

## STATE OF ARTS: THE CARPATHIAN OBSIDIANS IN THE CZECH REPUBLIC\*

### ADATOK A KÁRPÁTI OBSZIDIÁN RÉGÉSZETI ELTERJEDÉSÉRŐL A CSEH KÖZTÁRSASÁG TERÜLETÉN

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#### Abstract

*In spite of no natural obsidian occurrences in the Czech Republic, its first sporadic artefacts have been described already at some Szeletian and Aurignacian sites in Moravia (eastern part of the Czech Republic). Small but systematic presence of obsidian seems to be characteristic for big Gravettian settlements in eastern and southern Moravia and we suppose its transport in the “northern road”, it means along the Carpathian flysch belt. Obsidian tools in the Moravian Magdalenian, Late Palaeolithic and Mesolithic represent probably only accidental contacts with the area of SE Slovakia or NE Hungary.*

*The “northern road” for transport of obsidian was used again in the period of Linear Pottery culture when obsidian tools very often occur at settlements (in Czech Silesia) rich also in the silicites from Cracow-Częstochowa Jurassic. The most extensive import of obsidian to Moravia is connected with the older stage of Lengyel culture (Moravian Painted Ware I). It was transported very probably via northern Hungary or southern and western Slovakia (“southern road”) to south-western Moravia, later to the area of Brno and Eastern Bohemia.*

*Occurrences of archaeological obsidian in Bohemia (western part of the Czech Republic) were evaluated in detail by P. Burgert (2015). Comparing Moravia, obsidian artefacts appeared there later (Late Palaeolithic/Mesolithic) and its presence in the Neolithic culminated in the late phase of Stroked Pottery culture.*

#### Kivonat

*Annak ellenére, hogy a Cseh Köztársaság területén nem találunk természetes obszidián előfordulást, már a korai felső paleolitikum idején (Szeleta és Aurignaci kultúrák idején) találkozunk szórványosan obszidiánból készült eszközökkel a morva területeken (a Cseh Köztársaság keleti részén). Az obszidián kis mennyiségben, de folyamatosan jelen van a keleti és déli morva területeken a Gravetti kultúra nagyobb településein. Feltételezzük, hogy elterjedése az „északi útvonalon” történt, azaz a Kárpátok flis öve mentén. A morva magdaléni, késő paleolit és mezolit lelőhelyeken valószínűleg csak a mai DK-szlovákiai és ÉK-magyarországi területekkel való alkalmi kapcsolatok révén jelennek meg obszidián eszközök.*

*Az „északi útvonal” ismét használatba került a Vonaldíszes Kerámia Kultúrája idején, amikor is gyakran találkozunk obszidián eszközökkel a Cseh Szilézia területén levő településeken, amelyeken gyakran kerülnek elő krakkói jura tűzkő leletek is. A legintenzívebb obszidián felhasználást morva területen a Lengyeli kultúra idősebb szakaszában figyelhetjük meg (más néven, Morva Festett Kerámia Kultúrája I. fázis). Valószínűleg Észak-Magyarország vagy Dél- és Nyugat-Szlovákia felől érkezett (az ú.n. „déli úton”), a délnyugat morva területekre, majd később Brno környékére és a keleti cseh területekre.*

*A cseh területeken (a Cseh Köztársaság nyugati részén) előforduló obszidiánokat P. Burgert (2015) tanulmánya részletesen bemutatta. A morva területtel szemben az obszidián eszközök itt később jelentek meg (késő paleolitikum és mezolitikum idején). A felhasználás csúcspontja a Tűzdelt Szalagdíszes Kerámia Kultúra késői fázisának idejére keltezhető.*

KEYWORDS: CARPATHIAN OBSIDIAN, CZECH REPUBLIC, PREHISTORIC DISTRIBUTION

KULCSSZAVAK: KÁRPÁTI OBSZIDIÁN, CSEH KÖZTÁRSASÁG, ŐSKORI RÉGÉSZETI ELTERJEDÉS

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## **Introduction**

In the second half of the 19<sup>th</sup> century the geological knowledge of recent Czech Republic allowed to form conclusion about the absence of natural occurrences of volcanic glass obsidian. It is true that after discovery of moldavites (natural glasses from the group of tektites) in Bohemia 1787 some mineralogists originally believed to be a special type of obsidian (“edlen Obsidian von Moldauthein, böhmische chrysolithartigen Obsidian”). Also the founder of Bohemian geology, professor J. Krejčí (1846) has written under the pseudonym Š. Hanuš in his article focussed on Bohemian precious stones: “The Bohemian obsidian is called Moldawit”. He mentioned natural sources of obsidian in Mexico, Peru, Lipari but he did not know the Carpathian obsidian. After the investigation of physical and chemical properties of moldavites and especially after a detailed geological mapping (no occurrences of Cenozoic acid volcanism in the Czech Republic) this classification to the group of volcanic glasses was rejected. Systematic study of obsidian as a raw material for prehistoric chipped stone tools appeared in Central Europe after the International congress of anthropology and prehistoric archaeology in Budapest 1876 when the Hungarian occurrences of natural obsidian around Tokaj started to be generally known.

### ***Knowledge of archaeological obsidian in Moravia and Czech Silesia (eastern part of the Czech Republic)***

It was evident the finds of obsidian in Moravia, Bohemia and Czech Silesia (Lands of the Czech Crown; the Czech Republic in recent time) had to be considered as archaeological artefacts. The first written information on Moravian archaeological obsidian was published by J. Knies (1891). He described six Neolithic finding places with obsidian prevalently from southern Moravia and he supposed its provenance around Tokaj (Hungary) and Prešov (Slovakia). Moravian archaeologist I. L. Červinka (1902) already knew ten Neolithic localities with occurrences of obsidian. A very important obsidian find was described from the famous Gravettian settlement at Přerov-Předmostí, at that time classified as the Aurignacian. It represented probably the first stratified Palaeolithic obsidian in Central Europe (Maška 1889, Absolon 1918, Knies 1925), unfortunately without more detailed description. J. Skutil (1928) mentioned two Palaeolithic obsidians in Moravia, one from Přerov-Předmostí and another important obsidian from a unique rock crystal Magdalenian collection in the Žitný Cave near Křtiny, the Moravian Karst north of Brno. Nobody confirmed the obsidian artefact from the Žitný Cave later. That is why K. Absolon (1938, 18) had doubts about both Skutil’s obsidians

and he supposed to be smoky quartz (see also Klíma 1957).

Based on published reports, Slovakian researcher Š. Janšák (1935, 191) summarized available data on archaeological finds of obsidian in Central Europe in his monograph and he registered Neolithic obsidian in the cadastral areas of 70 Moravian villages and towns. These finds have been connected especially with the older stage of the Moravian Painted Ware culture (Lengyel culture). In Janšák’s book participated also a mineralogist F. Ulrich from Charles University in Prague who determined physical properties (refractive index, specific gravity) for nine obsidian tools from seven Neolithic sites in Moravia and one from Bohemia (Ulrich 1935, 15).

The definition of petroarchaeology around 1970 in Brno represented a new impulse in investigations of the Neolithic obsidian in Moravia. J. Štelcl (1973) studied specific gravity, and refractive index of 29 artefacts from the Neolithic sites of Kyjovice and Střelice (Znojmo district) and Brno-Holásky. Chemical analyses of main oxides for three obsidian artefacts from Kyjovice were also carried out. From the viewpoint of physical properties and their chemism, the studied Moravian Neolithic obsidians formed a homogenous collection. In that time there was mentioned only one source of obsidian in Slovakia (Viničky) with polyedric, smooth appearance of obsidian pieces and without sculpture. Comparative obsidian samples from Viničky had different refractive index and specific refractivity. That is why J. Štelcl was looking for the provenance of Moravian Neolithic obsidians in Hungary. He was influenced by opinions of K. Žebera (in Rost 1971) that the sculpture is typical for obsidians from Hungary. In recent time we know that it is exactly the opposite because the sculpture is a typical sign for natural obsidians from a secondary natural source in the northern part of Zemplínské vrchy Hills in Slovakia (Přichystal and Škrdla 2014).

Using the instrumental neutron activation analysis (INAA), Williams Thorpe et al. (1984) studied 264 pieces of archaeological obsidian from central and eastern Europe and for comparison 48 samples from natural sources in northeast Hungary and southeast Slovakia. The authors included in their analyses also 8 Moravian Palaeolithic – Mesolithic obsidian artefacts (cultural affiliation done by K. Valoch from Moravian Museum in Brno) with the following results:

1. Nová Dědina near Kroměříž, Aurignacian, source Carpathian 2a;
2. Bořitov, Szeletian, unknown source;
3. Dolní Věstonice, Gravettian, source Carpathian 1;
4. Kůlna Cave, Epimagdalenian, source Carpathian 1;
5. Uherské Hradiště – Sady, Late Palaeolithic, source Carpathian 1;

6. Příbice near Pohořelice, Mesolithic, source Carpathian 1;
7. Smolín A near Pohořelice, Mesolithic, source Carpathian 1;
8. Smolín C near Pohořelice, Mesolithic, source Carpathian 1.

In cooperation with A. Zeman (Geological Survey Prague) O. Williams Thorpe studied also 5 obsidian tools from the Neolithic site at Těšetice-Kyjovice near Znojmo (Lengyel Ia or Moravian Painted Ware Ia) and she found for them again the source Carpathian 1.

Excluding Nová Dědina and Bořitov, all Moravian Palaeolithic – Mesolithic samples had geochemical signs corresponding to the Slovakian source Carpathian 1 that represented the totally prevalent natural occurrence for the whole central and eastern Europe.

The Aurignacian obsidian from Nová Dědina was the only one with the Hungarian provenance. The surface find from a Szeletian site Bořitov had a very strange composition different from all the others to be analysed, so Williams Thorpe et al. (1984, Fig. 8) classified it as “source unknown”. Later investigation of the “obsidian” from Bořitov by A. Přichystal proved the sample as a natural glassy slag.

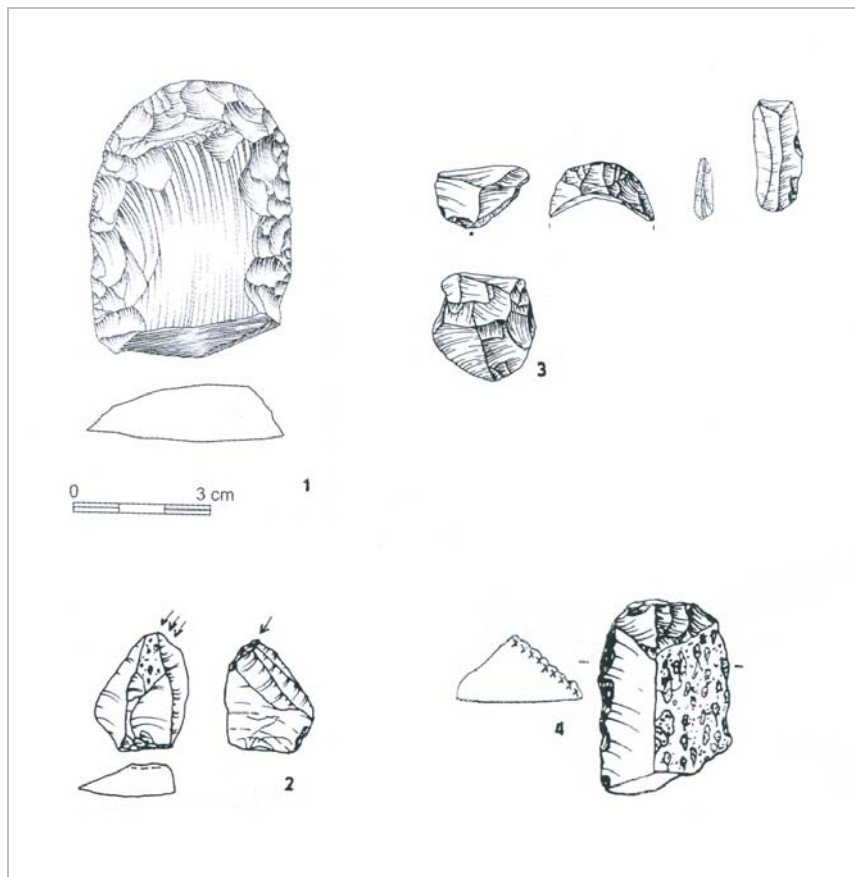
As is the provenance of Neolithic obsidian artefacts from Moravia, Zeman and Navrátil (1987) summarised results of J. Štelcl (1973) and Williams Thorpe et al. (1984) on obsidian artefacts from Těšetice-Kyjovice. In addition they added 28 analyses of main oxides from marginal and central artefact parts using microprobe JEOL JXA – 50A. The authors concluded the source area for the obsidians from Těšetice-Kyjovice was the Viničky – Kašov area in Eastern Slovakia but they also mentioned differences in the refractive index of obsidian artefacts and natural obsidian from Viničky. Their comparison of chemical composition of the weathered marginal part of artefacts and fresh central part showed only a slight decrease in Na content in the hydration rim.

During a few last years we applied modern analytical methods (LA – ICP – MS) to characterize both archaeological and natural obsidians from various parts of the world - Central Europe, Nicaragua, Syria, Turkey, Greece (Prokeš et al. 2015). The investigated collection contained also 11 obsidians from various Moravian Neolithic sites and one obsidian of the Aurignacian age (Nová Dědina near Kroměříž). The Moravian Neolithic obsidians have been in agreement with the Carpathian 1 source (south-eastern Slovakia), for the Aurignacian obsidian from Nová Dědina it was confirmed the Carpathian 2a source (north-eastern Hungary).

### *Chronostratigraphic occurrences of archaeological obsidian in Moravia and Czech Silesia*

There are no finds of obsidian tools at the Moravian Middle Palaeolithic localities and at sites of the oldest Upper Palaeolithic culture – the Bohunician. There were described two obsidian surface finds from Szeletian sites Bořitov and Neslovice (Valoch 1975, Oliva 2005) but later investigation of the Bořitov “obsidian” classified it as an artificial glassy slag. So the obsidian side scraper weighting 45.5 g from Neslovice (Brno-venkov district) would be the oldest obsidian tool found in the Czech Republic (**Fig. 1/1**). Obsidian burin (3.94 g; **Fig. 1/2**) has been described from Míškovice I – Křemenná, an Aurignacian site influenced by the Szeletian in the Holešov area, central Moravia (Oliva 2016, 62). Surprisingly rich in obsidian artefacts is an Aurignacian locality Nová Dědina I near Kroměříž, also in central Moravia. The site is famous by prevalent utilisation of rock crystal (more than 500 pieces). Five pieces of patinated obsidians have surface without preserved sculpture (**Fig. 1/3**), their glassy mass is non-translucent and black with greasy lustre. The geochemical signature testifies for the Hungarian provenance (source Carpathian 2a – see above).

Individual pieces of obsidian artefacts have been ascertained at almost all important Moravian Gravettian settlements. For the first time in Central Europe, a Palaeolithic obsidian was mentioned at Přerov-Předmostí (Maška 1889), M. Oliva (2007) later added an obsidian scraper from this famous site (**Fig. 1/4**). Also Gravettian localities under the Pavlov Hills yielded a few obsidian artefacts – 6 cm long blade with marginal retouch on both sides and preserved sculpture of the original pebble from Pavlov 1 (Klíma 1957), later another piece was found again at Pavlov 1 (Klíma 1957), one flake at Dolní Věstonice 1 and 1 chip from Milovice (Oliva 2007: 19, 43, 59). The translucent obsidian chip with an evident fluidal structure from Dolní Věstonice was involved in the collection analysed by O. Williams Thorpe et al. (1984) and it corresponded to the Slovakian source Carpathian 1. Gravettian sites with obsidian in eastern Moravia are represented by Napajedla I (4 pieces, Oliva 2007: 105) and Jarošov II (6 obsidians from about 31000 pieces, Škrdla 2005). At a very interesting Epigravettian locality Brno-Stránská skála IV where the shape of Stránská skála Hill was used for hunting of horses, surprisingly a wide spectrum of raw materials including 1 piece of obsidian was found (Přichystal 1991). At another Epigravettian site Mohelno-Plevovce in Western Moravia P. Škrdla et al. (2015) ascertained 4 pieces of obsidian (personal communication of P. Škrdla 2019).



**Fig. 1.:**  
Examples of Palaeolithic  
obsidian tools from Moravia  
(adapted after Oliva 1987,  
2007, 2016).

1. side scraper, Neslovice,  
Szeletian;
2. burin, Míškovice,  
Aurignacian influenced by  
Szeletian;
3. five obsidian artefacts,  
Nová Dědina, Aurignacian;
4. end scraper, Přerov-  
Předmostí, Gravettian.

**1. ábra:**  
Őskőkori obszidián  
eszközök morva területekről  
(Oliva 1987, 2007, 2016  
nyomán).

1. kaparó, Neslovice,  
Szeleta kultúra; 2. árvéső,  
Míškovice, Aurignaci  
kultúra, Szeleta hatásokkal;
3. öt obszidián eszköz, Nová  
Dědina, Aurignaci kultúra;
4. vakaró, Přerov-  
Předmostí, Gravetti kultúra

Occurrences of obsidian at Magdalenian sites situated especially in caves of the Moravian Karst are rare comparing the previous Gravettian – Epigravettian. With no doubt it was found in the Magdalenian - Epimagdalenian layers no. 5 and 4 in the Kůlna Cave during excavations of K. Valoch (1988). The problematic find of obsidian or more probably smoky quartz from the Žitný Cave was already mentioned. The third locality is represented by another famous Magdalenian site in the Pekárna Cave where it is not evident the archaeological age of 2 obsidian artefacts uncovered before the cave, according to B. Klíma (1974) connected rather with the Neolithic.

Rare obsidian chipped artefacts have been found at localities classified as the Late Palaeolithic. Such a site is represented for example by Uherské Hradiště – Sady, southern Moravia (obsidian coming from the Slovakian source Carpathians 1) or Kněžice south Jihlava, Western Moravia with a small obsidian core (Diviš 1990).

Individual pieces of obsidian are connected also with the Mesolithic in Southern Moravia. At a Mesolithic station Smolín (the biggest one in the Czech Republic with about 34 000 chipped pieces)

there were found 2 obsidian artefacts. According to the INAA analyses by O. Williams Thorpe et al. (1984) they correspond to the Slovakian source Carpathians 1. Another close site Přibice III gave also 2 pieces. Famous early medieval fortification Mikulčice near Hodonín had been settled also earlier in the Mesolithic. Archaeological excavation uncovered 1617 Mesolithic artefacts with 1 piece of obsidian (Škrdla et al. 1997).

Occurrences of archaeological obsidian in the period of the oldest Neolithic culture with Linear Pottery (LBK) were evaluated by I. Mateiciucová (2008). Since the early phase of the LBK, obsidian artefacts appeared only at a few settlements of northern Moravia (Mohelnice, Šišma), later in central Moravia (Količín), Mezice (Upper Moravian Basin), Pustějov – Dolní Role in Czech Silesia (4 pieces including two blades, Janák et al. 2016). Isolated imports of obsidian were ascertained even in south Moravia (Buchlovice). As is the distribution of LBK obsidian concerned, it was transported almost surely in the “northern road”, i.e. along the Carpathian flysch belt via the Cracow area because the obsidian artefacts appeared in chipped assemblages with dominance of silicites from the Cracow-Częstochowa Jurassic.





**Fig. 2.:** Neolithic obsidian blades and cores from Brno-Žebětín, Moravian Painted Ware culture, phase Ib. Photo by A. Přichystal.

**2. ábra:** Újkőkori obszidián pengék és magkövek Brno-Žebětín lelőhelyről, Morva Festett Kerámia Kultúrája Ib fázis. A. Přichystal. felvétele.

The most important presence of obsidian in Moravia is connected with the early stage I of the Lengyel cultural complex, it means with the Moravian Painted Ware culture I (6850 – 6010 cal BP; data for the MPWC according to Kuča et al. 2016). Finds of obsidian are typical for prevalent part of settlements of this stage (phases Ia and Ib) and their number can be estimate about 100 localities. The last list published by E. Kazdová (1984) contains 94 sites. As an example it is possible to mention Těšetice-Kyjovice near Znojmo where the collection of 1629 chipped artefacts of Ia phase contained 225 small chips of obsidian (i.e. 14 %; Přichystal 1984), similarly in Brno-Žebětín (phase Ib) it was ascertained 154 small pieces of obsidian – see **Fig. 2.** (7.3 % of the whole collection; Kuča et al. 2005). Raw material had to be transported as small pieces along the “southern road”, it means probably across Northern Hungary and south-western Slovakia. For the younger stage II of the Moravian Painted Ware culture (6600 – 5660 cal BP) it was typical that obsidian was replaced by local rock crystal or moldavites from Western Moravia. In Upper Silesia obsidian

exceptionally appeared in connection with the Upper Silesian Lengyel group I (Early Eneolithic) at the locality Bohuslavice “U dubu” – 3 pieces of obsidian in a collection of 55 chipped artefacts (Janák 2007, 157).

Obsidian can be rarely found also in lithic materials of the Early Eneolithic Jordanów culture (4000 – 3700 BC; data for the Moravian Eneolithic according to Kopacz et al. 2014). Six pieces of well translucent grey obsidian with fluidal structure (probably of the Carpathian 1 origin) have been described from Drnovice near Vyškov (Košťuřík et al. 1998). They represent 3 % in the collection of 195 chipped artefacts. Chipped assemblages connected with the Old and Middle Eneolithic cultures in Moravia (Funnel Beakers, Baden culture; 3700 – 2900 BC) are usually without obsidian tools excluding the important hillfort Hlinsko near Lipník (Boleráz stage of the Baden culture) where 3 obsidian artefacts (two microcores, one blade) are presented (Šebela a kol. 2007, Obr. 151) and one obsidian is mentioned from Služovice/Hněvošice in Czech Silesia (Funnel

Beakers I?, Janák 2007, 160). The Globular Amphorae, Bošáca and Jevišovice cultures (2900 – 2700 BC) are classified as the Young Eneolithic and only three pieces of obsidian were ascertained in the collection of 2155 artefacts from the whole Moravia (Kopacz et al. 2014). Two flakes with marginal retouch have been described from Hlinsko near Lipník (Bošáca culture) and 1 cortical flake with wide butt from Vysočany (Jevišovice culture). No obsidian was found in the Late Eneolithic (2700 – 2200 BC) chipped assemblages of the Corded Ware culture and it appeared very rarely among chipped raw materials of the Moravian Bell Beaker culture (MBBC). An arrowhead from Dětkovice (Prostějov district) and a blade with marginal retouch from Žadovice (Hodonín district) are only two items in the assemblages of 1110 chipped artefacts connected with the MBBC from whole Moravia and Czech Silesia (Kopacz et al. 2009). These obsidians represent very probably pieces picked up at older Neolithic/Eneolithic sites. Evaluation of chipped assemblages from the Early Bronze Age (the Únětice culture and Věteřov group) in Moravia included 1463 artefacts from 86 finding places but no obsidian has been found.

### ***Archaeological obsidian in Bohemia (western part of the Czech Republic)***

Bohemia is substantially poorer in finds of archaeological obsidian and comparing Moravia, it appeared there later. P. Burgert (2015) summarised data on its occurrences in this part of the Czech Republic including drawings of tools from various finding places. With no doubt, 24 localities are concentrated in Eastern Bohemia (especially around

Hradec Králové and Kolín) and in the border part between Eastern Bohemia and Western Moravia (the Svitavy district). Only 7 localities have been found in Southern, Western and Central Bohemia. The oldest obsidian artefacts appeared as individual pieces at Late Palaeolithic /Mesolithic sites. At two localities obsidian artefacts are connected with the Linear Pottery culture but in addition such classification cannot be excluded for a few surface finds in Eastern Bohemia (they are ranked as only the Neolithic). The maximal imports of obsidian to Bohemia culminated in the late phase of Stroked Pottery culture (4900 – 4500/4400 cal BC) when for example at Smiřice (Hradec Králové district) 18 pieces of obsidian represent 15 % of the whole collection or at Platiště nad Labem (Hradec Králové district) 77 obsidian artefacts form 4.1 % of the chipped assemblage. Only one obsidian tool (flake with retouch) was ascertained in younger prehistoric periods - in a grave of the Bell Beaker culture at Lochenice near Hradec Králové but it is supposed to be reutilised Neolithic artefact (Popelka 1990).

Geochemical study of 11 obsidian artefacts from 8 archaeological sites was carried out by P. Burgert et al. (2016) using X-ray fluorescence spectroscopy (pXRF) and laser ablation together with inductively coupled plasma and mass spectrometry (LA – ICP – MS). Almost all studied artefacts covering probably Late Palaeolithic, Linear Pottery culture and Stroked Pottery culture have Rb and Zr contents comparable with the Slovakian source Carpathian 1, only two obsidians from Kolín (younger stage of the Stroked Pottery culture) correspond to the Hungarian source Carpathians 2b.



### **3. ábra:**

Őskőkori és középső kőkori lelőhelyek kárpáti obszián előfordulással a Cseh Köztársaság területén

**Fig. 3.:** Palaeolithic and Mesolithic sites in the Czech Republic with occurrences of the Carpathian obsidian

Moravia: 1 – Nová Dědina, Aurignacian; 2 – Neslovice, Szeletian; 3 – Míšovice, Aurignacian/Szeletian; 4 – Přerov-Předmostí, Gravettian; 5 – Pavlov, Gravettian; 6 – Dolní Věstonice, Gravettian; 7 – Napajedla, Gravettian; 8 – Jarošov, Gravettian; 9 – Brno-Stránská skála, Epigravettian; 10 – Mohelno-Plevovce, Epigravettian; 11 – Sloup-Kůlna Cave, Magdalenian and Epimagdalenian; 12 – Mokrý-Pekárna Cave, Magdalenian; 13 – Uherské Hradiště-Sady, Late Palaeolithic; 14 – Kněžice, Late Palaeolithic; 15 – Smolín, Mesolithic; 16 – Přibice, Mesolithic; 17 – Mikulčice, Mesolithic

Bohemia: 18 – Stradouň, Late Palaeolithic/Mesolithic; 19 – Putim, Late Palaeolithic/Mesolithic; 20 – Ražice, Late Palaeolithic/Mesolithic; 21 – Dolní Poříčí, Late Palaeolithic/Mesolithic; 22 – Koldín, Mesolithic; 23 – Čistá, Mesolithic

## Conclusions

There are no occurrences of natural obsidian in the Czech Republic. In spite of it, rare pieces of archaeological obsidian appeared already at a few Upper Palaeolithic (Szeletian, Aurignacian) sites in Moravia (eastern part of the Czech Republic). Aurignacian site of Nová Dědina I near Kroměříž with prevalent rock crystal and 5 pieces of black non-translucent obsidian of the Hungarian provenance is standing out of them.

Individual pieces of obsidian artefacts have been ascertained at almost all important Moravian Gravettian (maybe also Epigravettian) settlements. They correspond to the Slovakian source “Carpathians 1”. Collections of chipped artefacts connected with the Magdalenian, Late Palaeolithic and Mesolithic contain obsidian artefacts only occasionally. Geochemical analyses testify again for the Slovakian provenance (Fig. 3.).

Since the early phase of the LBK, obsidian artefacts appeared at a few settlements of northern Moravia and Czech Silesia, later in central Moravia and rarely in south Moravia. As is the distribution of LBK obsidian concerned, it was transported almost surely in the “northern road”, i.e. along the Carpathian flysch belt via the Cracow area because the obsidian artefacts appeared in chipped assemblages with dominance of silicites from the Cracow-Częstochowa Jurassic.

The most important presence of archaeological obsidian in Moravia is connected with the early stage I of the Lengyel cultural complex, it means with the Moravian/Austrian Painted Ware culture I. Finds of obsidian are typical for prevalent part of settlements of this stage (phases Ia, Ib, possibly even Ic) and their number can be estimated about 100 localities.

Raw material had to be transported as small pieces along the “southern road”, it means probably across Northern Hungary and south-western Slovakia. According to a few INAA analyses of the Lengyel obsidian, its chemical composition corresponds again to the Slovakian source. During the younger stage II of the Moravian/Austrian Painted Ware this attractive raw material was not accessible and it was replaced by local rock crystal or moldavites from Western Moravia. Obsidian is only occasional or missing in collections of chipped artefacts connected with the Eneolithic cultures in Moravia.

In Bohemia (western part of the Czech Republic), the oldest obsidian artefacts appeared as individual pieces later - at Late Palaeolithic /Mesolithic sites. At two localities obsidian artefacts are connected with the Linear Pottery culture but next few surface finds in Eastern Bohemia could be ranked only as the Neolithic. The maximal imports of obsidian to Bohemia culminated in the late phase of Stroked

Pottery culture (4900 – 4500/4400 cal BC) but its quantity is substantially less comparing simultaneous distribution to the Moravian Painted Ware I stage settlements. Bohemian archaeological obsidian comes prevalently from the Slovakian source. In the period of maximal import in the Neolithic some artefacts have the Hungarian origin as well.

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