

# Following the traces of the earliest Corded Ware in Moravia and steppe elements in its content

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## FOLLOWING THE TRACES OF THE EARLIEST CORDED WARE IN MORAVIA AND STEPPE ELEMENTS IN ITS CONTENT

### ABSTRACT

Peška J. 2023. Following the traces of the earliest Corded Ware in Moravia and steppe elements in its content. *Sprawozdania Archeologiczne* 75/1, 141-174.

The earliest Corded Ware is very poorly represented in Moravia (several type A, Moravian-type, hammer-axes, settlements with the so-called Wellenleistentöpfe: Olomouc-Slavonín, Horní lán) and the situation is not much better even in the earlier Moravian Corded Ware Culture (MCWC) period (the Palonín settlement, graves at: Dub nad Moravou, Hradisko u Kroměříže, Němetice). Among the local MCWC (over 90%; 2700/2600-2400/2200 calBC) we find a number of components linking this to Eastern Europe both in the burial ritual (grooves around graves, internal construction, burials in the frog position, graves of metallurgists) and in the material content (daggers/razors with a tang, hammer-shaped pins, a beaker decorated with a cord and a fishbone motif) with numerous analogues in the Yamna and Catacombna cultures of the Carpathian, Balkan and northern Pontus.

Most surprising is a group of MCWC graves with grooves at the bottom, interpreted as burials on all-wood four-wheeled ceremonial wagons with direct counterparts in the Maikop, Yamna, and Catacombna cultures of eastern Europe.

Keywords: Moravia, Moravian Corded Ware Culture, Eastern European elements, Yamna culture, Catacombna culture, wagon burials

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## INTRODUCTION

Since the origin of the Corded Ware civilization in Eastern Europe is generally accepted, the range of Eastern elements in its content in Moravia is not surprising. The question remains, however, as to which part of them can be associated directly with the steppe elements appearing in the interior of Europe at the beginning and during the 3<sup>rd</sup> millennium BC.

At the turn of the Late and Final Eneolithic, several cultures with different origins appear in the field of Moravian prehistory (Postbaden Jevišovice Culture, Bošáca, Globular Amphora Culture, Makó/Kosihy-Čaka?, Strachotín-Držovice horizon) (Fig. 1). The relationships to the earliest Moravian Corded Ware Culture (MCWC) are particularly evident in the late phase of Jevišovice Culture with a noticeable interference of the Coțofeni III and even more Livezile cultures from western Transylvania (air distance 450 km) in the period 2780-2560 calBC (Peška 2011; Ciugudean *et al.* 2022). To these is added a specifically equipped skeletal burial of a young child (Kroměříž 3 – Miňůvky) in a large grave pit with a double-sided decorated lublan bowl and an askoid jug (Peška 2011, fig. 1). We are able to map the path of the shift of part of the population across Eastern Slovakia in the Late Baden environment (Zemplín, Spiš, Šariš: Horváthová and Chovanec 2006), but also, for



Fig. 1. Map of cultural representation of the Late Eneolithic period in Moravia. Map by P. Grenar

example, by material and a cremation (?) at Trebatice in via SW Slovakia (Němejcová-Pavůvková and Klčo 1986), and echoes can even be seen in the content of the Řivnáč culture in Central Bohemia (Zápotocký and Zápotocká 2008, fig. 65: 171, 172; tab. 34: 1; 78: 2). Important is the fact that this happened in the period 3000/2900-2800/2600 calBC, which is the time of the ongoing invasion of the holders of the Yamna culture (Yamna Culture) into the interior of Europe (Ciugudean *et al.* 2023). The relatively strong settlement at the end of the Jevišovice Culture may then account for the absence or only sporadic presence of the earliest and earlier CWC in Moravia.

## THE EARLIEST CORDED WARE IN MORAVIA

The earliest corded ware according to the traditional Buchvaldek classification – find group I (FG I) – is very poorly represented in Moravia and is represented by finds of A-type hammer-axes, or Moravian type with the possibility of a longer lifetime (graves of local development: Velešovice I, 1985, H 1, Vážany nad Litavou), coming mostly from isolated finds (Fig. 2). The easternmost evidence of the A-horizon settlement are fragments of

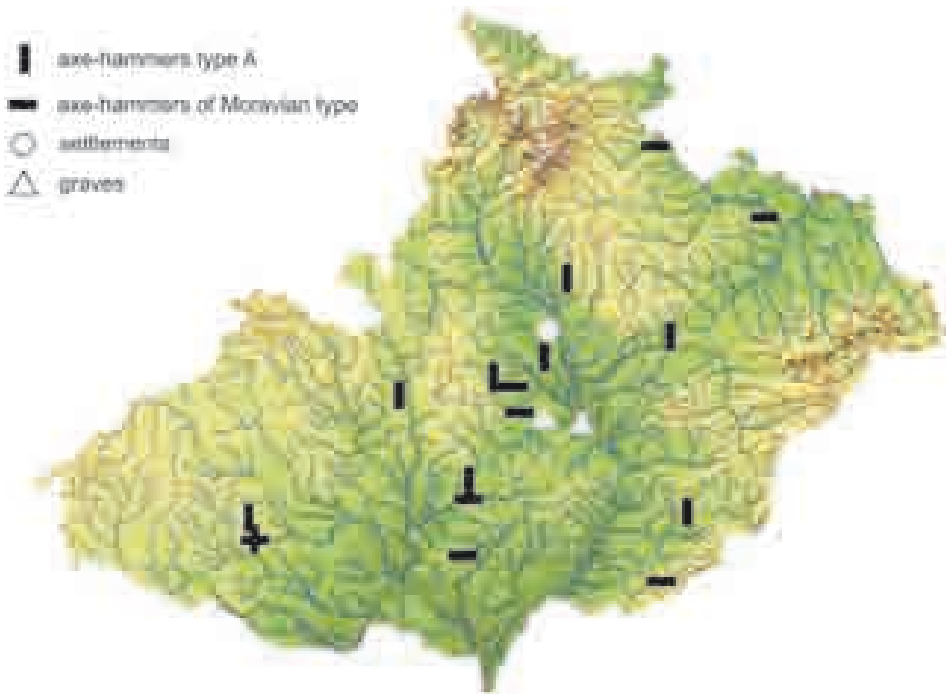


Fig. 2. Map of Moravia with distribution of A-type hammer-axes, Moravian-type hammer-axes, earliest settlements and graves of the MCWC. Map by P. Grenar

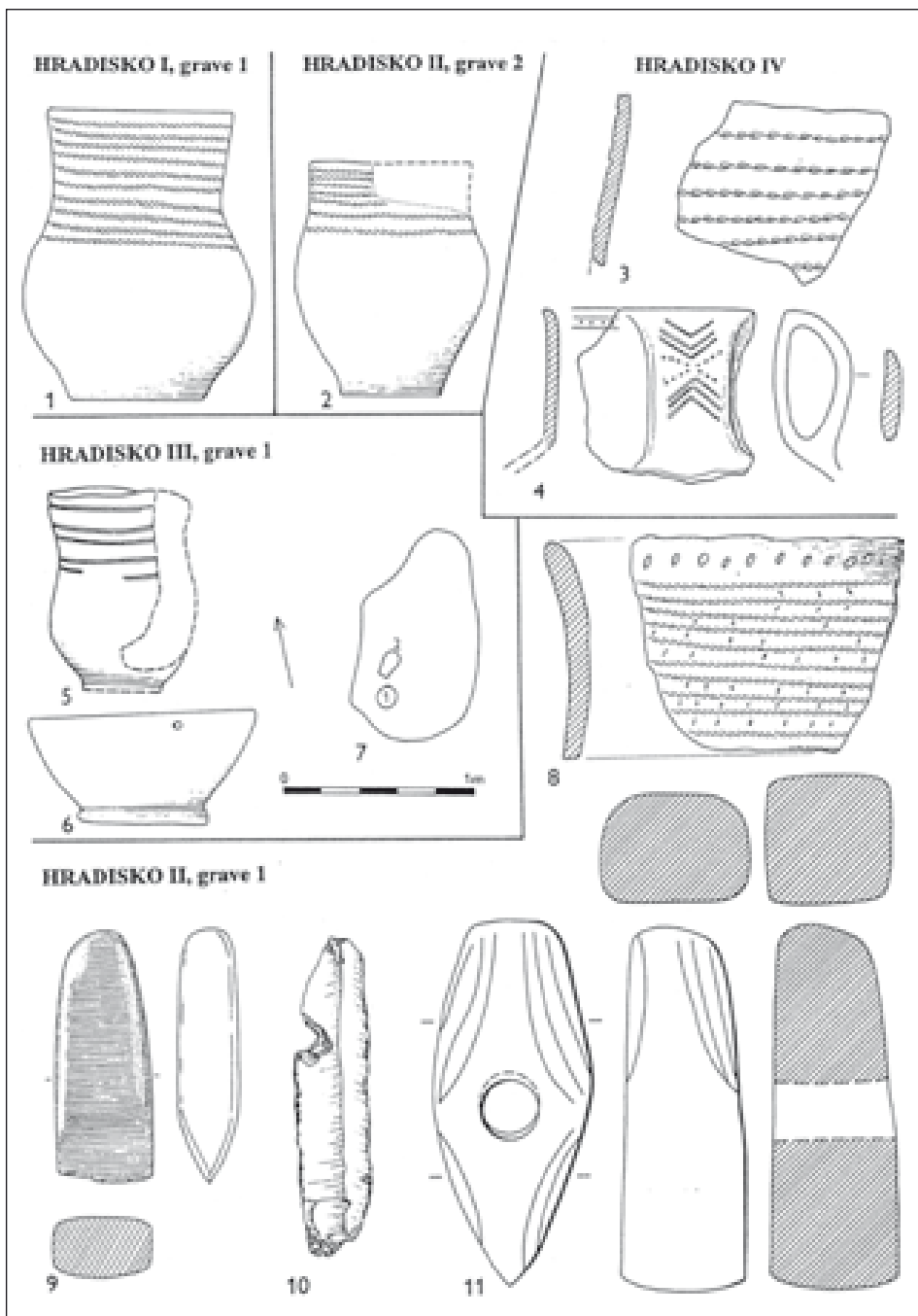


Fig. 3. MCWC representatives (FG I) according to L. Šebela (Šebela 1999)

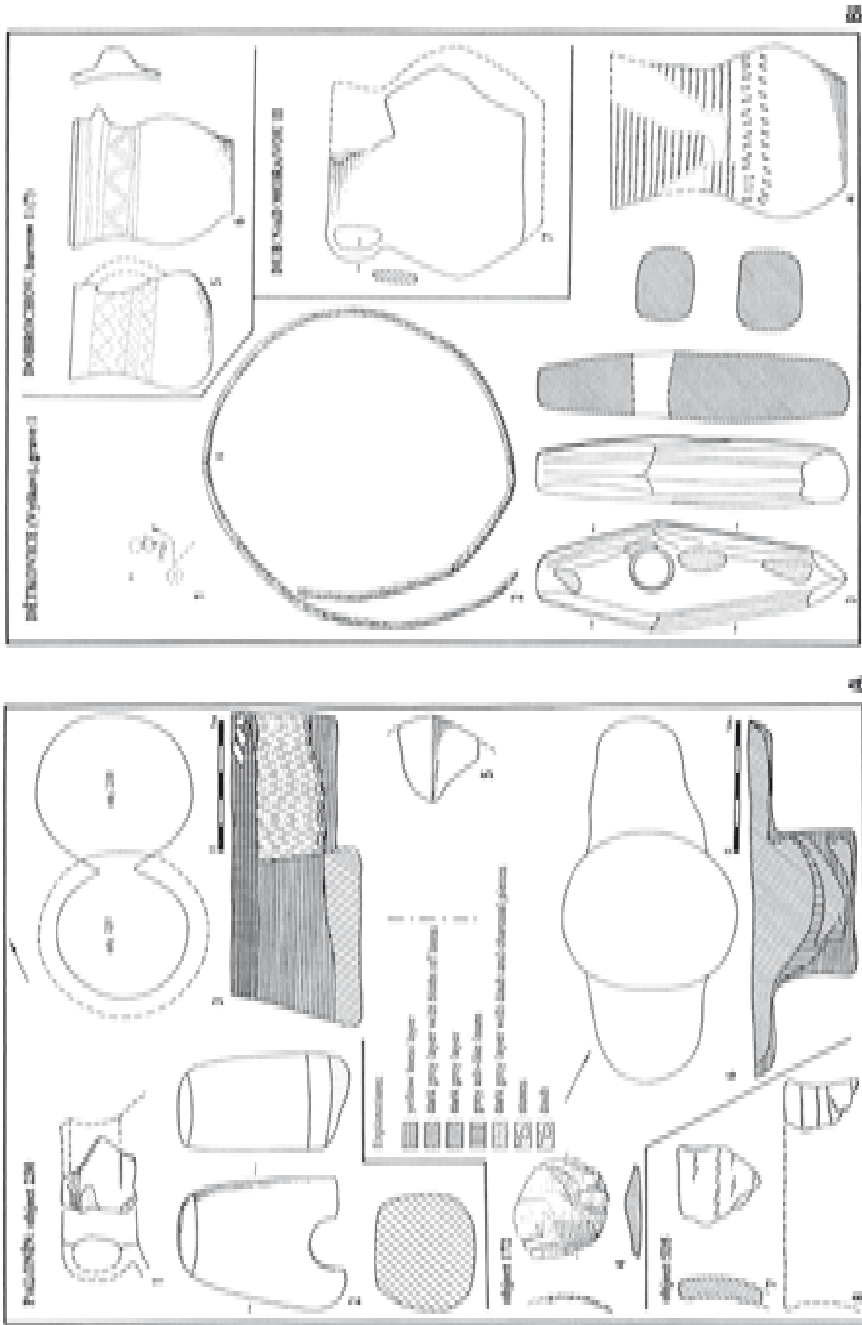


Fig. 4. Representatives of the earlier MCWC period (FG II) according to L. Šebela. A – the settlement in Palotín, Dist. Šumperk; B – graves of Dětkovice, Dist. Prostějov, Dobrochov, Dist. Prostějov, Dub nad Moravou II, Dist. Olomouc (Šebela 1999)

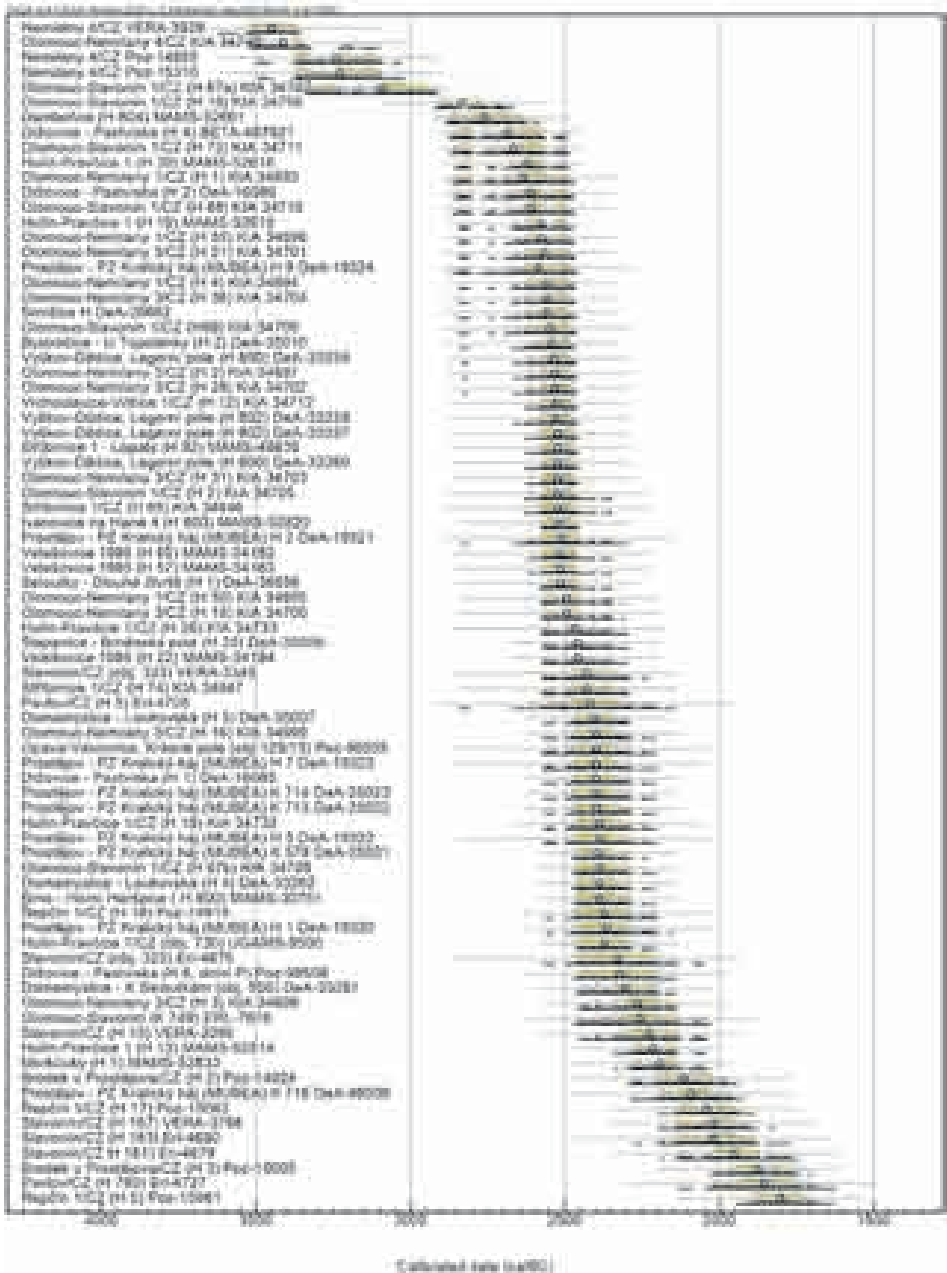


Fig. 5. Summary of absolute MCWC data. OxCal calibration vers. 4.4.4.

the so-called Wellenleistentöpfe and corded beakers from Olomouc-Slaponín (Peška 2000) as intrusions in chronologically younger features. Of special note is the collection of A-type and Moravian-type hammer-axes from layer B in Jevišovice, including blanks indicating local production (Šebela 1997). It is a significant evidence of the synchronization of the MCWC with the Jevišovice culture. Sporadic grave units with simple equipment of corded beakers and bowls are available from Central Moravia (Hradisko u Kroměříže III, H1; Němčice nad Hanou (Fig. 3). The absence of A-amphorae as well as the new excavations documenting grave complexes of the Early Corded Horizon in Moravia testify to the gradual colonization of the area.

The situation is not much better even in the earlier MCWC (FG II), which perhaps includes the settlement with a pair of pits from Palonín, graves from Dub nad Moravou, Hradisko I H1, Hradisko II, H2, Uhřice u Kyjova, mounds from Němetice (no. 7 and 1 with a Silesian hammer-axe) and a grave with a faceted hammer-axe and copper necklace from Dětkovice in the Vyškov region, accompanied by an ancient beaker (Fig. 4). Neither of the above-mentioned find groups is a full-fledged form of settlement activity, so we must expect a gradual infiltration into the existing structure of the domestic settlement.

More than 90% of the MCWC inventory belongs to the local development, where corded beakers (except for type B1) together with classical Dřevohostice jugs, but also beakers decorated with a fish bone motif (Fischgrätenbecher), considered older in the western CWC groups, but surviving at least during Phase IIIa in Moravia, are common in the graves at the beginning. We have hundreds of grave units from smaller group, originally mound-type, chronologically rather closed burials with rich ceramic production of their own (amphora-shaped jugs, amphorae, derivatives of Dřevohostice jugs), but more with designs in the Carpathian Basin (Balkan and Ökörhalom jugs, egg-shaped pots, Moravian-type bowls, other types of amphorae, *etc.*). The division of the local development into three phases, IIIa-IIIc according to L. Šebela is still a subject of discussion (the separate appearance of distinctive ceramic types in Moravia does not apply to the Carpathian Basin, *etc.*).

Recent excavations have repeatedly provided evidence of the existence of agricultural settlements from the period of local development (Peška *et al.* 2021) with sunken pits, yet without evidence of dwellings (Olomouc-Slaponín, Horní lán, Vřesovice, Hulín-Pravčice 1, Prostějov – industrial Zone: Fojtík 2019; Peška *et al.* 2021). The Makó/Kosihy/Čaka influence is also strongly present in the settlement component. The first series of absolute data are available (Fig. 5), which indicate the presence of a local MCWC in the period 2700/2600-2400(2200) BC. No data are available from earlier periods (unlike, for example, Bohemia).

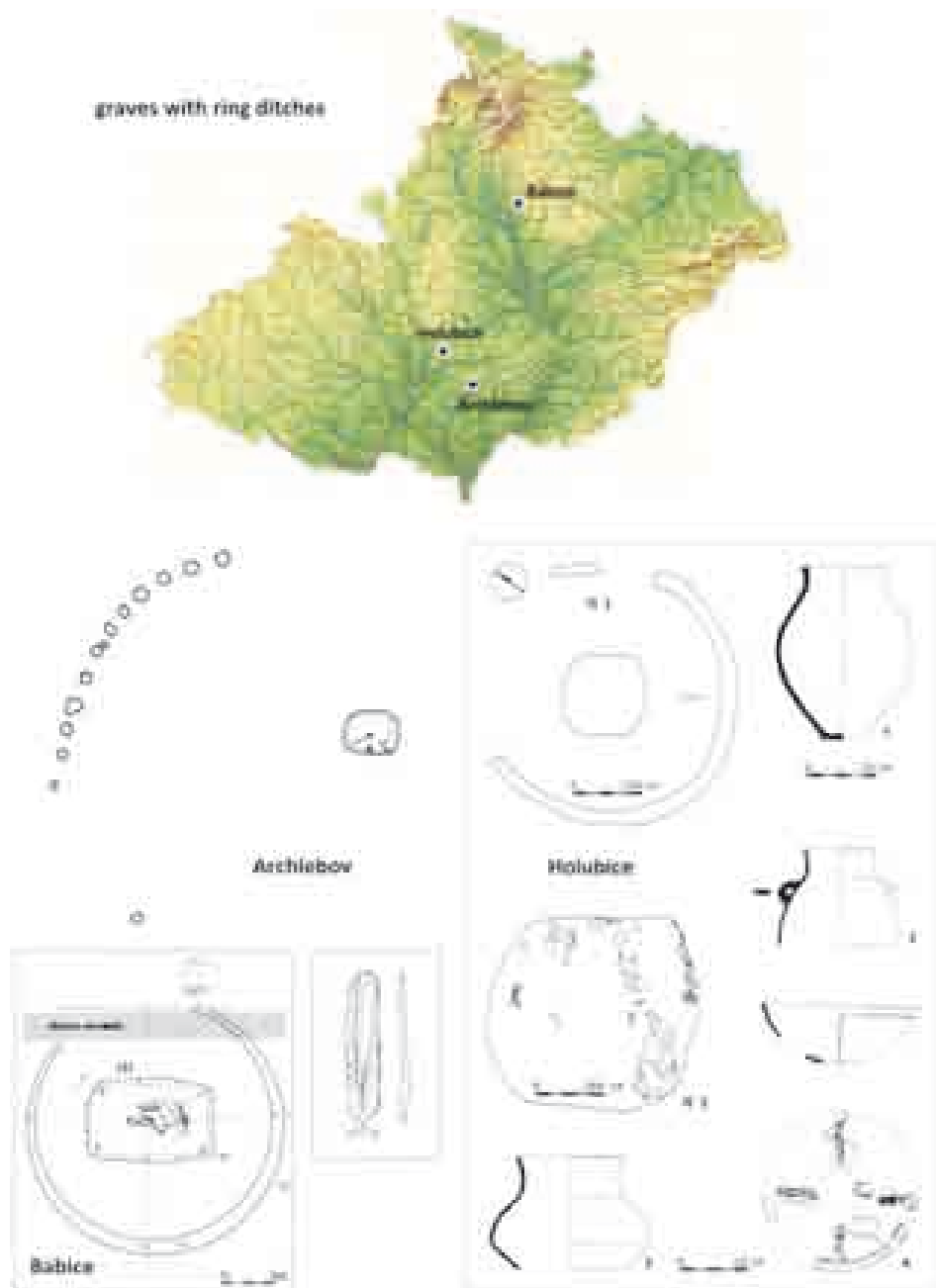


## CONTACTS WITH EASTERN EUROPE

Elements linking our region with Eastern Europe appear in the MCWC funeral ritual and inventory. The number of graves with ring ditches is slowly increasing (Holubice VII, Babice u Šternberka, Archlebov), where a burial from Babice equipped only with a chipped tool could be a „candidate“ to represent the earliest period of corded ware (absolute dating unfortunately failed) (Fig. 6). It is not difficult to find a number of analogues to them across the Yamna Culture range from Serbia to Ukraine (e.g., Bugaj *et al.* 2018; Sava *et al.* 2019; Dergachev 2023, pl. 7: B1; 9: C1; 21: 1; 27: G1; 30: C1 *etc.*). However, as we can see from examples in Bohemia, the hypothesis of the earliest non-ceramic graves may not be valid more generally (Dobeš *et al.* 2021). Outside the Central Moravian specificity of graves with grooves or other internal arrangements, which will be discussed later, there is an interesting full-circuit construction of one grave from Olomouc-Slavonín, Horní lán (H 164) with analogies in the environment of, for example, the Yamna or Catacombna cultures (Fig. 7; Dergachev 2023, pl. 2: B2; 15: B5; 36: B18; 61: D8 *etc.*). The so-called frog position of the lower limbs in burials is known in the CWC e.g., Silesia (Kietrz), eastern Slovakia (Lesné), Bell Beaker Culture in Lesser Poland (Samborzec), but also in the Nitra culture in Slovakia (Jelšovce) and the Únětice culture in Moravia (Suchohrdly) or in SW Slovakia (Nitra-Dolné Krškany), in Bohemia (Kbely, Cerhenice) and from eastern Germany (Nohra). It has direct analogies in the graves of the Yamna Culture in Hungary (Kétegyháza), Balkan, Ukraine and southern Russia (Bátora 2021; Włodarczak 2021; Dergachev 2023, pl. 10: 12; 13: C6; 14: C10; 15: B6 *etc.*). Apparently it is only a matter of time before it appears in the contents of the MCWC.

To a lesser extent than in the Bell Beaker Culture, we encounter metallurgists' graves in the MCWC (Fig. 8). For example, graves from Tešetice and Velešovice (Fig. 9) contained metalworking kits (anvils, hammers) that were positive for copper, gold and silver (!) flakes under the SEM microscope. They have their clear antecedents in the environment of Yamna and Catacombna cultures (Kaiser 2019 with older literature; Dergachev 2023, pl. 5: C12-14; 193: A3-6).

From the rich grave of the metallurgist from Velešovice I H 1, H 2 from Kroužek, Letonice and more recently also from Vyškov-Dědice (Fig. 10) come copper daggers with a tang, or daggers/razors with a blade-shaped tang, morphometrically different from Bell Beaker Culture daggers (slimmer blade and more elongated tang), strongly resembling daggers (daggers/razors) in the area of the northern Pontus and the Caucasus (Fig. 11; Dergachev 2023, pl. 34: C10; 47: B3; 87: D10; 99: C3 *etc.*), for which the closest Central European analogue is found in the Bleckendorf grave (KIA-162: 4080±20 BP; 2631-2577 1 sigma, 2678-2568 2 sigma calBC), together with a bone hammerhead pin, a typical product of the eastern steppes (Hammerkopfnadel) (Fig. 12; Dergachev 2023, pl. 29: 8; 44: C16). Unlike in Bohemia, this type of pin initially passes by Moravia and only appears here later (Fig. 13) (Proto-Únětice C).



**Fig. 6.** Graves with ring ditches in the MCWC  
(Geislerová – Parma *et al.* 2018; Kalábek *et al.* 2016; Čížmář 1985)

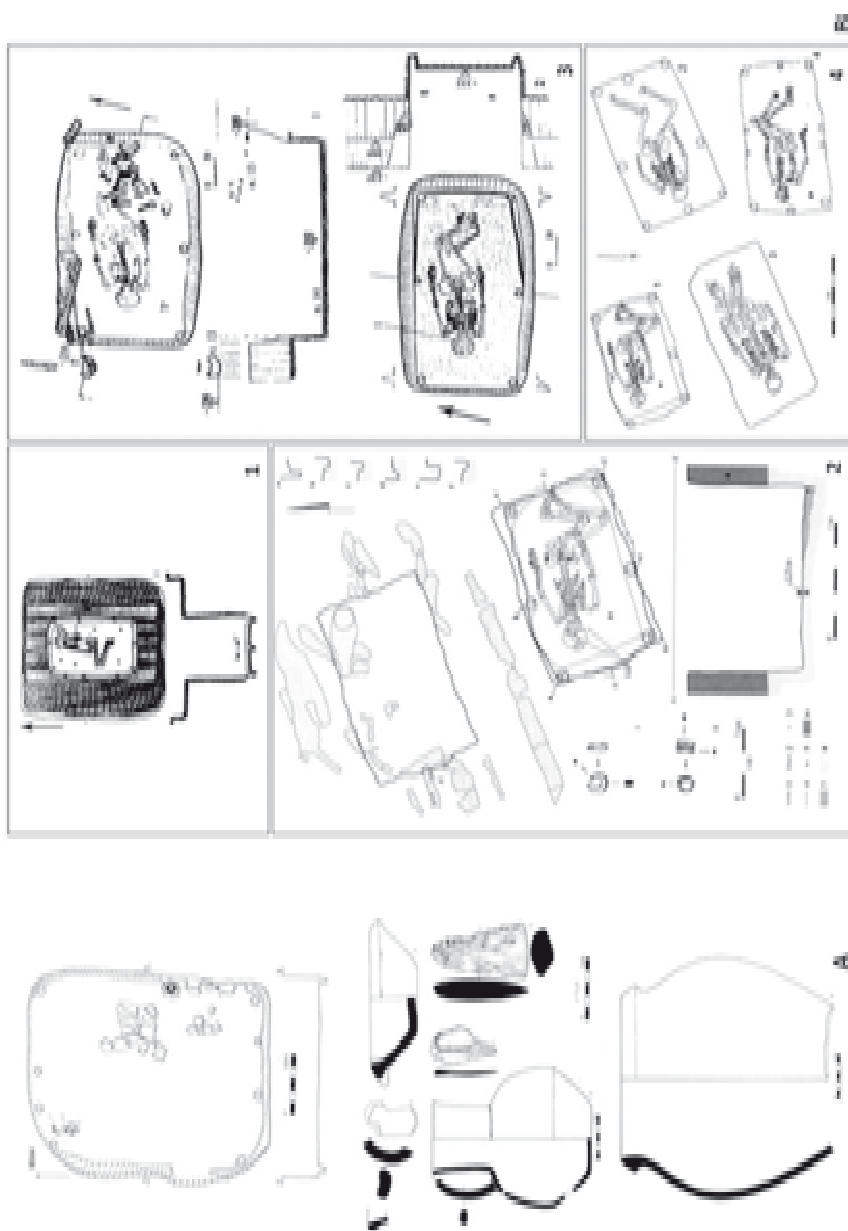


Fig. 7. A – MCWC grave from Olomouc-Slavonín, Horní lán (H 164) and B – its analogue in the Yamna Culture area: 1 – Cazacia, Kurgan 17; 2 – Pysarička, Kurgan 5, Grave 2; 3 – Brávičeni, Kurgan 1, Grave 1; 4 – Pysarička, Graves 5/1, 7/2, 8/2 and 6/2 (Peška 2021; Agulnikov 2011; Harat *et al.* 2014; Larina *et al.* 2008; Włodarczak 2017)

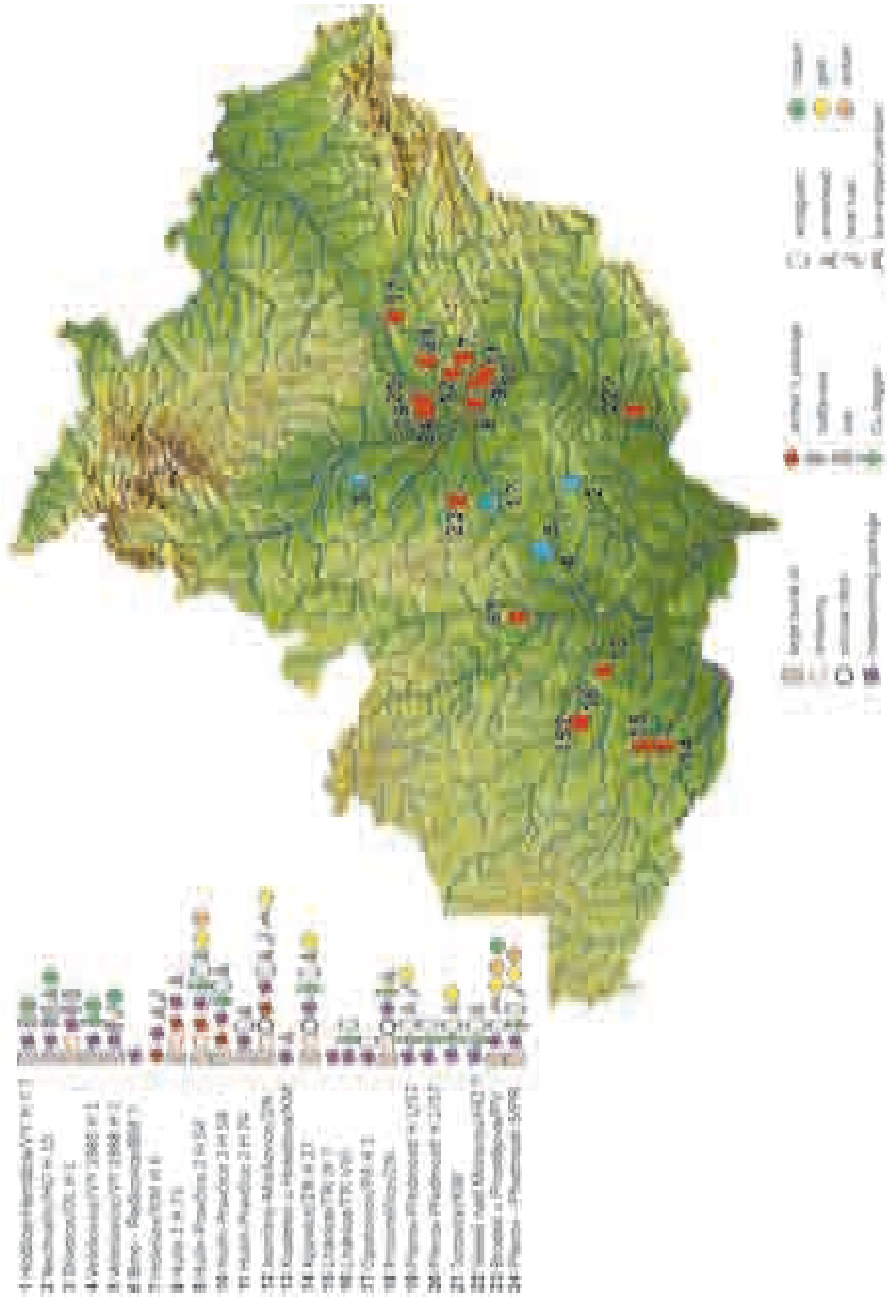


Fig. 8. Map of Moravia with MCWC (blue) and Bell Beaker Culture (red) metallurgists' graves and their equipment. Map by P. Grenar

A pan-European occurrence and a relatively long period of use (c. 800 years) are observed for carefully worked (sometimes decorated) bone tubes (decoys) with a top in Epi-Corded Culture Complex, while representative in CWC graves (Lesser Poland, Bohemia, Moravia, Lower Austria) with examples in the Ukraine and the Bajkal region already in the Dnipro-Donets culture, but mainly in the Yamna Culture (Volga, Lower Don) and also in

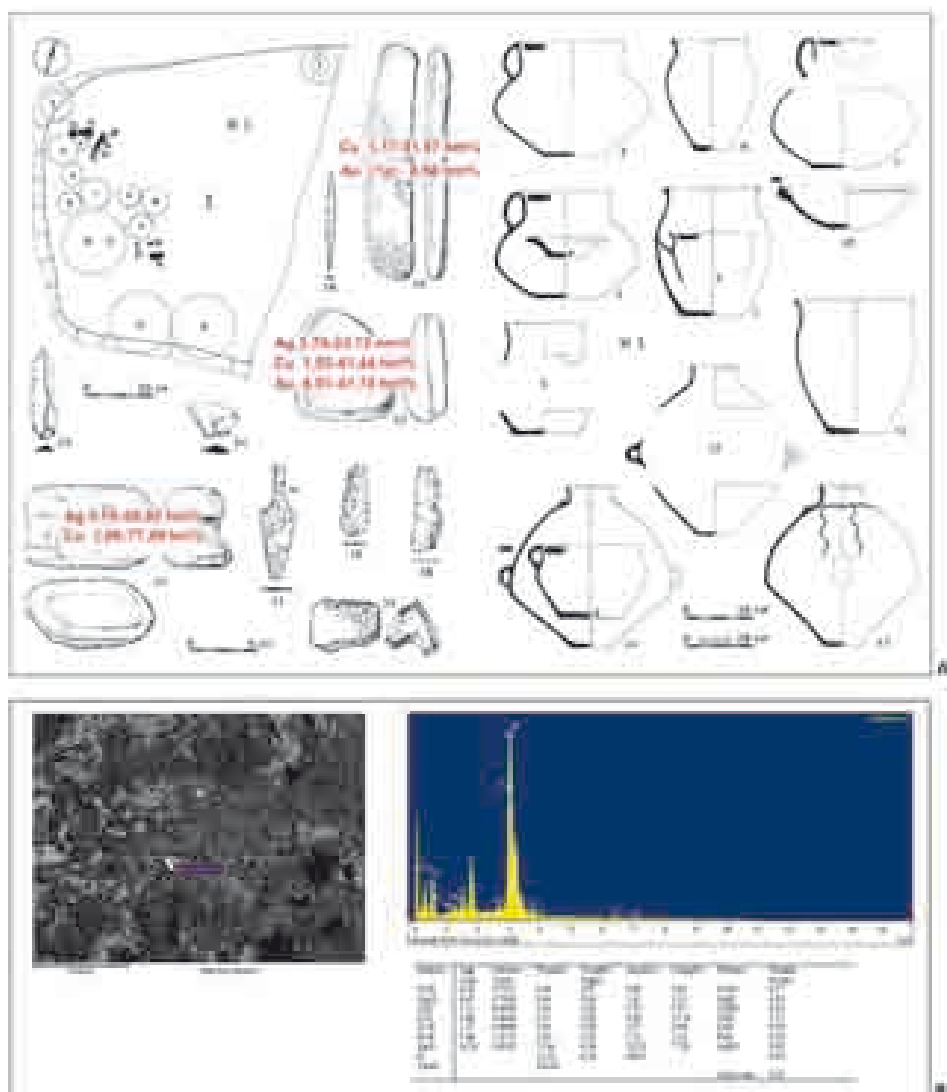


Fig. 9. Velešovice I 1985, H1 – a metallurgist's grave, containing, among other things, also a copper tanged dagger of eastern type, with measurement results of SEM analysis of the surface of stones that were part of the metallurgical toolkit with results of analysis of one of the artefacts (Peška 2021, supplemented)



Fig. 10. Vyškov-Dědice, Legerní pole, Dist. Vyškov. MCWC grave (H 800) with copper dagger/razor and awl/chisel (?). Drawings by B. Mikulková and A. Pešková



Fig. 11. Graves of the Yamna culture in the Pontus and Caspian region with similar equipment as the MCWC graves. A Tamar – Utkal VII; B Taraclia; C KVCH 56, 53; D Glinnoe, Taraclia, Friska, Primorskoe, Căușeni (Morgunova 2011; Agulnikov 2008; Shishlina 2008; Ivanova 2010)



Fig. 12. Bleckendorf, Prov. Sachsen.  
CWC grave with copper dagger, awl and bone needle of East European type (Kaiser 2019)

the early Catacombna culture, in the Volga-Urals region and from settlements. Here a comparison with Moravian finds like the MCWC grave from Držovice or the late Jevišovice Culture settlement from Kroměříž 3 – Miňůvky with absolute dating (VERA: 3929 4070±35 BP, 2835-2497 1 sigma and 2851-2476 2 sigma calBC) is offered (Kučera *et al.* 2018; Peška 2011, fig. 6: 18).

A clear symbol of the Corded Ware Complex or phenomenon in the whole territory is the pottery and beaker decorated with the imprint of a twisted cord, which also has numerous parallels in Eastern Europe (Heyd 2021, fig. 4, 5; Dergachev 2023, pl. 45: B8; 57: E2; 132: 18; 144:C10; 192:E3 *etc.*), including beakers decorated with a fish bone motif (Dergachev 2023, pl. 75: A2; 96: B12; 121: A4; 124: A6; 147: A3 *etc.*). We can also find many types of decorated and undecorated amphorae (Koško 2011; Ivanova 2013; Ivanova *et al.* 2018), and decorated footed bowls, accompanying pit burials also in the Carpathian Basin, probably having their secondary focus in the area of the Vučedol and Ljubljana Moors cultures (Korošec and Korošec 1969, T. 37-47; Frînculeasa *et al.* 2017; Kaiser 2019, 245-257; Bátora 2021, fig. 16; Dani and Szeverényi 2021, fig. 3), are probably of eastern origin.



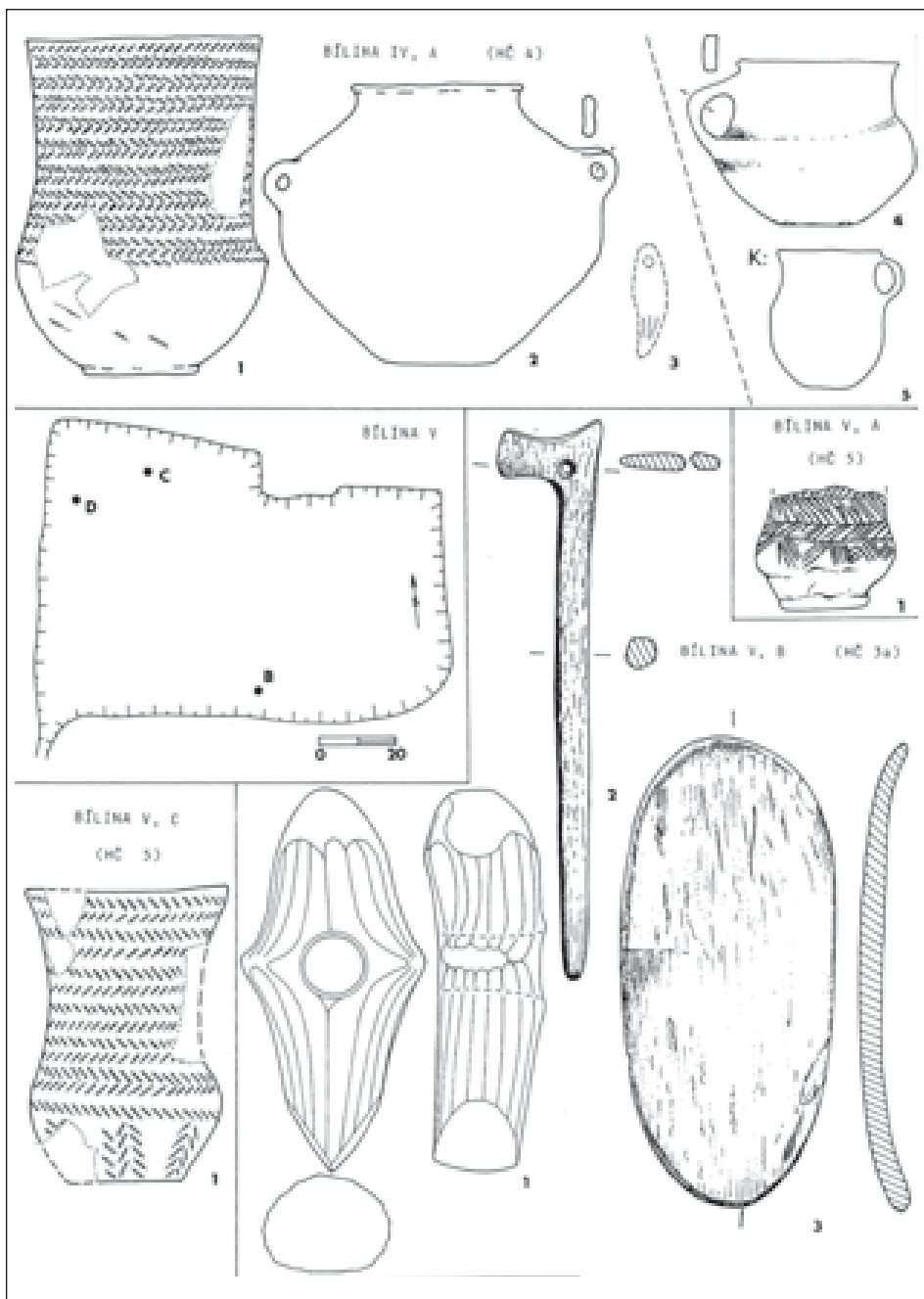


Fig. 13. Bilina V, B CWC grave in Bohemia containing bone hammerhead pin (Hammerkopfnadel) (Dobeš et al. 1991)

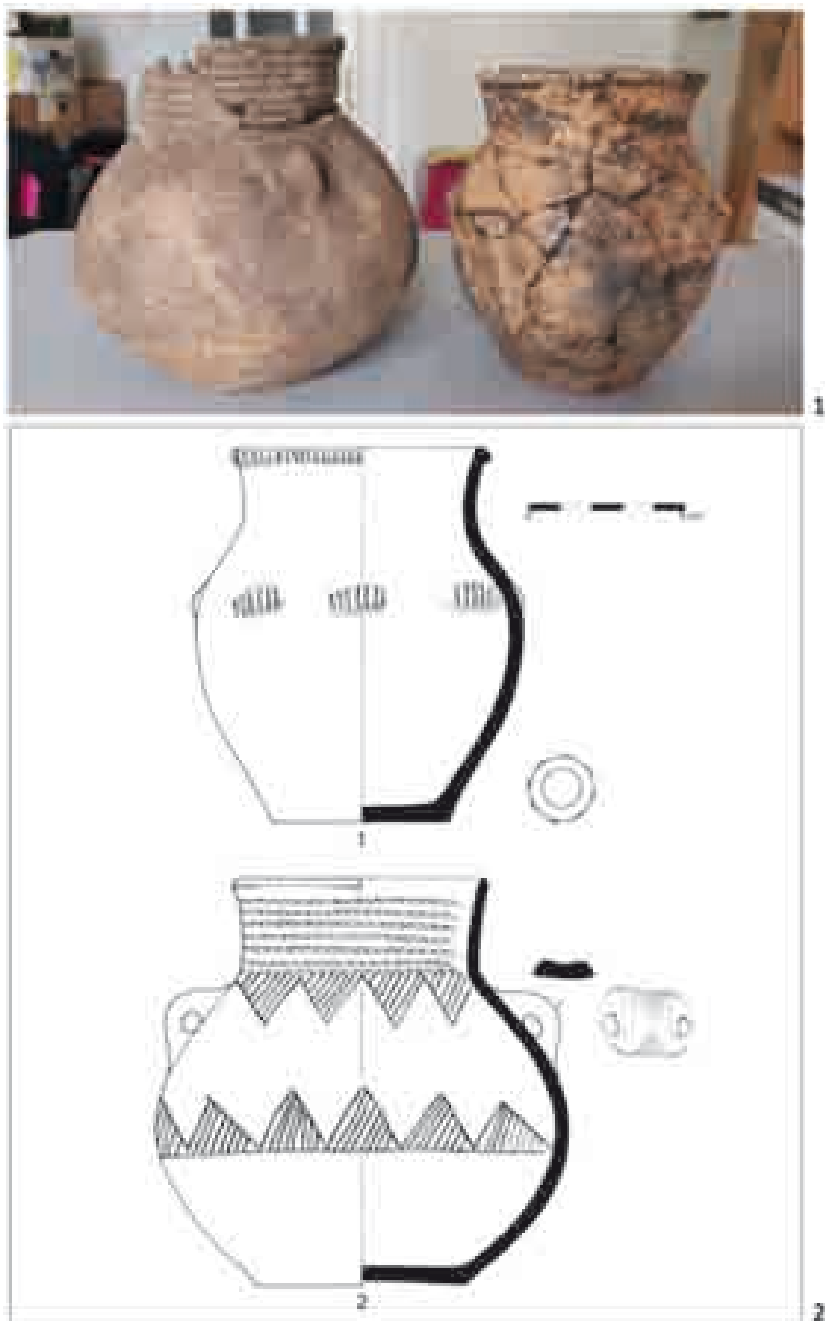


Fig. 14. Viceměřice – Kratiny 2022, Dist. Prostějov. MCWC grave with pottery with analogues in the environment of the Cernavodă II/Foltești culture. Photo by M. Kršková, drawing by A. Pešková

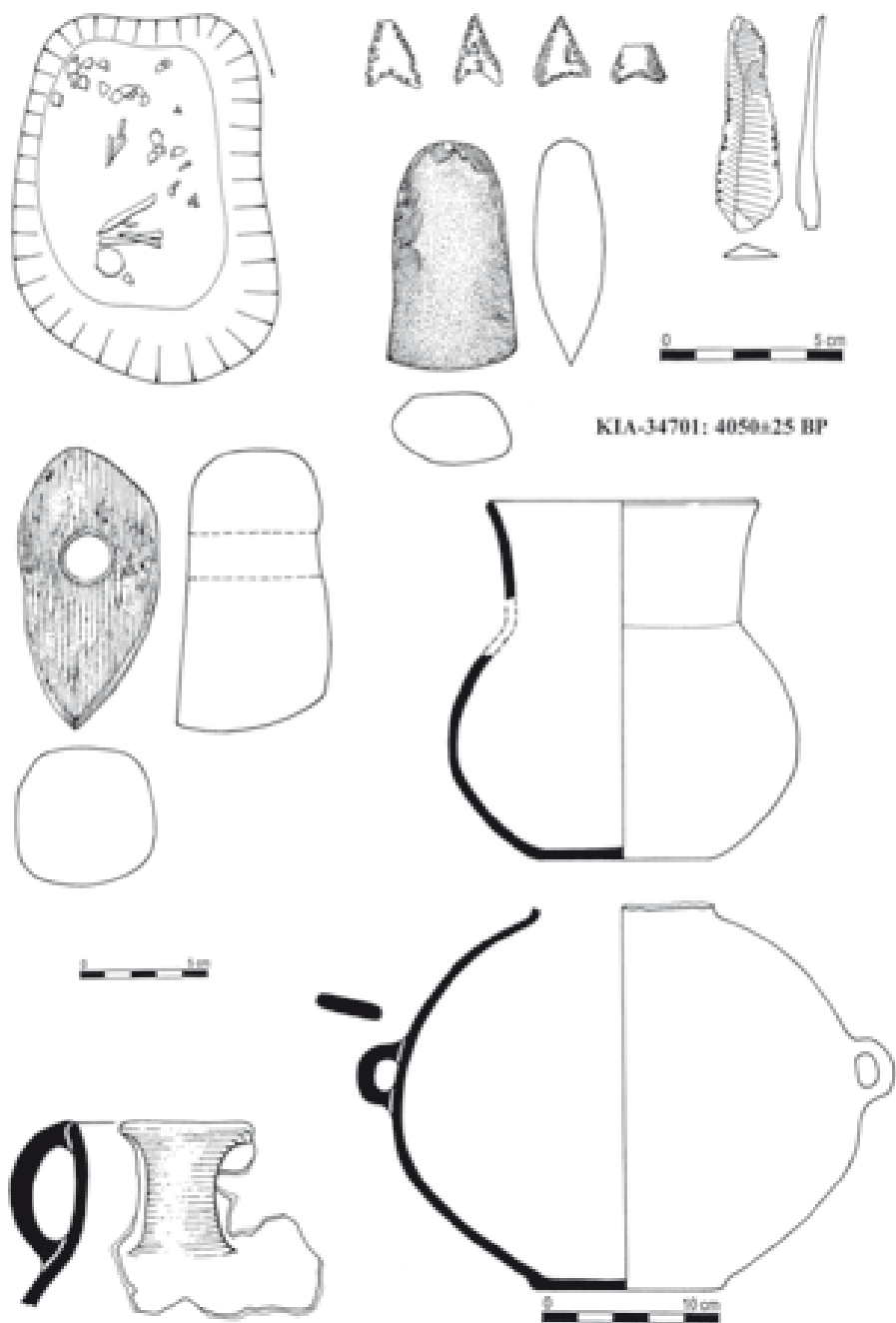


Fig. 15. Olomouc – Nemilany 3, Pravá a Levá k Nedvězí Grave 21. The grave with typically male equipment, including stone arrowheads, relatively rare for MCWC. Photo by M. Kršková, drawing by A. Pešková

A newly discovered grave from Víceměřice in Central Moravia produced (Fig. 14), besides an engraved and cord-decorated amphora, a small beaker in shape and sculptural application, not far from the beakers in the Cernavodă II/Foltești culture and further in the Yamna Culture area of the eastern steppes (Frînculeasa *et al.* 2017, fig. 7, pl. 62:1-2; Frînculeasa 2020, fig. 6: a; 2021, fig. 2: 4-6; Dergachev 2023, pl. 252: A6; 255: 23).

Similarly, the custom of depositing stone axes, split axes and arrowheads with male burials also appears to a lesser extent in the MCWC (Fig. 15) with numerous counterparts in the Yamna Culture (Agulnikov and Sava 2004, fig. 55: 5, 59: 3, 6; Agulnikov 2008, fig. 4: 2-5; Klochko *et al.* 2015, fig. 24: 1; Agulnikov and Popovich 2022, fig. 31; Dergachev 2023, pl. 12: E1; 39: B9; 96: B5; 53: H5; 104: 10; 4:A2-4; 6: B4; 11: A3 *etc.*).

## LOCAL OR NONLOCAL?

We can thus ask ourselves what in the material content of the MCWC is actually of domestic or Central European origin? First of all, the local pottery (amphora-shaped jugs, Dřevohostice jugs, Nagyrév jugs, un/decorated two- and four-eared amphorae, egg-sha-

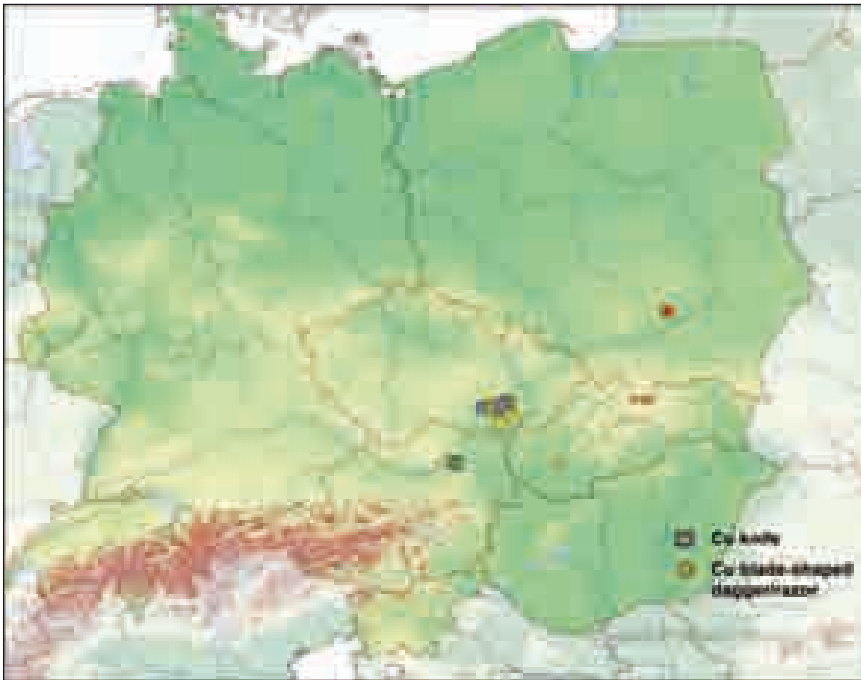


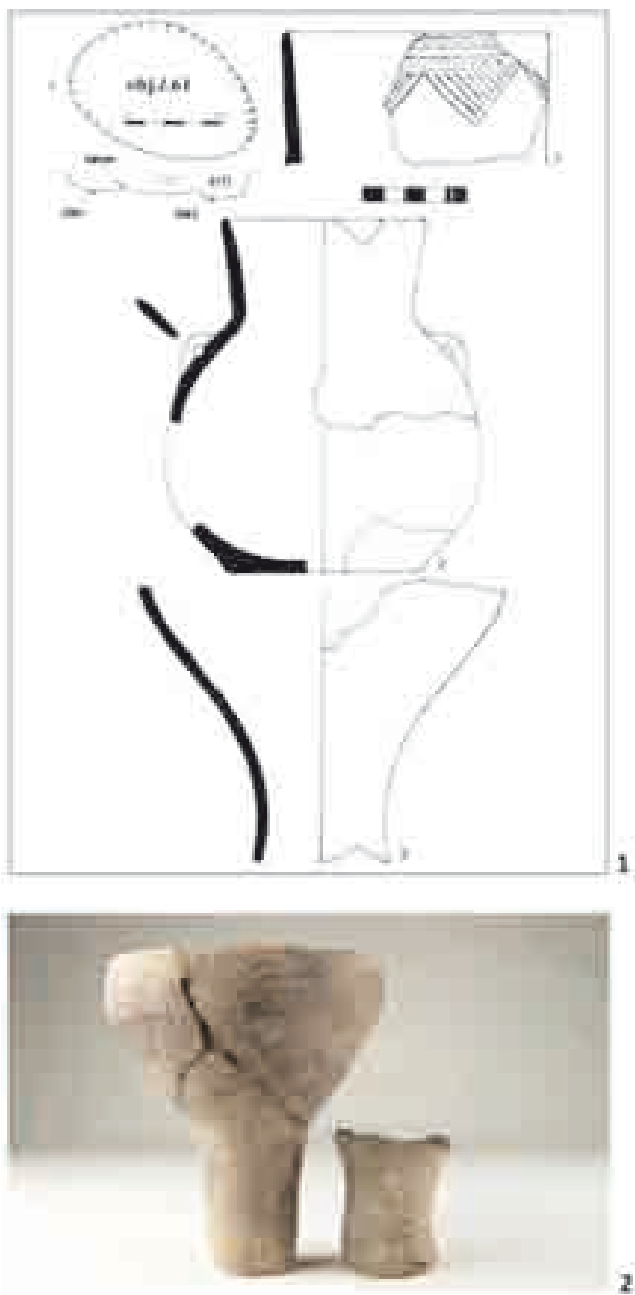
Fig. 16. Distribution of copper knives and daggers/razors in Central Europe (red uncertain typological classification). Map by P. Grenar

ped pots, sharply profiled bowls, Moravian-type bowls) are mainly of Carpathian origin. A southern origin (Vučedol, Ljubljana Moors) may be claimed for the chip-carved decorated footed bowls (so far only in Lower Austria) (Kern 2011, fig. 2), the Ig-type bone belt hook, or their imitations from the Jevišovice Culture (Brno – Líšeň: Šebela 1999, pl. 3: 1), the Czech-type of belt hook have a north-eastern origin (Baltic), but they are directly related to the corded environment.

The prevalence of polished axes could be attributed to a domestic origin, but we cannot forget their less frequent occurrence in Eastern European areas (Dergachev 2023, pl. 5: C11; 43: A4; 55: E6; 80: D5 *etc.*). Typical sheet copper knife blades are cumulated in the territory of narrower central Europe (Fig. 16). The question remains open as to the origin of the wire neckrings, featured in the content of the CWC as well as in the Yamna Culture in the Balkans and Black Sea (Frînculeasa *et al.* 2019, pl. 9: 5; Häusler 1976, Taf. 34: 12; Dergachev 2023, pl. 20: C4-5; 57: B7; 64: 9, 10; 141: F5). Massive bone chisels appear in both male corded ware graves and GAC graves (Włodarczak 2006, pl. 25: 1; 32: 1; 34: 8; 37: 8; 38: 22; 40: 14; 63: 2; 69: 7; Nosek 1964, pl. 65: 3; 1967, fig. 68: 5; 167: 6; pl. 18: 5, 14; Bronicki 2000, fig. 4: 8; 2021a, fig. 8: B3; 2021b, fig. 13: 5; 14: 1; 177: 1; 243: B3; Włodarczak *et al.* 2021, fig. 12: 2), but seem to be outside the eastern group, rare in the Yamna Culture (Dergachev 2023, pl. 15: E12).

## YAMNA PACKAGE IN MCWC?

Looking at the (especially non-ceramic) inventory of the MCWC, we find that only a small proportion are not associated with Eastern European origins, or are not part of the „Yamna package“ (Harrison and Heyd 2007). The frequent representation of multiple types of selected artefacts in the North Pontus area (for example, the Budzhak Culture) found its reflection precisely in the content of the MCWC. In addition to the grave structures already mentioned, the graves of metallurgists, bone pins and tubes (decoys), and pieces of metalwork include interesting finds of clay funnels (Fig. 17; Häusler 1974, Taf. 17: 15; 24: 18; 28: 18; Shishlina 2008, fig. 40: 5; 44: 9; 83: 1-3; Peška and Vrána 2017, 60, 61, fig. 8, 10; Frînculeasa *et al.* 2017, pl. 88, 89; Šmíd and Přichystal 2021, 48, 49, fig. 18: 18, 19; pl. 63: 1; 134: 8; 153: 1; Dergachev 2023, pl. 57: A4), linking the environment of the Yamna Culture in the Caspian steppes and Pontus with the GAC and Jevišovice Culture, the Carpathian Basin (Somogyvár-Vinkovci: Horváth *et al.* 2013, fig. 3), Kostolac Culture (Sravaš: Balen 2005, 49, Cat. Nos 187-193; pl. 50: 187-190; 51: 191-193), the Western Balkans (Vučedol: Schmidt 1945, Taf. 43: 1-3) and even with the rich princely graves on the Adriatic coast of Montenegro (Gruda Boljevića: Baković and Govedarica 2009, 11, 15, 16, fig. 10; Govedarica 2010, Abb. 5) (Fig. 18). A strong accent of the Caucasian metallurgical circuit is seen in the occurrence of shaft-hole-axes in graves of the CWC (Klochko 2017; Włodarczak 2021, fig. 11: 2, 3) and deposits; in the settlements of the Makó/Kosihy-Čaka culture



**Fig. 17.** Clay funnels appear in our environment at the sites of the Globular Amphora Culture (GAC) and the Jevišovice Culture (JeC). A Radvanice Feature no. 61 (GAC), B Modřice – Rybníky 2015, Features nos. 16642 and 19610 (JeC)



Fig. 18. Examples of analogous finds of clay funnels from the Yamna and Catacombna Culture in Eastern Europe to the so-called princely graves of the Early Bronze Age in the territory of Montenegro (Frînculeasa *et al.* 2017)

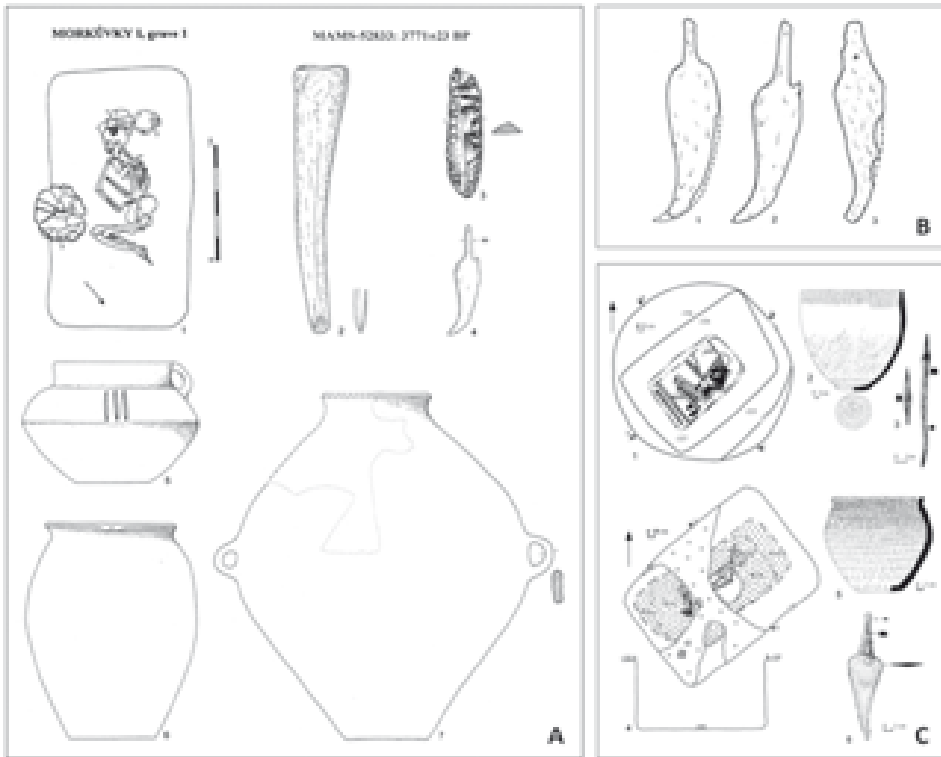


Fig. 19. Absolutely dated MCWC male grave from Morkůvek with a copper „razor“ find (A), analogous finds from Ukraine/Sviatovo and Syria/Tell Chazna 1 (B) and from pre-Ural Yamna Culture/Skvortsovka (C) (Šebela 1999, supplemented; Bátorá 2006)

we find relics of metallurgy associated with casting (Zók-Várhegy, Űlló, Velký Meder). The aforementioned daggers or knives with a tang show striking similarities, as does the „razor“ from Morkůvky (Fig. 19). Massive hair spirals of gold or silver, so typical of the steppe and Carpathian-Balkan region, end their presence in Burgenland (Neusiedl am See). In Lower Austria, Moravia, Bohemia and Poland, spiral hair ornaments, which also have their counterparts in the East, dominate (Peška and Fikrlé 2017; Sava *et al.* 2019, fig. 32: 4; 67: 2; 81: 9-10; Dergachev 2023, pl. 25: B2-3; 42: A3; 43: A2-3 *etc.*). Unlike the MCWC, they do not appear with flattened ends, but in a solid precious metal design (similar to the solid single ones mentioned above) (Dergachev 2023, pl. 178: 9-10; 196: A8-9; 208: A5; 209: C3).

Despite the clear connotations to Eastern Europe, the results of palaeometallurgical analysis (Fig. 20) of part of the metal potential point to sources in the Carpathian region (central Slovakia) from ores of the Fahlerzmetall type, where the composition with higher contents of arsenic, nickel and lead most resemble the tetrahedrite ores of the Early Bronze Age.



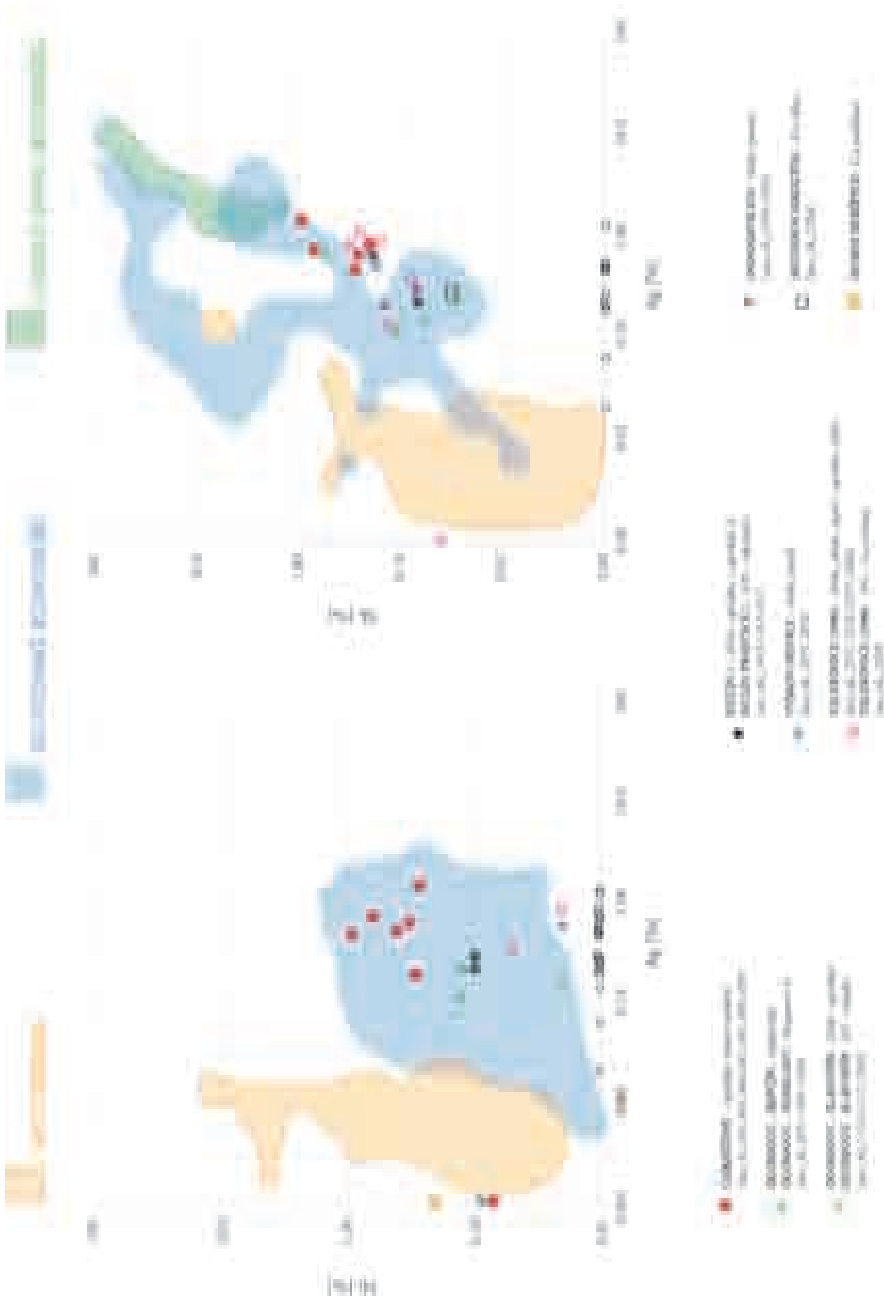
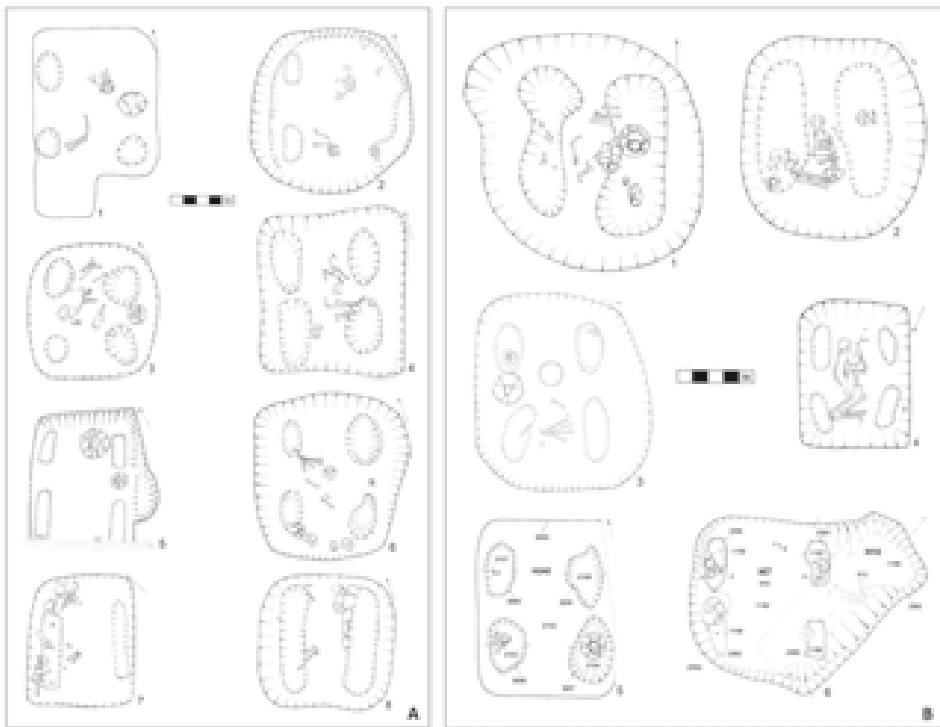


Fig. 20. PCA analysis of the elemental composition of selected MCWC copper artefacts (analysis and graph by F. Ondrkál)

## BURIALS ON WAGONS IN THE MCWC?

The biggest surprise for us is a group of MCWC graves with grooves on the bottom with a clear concentration in Central Moravia (Fig. 22) with a new interpretation. Such a construction is unprecedented in our country (Fig. 21). The dimensions, the spatial projection of the reconstructed prehistoric wagons (Figs. 23) convince us that we are dealing with grooves as traces of the placement of a four-wheeled wagon, or with burials on an all-wood ceremonial wagon with clear counterparts in Maikop, Yamna and Catacombna cultures (Gej 2004; Novozhenov 2012; Dergachev 2023, pl. 2: A3; 47: B2; 52: A1-2; 153: E3-4 *etc.*). The average to below-average equipment illustrates the social significance of the burial itself in an elevated and centralized location, carrying a stamp of social prestige over other graves. Placement in the grave may have been preceded by a ceremonial journey with the



**Fig. 21.** MCWC graves with internal construction in the form of troughs. A: 1 – Hulín 1, U Isidorka Gr. 43; 2 – Bezměrov 1, Dily Gr. 13; 3 – Olomouc-Slavonín 1, U hvězdárky Gr. 19; 4 – Olomouc-Nemilany 1, Na kopci a Kapitulní Gr. 50; 5 – Seloutky, Dlouhé čtvrtě Gr. 1; 6 – Šlapanice, Brněnská pole Gr. 25; 7 – Bystročice, Na krátkých Gr. 1; 8 – Olomouc-Nemilany 3, Pravá a Levá k Nedvězí Gr. 4; B: 1 – Olomouc-Nemilany 3, Pravá a Levá k Nedvězí Gr. 18; 2 Olomouc-Nemilany 3, Pravá a Levá k Nedvězí Gr. 28; 3 – Vyškov-Dědičce, Legerní pole Gr. 802; 4 – Hulín-Pravčice 1, U obrázku Gr. 19; 5 – Olomouc-Slavonín, Arbesova ulice Gr. 242; 6 – Olomouc-Slavonín, Arbesova ulice Gr. 7. Drawings A. Pešková



Fig. 22. Map of Europe with the occurrence of wagon burials in Yamna and MCWC. Map by P. Grenar

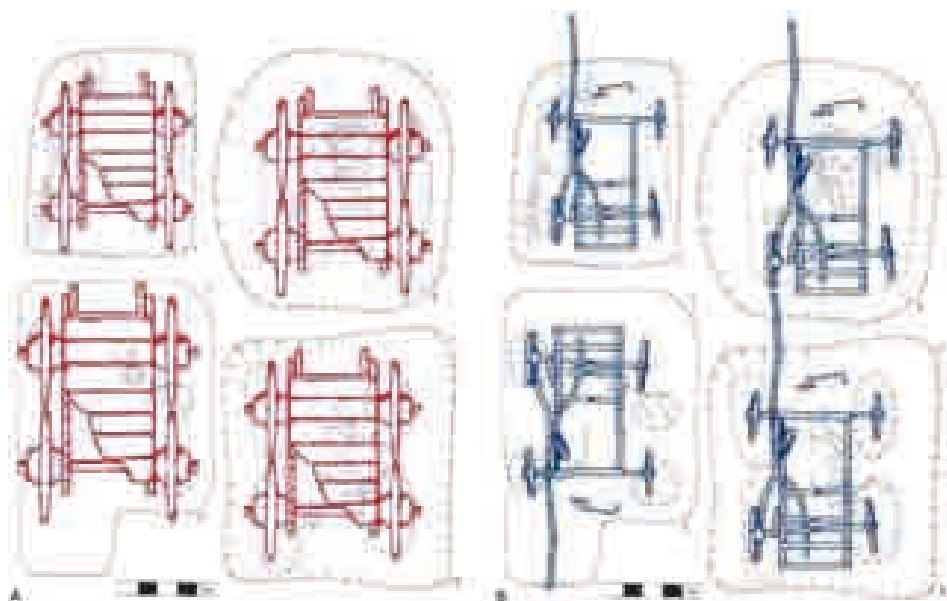


Fig. 23. Projection of the reconstruction of all-wooden wagons in the plan of the burials with troughs in the MCWC. A Trialeti, Barrow 5 (Sintašta culture), B Ostanniy Kurgan 1, Grave 150 (Yamna Culture).  
Projection by P. Grenar

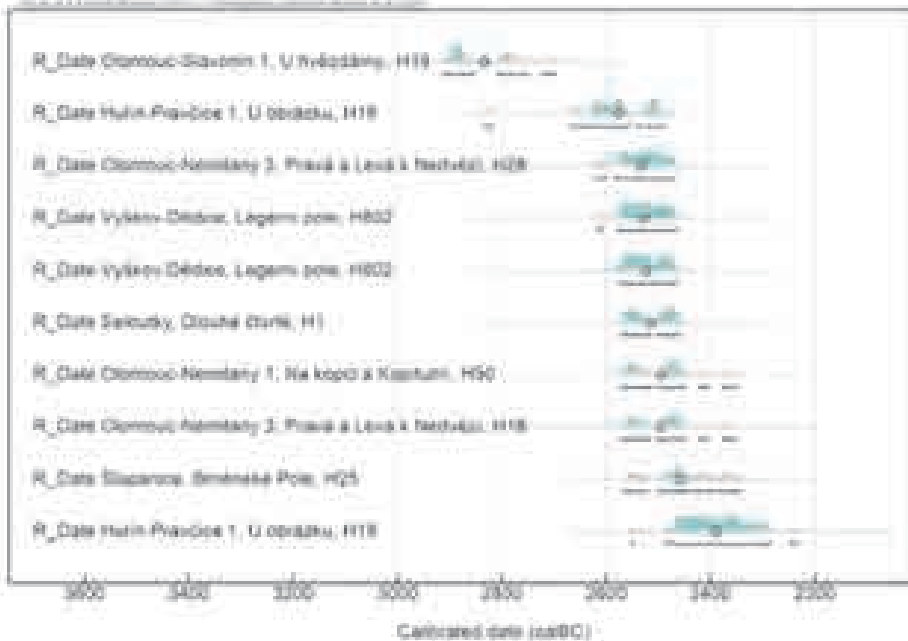


Fig. 24. Absolute dating ( $^{14}\text{C}$ ) of MCWC graves with wagon burials in Moravia. Graph by P. Grenar

corpse, *e.g.*, from his house, which may have already been made on a cart. Wagon burials are encountered in Central Europe so far only in Central Moravia (local MCWC) at a time approximately at the level of the Late Yamna Culture and Early Catacomb cultures (mid-3<sup>rd</sup> millennium BC) (Fig. 24). As in the intact area of the Yamna Culture, they can be considered an integral part of the so-called Yamna package. Yet, with one exception (Plachidol in Bulgaria), wagon burials are not encountered elsewhere than in the North Pontic and Caucasian areas at that time (Fig. 22). This is an Eastern European phenomenon transmitted during the 3<sup>rd</sup> millennium BC to the interior of Europe (the question remains which way exactly?) and one of the clearest pieces of evidence of direct contact with the Eastern European area.

## CONCLUSION

We have to remember that we are spatially not that far from the recognized boundary of the Yamna Culture intrusion in Transdanubia (Görnyü, Környe) and in Burgenland (Neusiedl am See) (Harrison and Heyd 2007, fig. 49), a light influence in the content of the Polish CWC (Koniusza, Balice, Święte: Koško *et al.* 2018; Włodarczak 2021, fig. 10). Similarly

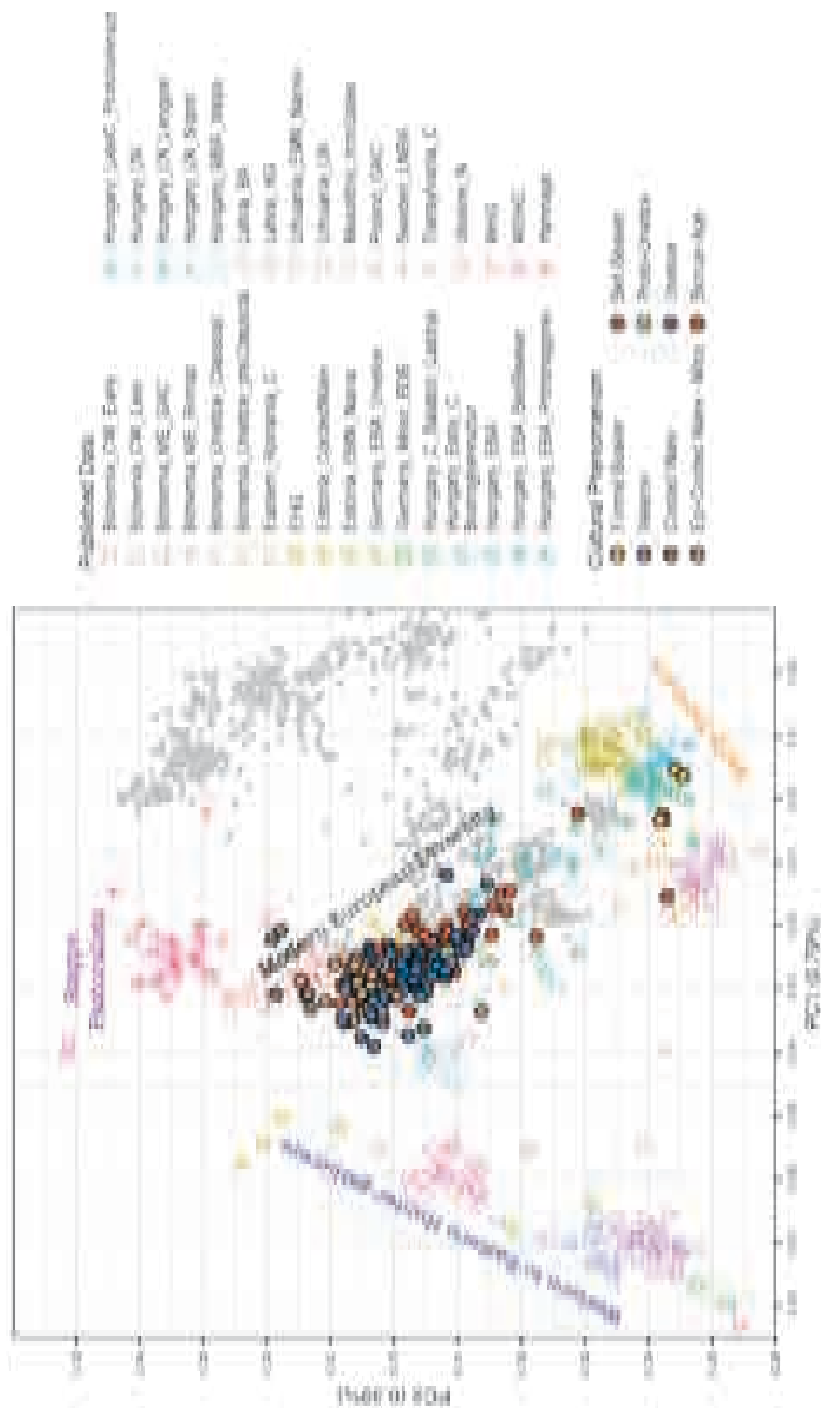


Fig. 25. PCA visualising genetic variation of modern European diversity (grey) with published data of cultural phenomena as indicated in the legend. Graph by W. Haak

to Moravia, a number of eastern – steppe elements are also seen in Lower Austria in the makeup of the local group of Corded Ware culture (Kern 2012). Another example is a grave from Wien-Essling with a Manych-type dagger of North Pontic-Caucasian form made of copper with elevated arsenic content, the westernmost find of its kind in Europe (Zimmermann 2003; 2007, 53-58, fig. 34). The contents of the already mentioned grave from Bleckendorf have a general eastern provenance, and wagon graves in central Germany are also associated with the eastern European steppe region (Profen), but the question is whether they are not more likely to be related to the GAC, the custom of chariot burials being clearly of eastern European origin.

From the genetic analyses so far, we know that the MCWC matches the genetic profile known so far (mainly from Bohemia) with the highest proportion of steppe genes compared to contemporary and subsequent cultures. By comparing Y haplogroups, we can conclude that partially contemporary groups of individuals (CWC, Bell Beaker Culture, Únětice Culture), despite their geographical proximity, remain genetically distinct (Fig. 25).

Everything points to the fact that Moravia, with the exception of the changes at the end of the Jevišovice Culture and the arrival of the two beakers cultures, remained aloof from the direct penetration of the people of the Yamna Culture into the centre of Europe, since the invasion of probably part of the foreign population to the Jevišovice Culture holders cannot be directly linked to these migrations (the background lies in the environment of the Coțofeni and Livezile cultures), but an indirect consequence of the migration waves caused by the events in the North Pontic area up to Tisza cannot be excluded either. Nevertheless, we are able to trace a number of links and contacts with Eastern Europe and, more specifically, with the North Pontic-Caucasian region in the content of cultures at the turn of the 4th/3rd millennium BC. The archaeological findings so far, in the form of individual (mound) burials and a selection of artefacts, demonstrate the interpenetration of individuals (or small groups) rather than the direct intervention of steppe nomads, but better still the influence of progressive commodities as part of the “Yamna package” in the regions lying west of the Tisza. While we cannot rule out the possibility that the foreign intervention at the end of the Jevišovice Culture in Moravia was not triggered by general changes and movements in the more southern patrimonies of central Europe and, as a consequence, that the appearance of CWC in our area itself is not originally and partly genetically related to shifts in the Yamna region, we must continue to look for direct evidence for these claims.

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