



COMMUNICATIONES
ARCHÆOLOGICÆ
HUNGARIÆ

2021

COMMUNICATIONES
ARCHÆOLOGICÆ
HUNGARICÆ

2021

Magyar Nemzeti Múzeum
Budapest 2023

Főszerkesztő
SZENTHE GERGELY

Szerkesztők
BÁRÁNY ANNAMÁRIA, TARBAY JÁNOS GÁBOR

Olvasszerkesztő
BÖRÖCZKI TAMÁS

A szerkesztőbizottság tagjai
HORIA I. CIUGUDEAN, MARKO DIZDAR, FÜZESI ANDRÁS, GÁLL ERWIN,
KREITER ATTILA, LANGÓ PÉTER, LÁNG ORSOLYA, MORDOVIN MAXIM

Angol nyelvi lektor
SEBŐK KATALIN

Szerkesztőség
Magyar Nemzeti Múzeum Régészeti Tár
H-1088, Budapest, Múzeum krt. 14–16.

A folyóirat cikkei elérhetők: <http://ojs.elte.hu/comarchhung>
Kéziratbeküldés és szerzői útmutató: <http://ojs.elte.hu/comarchhung/about/submissions>

© A szerzők és a Magyar Nemzeti Múzeum
Minden jog fenntartva. Jelen kötetet, illetve annak részeit tilos reprodukálni,
adatrögzítő rendszerben tárolni, bármilyen formában vagy eszközzel közölni
a Magyar Nemzeti Múzeum engedélye nélkül.

ISSN 0231-133X (Print)
ISSN 2786-295X (Online)

Felelős kiadó
L. Simon László főigazgató

TARTALOM – INDEX

RÉVÉSZ László	Fodor István (1943–2021) 5
Josyp KOBAL’	Some remarks on the typology of Bronze Age disc-butted axes in light of a bronze hoard and an axe variant 9
	Néhány észrevétel a bronzkori nyakkorongos csákányok tipológiájáról egy bronzkincs és egy csákányforma alapján 19
Lajos JUHÁSZ	Two Sarmatian coin imitations from a Late Sarmatian grave at Békésszentandrás 21
	Két szarmata éremutánzat egy békésszentandrási szarmata sírból 26
LUKÁCS Balázs	Egy avar kori kard mint információforrás és restaurált tárgy 27
	An Avar Period sword as a conserved object and a source of information 40
Ádám Máté HORVÁTH	Female gender markers in graves of men in the Avar Period of the Middle Tisza region 41
	Női nemhez köthető tárgyak férfisírokban az avar kori Közép-Tisza-vidéken ... 66
GÁLL Erwin – GINDELE Róbert – BLASKÓ Marius	Valkány kora középkori temetőinek előzetes vizsgálata 69
	Preliminary analysis of early medieval funerary sites from Vălcani/Valkány 87
Cristina PARASCHIV-TALMAȚCHI	Characteristic early medieval belt ornaments – findings reflecting possible contacts with Southeast Europe 89
	Kora középkori övveretek – új felfedezések és lehetséges délkelet-európai kapcsolatrendszer 104
TAKÁCS Ágoston	A soproni középkori ferences templom szentélyrekesztője 107
	The rood screen of the medieval Franciscan church in Sopron..... 135
Raško RAMADANSKI	Late medieval and early post-medieval cloth seals of Nuremberg and Wöhrd from the collection of the Town Museum in Bečej 137
	Nürnbergi és wöhrdi kései középkori és kora újkori textilplombák az Óbecsei Városi Múzeum gyűjteményéből 145
	Позносредњовековне и ранонововековне пломбе за тканину Нирнберга и Верда из збирке Градског Музеја Бечеј 145

MOJZSESZ Volodimir

A Muzsaly határában fekvő középkori romtemplom régészeti kutatásának
eredményei (Kárpátalja, Ukrajna) 147

Results of the archaeological investigations of the ruined church
in the outskirts of Muzsaly (Muzhievo, Zakarpatska Oblast, Ukraine) 162

GALLINA Zsolt – GULYÁS Gyöngyi

Az utolsó mecseki üveghuta. Fejezet a kora újkori üvegművesség
történetéből 175

The last glassworks in the Mecsek Mountains. Chapters from
the modern history of glassmaking in Hungary 204

CHARACTERISTIC EARLY MEDIEVAL BELT ORNAMENTS – FINDINGS REFLECTING POSSIBLE CONTACTS WITH SOUTHEAST EUROPE

Cristina PARASCHIV-TALMAȚCHI* 

The paper draws attention to some applied bronze ornament finds discovered in Dobruja, a territory in South-eastern Romania between the Danube River and the Black Sea. Most findings are belt ornaments, a few adorned bags, quivers, and horse harnesses, while some can be associated with attires. Based on available analogies, the characteristics of shape, manufacturing techniques and decoration date most of the 32 pieces to the 10th century AD. General characteristics connect the types to the Danube Region, while the bronze and lead models discovered in metal processing centres near Novosel, Zlatar, and Nadarevo (Bulgaria) link their primary distribution area to the territory of the first Bulgarian state and its area of influence. We assume that one of the finds indicates the presence of Hungarians in the Lower Danube area, probably in context with military activities.

A tanulmány a Duna és a Fekete-tenger által határolt délkelet-romániai Dobrudzsában talált bronztárgyak egy csoportjára hívja fel a figyelmet. A darabok többsége övdísz, néhány tarsolyokat, tegezeket vagy lószerszámokat díszített, míg az utolsó bemutatott csoport ruhadíszeket foglal magába. Párhuzamok, forma, készítéstechnika és díszítés alapján a 32 darab többsége a Kr. u. 10. századra keltezhető. A bemutatott tárgyakat általános jellemzőik elsősorban a Duna-vidékhez kötik, ám a Novosel, Zlatar és Nadarevo (Bulgária) melletti fémfeldolgozó központokban talált bronz- és ólommodellek több típus elterjedését az első bolgár állam területén és befolyási övezetében jelölik ki. Feltételezzük, hogy az egyik darab az Al-Dunánál hadi eseményekkel összefüggésben jelen lévő magyarokhoz kapcsolható.

Keywords: mounts, XRF, SEM, distribution, Dobruja, Romania

Kulcsszavak: veretek, XRF, SEM, elterjedés, Dobrudzsa, Románia

Introduction

Due to archaeological excavations in South-eastern Romania between the lower course of the Lower Danube, the Black Sea, and North-eastern Bulgaria, the number of ornaments characteristic to the Early Middle Ages increased significantly in the last two decades. The old discoveries, mainly from the fortresses of *Dinogetia-Garvăn* (Barnea 1954; Ștefan et al. 1967, 293–300), *Noviodunum-Isaccea* (Barnea, Mitrea 1959, 471, Fig. 10, 12; Mănucu-Adameșteanu 1984, 239–243), *Capidava* (Florescu et al. 1958, 234, Fig. 118, 5), *Păcuiul lui Soare* (Diaconu 1969; Diaconu, Vilceanu 1972, 154–158), and burials in *Gârlița* (Cîrjan 1969, 116–122), *Dervent* (Diaconu

1963), *Ostrov-Piatra Frecăței* (Petre 1962, 584–585, Fig. 21–22), *Isaccea* (Vasiliu 1984, 109–114), *Istria* (Зирпа 1963, 393, Рис. 29), and *Histria* (Suceveanu 1973, 495–502, Fig. 3) have been completed with new findings from *Hârșova* and *Adamclisi* (Paraschiv-Talmațchi et al. 2020, 119, 165), *Oltina*, a fortified settlement with an earthwork-and-moat defence system (Paraschiv-Talmațchi, Custurea 2018, 367–377), as well as from settlements and cemeteries at *Valu lui Traian* (Paraschiv-Talmațchi et al. 2020, 123), *Capidava* (Pinter et al. 2011, 389–391, Pl. 6; Dobrinescu et al. 2016, 157), *Nufăru* (Damian et al. 2007, 111; Damian et al. 2007–2008, 314–315), and *Noviodunum-Isaccea* (Stănică 2015, 427, Pl. 28, 2–5).

▷ Received 28. 07. 2022 | Accepted 16. 10. 2022 | Published online 06. 03. 2023

* Museum of National History and Archaeology Constanța; ctalmatchi@gmail.com; ORCID: <https://orcid.org/0000-0001-7289-4005>

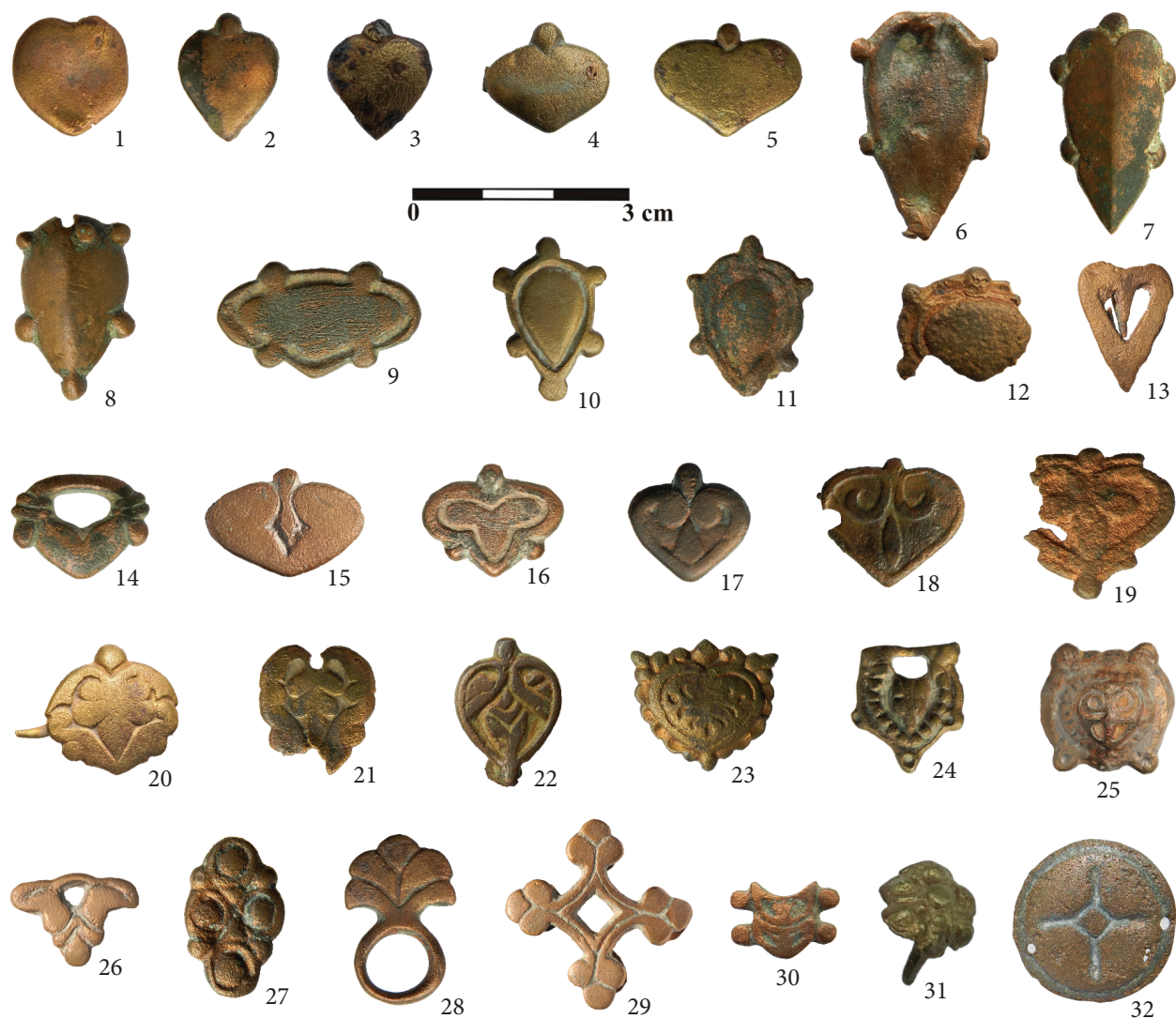


Fig. 1 Decorative mounts from Dobruja
1. kép Díszítőveretek Dobrudzsából

Besides findings obtained by archaeological excavations, several artefacts came from lucky discoveries, including ones at *Tufani* (Paraschiv-Talmațchi 2018), *Adamclisi* (Paraschiv-Talmațchi et al. 2014, 170–180, Pl. 6–8), *Valu lui Traian*, *Târgușor*, *Lipnița*, *Cochirleni* (Paraschiv-Talmațchi, Custurea 2012), and unspecified sites in the territory of Dobruja. Unfortunately, most finds have not yet been published.

Our research has focused on a single functional type, belt ornaments, also including artefacts generally associated with populations migrating in the Danube-Pontic area. The discovery of several belt ornaments in the last two decades gradually changed the possibilities of the type's evaluation, while the identification of three metallurgical workshops in the area of Preslav, the second capital of the first Bulgar-

ian state, has also offered new directions for research.

The current paper aims to complete the data set of decorative mounts from Dobruja and South-east Europe by presenting new discoveries and providing an evaluation of the type. Also, we attempt to identify areas where migrating groups originated from or dwelled, as well as the direction of their movement.

Decorative mounts from Dobruja

No early medieval grave containing a richly decorated belt has yet been found in the Danube-Pontic area. The most significant related assemblage comes from the burial of an adult man (B-14) in a cemetery at Ostrov-Piatra Frecăței, dated to the end of Eastern Antiquity at the second half of the 6th and the

start of the 7th centuries AD. The grave contained twelve mounts, six strap ends, two buckles, and a bone plate (Petre 1962, 582–583, Fig. 19–20; Petre 1987, Pl. 130). The mounts were discovered between the lower limb bones of the deceased, by the knee. The bronze ornaments, parts of two different belt sets, were all openwork save for a full-plate buckle (Даскалов 2012, 162, 177, Обр. 7, 1–2).

Four decorative belt mounts have been recovered from a grave dug into the mantle of an ancient tumulus near Runcu (Параскив-Талмацки 2020, 257–258, Рис. 5; Paraschiv-Talmaçchi et al. 2020, 21, 109–111). The silver mounts were produced using diverse methods: the assemblage contained a cast buckle with an openwork plate with palmette decoration and three rivets on its back, a pressed strap end with palmette decoration, as well as a quadrangular mount and a semicircular strap end cut out of thin silver plates. The inventory suggests that the burial belonged to a nomadic (Avar or Bulgarian) man who died, based on the belt pieces, between AD 670–720. That was the time when the technology of belt accessories changed from pressing to casting, and for a while, the two methods co-existed (Станилов 2006, 172).

Most belt ornaments, including the 32 mounts presented below, come from archaeological features or were found accidentally. The presented finds are part of the collection of the Museum of National History and Archaeology in Constanța, and were obtained as acquisitions or donations. All mounts have been found at unspecified locations in the territory of Dobruja.

Find catalogue

1. Heart-shaped small cast bronze mount with a smooth, flat surface, slightly sloping edges, and three rivets on the back with the washers still in place. H = 1.65 cm; w = 1.6 cm; Inv. no. 44438 (Fig. 1, 1 and Fig. 2, 1).
2. Heart-shaped cast bronze mount with a smooth, slightly convex surface and two rivets on the back. H = 1.74 cm; w = 1.38 cm; Inv. no. 44436 (Fig. 1, 2 and Fig. 2, 2).
3. Heart-shaped cast bronze mount with a smooth, slightly convex surface and two rivets on the back. H = 1.68 cm; w = 1.42 cm; Inv. no. 43020 (Fig. 1, 3 and Fig. 2, 3).
4. Wide heart-shaped cast bronze mount with a smooth, slightly convex surface and two rivets on the back with the rectangular washers still in place. A small circle is visible on the left side, marking the place of the rivet's weld root on the other side. H = 1.5 cm; w = 1.7 cm; Inv. no. 44441 (Fig. 1, 4 and Fig. 2, 4).
5. Wide heart-shaped cast bronze mount with a smooth, slightly convex surface and two rivets on the back. H = 1.55 cm; w = 2 cm; Inv. no. 42263 (Fig. 1, 5 and Fig. 2, 5).
6. Elongated heart-shaped cast bronze mount with four round side lobes, smooth, slightly convex surface, and two rivets on the back. Damaged by heavy pressing. H = 3.16 cm; w = 2 cm; Inv. no. 44442 (Fig. 1, 6 and Fig. 2, 6).
7. Elongated heart-shaped cast bronze mount with five round lobes, smooth, slightly convex surface with a ridged vertical axis, and two rivets on the back with the washers still in place. H = 3.05 cm; w = 1.74 cm; Inv. no. 42254 (Fig. 1, 7 and Fig. 2, 7).
8. Elongated heart-shaped cast bronze mount with five round side lobes, smooth, slightly convex surface with a ridged vertical axis, and two rivets on the back. The upper rivet was repaired: a second rivet was welded next to a small round hole by the upper edge of the central axis, the original attaching point. The weld's root appears on the other side as a small boss. H = 2.56 cm; w = 1.67 cm; Inv. no. 42271 (Fig. 1, 8 and Fig. 2, 8).
9. Wide heart-shaped cast bronze mount with four round side lobes cutting through the rib framing the edge and two rivets on the back. H = 1.6 cm; w = 2.8 cm; Inv. no. 42266 (Fig. 1, 9 and Fig. 2, 9).
10. Drop-shaped cast bronze mount with a slightly convex surface and a ribbed edge with six round side lobes and two rivets on the back. H = 2.28 cm; w = 1.57 cm; Inv. no. 42255 (Fig. 1, 10 and Fig. 2, 10).
11. Drop-shaped cast bronze mount with a slightly convex surface, a double-ribbed edge, five round side lobes, and two rivets on the back. H = 2.2 cm; w = 1.74 cm; Inv. no. 42256 (Fig. 1, 11 and Fig. 2, 11).
12. Fragment of a wide heart-shaped cast bronze mount with a ribbed edge, three remaining round side lobes (out of six), and one rivet (out of two). H = 1.56 cm, w = 1.8 cm; Inv. no. 42257 (Fig. 1, 12 and Fig. 2, 12).
13. Openwork heart-shaped cast bronze mount with two rivets on the back. H = 1.8 cm; w = 1.36 cm; Inv. no. 42262 (Fig. 1, 13 and Fig. 2, 13).
14. Openwork heart-shaped cast bronze mount with two symmetrical double ribs connecting the central hole and the edge, a small round boss protruding sideways under each, and two rivets on the back. H = 1.42 cm; w = 1.86 cm; Inv. no. 44444 (Fig. 1, 14 and Fig. 2, 14).
15. Wide heart-shaped cast bronze mount with incised geometric decoration in its upper-central part, a round side lobe above it, and two rivets on the back. H = 1.5 cm, w = 2.18 cm; Inv. no. 42243 (Fig. 1, 15 and Fig. 2, 15).
16. Heart-shaped cast bronze mount with concave sides, a semi-profiled round side lobe in the middle of each side, and a grooved edge outlining a palmette-like motif in the centre. It has two rivets on the back. H = 1.55 cm; w = 1.94 cm; Inv. no. 42248 (Fig. 1, 16 and Fig. 2, 16).

17. Heart-shaped cast bronze mount with a three-lobed palmette motif in low relief on the front, a round side lobe above it, and two rivets on the back. The third, central, lobe is diamond-shaped. H = 1.64 cm; w = 1.69 cm; Inv. no. 42253 (*Fig. 1, 17* and *Fig. 2, 17*).

18. Heart-shaped cast bronze mount with a three-lobed palmette motif in low relief on the front, a round side lobe above it, and three rivets on the back. The third, central lobe, is oval. The right edge is chipped, probably damaged upon fastening the mount to a strap. H = 1.77 cm; w = 1.97 cm; Inv. no. 44443 (*Fig. 1, 18* and *Fig. 2, 18*).

19. Heart-shaped cast bronze mount with a three-lobed palmette motif in low relief on the front, a round side lobe above it, another at the heart's tip, and three rivets on the back. The lobe in the centre is oval. H = 2.08 cm; w = 2 cm; Inv. no. 42261 (*Fig. 1, 19* and *Fig. 2, 19*).

20. Slightly convex heart-shaped cast bronze mount with a palmette motif in low relief on the front, two tendrils on the sides, emerging from the heart's tip, and two rivets on the back. H = 1.8 cm; w = 1.88 cm; Inv. no. 42259 (*Fig. 1, 20* and *Fig. 2, 20*).

21. Flat heart-shaped cast bronze mount with a palmette motif in low relief on the front, two tendrils on the sides, emerging from the heart's tip, and two rivets on the back. The heart's tip is chipped, and there is a round hole by the upper-central edge, probably caused by a failed fastening. H = 1.8 cm; w = 1.64 cm; Inv. no. 44445 (*Fig. 1, 21* and *Fig. 2, 21*).

22. Flat heart-shaped cast bronze mount with a palmette motif in low relief on the front, a rounded side lobe above it and another at the heart's tip, and two rivets on the back with the round washers still in place. H = 2.05 cm; w = 1.5 cm; Inv. no. 42252 (*Fig. 1, 22* and *Fig. 2, 22*).

23. Shield-shaped cast bronze mount. The front is decorated with a heart filled with floral patterns in low relief in the centre. The mount has a lacy edge with four tipped side lobes and three rivets on the back. H = 1.8 cm; w = 2.02 cm; Inv. no. 42275 (*Fig. 1, 23* and *Fig. 2, 23*).

24. Shield-shaped cast bronze mount with a pearled border around the centre and five round side lobes, three of which are inlay cases. It has an oval hole by the upper edge and three rivets on the back. H = 1.8 cm; w = 1.58 cm; Inv. no. 42250 (*Fig. 1, 24* and *Fig. 2, 24*).

25. Convex shield-shaped cast bronze mount with a relief-and-incised pattern resembling a feline head, four round side lobes (two of which are inlay cases), a smooth edge, and three rivets on the back. H = 1.81 cm; w = 1.87 cm; Inv. no. 42249 (*Fig. 1, 25* and *Fig. 2, 25*).

26. Cast bronze mount with concave sides and a small oval hole by the upper edge. Its front side is decorated by a possibly zoomorphic pattern: two bird or animal heads in profile, looking outward. It has three rivets on the back. H = 1.25 cm; w = 1.73 cm; Inv. no. 42260 (*Fig. 1, 26* and *Fig. 2, 26*).

27. Oval cast bronze mount with four embossed circles and four round side lobes. It has two rivets on the back. H = 2.2 cm; w = 1.4 cm; Inv. no. 42265 (*Fig. 1, 27* and *Fig. 2, 27*).

28. Five-lobed palmette-shaped cast bronze mould with a ring at its base and three rivets on the back. H = 2.34 cm; w = 1.53 cm; Inv. no. 44446 (*Fig. 1, 28* and *Fig. 2, 28*).

29. Cross-shaped cast bronze mount resembling a square with concave sides, with a quadrangular hole in the middle, and the "tips" ending in palmettes. It has four rivets with the round washers still in place. H = 2.63 cm; w = 2.58 cm; Inv. no. 42244 (*Fig. 1, 29* and *Fig. 2, 29*).

30. Double waxing moon-shaped cast bronze mount with incised decoration and a pair of side lobes next to each moon. It has a rivet on the back with the round washer still in place. H = 1.06 cm; w = 1.5 cm; Inv. no. 44439 (*Fig. 1, 30* and *Fig. 2, 30*).

31. Flower-shaped cast bronze rosette mount with a small boss in the centre and six more in the "petals". The central boss is engirded, and the "petals" are divided by rows of pearls. The mount has a long, nail-like rivet on the back. D = 1.35 cm; Inv. no. 44437 (*Fig. 1, 31* and *Fig. 2, 31*).

32. Pressed round bronze mount decorated with an incised cross with a diamond in its centre. It has a pair of holes for fastening, one at opposite sides, by the edge. D = 2.25 cm; Inv. no. 42270 (*Fig. 1, 32* and *Fig. 2, 32*).

X-Ray Fluorescence (XRF)¹ analysis was carried out with a portable spectrometer on the front side of fourteen pieces, yielding information on the main alloy components and their proportion in the examined bronzes (*Table 1*). Most belt ornaments were cast of a copper-tin alloy containing lead and zinc (Cu-Sn/Pb-Zn), with copper as the main component and minor alloy elements in diverse combinations, their total proportion rarely over 10%. The examined bronzes' copper content varies between 81.44% and 95.68%, except for two pieces with under 80%, while the tin content ranges between 0.6 and 12.5% in all cases but mount no. 4 (18.11%).

The lower copper and higher tin content (18.11% and 11%, respectively) of the two mounts (no. 4 and 26) are probably intentional, perhaps reflecting the technique of the workshop that produced them. Mount no. 10 also has 81.44% copper and 12.49% tin content, and the lead content of all three mounts is relatively high. All three pieces were cast and riveted. The technological similarities may suggest that they were produced by the same workshop.

Mounts no. 5 and 20 are also similar. Both were cast and have two rivets for fastening. Their mate-

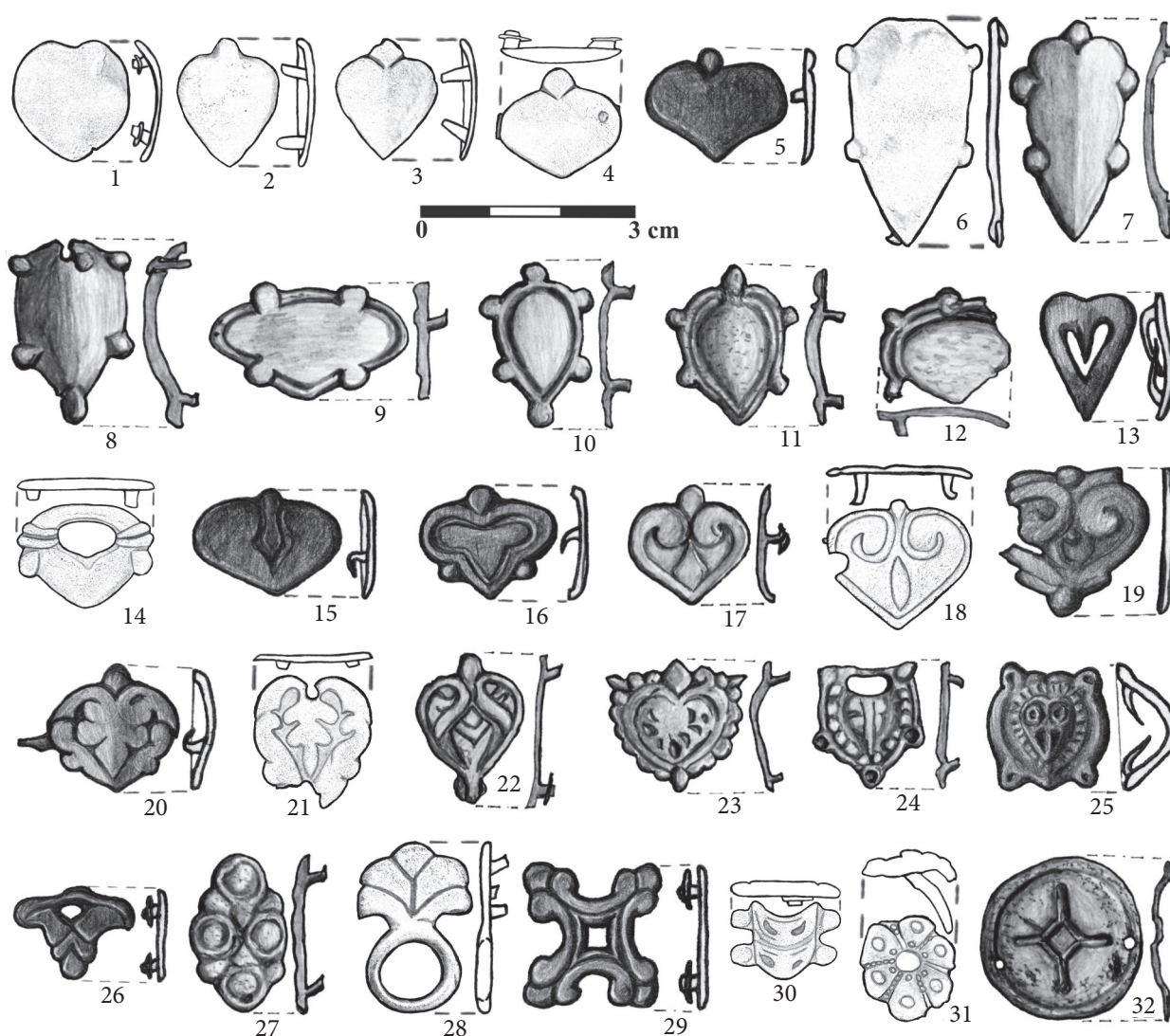


Fig. 2 Drawings of the decorative mounts from Dobruja
2. kép A dobrudzsai díszítőveretek rajza

rial contains zinc in a high proportion (9.24% and 11.74%), while relatively little copper (under 85%), tin (under 3.5%), and lead (under 2%). The technological similarities may suggest that they were produced by the same workshop.

Typologically, mounts no. 2–5 are similar; the composition of their alloys indicates, however, that they were produced in three different workshops.

Material composition analysis has also revealed similarities in the alloy composition of mounts no. 17 and 30.

The material of five mounts contained zinc, three of them in significant quantities. As zinc in alloys provides copper with a rich golden-yellow colour, it was probably added for a pleasing visual effect.

Scanning Electron Microscopy (SEM), where the

atoms of the sample's surface are excited by a fine beam of accelerated electrons, is also used for material composition analysis.² the double-moon-shaped mount, no. 30, was examined at four points (image resolution: 512 by 384; image pixel size: 8.34 μm ; map resolution: 256 by 192; map pixel size: 16.68 μm ; acc. voltage: 20.0 kv; magnification: 70), and the analysis revealed that the object was originally coated with a thin layer of tin for aesthetic purposes (Fig. 3). Similar finds, but in silver instead of bronze with high zinc content, are known from Bulgaria (Станилов 1991, 40; Doncheva 2012, 12).

The popularity of decorated belts in early medieval times, both signs of rank and fashion items, has allowed us to admire the mastery of the jewellers who combined various motifs so harmoniously and cleverly.

Cat. no.	Cu	Sn	Pb	Zn	Ag	Au	Fe	Bi	As	Sb	Si	P	S	Ti	Mn	Ni
1	87.46	2.09	2.84	4.3	0.11	n.d	0.06	<LOD	<LOD	<LOD	2.52	0.26	0.06	<LOD	<LOD	<LOD
2	89.85	3.23	3.87	<LOD	0.15	n.d	0.16	<LOD	0.49	0.31	1.28	0.3	0.09		<LOD	0.05
3	88.64	2.53	1.96	2.47	0.08	n.d	0.41	<LOD	0.24	<LOD	2.76	0.79	0.06	<LOD	<LOD	<LOD
4	76.24	18.11	3.17	<LOD	0.12	n.d	0.07	<LOD	0.34	0.3	0.45	0.82	0.07	<LOD	<LOD	0.07
5	84.35	3.48	1.1	9.24	0.16	n.d	0.12	0.04	0.97	0.24	<LOD	0.25	0.03	<LOD	<LOD	<LOD
10	81.44	12.49	3.71	3.71	0.54	n.d	0.16	<LOD	0.12	0.74	<LOD	0.36	0.09	<LOD	<LOD	0.06
12	95.68	0.6	0.32	<LOD	0.39	n.d	<LOD	<LOD	2.09	0.3	<LOD	0.17	0.01		<LOD	0.24
13	92.09	2.81	2.12	<LOD	0.11	n.d	0.29	<LOD	0.11	<LOD	1.43	0.34	0.08	<LOD	<LOD	0.13
14	89.25	3.06	0.7	<LOD	0.27	n.d	0.48	<LOD	1.41	0.34	4.02	0.22	0.02		<LOD	0.08
17	90.81	2.99	1.13	<LOD	0.6	n.d	0.29	<LOD	2.06	0.19	1.4	0.18	0.03	<LOD	<LOD	0.26
20	82.72	3.23	1.74	11.74	<LOD	n.d	<LOD	0.06	<LOD	<LOD	0.18	0.23	0.04	<LOD	<LOD	<LOD
26	79.03	11	2.82	<LOD	0.23	n.d	0.29	<LOD	0.35	0.24	4.05	0.24	0.08	<LOD	0.01	0.06
29	91.23	5.96	1.07	<LOD	0.18	n.d	0.04	<LOD	0.31	<LOD	0.69	0.34	0.04	<LOD	<LOD	0.1
30	91.54	2.77	0.88	<LOD	0.14	n.d	0.12	<LOD	0.61	0.42	3.18	0.19	0.03	<LOD	0.01	0.04

Table 1 Element composition of mounts from Dobruja (n.d. – not detected; <LOD – under the limit of detection)
1. táblázat A dobrudzsai veretek elemösszetétele (n.d. – nincs jelen; <LOD – mérési hibahatár alatt)

erly in such small spaces. The upswing in demand for belt ornaments brought about the emergence of workshops specialised in producing such accessories, as indicated by moulds, lead samples, and semi-finished products in the related archaeological record. Three such centres have been discovered in Bulgaria in the last fifteen years. All of them are situated near the second capital of the first Bulgarian state, Veliki Preslav, in the surroundings of Nadarevo, Novosel, and Zlatar, respectively. They were active during the early and mid-10th century AD (Doncheva, Nikolov 2010; Бонев, Дончева 2011; Дончева 2013; Doncheva, Bunzelov 2018). Their discovery, the first of this kind and magnitude in the Lower Danube area, may allow researchers to identify the places of production of several ornament types appearing in the region and the origin of some influences.

A comparison between the alloy composition of the mounts from Dobruja and bronze finds from the three production centres in Bulgaria has revealed interesting similarities. Some copper ingots found near Zlatar contain 11.74% zinc and 3.91% lead, and two ingots from Nadarevo also have 26.63% and 28.75% zinc content, respectively (Дончева 2017, 200, Таблица 1). Alloys with a copper ratio under 80%, zinc above 10% (up to 22.75%), and tin up to 5.92% were identified in some mounts from the workshop near Nadarevo (Дончева 2022, 1042,

Таблица II.3.14C). Bronze finds from the workshop near Zlatar have 71.2%–88.54% copper and 5.56%–7.46% tin content, with lead around 7% (Дончева 2022, 1028, Таблица II.3.14B). In summary, higher tin or zinc content does not exclude the possibility that the mount was made in a workshop in Bulgaria.

Distribution of analogies

Due to a westward migration of people at the start of the Middle Ages, the Danube-Pontic area became an interference zone where Byzantine and nomadic stylistic and cognitive elements intermingled. Belts were important elements of attire in both worlds. Belt ornament finds from Dobruja prove that either nomadic populations were present in the area or locals adapted some elements of nomadic fashion. However, the mixture of populations along the road from the Caucasus to the Danube region, in a constant transformation due to ever-changing political groups and alliances, often makes the cultural-chronological context of some artefacts difficult to identify, especially when supporting evidence is precarious.

One still can attempt to identify the makers, if not the owners, of these artefacts by a detailed typological analysis including all available analogies, while mapping the distribution of the specimens of a type might reveal where the owners came from and where they were heading.

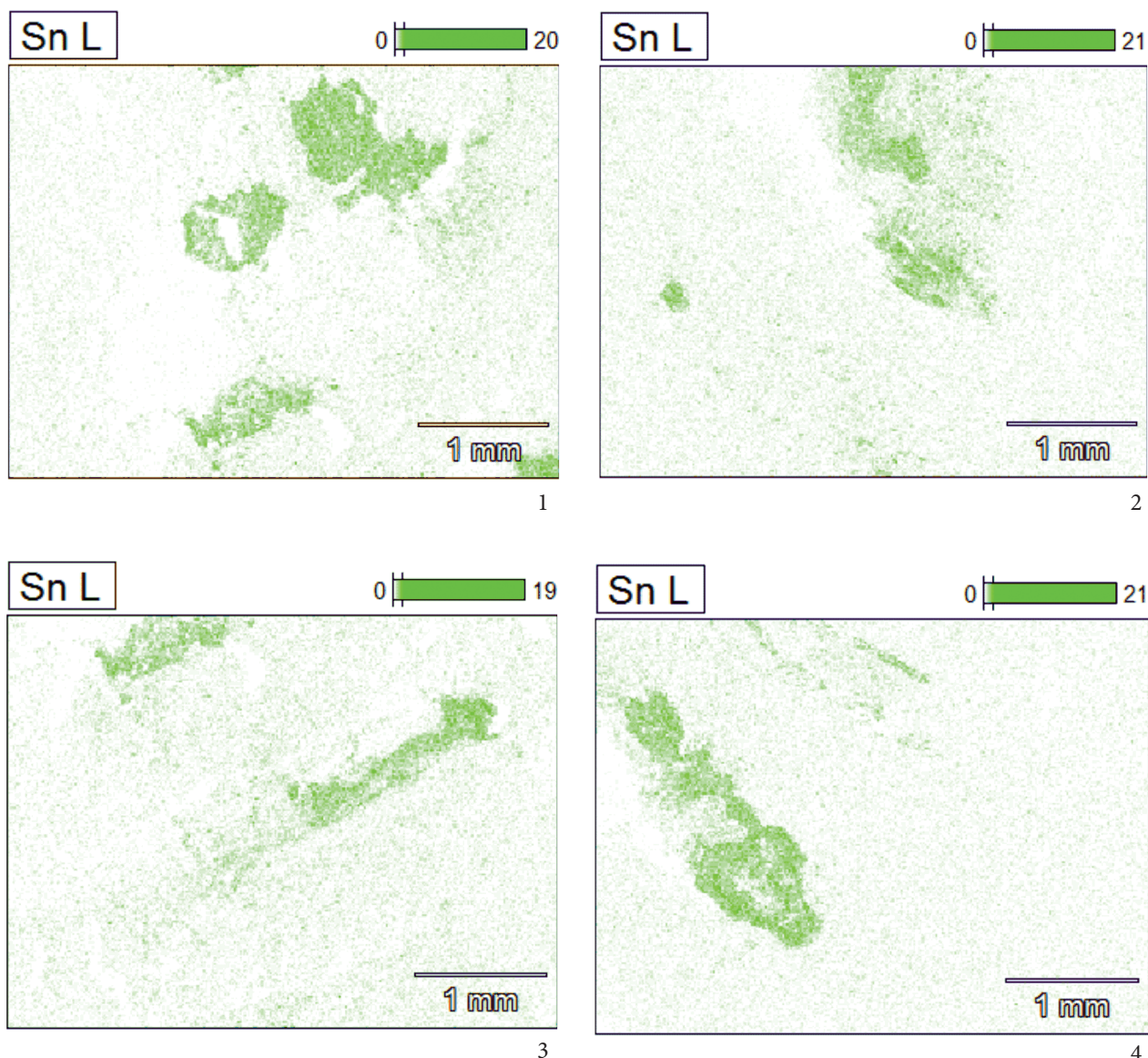


Fig. 3 SEM image of mount no. 30 with a thin layer on the surface
 3. kép A 30. sz. veret SEM-felvétele, a veret felületén vékony ónréteggel

Most mounts from the analysed group, unlike similar-purpose finds in the Danube-Pontic area, are heart-shaped, and many have smooth surfaces. However, there is no known analogy in Dobrudja to mount no. 1, a plain heart-shaped piece, but three such objects were found near Zlatar and one in Nadarevo (Doncheva 2020, 198, Таблица III, B3). Similar but riveted pieces were also discovered in the Karanaev mound in the Southern Urals in Russia and Izmerskoe, a settlement in the one-time Volga Bulgaria (Мурашева 2000, Fig. 29, 3B).

Two analogies to mounts no. 2–5 were found by chance in Adamclisi, Constanța County (Paraschiv-Talmațchi et al. 2014, 171, Pl. VI, 10–11), one more as a stray find in the fortress of Dinogetia-Garvăn,

Tulcea County (Ștefan et al. 1967, 296, Fig. 173, 8) and one in the fortified settlement at Oltina-“Capul dealului,” Constanța County (Paraschiv-Talmațchi, Custurea 2018, 370, Pl. I, 10). Similar mounts are also known from Bulgaria: from Pliska (2 pieces; Константинов 2015, 207, Обр. 5, 3–4), Novakovo, Varna district (1 piece), Odartsi, Dobrich district (1 piece), Suvorovo, Varna district (2 pieces) and near General Kantardzhievo, Varna district (1 piece; Плетньов, Павлова, 1994–1995, 198–199, Таб. VII, 131–138, Таб. VIII, 139–140). Furthermore, such finds are frequent in the area of workshops: 16 pieces are known from Novosel (nine narrow and seven wide), 32 from Zlatar (narrow version: 20 bronze and a silver; wide: 10 bronze and silver), and

11 from Nadarevo (8 narrow and three wide). Also, bronze and lead models of the type were found in all three workshops: Novosel, one bronze model for a wide heart-shaped mount; Zlatar, two bronze, and 11 lead models for a narrow heart-shaped mount and two bronze and five lead models for wide ones; Nadarevo, one bronze model and four lead models for the narrow version and one bronze and one lead model for the wide one (Doncheva, Bunzelov 2018, 399, Fig. 3, 29; Doncheva 2020, Table IV).

Heart-shaped mounts were widespread, appearing in the territories of today's Hungary, Russia, and Mongolia. Several such mounts decorate a horse's harness on a mural in Turfan (Turpan, China), dated to the 7th–9th centuries AD (Barnea 1954, 222). The bronze and lead models, together with a significant number of mounts found in the three workshops (especially in Zlatar), make the production of the type certain by workshops near the Bulgarian capital in the early and mid-10th century AD. The type spread to the Lower Danube area via commerce or other ways. A typological analysis of production errors (for example, accidentally perforating the mount plate upon welding on the rivets) may also help identify the workshop or area of origin. For example, smooth heart-shaped mounts with holes next to the rivets' welding roots were found both in the Varna region and Dobruja, suggesting a circulation of products between the two areas. As the number of pieces with such marks is higher in the Varna region, we assume that the type spread from north-eastern Bulgaria towards the Danube-Pontic area.

An elongated heart-shaped mount with side lobes, like no. 7 in our catalogue, was found in Dobruja in Adamclisi (Paraschiv-Talmațchi et al. 2014, 172, Pl. VI, 12). Currently, that is the only known analogy to the type (nos. 6 to 8) from Danubian-Pontic territory. Good analogies to mount no. 6 are known from Bulgaria; one is part of the collection of the city museum in Varna (Плетньов, Павлова 1994–1995, 142, Таб. IX, 158), while another was found in settlement of Skala (Йотов, Атанасов 1998, 109, Таб. CXIV, 445). Mount no. 7 has much more analogies: such finds may be found in the collections of the city museums in Varna, Dobrich, Shumen, and Sofia (Станилов 1991, 59, Таб. V, 26; Плетньов, Павлова 1994–1995, 143, Таб. IX, 162–173). Some were found near General Kantardzhievo (1 piece), in the settlements from Debrene, Dobrich district (1 piece), and Samotino, Varna district (1 piece). The type also appears in the workshops around Preslav:

a piece at Novosel, 11 in Zlatar, along with seven bronze models, and one in Nadarevo (Doncheva 2018, Таб. III, A1). The presence of bronze models in Zlatar indicates local production.

Mounts no. 8 and 9 seem to be unique. They are variants of the heart-shaped mount type with a smooth surface or incised edge and side lobes, but we have not yet found exact analogies. The closest analogy may be a mount from the settlement of Oltina-“Capul dealului”: it is a wide heart-shaped mount but with four lobes instead of five and without a frame (Paraschiv-Talmațchi, Custurea 2018, Pl. I, 15–16). Loose analogies are also known from Bulgaria (Плетньов, Павлова 1994–1995, Таб. XII, 226, Таб. XIII, 233–238; Дончева 2022, 851, Таб. III, A1).

Mount no. 10, a drop-shaped cast bronze mount with a slightly convex surface and a ribbed edge with six side lobes, has analogies in the collections of the city museums in Varna (Плетньов, Павлова 1994–1995, 148, Таб. XIII, 242) and Sofia (Станилов 1991, 60, Таб. VI, 35). We know of analogies to mount no. 11 from Adamclisi in Dobruja (Paraschiv-Talmațchi et al. 2014, 173, Pl. VI, 20), as well as the southern sector of Preslav and Pliska in Bulgaria (Бонев 1993, 72–73, Обр. 12, а–б; Станилов 1995, 115–116, Обр. 4, 42–43) (Константинов 2015, 209, Обр. 5, 9). Furthermore, several specimens of the type may be found in the collections of museums in Sofia (Станилов 1995, 116) and Varna (Плетньов, Павлова 1994–1995, Таб. XV–XVI, 276–282). The Varna Museum also stores a lead model of a drop-shaped mount (Плетньов 2004, 229, Таб. 1, 4), while three more were discovered in the Zlatar centre, along with three specimens cast in bronze (Дончева 2022, 852, Таб. III, A4).

Mount no. 12, a wide heart-shaped cast bronze mount with a ribbed edge and six side lobes, has its analogies in Dobruja in a settlement at Oltina-“Capul dealului” (Paraschiv-Talmațchi, Custurea 2018, Pl. I, 17), in Bulgaria, in the fortresses of Hambarlka, near the village of Snezhina, and near Izvornik, Varna district (Плетньов, Павлова 149, 1994–1995, Таб. XIV–XV, 261–264), and in the collections of the city museums in Varna and Sofia (Станилов 1991, 59, Таб. V, 30). In addition, one piece was found in the workshop at Novosel, two others and a lead model in Zlatar, and two more in Nadarevo (Дончева 2022, 852, Таб. III, A6).

The openwork heart-shaped mount type also has several variants, two of which are in our catalogue under nos. 13 and 14. Analogies to mount no. 13 often appear in assemblages in South-east Europe;

almost identical specimens are known from Adamclisi in Dobruja (Paraschiv-Talmaçhi et al. 2014, 172, Pl. VI, 14), the fortification of Pernik (Чангова 1983, 198–199, Обр. 1, д.), Vetren, Silistra district (Атанасов, Йорданов 1994, 20, Таб. III, 24), Botevo, and Suvorovo, Varna district, Debrene, and the Varna City Museum's collection (Плетньов, Павлова 1994–1995, 122, Таб. X–XI, 186–196) in Bulgaria. The Varna Museum stores a set of thirteen mounts of the type from North-east Bulgaria (Йотов, Павлова 2004, 78, 94). Furthermore, eleven pieces were found in the Zlatar workshop (Дончева 2013, 160, Таб. III, 9–13; Дончева 2022, 884, Таб. III, D1). Similar finds are also known from Hungary (Плетньов, Павлова 1994–1995, 43). Unlike no. 13, the type variant represented by mount no. 14 is rare. An identical piece and two similar ones were found in Bulgaria; these are currently part of the collection of the Varna Museum (Плетньов, Павлова 1994–1995, 122, Таб. XXII, 389–391).

Mount no. 15, a wide heart-shaped cast bronze mount with incised geometric decoration in its upper-central part, seems to be a unique find as it is currently without known analogies.

Incised and relief palmette motifs with diversely lobed leaves were popular in early medieval times, often appearing on mounts of belt sets. Many variants are present in the Lower Danube area. For example, we did not find analogies to mount no. 16 in Dobruja, and only one in Bulgaria, a piece from the earthwork near Kus, Shumen district (Плетньов, Павлова 1994–1995, 164, Таб. XXVIII, 482). The variants under nos. 18–19 and 22 are also unique, with only two loose analogies from the workshops near Zlatar and Novosel, a bronze model from Novosel (Дончева 2022, 884, Таб. III, B8), and a piece from Botevo (Плетньов, Павлова 1994–1995, 175, Таб. XXXVII, 650). In contrast, mount no. 17, a heart-shaped cast bronze mount with a three-lobed palmette motif in low relief on the front and framed



Fig. 4 Direction of distribution of heart-shaped mounts with three-lobed palmette decoration (no. 17)
4. kép A háromlevelű palmettával díszített, szív alakú veretek (17. sz.) eloszlásának iránya

edge, was relatively widespread. Similar pieces have been found in Dobruja at Adamclisi (Paraschiv-Talmațchi et al. 2014, 175, Pl. VI, 34). Several more are known from Bulgaria: three from Skala (Йотов, Атанасов 1998, 109, Таб. CXIV, 137–139), two from Odartsi (Дончева-Петкова et al. 1999, 106, Таб. LI, 684–685), three from a settlement near Izvornik (Плетньов, Павлова 1994–1995, 167, Таб. XXXI, 540, 547–548), one from Pliska (Константинов 2015, 209, Обр. 5, 6), and thirteen more from the collections of the city museums in Varna (Плетньов, Павлова 1994–1995, 167, Таб. XXXI, 534–539, 541–546) and Sofia (Станилов 1991, 63, Таб. IX, 61). This variant is also present in the record of the three centres (Novosel: 23 mounts, six bronze, and one lead models; Zlatar: 12 mounts, two bronze, and two lead models; Nadarevo: 1 lead model; Дончева 2022, 861, Таб. III, B5). The significant number of analogies and the presence of models in the workshops near Preslav make certain that the type was produced there and spread from that area towards the Danube mouth (Fig. 4).

The variant represented by mounts no. 20 and 21, flat heart-shaped cast bronze mounts with a palmette motif in low relief on the front and two tendrils on the sides, was also popular both in Dobruja, where related specimens were found at Adamclisi (Paraschiv-Talmațchi et al. 2014, 177, Pl. VI, 44) and Păcuiul lui Soare, a fortress on an island of the Danube (Diaconu, Vilceanu 1972, 154–155, Fig. 62, 1). Analogies in Bulgarian territory include two mounts discovered at Pliska (Константинов 2015, 209, Обр. 5, 14–15) and one from Odartsi (Дончева-Петкова et al. 1999, 106, Таб. LI, 681). The collections of the museums in Varna, Dobrich, Shumen, Sofia, and Targovishe (Плетньов, Павлова 1994–1995, 74, Таб. XXXVI, 632–635; Станилов 1991, 63, Таб. IX, 55) also comprise such finds. As for the workshops, a lead model of the wide variant was discovered at Zlatar, along with seven unfinished and five finished mounts and two bronze models at Nadarevo. Two models of the high variant are known from Zlatar (1 of bronze and 1 of lead), besides ten finished pieces (1 from Novosel, five from Zlatar, and four from Nadarevo; Дончева 2022, 863, Таб. III, B10).

Shield-shaped mounts are rare; analogies to mounts no. 23 (Paraschiv-Talmațchi 2018, 393, Pl. III, 11) and 24 (Paraschiv-Talmațchi 2018, 393, Pl. III, 12) are known from Tufani in Dobruja. Derived variants, with or without hinges, also appear in the territory of Hungary, Serbia, and the Republic of

Moldavia (Radišić 2018, 145, Fig. 6, 8; Doncheva 2020, 315).

Mount no. 25, a convex shield-shaped cast bronze mount with a relief-and-incised pattern resembling a feline head and four round side lobes (two of which are inlay cases), seems to be a unique find as it is currently without known analogies.

Mount no. 26, a cast bronze mount type with concave sides and a small oval hole decorated with bird or animal heads in profile, also seems unique. By craft, decoration (zoomorphic or three-lobed palmette motif), and shape, the closest analogy to mount no. 26 is a piece in the collection of the city museum in Varna (Плетньов, Павлова 1994–1995, 188, Таб. XLVI, 812). The collection also comprises five other mounts that may be interpreted as representing a variant of the same type (Плетньов, Павлова 1994–1995, 187–188, Таб. XLVI, 811, 813–816). Interestingly, all pieces with a find spot come from the Varna area, at or near the Black Sea coast.

Mounts decorated with three to eight embossed circles were discovered in Russia, but those are rectangular or heart-shaped, unlike mount no. 27, an oval piece from Dobruja (Мурашева 2000, 32, Рис. 37). Mounts decorated with embossed circles have also been found in Hungary in an 11th-century burial at Bezdéd (Мурашева 2000, 42, Рис. 53). Mounts decorated with three to six circles are also known from Bulgaria, but not any of those is oval (Плетньов, Павлова 1994–1995, 138–139, Таб. V–VI, 85–104).

Mount no. 28, with a ring at its base and a five-lobed palmette motif on the front, has three analogies in Zlatar, Bulgaria; nonetheless, the palmette on those has only three lobes and are less elaborate (Дончева 2022, 887, Таб. III, D22), just like the analogies in the territory of the one-time Volga Bulgaria (Мурашева 2000, 42, Рис. 52, 1г).

As for the analogies to mount no. 29, two cross-shaped mounts with a three-lobed palmette at the end of each arm have been discovered in North-eastern Bulgaria; they are currently part of the collection of the Varna Museum. One of them comes from near Kavarna (Плетньов, Павлова 1994–1995, 190, Таб. XLVIII, 852–853).

Mount no. 30, a small piece comprising two waxing moon-shaped parts, each with two round lobes on the sides, is unique in Dobruja. A larger, gilded specimen with a central rib and without incised decoration (unpublished) was discovered in settlement of Valu lui

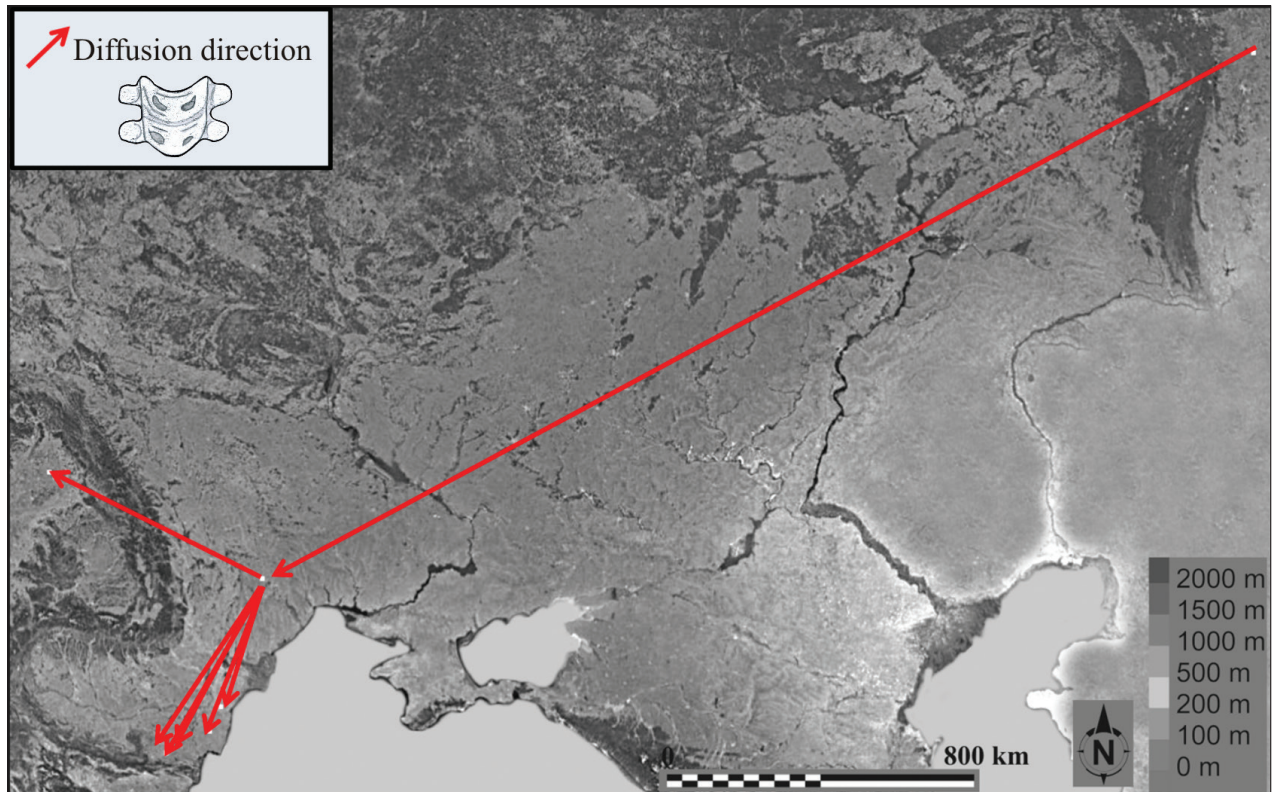


Fig. 5 Direction of distribution of moon-shaped mounts (no. 30)
5. kép A félhold alakú veretek (30. sz.) elterjedési iránya

Traian, Constanța County, in the living area outside the camp of the stone wall (Paraschiv-Talmațchi 2014, 13–15). Similar pieces were also found in the Republic of Moldova at Hansco (Reabțeva 2016, 278, Fig. 2, 49) and in Bulgaria at Debrene (7 pieces), Novosel (1 piece), Zlatar (1 piece), Nadarevo (2 bronze pieces and a silver one), Pliska, and Preslav (Бонев 1993, 73, Обр. 12, е; Плетньов, Павлова 1994–1995, 190, Таб. XLVIII, 841–849; Константинов 2015, 209, Обр. 5, 18; Дончева 2022, 890, Таб. III, E22). In Hungary, a set containing fifty almost identical pieces of the type was discovered in a rich burial in the Árpáadian Age cemetery of Bashalom (Dienes 1956, Pl. LIX, 1–50). Vaguely similar moon-shaped mounts have been found in the Uelgi cemetery in the southern Urals in Russia (Боталов 2018, 20, Рис. 1, Рис. 10, 2). The distribution of the related specimens suggests that the type's origins should not be sought in Bulgarian workshops but rather in the Ural area (Fig. 5), from where it probably arrived with Hungarians, with whom it was popular (as indicated by the belt in the grave at Bashalom).

Mounts like no. 31 in our catalogue, a rosette mount with small bosses, were used to decorate bags (Абызова, Рябцева 2008, 317), arrow quivers (Оҭа

2008, 116), and horse harness parts (Плетньов, Павлова 1994–1995, 35–36, Таб. IV, 58–61; Дончева 2022, 373, Обр. I.4.55). In Dobruja, similar finds are known from Adamclisi (4 pieces; Paraschiv-Talmațchi et al. 2014, 170–171, Pl. VI, 3–6), Tufani (1 piece; Paraschiv-Talmațchi 2018, 389, Pl. III, 1) and Oltina (1 piece; Paraschiv-Talmațchi, Custurea 2018, 367, Pl. 1, 4). Similar mounts were also found in settlement of Lozna east of the Carpathian Mountains (Teodor 2011, 49, 74, Fig. 39, 15). Furthermore, similar pieces are known from Bulgaria, Markeli (Момчилов 2015, 403–405, Обр. 1, 2, 2), as well as Nadarevo, Zlatar, and Novosel (Дончева 2022, 889, Таб. III, E12).

Mounts like the last item, no. 32, in our set were used for decorating clothing; as indicated by the pair of perforations by the edge, they were probably sewn on textile. In Romania, the type has its analogies in the settlement of Dinogetia-Garvăn in Dobruja (Ștefan et al. 1967, 293, Fig. 172, 25) and the cemeteries at Alba Iulia-Brîndușei street and Stația de Salvare in Transylvania (Dragotă 2014, 189, Fig. 108, 2, 9). In Bulgaria, several specimens are known from the Odarsi cemetery (Дончева-Петкова 2005, 136–138, Таб. XXXIX).

Conclusions

Most presented pieces ornated belts and other leather objects. The findings suggest that popular shapes were equally applied to belts and horse harnesses. The last item, no. 32, however, was designed specially to decorate clothing, as indicated by the pair of perforations on the side that enabled it to be sewn up.

Based on available analogies but also shape, production method, and decoration, most of the 32 mounts from Dobruja can be dated to the 10th century AD. Some specimens remained in use for a longer time and were discovered in layers dated to the beginning of the next century (for example, in the fortress of Hârșova, three shield-shaped mounts with a hole at the base were found in an early 11th-century context).³

Some types, like the moon-shaped mount, emerged as early as the end of the 9th century AD. If this type was brought to the Lower Danube area by Hungarian warriors, then the presence of pieces in South-eastern Romania and North-eastern Bulgaria may be linked to the events of AD 894–895. There is proof of Hungarian troops participating in military events near the Danube north of Dobruja in AD 837 when, at the request of the Bulgarians, they attempted to prevent the repatriation of people deported from Adrianople by Krum (the Fearsome, Khan of Bulgarians) to the north of the Danube river some twenty-five years before (Spinei 2010, 264). The Hungarians returned to the territory bordering the Lower Danube region in the 890s, only to participate in more confrontations between the Byzantine Empire and Bulgarians in a conflict that involved many people residing in the Northern Pontic region at that time. Crossing the river with the help of the imperial fleet (as allies of the Byzantine Empire), they defeated the army of the first Bulgarian state and advanced to the walls of the fortress in Preslav, the new capital of the Bulgarian state, in AD 893 (Spinei 1990, 110; Rădulescu, Bitoleanu 1998, 173; Barnea 2010, 35).

The last item, no. 32, belongs to the 11th century but, rarely, also appears in features dated to beginning of the next century (Șcentu et al. 1967, 293; Дончева-Петкова 2005, 136–137).

Most presented mounts may be classified by their general morphological characteristics into types specific to the Danubian area. However, in the case of several types, available analogies and the presence of bronze and lead models in the work-

shops near Novosel, Zlatar, and Nadarevo outline a distribution area roughly matching that of the first Bulgarian state and its area of influence. The presented finds from Dobruja also comprise unique specimens and rare types with only a few analogies in the Lower Danube region; these were perhaps produced elsewhere and arrived in the area as ready-made objects.

The discovery of a workshop in Echimăuți in the Republic of Moldova, with a belt set that seems to have been repaired here (Абызова, Рябцева 2008, 317) suggests the presence of smaller, local workshops besides the large, specialised ones like those near Preslav.

In Dobruja, bronze objects are supposed to have been produced or repaired in workshops operating in the fortifications of Dinogetia-Garvăn, Noviodunum-Isaccea, and Nufăru, Tulcea County (in the northern part of the Danube-Pontic area), as marked by unfinished pieces, bronze or tin sheet fragments, alloy waste, and moulds in the archaeological record of these sites (Stănică 2015, 209–211). Several finds mark the production of copper alloy items at Dinogetia-Garvăn, including a one-sprue clay mould for casting simple rings and a fine stone mould for filigree earrings from 12th-century context (Ștefan 1967, 78, Fig. 38, 1). The site also yielded an embossing mould for pressed decorative mounts. A mould for casting earrings was found in Tulcea (Stănică 2015, 212). In addition, an embossing mould for pressing golden rosettes was discovered in the fortress on the island of Păcuiul lui Soare (south-west Dobruja); the finding may suggest the working of a goldsmith in the fortress in the 11th century AD (Diaconu, Vilceanu 1972, 158–159).

Several finds, including finished and semi-finished products, scraps, and failed products, indicate that a jeweller's workshop operated near the northern gate fortress Păcuiul lui Soare in the 11th century AD. The workshop also produced lead objects, including lunulae, crosses, buckles, rings, astragalus (gaming pieces), etc. One cannot exclude that the workshop – that has not yet been identified and probably never will be as it had been washed away by the Danube by today along with the better part of the ancient fortress – also produced items in other materials, like buckles in bronze (Damian 1992, 315–321). Some discoveries from Noviodunum-Isaccea (lead ingots, lead waste, unfinished and discarded items) suggest lead processing in the area of the civil settlement (Stănică 2015, 211–212).

Despite a current lack of related discoveries in Bulgaria, based on the above data one may rightfully assume the presence of jeweller's workshops in Dobruja in the 10–11th centuries AD. Perhaps the emergence of several coeval type variants was due to local workshops where craftsmen copied some "original" items differently, according to their skills and tools, and also added a little of their own style in the process.

The objects presented here are either brought from the edge of the world or produced in the Lower Danube area; in any way, they are important in reconstructing a relevant image of the area. Such finds not only provide information on clothing accessories, early medieval fashion, and jewellery production but also on the distribution of types and the contact networks outlined by them.

Notes

- 1 The analysis was carried out in the Applied Nuclear Physics Department, Horia Hulubei National Institute for Nuclear Physics and Engineering, Măgurele (Romania), by Ph.D. Daniela Cristea-Stan, whom we consulted in writing this part of the paper and whom I thank for her invaluable help.
- 2 The analysis was carried out in the Applied Nuclear Physics Department, Horia Hulubei National Institute for Nuclear Physics and Engineering, Măgurele (Romania), by Ph.D. Paul-Emil Mereuță, for whose help I am grateful.
- 3 Unpublished materials.

BIBLIOGRAPHY

- Barnea, I. 1954: Elemente de cultură materială veche rusească și orientală în așezarea feudală (secolele X–XII) de la Dinogetia (regiunea Galați). *Studii și referate privind istoria României* 1, 197–228.
- Barnea, I. 2010: Bizanțul și lumea carpato–balcanică. In: Theodorescu, R., Spinei, V., *Istoria românilor* 3. Genezele românești, Ediția a II–a, București, 29–38.
- Barnea, I., Mitrea, B. 1959: Săpăturile de salvare de la Noviodunum (Isaccea) (r. Tulcea, reg. Constanța). *Materiale și cercetări arheologice* 5, 462–473. <https://doi.org/10.3406/mcarh.1959.1166>
- Cîrjan, C. 1969: Necropola de epocă feudal timpurie de la Gîrlița–Ostrov. *Pontica* 2, 111–134.
- Damian, O. 1992: Despre un atelier pentru confecționat piese din plumb de la Păcuiul lui Soare. *Pontica* 25, 309–321.
- Damian, O., Mănușu-Adameșteanu, Gh., Vasile, M., Stănică, A., Bănăseanu, A., Samson, A., Vasile, G. 2007–2008: Descoperiri funerare în situl arheologic de la Nufăru, jud. Tulcea. *Cercetări arheologice* 14–15, 305–392. <https://doi.org/10.46535/ca.15.13>
- Damian, O., Vasile, M., Stănică, A., Bănăseanu, A., Samson, A. 2007: Cercetări arheologice preventive la Nufăru, jud. Tulcea. *Materiale și cercetări arheologice* 3, 107–151. <https://doi.org/10.3406/mcarh.2008.881>
- Diaconu, P. 1963: Un mormânt din sec. XI descoperit la Dervent (reg. Dobrogea). *Studii și cercetări de istorie veche* 14, 1, 213–216.
- Diaconu, P. 1969: Einige Zierräte und Zaumzeugstücke von Păcuiul lui Soare. *Dacia* 13, 501–505.
- Diaconu, P., Panaitescu, A. 1982: Tipare de la Păcuiul lui Soare pentru obținerea de obiecte de podoabă în tehnica presării. *Pontica* 15, 263–266. <https://doi.org/10.3406/mcarh.1983.1842>
- Diaconu, P., Vilceanu, D. 1972: Păcuiul lui Soare. *Cetatea bizantină* 1, București.
- Dienes, I. 1956: Un cimetiére de hongrois conquérants à Bashalom (Fouilles exécutées par I. Kiss). *Acta Archaeologica Academiae Scientiarum Hungaricae* 7, 245–277, Plaches LVII–LXXII.
- Dobrinescu, C., Potârniche, T., Bodolică, V., Duca, M., Lascu, M. 2016: Sat Capidava, com. Topalu, jud. Constanța. Capidava 2015 – Sector Extramuros. Centrul de informare turistică, parcare, alee acces

- centru de informare, căi rutiere, extindere centru de informare. In: Opreș, I., Pinter, Z. K., Popescu, F. M. (eds), *Cronica cercetărilor arheologice din România. Campania 2015*. Târgu Jiu.
- Doncheva, S. 2012: Metal art production in Medieval Bulgaria. Jewelry craftsmanship in Bulgaria at the Middle Ages, Saarbrücken.
- Doncheva, S. 2020: Similar traits and influences in the production of belt sets in Bulgaria and Romania in the 10th century AD. *Pontica* 53, 343–369.
- Doncheva, S., Bunzelov, I. 2018: Lead models of 10th century strap ends appliques from a metalwork centers near Preslav. *Pontica* 51, 389–403.
- Doncheva, S., Nikolov, N. 2010: An Early Medieval lead mould for the production of wax models from the region of Preslav, NE Bulgaria. *Archaeologia Bulgarica* 14/1, 81–92.
- Dragotă, A. 2014: Podoabe și accesorii vestimentare din Banat, Crișana și Transilvania (secolele X–XI). Cluj-Napoca.
- Florescu, Gr., Florescu, R., Diaconu, P. 1958: Capidava. Monografie arheologică 1, București.
- Mănușu-Adameșteanu, Gh. 1984: Descoperiri mărunte de la Isaccea (sec. X–XIV). *Peuce* 9, 237–255, 633–639.
- Oța, S. 2008: Orizonturi funerare din Banatul istoric (secolele X–XIV). Sibiu.
- Paraschiv-Talmațchi, C. 2018: Early medieval belt decorations discovered in southern Dobrudja. In: Aparaschivei, D., Bilavski, G. (eds), *Studia Romana et Mediaevalia Europaensia. Miscellanea in honorem annos LXXXV peragentis Professoris emeriti Dan Gh. Teodor oblata*. București – Brăila, 387–404.
- Paraschiv-Talmațchi, C., Custurea, G. 2012: Clothing Accessories Ornaments Found in Dobrudja. *Pontica* 45, 345–360.
- Paraschiv-Talmațchi, C. 2014: Noi contribuții la repertoriul arheologic medieval timpuriu dobrogean. *Analele Universității „Dimitrie Cantemir”, seria istorie*, 5, 3–4, 6–37.
- Paraschiv-Talmațchi, C., Custurea, G. 2018: Ornamente de centură descoperite la Oltina–”Capul dealului”. *Pontica* 51, 365–387.
- Paraschiv-Talmațchi, C., Stănică, A.D., Șova, C., Custurea, G. 2020: Mixobarbarii din Dobrogea în contextul lumii bizantine (secolele VI–XIII). Catalog de expoziție – Mixobarbaroi from Dobruja in the context of the Byzantine World (6th–13th Century). Exhibition catalog. Cluj-Napoca.
- Paraschiv-Talmațchi, C., Talmațchi, G., Șova, C. 2014: Repere arheologice medieval–timpurii în zona Adamclisi (jud. Constanța). *Revista Bistriței* 28, 164–196.
- Petre, A. 1962: Săpăturile de la Pietra Frecăței. *Materiale și cercetări arheologice* 8, 565–589. <https://doi.org/10.3406/mcarh.1962.1319>
- Petre, A. 1987: La romanité en Skythie Mineur (II^e–VII^e siècles n.e.). *Recherches archéologiques*. Bucharest.
- Pinter, Z. K., Dobrinescu, C. I., Dragotă, A., Kelemen, B. 2011: Cercetări preliminare în necropola medievală de la Capidava (com. Topalu, jud. Constanța). *Pontica* 44, 387–400.
- Radišić, M. 2018: Archaeological testimonies of Bulgarian presence in the Central Balkans during the ninth and tenth centuries. In: Nikolov, A., Kanev, N. (eds), *Сб. Симеонова България в историята на Европейския Югоизток: 1100 години от битката при Ахелой*. София, 134–154.
- Rădulescu, A., Bitoleanu, I. 1998: *Istoria Dobrogei*. Constanța.
- Reabțeva, S. 2016: Some belt sets and separate plaques of IX–XI centuries from the Prut–Dniester region. In: Ciupercă, B. (ed), *Archaeologia mileniului I p.Chr.* V. Brăila, 267–284.
- Spinei, V. 1990: Migrația ungarilor în spațiul carpato–dunărean și contactele lor cu românii în secolele IX–X. *Arheologia Moldovei* 13, 103–148.
- Spinei, V. 2010: Crepusculul stăpânirii avare în spațiul transilvănean. In: Theodorescu, R., Spinei, V., *Istoria românilor* 3. Genezele românești, Ediția a II–a, București, 45–57.

- Stănică, A.-D. 2015: Viața economică din nordul Dobrogei în secolele X–XIV. Tulcea.
- Suceveanu, Al. 1973: Un mormânt din secolul XI e.n. la Histria. *Studii și cercetări de istorie veche* 24/3, 495–502.
- Ștefan, Gh., Barnea, I., Comșa, M., Comșa, E. 1967: *Dinogetia 1. Așezarea feudală timpurie de la Biseriçuța–Garvăn*. București.
- Vasilii, I. 1984: Cimitirul feudal–timpuriu de la Isaccea. *Peuce* 9, 107–141, 519–540.
- Абызова, Е., Рябцева, С. 2008: О находках предметов ременной и сумочной гарнитуры средневекового времени с городища Екимэуць в Молдове. *Tyragetia* 2 (17), 1, 311–318.
- Атанасов, Г., Йорданов, И. 1994: Средновековният Ветрен на Дунав. *Shumen*.
- Бонев, С. 1993: Архитектурен комплекс в Преслав. *Preslav* 4, 56–78.
- Бонев, С., Дончева, С. 2011: Старобългарски производствен център за художествен метал при с. Новосел, Шуменско. *Veliko Trnovo*.
- Боталов, С. Г. 2018: Урало-Алтайское единство в материалах погребального комплекса Уелги. *Arheologija evrazijskih stepej* 6, 13–34. https://doi.org/10.55722/Arpad.Kiad.2018.6_04
- Даскалов, М. 2012: Колани и коланни украси от VI–VII век (от днешна България и съседните земи). *Sofija*.
- Дончева, С. 2013: Реконструкция на коланни гарнитури по материали от ранносредновековния център за металопластика при с. Златар, Преславско. *Preslav* 7, 152–170.
- Дончева, С. 2017: Ювелирните производствени комплекси X века в близост до Преслава. *Технологии на производство*. *Stratum plus* 5, 189–204.
- Дончева, С. 2022: Производството на художествен метал в България през X век (По данни от производствените центрове в околностите на Преслав). *Veliko Trnovo*.
- Дончева-Петкова, Л. 2005: Одръци. Некрополи от XI век 2. *Sofija*.
- Дончева-Петкова, Л., Нинов, Л., Парушев, В. 1999: Одръци. Селище от Първото българско царство 1. *Sofija*.
- Зирра, В. 1963: Двубрядовый могильник раннефеодальной эпохи в Капул Виилор–Истрия. *Dacia N.S.* 7, 355–412.
- Йотов, В., Атанасов, Г. 1998: Скала. Крепост от X–XI век до с. Kladenci – Tervelsko – Sofija.
- Йотов, В., Павлова, В. 2004: Българите и техните съседи през V–X век. Каталог на изложба. *Varna*.
- Константинов, К. 2015: Метални накити и коланни гарнитури от разкопките на комплекса при южния сектор на западната крепостна стена в Плиска. *Pliska-Preslav* 11, 199–216.
- Момчилов, Д. 2015: Старобългарски апликации от Маркели. *Pliska-Preslav* 11, 401–418.
- Мурашева, В. В. 2000: Древнерусские ремешные наборные украшения (X–XIII вв.). *Moskva*.
- Параскив-Талмацки, К. 2020: Миграции в Дунайско-Понтийской зоне юго-востока Румынии по археологическим данным. *Stratum plus* 5, 249–260.
- Плетньов, В. 2004: Производството на коланни гарнитури в ранносредновековна България. *Preslav* 6, 228–240.
- Плетньов, В., Павлова, В. 1994–1995: Ранносредновековни ремъчни апликации във Варненския археологически музей. *Izvestija na Narodnija Muzej Varna* 30–31 (45–46), 24–239.
- Станилов, С. 1991: Старобългарски ремъчни украси от Националния археологически музей. *Razkopki i prouchvaniya* 22, 5–70.

- Станилов, С. 1995: Метални гарнитурѝ за ремѝци и облекло от двореца във Велики Преслав. *Pliska-Preslav* 7, 110–135.
- Станилов, С. 2006: Художественият метал на Българското ханство на Дунав (7–9 век.). *Sofija*.
- Чангова, Ъ. 1983: Към проучването на старобългарската металлопластика IX–X в. *Preslav* 3, 198–203.

KORA KÖZÉPKORI ÖVVERETEK. ÚJ FELFEDEZÉSEK ÉS LEHETSÉGES DÉLKELET-EURÓPAI KAPCSOLATRENDSZEREK

Összefoglalás

Az elmúlt két évtized régészeti feltárásai során több jellegzetes kora középkori veret is előkerült Délkelet-Romániában, pontosabban az Al-Duna vidék alsó része, a Fekete-tenger és Északkelet-Bulgária által határolt területen. Míg a korai leletek főként erődítmények területéről (Dinogetia-Garvăn, Noviodunum-Isaccea, Capidava, Păcuilui Soare) és síregyüttesekből származnak (Gârlița, Ostrov-Piatra Frecăței, Isaccea, Istria, Histria), az újak között vannak településen (Hârșova and Adamclisi), földvárban (Oltina), illetve telepen és temetőben találtak is (Valu lui Traian, Capidava, Nufăru and Noviodunum-Isaccea). Emellett számos szórványlelet is világot látott (Tufani, Adamclisi, Valu lui Traian, Târșușor, Lipnița, Cochirleni, illetve Dobrudzsa területén közelebbi lelőhelymegjelölés nélkül); e leletek jó része egyelőre közöletlen.

E leletek közül jelen tanulmány az övveretekkel foglalkozik, mely tárgycsoportot a kutatás hagyományosan a dunai-pontusi régióban megjelenő vándorló népcsoportokhoz köt. A leletanyag felhalmozódása az elmúlt két év során fokozatosan átalakította a kutatás tárgycsoporthoz való viszonyát, míg a három korai fémműves központ felfedezése Preslav, a korai bolgár állam második fővárosa mellett további kutatási irányokat jelölt ki.

Jelen tanulmány a Dobrudzsa és Délkelet-Európa területén előkerült övvereteket tekinti át, nem csupán új leleteket közreadva, de feltérképezve és értékelve az egyes típusok, típusváltozatok elterjedését és az általuk kirajzolódó kapcsolatokat, illetve az esetleges harci cselekményekhez köthető csapatmozgások irányát.

Az itt közreadott, Dobrudzsa területéről, közelebbről nem meghatározott lelőhelyekről származó 32 veret legnagyobb része zárt rétegből származik vagy szórványleletként került a Constanțai Nemzeti Történelmi és Régészeti Múzeum gyűjteményébe. Tizennégy tárgy anyagösszetéti vizsgálatát végeztük el hordozható röntgen fluoreszcencia spektrométerrel (XRF; *1. táblázat*). A legtöbb veret réz-ón ötvö-

zetből készült, melyben előfordult ólom és cink is; az anyag legnagyobb részét réz tartalmazott, míg az ötvözőanyagok együttes aránya ritkán haladta meg a 10%-ot. Az ötvözetekben a réz aránya 81,44 és 95,68% között változik (kivéve két veretet, melyeknél az arány 80% alatt van), míg az ón aránya 0,6 és 12,5% közötti (kivéve a 4. számú veretet, melynek óntartalma 18,11%). A 30. számú, kettős félhold alakú veret felszínének pásztázó elektronmikroszkópos (SEM) vizsgálata kimutatta, hogy a tárgy előlapját eredetileg vékony ónréteg fedte (*3. kép*). Bulgária területéről több hasonló, esztétikai célból ónnal bevont veret ismert.

A *Párhuzamok és elterjedés* fejezetben feltérképezzük az egyes típusváltozatok párhuzamait, és megkíséreljük meghatározni készítésük helyét, valamint (lehetőség szerint) behatárolni az egykori használók személyét vagy csoportját, illetve annak mozgását a rendelkezésre álló információk alapján.

Párhuzamok, forma, készítéstechnikai jellegzetességeik és díszítés alapján a közreadott 32 lelet legnagyobb része a Kr. u. 10. századra keltezhető; néhány darab bizonyosan használatban volt még a 11. század elején is (pl. három pajzs alakú, alapjánál ovális lyukkal ellátott veret került elő Hirsova/Hârșova erődített településén 11. századi kontextusból). Néhány típus, például a kettős hold alakú veret, már a Kr. u. 9. század során megjelenhetett. Ha ezeket a vándorló magyarok hozták magukkal az Al-Duna vidékére, akkor a Délkelet-Románia és Északkelet-Bulgária területén talált darabok a 894–895-ös évek eseményeihez köthetők, amikor magyar csapatok (a Bizánci Birodalom szövetségeseiként, a császári flotta segítségével) átkelnek a folyón, legyőzik az első bolgár állam hadseregét, és előrenyomulnak egészen az új bolgár főváros, Preslav erődjéig.

Az itt közreadott verettípusok a Duna-vidékhez köthetőek; néhányuk elterjedési területét a rendelkezésre álló párhuzamok és a Novosel, Zlatar és Nadarevo fémműves központjaiban előkerült bronz-

és ólommodellek az első bolgár állam vonzáskörzetében határozzák meg. A Dobrudzsában talált veretek között vannak egyedi és ritka típusok is; néhány esetben az Al-Duna vidéki párhuzamok alapján feltehető, hogy már késztermékként, illetve használóikkal együtt érkeztek a területre.

Az Echimăuți határában, Moldovában feltárt kis ötvösműhely anyagából előkerült egy javítás nyomait viselő övveret-alátétlemez is; a felfedezés felveti a Preslav környékéről ismert nagyobb műhelyek mellett kisebb, helyi műhelyek működésének lehetőségét.

Számos lelet – félkész termékek, bronz- és ónlemezdarabok, öntecsek, öntőformák – utal arra, hogy Dobrudzsában a bronztárgyakat az erődítményekben működő műhelyek gyártották és javították (pl. Dinogetia-Garvăn, Noviodunum-Isaccea és Nufăru, Tulcea megyében, a Duna-Pontus régió északi részén). Dinogetia-Garvăn lelőhelyén a legkésőbbi, rézfeldolgozáshoz kapcsolódó tárgy – egy kőből készült, egycsapos gyűrű öntőforma – 12. századi kontextusból került elő. Ugyanitt préselt veretek készítésére szolgáló mintákat is találtak, míg Tulceából fülbevaló-öntőminta ismert. Délnyugat-Dobrudzsában, a Păcuiul lui Soare szigeten található erőd feltárásán aranylemez rozetta készítésére szolgáló minta került elő, mely felveti annak lehetőségét, hogy a Kr. u. 11. században aranyműves is működött a területen.

A város északi kapujánál, szintén 11. századi kontextusban talált számos kész- és félkész tárgy és hulladék szintén ötvösműhelyre utal, mely bronz- és ólomtárgyakat, például lunulákat, kereszteteket, csatokat, gyűrűket és játékhöz használt asztragaloszokat, illetve bronzcsatokat és vereteket is gyárthatott. E műhelyt még nem sikerült azonosítani, és valószínűleg már nem is lehetséges, mivel – az erőd jó részével együtt – mára jó eséllyel elmosta a Duna. Noviodunum-Isaccea területén a polgárvárosban előkerült leletek (ólomöntecsek, ólomhulladék, félkész és kész tárgyak) utalnak az ottani fémművességre.

A bemutatott leletek közvetlen bizonyíték híján is körvonalazzák az egykori ötvösműhelyek jelenlétét Dobrudzsa területén. Talán épp a számos párhuzamosan működő kis műhely sejthető a változatos típusvariánsok megjelenése mögött: a mesterek a mintául szolgáló darabokat mind saját képességeik szerint, saját eszközeikkel másolták le, talán még egy kis egyedi stílust is adva az általuk gyártott “másolatoknak”.

Akár a világ végéről kerültek ide, akár helyben gyártották őket, az itt bemutatott leletek alapvető fontosságúak a térség viszonyainak megértésében. Nem csupán az egykori viseletről és divatról való tudásunkat gazdagítják, hanem elterjedésük révén segítenek megérteni az őket használó közösségek kapcsolatrendszerét, viszonyait is.



