the region (Vulpe 1970; Novotna 1970; Mayer 1977; Chernyh 1992, 57, 63; Motzoi-Chicideanu 1995, 235, Abb. 8–9; Prendi 1995, 243–244, Taf. 1; Gedl 2004; Harrison, Heyd 2007, fig. 47; Szeverenyi 2013; Dani 2013, 203, figs 1–3; Antonović 2014; Tishkin, Frolov 2017; Kleitsas 2018; Hansen 2021, 31; Bátor 2021, 533). This distribution pattern justifies the definition of a metallurgical koine over a large area encompassing the whole of Eurasia (Chernyh 1992, 57, fig. 50; Kleitsas 2018, 15)³.

Before the 3rd millennium BC, these axes were usually made of arsenic copper, but from the beginning of the millennium onwards, they were cast in bronze – a tin-mixed copper alloy (Pernicka 2012, 456).

Despite the discovery of a group of such axes near an Early Bronze Age salt quarry in central Transylvania, A. Vulpe disagrees with the suggestion that the sharp-edged, shaft-hole axes were tools used in mining activities. According to Vulpe, who draws attention to the low strength of the alloy used in the manufacture of the axes, it is much more likely that they were weapons rather than mining tools. The uniqueness of the metal used to make the axes is used as an additional argument to support this interpretation (Vulpe 1970, 27).

The question of when and where the single-edged, shaft-sleeved axes first appeared is yet unsolved (Vulpe 1970, 8; Novotna 1970, 28). Nevertheless, it is generally accepted that the proliferation of metal weapons, particularly single-edged, sleeved axes, created powerful social classes that established local or regional authority in the Early Bronze Age (Harrison, Heyd 2007, 133, 191, 193; Heyd 2011, 546; Dani 2013, 217).

The rich findings in the Yamnaya and Catacomb cultures, the two cultures of Eastern Europe with wealth of metal tools, should be the most obvious indicators of changing and strengthening classes (Dani 2013, 217; Klochko et al. 2020, 60–61, 73–75)⁴. J. Dani argues that such tools initially spread between regions thanks to travelling metal craftsmen, that gradually turned into settled workshops' production and became widespread (Dani 2013, 217; Klochko et al. 2020, 60–61, 73–75). However, V.I. Klochko suggests that the Banyabik treasure, which contains the most important metal axe group of the Yamnaya culture, and the axes of the Catacomb culture should be considered as a sign of Indo-European migration to Europe via Ukraine (Klochko 2001, 148, 335; 2020, 325; Klochko et al. 2020, 62, 75).

A. Vulpe has extensively analysed this type of axe found in Romanian and classified the single sharp-edged, shaft-hole axes into fifteen different subtypes (Vulpe 1970, 26–62).

Materials and comparisons

Five examples of the Bronze Age axes with a single sharp edge and perforated sleeve were brought to the Edirne Museum in 2022. The owner stated that he found these axes by chance at the same spot in an agricultural field about 5 km east of the town centre of Uzunköprü in the district with

2 Although early studies on the subject dated these types of axes to the Late Bronze Age, typological comparisons made in the light of increasing data as well as some archaeometric results have confirmed the Early Bronze Age dating of metal axes with single sharp edges and round shaft-hole in the Balkans (Kleitsas 2018, 15, 21).

3 For a comprehensive review of recent findings, especially from the Ukrainian contexts, see: Klochko et al. 2020.

4 For the relative and absolute chronology of Yamnaya and Catacomb culture see: Telegin et al. 2003, 132–184.

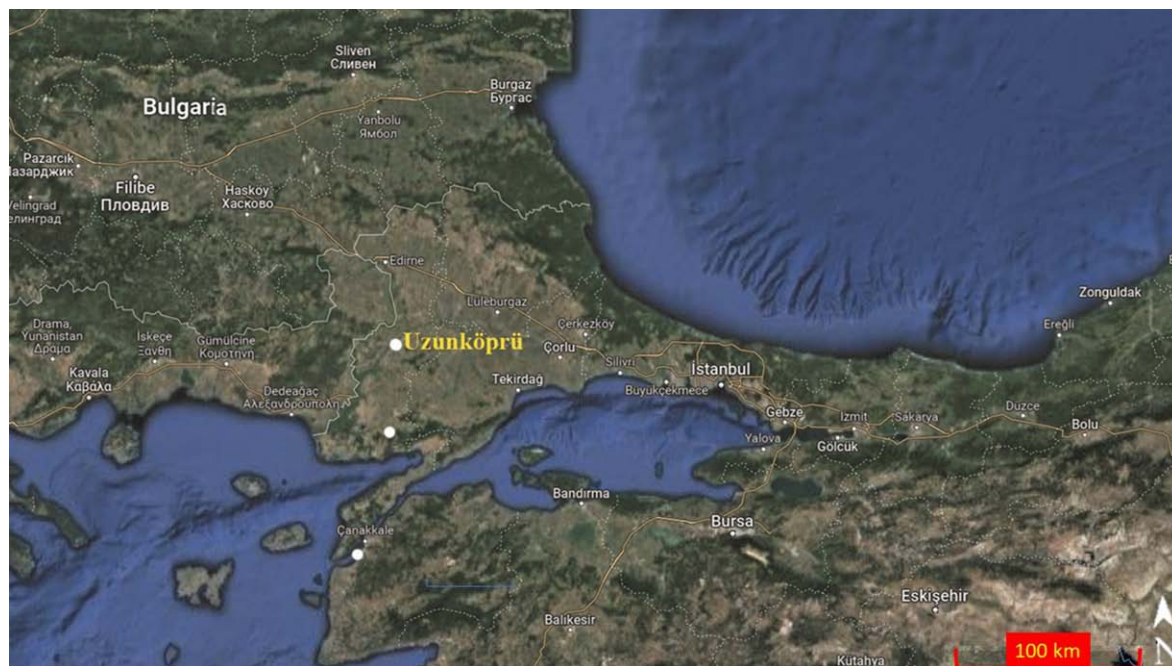


Fig. 1. Findspot of the axes from the Edirne Museum (by the author, based on Google Earth)
Обр. 1. Местонамиране на брадвите от Одринския музей (от автора, по Google Earth)

the same name located in the southern part of the Edirne province (fig. 1).

The axes have a length between 19.9 cm and 20.1 cm and a rim height between 4.7 cm and 5.7 cm. All have a body with slightly convex arc at the top; while in some, a slightly concave curve is observed at the transition from the body to the sleeve hole. The underside of the axes is also concave along the entire body and sleeve. In this part, there is no gradation from the sleeve to the body, and the arc-shaped curve is well integrated. The back of the sleeve also has a very slight outward curve (figs 2–4).

The cutting edges are damaged and blunted due to use, more intensely on some specimens. The outward rim opening of the upper and lower edges is a characteristic feature of the axes however, it was eroded in several of the Edirne examples. The shaft-hole is usually cylindrical, but since this form is not very regular, the inner width and thickness of the sleeve hole is different in some axes. The axes appear to have been produced by double moulding and joining; the joining line can be seen on the dorsal part, while a triangular shrinkage mark can be seen on the lower part. The surface of the axes, which appear to have been burnished at the end of the production process, shows some nicks, probably due to use-wear. Each axe has small pits of different number, caused by insufficient temperature adjustment or by the metal liquid not being poured into the mould at the proper rate.

In terms of their general form, the axes from the Edirne Museum show certain parallels with several types mentioned in A. Vulpe's classification. For example, although the Baniabic, Darabani, Kozarac and Corbasca⁵ type axes (Vulpe 1970, 39, 41, fig. 1; Novotna 1970, 28, Taf. 8.136–139; Zeravica 1993, 20–21, Taf. 5.43–44; Gedl 2004, 25–26, Taf. 3.13; Dani 2013, 204, 207, fig. 2, 3; Diaconu et al. 2016, 158), and the similar example found in a kurgan in Crimea (Hansen 2021, 54, fig. 37.2.) or known from the Aboshevo culture of the forest-steppe region of the Northern Black Sea (Mednikova et. al. 2020; Kuzmina 2021), are reminiscent of the Edirne examples with their outward curve on the upper part of the body and the sweat curve at the transition to the sleeve section, they

5 V. I. Klochko attributed such axes to the late variants of the Kolontaiv-Corbaska types of Catacomb culture which are common for the Babyno culture of Ukraine (Klochko et al. 2020, 75–82).



Fig. 2. Bronze axes in the Edirne Museum (photo by the author)
Обр. 2. Бронзови брадви от Одринския музей (снимка автора)

are distinctly different from them in terms of the transition of the lower face of the sleeve section to the body after making a straight line and the wide rims.

Even though they show various similarities with other types, the axes from the Edirne Museum should be included in the Veselinovo type axes group due to their form.

The Veselinovo type axes are named after their Bulgarian findspot (Vulpe 1970, 35). Their distribution area is quite wide and varied as per the current find locations in the Balkans. They are known from the Carpathians, the Lower Danube Valley, Central and South-East Bulgaria, and Northern Greece (Vulpe 1970, 35–37; Chernyh 1992, 135–138, 146, 152; Nikolov 2018, 308; Băjenaru 2018; Kleitsas 2018; Apakidze, Hansen 2020, 39; Hansen 2021, 67; Klochko 2021). Interestingly, no Veselinovo type axes have been described in publications until recently from Central Europe, although examples of other types have been reported (Novotna 1970; Mayer 1977; Rihovsky 1992; Zeravica 1993; Gedl 2004; Antonović 2014).

V.I. Klochko argues that the Veselinovo-type axes are a late variant of the Kolontaiv-Korbas-ka-type axes of the Catacomb culture, formed around Ukraine (Klochko 2021, 50–54).

It is also suggested that this type developed locally in the Northeastern part of the Balkans and Thrace where, probably many production centres have existed (Bajenaru, Tuşulescu 2021).

There are two sub-variants of the Veselinovo type axes: Veselinovo type I and Veselinovo type II. In their study, Băjenaru and Tuşulescu suggest that the Veselinovo type I axes belong to the production group defined as “shaft-hole axes cast in bivalve moulds open at the lower edge of the axe”. According to the same researchers, Veselinovo II type axes can be included both in the “shaft-hole axes cast in closed bivalve moulds with the sprue on the lower edge of the axe”, “shaft-hole axes cast in closed bivalve moulds with the sprue on the upper edge of the axe” and “shaft-hole axes cast in closed bivalve moulds with the sprue on the lower end of the butt” production group (Băjenaru,



Fig. 3. An example showing the underside of axes (photo by the author)
Обр. 3. Пример, показващ долната страна на брадвите (снимка автора)



Fig. 4. Top side of an axe (photo by the author)
Обр. 4. Горна страна на брадвата (снимка автора)

Tuțulescu 2021)⁶.

The axes of the Edirne Museum conform to the Veselinovo type I of A. Vulpe with their sloping back, open crescent-shaped belly integrated with the sleeve section, and not very wide but slightly flaring at the ends. Due to the general similarities in form, this type falls within a common typological circle with the Baniabic, Darabani, Kozarac and Corbasca type axes. Therefore, it would not be wrong to think that these types, all of which are Early Bronze Age production, were influential in the development of one another.

Veselinovo type I axes are very widely spread, with small differences in form. The Balkans are very rich in this regard (Kleitsas 2018, 23).

The examples of Veselinovo type I in southeastern Bulgaria show a close parallel to those from the Edirne Museum. But there are some differences in the details. For example, a symmetrical bow boots of the trunk are similar to the Edirne examples but the top protrusion of the sleeve hole is different in examples from the Karnobat Region (Nikolov 2018, Cat. 178). Three axes which come from the mountains between the town of Maglizh and the village of Dabovo have close similarity and measurements (Avramova 2004, figs 1–3) but have different detail features, thus suggesting that they were produced in another workshop than the Edirne examples. The samples found in the village of Veselinovo and Karanovo Tell are distinguished from Edirne samples by the asymmetrical body springs (Nikolov 2018, 308, Cat. 181, 183).

Although the example found in Crivăt in southwestern Romania differs from the Edirne examples by its thick body and asymmetrical arc line on the upper edge, it closely parallels the Edirne examples (Băjenaru, Tuțulescu 2021, fig. 9.1).

The example found in Poliochni is classified as a Veselinovo I type axe. However, it has a very

6 About the mould technique of shaft-hole axes see: Băjenaru, Tuțulescu 2021, 143–147.



Fig. 5. Regions of Eurasia where Veselinovo I type axes and similar forms occur
(by the author, based on Google Earth)

Обр. 5. Разпространение на брадвите тип Веселиново I и подобни форми в Евразия
(от автора, по Google Earth)

different form from the Edirne examples (Băjenaru, Tuțulescu 2021, fig. 10.2).

Examples showing almost the same type and characteristics as the Edirne Museum specimens, and therefore identifiable as Veselinovo type, were found in a hoard from Zeda ilemi in Western Georgia (Apakidze, Hansen 2020, 43–45, fig. 3.2). This type has also been found in the Fatyanovo-Balanovo Culture of the Late Chalcolithic and Early Bronze Age, in the densely forested region north of the Black Sea, at the Sioni settlement in eastern Georgia, and near Yerevan in Armenia (Chernyh 1992, 64, 104, 136–137, figs 21.18, 32, 47.1.).

Anatolia is another geographical region where similar axes are represented by a small number of specimens. The artefacts were found in two very different parts of the region. These examples, which E.N. Chernyh identifies as Maykop and Kura Aras axes, named after the Early Bronze Age cultures of the Western Caucasus and the Northern Black Sea, come from the Dinar district of the Afyon province in Inner Western Anatolia and from Artvin, Yusufeli in the Eastern Black Sea region (Chernyh 1992, 63, fig. 20,1–3) (fig. 5).

Dating problems of shaft-holes axes

Dating and chronological classification of single-bladed axes with cylindrical shaft-holes is not very easy. This is because these artefacts are usually found by chance or as a result of illegal excavations, and then handed over to museums. Nevertheless, the chronological classification made by A. Vulpe in the 1970s, who analysed examples from the Romanian region, and some C¹⁴ analyses associated with finds from many different regions have contributed to the development of suggestions for the dating of these axes (Kleitsas 2018, 22).

J. Dani, in his classification based on examples from the Carpathians, dates the earliest exam-

ples to the beginning of the 3rd millennium BC, within the Baden Culture of the Late Copper Age (Dani 2013, 203, fig. 1)⁷. The back of this type of axe with a thick body is straight and the lower edge is curved inwards. In this form, it has a bulky appearance. The lower edge starts with a straight line under the sleeve and continues with an increasing curve towards the tip.

The axes dated to the first quarter of the 3rd millennium BC (Vulpe 1970, 18, Abb. 1; Dani 2013, 204, figs 2, 10), also have thick bodies, but the upper edge has a slight convex curve. Here the transition to the sleeve is provided by a curve in the opposite direction to the back. It is understood that these examples were developed from the Baniabic/Bányabükk/Vâlcele type and the sleeve section is prominent. The specimens dated to the transition phase between the Late Copper Age and Early Bronze Age (Vulpe 1970, 29, Abb. 1; Dani 2013, 207, figs 3, 10; Băjenaru, Tuțulescu 2021, 146) are intermediate forms of the Baniabic/Bányabükk/Vâlcele and Fajsz types with their thick body, convex back formed from the sleeve and crescent-shaped midsection, including the sleeve. As a matter of fact, the axe form defined by A. Vulpe as Baniabic type is also close to the Corbasca type, or even more close to the Bányabükk/Vâlcele type with its many formal characteristics and bulky appearance, and is dated to the Early Bronze Age (Vulpe 1970, 26, Abb. 1).

V.I. Klochko attributes the Baniabic type to the early period of the Yamnaya culture, dating to the end of the 4th – first half of the 3rd millennia BC (Klochko et al. 2020, 60), Kolontaiiv-Corbaska type belongs to the Catacomb culture, dating to the middle of the 3rd millennium BC (Klochko et al. 2020, 74).

Chronological classification and dating of the Veselinovo type I axes are much more controversial.

Băjenaru suggested the appearance of shaft-hole axes of Veselinovo types during the first half of the 3rd millennium BC (Băjenaru 2018, 128; Băjenaru, Tuțulescu 2021, 146, 153).

Veselinovo type I axes from Northern Greece are associated with Early Bronze Age I, II layers (Kleitsas 2018, 22, 34).

While the stray finds in northeastern Bulgaria are dated to the Early Bronze Age, the only example found in Karanovo Tell came from the Early Bronze Age III layer (Nikolov 2018).

Stefanova also points out that this type of axe was used from the middle to the end of the 3rd millennium BC (Stefanova 2004, 10, figs 1–3).

Although not directly identified as Veselinovo type I, some examples from the Northeastern Carpathians (Chernyh 1978, 135–138) and similar axe types from the northern Black Sea and the Caucasus (Chernyh 1992, 64, 104, 136–137) are dated to the end of the Early Bronze Age and the transition to the Middle Bronze Age.

It is obvious that Veselinovo I type axes in Eastern Europe are dated to a wide range of Bronze Age contexts.

Discussion

Five bronze axes, which were donated to the Edirne Museum in 2022 and which, according to the declaration of the person who brought them, were found by chance in one of the agricultural fields to the east of Uzunköprü district of Edirne province, are extremely important for the prehistory of Eastern Thrace. The importance of these axes for the region is based on two reasons. The first is that they fill a gap in the inventory of metal artefacts, especially bronze axes, of which there are only

7 A. Vulpe states that all specimens in the axe group found in the village of Vâlcele in Cluj County, Romania, formerly known as Baniabic/Bányabükk, are made of copper (Vulpe 1970, 26). This supports the suggestion that this type emerged during the transition between the Copper Age and the Bronze Age, a period before the transition to tin.

a few examples from Eastern Thrace⁸. The second reason is that, if the declaration of the person who brought the artefacts is accepted as true, this type of axe highlights Eastern Thrace as a route in the commercial or cultural distribution of such axes.

These five axes, which can undoubtedly be classified as Veselinovo I type according to the classification made by A. Vulpe in terms of their typological characteristics, are likely to be the products of the same workshop and mould despite minor differences in their dimensions.

Considering the suggestion that the main distribution area of Veselinovo I type axes is Thrace, the Balkan Mountains and the Lower Danube Region (Băjenaru, Tuțulescu 2021, 144), it is understood that the examples from the Edirne Museum are important data. Northwest Thrace, where this type of axes was frequently found, exhibits geographical integrity with the region where the Edirne examples come from.

The axes from the Edirne Museum may have been produced in a workshop in Turkish Thrace, since some details in the form are different from other examples. This region is rich in natural mineral deposits.

The axes' findspot is not far from the copper deposits in the region. It is suggested that both, the copper deposits of İkiztepe and Dereköy in the Strandzha Mountains in Turkey and the known mines in the Rhodope Mountains in Bulgarian Thrace, may have been used in prehistoric times (Divarçı 2012, 82; 2015, 86–87; Radivojević, Grujić 2018, 107; Radivojević, Roberts 2021, 215, 217). On the other hand, the analyses of the small number of metal artefacts found at the Kanlıgeçit EBA settlement in Eastern Thrace, made from the extracts obtained from the mineral deposits in the Strandzha Mountains, are very remarkable in terms of the mining history of the region (Divarçı 2015, 87).

It is not possible to date absolutely the axes from the Edirne Museum because they do not come from an archaeological context. But considering typological comparisons, it can be suggested that these axes date to the second half of the 3rd millennium BC.

Conclusions

Whether the axes from the Edirne Museum were produced in the region or brought from the surrounding area, they fill an important gap in the interregional metallurgical and communication network during the Early Bronze Age. Considering the wide distribution area of the Veselinovo I type axes, that includes northern Greece, northeastern Bulgaria, southeastern Romania, the forest-steppe region of Ukraine, the Caucasus and Anatolia, Turkish Thrace has an important position. Especially having in mind that a similar type of axe was recorded from Dinar district of Afyon province. Dinar lies within the Lakes District, which is rich in prehistoric cultures and close to Thrace. This is suggesting the possibility of an exchange between western Anatolia and Thrace.

In this context, Uzunköprü, where the Edirne Museum axes were allegedly found, lies at the centre of the most convenient line of communication between Ukraine, Romania, Bulgaria and western Anatolia. This is also not surprising, since Uzunköprü and the Keşan Plain to its south are located on the most convenient land transport route between the Balkans and Anatolia even today. The Mezarlık Mound, which is situated in the district centre of Keşan and has Early Bronze Age stratigraphy, must have been one of the important stations along the Thracian-Anatolian caravan route. As a matter of fact, among the extensive copper mining caravan routes known in the 3rd millennium BC, a line carrying copper to the Levant in the east via Troy is known (Amzallag 2009, 508, fig. 4)⁹, and

⁸ A single-edge shaft-hole axe from the Middle Bronze Age was found during an excavation by the Istanbul Archaeological Museums in the Thracian part of Istanbul, in 1957 (Dirimtekin 1960).

⁹ For a detailed analysis of the intensive relationship between Anatolia and Eastern Europe in the Bronze Age, see Klochko et al. 2020, 112–125.

Eastern Thrace, and especially the Uzunköprü-Keşan Plain, are located at the beginning of this line.

The Uzunköprü-Keşan Plain is part of the Trojan culture in Anatolia, which influenced the development along the southern coastal band of Thrace in the Early Bronze Age, and the Ezero culture further inland (Özdoğan 1983, 138; 2002, 71). It would have been inconceivable for this area of cultural transition not to have been utilised in the trade of metal objects that gained momentum in Eurasia during the Early Bronze Age (Greenfield 2012, 128). For this reason, the bronze axes brought to the Edirne Museum have filled an extremely important information gap.

Was there a kurgan-type tomb or a settlement (where similar finds are frequently found) at the place where the axes of the Edirne Museum were allegedly found? Unfortunately, we cannot be sure due to the contradictory statements of the person who delivered the artefacts. However, there is no doubt that these axes symbolise an important transit centre.

Acknowledgements

These artefacts are published with the permission of the Edirne Museum Directorate. I extend my thanks to Ali Yıldırım and Dr. Patrica Thomas for editing this article in English.

Catalog

Cat. no:	1
Name:	Axe
Raw material:	Bronze
dimensions (cm):	L: 20.8; Blade width: 5.1; Shaft-hole/top: 3.5 x 3.5; Shaft-hole/ down: 3.2 x 3.5
Description:	Rim slightly flaring at top and bottom. The ridge continues with a convex line from the rim and forms a sharper line on the stem. The midsection forms a concave arc parallel to the ridge. The stem hole is more irregularly cylindrical at the bottom. Abrasions on the rim due to use, air holes on one side of the body, burnished on the other side.
	

Cat. no:	2
Name:	Axe
Raw material:	Bronze
dimensions (cm):	L: 19.9; Blade width: 5.1; Shaft-hole/top: 3.2 x 3; Shaft-hole/down: 3.3 x 3.3
Description:	Slightly flaring rim at top and bottom. The back, which continues with a convex line from the rim, gains a slightly straight line on the stem. The midsection has a concave arc parallel to the back. The stem opening starts rectangular at the top and continues cylindrical downwards. There are abrasions and fractures on the rim. The body is burnished. Air holes are visible on one side of the sleeve



New data for the Early Bronze Age Balkans-Anatolian interrelations: the axes from the ...

Cat. no:	3
Name:	Axe
Raw material:	Bronze
dimensions (cm):	L: 20.1; Blade width: 5.7; Shaft-hole/top: 3.2 x 3.2; Shaft-hole/down: 3.2 x 3.5
Description:	Slightly flaring rim at top and bottom. The ridge is convex from the rim and gains a slightly upward line at the stem. The midsection is concave. The stem opening starts in cylindrical form at the top and ends in a circle with dimensions close to rectangular at the lower end. The rim shows abrasions due to use. The body is burnished and there are production-related air holes at various points.
	

Cat. no:	4
Name:	Axe
Raw material:	Bronze
dimensions (cm):	L: 21; Blade width: 4.3; Shaft-hole/top: 3.6 x 3.4; Shaft-hole/down: 2.8 x 4.2
Description:	The upper and lower ends of the rim are worn, not visible. The ridge has a sharp convex arc. At the top of the stem the ridge continues with a flattened line. The midsection is concave. The cylindrical shank hole has irregular dimensions at the top and bottom. The body is burnished. One side of the sleeve shows air holes and patina wear. One side of the sleeve has an irregular relief which is a production residue.



Cat. No:	5
Name:	Axe
Raw material:	Bronze
dimensions (cm):	L: 20.5; Blade width: 5.5; Shaft-hole/top: 3.4 x 3; Shaft-hole/down: 2.9 x 3.5
Description:	Rim slightly flaring at top and bottom. The ridge continues with a convex line from the rim, forming a slight depression on the stem. The midsection is concave. The cylindrical shank hole has irregular dimensions at the top and bottom. The rim shows abrasions due to use. There are production-related air holes at various points on the body. There are also deep slits and abrasions on the body.
	

References

- Amzallag, N. 2009. From Metallurgy to Bronze Age Civilizations: The Synthetic Theory. *American Journal of Archaeology* 113.4, 497–519.
- Antonović, D. 2014. *Kupferzeitliche Äxte und Beile in Serbien* (Prähistorische Bronzefunde Abteilung IX, Band 27). Mainz: Franz Steiner Verlag Stuttgart.
- Apakidze, J., Hansen, S. 2020. Two Bronze Age Hoards With Shaft-Hole Axes From West Georgia, Materials for Communication Between Central and Eastern Europe. In Kozubová, A., Makarová, E., Neumann, M. (eds) *Slovenská Archeológia – supplementum 1*. Nitra: Archeologický Ústav Sav, 39–52.
- Avramova, M. 2004. The hoard Axes. In Nikolov, V., Băčvarov, K. (eds) *Von Domicia bis Drama. Gedenkschrift für Jan Lichardus*. Sofia: Arhæologisches Institut mit Museum der Bulgarischen Akademie der Wissenschaften, 163–169.
- Băjenaru, R. 2018. Early and Middle Bronze Age Copper Metallurgy in the Northern Parts of the Lower Danube Region. In Alexandrov, S., Dimitrova, Y., Popov, H., Horejs, B., Chukalev, K. (eds) *Gold and Bronze. Metals, Technologies and Interregional Contacts in the Eastern Balkans during the Bronze Age*. Sofia: NAIM–BAS, 122–131.

- Băjenaru, R., Tuțulescu, I. 2021. Un topor de la Olănești și câteva observații cu privire la tehnologia de turnare a topoarelor cu gaură de înmănușare transversală din bronzul timpuriu de la Dunărea de Jos. *Pontica* 54, 137–179.
- Bátora, J. 2021. The Region of Caucasus and Central European-Carpathian Territory in the Final Eneolithic and the Bronze Age (a Contribution to the Transfer of Technologies and Knowledge). *Vestnik of Saint Petersburg University. History* 66.2, 531–548.
- Chernyh, E. 1978. *Gornoe delo i metalurgia v drevneishei Bolgarii*. Sofia: Bolgarskaya Academia Nauk (in Russian).
- Chernyh, E.N. 1992. *Ancient Metallurgy in the USSR*. Cambridge: Cambridge University Press.
- Dani, J. 2013. The Significance of Metallurgy at the Beginning of the Third Millennium BC in the Carpathian Basin. In Heyd, V., Kulcsár, G., Szeverényi, V. (eds) *Transitions to the Bronze Age, Interregional Interaction and Socio-Cultural Change in the Third Millennium BC Carpathian Basin and Neighbouring Regions*. Budapest: Archaeolingua Alapítvány, 203–232.
- Dani, J., Kulcsár, G. 2021. Yamnaya interactions in the Carpathian Basin. In Heyd, V., Kulcsár, G., Preda-Bălănică, B. (eds) *Yamnaya Interactions, Proceedings of the International Workshop held in Helsinki*, 25–26 April 2019. Budapest: Archaeolingua Alapítvány, 329–359.
- Diaconu, V., Enea, S.C., Boghian, D. 2016. Câteva piese atribuite epocii bronzului și primei epoci a fierului din zona centrală a Moldovei. *Studii de Preistorie* 13, 157–173.
- Dirimtekin, F. 1960. Trakya'da Safaalanı Yakınında Bulunan Eserler. *Türk Arkeoloji Dergisi* 10.2, 56–57.
- Divarç, F. 2012. Trakya Bölgesi İlk Tunç Çağı Yerleşimlerinin Coğrafi Bir Değerlendirmesi. In Şahin, I. (ed.) *İsmail Fazlıoğlu Anı Kitabı*. Edirne: Trakya Üniversitesi, 81–92.
- Divarç, F. 2015. Erken Tunç Çağı Makro Ölçekteki Ticaret Ağı İçinde Marmara Bölgesi'nin Hammade Kaynaklarına Mikro Ölçekte Bir Bakış. In Baysal, A. (ed.) *İletişim Ağları Ve Sosyal Organizasyon*. İstanbul: Ege Yayınları, 85–94.
- Gedl, M. 2004. *Die Baile in Poland IV* (Prähistorische Bronzefunde Abteilung IX. 24) Mainz: Franz Steiner Verlag Stuttgart.
- Greenfield, H. J. 2012. European Early Bronze Age. In Peregrine, P.N., Ember, M. (eds) *Encyclopedia of Prehistory 4 (Europa)*. Dordrecht: Springer Nature B.V., 139–156.
- Hansen, S. 2021. Axes and Metal Deposits in the Caucasus from the 5th to the 2nd millennium BCE. In Giemsch, L., Hansen, S. (eds) *The Caucasus: Bridge between the urban centres in Mesopotamia and the Pontic steppes in the 4th and 3rd millennium BC. The transfer of knowledge and technologies between East and West in the Bronze Age* (Schriften des Archäologischen Museums Frankfurt am Main 34). Regensburg: Schnell & Steiner, 31–85.
- Harrison, R., Heyd, V. 2007. The Transformation of Europe in the third millennium BC: The Example of 'Le Petit Chasseur I+III' (Sion, Valais, Switzerland). *Prähistorische Zeitschrift* 82.2, 129–214.
- Heyd, V. 2011. Yamnaya Groups and Tumuli west of the Black Sea. In Müller-Celka, S., Borgna, E. (eds) *Ancestral Landscapes: Burial mounds in the Copper and Bronze Ages (Central and Eastern Europe–Balkans–Adriatic–Aegean, 4th–2nd millennium BC)*. International Conference, Udine/Italy, May 15th–18th 2008. Lyon: Maison de l'Orient et de la Méditerranée Jean Pouilloux, 536–555.
- Kleitsas, C.N. 2018. The Hoard of Rodotopi in Ioannina (Epirus, NW Greece) and the Copper Single-Edged Shaft-Hole Axes of the Early Bronze Age in the Helladic Area. *Archäologischer Anzeiger* 209/1, *Elektronische Publikationen Des Deutschen Archäologischen Instituts*, 15–41; (<https://publications.dainst.org/journals/aa/article/view/2271>)
- Klochko, V.I. 2001. *Weaponry of Societies of the Northern Pontic Culture Circle: 5000–700 BC*.

- Poznań: Adam Mickiewicz University, Institute of Eastern Studies, Institute of Prehistory.
- Klochko, V. 2020. Metal Axes of the Kozarac-Stublo Type from Carpathian-Volhynia Metallurgy Center of “willow leaf” of Ukrainian Corded Ware Culture Circle and Its Connections to Danubian Region. *Slovenská archeológia* LXVIII, Suppl. 1, 317–326.
- Klochko, V. 2021. Metal Axes of the Kolontaiv-Korbaska Type of Ukrainian Catacomb Culture Circle and its Connections to Helladic Area. *International Journal of Archaeology* 9.2, 50–54.
- Klochko V.I., Hoshko T.Y., Kozymenko A.V., Klochko D.D. 2020. *The Era of Early Metals in Ukraine (history of metallurgy and cultural genesis)*. Kyiv: National University “Kyiv-Mohyla Academy”.
- Kuzmina O.V. 2021. The Abashevo Culture. *Vestnik of Saint Petersburg University. History* 66.4, 1206–1229
- Mayer, E.F. 1977. *Die Äxte und Beile in Österreich* (Prähistorische Bronzefunde Abteilung IX, Band 9). München: C.H. Beck Verlag.
- Mednikova, M., Saprykina, I., Kichanov, S., Kozlenko, D. 2020. The Reconstruction of a Bronze Battle Axe and Comparison of Inflicted Damage Injuries Using Neutron Tomography, Manufacturing Modeling, and X-ray Microtomography Data. *Journal of Imaging* 6.45, 1–9.
- Motzoi-Chicideanu, I. 1995. Fremdgüter im Monteoru-Kulturreaum. In Hänsel, B. (ed.) *Handel, Tausch und Verkehr im bronze- und früheisenzeitlichen Südosteuropa* (Südosteuropa Schriften, Band 17). Südosteuropa Schriften, Band. München-Berlin: Südosteuropa Gesellschaft und Seminar für Ur- und Frühgeschichte der Freien Universität zu Berlin, 219–242.
- Novotna, M. 1970. *Die Äxte und Beile in der Slowakei* (Prähistorische Bronzefunde, Abteilung IX, Band 3). München: C.H. Beck Verlag.
- Nikolov, V. 2018. Tell Karanovo. In Alexandrov, S., Dimitrova, Y., Popov, H., Horejs, B., Chukalev, K. (eds) *Gold and Bronze. Metals, Technologies and Interregional Contacts in the Eastern Balkans during the Bronze Age*. Sofia: NAIM–BAS, 304–308.
- Özdoğan, M. 1983. Trakya ve Doğu Marmara Arastirmaları 1981 Yılı Çalışmaları. IV. *Kazı Sonuçları Toplantısı*, Cilt 1, Ankara, 8–12 Şubat 1982, Ankara: Kültür ve Turizm Bakanlığı Yayını, Ankara: Ministry of Culture and Tourism Publication, 137–142.
- Özdoğan, M. 2002. The Bronze Age in Thrace in Relation to the Emergence of Complex Societies in Anatolia and in the Balkans. In Yalçın, Ü. (ed.) *Anatolian Metal II* (der Anschnitt 15). Bochum: Bergbau Museum, 67–76.
- Pernicka, E. 2012. The Development of Metallurgy in Western Anatolia, the Aegean and Southeastern Europe before Troy. In Horejs, B., Mehofer, M. (eds) *Western Anatolia before Troy. Proto-Urbanisation in the 4th Millennium BC?* Wien: Propylaeum, 447–461.
- Popescu, A.D. 2006. Beyond typology: metal axes and their potential. *Dacia NS* 50, 431–450.
- Prendi, F. 1995. L’âge du Bronze Ancien et Moyen en Albanie et ses rapports avec les régions avoisinantes. In Hänsel, B. (ed.) *Handel, Tausch und Verkehr im bronze- und früheisenzeitlichen Südosteuropa* (Südosteuropa Schriften, Band 17). München – Berlin: Südosteuropa Gesellschaft und Seminar für Ur- und Frühgeschichte der Freien Universität zu Berlin, 243–257.
- Radivojević, M., Grujić, J. 2018. Community structure of copper supply networks in the prehistoric Balkans: An independent evaluation of the archaeological record from the 7th to the 4th millennium BC. *Journal of Complex Networks* 6.1, 106–124.
- Radivojević, M., Roberts, B. W. 2021. Early Balkan Metallurgy: Origins, Evolution and Society, 6200–3700 BC. *Journal of World Prehistory* 34, 195–278.
- Rihovsky, J. 1992. *Die Äxte, Beile, Meissel und Hammer in Mahren* (Prähistorische Bronzefunde Abteilung IX, Band 17). Stuttgart: Franz Steiner Verlag Stuttgart.

- Stefanova, M. 2004. Novi danni za bronzovite bradvi s otvor za drazhka ot rannata bronzova epoha. *Izvestia na Natsionalnia istoricheski muzey XIV*, 9–16 (in Bulgarian).
- Szeverenyi, V. 2013. The Earliest Copper Shaft-Hole Axes in the Carpathian Basin: Interaction, Chronology and Transformations of Meaning. In Anders, A., Kulcsar, G., Kalla, G., Kiss, V., Szabo, G. (eds) *Moments in Time, Papers Presented to Pal Raczky on His 60th Birthday*. Budapest: Ősrégészeti Társaság/Prehistoric Society, Eötvös Loránd University, l'Harmattan, 661–670.
- Telegin, D.Y., Pustavalov, S.Z., Kovalyukh, N.N. 2003. Relative and Absolute Chronology of Yamnaya and Catacomb Monuments the Issue of co-Existence. *Baltic-Pontic Studies* 12, 132–184.
- Tishkin, A.A., Frolov, Y.V. 2017. Bronze Age Axes from the Forest-Steppe Altai. *Archaeology, Ethnology & Anthropology of Eurasia* 45.2, 87–96.
- Vulpe, A. 1970. *Die Äxte und Beile in Rumänien I* (Prähistorische Bronzefunde, Abteilung IX, Band I). München: C.H. Beck Verlag.
- Zeravica, Z. 1993. *Äxte und Beile aus Dalmatien und anderen Teilen Kroatiens, Montenegro, Bosnien und Herzegowina* (Prähistorische Bronzefunde Abteilung IX, Band 18). Mainz: Franz Steiner Verlag.

Нови данни за Балкано-Анатолийските връзки през ранната бронзова епоха: брадви от музея в Одрин (Турция)

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(резюме)

Сред находките от ранната бронзова епоха в Турска Тракия не са известни бронзови брадви. В този смисъл, петте бронзови брадви, дарени на музея в Одрин през 2022 г., запълват една съществена празнина. Точното им местонамиране не е известно, но дарителят е заявил, че ги е намерил в поле близо до Узункьопрю, вилает Одрин (обр. 1).

Производството на метални брадви възниква в края на IV хил. пр.Хр. и се разпространява бързо в Евразия през III хил. пр.Хр. Тези артефакти се интерпретират като знак на престиж и хвърлят светлина върху социално-икономическата структура на обществата, в които се разпространяват. Едностранно заострените бронзовите брадви с втулка са съществен елемент от тази металургична индустрия. Към тях се отнасят брадвите в Одринския музей (обр. 2–4).

Точна датировка на този тип брадви не е възможна, тъй като те обикновено се намират случайно или в резултат на незаконни дейности и се предоставят на музейни колекции. Класификацията на А. Вулпе от 1970 г., в която са включени находките от Румъния и са взети предвид няколко радиовъглеродни дати от контексти, свързани с брадви от различни региони, допринасят за изясняване на техните хронологически рамки.

Проучванията показват, че бронзовите брадви с втулка и едно острие бързо се разпространяват в Евразия от началото на ранната бронзова епоха като разнообразието им нараства паралелно с макрокултурните промени през прехода от ранната към средната бронзова епоха. Те се срещат до края на средната бронзова епоха.

Общоприето е схващането, че широкото използване на брадви с едно острие и втулка създава мощни социални прослойки, които установят местна или регионална власт в ранната

бронзова епоха. Великолепните гробници на майстори в металообработването, често намирани в ямната и катакомбната култура в Източна Европа и северните черноморски степи, се считат за най-очевидните индикатори за промени в социалната стратификация на обществото. Приема се, че първоначалната продукция на занаятчиите, изработващи брадвите тип Веселиново, с времето се развива и прераства в специализирано производство с широко разпространение.

Метричните характеристики на петте бронзови брадви (отнасящи се към тип Веселиново) и съхранявани в Одринския музей, са следните: дължина между 19,9 cm и 20,1 cm; ширина между 4,7 и 5,7 cm. Тялото на всички брадви има леко изпъкнала дъга на върха; докато при някои екземпляри се наблюдава лека вдлъбнатина при прехода от тялото към втулката. Долната страна също е извита по дължина на цялото тяло и дъговидната извивка е монолитна.

Класификацията на А. Вулпе на румънските метални брадви позволява отнасянето им към типа Веселиново I. Съществуват различни мнения относно датировката на брадвите от този тип, но общоприетият период на производство и използване е втората половина на III хил. пр.Хр.

Този тип брадви е широко разпространен в Евразия, особено в Горнотракийската низина, Долен Дунав, Източна Румъния и Северозападна Гърция. В допълнение се срещат екземпляри с близка до този тип форма, намерени в лесостепните райони на Украйна, в Западна Грузия и Западен Кавказ, както и в Армения, и Анатолия. Очевидно е, че тези артефакти са важни индикатори за интензивните комуникационни връзки в Евразия през бронзовата епоха (обр. 5).

Примери за подобни изделия са открити на две места в Анатолия: в Североизточна Анатолия (близо до Кавказкия регион) и в Западна Анатолия (община Динар в област Афийон). Това е районът, географски свързващ областта на езерата (Lake District) в Южна Анатолия с Източна Тракия. В контекста на Балкано-Анатолийските връзки и контаркти през бронзовата епоха, брадвите от Одринския музей хвърлят нова светлина върху съществуващата комуникационна мрежа. Много е вероятно брадвата тип Веселиново I от Западна Анатолия да е импорт от района на Тракия с възможно трасе по долината Узункюпрю – Кешан в Източна Тракия.