Ősrégészeti Tanulmányok / Prehistoric Studies

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MOMENTS IN TIME

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Series Editors

Alexandra Anders, Gábor Kalla, Viktória Kiss,
Gabriella Kulcsár and Gábor V. Szabó

MOMENTS IN TIME

Papers Presented to Pál Raczky on His 60th Birthday

Edited by

Alexandra Anders and Gabriella Kulcsár

with

Gábor Kalla, Viktória Kiss and Gábor V. Szabó

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Pre-Balkan Platform Flint in the Early Neolithic Sites of the Carpathian Basin: Its Occurrence and Significance

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One of the most challenging questions at the onset of the Neolithic concerns the establishment of long-distance contacts, inferred from the identification of raw materials exploited for the production of stone tools. The precise location of outcrops, the study of supply strategies, and the reconstruction of the raw materials distribution network are of prime importance in attempts at shedding light on this aspect of the Neolithic world. The authors explore and summarize our current knowledge on a flint type variously known as "Banat flint", "Balkan flint" or "Pre-Balkan Platform flint" (Moesian flint), regarded as one of the markers of Neolithisation in South-East Europe, focusing in particular on the occurrence of this raw material on the Early Neolithic sites of Hungary and Romania.

A neolitikum kezdetének egyik legizgalmasabb kérdése azoknak a távolsági kapcsolatoknak a kiépülése, amelyeket a kőeszköz készítéshez felhasznált nyersanyagok meghatározásával bizonyíthatunk. A külszíni bányák pontos helyének megállapítása, az ellátási stratégiák tanulmányozása és a nyersanyagok terjesztési hálózatának kialakulásáról gyűjtött adatok alapvetően fontosak, ha szeretnénk a neolitikum világának ezen aspektusáról képet alkotni. E tanulmányban bemutatjuk és összefoglaljuk jelenlegi ismereteinket a „bánáti kova", „balkáni kova" illetve „pre-balkáni plató kova (moesiai kova)" névvel jelölt, Délkelet-Európa neolitizálódása kapcsán sokak által jelzésértékűnek tartott nyersanyagról, különös tekintettel e nyersanyag Magyarország és Románia kora neolitikus lelőhelyein való megjelenésére.

INTRODUCTION

The establishment of long-distance contacts, inferred from the provenance of the raw materials used for the production of stone tools, is a well-known phenomenon, which took place as part of the Neolithisation process in several regions of Europe (see for example, Nandris 1975; Kaczanowska–Kozłowski 1994; Negrino–Starnini 2003; Mateiciucová–Malecka-Kukawka 2007).

In our view, it is not exclusively "the need to acquire raw materials over long distance" (Borić 2005, 19), which marks the start of the Neolithic and explains the occurrence of artefacts made from exotic raw materials, but rather the well-defined cultural behaviour of Neolithic groups, who systematically established and maintained long-distance social relationships between various settlements, especially during their initial migration. Thus, the acquisition of raw materials over long distances is not the main cause, but rather the consequence of this phenomenon. This cultural behaviour can be observed across the entire Mediterranean Basin, not only on the Balkan Peninsula (Mazurié de Keroualin 2003). From this perspective, an approach based on sourcing raw materials in the study of chipped stone artefacts is undoubtedly much more intriguing than a merely typological one.

Despite the unsatisfactory number of raw material archaeometric analyses and the lack of systematic analytical work on chipped stone assemblages (Šarić 2002), this paper will attempt to shed some light on this aspect of the Neolithisation of South-East Europe and, in particular, it will summarise and discuss the current evidence for Hungary and a part of Romania.

High quality, yellow-honey (blonde), white-spotted flint, often described as "Banat flint", "Pre-Balkan Platform flint", or simply "Balkan flint" (Dinan 1996), hereafter called Bflint, can be considered as one of the markers of Neolithisation on the Balkan Peninsula and in the Carpathian Basin (Kaczanowska–Kozłowski 2008). Its macroscopic characteristics enable its precise identification and the easy recognition of this raw material even on a macroscopic level; however, an analytical, archaeometric approach would be necessary in the future, especially regarding the comparison of single artefacts with the potential sources recently characterised in the Moesian Platform (Gurova–Nachev 2008). Bflint is traditionally considered to have been imported from outcrops located beyond the Carpathian Mountains. In addition to the obvious geological restraints, this assumption is also supported by a fairly good knowledge of the major geological sources of the siliceous rocks of the Carpathian Basin and adjacent regions, which might have been used for the production of chipped stone tools (T. Biró 1988; T. Biró–Dobosi 1991; T. Biró et al. 2000; Crandell 2008).

BFLINT DISTRIBUTION AREA

The spatial distribution of the artefacts produced from this raw material, whose geological source is seemingly the same, is very wide: their occurrence has been reported from several Early Neolithic sites in northern Greece (Moundrea-Agrafioti 1996, 103, Fig. 55g, Fig. 56b; Perlès 2001, 202), Bulgaria (Gatsov 1993; Gurova 2008), Serbia (Kozłowski–Kozłowski 1983; Borić 1999; Šarić 2002; Bogosavljević–Petrović 2008), Romania (Comşa 1971a; 1976; 1986; Kozłowski 1982; Biagi–De Francesco–Bocci 2007), Macedonia (Elster 1976, 265), Thrace (Tsonev 2004), and Hungary (Starnini–Szakmány 2000; Mateiciucová–Malecka-Kukawka 2007; Kaczanowska–Kozłowski 2008).[1]

Despite the many studies devoted to the chipped stone assemblages of the above regions, several questions still need to be answered regarding: 1) the identification of this raw material, 2) the precise mapping of potential outcrops, and 3) its procurement strategy. It has already been suggested (Starnini–Szakmány 2000, 311) that the wide diffusion of rather standardised Bflint blades over this extensive area perhaps reflects mining activities in a hypothetic source area and that the discovery of workshops for the production of pre-cores, rough-outs and/or blanks can be expected in the future. Other researchers too have reached

[1] Misleading information regarding the presence of Balkan flint blades in north Italian contexts was unfortunately circulated by Emanuela Montagnari-Kokelj (see for example, Tsonev 2004, 259, who reports such information as a personal communication from her). It must be stressed that at present there is no evidence whatsoever that this raw material type had reached either the Trieste Karst, or north-eastern Italy, where flint was procured from the good quality sources of the Venetian pre-Alpine (Lessinian) outcrops.

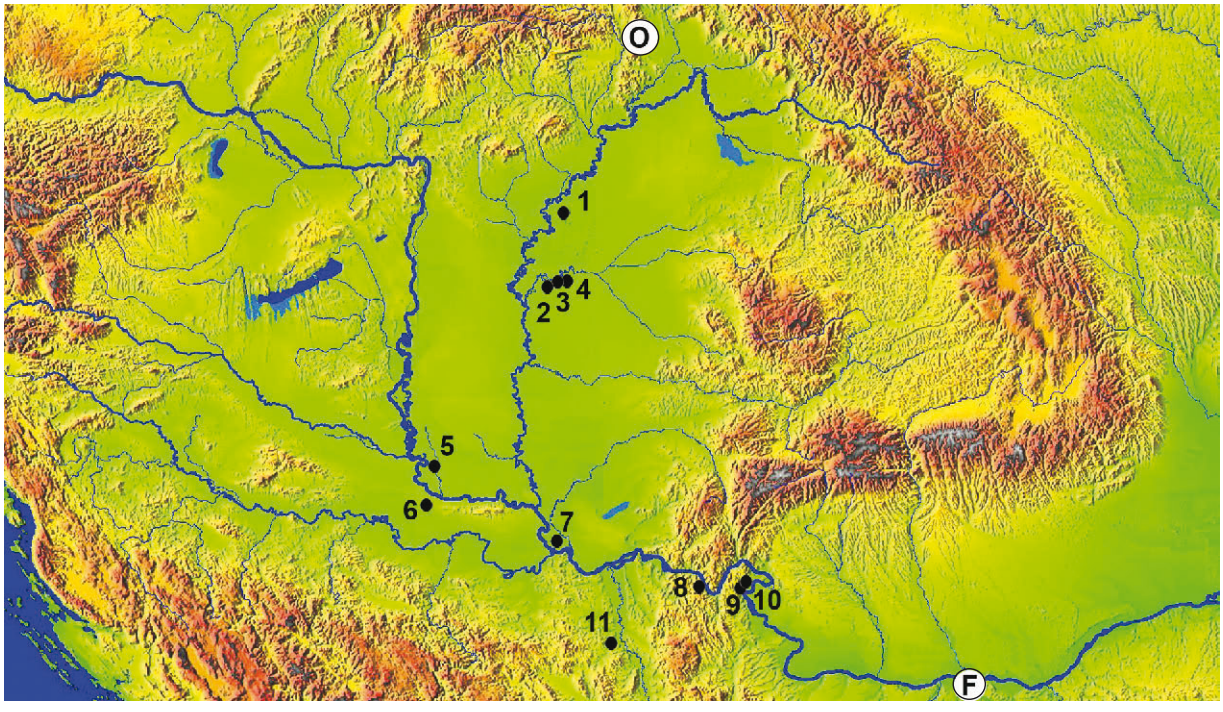

Fig. 1. Map of the FTN sites already known in the Carpathian Basin with Bflint artefacts — 1: Tiszaszőlős-Domaháza, 2: Endrőd 119, 3: Endrőd 39, 4: Endrőd 35, 5: Donja Branjevina, 6: Golokut, 7: Starčevo, 8: Lepenski Vir, 9: Velesnica, 10: Ušće Kameničkog Potoka, 11: Grivac (modified after Kaczanowska–Kozłowski 2008, Fig. 5) O = Carpathian obsidian sources, F = outcrops of Moesian Flint of the Somovit–Nikopol region

the same conclusion (Perlès 2001, 202; Mateiciucová–Malecka-Kukawka 2007, 684).

As far as we know, the distribution network of this raw material follows the main Neolithisation routes across the Balkan Peninsula, roughly from the south-east to the north-west. Thus, its presence in lithic assemblages is extremely important for clarifying interactions between Early Neolithic cultural groups in South-East Europe.

Starting from the south, "sickle blades" of honey or yellow imported flints are known from several Early Neolithic sites in Greece (Mound-rea-Agrafioti 1996, Fig. 103, Fig. 55g, Fig. 56b; Perlès 2001, 202). According to Catherine Perlès, the tools worked by both indirect percussion and pressure flaking were not produced on the settlements, but were imported as blanks to each site, where they were mainly used for plant or hide processing (Perlès 2001). Although the raw material of these blades has not been sourced yet, the described macroscopic characteristics are seemingly those of Bflint.

In Bulgaria, this raw material is used in particular for the production of chipped stone tools during the entire "classical" Early Neolithic Karanovo I and II periods, i.e. roughly between 6000 and 5500 cal BC. Bflint tools occur in the form of long, regular blades with a (bi)lateral semi-abrupt retouch, sometimes with a truncated distal end, points, and highly (re-)used sickle inserts (Gurova–Nachev 2008, 29). Because neither cores, nor *débitage* products were recovered on the sites, it was suggested that blanks taking the form of 12–15 cm long blades produced by indirect percussion had perhaps been circulated from the sources and the neighbouring workshops to and between the different settlements.

On the basis of her analysis of the chipped stone assemblage from the Karanovo tell, Maria Gurova claimed that "…about 60 per cent of the specimens from the Karanovo I and II periods were made of the high quality flint raw material called A: yellowish-brown in color, non-transparent, with patterns of white spots. […] Another 20 per cent of the material consists of type B raw material: a similar high quality flint, grey in color." (Gurova 2004, 245). She also noted in the same study that outcrops of these raw materials had been identified and localised by Vsevolod Kurchatov in the vicinity of Sveti Ilija Hills in eastern Thrace, although this localisation has recently been challenged (Gurova–Nachev 2008, 31).

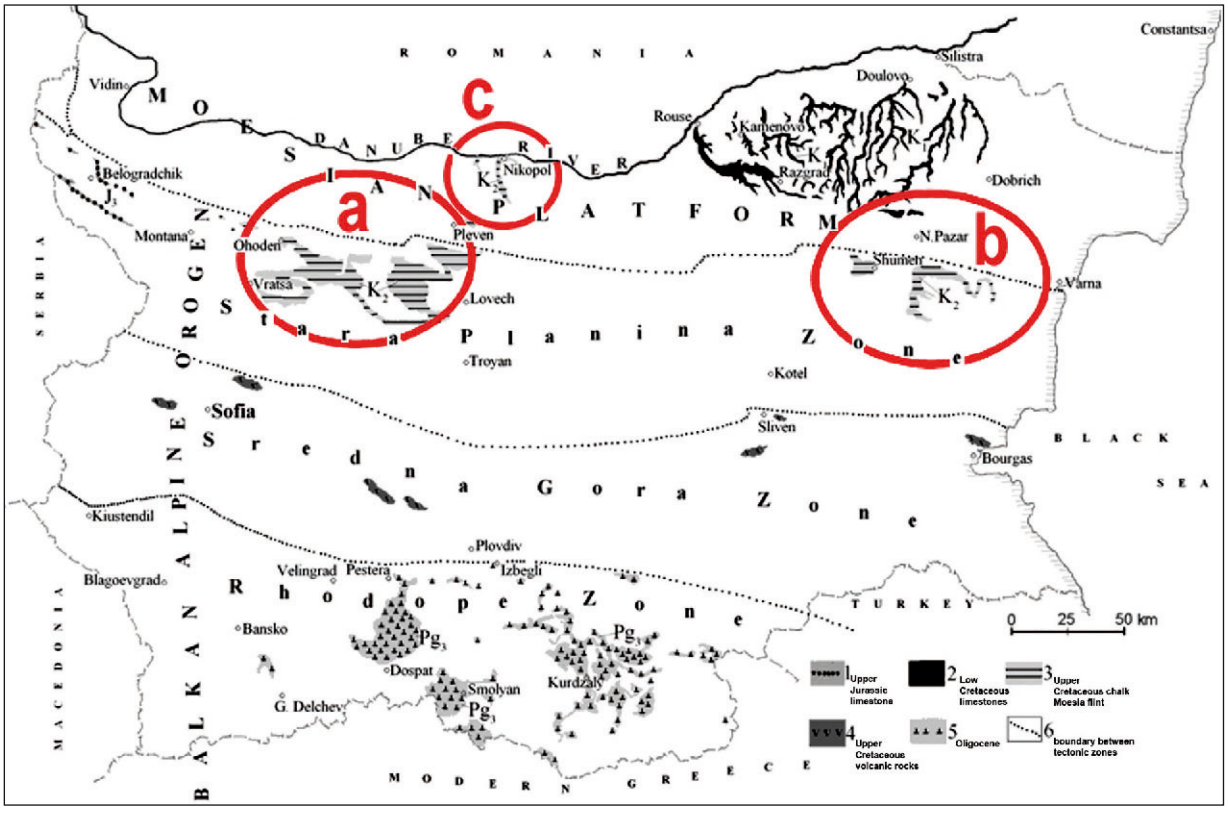

Fig. 2. Map with the location of potential outcrops of "Pre-Balkan Platform flint" (a–c) (modified after Gurova–Nachev 2008, Fig. 5)

Several authors have listed the Early Neolithic sites of the Balkan Peninsula from where the occurrence of artefacts made from Bflint artefacts has been reported (Borić 1999, 53, Fig. 13; and, more recently Bonsall 2008, 267, Fig. 10. 10; Gurova–Nachev 2008, 30–31; Kaczanowska–Kozłowski 2008, Fig. 5). Interestingly enough, some of these sites, such as Schela Cladovei, Lepenski Vir, Vlasac and Padina in the Iron Gates, the Vojvodina, lie along one of the main routes of Neolithisation, namely the Danube Valley and the river's major tributaries towards the Great Hungarian Plain and the Carpathian Basin *(Fig. 1)*.

GEOLOGICAL CHARACTERISTICS AND LOCATION OF THE ASSUMED SOURCES

According to the Munsell Color Charts, Bflint is of a moderate yellowish-brown colour (10YR 5/4) with greyish-orange spots (10YR 7/4), slightly translucent at the edges, with a waxy surface. Some varieties have a more greyish shade *(Fig. 4. 3)*.

Given that no systematic archaeometric work has so far been conducted on a significantly large sample of artefacts made from this raw material, it is currently almost impossible to provide a detailed geological description of every single tool produced from this type of flint known from the areas under study.

However, Bflint should not be confused with (Central) Banat chert from Romania, sometimes also called "Banat flint" in the archaeological literature. The latter is a lower quality raw material, yellowish-brown in colour with darker, blackish spots, whose geological characterisation was based either on individual specimens or their assumed outcrops (Comşa 1971a, 15; Boboş 1991).[2]

The different types of raw materials employed in the manufacture of the Neolithic stone tools of the Carpathian Basin were first described by Alexandru Păunescu (1970, 84–85) and, later, by Eugen Comşa (1971a; 1971b; 1976). Already in the 1970s, E. Comşa attempted the identification of possible, good quality flint sources. He identified the Pre-

[2] According to the description by the latter author, Banat flint is "colorat de la crem deschis spre cenuşiu, de la cerumaroniu spre crem cu treceri net, ocru maroniu cu vinişoare brune sau negre (vinişoare cu oxizi de mangan) translucid cafeniuspre negru cu numerore foraminifere indeterminate".

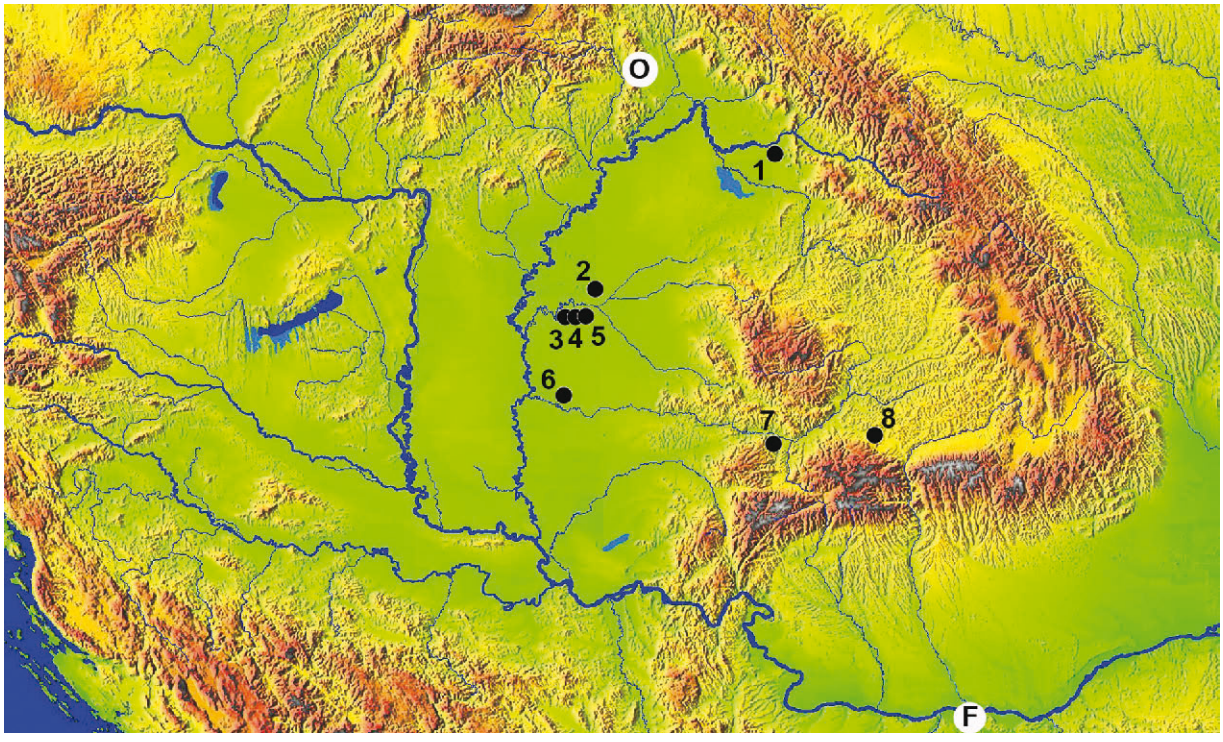

Fig. 3. Map of the northern and central Balkans showing the location of the Hungarian and Romanian Early Neolithic sites mentioned in the text, with ascertained presence of "Pre-Balkan Platform flint" — 1: Méhtelek, 2: Ecsegfalva 23, 3: Endrőd 119, 4: Endrőd 39, 5: Endrőd 35, 6: Pitvaros, 7: Cauce Cave, 8: Miercurea Sibiului-Petriş. O = Carpathian obsidian sources, F = outcrops of Moesian Flint of the Somovit–Nikopol Region

Balkan platform, i.e. the Moesian Platform, of northern Bulgaria as one of the sources of the raw materials used for producing the lithic tools from the sites he had examined (Comşa 1971b, 100). A few years later, he provided a scientific description of "Balkan flint" (Comşa 1986, 212), based on geochemical analyses.

In a comprehensive paper on the Neolithic chipped stone assemblages of the Balkans published in 1982, Janusz K. Kozłowski suggested that Pre-Balkan Platform flint was a marker of the Neolithisation process: "…dans les couches néolithiques apparaît un silex jaunâtre, parfois tacheté, provenant du Mésozoïque de la Plateforme Prébalkanique…" (Kozłowski 1982, 149). Even though the Pre-Balkan Platform provenance of this flint type is generally assumed in the literature on the subject, the precise location of the exploited source has still not been identified or mapped (Kaczanowska–Kozłowski 1997, 223).

Following the findings of more recent, systematic geological research on the flint sources in Bulgaria (Gurova–Nachev 2008), the term "Pre-Balkan Platform" is considered to be incorrect for the Moesian Platform. Maria Gurova and Chavdar Nachev noted that "Balkan flint" is probably a blanket term for every flint variety from the Moesian Platform and adjacent areas of the Balkan Alpine Orogen, which include both Lower (Aptian), and Upper Cretaceous (Campanian and Maastrichtian) flints. In effect, their geological map (Gurova–Nachev 2008, Fig. 5) indicates that several potential flint sources can be distinguished on the territory of present-day Bulgaria *(Fig. 2)*. On the basis of geological and logistic reasons, they concluded that the most probable source of Bflint, occurring in Romania and Serbia during the Early Neolithic, is the Upper Cretaceous Moesian flint of the Pleven-Nikopol region *(Fig. 2c)* on the right bank of the Danube River.

OCCURRENCE OF BFLINT IN THE HUNGARIAN AND ROMANIAN CHIPPED STONE ASSEMBLAGES

Hungary

In Hungary, this flint variety is listed among the samples housed in the Lithotheca of the Hungarian National Museum under numbers L87/099

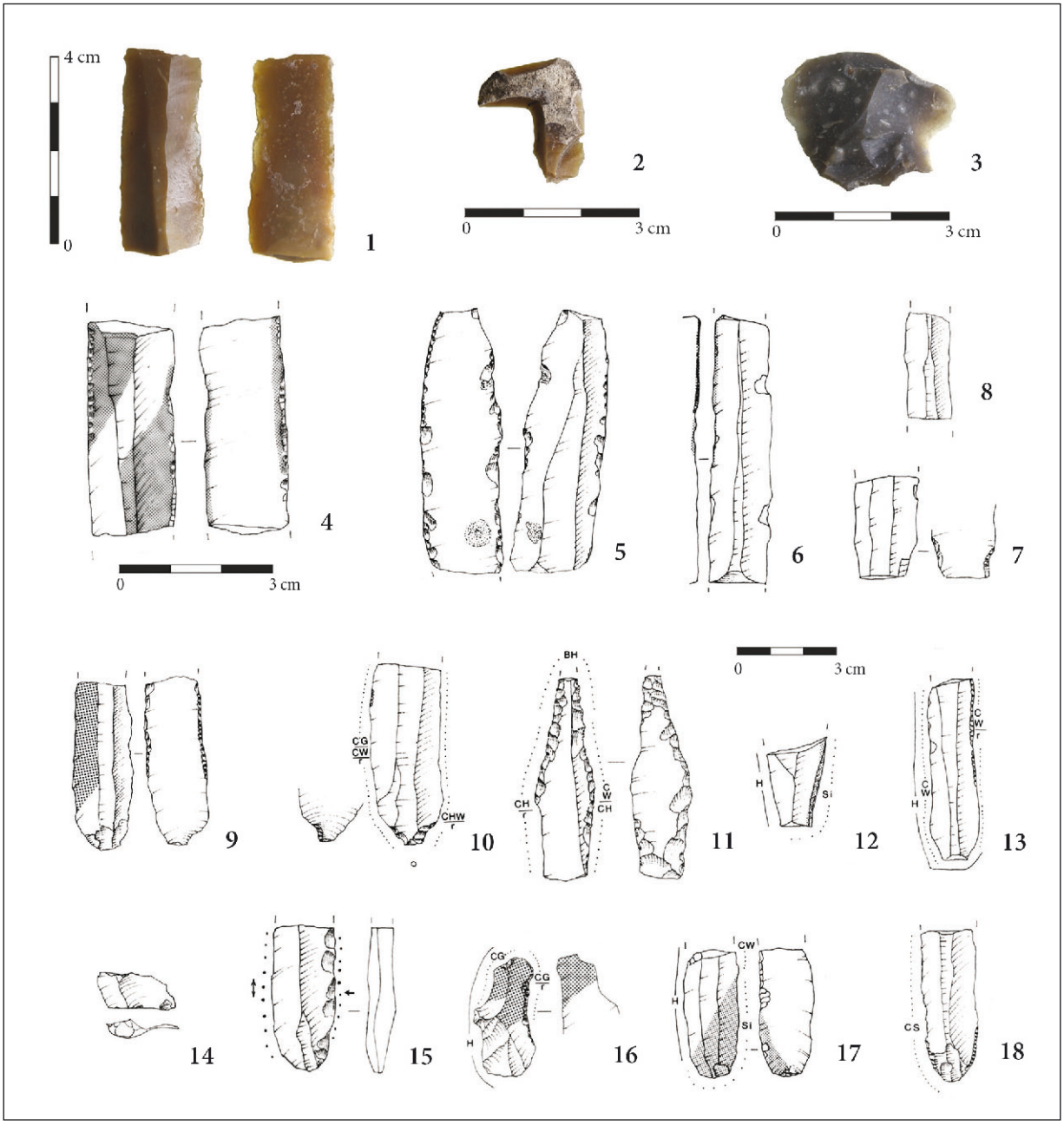

Fig. 4. Chipped stone artefacts from Hungarian Early Neolithic sites determined as made of "Pre-Balkan Platform flint" — 1, 4: photograph and drawing of a fragment of one sickle insert on mesial blade fragment from Pitvaros (Trench V/Layers 2–3) (courtesy of F. Horváth), 2: fragment of an unretouched, corticated flakelet from Pitvaros (Trench V/stray find) (courtesy of F. Horváth), 3: unretouched debitage flake from Pitvaros, greyish variant of Bflint (Trench V/Layers 2–3) (courtesy of F. Horváth), 5: distal blade fragment from Endrőd 35 (Trench III/Pit 3, 100–120 cm), 6: mesial blade fragment with a shining edge from Méhtelek (Pit 4/5α), 7: proximal blade fragment from Méhtelek (Pit 4/5α), 8: unretouched mesial blade fragment from Endrőd 39 (Trench IX/House, 90–120 cm), 9: blade fragment with a sickle gloss from Endrőd 35 (Trench III/Pit 3, 180 cm), 10: retouched and used proximal blade fragment from Endrőd 119 (Trench 40/S–E, 30–90 cm), 11: used borer on a blade fragment from Endrőd 119 (Trench 33/30–90 cm), 12: used sickle insert on a proximal blade fragment from Endrőd 119 (Trench 30/100–120 cm), 13: used proximal blade fragment from Endrőd 119 (Trenches 37–30/125–150 cm), 14: unretouched, debitage flakelet from Ecsegfalva 23 (redrawn after Mateiciucová–Malecka-Kukawka 2007, Fig. 31. 14, 5), 15: proximal blade fragment from Ecsegfalva 23, used for sawing and scraping bone/antler (Trench B, redrawn after Mateiciucová–Malecka-Kukawka 2007, Fig. 31. 18, 5), 16: used blade-like flake from Endrőd 119 (Trenches 20–21/60–90 cm), 17: used proximal blade fragment from Endrőd 119 (Trenches 37–38/100–120 cm), 18: Endrőd 119 (Trench 43/Pit 1, 60–90 cm). H = hafting traces, BH = boring hard, CG = cutting grass, CH = cutting hard, CS = cutting soft, CHW = cutting hard wood, CW = cutting wood, Si = sickle gloss, r = resharpening (use wear analyses by Barbara Voytek)

Fig. 5. Cache of 101 knapped flakes of "Pre-Balkan Platform flint" from Endrőd 39 (Photo: courtesy of the Natural History Museum of Udine)

(T. Biró–Dobosi 1991) and L97/025 (T. Biró et al. 2000).

The Early Neolithic Körös sites, where the presence of this raw material in the chipped stone assemblages has already been identified, are shown in *Figure 1*; the map in *Figure 3* shows the new sites from the same period, added to the list and discussed in detail in this paper.

Bflint is barely represented *(Table 1)* in the chipped stone assemblages examined by one of the present authors (ES) *(Fig. 4)*, the average being no more than two pieces per site, in the form of retouched, used blade fragments or unused flakes *(Fig. 4. 8, 14)*, except for Endrőd 39, where 101 pieces out of a total of 102 were found as a cache of flakes inside a pot (Kaczanowska et al. 1981) *(Fig. 5)*. The refitting of these pieces showed that they resulted from the successive phases of the rejuvenation of the sides of one core, after intermittent episodes of *débitage* of only a few blades each (Kozłowski 1982, 154). Furthermore, the absence of corticated flakes among the pieces in the depot suggested that the cores were brought to the site partially worked (Kaczanowska et al. 1981).

Bflint has also been identified at Pitvaros, one of the most ancient Körös sites of the Alföld, ra-

Site	No. of pieces	References	*Fig. 4*
Endrőd 119	8	Starnini–Szakmány 2000, 281, Tab. 1	10–13, 16–18
Endrőd 39	102	Starnini–Szakmány 2000, 290, Tab. 2	8
Endrőd 35	2	Starnini–Szakmány 2000, 304, Tab. 4	5, 9
Méhtelek	4	Starnini 1994	6–7
Ecsegfalva 23	2	Mateiciucová–Malecka-Kukawka 2007	14–15
Pitvaros	3	unpublished (courtesy of Ferenc Horváth)	1–4

Table 1. Ascertained occurrence of "Pre-Balkan Platform flint" and its relative quantity on the Hungarian sites

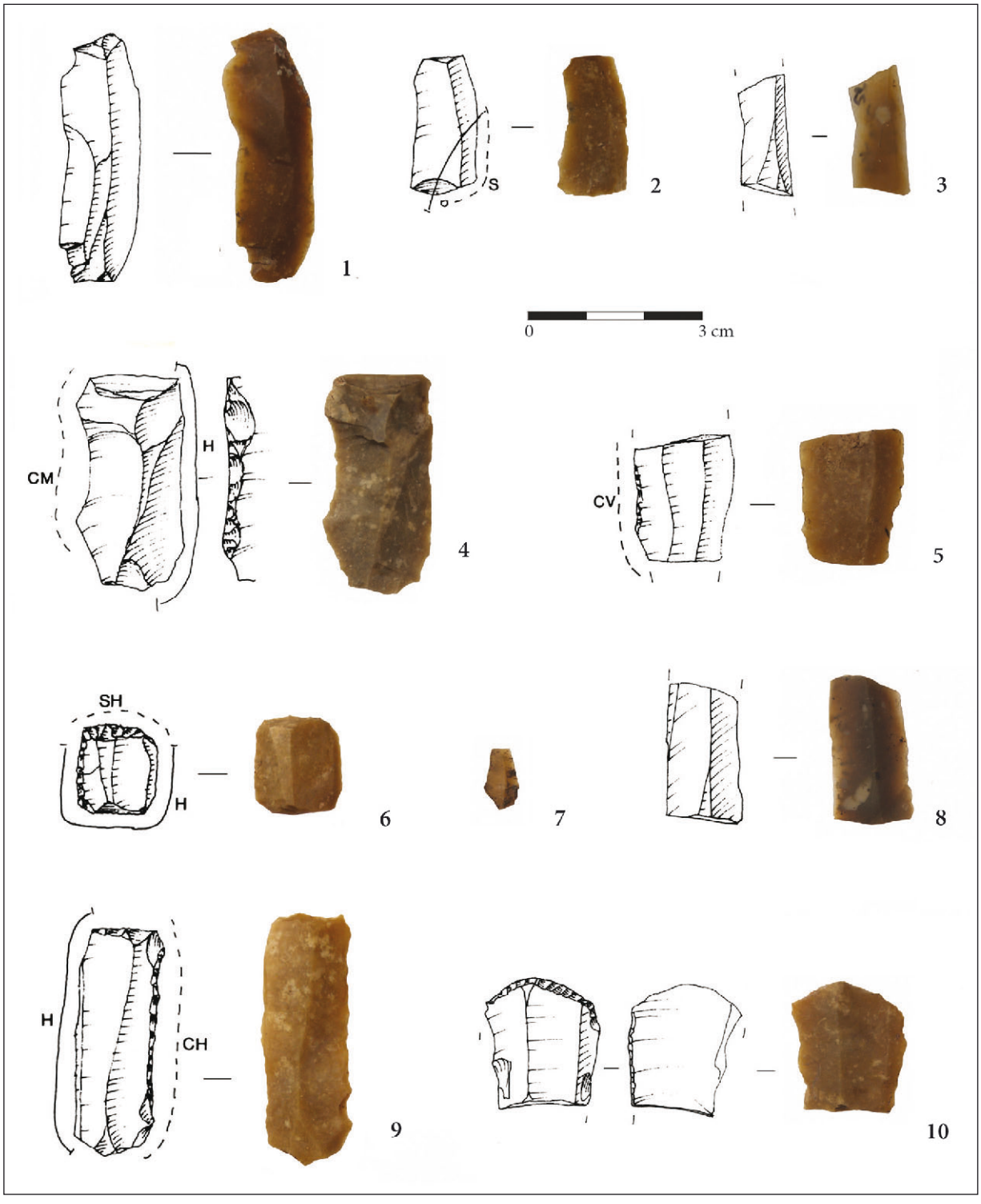

Fig. 6. Photographs and drawings of chipped stone artefacts of "Pre-Balkan Platform flint" from Transylvanian Early Neolithic sites — 1: unretouched, unused bladelet from Miercurea Sibiului-Petriș (Structure B19), 2: sickle insert on an unretouched bladelet fragment from Miercurea Sibiului-Petriș (Pit 26), 3: unretouched bladelet fragment from Miercurea Sibiului-Petriș (Pit 26), 4: retouched and used blade fragment, from Miercurea Sibiului-Petriș (-55–65 cm), 5: used bladelet fragment, from Miercurea Sibiului-Petriș (Criș layer), 6: used short end scraper from Miercurea Sibiului-Petriș (Structure B21), 7: small *debitage* chip from Miercurea Sibiului-Petriș (Structure B19), 8: bladelet fragment, from Miercurea Sibiului-Petriș (Pit 21), 9: used truncation, from Miercurea Sibiului-Petriș (B10), 10: end scraper from Cauce Cave. H = hafting traces, CH = cutting hard, CM = cutting medium, CV = cutting vegetation, S = sickle gloss, SH = scraping hard (1–2, 4–6, 9: Biagi–Gratuze–Boucetta 2007, Fig. 4; use-wear analyses by B. Voytek)

diocarbon-dated between 6020 and 5660 cal BC (OxA-9336: 7060±45; OxA-9392: 6885±50; OxA-9393: 6940±50 uncal BP: Whittle et al. 2002), where the known varieties, i.e. the yellow-honey and the greyish one, both occur *(Fig. 4. 1–3)* in the form of blade tools and flakes.

Similarly to Padina as noted by Dušan Borić, the presence of a cortical flake at Pitvaros indicates that the raw material was not exclusively transported as prepared cores or finished blades, but also in form of tested nodules (Borić 1999, 53, Fig. 139). This observation is also confirmed by the discovery of a few artefacts with river pebble cortex at Velesnica and Blagotin in Serbia (Šarić 2002, 19).

Despite the lack of systematic use-wear analyses and the fact that only a limited number of artefacts has so far been analysed *(Fig. 4)*, it would appear that the tools and implements produced from this raw material were not employed for specialised tasks. The traceological analysis of eight specimens from different Hungarian sites by Barbara Voytek using the low-power approach indicated that their use was rather varied, the commonest being the cutting of different materials, such as grass, (hard) wood and other soft or hard substances *(Fig. 4. 10–13, 16–18)*. Hafting traces were identified in four cases *(Fig. 4. 12–13, 16–17)*, while sickle gloss was recognized on two specimens *(Fig. 4. 16–17)*. The gloss formed an oblique angle to the blade orientation, indicating that the sickle inserts were fixed obliquely in the haft and also turned after the use of one cutting edge *(Fig. 4. 1, 4)*.

The Banat and Transylvania (Romania)

Our knowledge on Romania is rather patchy. Although two recent papers reported the presence of honey-coloured flint from both Banatian and Transylvanian Early Neolithic FTN sites (Bălțean 2005, 13; Boroneanț 2005, 24), Małgorzata Kaczanowska and Janusz K. Kozłowski did not map any occurrences of FTN Bflint artefacts in the territory of the Carpathian Basin (Kaczanowska–Kozłowski 2008, Fig. 5). However, in his overview of the FTN chipped stone industries of Romania, Alexandru Păunescu claimed that they "consiste essentiellement en silex (marron-brun), originaire de la Plateforme prébalkanique" (Păunescu 1987, 89).

In view of the description of the chipped stone assemblages from the oldest FTN Criș sites in the two regions (Ciută 2001), radiocarbon-dated between the last century of the 7th and the first two centuries of the 6th millennium cal BC (Biagi–Shennan–Spataro 2005, Table 1; Thissen 2009, Fig. 7), Bflint is undoubtedly represented at Ocna Sibiului/Vízakna, Şeuşa/Sóspatak and Gura Baciului/Bácstorok[3] (Ciută 2005, 53) as well as at Miercurea Sibiului/Szerdahely-Petriș/Petres (Biagi–De Francesco–Bocci 2007) and Cauce Cave (Luca et al. 2004), all lying in Transylvania. Furthermore, it is very common at the Oltenian site of Cârcea, where it represents 94% of the chipped stone implements (Dinan–Nica 1995), and at Măgura in southwestern Muntenia, an important early FTN Criș site, radiocarbon-dated between 6896±61 (Wk-14435) and 6784±56 uncal BP (Wk-14437) (Mirea 2005), as well as at Dulceanca in the same region, although this site is attributed to a later period in the Criș sequence (Criș III) (Comșa 1994). However, this type of flint is not reported among the lithic assemblage from the early FTN Criș site of Foeni/Fény-Sălaș in the Banat (Kuijt 1994).

Regarding Transylvania, a few Bflint tools from two Early Neolithic FTN Criș sites have been recently identified from this region. Nine specimens *(Fig. 6. 1–9)* come from the excavations still in progress at the open-air site of Miercurea Sibiului-Petriș (Luca et al. 2006), whilst one end-scraper comes from Peştera Cauce, close to Cerișor/Cserisor (Hunedoara/Hunyad) *(Fig. 6. 10)*, a multi-stratified cave site occupied from the early Criș period to the Bronze Age Wietenberg period. According to Sabin Andrian Luca and his colleagues (Luca–Roman–Diaconescu 2004, 67), the cave lies in the eastern Poiana Ruscă Mountains, some 10 km south of the chert source at Ciulpăz/Csulpesz, which is of a dark, yellowish brown colour (10YR3/4–4/4) often with blackish inclusions.

[3] Describing the raw materials of the chipped stone artefacts from a few Early Neolithic sites of Romania, Zoia Maxim (Maxim 1999, 225) noted that "Another rock … from Gura Baciului … is the honey-coloured opal with white spots (archaeologically known as jasper)… Such pieces are frequent at Ocna Sibiului and Cârcea, sometimes being considered as belonging to the "prebalkanic platform" [sic!]. From her description it is unclear whether she meant the presence of artefacts made from Bflint or other material with very similar macroscopic characteristics. It will be necessary, in the future, to re-analyse all the collections in order to understand what the archaeological situation is really like.

The chipped stone artefacts from the site, recovered from the entire occupation sequence, are described as "brun cu intruziuni negre" (Luca–Roman–Diaconescu 2004, 200) and they can thus be regarded as produced from the so-called "Central Banat" chert.

Even though the Bflint artefacts from Miercurea Sibiului-Petriş and Peştera Cauce represent a numerically small sample, the artefacts form a heterogeneous assemblage in terms of their typology, given that end-scrapers, unretouched and retouched blades are all represented. They were utilised in several ways: for cutting medium and hard substances, vegetation and for harvesting cereals.[4] Hafting traces were identified on three artefacts *(Fig. 6. 4, 6, 9)*. Only blades appear to have been used as blanks for these few implements. The presence of a micro-flakelet *(Fig. 6. 7)*, recovered by wet-sieving, demonstrates that recovery strategies can affect the number and nature of the finds, especially in the case of chipped stone artefacts. Although the number of examined specimens is very low, these artefacts echo the trend observed in Hungarian assemblages: a heterogeneity of both the tool typology and their use.

DISCUSSION

The study of the provenance and use of the different raw materials utilised for stone tool production is of prime importance for the reconstruction of cultural relationships and exchange networks of prehistoric populations and, last but not least, for the identification of the routes at the onset of the Neolithisation process. In Hungary, thanks to the pioneering studies by Katalin T. Biró (T. Biró 1988; T. Biró–Dobosi 1991; T. Biró et al. 2000), an almost complete map of the lithic resources and raw materials recovered from the sites is available for this part of the Carpathian Basin. Nevertheless, much work still needs to be carried out in almost all of the neighbouring territories. Whilst more attention has so far been accorded to obsidian sources (Williams–Nandris 1977; T. Biró 2006; Biagi–De Francesco–Bocci 2007), and except for a few model studies (Voytek 1986; 1990), there have been few efforts to map all possible sources of siliceous, cryptocrystalline rocks in the Balkans, to characterise them using scientific methods, and to source the remaining lithic raw materials, which often represent the largest amounts of chipped stones.

The confirmed presence of Bflint on almost all sites of the Early Neolithic Körös culture analysed to date demonstrates that the first farmers of the northernmost FTN boundary (Nandris 1970; 2007; Kaczanowska–Kozłowski 2008), which, in the light of our present knowledge, runs across Hungary (Sherratt 1982, Fig. 6; Kalicz et al. 1998, Fig. 1), undoubtedly maintained contact with those of the southernmost regions of this large cultural unit, and that Hungary was fully involved in this process *(Fig. 3)*. The occurrence of both Bflint blades and flakes, including corticated pieces, in Hungarian contexts opens a new perspective: in effect, the presence of *débitage* wastes and cortical flakes challenges the general hypothesis that this raw material was most probably traded over long distances in the form of finished (blade blanks) products or prepared cores. The study of the lithic finds from Hungarian sites analysed to date indicates that the raw material might have circulated also in the form of tested nodules or rough-outs, similarly to the obsidian nodules from Carpathian sources (Nandris 1975; Kaczanowska–Kozłowski 1996; 1997; Starnini–Szakmány 2000), although the social organisation of the manufacture of the two above raw materials was not necessarily identical, as suggested by the strong variability in the number of *débitage* wastes from a few sites (J. K. Kozłowski, personal communication, 2009). Unfortunately, the small size of the excavated area at most Körös village sites undoubtedly biases the reconstruction of settlement dynamics, the sites' topography, and the spatial organisation of human activities within the settlements. This problem is obvious if set against the recently emerging new picture of Linear Pottery (LBK) settlements investigated over extensive areas as part of the rescue operations preceding the construction of new Hungarian motorways (Raczky et al. 1997; Oross 2004). Thus, a more reliable picture of the forms of exploitation, the circulation of raw materials, first of all of Bflint, its reduction process and the organisation of Early Neolithic artefact production can be hoped for only after adequate data will be obtained from new, large-scale exca-

[4] The use-wear analysis was performed by B. Voytek (Biagi et al. 2007b).

vations of Körös FTN sites, which is also the single way to discover traces of flint knapping activity areas within settlement sites.

It is also important to point out the complexity of the interpretation of the Early Neolithic lithic markers, which do not seem to follow the same distributive line. Contrariwise to what is slowly emerging regarding Bflint, the products from the exploitation of the obsidian outcrops appears to have followed an opposite trajectory. While the Carpathian obsidians sources started to be exploited, although on a small scale, by the earliest FTN farmers (Williams Thorpe et al. 1984), and systematically traded towards the south-east (Biagi–De Francesco–Bocci 2007), opposite to what has been previously postulated (Maxim 1999, 225; Păunescu 2001, 78), the distribution of Melos obsidians indicates that this lithic commodity had never reached the Carpathian Basin and, for reasons still to be clarified, that it was never traded north of continental Greece (Biagi–Gratuze–Boucetta 2007).

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