Institut za arheologiju, Zagreb

PANONSKI PRAPOVIJESNI OSVITI

Zbornik radova posvećenih Korneliji Minichreiter uz 65. obljetnicu života

impresum

Panonski prapovijesni osviti

Zbornik radova posvećenih Korneliji Minichreiter uz 65. obljetnicu života

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TISAK
Laser-plus, Zagreb

NAKLADA
300 primjeraka

ISBN: 978-953-6064-07-6

CIP zapis dostupan u računalnom katalogu
Nacionalne i sveučilišne knjižnice u Zagrebu pod brojem 760961

Institut za arheologiju, Zagreb

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Zagreb, 2011.

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First discovery of Balkan Flint sources and workshops along the course of the Danube river in Bulgaria

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The authors present the preliminary results of recent explorations carried out in the Lower Danube Valley, which led to the occasional discovery of large outcrops of good quality flint, and evidence of knapping activity areas in the neighbourhood of the town of Cerkovica near Nikopol (Bulgaria). The typology of the chipped stone artefacts and a potsherd observed on the surface of the slopes of Ali Kach Baba hill should attribute this find-spot to an Early Neolithic phase of exploitation. The discovery is briefly discussed in relationship to the current knowledge of the distribution of the so-called "Banat Flint", "Balkan Flint" or "Pre-Balkan Platform Flint" (Moesian flint) in the Balkan Early Neolithic sites. The precise location of the outcrops, the study of its supply strategy, and the reconstruction of this raw material distribution network are of basic importance in the attempt at shedding light on the Neolithisation process in S-E Europe.

Key words: Lower Danube Area, flints, Early Neolithic, raw materials

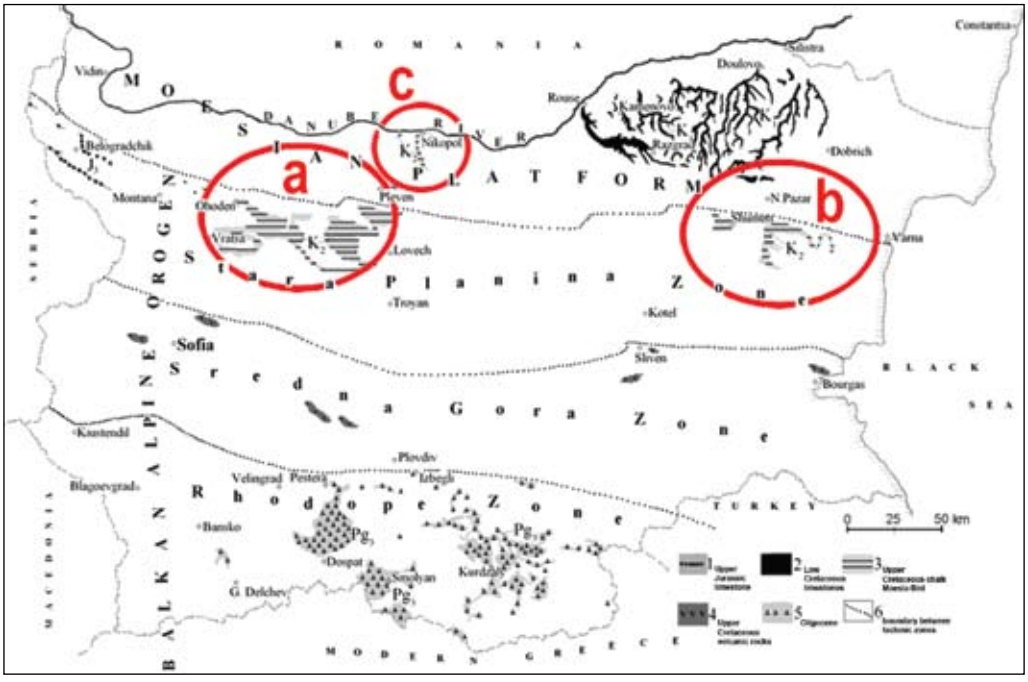
Introduction

High quality, yellow-honey (blonde), white-spotted flint, often described in the literature 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 the Neolithisation in the Balkan Peninsula and the Carpathian Basin (Kaczanowska, Kozłowski 2008). Its macroscopic characteristics favour its precise identification and the easy recognition of this raw material, although an archaeometric approach would be welcome in the future, especially to better compare single artefacts with the potential geological sources. Bflint is

traditionally considered to have been imported from outcrops located outside the Carpathian Mountains range and, more precisely, from the Moesian Platform of Northern Bulgaria (Păunescu 1970, 84; Kozłowski, Kozłowski 1982; 1983; Gurova, Nachev 2008). This assumption was based, besides geological constraints, also on an appreciable knowledge of the main geological sources of siliceous rocks in the Carpathian Basin and its surrounding regions (Biró 1988; Biró, Dobosi 1991; Biró et al. 2000). Moreover, despite some scientific characterization made on the flint outcrops from the Moesian Platform (Nachev, Nachev 1988; Nachev 2009; 2009a; 2009b), only a very general mapping of the potential sources has been provided up-to-now (Gurova, Nachev 2008) (Fig. 1).

Fig. 1

Distribution map of the potential outcrops of "Pre-Balkan Platform flint" (a-c) in Bulgaria (modified from Gurova, Nachev 2008, Fig. 5)



In the summer of 2009, during a study trip in the central Balkans and the Lower Danube valley, it was possible to cross the western part of the Moesian Platform, along the route which brings to the Danube at Nikopol following first the Iskur River Valley, and then the narrow Sazz' idere stream (Fig. 2). Here, taking refreshment at a water spring along the road that runs parallel to the River Osam, close to its confluence into the Danube at Cerkovica, it was noticed that the cutting of the earth road had exposed a white chalk formation (Upper Cretaceous) with several embedded seams of flint nodules (Fig. 3).

Moreover walking along the slopes of this low hill, to visit the Ali Kach Baba shrine located on its top, following a herding pathway that brings directly to the sanctuary, many cores, flakes and by products of blade debitage were noticed on the ground (Fig. 4). The great importance of this discovery was immediately evident, because the raw material is, without any doubt, the

Fig. 2

Satellite image of the Danube-Olt rivers confluence with the location of the town of Nikopol

Fig. 3

Nikopol – Ali Kach Baba Hill from the south, with the indication of the Bflint outcrop (dot) and the flint knapping find-spot (arrow); the shrine is on the right of the tree on the hilltop (photograph by E. Starnini)

Fig. 4

Nikopol – seams of flint nodules in the white chalk formation along the southern slope of Ali Kach Baba Hill (photograph by E. Starnini)

well-known honey-coloured, white spotted, waxy BFlint. Thus, despite the accidental character of the discovery, and the possibility to take only a very fast and superficial documentation of the site, its undoubted importance convinced us to communicate the discovery to the scientific community. [1]

1 The finds, lying on surface, were photographed and documented on the spot, following the method already experimented during the surveys in Pakistan in the case of workshop ZPS3 (Negrino, Starnini 1997).

It is to be pointed out that the discovered locality falls inside one of the areas (Fig. 1,c), which had been generically indicated, in previous works, as a potential source of Moesian flint (Gurova, Nachev 2008, 34). Furthermore, it must be remembered that the Upper Cretaceous chalk formation rich in flint nodules extends for several kilometres along the Danube bend, and that it can be easily observed also from the present road, which runs parallel to the river, along the Nikopol ferry-boat harbour.

Description of the finds

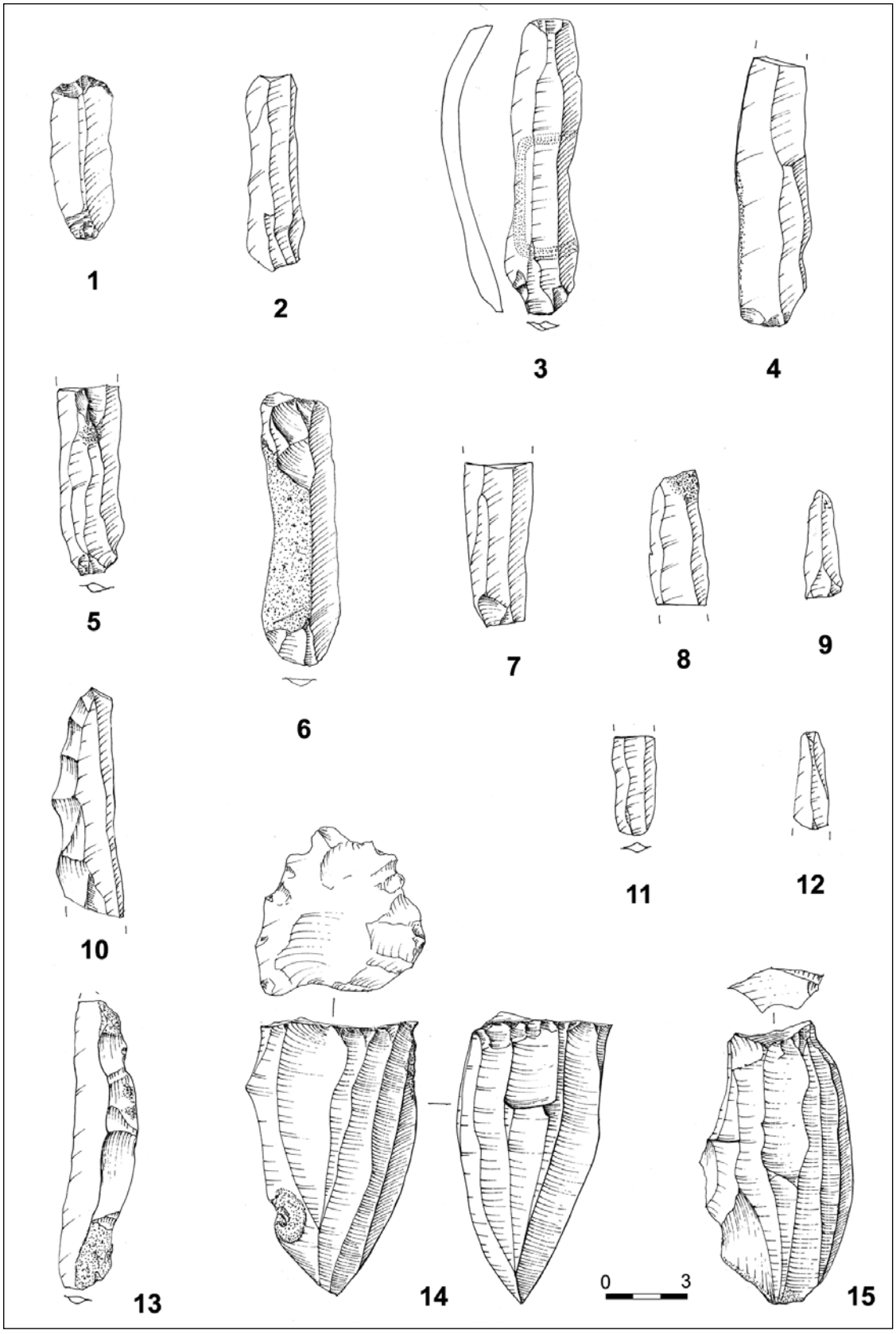
Although the artefacts described below lay on the eroded surface of the pathway, their spatial distribution and physical conditions clearly indicate that they originated from a freshly eroded archaeological deposit, whose remnants are most probably still *in situ*. The geographical coordinates of the find-spot are 43°41'44" Lat N and 24°53'28" Long E. The chipped stone artefacts, observed on the ground, were scattered at a short distance from each other within a maximum range of some 2 square m.; consequently they can be considered interrelated and probably originating from the same archaeological feature (Fig. 5). According to their typology, the flint artefacts are represented by a few subconical cores (Fig. 6,14-15), many blade blanks fragments (Fig. 6, 2-9, 11-12; Fig. 7,6), a few crested blades (Fig. 6,10 and 13; Fig. 7,6), and several decortication flakes (Fig. 7,5). Only one retouched instrument was observed, namely a long end-scraper (Fig. 6,1).

Fig. 5

Nikopol – flintknapping activity area on the surface of the footpath that leads to the top of Ali Kach Baba Hill (photograph by E. Starnini)

Fig. 6

Nikopol – chipped stone artefacts from of Ali Kach Baba Hill: end-scraper (1), unretouched blades (2-9; 11 and 12), crested blades (10 and 13), subconical blade cores (14 and 15) (drawings by E. Starnini)



All the cores, except one, which was damaged after its secondary use as a hammer (Fig. 7,1-2), are single-platformed, macro-blade cores; their flaking face is carefully prepared presumably with a bifacial retouch; the reduction started after the detachment of a crested blade. The striking platforms are horizontal and slightly concave, sometimes carefully prepared, with centripetal scars systematically detached from the edges for their regularization during the blade debitage (Fig. 6,14-15; Fig. 7,2). Flat butts prevail among the blade proximal fragments (Fig. 7,3).

It is interesting to point out that many of the above-mentioned features, and some others such as the small parasite flakelets on the bulbs of the blades (Fig. 7,4), and the size and morphology of the blades and the cores are closely comparable with those observed in the Bronze Age, Harappan flint blade workshop RH480 in Upper Sindh (Pakistan) (Negrino, Starnini 1995), where the use of the indirect percussion technique has been experimentally documented (Brios et al. 2006).

These characteristics would suggest that this find-spot is to be considered the result of a flint-knapping workshop for blade core preparation and debitage, employing the punch or the indirect percussion technique (Inizan et al. 1996, 61). Waiting for future excavations and more systematic researches, a chronological attribution of the workshop to the Early Neolithic can now be suggested on the basis of the following elements:

1) the type of raw material, mainly of a pale brown colour (10YR6/3)[2] with white spots, which is identical to that employed during the Early Neolithic in the Balkans. It clearly differs from the flint from the sources of the north-easternmost area (Fig. 1,b)[3], and the so-called Dobrudzha (Dobrogea)/Luda Gora flint (Nachev 2009; 2009a), whose exploitation is supposed to start not earlier than the Copper Age (Skakun 1993, 54; Gurova, Nachev 2008), specimens of which are commonly found, for instance, in the Copper Age tell settlements (Hansen et al. 2007), and in the Varna and Durankulak cemeteries (Gurova 2005-2008; Manolakakis 2008) in form of long blades deposited as grave goods.

2) the morphology and size of the blade products, which do match well with those of the specimens found in the Early Neolithic lithic assemblages of the Balkans, in general, and the Carpathian Basin, in particular (Gurova 2008; Gurova, Nachev 2008; Kaczanowska, Kozłowski 2008);

3) the presence, in association with the chipped artefacts in the find-spot, of one single, although significant, potsherd of coarse ceramic, with a black core, organic tempered paste, and stroke-coarsened surfaces that might fit well into an Early Neolithic pottery production (Fig. 8).

Discussion and conclusion

2 Colours of the Munsell Soil Color Charts, Year 2000, GretagMacbeth, New Windsor, NY.

3 The Dobrogea flint is mainly opaque, of a dark yellowish brown colour (10YR4/4), with slightly lighter variegations.

Fig. 7

Nikopol – chipped stone artefacts from from Ali Kach Baba Hill: blade core re-used as a hammer (1 and 2), selection of blade butts (3), blade bulbs with parasite flake scars (4), decortications flakes (5), and unretouched blades and crested blades (6) (photographs by E. Starnini)

The study of the provenance and use of the different raw materials employed for stone tools production is of a basic importance for the reconstruction of the cultural relationships and exchange networks of the prehistoric populations and, last but not least, the definition of the routes they followed at the onset of the Neolithisation process.

Whilst so far much attention has been paid to the characterization of the obsidian sources in Eastern Europe (Williams, Nandris 1977; Biró 2006; Biagi et al. 2007; 2007a), in contrast, except for a few studies still considered a reference model (Voytek 1986; 1990), less effort has been paid to the mapping

Fig. 8

Nikopol – Neolithic potsherd from Ali Kach Baba Hill (photographs by E. Starnini)

of all the possible sources of siliceous cryptocrystalline rocks in the Balkans, and their characterization with scientific methods (Crandell 2008).

The presence of Bflint artefacts is ascertained from many Early Neolithic Körös-Starcevo-Criş Culture sites (Starnini 1993; Starnini, Szakmany 2000; Šarić 2002; Kaczanowska, Kozłowski 2008; Bonsall 2008). It demonstrates that the first farmers of the northernmost territories, reached by the FTN expansion

(Nandris 1970; 2007; Kaczanowska, Kozłowski 2008) were undoubtedly in some sort of relationship with those of the southernmost regions of this large cultural unit. The discovery of the outcrop near Nikopol, which shows evident traces of Neolithic exploitation, and it is located directly on the right bank of the Danube, might contribute to the understanding of the models of diffusion of this raw material. In effect its abundance and strategic location, close to the main Neolithisation river route, greatly favoured the access of Neolithic groups to this flint resource. In the absence of a more detailed research, the abundance of the raw material, the extension of the outcrop and its easy access by boat might suggest an uncontrolled exploitation of the raw material sources, which were most probably of free access at least during the Early Neolithic. It will be interesting, in the future, to investigate why this raw material, whose spread reached even the northernmost part of the Hungarian Plain during the Early Neolithic, lost importance, and practically disappeared from the sites of the Carpathian Basin during the development of the Linear Pottery Culture; this indicates that, by that time, the cultural connections with the southern Balkans had already weakened.

Finally it is important to point out that the Nikopol outcrop, previously suggested only as a potential source of good quality flint (Gurova, Nachev 2008, 34), is located some 200 km east of the Iron Gates, which, in turn, lead to the Great Hungarian Plain; furthermore it opens almost in front of the junction between the Danube River and the Olt (Fig. 2), whose valley was probably one of the routes followed by the first FTN farmers to reach Transylvania across the southern Carpathians (Biagi et al. 2005, 42). There is little doubt that this site, given its major importance, will deserve more systematic research in the future.

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