USE OF OBSIDIAN FROM THE PALEOLITHIC TO THE BRONZE AGE IN SLOVAKIA•

OBSZIDIÁN FELHASZNÁLÁS SZLOVÁKIA TERÜLETÉN AZ ŐSKŐKORTÓL A BRONZKORIG

Ľubomíra KAMINSKÁ[1]

[1]Institute of Archeology, Slovak Academy of Science, Hrnčiarska 13, 040 01 Košice, Slovak Republic

E-mail: kaminska@saske.sk

Abstract

Near the Zemplínske vrchy hills, there are autochthonous sources of obsidians in Viničky and secondary ones between Cejkov and Brehov. Most artifacts at archaeological sites were made of obsidians with sculpturing from secondary sources. In the culture of Aurignacian, obsidian was only marginally used, however, it dominated in the Gravettian and Epigravettian. It sporadically occurred in western Slovakia as well. It is documented in the Świderian in Spiš in the Late Paleolithic and at other Epipaleolithic to Mesolithic sites in Spiš, Orava and in southern Slovakia. The Mesolithic industry from Košice-Barca I was exclusively made of obsidian.

Obsidian prevailed in all stages of the Eastern Linear Pottery culture at sites in the Východoslovenská nížina lowland. On the other hand, it was less frequent in the Košická kotlina basin. In the Bükk culture, it prevailed at the sites situated closer to its sources; in the rest of the territory, it was a minor raw material. In the west of Slovakia, obsidian first appears as early as the later stage of the Linear Pottery Culture. There is higher frequency of occurrence at sites of the Želiezovce group – Lengyel I culture, when it arrives in Moravia and Austria. The occurrence of obsidian decreases in the subsequent periods.

By the end of the Neolithic (Csőszhalom-Čičarovce group) and in the Early Eneolithic (Tiszapolgár culture), obsidian artifacts are more frequent at settlements than burial grounds. Use of obsidian survives until the Early Bronze Age (the Košťany and Otomani cultures).

Kivonat

A Zempléni dombvidék mellett Szőlőskén (Viničky) elsődleges helyzetben levő obszidián nyersanyag előfordulást ismerünk. További, másodlagos nyersanyagforrások ismertek Céke (Cejkov) és Imreg (Brehov) között. A jellegzetes kortex alapján a legtöbb régészeti lelőhelyen előkerült obszidián másodlagos nyersanyagforrásból származik. Az aurignaci kultúra idején az obszidiánt csak kisebb mennyiségben használták, de a gravetti és epigravetti lelőhelyeken Kelet-Szlovákiában domináns nyersanyag. Kisebb mennyiségben eljutott Nyugat-Szlovákia trületére is. Ismerjük előfordulását a Szepesség świderi kultúrájából (késő paleolitikum) és további lelőhelyekről az epipaleolit és mezolit időszakban, a Szepesség, Árva (Orava) vidék, és Dél-Szlovákia területéről. Košice-Barca I lelőhely mezolit ipar kizárólag obszidián nyersanyagot használt fel.

Az obszdián domináns a Keleti Vonaldíszes Kerámia kultúrájának minden fázisában a Kelet-Szlovákiai Síkságon. Másrészt kevésbé gyakran fordult elő a Kassai medencében. A Bükki kultúra idején a nyersanyagforrásokhoz közelebb eső lelőhelyeken az obszidián dominál, a távolabbi lelőhelyeken csak kisebb mennyiségben van jelen ez a nyersanyag. Nyugat-Szlovákiában az újkőkor során az obszidián először a Vonaldíszes Kerámia Kultúrájának késői fázisában jelenik meg. nagyobb mennyiségben van jelen a zselizi és a lengyeli kultúra I. fázisának anyagában, amikor is eléri a morva és osztrák területeket is. A továbbiakban az obszidián jelentősége, előfordulása fokozatosan csökken.

A késői neolitikum idejére (Csőszhalom-Čičarovce csoport) és a korarézkorban (tiszapolgári kultúra), az obszidián eszközök gyakrabban fordulnak elő telepanyagokban mint temetőkben, sírmellékletként. Az obszidián felhasználás a korai bronzkorig dokumentált (Košťany és ottományi kultúra leletanyagában).

KEYWORDS: OBSIDIAN, USE, ARCHAEOLOGICAL CULTURES, SLOVAKIA

KULCSSZAVAK: OBSZIDIÁN, FELHASZNÁLÁS, RÉGÉSZETI KULTÚRÁK, SZLOVÁKIA

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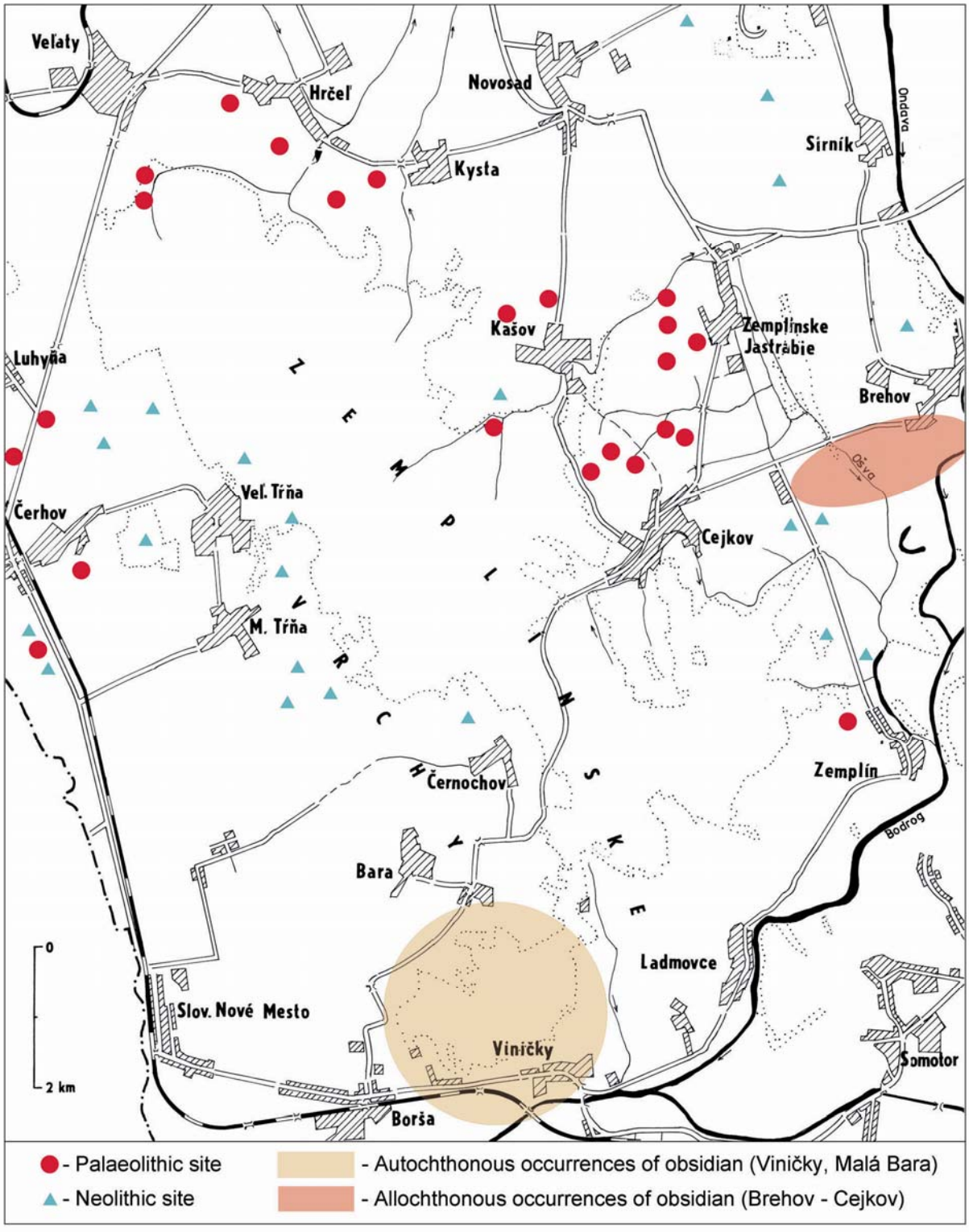

Fig. 1.: Map of the area of the Zemplínske vrchy hills with autochthonous and allochthonous source of obsidian, with sites from the Paleolithic and Neolithic.

1. ábra: A Zempléni dombvidék térképe, elsődleges és másodlagos helyzetű obszidián nyersanyagforrásokkal és az őskőkori és újkőkori lelőhelyekkel

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Introduction

The rich occurrence of obsidians in fields and vineyards near the Zemplínske vrchy hills has attracted attention of collectors for decades. It is still possible to collect other artifacts at new Paleolithic and Neolithic/Eneolithic sites (**Fig. 1**.). Our knowledge of primary and secondary sources of obsidian near the Zemplínske vrchy hills is rather complex. The name of Carpathian group 1 or C1 is used for the Slovak sources, Carpathian group 2 or C2 includes Hungarian sources in the Tokaj-Prešov Mountains north of Miskolc (Williams-Thorpe et al. 1984; Biró & Kasztovszky 2013). Sources of obsidians in Transcarpathian Ukraine near Rokosovo are considered Carpathian group 3 or C3 (Rácz 2013).

Primary sources of obsidian in Slovakia are concentrated near Viničky (Kaminská 1991; 2013; Kaminská & Ďuďa 1985), secondary ones are found in the area of Brehov – Cejkov (Bascó et al. 1995; Přichystal & Škrdla 2014). On the basis of comparisons between obsidians from the sources and artifacts from archaeological sites, the secondary occurrences of obsidians with sculpturing from the area of Brehov - Cejkov are currently considered the main source for prehistoric industry (Bačo & Bačová 2014; Přichystal & Škrdla 2014). However, dating of the obsidians from the archaeological sites shows accordance with obsidians from the early phase of rhyolite volcanism from Viničky and does not exclude existence of another, so far unknown natural source (Bačo et al. 2017, 224, Table I).

Paleolithic

Š. Janšák (1935) was the first scientist to point to the occurrence of the high number of obsidian industry near the Zemplínske vrchy hills. In the archaeological cultures of the Stone Ages, the share of obsidian varied – its use declined with the distance from the sources.

Individual prehistoric communities used also other local minerals, although their quality was lower (limnosilicites, hornstones, andesite).

We detected presence of raw materials from distant sources (flints from Poland, Volhynian flint, limnosilicites and quartz porpfyry from the northeastern Hungary, etc.) at the sites.

Middle Paleolithic settlement has not been reliably confirmed near the Zemplínske vrchy hills, thus, use of obsidian in the above stated period (Přichystal & Škrdla 2014, 223) is not considered undoubtedly proved. Artifacts made of obsidian have not been found at other old Paleolithic sites either (Hôrka-Ondrej, Gánovce-Hrádok, Bojnice I and III, etc.).

The Early Paleolithic Aurignacian culture in the Košická kotlina basin prefered limnosilicite for production of artifacts (Kaminská 1991; 2001; 2013). A small number of obsidians occurred also among the finds from Košice-Barca I, Košice-Barca II, Kechnec I (Bánesz 1968), from Čečejovce (Kaminská 1990), where end-scrapers were made from it (**Fig. 2.**).

Fig. 2.: Čečejovce. End-scrapers made of obsidian. Aurignacian (photo A. Marková).

2. ábra: Čečejovce (Csécs). Obszidián vakarók. Aurignaci kultúra (felvételt készítette: A. Marková).

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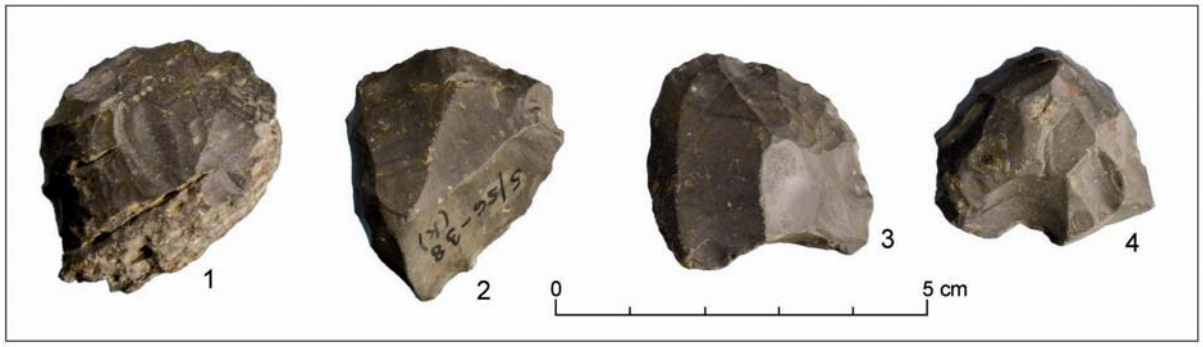

Fig. 3.: Tibava (Tiba). Carinated end-scrapers made of patinated obsidian. Aurignacian (photo A. Marková).

3. ábra: Tibava (Tiba). Obszidián vakarók patinás felülettel. Aurignaci kultúra (felvételt készítette: A. Marková).

Higher percentage of obsidian (19%) is found only in Tibava in the Východoslovenská nížina lowland (Bánesz 1960). According to geochemical analyses, it came from Hungarian – not Slovak – sources identified as Carpathian group 2 (Williams-Thorpe et al. 1984, 195). Considerable patinated obsidian occurring in Tibava was used mainly in production of carinated end-scrapers (**Fig. 3.**), blades and bladelike flakes. The Aurignacian of the Košická kotlina basin is roughly dated to 35-28 ka BP (Chu et al. in press; Verpoorte 2002, 316, tab. 9).

The highest concentration of the younger paleolithic culture of Gravettian and Epigravettian is situated in the Východoslovenská nížina lowland and near the Zemplínske vrchy hills. This fact was reflected also in the considerably more frequent use of obsidian from local sources (Carpathian group 1) for production of chipped stone industry. Cejkov and Kašov are the most important sites. In Cejkov, Gravettian and Epigravettian settlement is concentrated on the top and slopes of Tokajský vrch hill (Cejkov I-V). During multiple-year investigations and collections of L. Bánesz (1960; 1969; 1996) and other investigators (Kaminská & Tomášková 2004), numerous chipped industry was obtained from several sites. Obsidian prevailed on most of them, but limnosilicites of various provenances and patinated erratic silicite from remote sources were also frequent. Accumulation of smaller obsidian nodules with sculpturing was uncovered during investigation of the site of Cejkov I in 1969, in trench II over area of 50 x 35 cm (Bánesz 1974, Fig. 4.). Some of them bore traces of primary processing. They were an imported raw material for artifacts chipped in the area of the camp. The chronological span of the Late Gravettian settlement in Cejkov I is determined by several datings to 24 – 21 ka calBP (Verpoorte 2002; Kaminská & Tomášková 2004).

At the neighbouring site of Kašov I in the bottom layer, obsidian artifacts made 33.26% of finds (Bánesz 1969; Novák 2002). Considerable amount of artifacts (49.32%) was chipped off patinated flints (erratic flint from Silesia, Kraków-Jurassic and Volhynian flints). Dating of the bottom layer by ^{14}C is 20 700 ± 350 BP (Bánesz 1993).

We know a smaller number of Gravettian sites from the Košická kotlina basin. Košice-Barca-Svetlá III is the most distinct one; there, obsidian occurred, however, patinated flint prevailed (Bánesz 1967).

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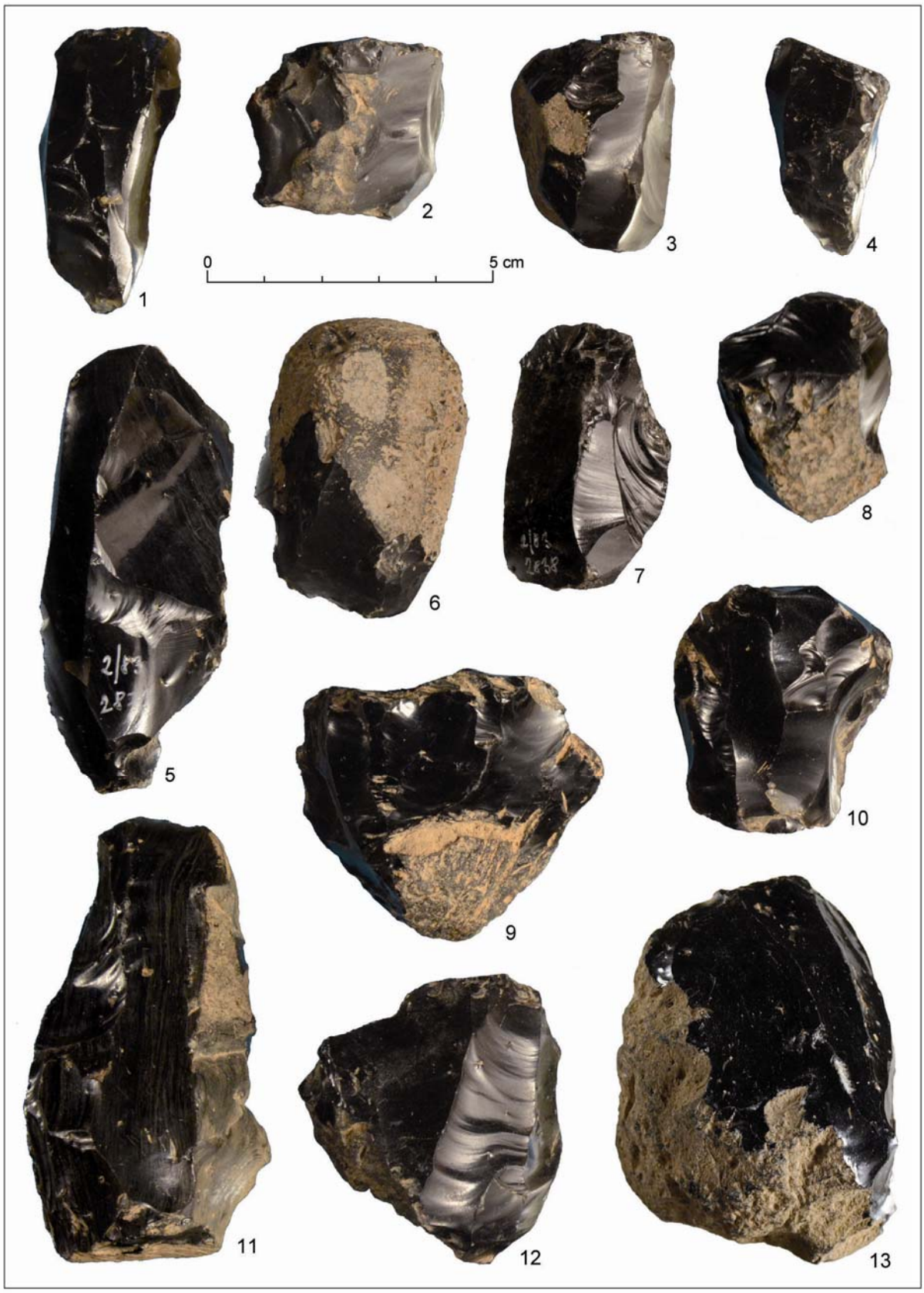

Fig. 4.: Hrčeľ-Pivničky. Various obsidian cores. Epigravettian (photo A. Marková).
4. ábra: Hrčeľ (Gercsely)-Pivničky. Obszidián magkövek. Epigravetti kultúra (felvételt készítette: A. Marková).

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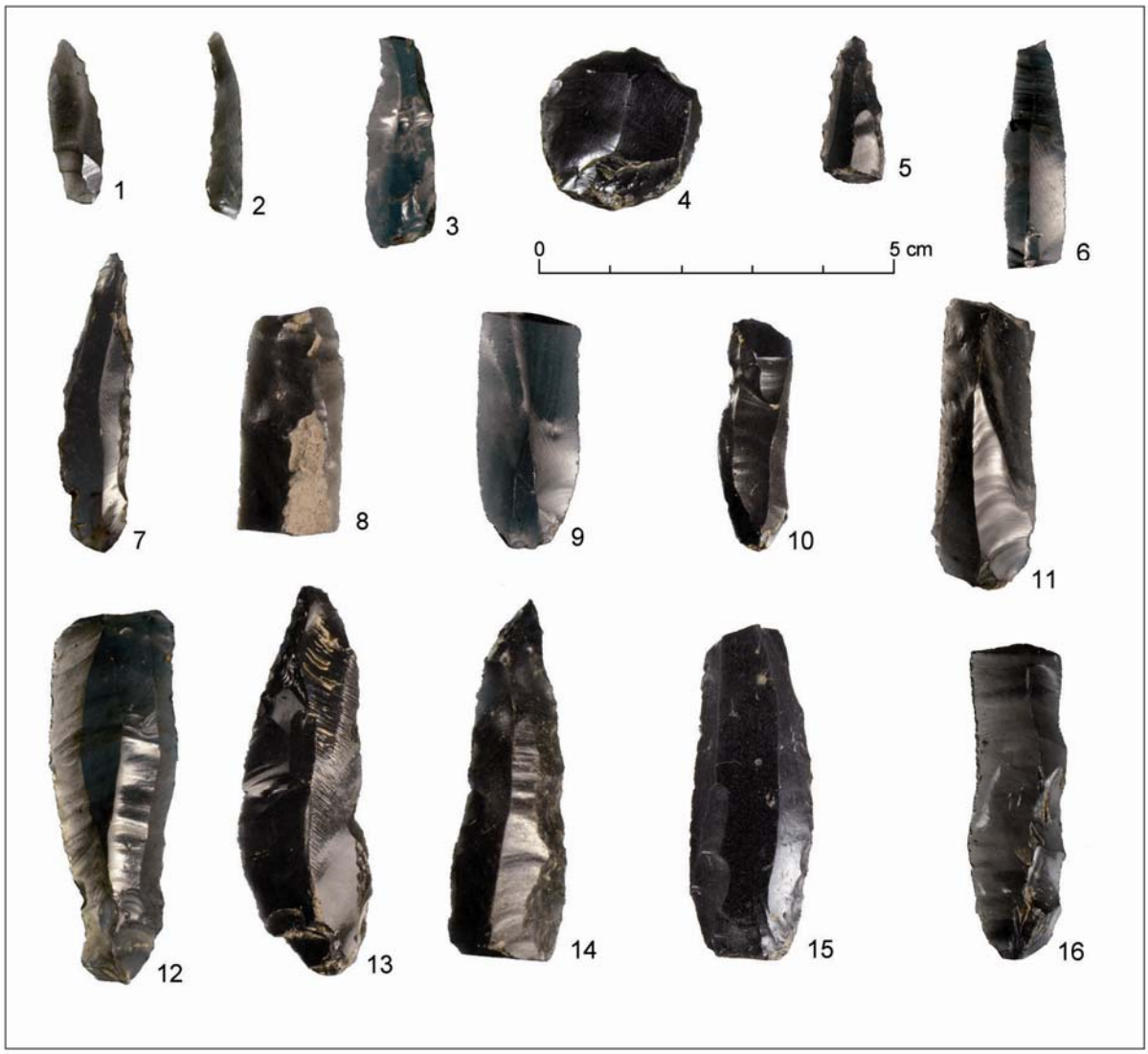

Fig. 5.: Hrčeľ-Pivničky. Chipped industry made of obsidian. Epigravettian. 1, 5, 7, 13, 14 – retouched pointed blades; 2 – backed bladelet; 4 – end-scraper; 3, 6, 8, 9 – blades; 10 – notched blade; 11, 12, 15, 16 – retouched blades (photo A. Marková).

5. ábra: Hrčeľ (Gercsely)-Pivničky. Kőeszközök obszidiánból. Epigravetti kultúra. 1, 5, 7, 13, 14 – retusált pengehegyek; 2 – tompított hátú penge; 4 – vakaró; 3, 6, 8, 9 – pengék; 10 – hornyolt penge; 11, 12, 15, 16 – retusált pengék (felvételt készítette: A. Marková).

Obsidian was the dominant raw material at all Epigravettian sites near the Zemplínske vrchy hills. In Kašov I in the upper layer, it made 81.73% (Bánesz 1969; Bánesz et al. 1992), in Hrčeľ-Nad baňou it was 47.29%, in Hrčeľ-Pivničky (**Fig. 4., 5.**) up to 69.95%, like in Veľaty I, where 66.45% of artifacts were made of obsidian (Kaminská 1995). The upper layer from Kašov I dated by ^{14}C analysis to 18 600 ± 390 BP (Bánesz 1992) is one of the richest Epigravettian sites in Central Europe. Thus, term *kašovian* was suggested to define the Epigravettian in the eastern part of Central Europe after the last glacial maximum (Bánesz 1990; Svoboda & Novák 2004).

The problem is that from 43,500 artifacts, only a small part has been processed (Bánesz et al. 1992).

Finished single- and double-platform cores were made from the obsidian raw material, mostly with sculpturing, at Gravettian and Epigravettian sites. Various types of retouched tools were chipped from them, such as end-scrapers, burins, perforators, blades, points, backed bladelets and others (Kaminská 2016).

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Obsidian sporadically occurred at sites of the Late Gravettian in western Slovakia, particularly in Trenčianske Bohuslavice (Bárta 1998) and Nitra I-Čermáň (Kaminská & Kozłowski 2011). It is also documented in the Epigravettian in Nitra III (Bárta 1980a; Kaminská & Nemergut 2014) and in the Ipeľ region (Veľká Ves nad Ipľom) in southern Slovakia (Bárta & Petrovský-Šichman 1962).

In the late Paleolithic, use of obsidian is known from sites with the Świderian culture in Spiš, although radiolarite prevails among finds, like e. g. at the site of Veľký Slavkov-Burich (Bárta 1980b) or Lučivná/Svit (Soják 2002). In the territory of Spiš, there is a higher number of sites from Epipaleolithic to Mesolithic without more exact association of industries to individual cultures. Chipped stone industry from older collections which includes artifacts made of obsidian (Spišská Belá, Kežmarok, Podhorany, Podolínec, Stará Ľubovňa) was roughly processed by L. Bánesz (1962). As for newer collections and researches, obsidian occurred at the sites of Smižany-Hradisko I (Kaminská & Javorský 1996), Bušovce, Krížova Ves, Spišská Teplica-Brehy (Soják 2002). Several obsidian artifacts come from Epipaleolithic – Mesolithic sites in Orava (Bobrov – Bárta 1984). In the end of the Paleolithic, obsidian reached north to sites in southern Poland (Ginter 1986; Sobkowiak-Tabaka et al. 2015).

Mesolithic

The Mesolithic settlement of Slovakia creates several territorial concentrations. The best documented one is situated in southwestern Slovakia, on sand dunes near Sereď, where, however, obsidian was not used (Bárta 1972). In the north of Slovakia, mainly in Spiš, obsidian occurred very sporadically on two locations at the studied site of Spišská Belá (Soják 2002; Valde-Nowak & Soják 2010). Obsidian prevailed in the non-numerous industry in Čičarovce in the Východoslovenská nížina lowland (Kaminská 2014, 319). A similar situation is found in the Košická kotlina basin, where chipped industry in Košice-Barca I (**Fig. 6.**) was made exclusively of obsidian (Prošek 1959). Obsidian was present also among finds from Medvedia jaskyňa cave near Ružín (Bárta 1990).

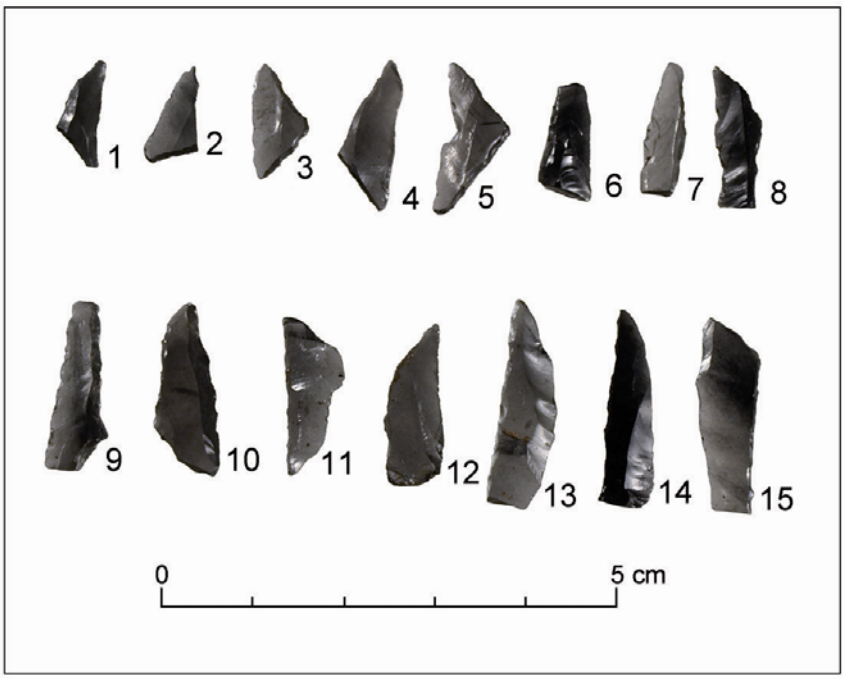

Fig. 6.:
Košice-Barca I. Mesolithic chipped industry made of obsidian (photo A. Marková).
6. ábra:
Košice (Kassa) -Barca I. Mezolit kőeszközök obszidiánból (felvételt készítette: A. Marková).

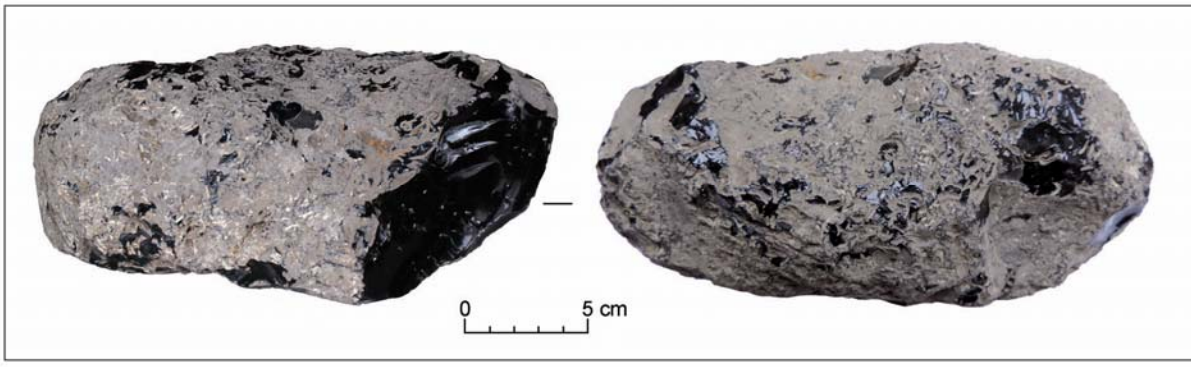

Fig. 7.: Slavkovce. Obsidian nodule, feature E/88. Eastern Linear Pottery culture. Proto-Kopčany phase (photo by Z. Bačová).

7. ábra: Slavkovce (Szalók). Obsidian nyersanyag gumó az E/88. objektumból. Keleti Vonaldíszes Kerámia kultúrája. Proto-Kopčany fázis (felvételt készítette: Z. Bačová).

Neolithic and Eneolithic

Neolithic cultures used obsidian very frequently. The Eastern Linear Pottery culture settled the Východoslovenská nížina lowland and the Košická kotlina basin. According to current datings, older sites are located in the Východoslovenská nížina lowland. One of them is the site of Moravany in the Ondava river basin. The site's settlement covers all three stages of the Eastern Linear Pottery Culture (proto-Kopčany, Kopčany and Raškovce) in the period between 5500 and 5150 BC (Nowak 2015, 226). Obsidian was the main raw material used in all phases of settlement for up to 90% (Kaczanowska et al. 2015, 172). Artifacts came from various stages of processing of obisdian – from imported nodules through obsidian cores, flakes, fragments and chips, to blades and tools.

Obsidian dominated from the oldest stages of the Eastern Linear Pottery culture also at other sites in the Východoslovenská nížina lowland – it made 90.7% in Zbudza, 96.2% in Slavkovce, 67%-91% in Zalužice, 97.6% in Zemplínske Kopčany (Kaczanowska & Kozłowski 1997, 220-221; Šiška 1989). 110 obsidians come from Slavkovce, feature E/88 (proto-Kopčany phase). They included 34 nodules, one of which, with one scar (**Fig. 7.**), weighed 2.9 kg (Kaczanowska & Kozłowski 1997, 177, Table VI-3, Fig. VI-1-3). Popularity of obsidian survived during the whole Eastern Linear Pottery culture. In the raw material composition of the chipped stone industry from the settlement in Veľké Raškovce (Raškovce group), obsidian made 91.7% of finds (Vizdal 1973, 102).

Obsidian was less frequent in the Eastern Linear Pottery culture in the Košická kotlina basin. Compared to limnosilicite, obsidian was less used (29.3%) in the protolinear phase in Košice-Červený rak (Kaminská et al. 2008, 90, Tab. 1). In the following group Barca III at the site of Košice-Barca III, obsidian made 36.5% of finds and in Čečejovce, it was 32.7% (Kozłowski 1989). Use of obsidian in the following Tiszadob group at the site of Košice-Galgovec (**Fig. 8.**) increased and made almost half of all finds (Kaminská et al. 2016).

Prevalence of obsidians at the sites situated near the sources of raw material continues in the succeeding Bükk culture. In Zemplínske Kopčany, 96% of artifacts were made of obsidian, but in Šarišské Michaľany, it was only 25.2% (Kaczanowska, Kozłowski & Šiška 1993, 42, 43, Table 9). 13 pyramidal cores from obsidian found above the studied feature (**Fig. 9-11.**) come from Kašov, Čepegov I site.

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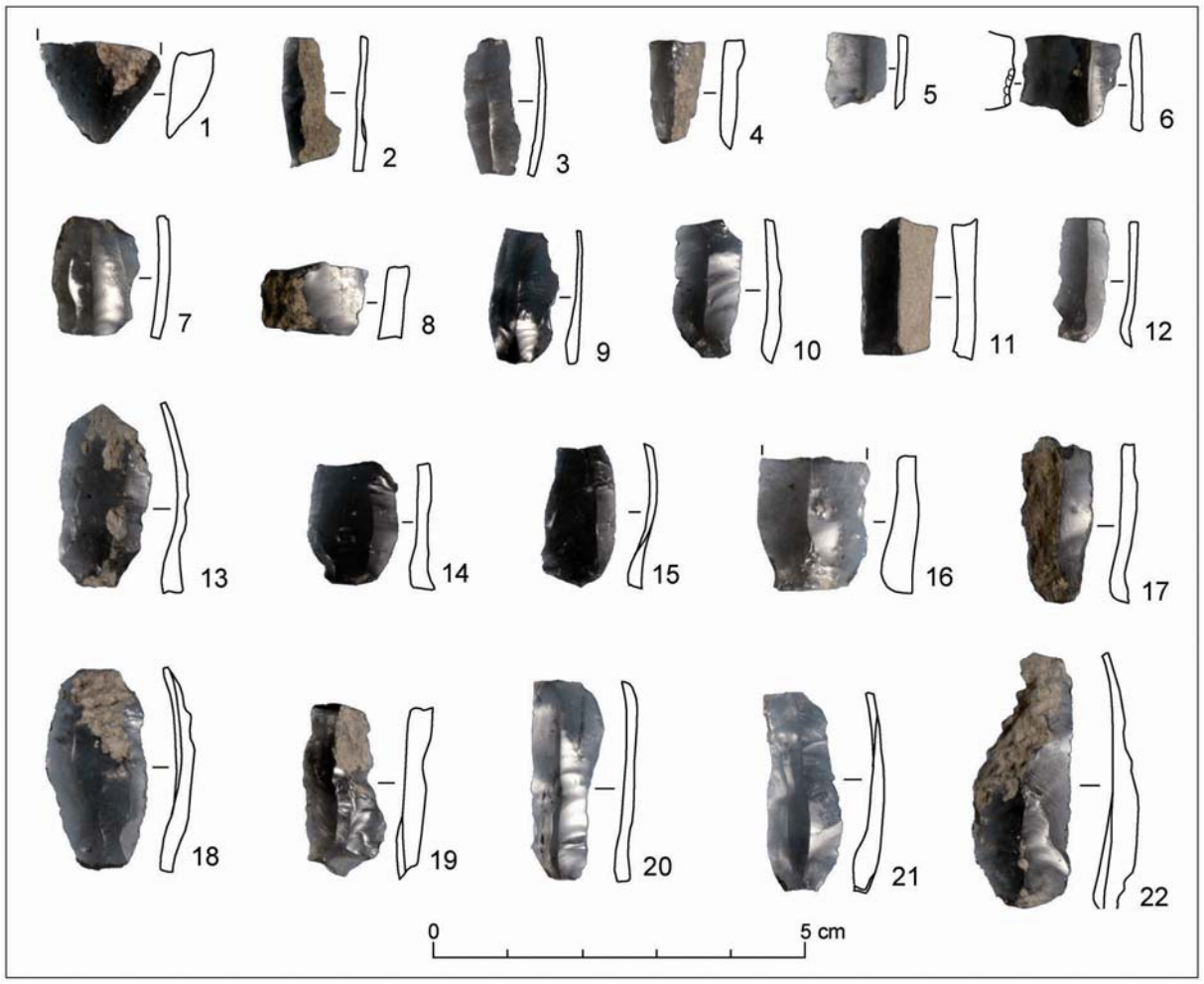

Fig. 8.: Košice-Galgovec III, feature 9/97. Eastern Linear Pottery culture, Tiszadob group (photo A. Marková).

8. ábra: Košice (Kassa)-Galgovec III, 9/97. objektum. Keleti Vonaldíszes Kerámia kultúrája, Tiszadob csoport (felvételt készítette: A. Marková).

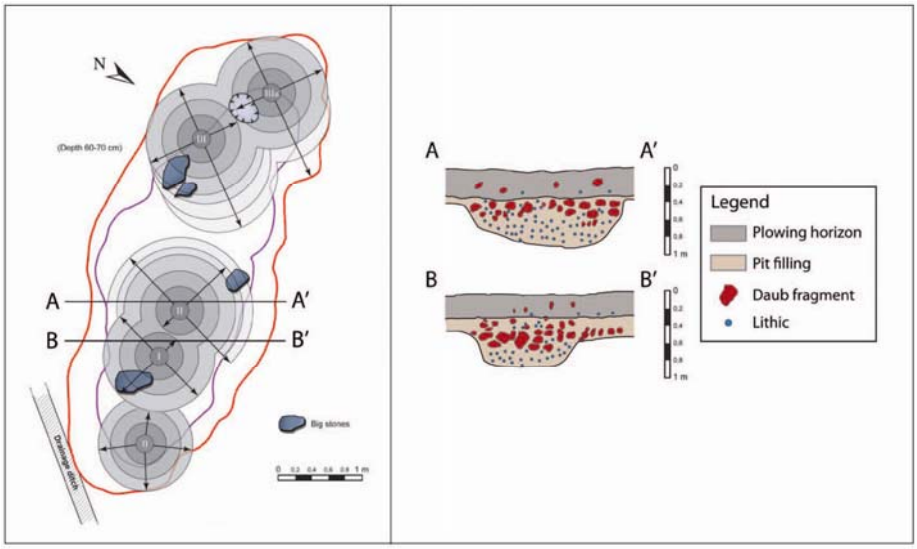

Fig. 9.: Kašov-Čepegov I. Plan and stratigraphy. Bükk culture (after Allard et al. 2017 and Bánesz 1991, modified).

9. ábra: Kašov (Kásó)-Čepegov I. alaprajz és rétegsor. Bükki kultúra (Allard et al. 2017 és Bánesz 1991 nyomán).

Fig. 10.: Kašov-Čepegov I. Blade core made of obsidian. Bükk culture (after Allard et al. 2017, modified).

10. ábra: Kašov (Kásó)-Čepegov I. Obszidián pengemagkő, Bükki kultúra (Allard et al. 2017 nyomán).

In the feature, there were tools, blades and flakes of obsidian as well as sherds of the Bükk culture (Šiška 1991). L. Bánesz (1991) interpreted the finds as specialized on-site workshop for production of cores which could become an exchange article. According to the new processing of finds, it was not a workshop. It could be a feature for production of household industry (Allard, Klaric & Hromadová 2017, Fig. 2; 6: 1). A similar core (**Fig. 12.**) was discovered also in Košice, Táborisko site (Béreš & Novák 2002).

Obsidian raw material or finished cores got outside the territory of Eastern Slovakia, as documented by numerous finds. Obsidian cores from the depot at the Hungarian site of Nyírlugos classified in the Middle Neolithic are of Slovak origin (Kasztovszky, Biró & Kis 2014). In Slovakia, we have recorded occurrence of obsidian in western Slovakia and southern Poland in the environment of the Želiezovce group (contemporary with the Bükk culture in eastern Slovakia). The number of sites with obsidian artifacts in western and central Slovakia increases in the beginning of the Lengyel culture (**Fig. 13.**), when obsidians reach the central Danube region (Šiška 1998). Further, in subsequent phases of the Lengyel culture, the share of obsidian among the finds from western Slovakia decreases.

In the cultures of the Late Neolithic and in the Early Eneolithic, there were differences in use of obsidian between settlements and burial grounds in the Východoslovenská nížina lowland. In Čičarovce, in the Csőszhalom-Čičarovce group, artifacts made of Volhynian flint prevailed over obsidian in burials, but obsidian share in settlement features was almost 50% (Vizdal 1980).

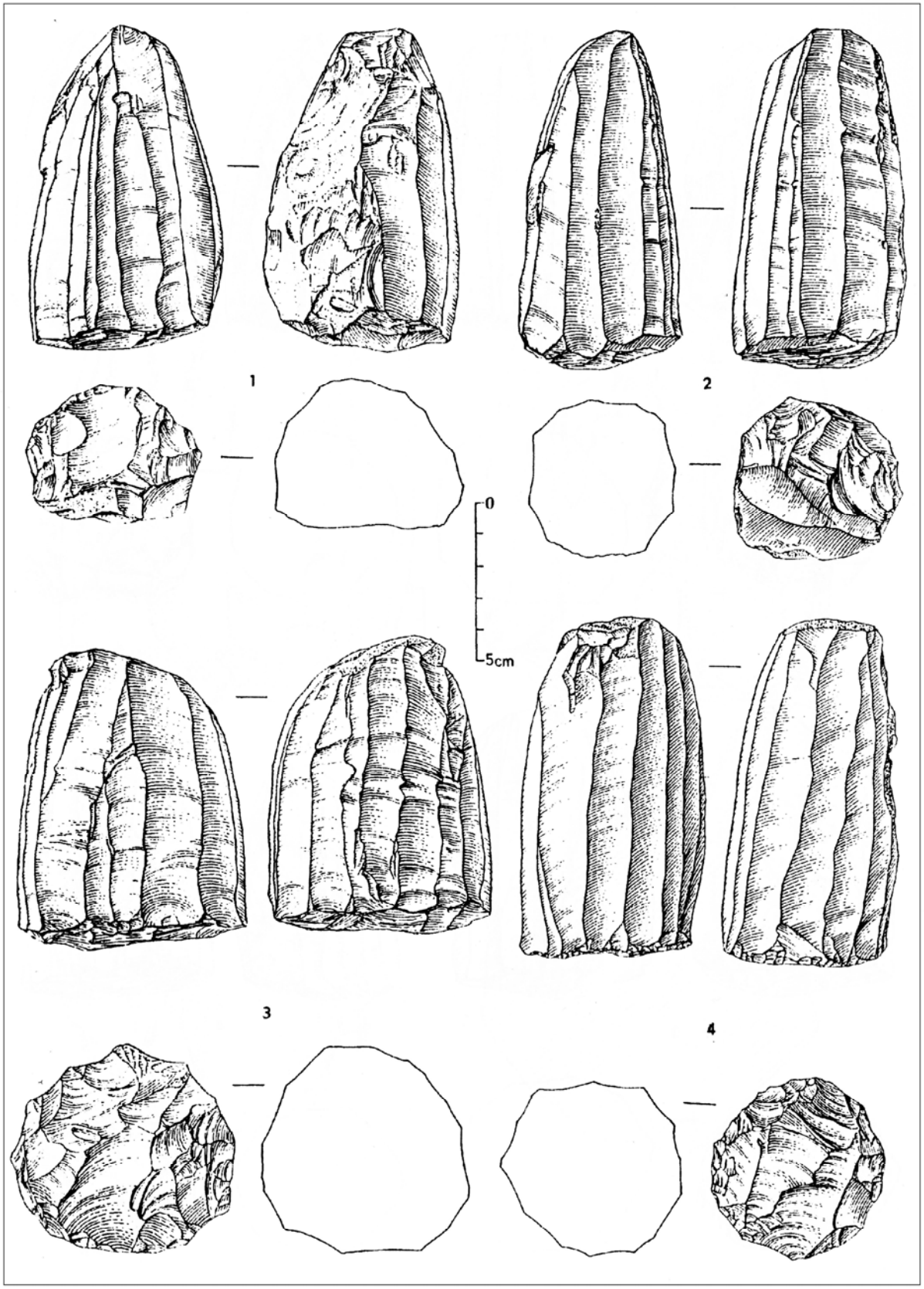

Fig. 11.: Kašov-Čepegov I. Blade cores. Bükk culture (after Bánesz 1991, modified).

11. ábra: Kašov (Kásó)-Čepegov I. Obszidián pengemagkövek (Bánesz 1991 nyomán).

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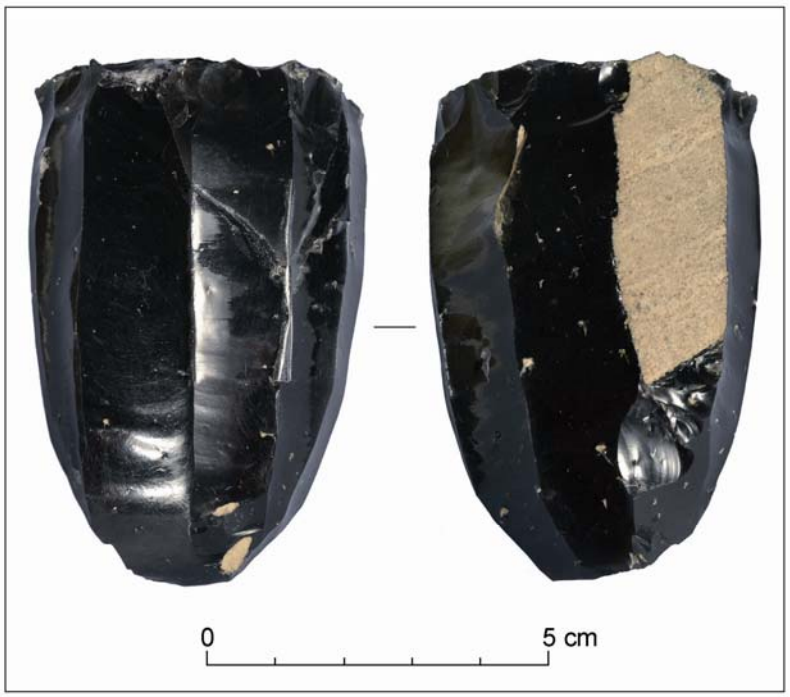

Fig. 12.:

Košice-Táborisko. Blade core. Bükk culture (photo A. Marková).

12. ábra:

Košice (Kassa)-Táborisko. Obszidián magkő, Bükki kultúra (felvételt készítette: A. Marková).

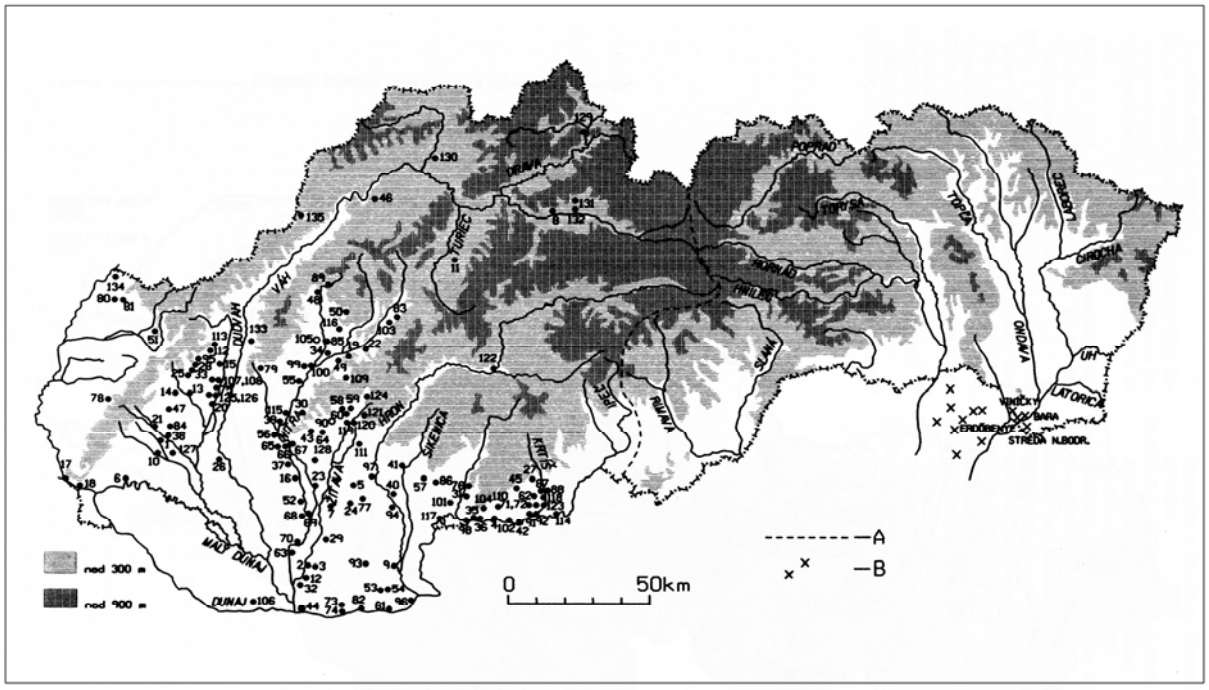

Fig. 13.: Map of Neolithic and Eneolithic sites with obsidian in central and western Slovakia. A – watershed of water streams and border between the settlements of the Tisza and the Danube regions. B – primary sources of obsidian (after Šiška 1998, modified).

13. ábra: Újkőkori és rézkori lelőhelyek régészeti obszidián előfordulással Közép- és Nyugat-Szlovákiában. A – vízválasztó a Tisza illetve a Duna irányába folyó vízfolyások között. B – obszidián nyersanyag források (Šiška 1998 nyomán).

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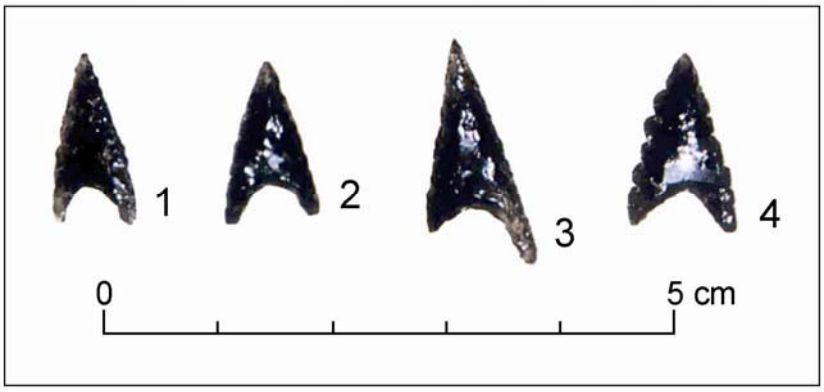

Fig. 14.: Nižná Myšľa. Arrowheads made of obsidian. Otomani-Füzesabony culture (after Gancarski 2002, modified).

14. ábra: Nižná Myšľa (Alsómislye). Obszidián nyílhegyek. Füzesabony-Ottományi kultúra (Gancarski 2002. nyomán).

Obsidian prevailed (74.81%) over other minerals at the setllement of the Csőszhalom-Oborín group in Hrčeľ (Kaminská & Pelisiak 1991).

Eneolithic – Early Bronze Age

We observe even more considerable difference in representation of obsidian at settlements and burial grounds in the Eneolithic. It is particularly visible in the Tiszapolgár culture. At the burial ground in Tibava (Šiška 1964) and in Veľké Raškovce (Vizdal 1978), Volhynian flint was the dominant raw material. Nevertheless, at the settlement at the site of Konopianky in Zemplínske Hradište artifacts were made only from obsidian. The chipped industry discovered in the settlement of the Baden culture was also made of obsidian (Chovanec 1988).

At the end of Eneolithics, various types of flints of foreign provenance (banded Krzemionki flint from Poland, Volhynian flint from Ukraine) were used in the cultures of the Corded ware cultural complex (group of „East Slovakian Barrow Group“ in the northern part of eastern Slovakia) and they were more frequent than the local obsidian (Budinský-Krička 1991).

In the southern part of eastern Slovakia, the Nyírség-Zatín culture is common in the end of the Eneolithic and in the beginning of the Bronze Age. From the few partially researched sites, chipped industry is known from Čičarovce, where obsidian blades and flakes prevail (Kaminská 2010, 64).

Early Bronze Age

Some types of tools (fully retouched arrowheads) occur also in the cultures of the Early Bronze Age. They were uncovered in burials of the Košťany culture in Valaliky-Všechsvätých (Pastor 1962, 44, tab. VI: 11-13), in Valaliky-Košťany (Pastor 1962, 40, tab. VI: 8-10) and in Košice (Pástor 1969). Occurrence of arrowheads made of obsidian (and other minerals) continued at the settlement and burial ground of the Otomani-Füzesabony culture (Gancarski 2002) in Nižná Myšľa (**Fig. 14.**). In the succeeding cultures, lithic industry was only sporadically used because it was effectively replaced by metal artifacts. That is why obsidian artifacts occur rarely.

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