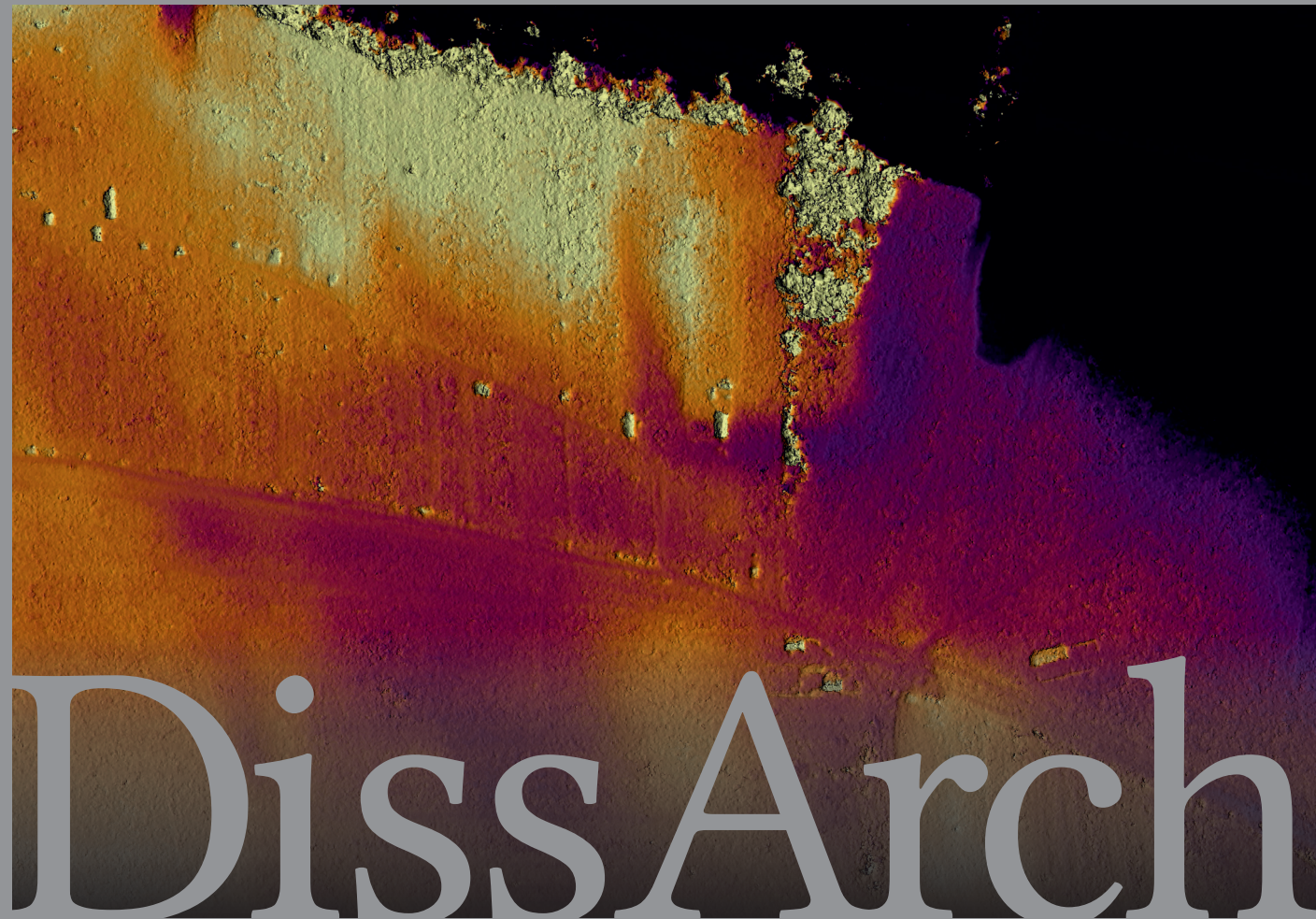


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A looted ‘hoard’ from ‘Szabolcs-Szatmár-Bereg County’

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Abstract: The study details a looted hoard seized near the village of Vaja by the Mátészalka Police during a night of police control. According to the person who smuggled the finds, the findings were discovered in the ‘attic of a house in Budapest, during garbage disposal’. This obvious lie can be easily refuted by the results of the typo-chronological analysis of the objects. The seized finds comprise sword blades, spearheads, a knife, socketed axes and chisels, sickles, bracelets, metal vessel parts, metal lumps, and some unidentifiable fragments. Except for a few supra-regional types (a Vadena-type knife and some Kelčice-type bracelets), the style of these artefacts matches the bronze products often deposited in Hajdúböszörmény-type (Ha B1) hoards in the east Carpathian Basin. The concentration of stylistically close analogies in the territory of Hungary and the presence of typologically identical finds in the assemblage support the previous hypothesis that they were indeed looted somewhere in ‘Szabolcs-Szatmár-Bereg County’. A plausible findspot can be located in the northern and central areas of the county, such as the zone between Nyírmada, Mátészalka, Kántorjánosi, and Vaja, the area where the police action took place.

Keywords: looted hoard, illicit antiquities trade, Late Bronze Age (Ha B1), Carpathian Basin, typo-chronology

Introduction

In August 2008, several archaeological objects were seized near the village of Vaja by the Mátészalka Police during a night of police control in a car registered to the name of a Budapest resident. According to the ‘smuggler’, he found the objects in the attic of a house in Budapest during garbage disposal. Gábor V. Szabó identified the items as a plausible hoard dated to the Ha B1 period based on their similar style and identical corrosion, damages, and fragmentation. He also proposed that these finds may originate from ‘Szabolcs-Szatmár-Bereg County’.¹ The objects were then studied by the author in his PhD dissertation, where the content of the hoard has been subjected to typo-chronological analysis.² The seized group of objects is now part of the archaeological collection of the Jósa András Museum Nyíregyháza, inventoried under numbers 2010.310.1–55. The group of finds from ‘Szabolcs-Szatmár-Bereg County’ comprises fifty objects of different types: seven

1 V. SZABÓ 2013, 810–811, Fig. 16.

2 A socketed axe from the ‘Szabolcs-Szatmár-Bereg County’ assemblage and the Zsáka II hoard were mixed in the author’s PhD dissertation; see [TARBAY 2018](#), Pl. 464.3, Pl. 288.14. Here, this mistake has been corrected.

swords (Fig. 2.1–7), four spearheads (Fig. 2.8–11), a knife (Fig. 2.12), seven socketed axes (Fig. 3.13–19), two chisels (Fig. 3.20, Fig. 3.21), seven sickles (Fig. 4.22–28), a saw (Fig. 4.29), sixteen bracelets (Fig. 1, Fig. 4.32–47), two metal vessel fragments (Fig. 4.30–31), two metal lumps (Fig. 4.48–49), and three unclassifiable finds (Fig. 4.50–52). This composition, apart from a large number of swords, is similar to the mixed composition hoards from the east Carpathian Basin, especially the Great Hungarian Plain, where numerous Hajdúböszörmény-type hoards dated to the Ha B1 period have been discovered.³

The number of finds like the one from ‘Szabolcs-Szatmár-Bereg County’ increases every year, and although their scientific publication provides important data, one must be cautious in their evaluation. Most finds likely originate from the same archaeological context, as Gábor V. Szabó has suggested, which, in this case, is very likely a hoard.⁴ But as it is a looted assemblage, and the smuggler provided no valuable information on its findspot, one must also reckon with many other scenarios. The studied find assemblage may be the mixed content of different hoards or hoards mixed with stray finds. These limitations can never be overcome, but this shortcoming does not mean that analysing these findings is futile. Besides obvious results, such as expanding our knowledge on Late Bronze Age metalworking in the east Carpathian Basin, such finds are suitable to text expert intuition on archaeological provenance through rigorous typological analysis, which may even somewhat narrow down the possible area of finding.

Fragmentation

If one considers the findings from ‘Szabolcs-Szatmár-Bereg County’ a single hypothetical assemblage, it was a fragmented one. When confiscated, most finds were damaged or broken. Their fracture surfaces were covered with patina and corrosion products prior to conservation (Fig. 1), supporting the hypothesis that the finders have not altered their condition. Modern fracture surfaces without patina or corrosion products were only observed on two finds: a sickle (Fig. 4.25) and a bracelet (Fig. 4.33). Since the exact findspot is unknown, we do not know whether agricultural work disturbed these finds. The atypical damage on the pommel disc of the metal-hilted sword (Fig. 2.1) may be associated with ploughing. But if this was the case, it must have happened long before its discovery, as the damage was also covered with patina. Considering phenomena related to fragmentation, this group of findings shows no specific traits. Generally, bending is associated with breaking such objects (Fig. 2.1–4,6,12, Fig. 4.24,29,33). Based on the pores around the fracture surfaces, swords were also broken at their weakest point (Fig. 2.1–4,7). The clean and sharp surfaces



Fig. 1. A decorated bracelet (No. 35) prior to conservation (Jósa András Museum, Nyíregyháza)

3 KEMENCZEI 1996a; MOZSOLICS 2000; TARBAY 2022a.

4 V. SZABÓ 2013, 810–811.



Fig. 2. 'Hoard' from 'Szabolcs-Szatmár-Bereg County' (Jósa András Museum, Nyíregyháza)



Fig. 3. 'Hoard' from 'Szabolcs-Szatmár-Bereg County' (Jósa András Museum, Nyíregyháza)



Fig. 4. 'Hoard' from 'Szabolcs-Szatmár-Bereg County' (Jósa András Museum, Nyíregyháza)

at its terminals indicate that the metal vessel handle had been cut off. Also, a handful of finds (20%) were deposited intact (Fig. 3.13–18, Fig. 4.34–35,48–49), while some objects were near-complete (Fig. 2.8, Fig. 4.21) or could be refitted from several fragments (Fig. 3.20, Fig. 4.29,33). Although the fragmentation analysis of the finds from ‘Szabolcs-Szatmár-Bereg County’ may never be perfectly reliable due to the lack of context, the overall characteristics of the finds support the idea that many of them were deliberately damaged prior to deposition.

Production technology and use

The findings from ‘Szabolcs-Szatmár-Bereg County’ were found in a heavily corroded state that hampered the preservation of fine technological traits and use-related marks, such as post-casting treatment phenomena and edge damages. An exception is one of the sword blades (Fig. 2.6), the surface of which shows traces of grinding striations. Socketed axes are the second group of finds where limited conclusions can be drawn from the overall macroscopic characteristics. The most obvious production-related traces are the hammering of the blades and the partial removal of the casting seams, which could be observed along the narrow sides of almost all socketed axes (Fig. 3.13–18). The design of the related axe casting moulds is also fairly uniform: based on casting jet traces, the pouring cup was always positioned at the top of the loops, indicating the direction of the casting. Corrosion and micro-fragmentation rendered the cutting edges of the axes unsuitable for use-wear analysis. Only one piece (Fig. 3.18) had an asymmetrical and short blade, supporting the idea that it was re-shaped numerous times by repeated cycles of hammering and sharpening. Socketed chisels have post-casting treatment phases comparable to socketed axes’. Like their larger counterparts, their blades were hammered into a rectangle profile. The cutting edges of the sickles were heavily fragmented; only two (Fig. 4.24–25) had narrow blades, a potential trace of heavy use. A fine decoration was visible on the outer surface of the large bracelets with blunt terminals. The patterns were incomplete due to corrosion, not intensive use. Except for the two lumps, most finds from ‘Szabolcs-Szatmár-Bereg County’ can be identified as potential finished products. Most were certainly not in the final stage of their use-life when hoarded; the best examples are the complete socketed axes, with much of their blade intact and barely used.

Typo-chronology

Swords

The group of finds from ‘Szabolcs-Szatmár-Bereg County’ contains seven sword parts: a metal-hilted sword (Fig. 2.1), a solid-hilted short sword, a flange-hilted sword (Fig. 2.3), and four sword blade fragments (Fig. 2.4–7). The sword blades and the hilt parts could not be refitted as the assemblage contained no matching fragments. However, the style of some blade fragments suggests that they may belong to some of the hilt fragments. Such hypothetical ‘swords’ can be Groups 1 (Fig. 2.3–5) and 2 (Fig. 2.1,7). The fragmented state of these weapons has prohibited the typo-chronological analysis of most; only three could be studied in detail.

The metal-hilted sword fragment (Fig. 2.1) has a disc-shaped pommel with a conical knob. Its hilt has an oval cross-section, and it is divided by three circular, edged ribs. Its shoulders are oblique. The pommel is decorated with three concentric circles of probably punched triangles. The zones between the ribs on the hilt are covered with bands of chased fishbone pattern, while punched dot rows adorn the edge of the ribs. The outlines of the same pattern, consisting of dots and fishbone bands, can be observed between the shoulders. As far as we know, this sword has no close analogies but only its individual traits do. The metal hilt with edged ribs and the fishbone pattern are known from some finds from Slovakia.⁵ The decoration on the upper side of the disc-shaped pommel is also common on the

5 NOVOTNÁ 2014, 41, 69, 72, 76, Pl. 23.106, Pl. 24.110, Pl. 26.120.

lower part of Illertissen-type swords. There are also a handful of metal-hilted swords with such pattern on the upper side of their disc from Otok-Privlaka, Lavanttal, Szentgáloskér, 'Hungary', and Lansach. The latter is also important as it has the same ridged blade (with a rectangular-profile central ridge) as the sword from 'Szabolcs-Szatmár-Bereg County'.⁶ This weapon is generally similar to the Schwaig type⁷ and, based on the analogies of its individual features, it can be associated with Ha A1, a period much older than the rest of the finds from 'Szabolcs-Szatmár-Bereg County'.

Hilt fragment No. 2 (Fig. 2.2) belongs to a short solid-hilted weapon, the so-called Prejmer type (after Tibor Bader). It is a very specific type of weapon, appearing in pure sword hoards and mixed hoards, mainly in the northeastern Carpathian Basin. Prejmer-type swords can be dated between the Ha A1 and Ha B1 periods, making it likely that their deposition was more prevalent in the latter.⁸

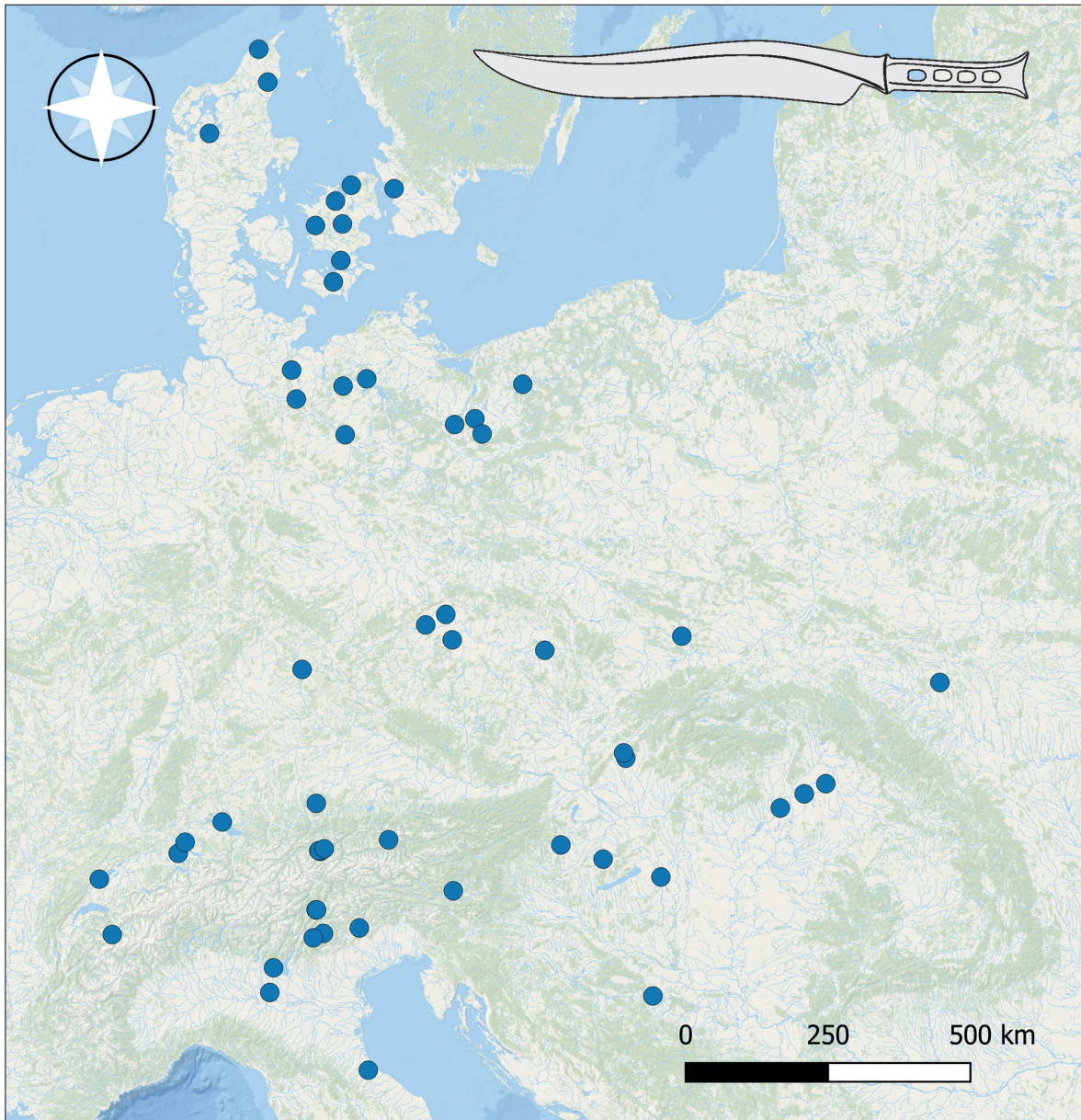


Fig. 5. Distribution of Vadena-type knives

6 KRÄMER 1985, 22, Pl. 9.49, Pl. 10.52; KEMENCZEI 1991, 28, Pl. 17.78,81; HARDING 1995, 74–75, Pl. 30.236,328.

7 VON QUILLFELDT 1995, 142–148; STOCKHAMMER 2004, 178, Lists 15–16.

8 Reviewed by BADER 1991, 135–137; TARBAY 2022b, 37–38.

No. 3, a flange-hilted sword (Fig. 2.3), is poorly preserved and has a heavily fragmented hilt. It is decorated with double lines that probably end below the shoulders. It is difficult to be classified satisfactorily. Considering its formal characteristics, it is most likely similar to Reutlingen-type swords (Br D–Ha A1).⁹ A precise analogy to this sword is known from a river in Orašac, Serbia.¹⁰

Spearheads

A total of four fragmented spearheads were found among the seized objects. Two are the blade-mid-rib part of the weapon (Fig. 2.10–11), and one is a socket fragment (Fig. 2.9). No. 8 is an almost complete specimen with a cutting edge incomplete due to fragmentation (Fig. 2.8). The fracture of this part has prevented us from finding precise analogies. It can be assumed that originally, this spearhead had a leaf-shaped blade, a common trait of such weapons throughout the Late Bronze Age.

Knife

The knife fragment from ‘Szabolcs-Szatmár-Bereg County’ is a special object (Fig. 2.12). Its formal characteristics, especially the part connecting the hilt and the blade (so-called *Zwischenstück*), support the idea that it is a specimen of the formally diverse group of Vadena-type knives.¹¹ These prestige tools, often decorated with elaborate patterns, were distributed on a vast territory during the Late Bronze Age, including the area of the Alps, the Carpathian Basin, and the southern edge of northern Europe. Notable examples related to the ‘Szabolcs-Szatmár-Bereg County’ find can be

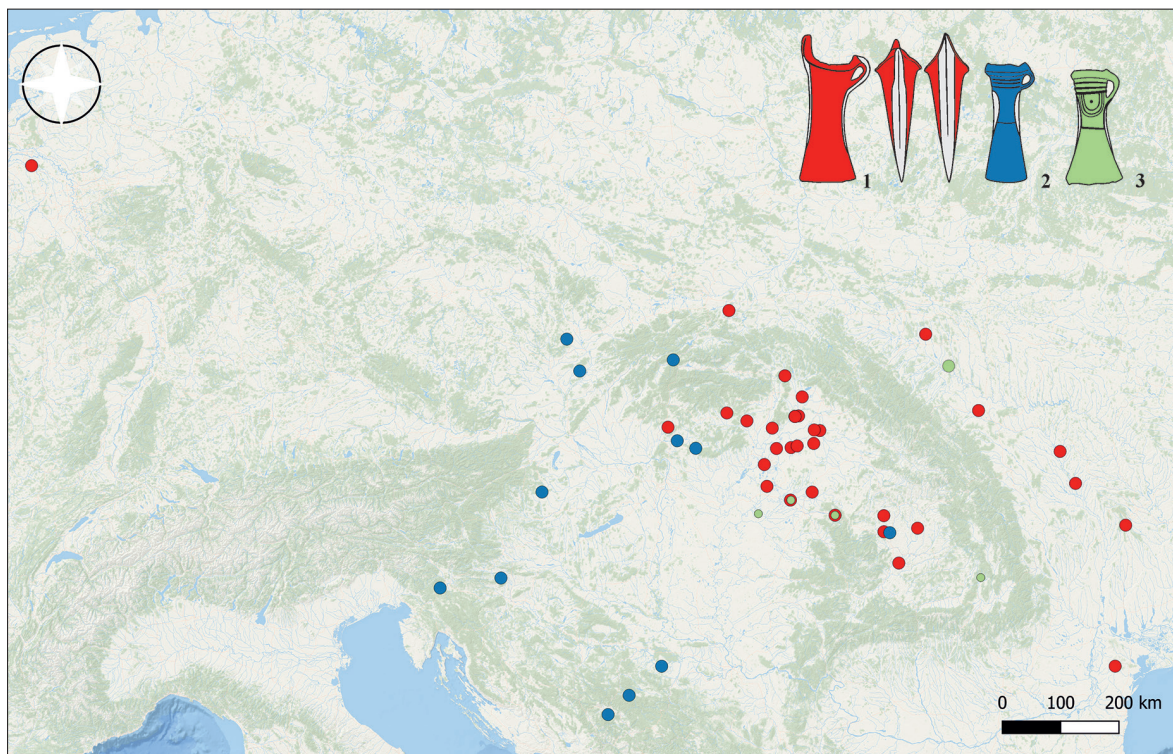


Fig. 6. Distribution of the analogies of socketed axes Nos. 13, 15, and 18–19 from ‘Szabolcs-Szatmár-Bereg County’ (the hoard from Sárbogárd/Nagyrábé II is not depicted on the map)

9 Reviewed by PABST 2013.

10 HARDING 1995, Pl. 15.101.

11 Reviewed by WAGNER 1943, 26; MÜLLER-KARPE 1950, 322–324; VON BRUNN 1968, 246; THRANE 1972, 198–208, Figs 15–16, List 2; BIANCO PERONI 1976, 21, 23; GEDL 1984, 28–29; HOHLBEIN 2016, 162–165.

mentioned from Hungary,¹² west Ukraine,¹³ Austria,¹⁴ the Czech Republic,¹⁵ Slovakia,¹⁶ Poland,¹⁷ Germany,¹⁸ Italy,¹⁹ Switzerland,²⁰ Denmark,²¹ Sweden,²² northern Croatia,²³ and Bosnia and Herzegovina.²⁴ A knife from Zagon, Romania, may also belong to this type, but the poor-quality illustrations available of the find make its typological classification uncertain (Fig. 5).²⁵ Some of these knives show quite strong stylistic connections, such as the knife from Buj, an almost identical analogy to which was discovered in Løve, Denmark (Period IV), a stray find from Italy which, besides formal resemblance, is decorated with a similar water fowl pattern like the first two, and a knife from Concise, Switzerland.²⁶ Vadena-type knives were probably supra-regional prestige objects of the elite, as supported by their distribution, the scale of which is analogous to the distribution pattern of bronze vessels and swords, which were also obvious symbols of power at the time. Vadena-type knives were probably not used primarily as weapons but rather as ostentatious cutlery or slicing tools at feasts connecting the elites of distant worlds. Knives such as the ones from Buj, Løve, 'Italy', and Concise show that these objects really crossed cultural boundaries, either accompanying their owners or as exchange gifts.

Surprisingly, the casting moulds of Vadena-type knives were found in Lengyel, West Hungary, which argues for its local production, at least in the territory of the Transdanubian Urnfield Culture.²⁷ As for the dating of Vadena (and Pfatten)-type knives, diverse arguments for the Ha A2 and Ha B1 phases have been enlisted. Known analogies suggest that Vadena-type knives were at the peak of their popularity in Period IV (Ha A2/Ha B1) in Scandinavia, Northern Germany,

- 12 Buj, Kisvárdá, Komárom-Szöny, Lengyel, Polgár-Folyás-Szilmege, Sárbogárd (or Nagyrábé II), Somló Hill (fragment), Velem-Szent Vid (CATALOGUE EGGER 1891, 10, Pl. 9.66; MISKE 1907, Pl. 18.23; JÓSA – KEMENCZEI 1965, Pl. 69.14; MOZSOLICS 2000, Pl. 66.32, Pl. 75.6; V. SZABÓ 2015, III.154; TARBAY 2018, Pl. 35.2; TARBAY et al. 2023, Fig. 3.13).
- 13 Nedilys'ka (GEDL 2001, Pl. 78.C12–13).
- 14 'Austria' (Innsbruck M.), Freudenberg, Hötting I Grave 24, Hötting II Grave 1, Mühlau Grave 45, 48, and 69, Saalfelden-Magnesitfeld, Thaur, Wilten Grave 151 (PITTIONI 1938, Pl. 30.1; WAGNER 1943, 26, 140, 157, Pl. 2.2, Pl. 6.19, Pl. 13.9, Pl. 16.9, Pl. 21.2; MÜLLER-KARPE 1950, 322; ŘÍHOVSKÝ 1972, 39, Pl. 12.131; MOOS-LEITNER 1991, Pl. 20.19).
- 15 Blažim, Korunka Jelení, Porta Bohemica, Třebušice (JIRÁŇ 2002, 36, Pl. 8.88, Pl. 9.89–91).
- 16 Banka, Pobedim (VELIAČIK 2012, Fig. 5.2–3).
- 17 Banie (Bahn), Brzeźniak, Graniczna ('Grenzhof'), Nawrocko ('Liebenfelde') (PRÜSSING 1982, Pl. 34.45–46; GEDL 1984, 29, Pl. 5.40–42, Pl. 6.43).
- 18 Abbendorf-Haverland, Altendorf, Bäk, Hagnau a. Bodensee, Dobbin bei Krakow, Grebbin bei Parchim, 'Germany', 'Mecklenburg', Roseninsel im Starnberger See (Wörth), Zützen (BELTZ 1910, Pl. 26.35,42; SPROCKHOFF 1937a, 68, Pl. 3.12; SPROCKHOFF 1950a, Pl. 23.13; VON BRUNN 1959, Fig. 25.5; WEINERT 2003, Fig. 56; HOHLBEIN 2016, 162–165, Pl. 31.356–360).
- 19 Belluno, Buco del Fico, Calceranica al Lago, Fontanella Grazioli, Poggio Berni, S. Pietro, 'Trentino', Trient area, Vadena/Pfatten (2 pcs), Vadena/Pfatten Grave 95, 'Veronese' (BIANCO PERONI 1976, 21–23, Pl. 6.51–59, Pl. 7.60–63).
- 20 Concise, Zürich-Letten (VON KELLER 1879, Pl. 3.15; JACOB-FRIESEN 1972, 53, Fig. 2C).
- 21 Borghøj, Brederød, Cypressegård, Dronninglund, Kidserup, Kishøj, Krabbesholm, Løve, Mygdal, Skaverup, Tågarp (THRANE 1972, 198–208, 225–226, Fig. 4.b,k, Fig. 6.a,h, Fig. 7.b,i, Fig. 9.a–c, Fig. 10.a,d,g). Individual examples were not cited.
- 22 Scania (Skåne, 'Schonen') (THRANE 1972, Fig. 7.a).
- 23 Beravci (VINSKI-GASPARINI 1973, Pl. 108.25).
- 24 Donja Dolina (KÖNIG 2004, 97; GAVRANOVIĆ 2011a, 121, Fig. 120.3).
- 25 PETRESCU-DÎMBOVIȚA 1978, Pl. 250.11.
- 26 MÜLLER-KARPE 1959, 39–40; JACOB-FRIESEN 1972, 53, Fig. 2.C; THRANE 1972, 174, Fig. 4.k; BIANCO PERONI 1976, 23, Pl. 6.58.
- 27 MÜLLER-KARPE 1950, 322; THRANE 1972, 226; V. SZABÓ 2015, III.154.

and Poland. In the Carpathian Basin and adjacent areas in Central Europe, Ha A2–Ha B1, or rather, Ha B1, is the main time these knives were deposited.²⁸

Socketed axes

The socketed axes from ‘Szabolcs-Szatmár-Bereg County’ can be classified into three categories: pseudo-winged axes (Fig. 3.13, Fig. 3.19), Debrecen-type axe (Fig. 3.14), and socketed axes with a beaked mouth (Fig. 3.14–18).

One of the pseudo-winged axes (Fig. 3.13) is decorated with three horizontal ribs, three curved ribs with a dot inside, and a horizontal rib between the socket and the blade. Axes with a similar pattern are known from the Ha B1 hoards from Dévaványa and Gáborján in Hungary²⁹ and the coeval Cetea and Brăduț hoards in Romania.³⁰ A socketed axe from the Horodenka area in Ukraine (Period IV – Ha A2–Ha B1) also belongs to this group (Fig. 6).³¹

Pseudo-winged axe No. 19 has two different patterns (Fig. 3.19). One side is decorated with three horizontal ribs, while the other has three curved ones. The curved ribs are likely not a pattern created by intent but result from the imprecise carving of the casting mould. Analogies to this axe can be found in Hungary,³² Northern Croatia,³³ Austria,³⁴ Romania,³⁵ Slovakia,³⁶ Slovenia,³⁷ Bosnia and Herzegovina,³⁸ and the Czech Republic (Fig. 6).³⁹ Pseudo-winged axes with a similar pattern combination are difficult to date, as analogies have been deposited in the Ha A1 and Ha B2 periods (although their presence in Ha B seems more pronounced).

The small Debrecen-type axe (Fig. 3.14) has a simple cast pattern consisting of three horizontal and three V-shaped ribs. It shows similarities with bronze axes from Transylvania, northeastern Hungary, Transcarpathia, Austria, and Moldova. These axes can be dated from the Ha A2 to the Ha B2 periods, and are characteristic mainly of the Ha B1 record.⁴⁰

Two socketed axes with a beaked mouth (Fig. 3.15,18)⁴¹ could be identified based on a side rib running into the lower part of the loop and another side rib ending at the bottom of the collar. This socketed axe variant was predominant in Transylvania⁴² and northeastern Hungary,⁴³ with several

28 MÜLLER-KARPE 1950, 322–324; MÜLLER-KARPE 1959, 139–140; VON BRUNN 1968, 246–247; JACOB-FRIESEN 1972, 53; BIANCO PERONI 1976, 23; GEDL 1984, 29; MOZSOLICS 1985, 13; JIRÁŇ 2002, 36; VELIAČIK 2012, 340; HOHLBEIN 2016, 162–165.

29 MOZSOLICS 2000, Pl. 24.10; TARBAY 2018, Pl. 80.8.

30 VON KENNER 1860, Fig. 77.B–C; PETRESCU-DÎMBOVIȚA 1978, Pl. 228A.7.

31 ŽUROWSKI 1949, 163, Pl. 11.9.

32 Balassagyarmat, Mátraszőlős-Kerekbükk, Velem-Szent Vid IA (TARBAY 2018, Pl. 8.3; Pl. 401.27; V. SZABÓ 2019, Fig. 132).

33 Miljana (VINSKI-GASPARINI 1973, Pl. 112.9).

34 ‘Austria’ (MAYER 1977, Pl. 74.1030).

35 Dezmir (PETRESCU-DÎMBOVIȚA 1978, Pl. 218.11).

36 Žaškov (NOVOTNÁ 1970, Pl. 38.674).

37 Kamin/Bevke (GASPARI 2004, Fig. 8.8).

38 Brezovo Polje, Hrge, Lučica (ŽERAVICA 1993, Pl. 37.506; KÖNIG 2004, Pl. 30.17; Pl. 59A.2).

39 Soběsuky I, Syrovín (SALAŠ 2005, Pl. 425B.1, Pl. 428.7).

40 Reviewed by TARBAY 2017, 360, Lists 1.1–1.2, Fig. 7; TARBAY 2022a, 60.

41 The narrow sides of No. 16 are heavily corroded. It is difficult to decide whether these parts were ribbed or not.

42 Cetea, Cluj-Napoca II, Dârja, Săcueni, Sâmbăta Nouă I, Șpálnaca I, Visuia (PETRESCU-DÎMBOVIȚA 1977, Pl. 289.9–10, Pl. 303.2,15,17, Pl. 315.4, Pl. 324.11–12, Pl. 325.1, Pl. 333.1, Pl. 341.2).

43 Aranyosapáti (mould), Gáborján, ‘Hungary’, Nádudvar I, Nyíregyháza-Sertéskombinát, Nyírpazony, Pap III, Rohod III, Sárbogárd (or Nagyrábé II), Szendrölád, Tállya-Óvár, Tiszavasvári-Büdszentmihály,

related examples known from Slovakia,⁴⁴ western Ukraine,⁴⁵ Moldova,⁴⁶ Moravia⁴⁷ and Poland⁴⁸. The westernmost known specimen has been discovered in the Netherlands (Katwijk a/d Maas).⁴⁹ A two-piece mould for casting such an axe was found in Aranyosapáti, eastern Hungary (Ha B1), suggesting local production (Fig. 6).⁵⁰ Socketed axes with a beaked mouth were deposited from the Ha A1 to the Ha B2 periods, with a strong upswing during the Ha B1.

Another socketed axe with a beaked mouth (Fig. 3.17) features straight ribs along its narrow sides. This axe variant was most characteristic of Transylvania and northeastern Hungary, but its distribution area includes the territory of Ukraine, Moldova, Poland, Austria, Croatia, and Serbia. The first examples appeared in the Rei. Br D and were selected into hoards until the Ha B2. Essentially, it can be dated between the Ha A and Ha B1 periods.⁵¹

Socketed chisels

The find assemblage comprised two socketed chisels, a small collared piece with a straight edge (Fig. 3.20), and a longer specimen without a collar (Fig. 4.21). Chisel No. 20 (Fig. 3.20) represents a common tool type used everywhere the Carpathian Basin in practically between the end of the Middle Bronze Age and the entire Late Bronze Age (e.g., Dunaújváros-Kosziderpadlás).⁵² Numerous finds can be compared with the chisel from 'Szabolcs-Szatmár-Bereg County'. Without being exhaustive, analogies can be mentioned from the territory of today's Austria,⁵³ the Czech Republic,⁵⁴ Germany,⁵⁵ Hungary,⁵⁶ Romania,⁵⁷ Serbia,⁵⁸ Slovakia,⁵⁹ and Ukraine.⁶⁰ In this case, formal similarities indicate a common metalworking knowledge rather than the products of a single workshop.

The other chisel, without a collar (Fig. 4.21), is a rare type uncharacteristic of the local material.

Újszentmargita (JÓSA – KEMENCZEI 1965, Pl. 70.39; KEMENCZEI 1996a, Fig. 7.2; J. DANKÓ – PATAY 2000, Fig. 30.6; MOZSOLICS 2000, Pl. 72.5–6, Pl. 80.3–4, Pl. 112.2, Pl. 120.1a–2b; TARBAY 2018, Pl. 81.9, Pl. 239.8, Pl. 240.9, Pl. 248.3, Pl. 250.2, Pl. 304.4–5, Pl. 305.7, Pl. 306.9; V. SZABÓ 2019, Fig. 105).

- 44 Čabradský Vrbovok, Gemer, Somotor, Viničky I and II, Žbince, 'Zlatník' (NOVOTNÁ 1970, Pl. 27.483, Pl. 28.490,50–503, Pl. 29.509,517, Pl. 30.524).
- 45 Mel'na, Potichok (ŽUROWSKI 1949, Pl. 5.4; KLOCHKO 2006, Fig. 93.9).
- 46 'Bukovina', Fundul Galbenei, 'Valea Rusului', Văratice II (DERGAČEV 2002, Pl. 48.2, Pl. 49.2, Pl. 75A.481; TOPAL – SÎRBU 2016, Fig. 3.7).
- 47 'Moravia', 'Moravia/Slovakia' (ŘÍHOVSKÝ 1992, Pl. 43.659, Pl. 44.664).
- 48 Trzciana (KUŚNIERZ 1998, Pl. 1.5).
- 49 BUTLER – STEEGSTRA 2006, 227, Fig. 120.803.
- 50 MOZSOLICS 2000, Pl. 120.1a–2b.
- 51 Reviewed by TARBAY 2020, 288–289, Figs 6–7, List 2; TARBAY 2021, 55, Footnote 68.
- 52 MOZSOLICS 1967, Pl. 46.3.
- 53 MAYER 1977, Pl. 89.1322,1325.
- 54 Dubany, Ložovice VII, Velké Losiny, 'Moravia' (ŘÍHOVSKÝ 1992, Pl. 74.1190, Pl. 75.1196; SALAŠ 2005, Pl. 341B.4; KYTLICOVÁ 2007, Pl. 197.62–63).
- 55 'Im Lüeburgischen', Schöppenstedt-Küblingen, Tüschau (LAUX 2005, Pl. 29.419–421).
- 56 Baks-Temetőpart, Baktalórántháza (Nyírbakta), Balmazújváros, Edelény-Finke, Nagyhalász (JÓSA – KEMENCZEI 1965, Pl. 69.15–16; KEMENCZEI 1984, 147, Pl. 112B.5; MOZSOLICS 2000, Pl. 4.7; V. SZABÓ 2019, Fig. 90).
- 57 Augustin, Boinești, Căpușu de Câmpie, Cetea, Cetatea de Baltă, Ciceu-Corabia, Dumesti, Fodora, Spálnaca II, Sighișoara (BALĂN 2009, Pl. 5.3,5–6.55, Pl. 6.13,28,30, Pl. 7.59a, Pl. 8.10,14,16b).
- 58 Mesić (GARASANIN 1975, Pl. 61.7).
- 59 Somotor, Vyšná Hutka (NOVOTNÁ 1970, Pl. 25.434, Pl. 26.438,441).
- 60 Khorostkiv, Lazy I, Nedilys'ka, Zaliztsi (ŽUROWSKI 1949, Pl. 15.4–6; KOBAL' 2000, Pl. 48.69–70).

Only a few such tools are known from Ukraine,⁶¹ Romania,⁶² Moravia,⁶³ and Austria.⁶⁴ Finds of this type from the Carpathian Basin are dated mainly to the Ha A1 period.

Sickles

The seized objects included seven sickle fragments, with two knobbed sickles (Fig. 4.22–23), two flanged sickles (Fig. 4.25–26), and three unclassifiable sickle fragments (Fig. 4.24,27–28) among them. Of these, only the two knobbed sickles (Fig. 4.22–23) could be evaluated. These complete objects have a pair of cast parallel ribs accompanying their curved back. This form and pattern combination is common and was present in several periods. Finding their close analogies is hindered by one-time regular maintenance: as the shape of sickles changed throughout their life cycle due to frequently repeated re-hammering, it is difficult to tell if the published image of an object shows it as-cast or in an already modified form. Similar tools to the pieces from ‘Szabolcs-Szatmár-Bereg County’ can be mentioned, e.g., from Hungary,⁶⁵ Romania,⁶⁶ Slovakia,⁶⁷ Moravia,⁶⁸ Poland,⁶⁹ and Germany.⁷⁰ The dating of these tools covers a broad time between the Rei. Br C2 and Ha B2 periods.

Saw

The assemblage contains a heavily corroded sheet metal fragment with missing edges (Fig. 4.29), likely of a common saw blade. Its technological characteristics cannot be determined macroscopically due to the lack of the cutting edge. Both finished saws with serrated edges and as-cast specimens were deposited in the eastern part of the Carpathian Basin, mainly in the Ha A1 period but also in numbers in the following Ha B period.⁷¹

Lovasberény-type bracelets (variant 2)

The finds from ‘Szabolcs-Szatmár-Bereg County’ included three bracelets with a round cross-section and blunt ends. Two are undecorated (Fig. 4.33,36), while the third bears a chased line pattern (Fig. 4.32). Typologically, they are close to Lovasberény-type bracelets, which usually come with tapered ends (Variant 1);⁷² however, as their cross-section tells them apart from those, they are best referred to as Variant 2 of the Lovasberény-type jewellery. Identical pieces have been discovered in hoards in eastern Hungary, Transdanubia, Croatia, and Bosnia and Herzegovina. Their dating cannot be specified within the Ha A1–Ha B1 periods.⁷³

61 Blahovishchenske, Drimailivka (LESKOV 1981, Pl. 4B.3, Pl. 4E.3).

62 Cheşereu, Cincu, Lăpuş (BĂLAN 2009, Pl. 5.37, Pl. 6.15, Pl. 7.17).

63 ŘÍHOVSKÝ 1992, Pl. 75.1208–1209; SALAŠ 2005, Pl. 111.36.

64 MAYER 1977, Pl. 88.1304–1305, Pl. 89.1313.

65 Borsodgész-Kerekhegy (SENNOVITZ 1902, Fig. 6).

66 Dezmir, Şpálnaca I, Tăuteu (PETRESCU-DÎMBOVIŢA 1978, Pl. 218.16, Pl. 245.34,36, Pl. 248A.40).

67 Gemer, Zvolen-Pustý hrad (FURMÁNEK 2006, Pl. 3.47, Pl. 4.67).

68 Kroměříž (SALAŠ 2005, Pl. 187.17,19, Pl. 188.29, Pl. 189.30).

69 Aleksandrowice, Rzeplino, Wrocław-Księżę Wielkie Pit 34 (GEDL 1995, Pl. 6.88, Pl. 10.166, Pl. 11.175).

70 Bad Homburg, Gärmerdsdorf-Penkhof, Hainsacker-Riedhöfl, Untereurheim (PRIMAS 1986, Pl. 13.206,214–215, Pl. 14.219,221–224,226–232,234–237, Pl. 15.240, Pl. 19.300–303).

71 See Tarbay 2022a, 61 with further references.

72 See with further references on the Lovasberény type: TARBAY 2022c, 41–44.

73 Berkesz, Jászkarajenő, Keszölc, Kisdorog, Mérk, Pustakovec, Rétközberencs, Rohod III, Sarkad, Srpska Varoš I, Somló Hill, Szombathely (DARNAY 1899, Pl. 21.1–6; MOZSOLICS 1985, Pl. 81.3, Pl. 113.10–11, Pl. 177.15–18; SZABÓ 1996, Fig. 1; HÄNSEL 1999, Fig. 5.12; KÖNIG 2004, Pl. 50B.2; TARBAY 2014, 204–208, Fig. 25, Pl. 58.27; TARBAY 2018, 82, Pl. 126.108, Pl. 197.13–14, Pl. 255.7–8, Pl. 331.110.

Kelčice-type bracelets

The assemblage contained ten intact or fragmented, thick bracelets with a semicircular cross-section and blunt terminals, their outer side adorned by a combination of lines and fishbone bands (Fig. 4.34–35, 37–46). Hermann Müller-Karpe already recognised the type and proposed that its specimens may be dated based on their patterns, connecting the variant with a fringed hem pattern (*Ringe mit Fransenverzierung*) to the Ha B1 and the other with fishbone or alternating dashed bands (*Ringe mit gegenständigen Strichbündeln*) to the Ha B2 periods.⁷⁴ Wilhelm Albert von Brunn also assigned a chronological value to this jewellery type, identifying it as a characteristic product of the Ha B1 period.⁷⁵ After Amália Mozsolics, Hungarian research also dates these (often hoarded) objects to either the Ha B1 or the Ha B2 periods.⁷⁶ Christopher Pare recognised their importance and related these bracelets to his hoard horizon No. IV.⁷⁷ Among several other works on these ornaments, the most essential is the one by Monika zu Erbach, who collected all available specimens of the type after von Brunn and outlined their vast distribution area, including the Carpathian Basin. She distinguished between two variants based on the chased patterns. A reviewed and updated version of her list of analogies is presented in the following.⁷⁸ We also suggest that instead of a complicated formal classification based on the design of the ending, these bracelets should be referred to collectively as 'Kelčice type', based on the Kelčice I and II hoards, which contained such finds in large numbers.⁷⁹

A relatively large group of Ha B1 hoards (except for Szentes-Donátvár, Ha B2) in the northeast Carpathian Basin, especially in eastern Hungary,⁸⁰ contain this kind of jewellery, including undecorated pieces and ones with a lavish, finely chased fishbone and/or line bundle pattern. Petrescu-Dîmbovița also published several such bracelets from Transylvania, Romania. The chronological position of these bracelets ranges between the Ha A1 and Ha B1 periods.⁸¹ A piece from the Muzhijevo II assemblage in Transcarpathia, western Ukraine, dated by Josip V. Kobal' to the Ha A2 period, can also be associated with the Kelčice type.⁸² Further examples can be found in the territory of the Transdanubian Urnfield Culture, where such bracelets are known not only from hoards but also settlements and burials dated to the Ha B1 and Ha B2 periods (with a predominance in Ha B1 according to the framework by Mozsolics).⁸³ A few such bracelets were recovered from the northern Balkans,

74 MÜLLER-KARPE 1959, 167. Further notes of patterns were made by WIRTH 1998, 84–85.

75 VON BRUNN 1968, 52–53, 107, 274–275, Fig. 4.36, Fig. 13.53, Map 13.

76 MOZSOLICS 2000, 23–25.

77 PARE 1998, 361–362.

78 ZU ERBACH 1989, 297–302, Map 18.

79 SALAŠ 2005, Pls 349–356A.

80 Balmazújváros, Bükkaranyos, Dévaványa II, Egyek, Gáborján, Karcag, Kenderes, Mérk, Mezökövesd vidéke, Nádudvar I–II, Pácín III, Pusztadobos, Rohod IV, Sátoraljaújhely, Szarvas, Szendrőlád, Szentes-Donátvár, Szentes-Nagyhegy III, Taktakenéz, Tiszaeszlár, Tiszaszentimre (HAMPEL 1892, Pl. 172.11–12, Pl. 173.13–15; KEMENCZEI 1984, Pl. 121.9,12; MOZSOLICS 2000, Pl. 4.21–23, Pl. 25.23a–b, Pl. 28.5–8, Pl. 45.21, Pl. 54.1–6,1a–6a, Pl. 58.14,17,26–27, Pl. 70.9–10, Pl. 83.1–3,6–8, Pl. 94.10–12, Pl. 98.3–5, Pl. 101.2–5, Pl. 106.8–16; TARBAY 2018, Pl. 82.21, Pl. 134.28, Pl. 197.12, Pl. 243.36, Pl. 253.5, Pl. 298.14–16, Pl. 208.24–25).

81 Dipșa, 'Romania', Săcuieni, Sălard, Sărățel, Șpálnaca II, Tăuteu, Uioara de Sus, 'Valea Somesului'. Undecorated finds were not included (PETRESCU-DÎMBOVIȚA 1978, 162, Pl. 122.1679, Pl. 123.1699, Pl. 134.1834, Pl. 135.1846,1850,1857, Pl. 140.1894–1896,1898, Pl. 143.1939, Pl. 145.1974).

82 Muzhijevo II (KOBAL' 2000, Pl. 84B.1,5).

83 Celldömölk-Ság-hegy II–V, Csöngé, Jobaháza, Románd, 'Sárbogárd (or Nagyrábé II)', Somló Hill, Velem II (KEMENCZEI 1996a, Fig. 9.1–2,10–11; KEMENCZEI 1996b, Fig. 19.3–10; MOZSOLICS 2000, Pls 13–15, Pl. 16.1–7,11–15, Pls 20–21, Pl. 22.4,6–7,19, Pl. 41.10–16, Pl. 86.11–15, Pl. 115.3–4; SZILAS 2003, Figs 1–3, Fig. 4.1–2; TARBAY et al. 2023, Fig. 3.12).

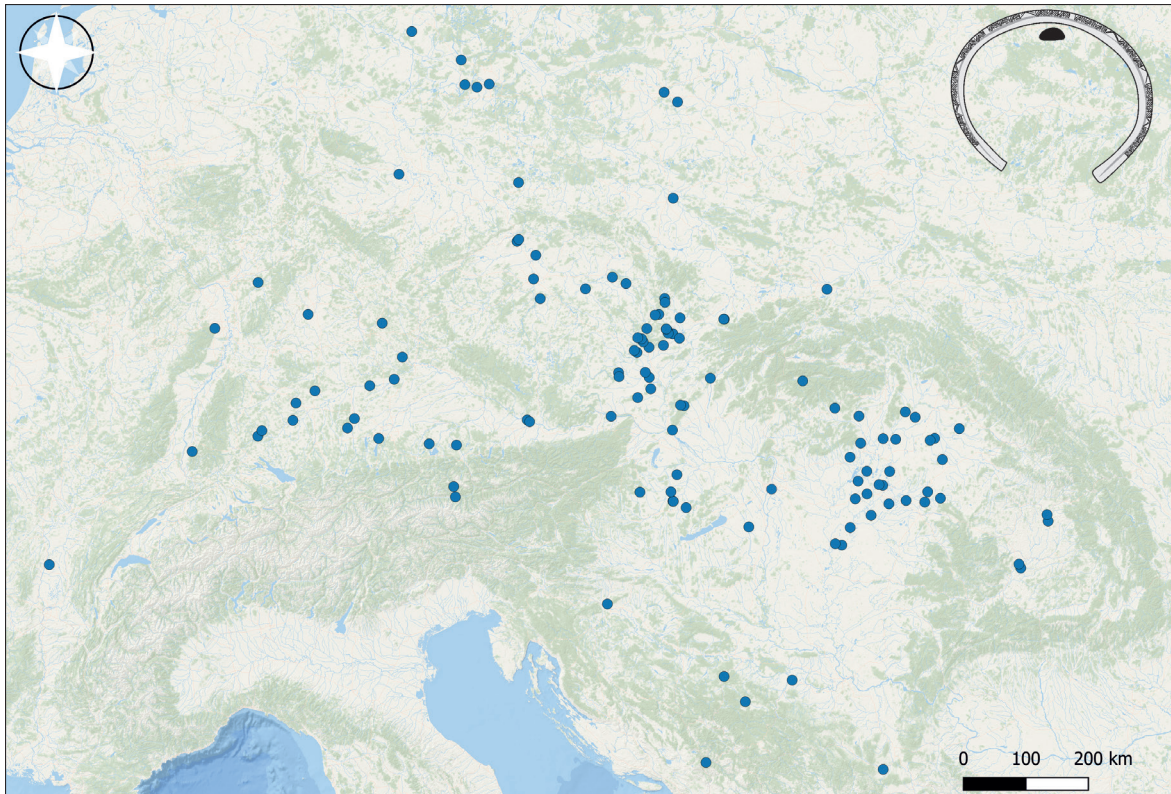


Fig. 7. Distribution of bracelets with blunt ends (known to the author)

in Bosnia and Herzegovina,⁸⁴ Northern Croatia,⁸⁵ and Serbia.⁸⁶ Based on their position in the phases of the local chronological frameworks, the dating of the ornaments from these areas correspond generally with the Ha B1 and B2 phases. Numerous Kelčice-type bracelets were found in hoards in Moravia, showing a clear concentration there; they can be dated to the Ha A1 (e.g., Mušov II) and Ha B1/2 periods. According to Milan Salaš, these findings are clearly most characteristic of the Ha B1 period.⁸⁷ They are also present, even if not in such large numbers, in Ha B1 hoards in Bohemia. According to Olga Kytlicová, several examples found there could be dated to the Ha B1 period.⁸⁸ The finds from Slovakia, coming mainly from hoards, essentially also represent the Ha B1 period.⁸⁹

84 Bokavić, Jablanica Grave 2, Kožuhe, Mačkovac (KÖNIG 2004, 115–116, Pl. 46.211–212, Pl. 50A.12–13, 15–16; GAVRANOVIĆ 2011a, 206; GAVRANOVIĆ 2011b, Pl. 23.3).

85 Ivanec Bistranski, Kapelna (VINSKI-GASPARINI 1973, Pl. 111.5–14, Pl. 113.19–21).

86 Klenje (JACANOVIĆ 1986, Pl. 3.2–12, Pls 4–5, Pl. 6.4–6, 8, 14–20).

87 Brno-Obrány, Jabloňany, Hrabová, Hradčany, Kelčice I–II, Kladky III, Klentnice, Klentnice IV, Křenůvky, Krumsín, Kuřim, Lazce, Lešany II, Luleč II, Malhostoviec I, Měrovice, Míchov I, Mušov II, Myslejovice I, Štramberk IV and VI, Tetčice I, Tišnov, Třeština, Únanov, Záesí u Jevíčka, Žárovice-Hamry III and VII, Zastávka, Znojmo (HOLSTE 1962, Pl. 31.1; SALAŠ 2005, 150, Pl. 213.159, Pl. 295.18–19, Pl. 297B.4, Pl. 298.5–10, Pl. 346B.2–4, 6, Pl. 348.10–14, Pls 349–351, Pls 352A/B–356A, Pls 359–368, Pl. 379.6–7, Pl. 381.5, Pl. 390.27–32, Pl. 391.33–38, Pl. 393A.1–3, 5–6, Pl. 395B.1, 3, Pls 396–398, Pl. 399.3, 5, Pl. 404B.1–3, Pl. 443.23, Pl. 451B.2–3, Pl. 452.10, Pls 454–455, Pl. 456A.2, Pl. 458C.1–3, Pls 467–468, Pl. 469.15–19, Pl. 470.20–24, Pl. 472, Pl. 476A.9–10, Pl. 477.11–14; VÍCH 2012, Fig. 26.1–2; VÍCH 2017, Fig. 14.1; MALACH et al. 2016, Figs 15–16, Fig. 52.2–3; NAVRÁTIL 2021, Fig. 6).

88 Bošín, Chvojenec II, Dolní Beřkovice, Kamýk, Kundratice, Žehušice (KYTLICOVÁ 2007, Pl. 109A, Pl. 114.24–25, Pl. 117A.4–5, Pl. 132.1–4, Pl. 179C, Pl. 184.1–4).

89 Bošáca, Brezno nad Hronom, Plavecké Podhradie I, Starý plášť (NOVOTNÁ 1968, Pl. 25.1–2, 4–7, 9, Pl. 26.1–2, 4–7; ONDRKÁL 2018, Fig. 3.32–34; BARTÍK et al. 2019, Fig. 28.1, 24, Pl. 5; NOVOTNÁ 1991, Pl. 19B.2–3, 5–10; BARTÍK – LIESKOVSKÝ 2020, Tab. 2.1). Further parallel mentioned by von Brunn: Bratislava (VON BRUNN 1968, List. 33.7–9).

In Poland, these bracelets appear both in hoards and burials. They can be generally dated to Period IV (Ha A2/Ha B1), presumably to its second half according to local chronology.⁹⁰ Kelčice-type bracelets in Austria also appear in hoards and burials. Their chronological position was not narrowed down to Ha B1 but covers the time between the Ha B1 and Ha B2/3 periods (e.g., Obereching Grave 95).⁹¹ Specimens of the type known from both hoards and graves in Germany, mainly Bavaria, also suggest that these bracelets can be dated essentially to the Ha B1 period.⁹² Wilhelm Albert von Brunn also mentions a bracelet from Chevroux, Switzerland, that may represent this type (Fig. 7).⁹³

In a way, the distribution of Kelčice-type bracelets is even more impressive than that of Vadena-type knives. They appear in a vast territory in Central Europe, essentially around the Ha B1 period. These bracelets are richly decorated objects meant to be seen; certainly, everyone recognised them and was aware of their symbolic content. They were special objects worn in sets; the vast number of examples suggests that they were more than mere fashion items in different territories in Central Europe, and also carried a symbolic meaning connected to a particular social status, as Bartík, Farkaš, and Jelínek suggested.⁹⁴

Metal vessel fragments

One of the metal vessel fragments is a cast and hammered handle similar to those of Hajdúböszörmény-type *situlae*⁹⁵ and Egyek-type cups (Fig. 4.30).⁹⁶ The other piece is a rim fragment with line bundles under the rim (Fig. 4.31), similar to B1-type cauldrons⁹⁷ and the Egyek-type cups mentioned above. While these heavily fragmented finds cannot be assigned to specific types with certainty, they can surely be related to the Ha B1 period, as their technology and style resemble most of the products of that era.

Lumps/Ingots

The two flat, oval lumps (Fig. 4.48–49) are difficult to classify in lack of element composition analysis; they can be either irregular copper casting blocks or ingots made from superfluous alloyed material after casting by pouring it into an open casting mould.

90 Biskupice, Januszewo, Poznań-Staroleka, Wrocław-Opatowice Grab IX (MERTINS 1898, 375, Nos 44–45; DURCZEWSKI 1948, Pl. 99.1–5; SPROCKHOFF 1950b, Fig. 20; SZAFRAŃSKI 1953, Fig. 9).

91 Herrbaumgarten, Linz-Freinberg, Linz-St. Peter, Lenzing, Michelstetten II, Obereching Grave 95, Pettinghofen-Agerzell, Saalfelden, St. Georgen im Pinzgau, Zwentendorf (WILLVONSEDER 1942, Fig. 1.1; HELL 1959, Fig. 3.1–4; MOOSLEITNER 1982, Fig. 6.29–34, Fig. 7.35–40, 42–43; ZU ERBACH 1985, Pl. 30H.3, Pl. 42B.2,4, Pl. 43, Pl. 57.19,21, Pl. 58.5,7,10,13; HÖGLINGER 1993, Pl. 43.8; LAUERMANN – RAMMER 2013, Pl. 26.1–4, Pl. 27.1–2, Pl. 28.8–9, Pl. 104.3).

92 Acholshausen, Aindorf, Berlin-Oberschönewiede, Beuron, Ehigen, Gelbe Bürg, Haunstetten I Graves 27 and 40–41, Kaiserringen, Kamenz, Karlstein, Kleedorf, Merkligen, Pfeffingen, Reismühl, Schafstätt, Schwabmünchen, Simonshagen, Zehenthof (SPROCKHOFF 1937b, Fig. 2; SPROCKHOFF 1937a, 49, Fig. 15; BAYERISCHES VORGESCHICHTSBLÄTTER 1956, Fig. 26.3–7; MÜLLER-KARPE 1959, Pl. 139B.1–6, Pl. 140A.17, Pl. 163A.8–9, Pl. 163C, Pl. 165A.2,4–5, Pl. 166C.4, Pl. 167.A25; MÜLLER-KARPE 1961, Pl. 47B.1–11; VON BRUNN 1968, List 33.4, Pl. 87.4, Pl. 203.12; SCHAUER 1971, Pl. 145C.2, Pl. 147.4–6; UENZE 1971, Pl. 13.7, 9; WILBERTZ 1982, Pl. 58.40–44; WIRTH 1998, Haunstetten I, 27.8–9, 40.9–10, 41.8–9, 11). See further parallel (Berlin-Lichterfelde, 'Krampnitz', Neuburg a.d. Donau, Staufen, Staffelde, Pförring) mentioned by VON BRUNN 1968, 274, List. 33.3,19,41; ZU ERBACH 1989, 296–297, Baden-Württemberg No. 7, Bayern Nos 10–11.

93 Chevroux (VON BRUNN 1968, List. 33.9).

94 BARTÍK et al. 2019, 73.

95 PATAY 1990, 40–43.

96 PININGRE – GANARD 2015, 44–46.

97 PATAY 1990, 21–29, Pl. 13.18, Pl. 20.27.

Non-classifiable objects

The category includes items No. 47 and Nos 50–52 (Fig. 4.47,50–52). No. 47 likely belongs to a bronze wire or a bracelet with a round cross-section. Based on their cross-sections, Nos 51–52 may be heavily corroded fragments of bracelets with blunt terminals, while No. 50 could not be classified at all.

In search of the findspot

Whether all finds from the ‘Szabolcs-Szatmár-Bereg County’ assemblage were part of a single hoard is a question that may never be answered due to the lack of a find context. The typo-chronological analysis suggests that most of the studied finds, such as some socketed axes (Fig. 3.14–15,18), the Kelčice-type bracelets (Fig. 4.32–47), and the metal vessel fragments (Fig. 4.30–31), date from the Ha B1 period, while several other objects, including the Lovasberény-type rings (Fig. 4.32–33), one of the swords (Fig. 2.2), and the Vadena-type knife (Fig. 2.12) cannot be dated more precisely than the Ha A2–Ha B1 or Ha A1–Ha B1 periods. One of the swords (Fig. 2.1) represents the oldest, Ha A1 metalworking tradition, and the socketed chisel without a collar may also belong to this period. These finds perhaps ended up in the hypothetical hoard as archaic, out-of-time objects; however, the lack of context does not allow one to elaborate on this point. Several hoards from eastern Hungary include a combination of items representing two (Balmazújváros, Debrecen II, Kántorjánosi, ‘Mezőkövesd area’—uncertain hoard, Pap, Polgár, Szendrőlád) or three different object types (Gáborján, Jászkarajenő, Mérk, Rohod III, Sárbogárd/Nagyrábé II) similar to the ones in the ‘Szabolcs-Szatmár-Bereg County’ find assemblage, which may be a further argument for the objects being part of a single hoard.

The publication of the finds from ‘Szabolcs-Szatmár-Bereg County’ also provides a case study on how looted artefacts seized by the police can be evaluated in lack of an archaeological context. Usually, the first and most important question the investigating authorities ask the expert is the possible provenance of the artefacts, expected to be defined at least by country, region or, in exceptional cases, site. In this case, the smuggler did not offer much guidance, and the distribution of close analogies argues against the obvious lie that these objects were found in the attic of a house in Budapest (indicating a nearby findspot) as similar metal products do not concentrate in the area of the city. The route taken by the smuggler may be more telling, although the fact that he was arrested in ‘Szabolcs-Szatmár-Bereg County’ does not provide much of a clue as the full route he took or the area where he travelled with the artefacts prior to confiscation is not known.

The Late Bronze Age, especially the Ha B1 period, was a highly interactive era with connections that often crossed cultural boundaries. Even if a hoard is clearly linked to a particular region within the Carpathian Basin, there may be objects with analogies in the western half of Central Europe or northern Europe. The best examples of this are Kelčice-type bracelets and Vadena-type knives. The end of the paper shares a thought experiment with the reader: the nationality of the smuggler and the route he took suggest that the items of the assemblage in focus were likely found in the territory of today’s Hungary. That accepted, the possible area of finding can be narrowed down relatively easily with the help of the type distribution of the items suitable for analysis and coeval find assemblages with a similar type composition, as best visualised on a heat map summarising all this information (Fig. 8). This map shows the highest density (i.e., probability), besides Hajdú-Bihar and Borsod-Abaúj-Zemplén counties, in Szabolcs-Szatmár-Bereg County, especially the central and northern parts, including in the administrative areas of Ibrány, Kemece, Demecser, Ajak, and Kisvárd, and the zone between Nyírmada, Mátészalka, Kántorjánosi and Vaja—the last including the place where the police seized the assemblage. All these results suggest that the find could have been looted near the village of Vaja, or at least not far from where the police action took place.

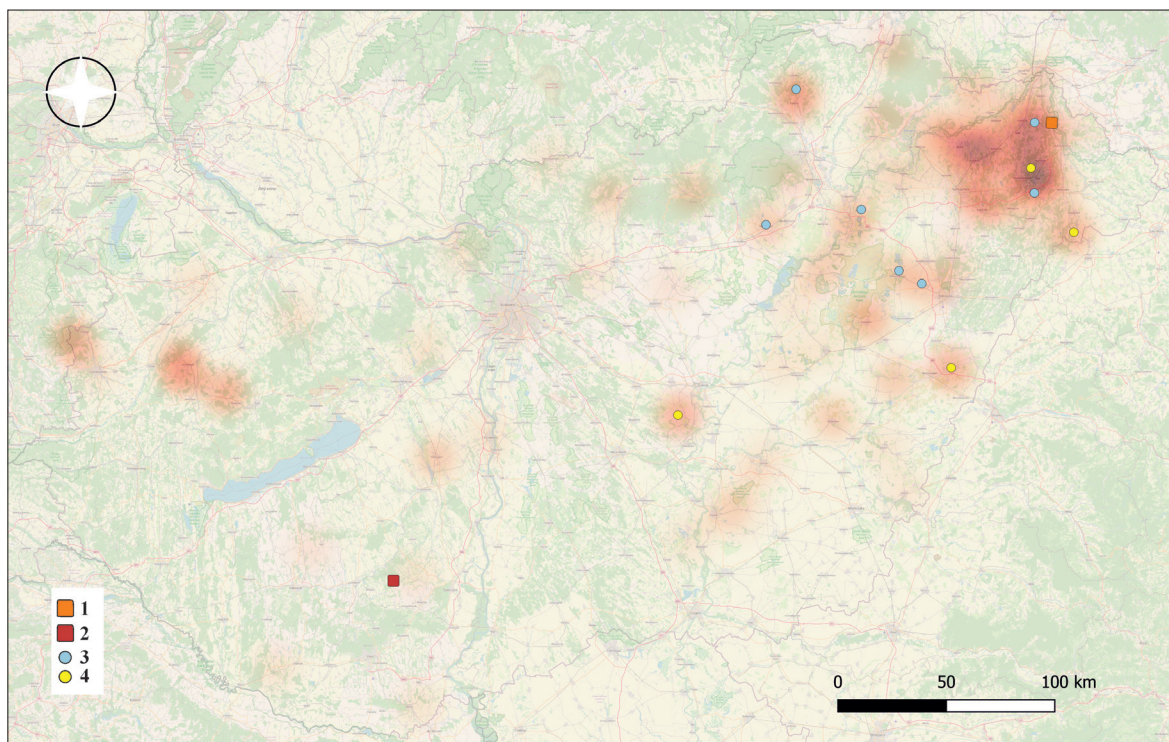


Fig. 8. Heat map of the possible area of finding based on the distribution of close analogies. 1 – axe casting mould from Aranyosapáti, 2 – knife casting mould from Lengyel, 3 – two analogies in one assemblage, 4 – three analogies in one assemblage (the hoard from Sárbogárd/Nagyrábé II is not depicted on the map)

Catalogue⁹⁸

1. Sword. Metal-hilted sword with three ribs around the hilt, a disc-shaped pommel, and a stepped-profile blade with a central ridge topped by a rib. The hilt is decorated with fishbone patterns and triangular dots. The hilt was fastened by pegs, of which only one persisted. Casting pores are visible along the fracture surface. Bent, incomplete. L. 12.2 cm, disc diam. 5.1 cm, handle 4 × 2 cm, shoulder w. 4.9 cm, blade th. 0.9 cm, wt. 239 g (Fig. 2.1).
2. Sword. Metal-hilted sword with a disc-shaped pommel and three ribs around the hilt. Casting pores are visible along the fracture surface. Bent, incomplete. L. 9 cm, disc 3.9 × 3.7 cm, handle 2.1 × 1.4 cm, shoulder w. 4.4 cm, wt. 131 g (Fig. 2.2).
3. Sword. Flange-hilted sword fragment with four peg holes and a blade decorated with curved outline grooves. Casting pores are visible along the fracture surface. Bent, incomplete. L. 9.4 cm, shoulder w. 4 cm, blade 3.3 × 0.8 cm, wt. 85 g (Fig. 2.3).
4. Sword. Sword blade fragment with two line bundles, perhaps belongs to sword No. 3. Bent, incomplete. Casting pores are visible along the fracture surface. 22.5 × 3.8 cm, th. 0.8 cm, wt. 228 g (Fig. 2.4).
5. Sword. Sword blade fragment with outline grooves. Bent, incomplete. 8.9 × 3.5 cm, th. 0.6 cm, wt. 57 g (Fig. 2.5).
6. Sword. Sword blade fragment. Bent, incomplete. 19.8 × 3.7 cm, th. 0.4 cm, wt. 111 g (Fig. 2.6).
7. Sword. Blade tip fragment of a sword with a stepped blade. 19.6 × 3.9 cm, th. 0.7 cm, tt. 143 g (Fig. 2.7).
8. Spearhead. Spearhead with a narrow leaf-shaped blade, a conical socket, and two peg holes. Fragmented. L. 12.5 cm, rim 2.3 × 2.2 cm, blade-midrib interface 2.5 × 1.1 cm, th. 0.3 cm, wt. 64 g (Fig. 2.8).
9. Spearhead. Spearhead socket fragment with two peg holes. L. 2.7 cm, rim 2.1 × 2.1 cm, wt. 13 g (Fig. 2.9).
10. Spearhead. Blade-midrib fragment of a spearhead with a peg hole. 5.8 × 1.5 cm, th. 0.2 cm, wt. 13 g (Fig. 2.10).
11. Spearhead. Blade-midrib fragment of a spearhead. 5.1 × 1.5 cm, th. 0.3 cm, wt. 13 g (Fig. 2.11).

98 Abbreviations: L. – Length, Diam. – Diameter, W. – Width, Th. – Thickness, Wt. – Weight.

12. Knife. Fragment of a flange-hilted knife with a spine reinforced by a thick rib and a curved blade. Bent, incomplete. L. 12.5 cm, w. 2.3–1.2 cm, th. 0.7–0.2 cm, wt. 40 g (Fig. 2.12).
13. Socketed axe. Socketed axe with a thick collar, a loop, and cast decoration on the wider sides. The pattern consists of three horizontal ribs, three curved ribs, and a dot. It has pseudo-wings along the narrow sides and a broken jet on the loop. The blade is hammered. L. 9.7 cm, collar with loop 4.1 × 2.5 cm, blade-socket interface 1.9 × 0.9 cm, cutting edge w. 4.9 cm, wt. 102 g (Fig. 3.13).
14. Socketed axe. Socketed axe with a loop, a reinforced collar, and a slightly hexagonal cross-section. The wider sides are decorated with a cast pattern comprising three horizontal and three V-shaped ribs. The blade is hammered. L. 10.3 cm, collar with loop 5.3 × 3.4 cm, blade-socket interface 3.3 × 1.8 cm, cutting edge w. 4.7 cm, wt. 196 g (Fig. 3.14).
15. Socketed axe. Socketed axe with a beaked mouth and a loop. Its narrow sides are ribbed. With the remains of a removed jet on the loop. The blade is hammered, and its surface is ground. Features a mismatch defect along the sides. L. 12.9 cm, collar with loop 5.9 × 4 cm, blade-socket interface 3.2 × 4 cm, cutting edge 5 cm, wt. 267 g (Fig. 3.15).
16. Socketed axe. Socketed axe with a beaked mouth and a loop. With the remains of a removed jet on the loop. The sides are heavily corroded, and it is difficult to decide whether they are ribbed or not. L. 12.5 cm, collar with loop 6 × 3.8 cm, blade-socket interface 3.6 × 2 cm, cutting edge w. 4.8 cm, wt. 233 g (Fig. 3.16).
17. Socketed axe. Socketed axe with a beaked mouth and a loop. The narrow sides are ribbed. With the remains of a removed jet on the loop. L. 11.9 cm, collar with loop 6 × 4 cm, blade-socket interface 3.7 × 1.8 cm, cutting edge w. 5 cm, wt. 271 g (Fig. 3.17).
18. Socketed axe. Socketed axe with a beaked mouth and a loop. Its narrow sides are ribbed. With the remains of a removed jet on the loop. The blade is hammered, asymmetrical. L. 9.7 cm, collar with loop 5.7 × 3.5 cm, blade-socket interface 3.5 × 1.7 cm, cutting edge w. 4 cm, wt. 137 g (Fig. 3.18).
19. Socketed axe. Pseudo-winged socketed axe with a thick collar and a loop, decorated with three horizontal ribs on one side and three curved ribs on the other. A corroded object is visible in the socket. Incomplete. L. 5.4 cm, collar with loop 3.9 × 2.3 cm, blade-socket interface 2.1 × 0.8 cm, wt. 56 g (Fig. 3.19).
20. Socketed chisel. Fragment of a socketed chisel with a thick collar. L. 9.2 cm, collar w. 2.5 cm, blade-socket interface w. 1.5 cm, cutting edge w. 1.2 cm, wt. 52 g (Fig. 3.20).
21. Socketed chisel. Fragment of a socketed chisel without a collar. L. 10.4 cm, collar 1.4 × 1.6 cm, blade-socket interface 1.3 × 1.1 cm, cutting edge w. 1 cm, wt. 56 g (Fig. 4.21).
22. Knobbed sickle. Knobbed sickle with two ribs along its back. 12 × 4.8 cm, collar w. 2.4 cm, wt. 44 g (Fig. 4.22).
23. Knobbed sickle. Knobbed sickle with two ribs along its back. 9.6 × 3.2 cm, collar w. 2.2 cm, wt. 17 g (Fig. 4.23).
24. Sickle. Sickle blade fragment. Bent, incomplete. 10.1 × 2.4 cm, collar w. 1.8 cm, wt. 31 g (Fig. 4.24).
25. Sickle. Blade fragment of a flanged sickle with one rib (modern damage). 9.1 × 2.7 cm, wt. 23 g (Fig. 4.25).
26. Sickle. Blade fragment of a flanged sickle with a jet stump on its back. 5.1 × 3.1 cm, wt. 27 g (Fig. 4.26).
27. Sickle. Sickle blade fragment. 4.4 × 2.4 cm, wt. 12 g (Fig. 4.27).
28. Sickle. Sickle blade fragment. 8.3 × 2.2 cm, wt. 23 g (Fig. 4.28).
29. Saw. Long, slightly oval saw in two fragments. Bent, incomplete. 17.5 × 1.4 cm, th. 0.3 cm, wt. 24 g (Fig. 4.29).
30. Metal vessel. Round-profile handle fragment of a metal vessel with cut marks. 12.3 × 7.6 cm, th. 1.3 × 1.3 cm, wt. 177 g (Fig. 4.30).
31. Metal vessel. Rim fragment of a bronze vessel. It is decorated with five horizontal lines. 8.9 × 3.8 cm; th. 0.3 cm; wt. 27 g (Fig. 4.31).
32. Bracelet. Fragment of a bracelet with blunt ends, decorated with a group of lines. 9.2 × 3.9 cm, th. 0.7 × 0.8 cm, wt. 29 g (Fig. 4.32).
33. Bracelet. Round-profile bracelet with tapered ends; in two fragments (modern damage). Fragment 1: 10.7 × 8.5 cm, th. 0.6 × 0.8 cm, wt. 49 g; Fragment 2: 7.7 × 2 cm, th. 0.5 × 0.6 cm, wt. 11 g (Fig. 4.33).
34. Bracelet. Round-profile bracelet with blunt ends. 12 × 9.8 cm, th. 0.7 × 1.3 cm, wt. 139 g (Fig. 4.34).
35. Bracelet. Round-profile bracelet with blunt ends and pattern remains on its back. 12.1 × 8.6 cm, th. 1.3 × 0.9 cm, wt. 147 g (Fig. 1; Fig. 4.35).
36. Bracelet. Round-profile bracelet with tapered ends. Incomplete. 11.3 × 7.5 cm, th. 0.8 × 0.9 cm, wt. 45 g (Fig. 4.36).
37. Bracelet. Decorated, semicircular-profile bracelet fragment. 7.8 × 2.4 cm, th. 1.5 × 0.9 cm, wt. 42 g (Fig. 4.37).

38. Bracelet. Decorated, semicircular-profile bracelet fragment. 9.4 × 3.5 cm, th. 1.4 × 0.8 cm, wt. 44 g (Fig. 4.38).
39. Bracelet. Decorated, semicircular-profile bracelet fragment. 6.2 × 1.5 cm, th. 1.3 × 0.9 cm, wt. 23 g (Fig. 4.39).
40. Bracelet. Decorated, semicircular-profile bracelet fragment. 6.6 × 2.5 cm, th. 2 × 1 cm, wt. 42 g (Fig. 4.40).
41. Bracelet. Decorated, semicircular-profile bracelet fragment. 8.2 × 3.5 cm, th. 0.9 × 1.4 cm, wt. 50 g (Fig. 4.41).
42. Bracelet. Decorated, semicircular-profile bracelet with blunt ends. Incomplete. 7.1 × 2.8 cm, th. 0.9 × 1.4 cm, wt. 44 g (Fig. 4.42).
43. Bracelet. Decorated, semicircular-profile bracelet fragment. 9 × 4.1 cm, th. 1.2 × 0.9 cm, wt. 56 g (Fig. 4.43).
44. Bracelet. Semicircular-profile bracelet fragment. 1 × 4.4 cm, th. 1 × 1.3 cm, wt. 20 g (Fig. 4.44).
45. Bracelet. Semicircular-profile bracelet fragment. 6.9 × 2 cm, th. 1 × 1.2 cm, wt. 23 g (Fig. 4.45).
46. Bracelet. Semicircular-profile bracelet fragment. 1.5 × 3.8 cm, th. 1.4 × 0.8 cm, wt. 15 g (Fig. 4.46).
47. Bracelet or wire. Round-profile bracelet or wire fragment. 5.6 × 1.1 cm, diam. 0.4 cm, wt. 2 g (Fig. 4.47).
48. Lump. Oval ingot or lump. 9.1 × 4.9 cm, h. 1.2 cm, wt. 165 g (Fig. 4.48).
49. Lump. Oval ingot or lump. 6 × 3.9 cm, h. 2.1 cm, wt. 126 g (Fig. 4.49).
50. Non-classifiable object. 5.2 × 3.5 cm, th. 1.4–2.5 cm, wt. 85 g (Fig. 4.50).
51. Non-classifiable object. 3.1 × 0.7 cm, th. 0.6 cm, wt. 5 g (Fig. 4.51).
52. Non-classifiable object. 4.5 × 1.4 cm, th. 0.7 cm, wt. 15 g (Fig. 4.52).

References

- BALĂN, G. 2009: Cronologia și tipologia dărilor de bronz cu toc de înmănușare din România. *Apulum* 46, 1–40.
- BARTÍK, J. – FARKAŠ, Z. – JELÍNEK, P. 2019: Bronzhortfunde aus den Kleinen Karpaten und ihren Vorgebirgsgebieten. In: Bazovský, I. – Březinová, G. (eds): *Ludia a hory – archeologická perspektiva. Interakcie ľudských spoločností horských a podhorských oblastí západného Slovenska*. Zborník Slovenského Národného múzea Archeológia Supplementum 12. Bratislava–Nitra, 15–102.
- BARTÍK, J. – LIESKOVSKÝ, T. 2020: Starý plášť pri Plaveckom Mikuláši. K poznaniu hradísk z mladšej a neskorej doby Bronzovej v Malých Karpatoch. *Zborník Slovenského Národného múzea* 113/30, 81–117.
- BADER, T. 1991: *Die Schwerter in Rumänien*. Prähistorische Bronzefunde IV/8. Stuttgart.
- BELTZ, R. 1910: *Die vorgeschichtlichen Altertümer des Grossherzogtums Mecklenburg-Schwerin*. Schwerin.
- BIANCO PERONI, V. 1976: *Die Messer in Italien (I coltelli nell' Italia continentale)*. Prähistorische Bronzefunde VII/2. München.
- VON BRUNN, W. A. 1959: Die Messer vom Friesacker Typ und ihr Werkstättenkreis. *Bodendenkmalpflege in Mecklenburg* 1959, 35–56.
- VON BRUNN, W. A. 1968: *Mitteldeutsche Hortfunde der Jüngerer Bronzezeit*. Römisch-Germanische Forschungen 29. Berlin.
- BUTLER, J. J. – STEEGSTRA, H. 2006: Bronze Age Metal and Amber in the Netherlands (III:2). Catalogue of the Socketed Axes, Part C. *Palaeohistoria* 47/48, 207–240.
- CATALOGUE EGGER 1891: *Catalogue of the Important Collection of Bronze Arms & Implements, and Ornaments in Gold, Silver & Bronze formed by the late Dr. S. Egger of Vienna*. London.
- DARNAY, K. 1899: Sümege és vidékének őskora. *Archaeologiai Közlemények* 22, 5–85.
- J. DANKÓ, K. – PATAY, P. 2000: *Régészeti leletek a Sárospataki Református Kollégium Tudományos Gyűjteményében*. Borsod-Abaúj-Zemplén megye régészeti emlékei 2. Miskolc.
- DERGAČEV, V. 2002: *Die äneolithischen und bronzezeitlichen Metallfunde aus Moldavien*. Prähistorische Bronzefunde XX/9. Stuttgart.
- DURCZEWSKI, Z. 1948: *Grupa górnoląsko-malopolska kultury lużyckiej*. Prace Prehistoryczne 6. Kraków.
- ZU ERBACH, M. 1985: *Die spätbronze- und urnenfelderzeitlichen Funde aus Linz und Oberösterreich*. Linzer Archäologische Forschungen 14. Linz.
- ZU ERBACH, M. 1989: *Die spätbronze- und urnenfelderzeitliche Funde aus Linz und Oberösterreich*. Linzer Archäologische Forschungen 17. Linz.

- FURMÁNEK, V. 2006: Teil 1. Die Knopfsicheln und die Sichelgussformen in der Slowakei. In: Furmánek, V. – Novotná, M. (eds): *Die Sichel in der Slowakei*. Prähistorische Bronzefunde XVIII/6. Stuttgart, 1–55.
- GARASANIN, M. (ed.) 1975: *Praistorijski ostaci Srbije i Vojvodine – Les depots prehistoriques de la Serbie et de la Voïvodine*. Belgrade.
- GASPARI, A. 2004: Bronzezeitliche Funde aus der Ljubljana. Opfer, Überreste von Bestattungen oder zufällige Verluste? *Archäologisches Korrespondenzblatt* 34, 37–50.
- GAVRANOVIĆ, M. 2011a: *Das Spätbronze- und Früheisenzeit in Bosnien. Teil 1*. Universitätsforschungen zur prähistorischen Archäologie 195. Bonn.
- GAVRANOVIĆ, M. 2011b: *Das Spätbronze- und Früheisenzeit in Bosnien. Teil 2*. Universitätsforschungen zur prähistorischen Archäologie 195. Bonn.
- GEDL, M. 1984: *Die Messer in Polen*. Prähistorische Bronzefunde VII/4. München.
- GEDL, M. 1995: *Die Sichel in Polen*. Prähistorische Bronzefunde XVIII/4. Stuttgart.
- GEDL, M. 2001: *Die Bronzegefäße in Polen*. Prähistorische Bronzefunde II/15. Stuttgart.
- HAMPPEL, J. 1892: *A bronzkor emlékei Magyarhonban. II. rész: A leletek statisztikája*. Budapest.
- HÄNSEL, A. 1999: Ein älterurnenfelderzeitliches Depotfund aus Pustakovec, Kot. Čakovec, Kroatien. *Acta Praehistorica et Archaeologica* 31, 76–92.
- HARDING, A. 1995: *Die Schwerter im ehemaligen Jugoslawien*. Prähistorische Bronzefunde IV/14. Stuttgart.
- HELL, M. 1959: Urnenfelderzeitliche Gräber bei St. Georgen im salzburgischen Pinzgau. *Archaeologia Austriaca* 25, 118–129.
- HOHLBEIN, M. 2016: *Die Messer in Süd- und Westdeutschland*. Prähistorische Bronzefunde VII/6. Stuttgart.
- HOLSTE, F. 1962: *Zur Chronologie der südosteuropäischen Depotfunde der Urnenfelderzeit. Ein Vortragsmanuskript aus dem Jahre 1939*. Marburg–Lahn.
- HÖGLINGER, P. 1993: *Das urnenfelderzeitliche Gräberfeld von Obereching, Land Salzburg*. Archäologie in Salzburg 2. Salzburg.
- JACANOVIĆ, D. 1986: Praistorijski ostaci bronzanih predmeta iz sela Klenja kod Golupca [Prehistoric remains of bronze objects from the village of Klenja kod Golupca]. *Starinar* 37, 153–173.
- JACOB-FRIESEN, G. 1972: Zwei bemerkenswerte Bronzen der Urnenfelderzeit „aus dem Rhein bei Mainz“. *Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz* 19, 45–62.
- JIRÁŇ, L. 2002: *Die Messer in Böhmen*. Prähistorische Bronzefunde VII/5. Stuttgart.
- JÓSA, A. – KEMENCZEI, T. 1965: Bronzkori halmazleletek (Depotfunde aus der Bronzezeit). *A nyíregyházi Jósa András Múzeum Évkönyve* 6–7, 19–45.
- BAYERISCHES VORGESCHICHTSBLÄTTER 1956: Aindorf, Gde. Pittenhart (Ldkr. Traunstein). *Bayerisches Vorgesichtsblätter* 21, 1956, 201.
- VON KELLER, F. 1879: Pfahbauten. Achter Bericht. *Mitteilungen der Antiquarischen Gesellschaft in Zürich* 20/1/3. Zürich.
- VON KENNER, F. 1860: Beiträge zu einer Chronik der archäologischen Funde in der österreichischen Monarchie (1856–1858). *Archiv für Kunde österreichischer Geschichts-Quellen* 24, 225–423.
- KEMENCZEI, T. 1984: *Die Spätbronzezeit Nordostungarns*. *Archaeologica Hungarica* 51. Budapest.
- KEMENCZEI, T. 1991: *Die Schwerter in Ungarn II (Vollgriffschwerter)*. Prähistorische Bronzefunde IV/9. Stuttgart.
- KEMENCZEI, T. 1996a: Angaben zur Frage der endbronzezeitlichen Hortfundstufen im Donau-Theißgebiet. *Communicationes Archaeologicae Hungariae*, 53–92.
- KEMENCZEI, T. 1996b: Zum Übergang von der Bronze- zur Eisenzeit in NW-Transdanubien. *Folia Archaeologica* 44, 91–131.
- KLOCHKO, V. I. 2006: *Osvobozhdeniye ta viys'kova sprava davnego naseleniya Ukrainy (5000–900 r. do R.KH.)* [Arms and Military Affairs of the Ancient Population of Ukraine (5000–900 BC)]. Kyiv.
- KOBAL', J. V. 2000: *Bronzezeitliche Depotfunde aus Transkarpatien (Ukraine)*. Prähistorische Bronzefunde XX/4. Stuttgart.
- KÖNIG, P. 2004: *Spätbronzezeitliche Hortfunde aus Bosnien und der Herzegowina*. Prähistorische Bronzefunde XX/11. Stuttgart.

- KRÄMER, W. 1985: *Die Vollgriffschwerter in Österreich und der Schweiz*. Prähistorische Bronzefunde IV/10. München.
- KUŚNIERZ, J. 1998: *Die Beile in Polen III (Tüllenbeile)*. Prähistorische Bronzefunde IX/21. Stuttgart.
- KYTLICOVÁ, O. 2007: *Jungbronzezeitliche Hortfunde in Böhmen*. Prähistorische Bronzefunde XX/12. Stuttgart.
- LAUERMANN, E. – RAMMER, E. 2013: *Die urnenfelderzeitlichen Metallhortfunde Niederösterreichs. Mit besonderer Berücksichtigung der zwei Depotfunde aus Enzersdorf im Thale*. Universitätsforschungen zur prähistorischen Archäologie 226. Bonn.
- LAUX, F. 2005: *Die Äxte und Beile in Niedersachsen II (Lappen- und Tüllenbeile, Tüllenmeißel und -Hämmer)*. Prähistorische Bronzefunde IX/25. Stuttgart.
- LESKOV, A. 1981: *Jung- und spätbronzezeitliche Depotfund im nördlichen Schwarzmeergebiet I (Depots mit einheimischen Formen)*. Prähistorische Bronzefunde XX/5. München.
- ONDRKÁL, F. 2018: Nové depoty mečov liptovského typu z Bošáce. In: Benediková, L. – Hornák, M. (eds): *SÍDLA, ARTEFAKTY A ČAS... Zborník štúdií o dobe bronzovej a dobe halštatskej k 75. narodeninám Ladislava Veličaika*. Archaeologica Slovaca Monographiae 21. Nitra–Vrútky, 271–293.
- MALACH, R. – ŠTROF, A. – HLOŽEK, M. 2016: *Nová depozita kovové industrie doby bronzové v Boskovické Brázdě – New Bronze Age Hoards of Metal Industry in Boskovická Brázda*. Pravěk Supplementum 32. Brno.
- MAYER, E. F. 1977: *Die Äxte und Beile in Österreich*. Prähistorische Bronzefunde IX/9. München.
- MERTINS, D. 1898: Das Gräberfeld von Ottwitz. *Schlesiens Vorzeit* 7, 366–412.
- MISKE, K. 1907: *A Velem Szt. Vidi őstelep*. Vienna.
- MOOSLEITNER, F. 1982: Ein Urnenfelderzeitlicher Depotfund aus Saalfelden, Land Salzburg. *Archäologisches Korrespondenzblatt* 12, 457–475.
- MOOSLEITNER, F. 1991: *Bronzezeit im Saalfeldener Becken*. Salzburg.
- MOZSOLICS, A. 1967: *Bronzefunde des Karpatenbeckens. Depotfundhorizonte von Hajdúsámson und Kosziderpadlás*. Budapest.
- MOZSOLICS, A. 1985: *Bronzefunde aus Ungarn. Depotfundhorizonte von Arany, Kurd und Gyermely*. Budapest.
- MOZSOLICS, A. 2000: *Bronzefunde aus Ungarn. Depotfundhorizonte Hajdúböszörmény, Románd und Bükkzentlászó*. Prähistorische Archäologie in Südosteuropa 17. Berlin.
- MÜLLER-KARPE, H. 1950: Grünwalder Gräber. *Praehistorische Zeitschrift* 34–35, 313–325.
- MÜLLER-KARPE, H. 1959: *Beiträge zur Chronologie der Urnenfelderzeit nördlich und südlich der Alpen*. Römisch-Germanische Forschungen 22. Berlin.
- MÜLLER-KARPE, H. 1961: *Die Vollgriffschwerter der Urnenfelderzeit aus Bayern*. Münchner Beiträge zur Vor- und Frühgeschichte 6. München.
- NAVRÁTIL, A. 2021: Kovová depozita doby popelnicových polí z Pavlovských vrchů. *Pravěk Nová Řada* 29, 239–269.
- NOVOTNÁ, M. 1968: Praveké a ranohistorické pamiatky v štátnom kaštieli v Betliari. *Zborník Filozofickej Fakulty Univerzity Komenského* 19, 37–57.
- NOVOTNÁ, M. 1970: *Die Äxte und Beile in der Slowakei*. Prähistorische Bronzefunde IX/3. München.
- NOVOTNÁ, M. 1991: *Die Bronzegefäße in der Slowakei*. Prähistorische Bronzefunde II/11. Stuttgart.
- NOVOTNÁ, M. 2014: *Die Vollgriffschwerter in der Slowakei*. Prähistorische Bronzefunde IV/18. Stuttgart.
- PABST, S. 2013: Naue II-Schwerter mit Knauflzunge und die Aussenbeziehungen der Mykenischen Kriegerelite in Postalatialer Zeit. *Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz* 60, 105–152.
- PARE, CH. F. E. 1998: Beiträge zum Übergang von der Bronze- zur Eisenzeit in Mitteleuropa. Teil I. Grundzüge der Chronologie im östlichen Mitteleuropa (11.-8. Jahrhundert v. Chr.). *Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz* 45, 293–433.
- PATAY, P. 1990: *Die Bronzegefäße in Ungarn*. Prähistorische Bronzefunde II/10. München.
- PETRESCU-DÎMBOVIȚA, M. 1977: *Depozitele de bronzuri din România*. Academia de științe sociale și politice a Republicii Socialiste România. Institutul de Istorie și Arheologie „A.D. Xenopol” Iași Biblioteca de Arheologie 30. Bucharest.

- PETRESCU-DÎMBOVIȚA, M. 1978: *Die Sicheln in Rumänien mit Corpus der jung- und spätbronzezeitlichen Horte Rumäniens*. Prähistorische Bronzefunde XVIII/1. München.
- PININGRE, J.-F. – GANARD, V. 2015: 2. Analyse Typologique. In: Piningre, J.-F. – Pernot, M. – Ganard, V. (eds): *Le dépôt d'Évans (Jura) et les dépôts de vaisselles de bronze en France au Bronze Final*. *Revue Archéologique de l'Est*. Dijon, 23–64. <https://doi.org/10.4000/books.artehis.5763>
- PITTIONI, R. 1938: *Österreichs Urzeit im Bilde*. Leipzig–Wien.
- PRIMAS, M. 1986. *Die Sicheln in Mitteleuropa I (Österreich, Schweiz, Süddeutschland)*. Prähistorische Bronzefunde XVIII/2. München.
- PRÜSSING, G. 1982: *Die Messer im nördlichen Westdeutschland (Schleswig-Holstein, Hamburg und Niedersachsen)*. Prähistorische Bronzefunde VII/3. München.
- VON QUILLFELDT, I. 1995: *Die Vollgriffschwerter in Süddeutschland*. Prähistorische Bronzefunde IV/11. Stuttgart.
- ŘÍHOVSKÝ, J. 1972: *Die Messer in Mähren und dem Ostalpengebiet*. Prähistorische Bronzefunde VII/1. München.
- ŘÍHOVSKÝ, J. 1992: *Die Äxte, Beile, Meißel und Hämmer in Mähren*. Prähistorische Bronzefunde IX/17. Stuttgart.
- SALAŠ, M. 2005: *Bronzové depoty střední až pozdní doby bronzové na Moravě a ve Slezsku I – Hügelgräberbronze- und urnenfelderzeitliche Metalldepots in Mähren*. Brno.
- SCHAUER, P. 1971: *Die Schwerter in Süddeutschland, Österreich und der Schweiz (Griffplatten-, Griffangel- und Griffzungenschwerter)*. Prähistorische Bronzefunde IV/2. München.
- SENOVITZ, GY. 1902: Geszti leletekről (Borsod m.). *Archaeologiai Értesítő* 22, 281–283.
- SPROCKHOFF, E. 1937a: *Jungbronzezeitliche Hortfunde Norddeutschlands (Periode IV)*. Kataloge des Römisch-Germanischen Zentralmuseums zu Mainz 12. Mainz.
- SPROCKHOFF, E. 1937b: Zwei Sammelfunde der Urnenfelderzeit aus Bayerisch-Schwaben. *Germania* 21, 10–17.
- SPROCKHOFF, E. 1950a: Chronologie Skizze. In: Behrens, G. – Werner, J. (eds): *Reinecke Festschrift zum 75. Geburtstag von Paul Reinecke am 25. September 1947*. Mainz, 133–149.
- SPROCKHOFF, E. 1950b: Das Lausitzer Tüllenbeil. *Prähistorische Zeitschrift* 34–35, 76–131. <https://doi.org/10.1515/prhz.1950.34-35.1.76>
- STOCKHAMMER, PH. 2004: *Zur Chronologie, Verbreitung und Interpretation urnenfelderzeitliche Vollgriffschwerter. Materialie zur Ur- und Frühgeschichtlichen Archäologie*. Tübinger Texte 5. Rahden/Westf.
- SZABÓ, G. 1996: The manufacture and usage of Late Bronze Age rings: two new hoards. In: Kovács, T. (ed.): *Studien zur Metallindustrie im Karpatenbecken und den benachbarten Regionen. Festschrift für Amália Mozsolics zum 85. Geburtstag*. Budapest, 207–230.
- SZAFRAŃSKI, W. 1953: Skarb brązowy z IV okresu epoki brązowej z Poznania-Staroleki. *Przegląd Archeologiczny* 9/26–28, 36–52.
- SZILAS, G. 2003: Késő bronzkori karikalelet a Dunából (Spätbronzezeitlicher Ringfund aus der Donau). *Communicationes Archaeologicae Hungariae* 2003, 67–76.
- UENZE, H. P. 1971: *Vor- und Frühgeschichte im Landkreis Schwabmünchen*. Kataloge der Prähistorischen Stattsammlung 14. Kallmünz/Opf.
- TARBAY, J. G. 2014: Late Bronze Age depot from the foothills of the Pilis Mountains. *Dissertationes Archaeologicae* 3.2, 179–297. <https://doi.org/10.17204/dissarch.2014.179>
- TARBAY, J. G. 2017: The Spear, the Hoard and the “Elusive Ornament”. In: Kulcsár, G. – V. Szabó, G. – Kiss, V. – Váczi, G. (eds): *State of the Hungarian Bronze Age Research. Proceedings of the conference held between 17th and 18th December 2014*. Budapest, 349–369.
- TARBAY, J. G. 2018: *A gyermelyi típusú kincsek és koruk (The Gyermely Type Hoards and Their Dating)*. PhD Dissertation, Eötvös Loránd University, Budapest. <https://doi.org/10.15476/ELTE.2018.167>
- TARBAY, J. G. 2020: On Selection in “Common Hoards”. The Szajla Hoard and Some Related Finds from Late Bronze Age Carpathian Basin. In: Dziegielewska, K. – Przybyła, M. (eds): *Chasing Bronze Age rainbows. Studies on hoards and related phenomena in prehistoric Europe in honour of Wojciech Blajer*. *Prace Archeologiczne* 69, 323–339. <https://doi.org/10.33547/PraceArch.69.15>
- TARBAY, J. G. 2021: Törött kard, rongált balták és darabolt öntecsek: új késő bronzkori depó Hévízgyörk-Hegy-dűlőről (Broken sword, damaged axes and partitioned ingots: New Late Bronze Age hoard from Hévízgyörk-Hegy-dűlő). *Tragor Ignác Múzeum Közleményei* 12, 47–68.

- TARBAY, J. G. 2022a: The Kunmadaras-Repülőtér hoard and the 'East Hungarian' Hajdúböszörmény horizon. *Tisicum – A Jász-Nagykun-Szolnok megyei Múzeumok Évkönyve* 30, 57–83.
- TARBAY, J. G. 2022b: The Hajdúböszörmény-Csege-halom Hoard and its Related Finds in Europe. *Praehistorische Zeitschrift* 98, 88–135. <https://doi.org/10.1515/pz-2022-2025>
- TARBAY, J. G. 2022c: A Late Bronze Age 'Hoard' and Metal Stray Finds from Tiszalök-Rázompusztá (Szabolcs-Szatmár-Bereg County, Hungary): Artefacts from the Protected Private Collection of László Teleki. *Dissertationes Archaeologicae* 3.10, 63–91. <https://doi.org/10.17204/dissarch.2022.63>
- TARBAY, J. G. – SOÓS, B. – PÉTERVÁRY, T. – BÁRÁNY, A. – LUKÁCS, B. 2023: The Late Bronze Age Somló Hill and a New Bronze Hoard. *Communicationes Archaeologicae Hungariae*, 1–26. <https://doi.org/10.54640/CAH.2023.79>
- THRANE, H. 1972: Urnenfeldermesser aus Dänemarks jüngerer Bronzezeit (Periode IV–V). *Acta Archaeologica (København)* 43, 165–228.
- TOPAL, D. – SÎRBU, M. 2016: New Hoards and Solitary Finds of the Bronze Age – Early Iron Age from the Territory of the Republic of Moldova. In: Zanoci, A. – Kaiser, E. – Kashuba, M. – Izbitser, E. – Băţ, M. (eds): *Tyragetia International I. Mensch, Kultur und Gesellschaft von der Kupferzeit bis zur frühen Eisenzeit im nördlichen Eurasien. Beiträge zu ehren zum 60. Geburtstag von Eugen Sava*. Chişinău, 251–267.
- V. SZABÓ, G. 2013: Late Bronze Age Stolen. New Data on Illegal Acquisition and Trade of Bronze Age Artefacts in the Carpathian Basin. In: Anders, A. – Kulcsár, G. – Kalla, G. – Kiss, V. – V. Szabó, G. (eds): *Moments in Time. Papers Presented to Pál Raczky on His 60th Birthday*. Budapest, 793–815.
- V. SZABÓ, G. 2015: Bronzkor: az őskori fémművesség virágkora (Kr. e. 2800 – Kr. e. 1000). In: Vágó, Á. (ed.): *A Kárpát-medence ősi kincsei. A kőkortól a honfoglalás koráig*. Budapest, 105–183.
- V. SZABÓ, G. 2019: *Bronzkori kincsek Magyarországon. Földbe rejtett fegyverek, eszközök, ékszerek nyomában*. Hereditas Archaeologica Hungariae 3. Budapest.
- VELIAČIK, L. 2012: Nože z doby bronzovej na Slovensku (Bronzezeitliche Messer aus der Slowakei). *Slovenská Archeológia* 60, 285–342.
- VINSKI-GASPARINI, K. 1973: *Kultura polja sa žarama u sjevernoj Hrvatskoj*. Zadar.
- VÍCH, D. 2012: Kladky – neznámé hradiště na severozápadní Moravě. Možnosti detektorového průzkumu v archeologii (Kladky – eine unbekannte Burganlage in Nordwest-Mähren. Möglichkeiten der Forschung mit dem Metalldetektor in der Archäologie). *Památky Archeologické* 103, 233–272.
- VÍCH, D. 2017: Dva depoty pozdní doby bronzové ze severního okraje Malé Hané (Two Final Bronze Age hoards from a dominant landscape location near Městečko Trnávka, Pardubice region). *Archeologické rozhledy* 69, 23–43. <https://doi.org/10.35686/AR.2017.2>
- WAGNER, K. H. 1943: *Nordtiroler Urnenfelder*. Römisch-Germanische Forschungen 15. Berlin.
- WEINERT, A. 2004: Im Werkzeugkasten entdeckt. Spätbronzezeitliches Messer aus der Gegend um Abbendorf-Haverland, Lkr. Prignitz. *Archäologie in Berlin und Brandenburg*, 75–76.
- WILBERTZ, O. M. 1982: *Die Urnenfelderkultur in Unterfranken*. Materialhefte zur Bayerischen Vorgeschichte A/49. Kallmünz/Opf.
- WILLVONSEDER, K. 1942: Ein Fund der jüngeren Urnenfelderzeit von Agerzell (Oberdonau). *Germania* 26, 109–114.
- WIRTH, S. 1998: *Grabfunde der späten Bronzezeit und der Urnenfelderzeit von Augsburg-Haunstetten und Friedberg in Bayern*. Augsburger Beiträge zur Archäologie 1. Augsburg.
- ŽERAVICA, Z. 1993: *Äxte und Beile aus Dalmatien und anderen Teilen Kroatiens, Montenegro, Bosnien und Herzegowina*. Prähistorische Bronzefunde IX/18. Stuttgart.
- ŽUROWSKI, K. 1949: Zabytki brązowe z młodziej epoki brązu i wczesnego okresu żelaza z dorzecza górnego Dniestru. *Przegląd Archeologiczny* 7/2/25, 155–247.



