The Region of Caucasus and Central European-Carpathian Territory in the Final Eneolithic and the Bronze Age (a Contribution to the Transfer of Technologies and Knowledge)

J. Bátora

For citation: Bátora J. The Region of Caucasus and Central European-Carpathian Territory in the Final Eneolithic and the Bronze Age (a Contribution to the Transfer of Technologies and Knowledge). *Vestnik of Saint Petersburg University. History,* 2021, vol. 66, issue 2, pp. 531–548.
https://doi.org/10.21638/11701/spbu02.2021.213

This article shows that the cultures in the Middle Danube/Carpathian territory were not just peripheral cultures of the developed Aegean-West Asian cultures, but also the western periphery of the Eurasian steppe region. From this aspect, the cultural-historical development in this area was influenced and associated with the cultural-historical development in the Caucasian and Northern Pontic regions as well. This is confirmed by several artifacts of the Caucasian character in the territory of Central Europe. First of all, we can mention single-edged copper axes, whose oldest exemplars in Europe come from the North Caucasus (the Maykop and Novosvobodnaya cultures). With the arrival of the Yamnaya culture, technology of their production emerged in the Northern Balkans and Central Europe along the Danube, through the Northern Pontic region. Their oldest exemplars in this territory are the Baniabic type axes. There are also weapons or tools; and jewellery which is represented by earrings of the so-called of Transylvania type associated mainly with the Únětice, Košťany and Otomani cultures in the Carpathian-middle Danube region. Their prototypes can be found in the North Pontic region — Yamnaya culture. The remaining cultural contacts between Central and Eastern Europe in the Middle Bronze Age are confirmed by the dagger of the Srubnaya type from Sklabiňa in Central Slovakia. The existence of contacts between the Caucasian region and the territory of Central Europe as late as the final Bronze Age is proved by the finds of Cimmerian character. As a *pars pro toto* example, a dagger of the Kabardino-Pyatigorsk type from Malý Cetín in southwest Slovakia can be mentioned.

Keywords: Middle Danube, Carpathians, Northern Pontic region, North Caucasus, Eurasia, Final Eneolithic and Bronze Age, cultural contacts, new technologies.

Jozef Bátora — Dr. Sci. (Philosophy), Dr. Sci. (History), Professor, Archaeological Institute of the Slovak Academy of Sciences, 2, Akademická, Nitra, SK-949 21, Slovakia; nraubato@savba.sk

Йозеф Батора — д-р философии, д-р ист. наук, проф., Археологический институт Академии наук Словакии, Словакия, SK-949 21, Нитра, Академическая ул., 2; nraubato@savba.sk

This article was prepared with the support of the Foundation VEGA as the project no. 1/0100/19.
I would like to express my gratitude to Viera Teibusova for participating in the translation of the article.

Эта статья была подготовлена при поддержке Фонда VEGA как проект № 1/0100/19.
Автор благодарит Виеру Тейбусову за участие в подготовке перевода текста статьи.

Регион Кавказа и центральноевропейско-карпатская территория в позднем энеолите и бронзовом веке (вклад в передачу технологий и знаний)

Й. Батора

Для цитирования: *Bátora J.* The Region of Caucasus and Central European-Carpathian Territory in the Final Eneolithic and the Bronze Age (a Contribution to the Transfer of Technologies and Knowledge) // Вестник Санкт-Петербургского университета. История. 2021. Т. 66. Вып. 2. С. 531–548. https://doi.org/10.21638/11701/spbu02.2021.213

В данной статье представлены результаты исследований металлических изделий бронзового века, обнаруженных на территории среднего течения р. Дунай и в районе Карпат. Полученные результаты свидетельствуют о том, что археологические культуры указанных регионов были не просто периферийными культурами развитых эгейских и западноазиатских культур, но и являлись западной периферией евразийского степного региона в бронзовом веке в целом. В связи с этим стоит отметить, что культурно-историческое развитие регионов среднего Дуная и Карпат также было напрямую связано с развитием культур регионов Кавказа и Северного Причерноморья. Об этом свидетельствуют несколько артефактов кавказского типа, обнаруженных на территории Центральной Европы. Прежде всего, речь идет об однолезвийных медных топорах, самые древние экземпляры которых в Европе происходят из Северного Кавказа (майкопская и новосвободненская культуры). Вместе с носителями традиций ямной культуры технология их производства пришла в Северные Балканы и Центральную Европу по течению р. Дунай через Северное Причерноморье. Наиболее ранние экземпляры на этой территории представляют собой топоры типа баньябюк. Вместе с предметами вооружения и иными инструментами встречаются украшения. Это серьги так называемого трансильванского типа, которые связаны в основном с унетицкой, коштянской и отоманской культурами карпатско-среднедунайского региона. Их прототипы можно найти в Северном Причерноморье — среди материалов ямной культуры. Сохранившиеся контакты между культурами Центральной и Восточной Европы в среднем бронзовом веке подтверждаются находкой кинжала срубного типа из Склабини в Центральной Словакии. Существование контактов между кавказским регионом и Центральной Европой в позднем бронзовом веке подтверждается обнаружением киммерийских материалов. В качестве примера *pars pro toto* можно упомянуть кинжал из Малого Цетина кабардино-пятигорского типа, обнаруженный на юго-западе Словакии.

Ключевые слова: Средний Дунай, Карпаты, Северное Причерноморье, Северный Кавказ, Евразия, поздний энеолит и эпоха бронзы, культурные контакты, новые технологии.

The current research shows that the cultures in the Middle Danube/Carpathian territory were not only peripheral cultures of the developed Aegean-West Asian cultures, but also the western periphery of the Eurasian steppe territory. From this aspect, the cultural-historical development in this area was influenced and associated with the cultural-historical development in the Caucasian and Northern Pontic territory. Investigations in the recent years have confirmed that there were intercultural and interregional contacts between two geographical areas located at a considerable distance from each other, which were often surprisingly similar in their cultural expression, as will be demostrated in the article. The bearers of separate cultures and cultural groups from both regions communicated with each other throughout the whole prehistory as well as the early history. As a result of this communication, material and spiritual cultures influenced each

other[1]. It shows that without more detailed knowledge of the cultural-historical development in Eastern Europe and the Eastern Mediterranean, it is not possible to know, understand and correctly interprete the complex topic of the Final Eneolithic and Bronze Age in Central Europe. Moreover, the territory of Eastern Europe, including the Caucasus and Eurasia together with the Mediterranean, served as a "bridge" over which achievements of civilization arrived from the developed areas of Anatolia, Mesopotamy as well as Egypt, China, India, etc. to the territory of Central and Western Europe. Communication between separate cultures or cultural areas in prehistory was carried out mainly in the form of mutual contacts resulting in exchange or "trade". Metal and associated metallurgy were main dynamic elements of cultural contacts and the means of transfer of technologies and innovations. We can presume that there were regional, partly overlapping, exchange networks which were not brand new in the studied period but continued from older, i. e. neolithic ones. Apart from such standard contacts, there is evidence of penetrations and migrations of mainly eastern European nomadic communities. The question of what caused their movement is outside the scope of this article.

Nomadic ethnic groups — with regard to common use of horses and wagons as means of transport — were able to move for long distances in a relatively short time. Thus, spreading of new achievements of civilization by them did not have to be a long-term process advancing in stages[2]. It is well illustrated, for instance, by the spreading of single-edged copper axes — from Mesopotamy and the Caucasus as far as to southeastern and central Europe. The oldest exemplars in Europe come from the North Caucasus, where they are represented in the Maykop and Novosvobodnaya cultures[3]. It is confirmed by the absolute dating of grave 1 in tumulus 30 in Klady, where the value of calibrated data C14 was 3500–3342 BC (68 %) and 3508-3128 BC (95 %) (Fig. 1)[4]. The exemplars of single-edged axes of the same age or slightly later come from the forest-steppes north of the Black Sea, where they occur in graves of the Kemi Oba culture of the Crimea (Dolinka, Kurhan-Bairam tumulus, Simferopol, Golden tumulus)[5] and in graves with stretched skeletons from the Post-Mariupol period in the Dnester region (Verchnaia Maievka, Samarskii island)[6]. The early presence of single-edged axes in the graves of metal founders in the Northern Pontic region can be considered to have resulted from intense influence from southeast, the Maykop culture environment. Another culture with occurence of axes with one edge in eastern Europe is the Yamnaya culture. It seems that this culture brought the production technology of the oldest types of single-edged axes in the Balkan-Carpathian territory. The oldest exemplars of single-edged axes in this area are represented by the Baniabic type axes which still do not have offset shaft-holes — type

[1] *Bátora J.* The Question of the Presence of the Yamnaya and Catacomb Culture in the Area of the Middle Danube and North Carpathians // Tyragetia International I. Chisinau, 2016. P. 104.

[2] Ibid.

[3] *Rezepkin A. D.* Novosvobodnenskaia kul'tura (na osnove materialov mogil'nika "Klady"). St. Petersburg, 2012. Fig. 167.

[4] *Rezepkin A. D.* Das frühbronzezeitliche Gräberfeld von Klady und die Majkop-Kultur in Nordwestkaukasien // Archäologie in Eurasien. Bd. 10. Rahden-Westfalen, 2000. P. 22.

[5] *Nechitailo A. L.* Sviazi naseleniia stepnoi Ukrainy i Severnogo Kavkaza v epokhu bronzy. Kiev, 1991. Fig. 5:1.

[6] *Kovaleva J. F.:* 1) Vytianutye pogrebeniia Dnestrovskogo areala Volgo-dneprovskoi kul'turno-istoricheskoi obchshnosti epokhi eneolita // Kurgannye drevnosti stepnogo Podneprovia (III–I tys. do n. e.). Dnepropetrovsk, 1979. Fig. 6; 2) Pogrebeniia s maikopskym inventarem v levoberezhe Dnepra (K vydeleniu zhivotilovskogo kulturnogo tipa) // Problemy archeologii Podneprovia. Dnepropetrovsk, 1991. P. 28.

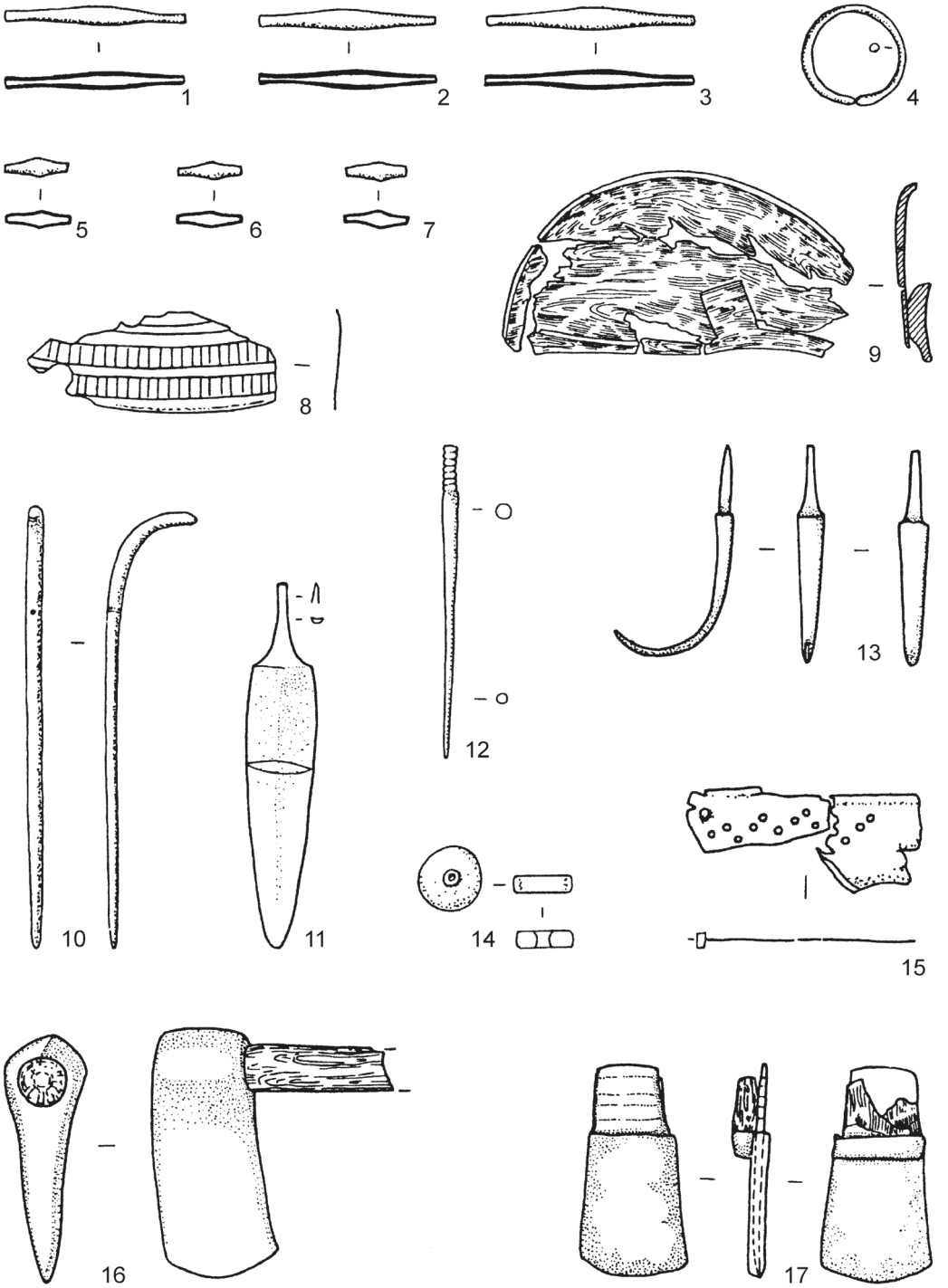

Fig. 1. Klady burial complex, tumulus 30, grave 1. Selection of burial inventory of the Late, so called Novosvobodnaja Phase, of Maykop Culture, in which there is highly significant presence of single-edged copper axes (16) (after [Rezepkin A. D., 2000]). Without scale

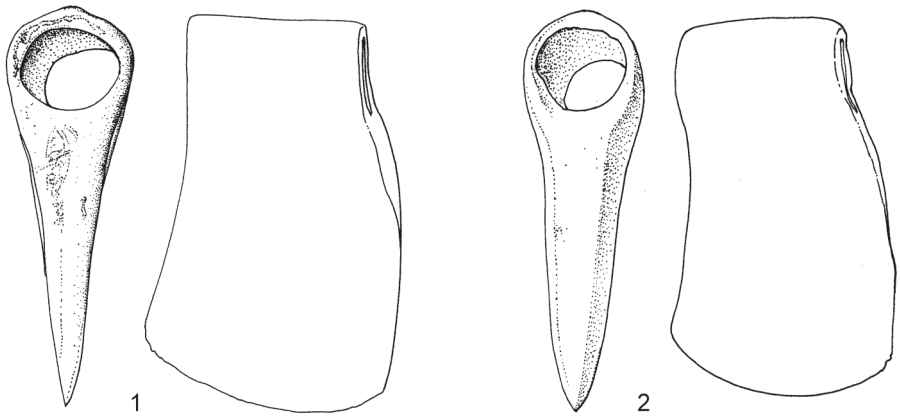

Fig. 2. Single-edged copper axes of Baniabic type from Slovakia: 1 — Dolný Pial, district Levice; 2 — unknown site in southwestern Slovakia (after [Vladár J., 1970]). Without scale

Aa according to I. Bóna[7]. Besides the depot from the site of Baniabic (Vilcele now) in Romania[8], most exemplars belong to unique finds, such as the axes from Radimov, Dolný Pial and an unknown site in southwestern Slovakia (Fig. 2)[9]; Kisbér in Hungary[10]; Rudna Mala in southeastern Poland[11]; Leskovac in Serbia[12]; and Vlčnov in eastern Moravia[13]. The typological similarity between the axes of the Baniabic type and the 2nd group of the Maykop axes — as distinguished by S. N. Korenevskii in 1981[14] — points to their old age.

Another archaic type of single-edged axes in central and southeastern Europe, approximately contemporary or a little older, is the Fajsz type — type Ab according to I. Bóna[15], which can be — similarly to the Baniabic type axes — associated with the Late Eneolithic. It is documented by the depot from the upland settlement of Staré Zámky in Brno-Líšeň in Moravia, which consisted of a copper axe with a single edge of the Fajsz/Corbasca type, a flat copper axe, a chisel and an awl (Fig. 3)[16]. The depot was discovered in the youngest eneolithic cultural layer partly belonging to stage Jevišovice C1, but mostly to stage Jevišovice B, with material of the Vučedol culture, which is well documented by

[7] *Bóna I.* Bronzeguß und Metallbearbeitung bis zum Ende der mittleren Bronzezeit // Bronzezeit in Ungarn. Forschungen in Tell-Siedlungen an Donau und Theiss. Frankfurt am Main, 1992. S. 48.

[8] *Vulpe A.* Äxte und Beile in Rumänien I // Prähistorische Bronzefunde IX/2. München, 1970. Tab. 1–3.

[9] *Vladár J.* K otázke chronologického postavenia sekeriek s jedným ostrím // Študijné Zvesti Archeologického ústavu Slovenskej akadémie vied 18. Nitra, 1970. Fig. 1–2.

[10] *Novotná M.* Nálezy medených sekeriek s jedným ostrím na Slovensku // Slovenská Archeológia. 1957. No. 5. Tab. I: 2a, 2b.

[11] *Gedl M.* Miedziane topory ze schylku III tysiaclecia przed Chrystusem z terenu Polski // Rocznik Przemyski. 2000. No. 36. Fig. 2.

[12] *Garašanin M.* Schaftlochäxte aus Kupfer in den Sammlungen serbischer Museen // Mainz am Rhein, Bericht der Römisch-Germanischen Kommission des Deutschen Archäologischen Instituts. 1951–1953. No. 34. S. 69.

[13] *Říhovský J.* Die Äxte, Beile, Meißel und Hämmer in Mähren. Stuttgart, 1992. Tab. 5.

[14] *Korenevskii S. N.* Vtulchatye topory — oruzhie blizhnego boia epocki srednei bronzy Severnogo Kavkaza // Kavkaz i Sredniaia Aziia v drevnosti i srednevekove (istoriia i kultura). Moscow, 1981. P. 20.

[15] *Bóna I.* Bronzeguß und Metallbearbeitung… S. 48.

[16] *Benešová A.* Nález měděných předmětů na Starých Zámcích v Brně-Líšni // Památky Archeologické 47. Praha, 1956. Fig. 1.

multiple finds. A certain supporting evidence for more exact dating of the depot was brought by the recent absolute dating (by C14 method) of charcoal samples from the nearby settlement of the Jevišovice culture (stage Jevišovice B) in Brno-Starý Lískovec[17]. Results of measuring by J. Görsdorf[18] in the C14 laboratory in Berlin presented the value of 2890–2770 cal BC. This value well corresponds with other C14 data of the Vučedol culture and accords with its oldest development phase[19]. The depot from Fajsz in Hungary resembles the depot from Brno-Staré Zámky; together with three single-edged axes, it contained two copper chisels[20]. One of them is similar to the chisel from Brno-Staré Zámky. There is a close affinity between chisels from both depots mentioned above and the chisels from burials from the Maykop culture in the North Caucasus, which is well represented by their exemplars from dolmen I at the site of Novosvobodnaia-Tsarskaia[21], from grave 5 of tumulus 31 at the site of Klady[22], as well as from other graves at the sites of Vozdvizhenskaia, Andriukovskaia, Machotchevskaia, and from the main grave in Maykop[23]. With regard to the focus of this research, it is important to point out later single-edged axes of the Stublo type. They are considered to have been the earliest variant of the axes of Kozarac type Their dating to the beginning of the Bronze Age follows from accompanying finds in the depot from the eponymous site of Stublo (Steblivka now) in the region of Volhynia in western Ukraine (Fig. 4). It is significant that together with the single-edged axe of the Stublo type, an axe of the Faskau type was found. According to the classification by S. N. Korenevskii, the axe belongs to the group of Middle Bronze Age axes 2, 15 in the North Caucasus, Northern Osetia, where they are associated with the North Caucasian culture (Fig. 4: 1)[24]. Thus, together with the Inner Carpathian metallurgy, metallurgy of the North Caucasus is represented by the above mentioned single-edged axe in the depot of Stublo (Fig. 4: 2)[25]. It has been found that the metallurgy of the North Caucasus was spread in the western and northwestern directions, which was expressed — besides the axe of Faskau type from Stublo — also in the Carpathian territory of Ukraine, southeastern Poland and Belarus. It is confirmed by finds of single-edged axes decorated by ribs on butts, typical mainly of axes from the North Caucasus culture[26], for instance, from Smoligovo in the region of Lutsk, from Bilousivka in Podolye, and from Munin in southeastern Poland[27]. Although ribs on the butts of single-edged axes were predominantly features of axes from the culture in the North Caucasus, they can also be identified on axes of the so-called Kostroma type from

[17] *Medunová-Benešová A., Vitula P.* Siedlung der Jevišovice-Kultur in Brno-Starý Lískovec (Bez. Brno-město). Brno, 1994. S. 31.

[18] *Görsdorf J.* 14C-Datierungsergebnisse des Siedlung Brno-Lískovec // Siedlung der Jevišovice-Kultur in Brno-Starý Lískovec. Fontes Archaeologiae Moravicae 22. Brno, 1994. S. 82.

[19] *Benkö L., Horváth F., Horvatinčiš N., Obelič B.* Radiocarbon and Thermoluminiscence Dating of Prehistoric sites in Hungary and Yugoslavia // Radiocarbon 31. Cambridge, 1989. P. 999, Tab. 1.

[20] *Kalicz N.* Die Frühbronzezeit in Nordost-Ungarn. Budapest, 1968. Tab. I: 16, 17, 19–21.

[21] *Hančar F.* Urgeschichte Kaukasiens. Wien, 1937. Tab. XXXVI: 12, 13.

[22] *Rezepkin A. D.* Das frühbronzezeitliche Gräberfeld von Klady und die Majkop-Kultur in Nordwestkaukasien. Tab. 53: 5, 7.

[23] *Hančar F.* Urgeschichte Kaukasiens. Wien, 1937. Tab. XVI.

[24] *Korenevskii S. N.* Vtulchatye topory… Figs. 7, 11; *Ryndina N. V.* Metall v kulturach shnurovoi keramiki ukrainskogo Predkarpatia, Podolii i Volyni // Sovetskaia archeologiia. 1980. Iss. 3. P. 38, 39.

[25] *Antoniewicz W.* Der Stublo in Wolhynien aufgefundene Bronzeschatz // Eurasia Septentrionalis Antiqua. 1929. No. 4. Fig. 1.

[26] *Korenevskii S. N.* Vtulchatye topory… Figs. 3, 5; *Markovin V. I.* Kultura plemen Severnogo Kaukaza v epochu bronzy. Moscow, 1960. Fig. 6: 2.

[27] *Gedl M.* Miedziane topory… Fig. 3.

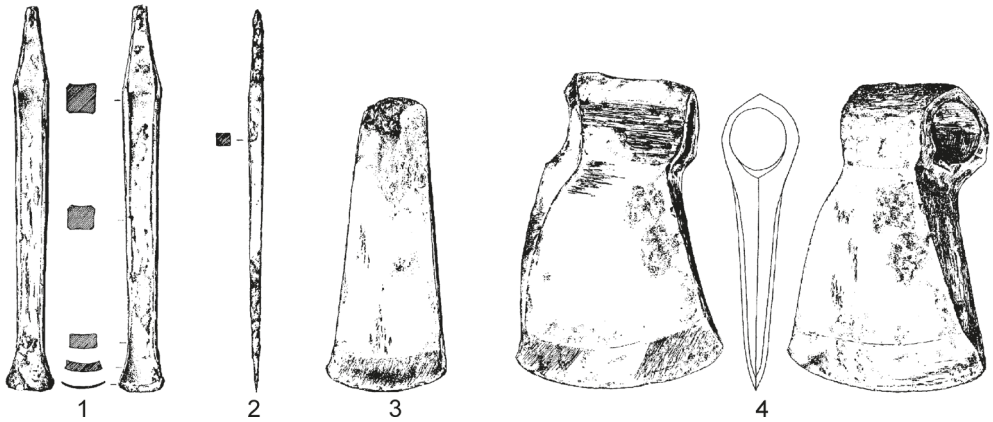

Fig. 3. Brno — Líšeň (Czech Republic). Hoard of copper objects, which was found in the latest aeneolitic layer (Jevišovice B) with material of the Vučedol culture (after [Beneshova A., 1956]). Without scale

the period of the Catacomb culture in the northern Black Sea region. Thus, we can assume that it was through this region that the above mentioned technological-decorative detail on single-edged axes spread not only into the territory of northwestern Carpathian-Eastern Poland, but also into the Lower Danube region. It is confirmed by e. g. the axe from Cernateşti in Buzău, Romania[28].

It is noteworthy to point out another site which is associated with the topic in question — the remarkable content of the previously uncovered burial in Bleckendorf in Germany, which, besides a beaker decorated with twig-shaped engraved bands and a copper awl, contained a bone pin with a hammer-shaped head and a small copper dagger with an unproportionally long handle. Originally, the grave was considered to have been primarily a grave of the Bell Beaker culture with strong traditions of the Corded Ware culture[29]. Based on the recently published calibrated radiocarbon data of 2850–2500 BC obtained from human bones, we can presume that it was the period prior to the massive occurrence of the Bell Beaker culture's material[30]. The low probability of dating of the burial in the Bell Beaker culture is also supported by the different construction of daggers compared to the daggers of the given culture. Small copper daggers with unproportionally long handles are, however, also known from graves and settlements in the the circum-Pontic territories and in the Caucasus (e. g. Tulatovo, Timashevsk)[31]. The above mentioned bone pin with a hammer-shaped head typical of the Yamnaya or Catacomb cultures can be associated with this territory as well[32].

[28] *Oancea A., Drambocianu V.* Doua topoare descoperite in judetul Buzau // Studii si Cercetarii Istorie Veche si Archeologie. 1976. No. 27. Fig. 1: 2.

[29] *Behrens H.* Ein neolithisches Bechergrab aus Mitteldeutschland mit beinerner Hammerkopfnadel und Kupfergeräten // Jahresschrift Mitteldeutsche Vorgeschichte. 1952. Bd. 36. S. 53.

[30] *Zimmermann T.* Die ältesten kupferzeitlichen Bestattungen mit Dolchbeigabe. Mainz, 2007. S. 57–58.

[31] *Zimmermann T.* Die ältesten kupferzeitlichen… Fig. 37: 2; *Gei A. N.* Novotitorovskaia kulʹtura. Moscow, 2000. Fig. 46: 5.

[32] *Zimmermann T.* Die ältesten kupferzeitlichen… S. 57–58.

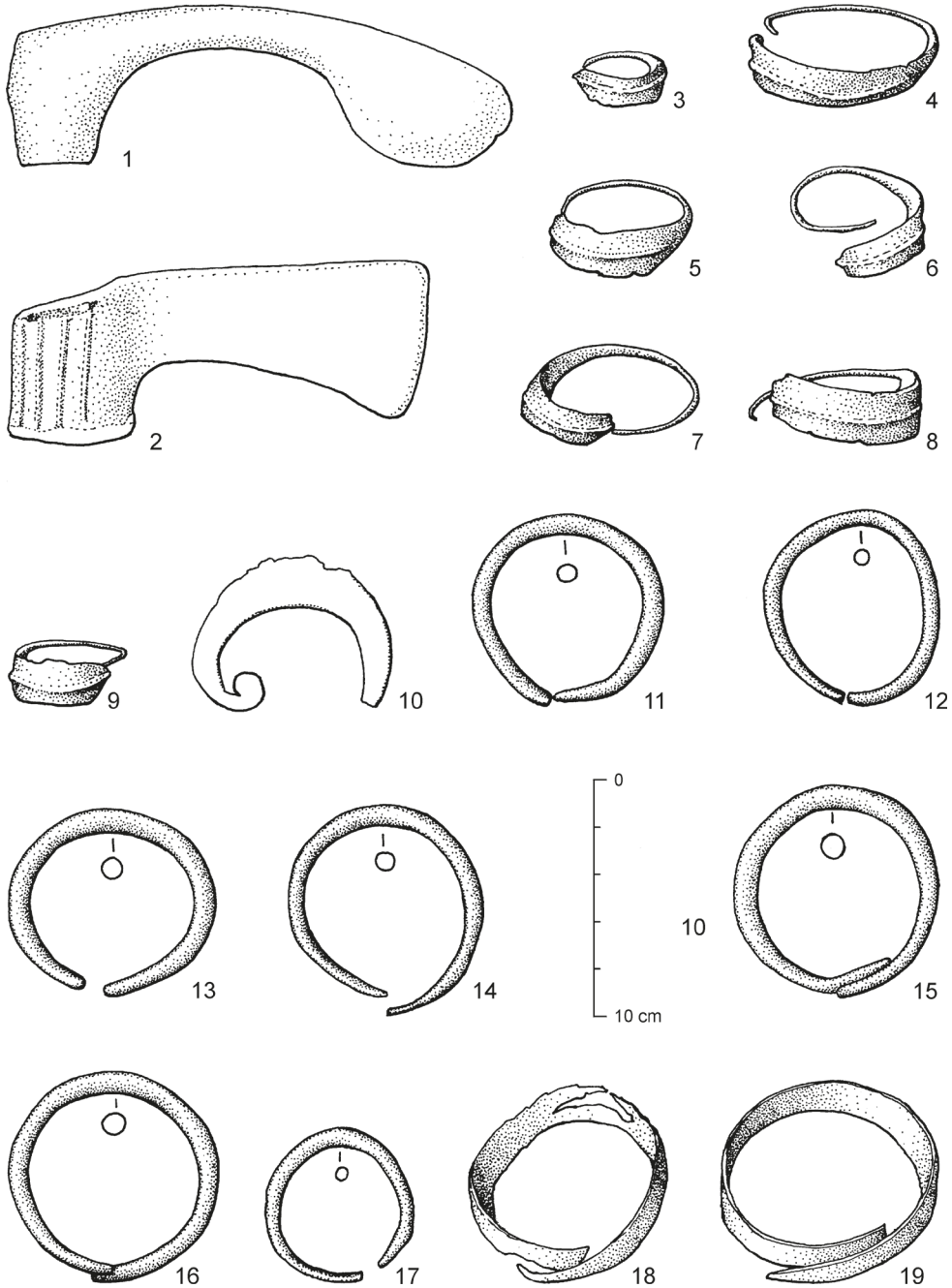

Fig. 4. Steblivka (Stublo) (Ukraine). Hoard of copper objects from the area of Stžižov culture, where the axe of the Faskau type is present — an item representing Kaukasian metallurgy (after [*Sveshnikov I. K.* Istoriia naselennia Peredkarpattia, Podillia i Volini v kintsi III — na pochatku II tisiacholittia do nashoi eri. Kiev, 1974])

The dagger found in Malá nad Hronom in southwestern Slovakia is typologically close to the Early Bronze Age daggers in the circum-Pontic region and in the Caucasus. Close analogies with this dagger come from the territory of the Novotitorovka culture expanded in the northwestern part of the Caucasus, e. g. from grave 1, under tumulus 3 in Novokurskaya[33].

Two exemplars of daggers with blades divided into three parts (the Manych type) discovered in the eastern part of Central Europe are obviously associated with the territory of Eastern Europe. One exemplar comes from a double inhumation burial in Vienna-Essling in eastern Austria[34], and the second one was found in grave 7 under the tumulus in Sárrétudvar in eastern Hungary[35]. Daggers of this type are typical representatives of metal inventory of the Catacomb culture, where they are most frequent in the territory of the North Pontic-Caucasian steppes. Typologically, they can be associated with other daggers with divided blades and also partly enlarged tips from graves in the Central Caucasus (the Terek river valley) and the Kuban region[36]. The result of the spectral analysis of the dagger from Vienna-Essling is remarkable — together with copper, it contains a high proportion of arsenic[37]. Despite the fact that the high proportion of arsenic also occurs in the items of the Northern Alpine cultures in the 4th and 3rd milleniums BC, the dagger — with regard to its design and absolute dating around 2600 BC — can be associated with the cultural territory of the North Pontic and North Caucasus[38].

The discovery of a knife in Morkůvky in southern Moravia[39] is also related to the topic in question. It was found in a grave of the Corded Ware culture (Fig. 5: 2), which is considered to be a unique find in Central Europe. There are analogies with it in Eastern Europe, in a grave of the Yamnaya culture (tumulus 12, grave 1) in Svatovo (Fig. 5: 1)[40], and in the northwestern Caucasus, in a grave of the Novotitorovka culture (tumulus 1, grave 20) in Timashevsk[41]. It is noteworthy that a similar knife was discovered in northeastern Syria, in the territory of former Mesopotamy, the site of Tell Chazna I, in the layer dated to the 3rd millenium BC (Fig. 5: 3)[42]. The territory of Mesopotamia played an important role in the development of metallurgy of the Maykop and Novosvobodnaya cultures in the North Caucasus.

Apart from the weapons described above, some central European jewellery also have their origins in the territory of Eastern Europe and the North Caucasus. First of all, earrings or hair spirals made from massive silver or golden bars should be mentioned. They

[33] *Gei A. N.* Novotitorovskaia kulʹtura… Fig. 46: 8.

[34] *Zimmermann T.* Zwischen Karpaten und Kaukasus — Anmerkungen zu einer ungewöhnlichen Kupferklinge aus Wien-Essling // Archäologisches Korrespodenzblatt. 2003. No. 33. S. 469, Fig. 1: 1.

[35] *Kalicz N.* Ostliche Beziehungen während der Kupferzeit in Ungarn // Das Karpatenbecken und die Osteuropäische Steppe. Nomadenbewegungen und Kulturaustausch in den vorchristlichen Metallzeiten (4000–500 v. Chr.). München, 1998. S. 173, Fig. 13.

[36] *Zimmermann T.:* 1) Zwischen Karpaten und Kaukasus… S. 469; 2) Die ältesten kupferzeitlichen… Fig. 35.

[37] *Ottaway B. S.* Earliest Copper Artefacts of the Northalpine Region: Their Analysis and Evaluation // Seminar für Urgeschichte Bern. Bern, 1982. S. 252, Fig. 10.

[38] *Zimmermann T.* Zwischen Karpaten und Kaukasus… S. 53.

[39] *Ludikovský K., Ondráček J.* Hrob se šňůrovou keramikou z Morkůvek // Sborník Československé Společnosti Archeologické. No. 4. Brno, 1971. Fig. 2: 2.

[40] *Nechitailo A. L.* Sviazi naseleniia… Fig. 12.

[41] *Gei A. N.* Novotitorovskaja kulʹtura… Fig. 62: 13.

[42] *Munchaev R. M.* Mezopotamiia, Kavkaz i tsirkumpontinskaia metalurgicheskaia provintsiia // Rossiiskaia archeologia. 2005. No. 4. P. 14–15.

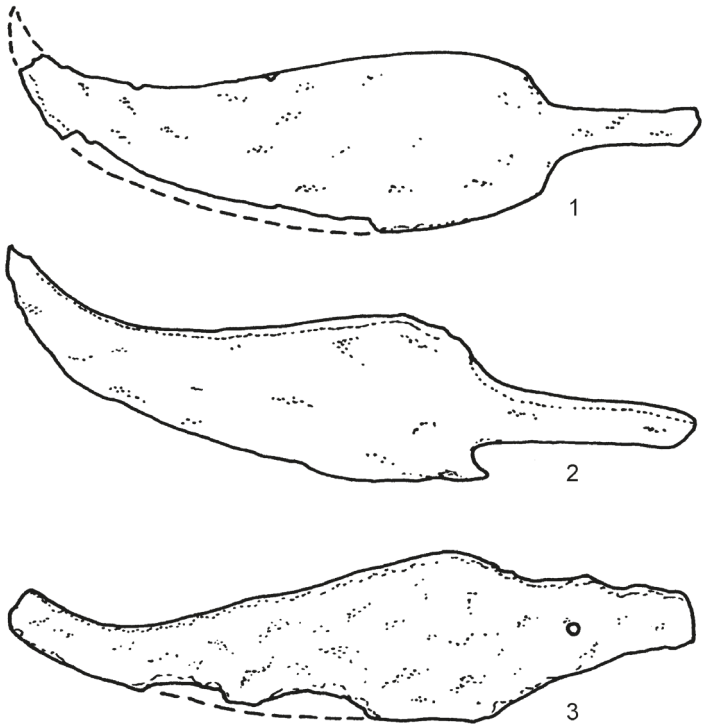

Fig. 5. Copper knives/razors: 1 — Svatovo (Ukraine); 2 — Morkůvky (Czech Republic); 3 — Tell Chazna 1 (Syria) (after [Nechitailo A. L., 1991; Ludikovský K., Ondráček J., 1970–1971; Munchaev R. M., 2005]). Without scale

are usually in the form of open rings (Lockenringe) or spirals. They are spread from the North Caucasus through the southern Russian, Ukrainian and Moldovan steppes, the Lower Danube (Oltenia and northern Bulgaria) to as far as the Carpathian Basin. They are found mainly in graves of the Yamnaya culture and its components — the Novotitorovka culture in the northernwest Caucasus and the Budjak culture in the southwestern Black Sea region[43]. In the Carpathian environment, they are known from several graves under tumuli of the Yamnaya culture, e. g. from eastern Hungary (Sárrétudvar, Balzamújváros)[44], Burgenland (Neusiedle am See)[45] and Banate (Uljma, Vojlovica, Vatin). It is of interest that they are usually found in male graves in two exemplars deposited on both sides of skulls, which corresponds with the rituals in male graves of the Yamnaya culture. It is obvious that such earrings were the basis for the so-called earrings of the Transylvania type, which was mainly typical of the cultures in the following period in Eastern Europe, e. g. the Ba-

[43] *Ivanova S.* Connections between the Budzhak Culture and Central European Groups of the Corded Ware Culture // The Ingul-Donets Early Bronze Civilization as Springboard for Transmission of Pontic Cultural Patterns to the Baltic Drainage Basin 3200–1750 BC // Baltic-Pontic Studies. 2013. No. 1. Fig. 23: 6.

[44] *Nepper Ibolya M.* Sárrétudvari és körnéke a XIII. századig // A Bihari Múzeum Évkönyve. 1991. No. 6–7. Tab. 5: 1–4.

[45] *Ruttkay E.* Das endneolitische Hügelgrab von Neusiedl am See, Burgenland. Zweite Vorlage — Teil II. — Kulturgeschichtliche Aspekte des Zentralgrabes // Morgenrot der Kulturen. Budapest, 2003. S. 447.

Fig. 6. Fortified protourban settlements of the early Bronze Age: 1 — Vráble (Slovakia), Únětice culture; 2 — Sintashta (Russia), Sintashta culture; 3 — Arkaim (Russia), Sintashta culture (after [Bátora J., Behrens A., Gresky J. et al. The Rise and Decline of the Early Bronze Age Settlement Fidvar near Vrable, Slovakia // Collapse or Continuity? Environment and Development of Bronze Age Human Landscapes. Bonn, 2012; Fornasier J., 2014])

bino and Srubnaya cultures, in the territory of Eurasia in the Abashevo, Sintashta and Andronovo cultures, as well as in in the North Caucasus culture and in the culture of Ginchi in Dagestan[46]. As far as Central Europe is concerned, these were the Únětice, Košťany and Otomani-Füzesabony cultures[47].

The previous research of the tumulus in Šurany[48] as well as the inhumation burials in the so-called frog position (e. g. Jelšovce)[49] suggested — and the latest surface surveys have confirmed it — that the nomadic tribes of the Yamnaya culture within the Carpathian territory moved not only to the Upper Tisza region in today's eastern Hungary, but also to the northern juts of the Danubian lowland (Podunajská nížina) in southwestern Slovakia (north of the Danube)[50]. In additon to potential pastures, they were probably attracted mostly by sources of non-ferrous metals, i. e. copper, gold and silver, located in the volcanic mountain ranges of Central Slovakia[51].

With regard ot the question of cultural relations of the Carpathian territory with distant areas, results of the systematic research in Vráble in southwestern Slovakia stand out. There, detected geophysical measuring and the subsequent trenches confirmed radial arrangement of dwellings in multiple rows along the circular fortification (Fig. 6: 1)[52]. Such arrangement of buildings has analogies not only in the eastern Mediterranean, but also in

[46] *Magomedov G. R.* Ginchinskaia kulʹtura, gory Dagestana i Chechni v epokhu srednei bronzy. Machachkala, 1998. Fig. 129: 15–17, 63, 64.

[47] *Bátora J.* Slovensko v staršej dobe bronzovej. Bratislava, 2018. S. 173.

[48] *Novotná M., Paulík J.* Neskoroeneolitická mohyla v Šuranoch, okr. Nové Zámky // Archeologické Rozhledy. 1989. No. 41. S. 368.

[49] *Bátora J.* Das Gräberfeld von Jelšovce/Slowakei. Ein Beitrag zur Frühbronzezeit im nordwestlichen Karpatenbecken. Teil 1 und 2. Kiel, 2000. Fig. 411.

[50] *Bátora J.* The Question of the Presence… Fig. 9.

[51] *Bátora J.* Slovensko v staršej dobe bronzovej. Fig. 267–269, 271.

[52] Ibid. Fig. 180.

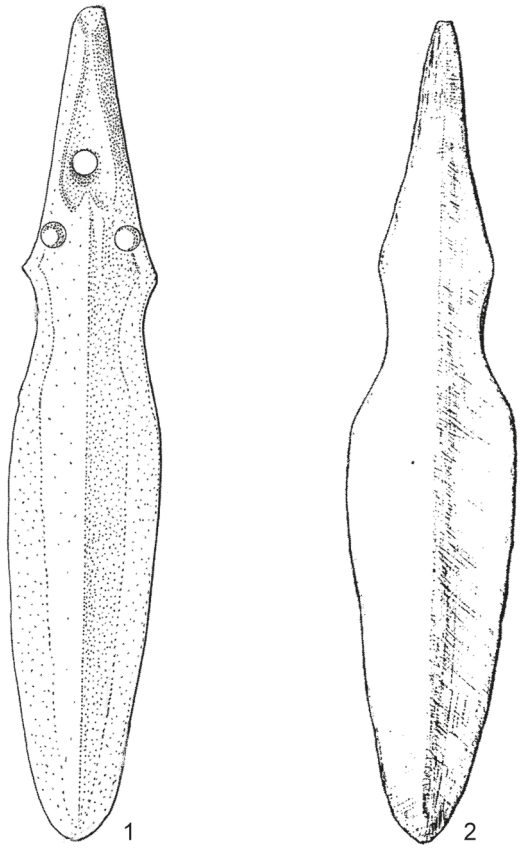

Fig. 7. Daggers of Srubna (Timbre-grave) culture: 1 — Sklabiňa (Slovakia); 2 — Gorodišče (Ukraine) (after [Bátora J., Glaser-Opitzova H. Nalez unikatnej dyky v Sklabini. Archeologické vyskumy a nalezy na Slovensku v roku 2016 // Archaeological Institute of the Slovak Academy of Sciences Nitra (in print); Gerškovič J.P. Kurgany v mezhdurech'e r. Lozovoi i r. Ol'khovoi na Donetskom kriazhe // Drevnie kul'tury vostochnoi Ukrainy. Lugansk,, 1996]). Without scale

the territory of Eurasia (Arkaim, Bersuat, Sarym-Sakly, Sintashta)[53]. It is important that the circular arrangement of buildings in Vráble consists of houses from the classical stage of the Únětice culture and, thus, chronologically corresponds with the circular arrangement known from the areas of the Sintashta culture in the Trans-Ural territory of Russia and northwestern Kazakhstan (Fig. 6: 2, 3). It is the period between 2000 and 1800 BC, which is chronologically prior to the Mycenaean culture in the eastern Mediterranean.

[53] *Fornasier J.* Befestigte Siedlungen der Bronzezeit im Trans-Ural — eine Bestandsaufnahme // Zwischen Tradition und Innovation. Studien zur Bronzezeit im Trans-Ural (Russische Föderation). Frankfurt am Main; Bonn, 2014. Fig. 31, 37, 69, 73.

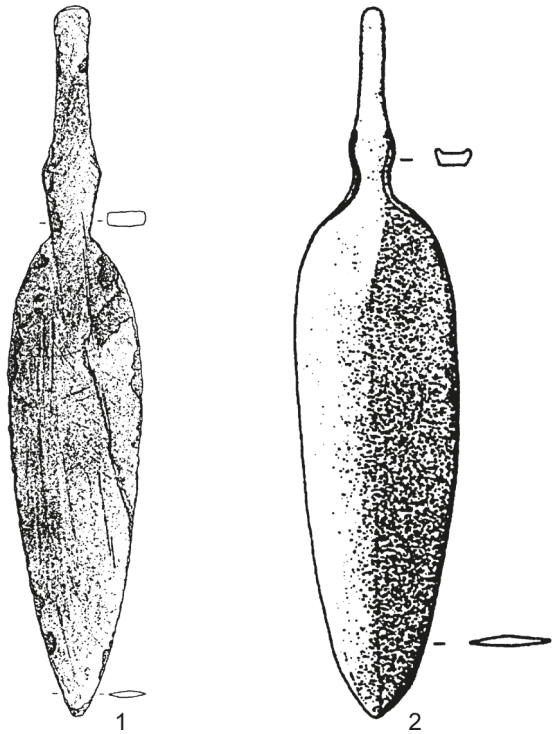

Fig. 8. Bronze daggers: 1 — Kirchdorf (Austria); 2 — Ulianovka (Ukraine) (after [Harb I., Steiner H., 2001; Bočkarev V. S., Leskov A. M., 1980]). Without scale

Fortified settlements with the so-called protourban arrangement of structures in the territory of the Northern Carpathians were previously associated mainly with the cultures of the Maďarovce-Věteřov-Böheimkirchen complexes expanded in the Central Danube region and with the cultures of the Otomani-Füzesabony complex spreading in the Upper Tisza region, which chronologically corresponds with the Mycenaean culture in the eastern Mediterranean[54]. Observations of the fortified settlement in Vráble have transformed our previous knowledge of the beginnings of protourban architecture, changes in the settlement structure as well as in the associated process of creation of new social elites in the territory of Central Europe.

The dagger of the Srubnaya type from Sklabiňa in Central Slovakia points to the surviving cultural contacts between the territories of Central and Eastern Europe in the Middle Bronze Age (Fig. 7: 1). It differs from the daggers of Eastern Europe with three rivet holes on the handle which were probably made additionally in the Carpathian area[55]. The nearest analogy with the dagger from Sklabiňa is known from grave 1, tumulus 1, in Rusin Jar in eastern Ukraine (Fig. 7: 2)[56].

[54] *Bátora J.* Slovensko v staršej dobe bronzovej. P. 244–245.
[55] Ibid. Fig. 308.
[56] *Cimidanov V. V.* Sociaľnaia struktura srubnogo obchshestva. Donetsk, 2004. Fig. 62: 7.

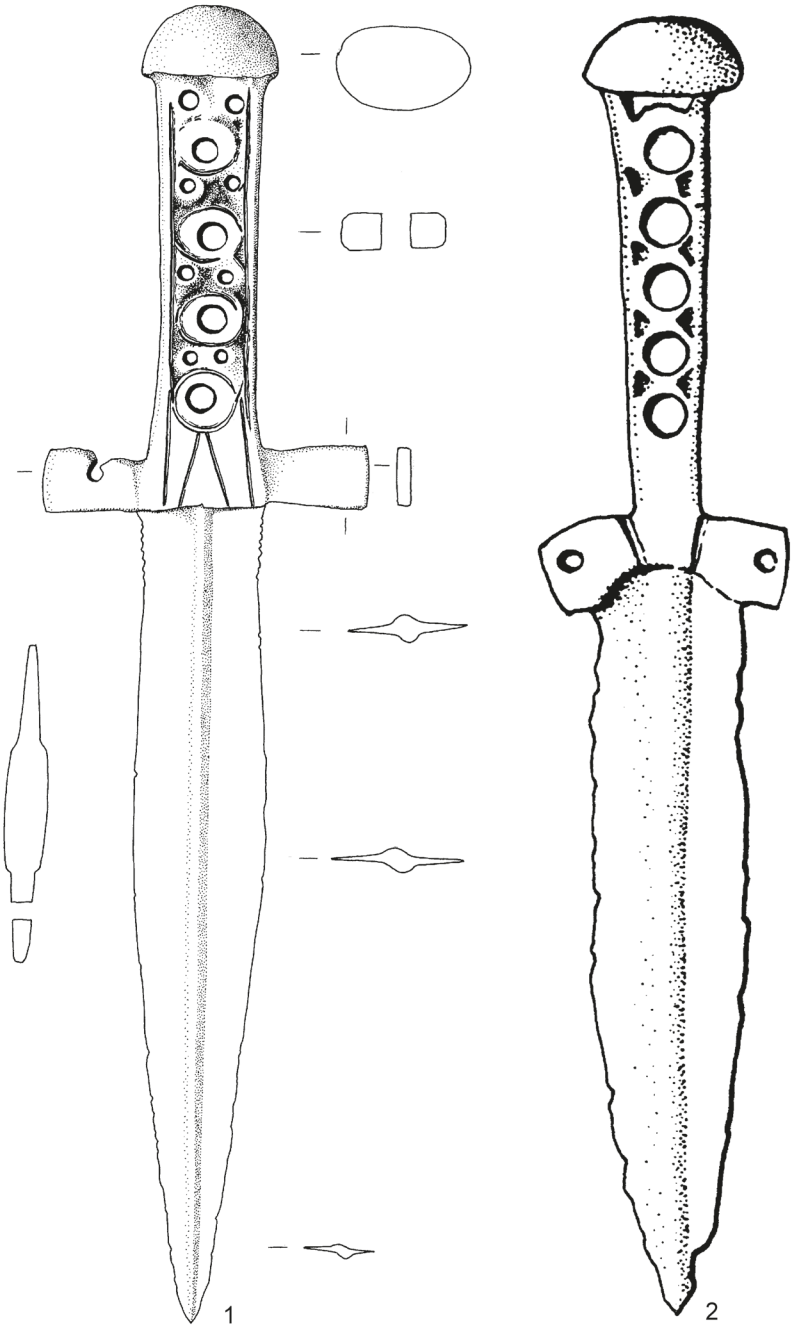

Fig. 9. Bronze daggers of the Gamów type and Kabardino-Pyatigorsk type respectively: 1 — Malý Cetín (Slovakia); 2 — Serzhen'-Yurt (Chechnya) (after [Bátora J., 2006; Kozenkova V. I., 1975])

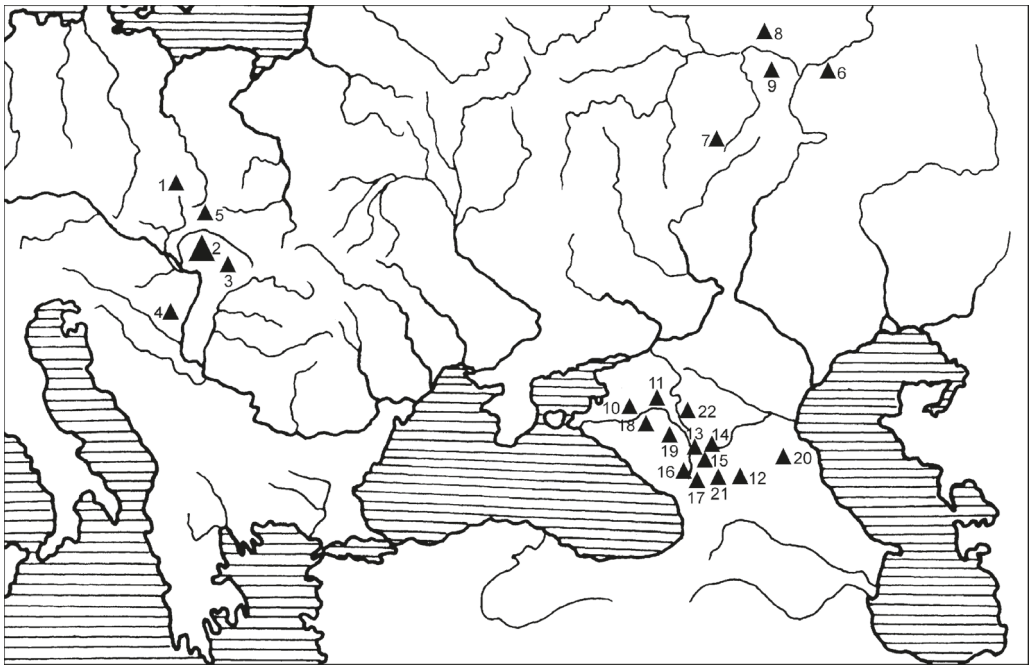

Fig. 10. Expansion of Gamów type and Kabardino-Pyatigorsk type daggers respectively: 1 — Gamów; 2 — Malý Cetín; 3 — Mátra mountains; 4 — Pécs; 5 — Shtramberk; 6 — Ananino; 7 — Navki; 8 — Staroe Achmilovo; 9 — Tatarskoe Burnazhevo; 10 — Abadzechskaia; 11 — Blagodarnoe; 12 — Kamennosmostkoje; 13, 14 — Kislovodsk, "Berezovka"; 15 — Kislovodsk, Klin Jar; 16 — Kislovodsk, Mebelnaia fabrika; 17 — Kolca Gora; 18 — Kubanskoe; 19 — Psekupsk; 20 — Serzhen'-Yurt; 21 — Zaiukovo; 22 — Zmeiskaia (updated map of [Podborský V. Štramberska dyka s křižovym jilcem a otazka rozšiřeni, původu a datovani těchto dyk v Evropě // Archeologicke Rozhledy. 1967. Nr. 19])

As for other finds, we can mention the bronze dagger with a leaf-shaped blade and rhomboid-shaped reinfroced tang of the handle from Kirchdorf in Tirol in Southern Austria[57], which is completely foreign to this region (Fig. 8: 1). Its metallographic analysis did not confirm that it had been made of local north Tirol copper either, so it can be definitely considered an import, not a local imitation. With its shape and details of design, the dagger is similar to the Pontic forms of daggers typical of the Srubnaya culture and the early phase of the Sabatinovka culture (Fig. 8: 2)[58]. The oldest exemplars are found mostly in the Volga region, in Ukraine, in the Don region and in the Southern Urals. Analogous daggers are also represented in the North Caucasus. Nevertheless, they can also be identified in Turkmenistan, Iran, as well as Turkey[59].

To confirm existence of contacts between the Caucasus region and the territory of Central Europe and the Carpathians as late as the end of the Bronze Age, finds of Cimmerian character can be pointed out As a *pars pro toto* example, we can mention the dagger of

[57] *Harb I., Steier H.* Ein Bronzedolch östlicher Herkunft aus Kirchdorf in Tirol // Archäologie Österreichs. 2001. Bd. 12/1. Fig. 2, 3.

[58] *Bochkarev V. S., Leskov A. M.* Jung- und spätbronzezeitliche Gußformen im nördlichen Schwarzmeergebiet (Prähistorische Bronzefunde. Abt. 19). München, 1980.

[59] *Harb I., Steier H.* Ein Bronzedolch… S. 40–41.

the Gamów type or Kabardino-Pyatigorsk type from Malý Cetín in southwestern Slovakia (Fig. 9: 1). It is not just the only dagger of this type in the territory of Slovakia, but also the only dagger in the Central European-Carpathian territory which is not bimetalic — it is made exclusively of bronze. Its spectral analysis showed that the handle as well as the blade had almost identical chemical composition as they contained only copper and tin. The handle contained 95.39 % of copper and 4.61 % of tin; the blade contained 96.14 % of copper and 4.65 % of tin[60]. Being made exclusively of bronze, the dagger is similar to two all-bronze daggers from the North Caucasus, where the largest number of the Gamów type or Kabardino-Pyatigorsk type daggers have been found (Fig. 10). The first dagger comes from Kislovodsk, Klin-Jar burial ground, and the second one comes from grave 70 in Serzhen'-Yurt (Fig. 9: 2)[61].

Conditions for the above presented cultural contacts and connections were also created by the continuous zone of steppes reaching almost uninterrupted in the east-west direction from the Gobi Desert in Mongolia through the North Caucasus as far as the North Carpathians, i. e. eastern Hungary and the territory of southwestern Slovakia[62]. Nomadic communities from Eastern Europe, Eurasia and the Caucasus arrived in the area with natural and probably climate conditions similar to their original territory.

References

Andreeva M. V., Kozenkova V. I. The complex of the beginning of the 1st millennium BC from the Klin-Yar tract (Kotlovinskaya valley). *Soviet archaeology*, 1986, no. 1, pp. 253–258. (In Russian)

Antoniewicz W. Der Stublo in Wolhynien aufgefundene Bronzeschatz. *Eurasia Septentrionalis Antiqua,* 1929, no. 4, S. 135–148.

Bátora J. *Das Gräberfeld von Jelšovce/Slowakei. Ein Beitrag zur Frühbronzezeit im nordwestlichen Karpatenbecken.* Teil 1 und 2. Kiel, Oetker/Voges, 2000, 617 S.

Bátora J. *Slovensko v staršej dobe bronzovej.* Bratislava, Comenius University Press, 2018, 445 p.

Bátora J. *Štúdie ku komunikácii medzi strednou a východnou Európou v dobe bronzovej.* Bratislava, Petrus Publ., 2006, 315 s.

Bátora J. The Question of the Presence of the Yamnaya and Catacomb Culture in the Area of the Middle Danube and North Carpathians. *Tyragetia International I.* Chisinau, [s. n.], 2016, pp. 103–115.

Bátora J., Behrens A., Gresky J., Ivanova M., Rassmann K., Tóth P., Winkelmann K. The Rise and Decline of the Early Bronze Age Settlement Fidvár near Vráble, Slovakia. *Collapse or Continuity? Environment and Development of Bronze Age Human Landscapes.* Bonn, Habelt Publ., 2012, pp. 111–129.

Bátora J., Glaser-Opitzová H. Nález unikátnej dýky v Sklabini. Archeologické výskumy a nálezy na Slovensku v roku 2016. *Archaeological Institute of the Slovak Academy of Sciences Nitra* (in print).

Behrens H. Ein neolithisches Bechergrab aus Mitteldeutschland mit beinerner Hammerkopfnadel und Kupfergeräten. *Jahresschrift Mitteldeutsche Vorgeschichte,* 1952, Bd. 36, S. 53–69.

Benešová A. Nález měděných předmětů na Starých Zámcích v Brně-Líšni. *Památky Archeologické*, 1956, no. 47, pp. 236–244.

Benkö L., Horváth F., Horvatinčiš N., Obelič B. Radiocarbon and Thermoluminiscence Dating of Prehistoric sites in Hungary and Yugoslavia Cambridge. *Radiocarbon,* 1989, vol. 31, no. 3, pp. 992–1002.

[60] *Bátora J.* Štúdie ku komunikácii medzi strednou a východnou Európou v dobe bronzovej. Bratislava, 2006. Fig. 176, 257.

[61] *Andreeva M. V., Kozenkova V. I.* Kompleks nachala I tysiacheleťia do n. e. iz urochischsha Klin-Jar (Kislovodskaia kotlovina) // Sovetskaia archeologia. 1986. No. 1. P. 255; *Kozenkova V. I.* K voprosu o rannei date nekotorykh kinzhalov tak nazyvaemogo kabardino-piatigorskogo tipa // Trako-Skifskie kulturnye sviazi. Studia Thracica. Sofia, 1975. Vol. 1. Fig. 3: 1.

[62] *Sala R., Aubekerov B.* Geografie und Kulturlandschaften in Kazachstan // Unbekantes Kazachstan. Archäologie im Herzen Asiens: in 2 Bdn. Bd. I. Bochum, 2013. Fig. 15.

Bochkarev V. S., Leskov A. M. *Jung- und spätbronzezeitliche Gußformen im nördlichen Schwarzmeergebiet (Prähistorische Bronzefunde. Abt. 19)*. München, Beck Publ., 1980, 97 S.

Bóna I. Bronzeguß und Metallbearbeitung bis zum Ende der mittleren Bronzezeit. *Bronzezeit in Ungarn. Forschungen in Tell-Siedlungen an Donau und Theiss.* Frankfurt am Main, Museum für Vor- und Frühgeschichte — Archäologisches Museum Frankfurt am Main Publ., 1992, S. 48–65.

Cimidanov V. V. *Social structure of the Srubnaya Culture Society*. Donetsk, Institute of Archaeology, Ukraine National Academy of Sciences Press, 2004, 204 p. (In Russian)

Fornasier J. Befestigte Siedlungen der Bronzezeit im Trans-Ural — eine Bestandsaufnahme. *Zwischen Tradition und Innovation. Studien zur Bronzezeit im Trans-Ural (Russische Föderation).* Frankfurt am Main, Frankfurter Archäologische Schriften 26, Bonn, R. Habelt, 2014, S. 1–137.

Garašanin M. Schaftlochäxte aus Kupfer in den Sammlungen serbischer Museen. *Mainz am Rhein, Bericht der Römisch-Germanischen Kommission des Deutschen Archäologischen Instituts,* 1951–1953 (1954), Bd. 34, S. 61–76.

Gedl M. Miedziane topory ze schylku III tysiaclecia przed Chrystusem z terenu Polski. *Rocznik Przemyski*, 2000, no. 36, S. 3–10.

Gei A. N. *Novotitorovka culture.* Moscow, Staryi Sad Publ., 2000, 224 p. (In Russian)

Gerškovič J. P. Mounds between the Lozovaya River and the Olkhovaya River on the Donetsk Ridge. *Drevnie kul'tury vostochnoi Ukrainy.* Lugansk, Vostochnoukrainskii Gosudarstvennyi Universitet Press, 1996, pp. 133–167. (In Russian)

Görsdorf J. 14C-Datierungsergebnisse des Siedlung Brno-Lískovec. *Siedlung der Jevišovice-Kultur in Brno-Starý Lískovec,* 1994, nr. 22, S. 80–87.

Hančar F. *Urgeschichte Kaukasiens.* Wien, Schroll, 1937, 448 S.

Harb I., Steier H. Ein Bronzedolch östlicher Herkunft aus Kirchdorf in Tirol. *Archäologie Östrerreichs,* 2001, Bd. 12/1, S. 39–45.

Ivanova S. Connections between the Budzhak Culture and Central European Groups of the Corded Ware Culture. *The Ingul-Donets Early Bronze Civilization as Springboard for Transmission of Pontic Cultural Patterns to the Baltic Drainage Basin 3200–1750 BC. Baltic-Pontic Studies*, 2013, no. 1, pp. 86–120.

Kalicz N. *Die Frühbronzezeit in Nordost-Ungarn.* Budapest, Akadémiai Kiadó Publ., 1968, 202 S.

Kalicz N. Ostliche Beziehungen während der Kupferzeit in Ungarn. *Das Karpatenbecken und die Osteuropäische Steppe. Nomadenbewegungen und Kulturaustausch in den vorchristlichen Metallzeiten (4000–500 v. Chr.).* München, Leidorf, 1998, S. 163–177.

Korenevskii S. N. Socket axes are a melee weapon of the Middle Bronyz era of the North Caucasus. *Kavkaz i Sredniaia Aziia v drevnosti i srednevekov'e (istoriia i kultura).* Moscow, [s. n.], 1981, pp. 20–41. (In Russian)

Kovaleva I. F. Burials with Maikop culture inventories in the Dniper river left bank regions (with special reference for the recognition of Zhivotilovsk cultural type). *Problemy archeologii Podneprov'ia.* Dnepropetrovsk, [s. n.], 1991, pp. 69–88. (In Russian)

Kovaleva I. F. Stretched burials of the Dinper part of Volga-Dniper historical area during the Eneolithic epoch. *Kurgannye drevnosti stepnogo Podneprov'ia (III–I tys. do n. e.).* Dnepropetrovsk, [s. n.], 1979, pp. 61–79. (In Russian)

Kozenkova V. I. About the question of the early date of some daggers of so-called Kabarda-Pyatigorsk type. *Trako-Skifskie kulturnye sviazi. Studia Thracica, vol. 1.* Sofia, Academia Litterarum Bulgarica Publ., 1975, pp. 91–102. (In Russian)

Ludikovský K., Ondráček J. Hrob se šňůrovou keramikou z Morkůvek. *Sborník Československé Společnosti Archeologické při ČSAV,* vol. 4. Brno, Archeological Institute Czechoslovak Academy of Sciences in Praha Publ., 1971, S. 35–39.

Magomedov G. R. *The Ginchi Culture. Mountains of Daghestan and Chechnya in the Middle Bronze Age.* Makhachkala, Daghestan Science Center of the Russian Academy of Sciences Publ., 1998, 378 p. (In Russian)

Markovin V. I. *Tribal Cultures of the Northern Caucasus in the Bronze Age (II millenium BC)*. Moscow, Institute of Archaeology of the Russian Academy of Sciences Press, 1960, 152 p. (In Russian)

Medunová-Benešová A., Vitula P. *Siedlung der Jevišovice-Kultur in Brno-Starý Lískovec (Bez. Brno-město).* Brno, Archeological Institute Czech Academy of Sciences in Brno Press, 1994. 91 S.

Munchaev R. M. Mesopotamia, the Caucasus, and the Circumpontic metallurgical province. *Rossiiskaia archeologia,* 2005, no. 4, pp. 13–24. (In Russian)
Nechitailo A. L. *Interconnections between population of steppe Ukraine regions and Northern Caucasus in the Bronze Age*. Kiev, Naukova Dumka Publ., 1991, 112 p. (In Russian)
Nepper Ibolya M. Sárrétudvari és körnéke a XIII. századig. *A Bihari Múzeum Évkönyve*, 1991, nr. 6–7, ss. 13–61.
Novotná M. Nálezy medených sekeriek s jedným ostrím na Slovensku. *Slovenská Archeológia*, 1957, nr. 5, S. 309–316.
Novotná M., Paulík J. Neskoroeneolitická mohyla v Šuranoch, okr. Nové Zámky. *Archeologické Rozhledy*, 1989, nr. 41, S. 368–378.
Oancea A., Drambocianu V. Doua topoare descoperite in judetul Buzau. *Studii si Cercetari Istorie Veche si Archeologie,* 1976, nr. 27, S. 565–566.
Ottaway B. S. Earliest Copper Artefacts of the Northalpine Region: Their Analysis and Evaluation. *Seminar für Urgeschichte Bern,* Bern, [s. n.], 1982, 351 p.
Podborský V. Štramberská dýka s krížovým jilcem a otázka rozšíření, původu a datování těchto dýk v Evropě. *Archeologické Rozhledy*, 1967, nr. 19, S. 194–200.
Rezepkin A. D. *Das frühbronzezeitliche Gräberfeld von Klady und die Majkop-Kultur in Nordwestkaukasien*. Rahden-Westfalen, Leidorf, 2000, 181 S.
Rezepkin A. D. *Novosvobodnenskaia Culture (based on materials from tumulus "Klady").* St. Petersburg, Russian Academy of Sciences Institute of the History of Material Culture Press, 2012, 342 p. (In Russian)
Ryndina N. V. Metal of Cord Ceramic cultures of the Ukranian Pre-Carpatian region, Podolia and Volyn. *Sovetskaia archeologiia*, 1980, no. 3, pp. 24–42. (In Russian)
Ruttkay E. Das endneolitische Hügelgrab von Neusiedl am See, Burgenland. Zweite Vorlage — Teil II. — Kulturgeschichtliche Aspekte des Zentralgrabes. *Morgenrot der Kulturen. Festschrift für Nándor Kalicz.* Budapest, Archaeolingua, 2003, S. 445–470.
Říhovský J. *Die Äxte, Beile, Meißel und Hämmer in Mähren.* Stuttgart, Steiner, 1992, 310 S.
Sala R., Aubekerov B. Geografie und Kulturlandschaften in Kazachstan. *Unbekantes Kazachstan. Archaologie im Herzen Asiens.* Bd. I. Bochum, Deutschen Bergbau-Museums Bochum, 2013, S. 41–53.
Sveshnikov I. K. Population history in Pre-Carpatian, Podolian, and Volyn regions in the end of the 3rd and beginning of the 2nd millenium BC. Kiev, [s. n.], 1974, 206 p. (In Ukrainian)
Vladár J. K otázke chronologického postavenia sekeriek s jedným ostrím. *Študijné Zvesti Archeologického ústavu Slovenskej akadémie vied,* 1970, no. 18, S. 5–18.
Vladár J. Osteuropäische und mediterrane Einflüsse im Gebiet der Slowakei während der Bronzezeit. *Slovenská Archeológia,* 1973, no. 21, S. 253–357.
Vulpe A. Äxte und Beile in Rumänien I. München, Beck'sche Verlagsbuchhandlung, 1970, 208 S.
Zimmermann T. Zwischen Karpaten und Kaukasus — Anmerkungen zu einer ungewöhnlichen Kupferklinge aus Wien-Essling. *Archäologisches Korrespodenzblatt*, 2003, no. 33, S. 469–477.
Zimmermann T. *Die ältesten kupferzeitlichen Bestattungen mit Dolchbeigabe*. Mainz, Schnell & Steine, 2007, 172 S.

Статья поступила в редакцию 24 декабря 2020 г.
Рекомендована в печать 12 марта 2021 г.
Received: December 24, 2020
Accepted: March 12, 2021