

# The Status and the Role of ‘Chocolate’ Silicite in the Bohemian Neolithic

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*The author dedicates this article to the 80th birthday of Prof. Ivan Pavlů (\*1938)*

The article focuses on the chronological status of the distribution of ‘chocolate’ silicite originating from the area of south-east Poland in the prehistory of the Czech lands. The flow of ‘chocolate’ silicite across the Carpathian Mountains culminated in the period of the Stroke-Ornamented Ware culture (5100/5000–4500/4400 cal BC) in the area studied. Based on the analysis of the contexts of finds and the classification of the artefacts, the raw material is interpreted as an indicator of the presence of individuals or groups with an exclusive social status. Both the pattern of distribution and the status are common to other ‘exotic’ raw materials, especially for Carpathian obsidian, in the studied area in that same period. By comparing the spatial and chronological image expansion of both materials can lead to similar conclusions in their assessment.

KEY-WORDS: ‘chocolate’ silicite, distribution, chipped industry, social status, Stroked Pottery culture (SBK), obsidian, Eastern Bohemia

## INTRODUCTION

‘Chocolate’ silicite is one of the most important lithic raw materials in the prehistory of the eastern part of Central Europe (Schild 1971, 1976; Borkowski *et al.*, 2008; Werra *et al.*, 2015). Its distribution range exceeds 500 km from sources (Fig. 1) and it is thereby comparable to the distribution of Carpathian obsidian (Mateiciucová 2008; Biró 2014; Burgert 2015a: Fig. 1). However, the catchment area is somewhat different due to the location of the resources above the Carpathian Arc. The purpose of this paper is to outline the specific role of ‘chocolate’ silicite, which results from its chronological and distributional position in the Neolithic period (Linear Pottery [Linearbandkeramik] Culture, hereinafter referred to as LBK: 5600–5000/4950 cal BC, Stroke-Ornamented Ware culture [Stichbandkultur], hereinafter referred to as SBK: 5100/5000–4500/4400 cal BC) in Bohemia (Fig. 1 and 2:A). The finds from the SBK period will be discussed more detail due to their larger number, therefore we can observe its presence in different types of localities.

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The recognition of this type of silicite, used as a raw material of prehistoric tools, was introduced into Bohemian research half a century ago by Slavomil Vencl (1971: 79). Nevertheless, not a lot of attention has been paid to it up to the present, and even in the basic syntheses devoted to the raw materials of the Neolithic lithic industries, no attention was paid to it (Popelka 1999; Šída 2006). The raw material was increasingly identified in the local sites due to research endeavours in Eastern Bohemia (Vávra 1993: 218; Čuláková 2015; Burgert 2015a: Tab. 1).

### SPATIAL AND CHRONOLOGICAL DISTRIBUTION OF ‘CHOCOLATE’ SILICITE IN CZECH PREHISTORY

The outcrops of ‘chocolate’ silicite are located in the northwest part of the Świętokrzyskie (Holy-Cross) Mountains in the southeast Poland. They are located in a belt approximately 90 km long, oriented in a SE-NW direction, lying between the

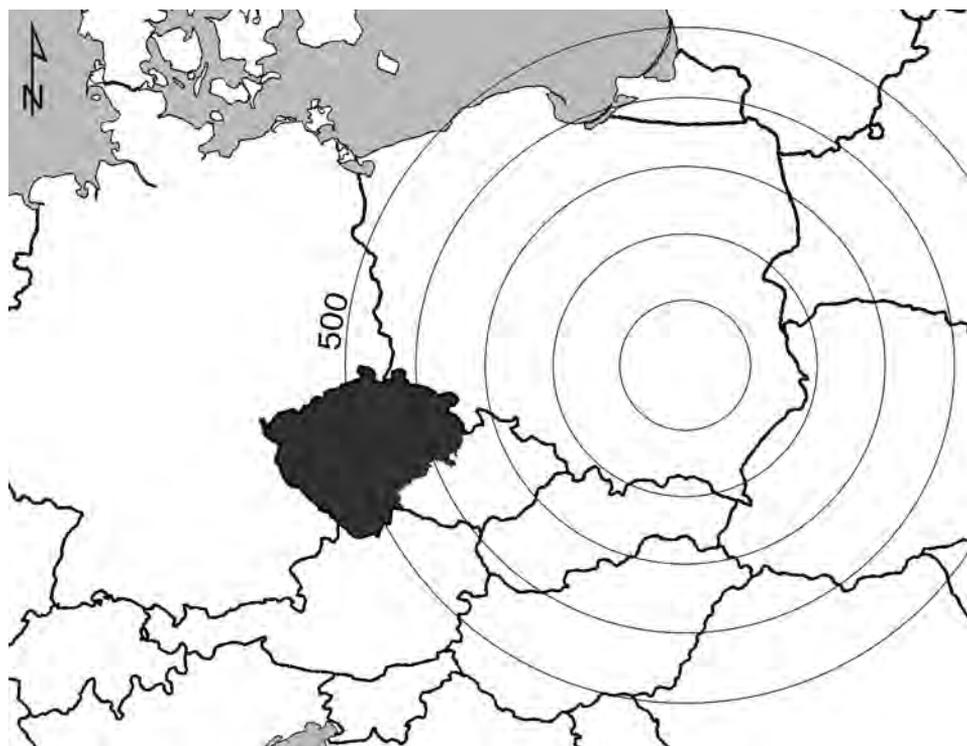


Fig. 1. Map of the eastern part of Central Europe with an indication of the area of interest – Bohemia (grey). The circles mark the distance from sources of ‘chocolate’ silicite at an interval of 100 km. The radius of the smallest circle is 100 km, of the largest 500 km. Drawn: P. Burgert.

valley of the Vistula at Zawichost in the east and the upper Radomka basin in the west. Around 25 sites with documented traces of prehistoric mining have been identified in this area (Balcer 1976; Budziszewski 2008: Ryc. 1), usually in the form of vertical shafts. Neolithic mining activities are documented by a sequence of radiocarbon data (5500–4450 cal BC; Schild 1995; Schild *et al.*, 1985; Budziszewski 2008: Table 1). The distance from the source to the Bohemian localities is between 500 and 600 km as the crow flies (Fig. 1).

All published or available finds of 'chocolate' silicite in Bohemia are summarised in Tab. 1. It is obvious that this raw material was sporadically used already in the period of Upper Palaeolithic and in Mesolithic, but it rarely occurs in site assemblages of this period. The spatial dispersion of finds in these periods includes the entire area of Bohemia with a slightly increased concentration in the southern and eastern parts (Fig. 3: A). This, however, is probably to some extent because more attention of researchers

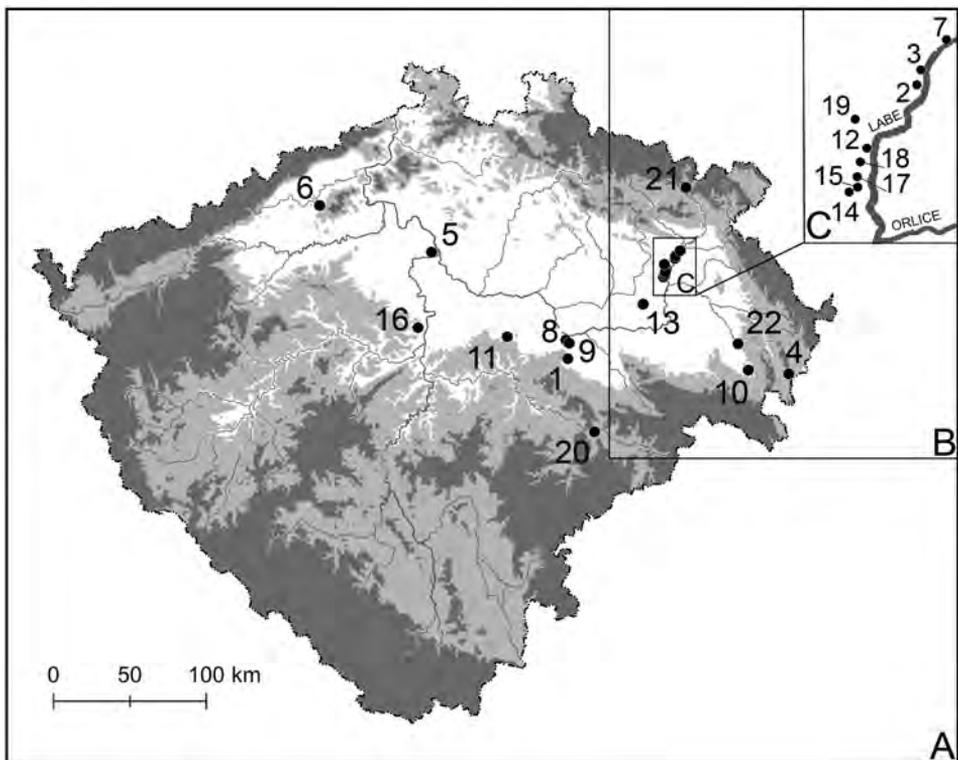


Fig. 2. The localisation of the finds of 'chocolate' silicite in Bohemia with the designation of individual area of interest. A: Bohemia; B: the eastern part of Bohemia; C: the area of the right bank of the Elbe River between Jaroměř and Hradec Králové. The numbering of sites corresponds to that in Table 1.

Drawn: P. Burgert.

Table 1. Finds of 'chocolate' silicite in Bohemia. The numbering of the sites corresponds to that in Fig. 2.

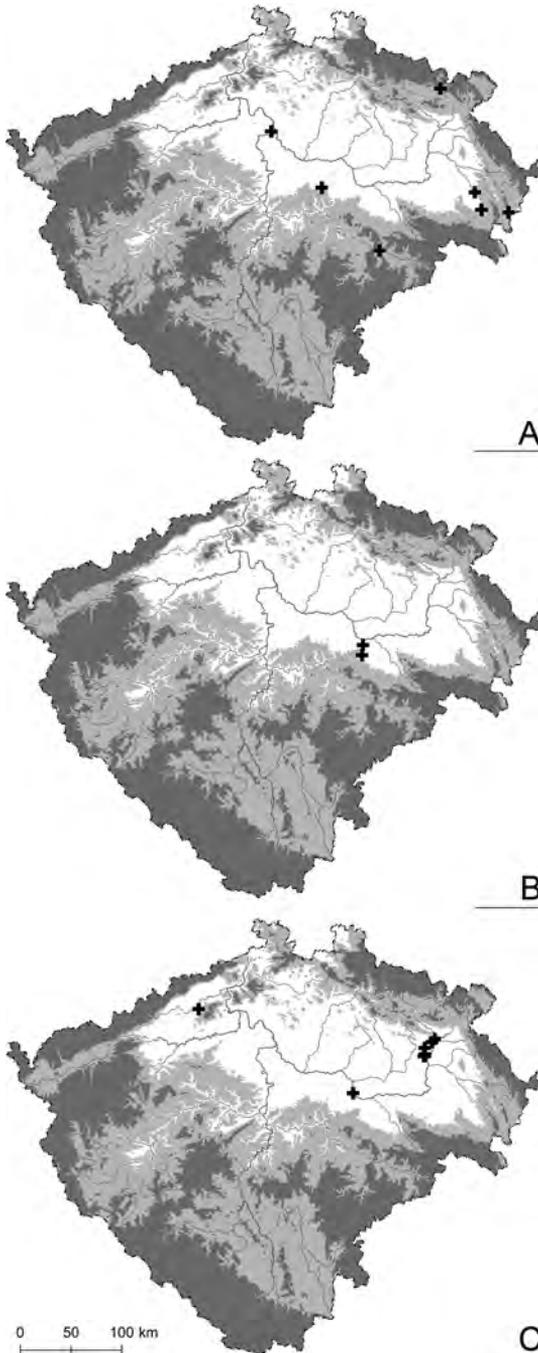
| No. | Locality  | Region           | Quantity | Form   | Chronology                      | Reference                       |
|-----|---|------------------|----------|--|---------------------------------|---------------------------------|
| [1] | [2]   | [3]              | [4]      | [5]  | [6]                             | [7]                             |
| 1   | Bylany, Kutná Hora distr.                                 | Central Bohemia  | 2        |  | LBK II, III                     | Lech 1989: 112                  |
| 2   | Černožice 1, Hradec Králové distr.                        | Eastern Bohemia  | 1        | blade  | NEOLITHIC                       |                                 |
| 3   | Černožice 2, Hradec Králové distr.                        | Eastern Bohemia  | 3        | sickle blade, flakes                                 | SBK IV                          | Vávra 1993: 218                 |
| 4   | Damníkov 1, Ústí nad Orlicí distr.                        | Eastern Bohemia  | 1        |  | MESOLITHIC                      | Čuláková 2015: 91               |
| 5   | Hořín u Mělníka, Mělník distr.                            | Central Bohemia  | 1        |  | MESOLITHIC                      | Přichystal 2000: 44             |
| 6   | Hrobčice, Teplice distr.                                  | Northern Bohemia | 1        | endscraper   | SBK IV                          |                                 |
| 7   | Jaroměř, Náchod distr.                                    | Eastern Bohemia  | 40       | blades, sickle blade, endscrapers                    | SBK IV                          |                                 |
| 8   | Kolín I, Kolín distr.                                     | Central Bohemia  | 5        | blades   | SBK IV                          |                                 |
| 9   | Kolín X, Kolín distr.                                     | Central Bohemia  | 1        | flake  | LBK III                         |                                 |
| 10  | Kornice 2, Svitavy distr.                                 | Eastern Bohemia  | 1        |  | MESOLITHIC                      | Čuláková 2015: 106              |
| 11  | Krupá, Kolín distr.                                       | Central Bohemia  | 1        | flake  | UPPER PAL-AEOLITHIC / NEOLITHIC |                                 |
| 12  | Lochenice, Hradec Králové distr.                          | Eastern Bohemia  | 1        | blade  | NEOLITHIC                       |                                 |
| 13  | Osice, Hradec Králové distr.                              | Eastern Bohemia  | 1        | silicite (flint) dagger                              | EARLY BRONZE AGE                | Šebela and Přichystal 2014: 75  |
| 14  | Plotiště nad Labem - burial ground, Hradec Králové distr. | Eastern Bohemia  | 11       | single platform core, blades, arrowheads             | SBK IVb                         |                                 |
| 15  | Plotiště nad Labem - site, Hradec Králové distr.          | Eastern Bohemia  | 157      | single platform core, cortical flakes, blades, tools | SBK IVb                         |                                 |
| 16  | Praha - Velká Chuchle, Praha distr.                       | Central Bohemia  | 3        | arrowheads   | BELL-BEAKER CULTURE             | Přichystal and Šebela 2009: 684 |

| [1] | [2]   | [3]             | [4] | [5]                      | [6]                 | [7]                   |
|-----|---|-----------------|-----|--------------------------|---------------------|-----------------------|
| 17  | Předměřice nad Labem 1, Hradec Králové distr. | Eastern Bohemia | 10  | blades, flake production | SBK IV              |                       |
| 18  | Předměřice nad Labem 2, Hradec Králové distr. | Eastern Bohemia | 2   | blades                   | NEOLITHIC           |                       |
| 19  | Smířice, Hradec Králové distr.                | Eastern Bohemia | 8   | endscrapers, blades      | SBK IV              | Burgert 2015a: Tab. 1 |
| 20  | Světlá nad Sázavou, Havlíčkův Brod distr.     | Eastern Bohemia | 1   |                          | UPPER PAL-AEOLITHIC | Přichystal 1998: 357  |
| 21  | Voletiny, Trutnov distr.                      | Eastern Bohemia | 2   | endscraper, burin        | UPPER PAL-AEOLITHIC | Vencl 1978: 10        |
| 22  | Zářecká Lhota 3, Ústí nad Orlicí distr.       | Eastern Bohemia | 1   |                          | MESOLITHIC          | Čuláková 2015: 127    |
| Σ   | Total   |                 | 254 |                          |                     |                       |

has been focused on these two areas in the past (Vencl *et al.*, 2006; Čuláková 2015). It should be noted, however, that the overall small amount of finds, regardless of the long period of time that these periods occupy, do not allow any closer conclusions.

The vast majority of other finds from Bohemia are concentrated in the Neolithic period. In the LBK period, however, the use of 'chocolate' flint in small quantities has so far been identified only in the lithic material from the extensive assemblage of finds from the settlement in Bylany near Kutná Hora (Kutná Hora district; Přichystal 1985; Lech 1989) and also recently in material from nearby Kolín (Kolín district; Fig. 3:B). All other Neolithic finds that we can closer classify come from the subsequent SBK period. Most of the finds from the SBK period are characterised by their noticeable concentration in a later phase of this culture, referred to as SBK IV (the classification of SBK here and elsewhere in the text is in accordance with the scheme by Marie Zápotocká 1998a).

Only two finds of 'chocolate' silicite are known from the post-Neolithic period in Bohemia. The first is a set of three arrowheads from the grave of the Bell Beaker culture in Central Bohemia. The other is a silicite dagger from the area of Eastern Bohemia. While it is a solitary find without a closer context, it can be typologically included in the period of the Early Bronze Age (Šebela and Přichystal 2014: 75). These finds are referred to here only for the sake of completeness because they come from a completely different economic situation than the above-mentioned finds from earlier prehistory periods.



### CONCENTRATION OF RAW MATERIAL IN EASTERN BOHEMIA

In terms of the spatial distribution of the finds of 'chocolate' silicite, it is obvious that their occurrence is concentrated in the eastern part of Bohemia (Fig. 2: B). This is, in general terms, a reflection of the relative closeness of this area to the location of the sources. What is striking, however, is the concentration of finds in a particular area of the right bank of the Elbe (Fig. 2: C and 3: C). This concerns only the later phase of SBK. Because of the exclusivity of this phenomenon, we will deal with it further.

In the area of the right bank of the Elbe in the section between today's towns of Jaroměř (in the north, Náchod district) and Hradec Králové (in the south, Hradec Králové district) we can observe continuous settlement from the earliest Bohemian LBK (Pavlů and Vokolek 1996). The density of settlement culminates there in the period of the later SBK phase and it is the greatest in the entire region of Eastern Bohemia (Burgert 2017). During this period, Circular Enclo-

Fig. 3. The spatial distribution of prehistoric finds of 'chocolate' silicite in Bohemia. A: Upper Palaeolithic and Mesolithic; B: Linear Band Pottery; C: Stoked Pottery culture.

Drawn: P. Burgert.

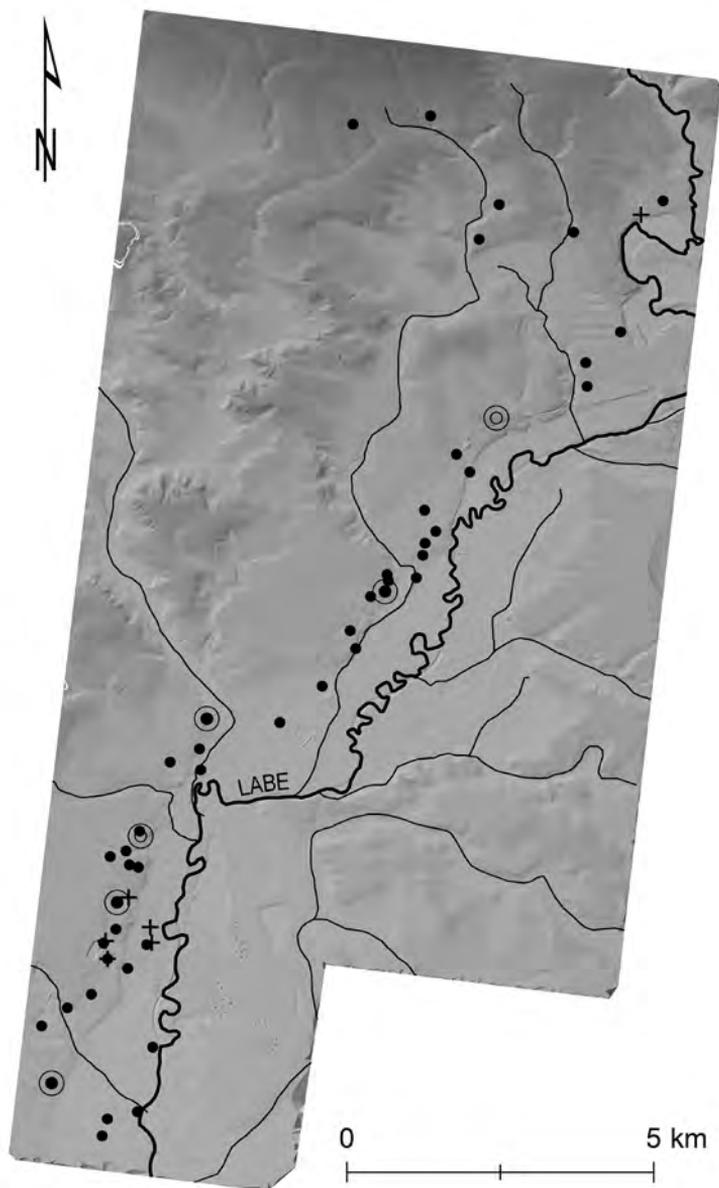


Fig. 4. Settlements at the right bank of the Elbe River in the section between Jaroměř and Hradec Králové (Hradec Králové and Náchod disrt., Eastern Bohemia, see Fig. 2: C) in the period of the late phase of Stroked Pottery culture (SBK IV). Dots: settlements; circles: Circular enclosures; crosses: graves or groups of graves. The Elbe River is reconstructed according to its situation in 1852.

Drawn: P. Burgert.

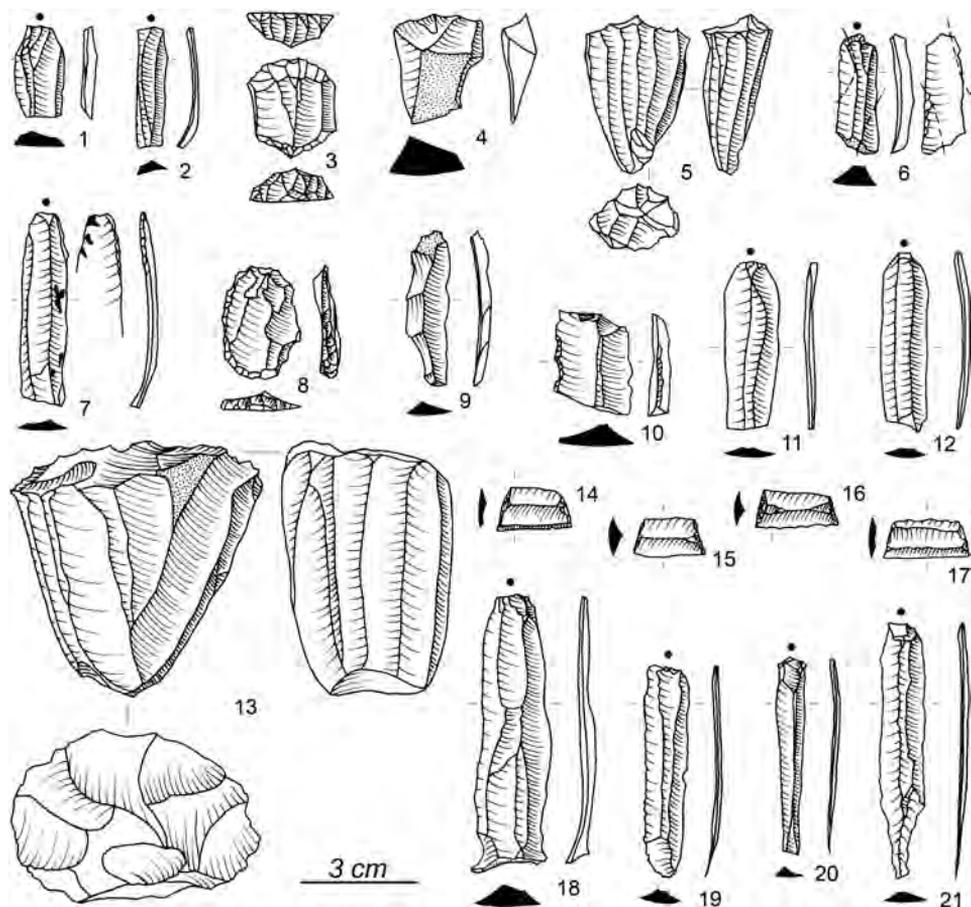


Fig. 5. Examples of 'chocolate' silicite finds from Bohemia. 1–5: Plotiště nad Labem, Hradec Králové distr., pit No. 74; 6: Jaroměř, Náchod distr.; 7: Kolín, Kolín distr. 8–10: Předměřice nad Labem, Hradec Králové distr.; 11–12: Plotiště nad Labem, Hradec Králové distr., child grave no. LVIII; 13–21: child grave no. LVII, weight of core: 223, 5 g. Drawn: P. Burgert and L. Raslová.

tures, graves and groups of graves are concentrated exclusively in this part of Eastern Bohemia (Fig. 4). This is also where, during this period, we record a large concentration of 'chocolate' silicite finds.

Most of the finds in this area are tied to settlements. They therefore come from the standard contents of settlement pits. Their representation in settlement assemblages<sup>1</sup> generally ranges up to 2%. An exception is object No. 74 in Plotiště nad Labem, Hradec Králové district (a clay pit with the dimensions of 23×13 m). Its filling is surprisingly homogeneous in terms of the pottery, and it is possible to classify it to the end of the later phase of SBK (SBK IVb; Burgert 2015a: 250). The chipped industry assemblage from this site comprises 1788 items with a relatively large share (8.8%, 157 items) of 'chocolate' silicite. An important find is the fact that the 'chocolate' silicite assemblage includes evidence of the processing of this raw material on site (cores, technical and cortical flakes). This is the only documented workshop for processing this raw material in Bohemia. Based on the low representation of cortical flakes with a 100% share of the cortex, it is evident that the partially pre-prepared cores were processed there.

Attention should also be paid to the presence of this raw material in graves. There are two rich children's graves, also from the Plotiště nad Labem site (this burial ground is located next to the settlement; Zápotocká and Vokolek 1997; Burgert *et al.*, 2016). In addition to necklaces made of the canine teeth of deer and the shells of gravel snails (*Lithoglyphus naticoides*) lithic items made of 'chocolate' silicite was also found there (Fig. 5). Its share represents 50% (i.e., 11 items). Both children's graves are contemporary, which was proven on the basis of the refitting of the stone flakes from their contents; in one grave (LVII), a silicite core of glacial sediments was found, from which the blades found in the second grave had been chipped (grave LVIII; Vencl 1997: 32). Just like the workshop assemblage from feature No. 74 on the same site, the graves are also classified to the end of the later SBK phase (SBK IVb).

## DISTRIBUTION SCHEME

As can be seen from Table 1, 'chocolate' silicites occur in the lithic assemblages most often in the form of blades or final tools. This fact indicates a specific form of the distribution of this raw material. At present, we are aware of only two cores, both from the Plotiště nad Labem site. One comes from the already mentioned rich grave No. LVII (Fig. 5: 13), while the other one represents a part of the extensive assemblage

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<sup>1</sup> As a representative example can be used an assemblage from the SBK settlement in Jaroměř (Burgert 2015b). The local assemblage comprised 2015 items of chipped industry, originating from about 60 settlements features. The share of chocolate silicite in this characteristic settlement assemblage was 2% (Burgert 2017).

of lithics from feature No. 74 (Fig. 5: 5) in the adjacent settlement. It is likely that 'chocolate' silicite arrived in Bohemia in the form of prepared cores during the later phase of SBK. These were processed only in some settlements and only blades or tools were distributed further within the region.

## THE LINK BETWEEN THE RAW MATERIALS AND THE TOOLS AND SEMI-FINISHED PRODUCTS

In terms of a potential link between 'chocolate' silicite and the type of tools and semi-finished products, no specific fixed link was observed. This could be partly due to the relatively small number of these tools available for analysis. However, in terms of this raw material, we know both semi-finished products (blades) without any signs of use and the blades with sickle gloss that demonstrates their long-term use as working tools, specifically in sickles (Fig. 5: 6). We have also available endscrapers (Fig. 5: 3 and 8) and a simple burin from the pre-Neolithic period. A set of four trapezes that were probably used as arrowheads from grave no. LVII in Plotišť nad Labem (Fig. 5: 14–17) has no other parallels in the region.

Some artefacts bear traces of sickle gloss and residual mastic (Fig. 5: 6–7) that suggests an original attachment of the tool in a handle made of organic material. Similarly, these observations confirm the use of at least a part of 'chocolate' silicite artefacts for the same activities as other raw materials. This also does not exclude the possibility that in addition to prepared cores of the raw material, the ready-made tools with organic handles could also have been the subject of long-distance exchange.

## DISCUSSION

The 'chocolate' silicite that is the subject of this study belongs in the category of 'exotic raw materials' in the Czech environment and generally also in the SBK environment. This term is used for stone material that comes from sources that are outside the actual cultural framework in which they were found. This definition applies in the case of SBK for both 'chocolate' silicite and for Carpathian obsidian, radiolarite and basically also for Bavarian Jurassic chert and other materials too. These raw materials were the subject of long-distance and inter-cultural exchange, although the mechanisms of their distribution between the individual different cultural environments are not exactly known. Due to the distances from the sources, which in the case of Bohemia the distance from the sources of 'chocolate' silicite and the obsidian are ca. 500 km, it is considered unlikely that there was direct contact of the members of the local groups with natural outcrops. The most likely model is down-the-line exchange (Renfrew

and Bahn 2000: 368), although, considering such a great distance, this model could be combined with others, especially in the areas immediately adjacent to the sources (the situation in which their initial distribution took place are unknown, for example we cannot know anything about the default conditions, such as the ownership rights of settled communities in relation to the sources).

A characteristic feature of exotic raw materials is the fact that they occur only in trace amounts in the total volume of stone tools. These raw materials therefore do not play a purely economic role, as is the case of the dominant raw materials in assemblages (in the case of the eastern part of the Bohemian SBK these are silicites from glacial sediments). Another typical feature of these raw materials is their recognisability due to their characteristic appearance. We will discuss this feature further below. It is therefore possible to assume that exotic raw materials played a specific role in the perception of prehistoric communities. Below, we will focus only on the period of the later SBK, in regard to which there are characteristic changes in the archaeological evidence. As we have already mentioned above, the finds of 'chocolate' silicite in Bohemia significantly concentrate in this period.

In the period of the later SBK phase (SBK IV), we encounter a significant phenomenon, the construction of circular enclosures (Bertermes and Meller 2012). It is also possible to observe the gradual rise of the 'urbanisation' of settlements, including changes in the treatment of waste in settlements (Končelová and Květina 2015; Burgert 2015b). Rich children's graves appear in the funeral practices, though sporadically (Zápotocká 1998b: Taf. 67–68). All these changes can be explained by a major social transformation. The bearers of these changes could be individuals or groups of people with an exclusive social status. We believe that it is the presence of exotic raw materials in the assemblages that can be one of the indicators of the presence of these individuals or groups. This assertion is based on several assumptions:

1. The occurrence of exotic raw materials, including 'chocolate' silicite, is almost exclusively linked to the areas with strong contemporary settlements with the concentration of other phenomena, such as Circular Enclosures or groups of graves. The main region with these characteristics is the right bank of the Elbe in Eastern Bohemia (Fig. 4). The same conditions, however, also apply to the area of Kolín, where we also encounter concentration of settlements, accompanied by ringworks and grave finds (Fig. 3: C);
2. An increased concentration of 'chocolate' silicite was found in rich children's graves in Plotiště nad Labem (Fig. 5);
3. 'Chocolate' silicite is, like other exotic raw materials (obsidian, Bavarian Jurassic chert), a noticeable and well-identifiable raw material. This property is typical of status symbols (Hodder 1982);

4. The cores of 'chocolate' silicite in Bohemia were processed only at some settlements, on others we can encounter only the final products, or this raw material is absent;

The control and organisation of long-distance exchange mechanisms in archaic societies is demanding because it requires cross-border transfer of multiple settlement communities. At the same time, it requires the existence of an agent that has the ability to maintain exchange demands. This agent has the character of ritual social necessity and can be personified in the form of men whose exchange organization delivers social prestige (Strathern 1969, 1971; Liep 1991; Ziegler 2012). Let us add that the monopolization of the long-distance exchange towards a narrow circle of powerful men is one of the basic mechanisms of the formation of social complexities (Terry 1974; Earle 1999).

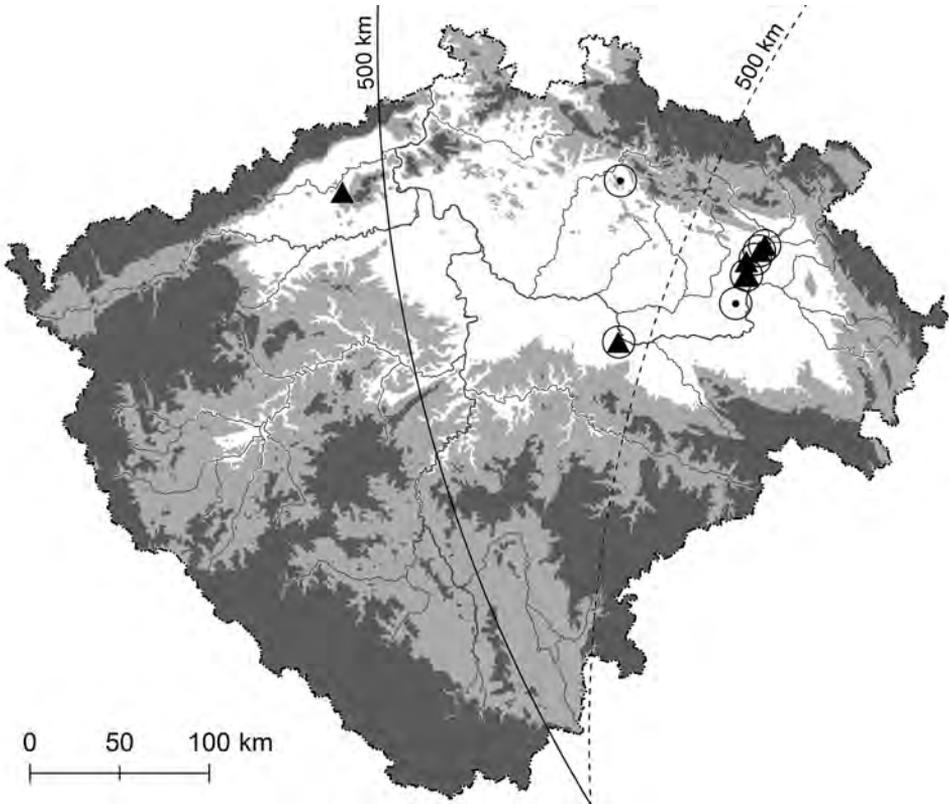


Fig. 6. Spatial distribution of finds of 'chocolate' silicite (triangles) and obsidian (circles) in the late phase of the stroked pottery culture (SBK IV). Continuous line circle: 500 km distance from 'chocolate' silicite sources; dotted line circle: 500 km distance from Carpathian obsidian sources.

Drawn: P. Burgert.

We believe that on the basis of the facts mentioned above it is possible to assume that 'chocolate' silicite had an exceptional position within the framework of stone raw materials in the Late Neolithic environment in Bohemia, which excluded its purely utilitarian function. It is very likely that this raw material, and tools made from it, can be included in a group of status-enhancing symbols, which make it possible to identify the presence of individuals or groups of exceptional social status.

The status of 'chocolate' silicite defined in this manner can be compared to that of other exotic raw materials, especially Carpathian obsidian. The chronological and distributional position of both these raw materials in Czech prehistory seems to be identical (Burgert *et al.*, 2016). The occurrence of obsidian in Czech prehistory also culminates in the SBK IV period and its finds also concentrate in the area of Eastern Bohemia, specifically on the right bank of the Elbe (Fig. 6). This is also where the only two workshops in Bohemia are located in which the obsidian was chipped directly from its initial form of lump. The distance from the original sources is roughly the same for both materials and in Bohemia this is about 500 km. As with 'chocolate' silicite, we expect a similar social status in terms of the Carpathian obsidian in Bohemia. We came to this conclusion on the basis of their fundamentally identical attributes (Burgert 2015a).

## CONCLUSION

In Czech prehistory, 'chocolate' silicite is one of a number of types of objects of long-distance exchange, for which we use the term 'exotic raw materials'. Its occurrence in prehistoric assemblages can be observed there from the Late Palaeolithic/Mesolithic to the late Neolithic (Table 1). Later finds (an arrowheads from grave of Bell Beaker culture and silicite dagger from the early Bronze Age) are extremely scarce. The distribution of this raw material culminates in the period of the later phase of the Stroke-Ornamented Ware culture (SBK IV). During this period, the finds are concentrated in the area of Eastern Bohemia, namely in the area of the right bank of the Elbe River in the section between today's towns of Jaroměř in the north and Hradec Králové in the south (Fig. 4). The share of this raw material in ordinary settlement complexes does not exceed two per cent and generally it is lower.

In the area of its greatest concentration, the finds of other exotic raw materials, especially obsidian, are also concentrated within the same time horizon. At the same time, we can observe a strong contemporary settlement density, accompanied by Circular Enclosures and groups of graves. This concerns both Eastern Bohemia and the area of Kolín, where there is also one minor accumulation of 'chocolate' silicite in the same period, in the later phase of SBK.

‘Chocolate’ silicite appears almost exclusively in the form of blades and tools in the settlement assemblages of lithic items. This fact suggests a specific form of distribution of this raw material. We currently know only one site in Bohemia where this raw material was processed in a workshop. This distribution scheme points to the specific social status of this raw material, which is also indicated by the presence of this raw material in grave finds.

## ACKNOWLEDGEMENTS

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