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PREHISTORIC FLINT ASSEMBLAGES FROM BULGARIA: A RAW MATERIAL PERSPECTIVE

Abstract: The paper focuses on the importance of the raw material factor in the interpretation of flint assemblages. The general perspective and consideration of every prehistoric chipped stone industry should include an assessment of the raw materials used, their availability, variability and the supplying potential of the palaoenvironment. Bulgarian prehistory is characterized by a remarkable abundance and diversity of flint raw materials. The main sources are located in the Moesian platform in northern Bulgaria, hosted by the Lower and Upper Cretaceous limestones and chalks. Some of them gain a noticeable importance as an immanent feature among the diagnostic flint assemblages' characteristics. Typical is the case of 'Balkan Flint' which attains a noticeable significance in the Neolithisation of the Balkans and subsequently - in the context of the supra-regional Karanovo I-Starčevo-Criş-Körös cultural complex. Another well known example of wide spatial distribution and use of the flint raw material referred to the so-called 'Dobrudzhanski', or Ludogorie flint, served for the production of the remarkable and incomparable super blades from the Varna and Durankulak cemeteries, as well as from sites like Sava, Smiadovo, etc. The paper aims to improve present day knowledge on the topic and to prevent confusion, consequent upon the irrelevant use of, and speculation about some of the terms and statements related to this problem.
Keywords: raw material, Moesian platform, Ludogorie flint, Balkan Flint, flint assemblages, super blades.

Introduction

As an introduction to the problem a very short historiographical retrospection is needed. The first scholar to emphasize the importance of a proper approach to the flint problem in the context of intensified archaeological research in prehistory was K. Kănchev in his publication on problems and purposes of flint studies (K. Kănchev 1978). His active fieldwork undertaken with the mineralogist I. Nachev led to the discovery of 224 raw material outcrops in the country (data relating to 1978). According the authors the biggest concentration of flint sources was recorded in three districts in north Bulgaria: Razgrad – 32 outcrops, Russe – 27 and Pleven – 24 (*ibid. 87*). An important result of the fruitful collaboration of this team is the presentation of the geographical and geological distributions of the siliceous rocks in northern Bulgaria, as well as some outcrops in the southern part of the country (K. Kănchev et al. 1981). In fact, it is the most basic, synthetic work ever done on the topic (including data on the chemical analysis of the siliceous rocks).

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A particular study was devoted to the Izbegli deposit, Plovdiv district (I. Nachev 1984), and the numerous and abundant flint deposits in north-eastern Bulgaria, which were identified as Aptian primarily bonded in Cretaceous limestones and consequently transformed by resedimentation as Quaternary (secondary) placers with rounded concretions (I. Nachev, K. Kănchev 1984).

For the past few years a new opportunity for advancement in the field has been provided thanks to a basic article by the geologist Ch. Nachev directed at archaeologists with the intention of providing essential new and relevant insights into the topic of flint raw material use in prehistory (Ch. Nachev 2009). In the meantime the present author introduced into the specialized literature the 'Balkan Flint'[1] (BF) problem, based on more general research on the Early Neolithic flint assemblages from Bulgaria, and tried to argue its importance in the context of (supra)regional cultural (ex)changes alongside the Neolithic emergence in the eastern Balkans (M. Gurova 2008, 2009, 2011a, forthcoming). A promising collaboration and small scale international network has been established and a couple of articles have been published introducing important sedimentological and petrological information on the flint sources in Bulgaria as well as some innovative analyses focused on the identification and the provenance of BF (C. Bonsall et al. 2010; M. Gurova, Ch. Nachev 2008) (see below). How does the situation look today?

Early Neolithic flint assemblages in the 'Balkan Flint' prospect

As mentioned above the present author is trying to deal with the problem of BF using a rigorous scientific approach including the accumulation of reliable geological information, as well as raw material samples and archaeological samples, both submitted to relevant analytical procedures. In order to avoid useless repetition of already published data, interpretation and hypothesis only a brief summary of the BF formal toolkit from the Early Neolithic context will be presented. On the basis of numerous personally studied flint assemblages, coming from the important and emblematic Early Neolithic sites of Tells Karanovo, Azmak, Kapitan Dimitrievo, and the open-air sites of Yabalkovo, Slatina, Rakitovo, Kovačevo and Dzhuliunitsa, the author distinguished a category of formal toolkits (figs. 1 and 2). They consist of a particular tool repertoire based on medium to large blades produced by punch technique and retouched by pressure technique: as a result a large spectrum of uni - and bilateral blades with pointed/or rounded ends is produced, with a typical semi- to abrupt/step retouch (see M. Gurova 2008). This particular toolkit is distinct for the following reasons: it corresponds to Andrefsky's description of 'formal tools' (W. Andrefsky 1994) and represents a very diagnostic feature of the Early Neolithic flint assemblages of the Karanovo I and II cultures in Bulgaria, as well as one of the characteristics of the supra-regional techno-complex of Karanovo I–Starčevo–Criş-Körös cultural unit.

[1] 'Balkan Flint' is used further on as abbreviation BF, containing the sense of the inverted commas.

One of the most striking features of the Early Neolithic formal toolkits is the uniform raw material they were made of: it is yellow-honey (waxy) coloured, white spotted high quality flint called in the literature "(Pre-) Balkan platform flint", "Dobrudzha flint" or simply "Balkan flint"[2]. Taking into consideration the importance of the problem, on the 15th EAA Annual Meeting in Riva-del Garda (Italy, 2009) a particular session on 'Balkan Flint in SE European Prehistory' was organized by M. Gurova, with co-organisers, C. Bonsall, B. Voytek and D. Borić), which brought together scholars whose research on the early farming societies of SE Europe has inevitably led them to confront the problem of the appearance of a new, high quality, raw material for the manufacture of chipped stone artefacts at the beginning of the Neolithic[3].

What of scientific relevance has already been done in the context of the BF research agenda?

With regard to the crucial problem of the origin of BF, the map prepared by the mineralogist Ch. Nachev is quite instructive, focusing on the spatial distribution of the main flint outcrops in Bulgaria (according to its geological stratigraphy) with implications for prehistoric archaeology (fig. 3). As observed by Nachev significant accumulations of siliceous/flint concretions are located in the Moesian Platform and adjacent parts of the Balkan Alpine Orogen. The term "Pre-Balkan Platform" is considered an incorrect term for Moesian Platform from where "Balkan flint" probably means every flint in the Moesian Platform and adjacent parts of the Balkan Alpine Orogen including both Lower Cretaceous (Aptian) flint and Upper Cretaceous (Campanian and Maastrichtian) flint (M. Gurova, Ch. Nachev 2008, 32). Two main flint strata are considered as promising from an archaeological point of view for resolving the problem of the BF provenance: Moesian (primarily!) and Ludogorie flints. The silica concretions of the ***Moesian flint*** are hosted in the Upper Cretaceous (Campanian) chalk, chalk-like limestones and fine-grained biomorphic limestones (Maastrichtian) (M. Gurova, Ch. Nachev *ibid.)*. The first step of investigating the relation between the archaeological and raw material samples consisted in comparative thin section analysis (made by Nachev) of a small series of archaeological samples with flint from known sources across the Moesian Platform. Three samples taken from the Dzhuljunitsa, Rakitovo and Yabalkovo sites show typical cryptocrystalline structure and microfaunal remains. Subsequently, samples from three other Bulgarian Early Neolithic sites (Slatina, Ohoden, and Kovačevo), as well as from the Early Neolithic site of Aria Babi in the Serbian Iron Gates area, were included in the study[4]. The results of this analysis are partially published and, unfortunately, we must confess that the observations and comparison of a limited series of thin sections have proved insufficient to discriminate between the samples. Some general conclusions were

[2] More details on this subject are included in the article of BF volume (Gurova forthcoming).

[3] A volume with the contributions on the BF problematic is in preparation.

[4] This approach was made in the frame of a pilot study of 'Balkan' flint sources and exchange networks in Neolithic SE Europe (co-directed by C. Bonsall and M. Gurova).

drawn underlining the impossibility for a reliable identification of raw material type; with a higher probability that the archaeological samples are derived from the 'Moesian' rather than the 'Ludogorie' flint region and outcrops.

These inconclusive results from comparative thin section analyses of 'Balkan flint' made by Ch. Nachev and M. Gurova led us to consider other means of identifying the source or sources of provenance of the BF, used by Neolithic communities in Bulgaria and the neighboring regions of southeast Europe. A series of archaeological samples from Early Neolithic sites and geological samples from outcrops of Moesian and Ludogorie flints have been analyzed by C. Bonsall using laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) and electron probe micro analysis (EPMA) (fig. 4). The combination of these techniques aimed to test the effectiveness of trace-element analysis as a tool for characterizing Balkan Flint, because used together both techniques are capable of high precision quantitative chemical analysis with high spatial resolution (up to 1 micron and 25 microns for EPMA and LA-ICP-MS, respectively). It is noteworthy that apart from Bulgarian Early Neolithic samples, two samples from the Iron Gates region are added – from Aria Babi in Serbia and Schela Cladovei in Romania. The preliminary results of this approach are presented in the recently published collaborative paper (Bonsall et al. 2010), but in more details and interpretive aspects the results are prepared for the forthcoming BF volume, including a further series of samples analyzed by LA-ICP-MS equipment in Sofia with additional trace-element precisions made in UK.

In general, it is worth noting that in spite of the optimal technical equipment and analytical procedure applied, the small number of samples analyzed did not allow for the determination of their sources with much certainty. In the hope of obtaining more satisfactory and definitive results about revealing the similarities/differences between archaeological samples, and between them and raw material samples, a new stage of the BF international network was established. A new HRAR project (Prehistoric flint sourcing in NW Bulgaria and NE Serbia: Field survey and laboratory analyses) was offered to and awarded in 2011 by the America for Bulgaria Foundation (ABF) and co-ordinated by the American Research Centre in Sofia (ARCS)[5]. The project focuses on the identification of flint sources, used by prehistoric communities in the areas of northwest Bulgaria and northeast Serbia, by means of field survey and archaeometric analyses. The survey of the studied area allowed the identification of more that 50 flint raw material outcrops which were sampled for subsequent LA-ICP-MS analysis that will be carried out in the Geological Institute of the Bulgarian Academy of Sciences in Sofia. The analytical approach combines geochemistry with petrographic observation of the polished thin sections for identification of trace element composition of the flints, and requires a significant number of comparative samples from natural flint deposits for obtaining reliable results. The analyses are

[5] The project is co-directed by M. Gurova (Sofia) and D. Borić (Cardiff) with the participation of archaeologists and geologists: S. Ivanova, Pawlikowski, E. Stefanova, P. Andreeva, D. Milovanović etc.

already in progress and apart from the reliable results that will be offered and probably will partially answer the BF provenance problem, there are some practical issues of the project that merit mention:

- Establishing a reference raw material collection (lithoteque) along with the digital archive of the raw material for the given region;
- Reconstruction of networks of acquisition of flint raw material for identified prehistoric periods.

While this consecutive, different scale and level, work of the author's team in the BF field was being undertaken, a parallel research "initiative" is being done by scholars who preferred to be outside the BF scientific session and common collaborative efforts.

Recently new proponents of Moesian flints from the Nikopol area as the object of Early Neolithic exploitation, distribution and use have appeared. This perspective on the BF puzzling problem will be incomplete if I omit to mention a couple of new publications, claiming to propose a 'new discovery' and largely affirming the major importance of this "first evidence of Early Neolithic knapping activity" at this find spot (P. Biagi, E. Starnini 2010a). First in *Antiquity online*, a discovery of a BF outcrop qualified as workshop was published by P. Biagi and E. Starnini as a result of a 'study trip' (P. Biagi, E. Starnini *ibid.*). This discovery as a part of their view on the Neolithization of the Carpathian Basin has also been recently published in two different books under different titles but with identical content (P. Biagi, E. Starnini 2010b, 2011). Thus in a triple reproduction they describe an 'accidental' discovery made near Nikopol on the hill Ali Koch Baba (the name of the place is wrongly written in the publications) and consisting of an outcrop of 'Balkan Flint' and a scatter of artefacts: cores, blades, flakes and a single endscraper (the finds are listed with terms like few, many, several). The artefacts are carefully photographed and even drawn (difficult to envisage as a chance find in the field!) and in spite the authors' remark that because of the accidental character of the discovery its subsequent investigation was impossible. Gradually this discovery from "possible BF source"… and "flint outcrop with traces of Neolithic exploitation" (P. Biagi, E. Starnini 2010b, p. 124, 131) evolved to BF "sources and workshops along the Danube" (P. Biagi, E. Starnini 2011, p. 69). As a first comment on this quite weakly argued conclusion, it should be stressed that the region has been prospected and studied by geologists and archaeologists for decades, and the flint outcrops along the Danube could be repeatedly of course 'revisited' by everyone, but NO ONE should be allowed to take finds from their background and publish them just as a result of spontaneous (tourist/study?) trips in a foreign country with quite well structured laws and regulations about every kind of archaeological practice[6]. The second comment is

[6] An administrative precision is indispensable here: according to Bulgarian law every kind of archaeological prospecting/or excavation must be approved and permitted by the Ministry of Culture. All legal archaeological field activities (including surveys) carried out by foreigners are co-ordinated by Bulgarian professionalists in archaeology. There is no

that there is NO certain evidence that the described assemblage belongs to the Early Neolithic. The very few cores known from Early Neolithic strata (Slatina, Ohoden, Karanovo) differ from those presented by Biagi and Starnini in their articles (see I. Gatsov 1992, 100; R. Zlateva-Uzunova 2009). On the other hand quite similar finds to the cores, blanks and tools presented by Biagi and Starnini are known from a Late Holocene sequence in the region and part of them (completely identical) are published by S. Sirakova as a result of trench investigations on the sites of Osum and Zhabeshki kamak (in vicinity of the village Musselievo, southwest of Nikopol). The materials are interpreted as the remains of flint workshops in use during the Bronze and Iron Ages. Several local raw material deposits along the Danube and a little way to the south are also presented in the book (S. Sirakova 2006, 9). The most common flint from the Holocene Osuma site is described by S. Sirakova as BG-MO-F7 (beige not homogenous, not translucent, with dark brownish inclusions and small whitish spots) and comprising 90% of the whole assemblage (S. Sirakova 2006, 14 and 38). This flint appears identical to some of the examples shown by Biagi & Starnini (P. Biagi, E. Starnini 2010a, figs. 5 and 6; 2010b, fig. 7; 2011, figs. 6 and 7). If Biagi and Starnini tried to learn about some research and publication done in the region, they would probably interpret the find as belonging to the Bronze Age, as suggested by the similarity with Harrapan workshops in Pakistan, mentioned by themselves (P. Biagi, E. Starnini 2011, p. 75). It should be stressed also that in this region (less that 10 km from Nikopol) is situated the famous Middle-Upper Palaeolithic site of Musselievo, with an amazing assemblage of leaf points, which was studied and published decades ago (P. Haesaerts, S. Sirakova 1979). The flint from the Musselievo settlement has a local origin and has a pronouncedly more beige-greyish appearance than the BF. There is no doubt that in this region rich in accessible and different raw materials a flint knapping know-how had emerged and underwent different technological transformations/evolution since the Palaeolithic. Unfortunately, we have a gap (i.e. no archaeological records) in the chronological sequence between the end of the Epipalaeolithic and the beginning the Early Neolithic, and *ergo* – no evidence of any activity by the eventual indigenous pre-Neolithic substratum. It will certainly be very important and welcome if one may confirm that Biagi & Starnini's unstratified discovery could be related to an Early Neolithic (first!) workshop of 'Balkan Flint', but no serious arguments are yet forthcoming.

The BF problem definitely deserves serious systematic and relevant research and it is slowly and continuously being done. The alteration of spontaneous illegal approaches will certainly not contribute properly to a professional and appropriate scientific solution.

Eventually, after its remarkably important role in Neolithisation and its broad distribution in the Early Neolithic cultural complex in southeastern Europe, BF

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official option like a 'study trip' that could result in a publication without Bulgarian collaborators.

declined in use and significance after the end of the Early (or Middle?) Neolithic stage. According to the Bulgarian chronological framework the process of disintegration took place during the Karanovo III and III-IV periods at the eponymous tell settlement[7]. As the end of Karanovo III is dated *ca* 5500–5280 cal BC (J. Görsdorf 1997, p. 379), this can be regarded as a *terminus ante quem* for the presence of formal toolkits and, *ergo*, for the importance and use of BF. There is no satisfactory explanation of the changes taking place during the Middle and Late Neolithic phases in the final centuries of the VI mill. BC. This particular gradual shift is differently detectable and recognisable in the features of the material culture. As for the flint assemblages and their evolution, degradation or innovation, the process is captured and described in the cultural sequence of the Karanovo Tell (Gurova, M. 2004). It that respect, and in regard to the flint raw material problem, very relevant is the comment in one of the above-mentioned articles about why BF lost its importance in the whole area of its spread during the establishment of the Linear Pottery Culture (LBK) (P. Biagi, E. Starnini 2010b, p. 131). Seemingly the best natural background for investigating this challenging problem is the northern Bulgarian Moesian platform with its numerous and varied flint deposits and the attempt to assess the raw material factor in the arenas of social development and changes. This problem related to the last centuries of the VIth mill. in prehistoric Bulgaria has still to be resolved.

Chalcolithic flint assemblages and the Ludogorie flint deposits

In flint raw material perspective the chalcolithic period in Bulgaria (or the golden Vth mill. BC) is marked by the apogee of know-how in flint knapping technology and the intensive and extensive exploitation of high quality cryptocrystalline flints from northeastern Bulgaria.

As described by Ch. Nachev the silica concretions of ***Ludogorie (or Dobrudzha) flint*** are hosted in Lower Cretaceous (Aptian) micrite limestones with pale grey colour and characteristic white silica-carbonate cortex. The primary sources gave material for numerous secondary (placer) deposits with eluvium-proluvium character. They are located mainly in the Ludogorie plateau (on the hills), hosted in soft sandy-carbonated masses (M. Gurova, Ch. Nachev 2008, p. 33; Ch. Nachev 2009). The Ludogorie flint has two microscopically distinct types: Ravno (in the northern part of the spread area and Kriva Reka type (in the southern part). In relation with its petrographic characteristics Ch. Nachev describes Ludogorie flint as the highest quality flint raw material in Bulgaria (and on a broader scale of southeastern Europe and Asia Minor [Ch. Nachev 2009, pp. 11-12]). Both types mentioned above possess favourable properties that determined its use for general large-scale domestic needs during the Chalcolithic period. As for the most sophisticated knapping techniques and the production of extra-long blades

[7] According to V. Nikolov the late Neolithic sequence in Thrace starts with Karanovo III period (V. Nikolov 2004).

for ritual purposes in the mortuary domain, the Ravno flint type was used, with localised deposits in the vicinity of Tetovo, Ravno, Kamenovo, Topcii and Kubrat.

In the last two decades of the 20th century the Chalcolithic flint industry (and particularly spectacular finds from northeastern Bulgaria) was submitted to different investigations with the most systematic studies done by the Russian specialist, N. Skakun, and the French specialist, L. Manolakakis. The first has been focused mainly on functional determination of the assemblages and their domestic (household) interpretation (N. Skakun 2006). The latter offered a broader technological approach, applying the concept of the 'chaîne opératoire' and providing a new challenging insight into the social meaning and consideration of the flint grave-goods from the Varna cemetery (L. Manolakakis 2005, 2006). Both scholars have concluded that the huge amount of the flint artefacts in northeastern Bulgarian tells (Goliamo Delchevo, Durankulak, Vinitsa, Smiadovo and Sava) and cemeteries (Varna, Durankulak) are made of Ludgorie (Dobrudza) flint.[8] The same conclusion was reached by N. Sirakov about raw material variability among the Durankulak cemetery flint grave-goods. The author distinguishes Radingrad-Topcii from Kriva Reka flint types emphasizing the predominant role of the first type in quantitative aspect and diachronic perspective (N. Sirakov 2002, p. 215-7).

Unfortunately, in spite of the largely affirmed quality and broader distribution of the Ludogorie flints, the information about raw material extraction and supply in prehistory is still rather scarce. The some conclusion holds for reliable geochemical and mineralogical comparative analyses between archaeological and raw material samples. Regarding raw material procurement and the first stage of flint production, L. Manolakakis' prospections in the Razgrad area led her to identify one workshop with the remains of lever pressure technique at Kamenovo tell, in proximity to the raw material outcrops of excellent quality flint (L. Manolakakis 2006, p. 11). Advancement in this field was made recently through the systematic surveys in the Razgrad district area made by B. Mateva. She describes the secondary flint placers as easy for access and nodule extraction from the soft loess layers. Several new workshops have been identified near Ravno, Chakmaka (Isperih), Kamenovo and Kriva Reka (B. Mateva 2010, p. 174).

It is still debatable how early in prehistory the exploitation of Ludogorie flint took place. The idea of the Early Neolithic BF provenance from Ludogorie is quite tempting and already promoted in the literature on the basis of visual macroscopic similarity and/or theoretical modelling (M. Gurova 2008, N. Skakun 1993; Ts. Tsonev 2004). But until there are reliable analytical results of identification between archaeological and raw material samples many different hypothesis, assumptions and speculations are possible.

However that high quality large nodules of Ludogorie flint (particularly type Ravno) were used for the amazing extra-long (super blades) from the mortuary contexts of Varna and Durankulak cemeteries, as well as the hoards from tell

[8] According to N. Skakun the 'Dobrudzha flint types represent 90% of raw material used in the Varna culture area (N. Skakun 2006, p. 16).

Smiadovo and Sava, is unquestionable (figs. 5 - 7). Hundreds of pages have been produced concerning different aspects of these sensational finds: from the sophisticated know-how applied in their production (percussion by punch technique; standing pressure by long mediating device; lever pressure), via their typological uniformity/variety, to their functional connotations. Much has also been done to reveal the flint industry in its every-day life circulation and household meaning (M. Gurova 2002, 2010, 2011b; L. Manolakakis 2005, 2006; N. Sirakov 2002; Skakun 1999, 2006).

The distribution of Ludogorie flint during the Chalcolithic is well documented beyond present-day Bulgaria: in northern Greece (L. Manolakakis *ibid*.), Moldavia and Ukraine (N. Skakun 2006). The present author published recently the summarised study on flint assemblages derived from the last couple of years of excavations, which are mainly rescue projects. The results suggest a similarity rather than diversity among the assemblages that is evident on several levels: raw material availability, typological repertoire, and principal functional parameters and connotations, in spite of the fact that the settlements belong to such different cultures/cultural complexes as Varna, Kodžadermen–Gumelniţa–Karanovo VI and Krivodol–Salcuţa–Bubani (M. Gurova 2010c).

Discussion

As discussion I would like to present a point that seems confusing and could create further misunderstanding in the research agenda devoted to 'Balkan Flint'. The question was discussed at the BF Session in Riva del Garda, but still there is no particular publication on the topic. What the organizers put in the term 'Balkan Flint' was clearly defined as the common and broadly distributed flint tracing the pathway of the Neolithisation of the Balkans. This feature of the Neolithisation spread has NO Anatolian routes, because the only known and geologically documented primary deposits of this raw material are located in the Moesian platform in northern Bulgaria. The potential sources of provenance of BF are (most likely) some of the outcrops of **Moesian** flint with 3 main clusters of deposits: Montana/Lovech, Pleven/Nikopol and Shumen/Devnia. BUT they also include some of the outcrops of **Ludogorie** flint, and especially the Kriva Reka and Chakmaka placers. The two last mentioned are very similar visually to the flint used for many of the Early Neolithic formal toolkits (personal observation). As already mentioned identifications based on 'naked eye' expertise have no value and are not valid for resolving the problem of the BF provenance. A rich collection of archaeological and raw material samples has been collected and is in process of serious analysis and all proponents of different hypotheses should wait for the reliable analytical results.

On the other hand the term 'Dobrudzha flint' having a large and quite ambiguous use has been attributed to E. Comşa. In fact what E. Comşa wrote is that during the Neolithic period, the main type of flint in use in Dobrudzha, the Wallachian Plain of Oltenia, and the south of Moldavia was the "silex balkanique" of which numerous outcrops had been located in Dobrudzha (probably on both the

Bulgarian and Romanian sides?) and on the Pre-Balkan platform in northern Bulgaria (Comşa 1976, 240). From here, and definitely because of the incorrect reading and use of Comşa's terms, many variations on the basis of 'silex balkanique' 'dobrudzha flint' and derivatives like Pre-Balkan-platform, Balkan flints, etc. have circulated in the literature without clear discriminatory meaning from the chronological and spatial points of view. 'Dobrudzha flint' as a provenance characteristic is used by Skakun for defining both Early Neolithic and Chalcolithic flint types (N. Skakun 1993, 2006). In the French literature the terms 'silex balkanique' and 'silex blond' are both in common use. 'Silex balkanique' was used by L. Manolakakis for describing the repartition of the Ludogorie flint during the Chalcolithic (L. Manolakakis *ibid*.). Commenting on a kind of exogenous raw material among Early Neolithic flint industries in Greece, C. Perlès used the term yellow/honey flint, which corresponds to the French 'silex blond' (C. Perlès 2001).

In order to avoid further misreading and misunderstanding it should be borne in mind that 'Balkan Flint' is already used as a term relating to one of the diagnostic features of the Neolithisation of the Balkans. As a raw material it is visually easily recognisable, with source(s) in the Moesian platform of northern Bulgaria, including probably some adjacent parts of the Balkan Alpine Orogen.

Let us hope that the fruitful collaboration and efforts of the enthusiastic BF adherents will soon provide satisfactory answers to the numerous puzzling BF problems.

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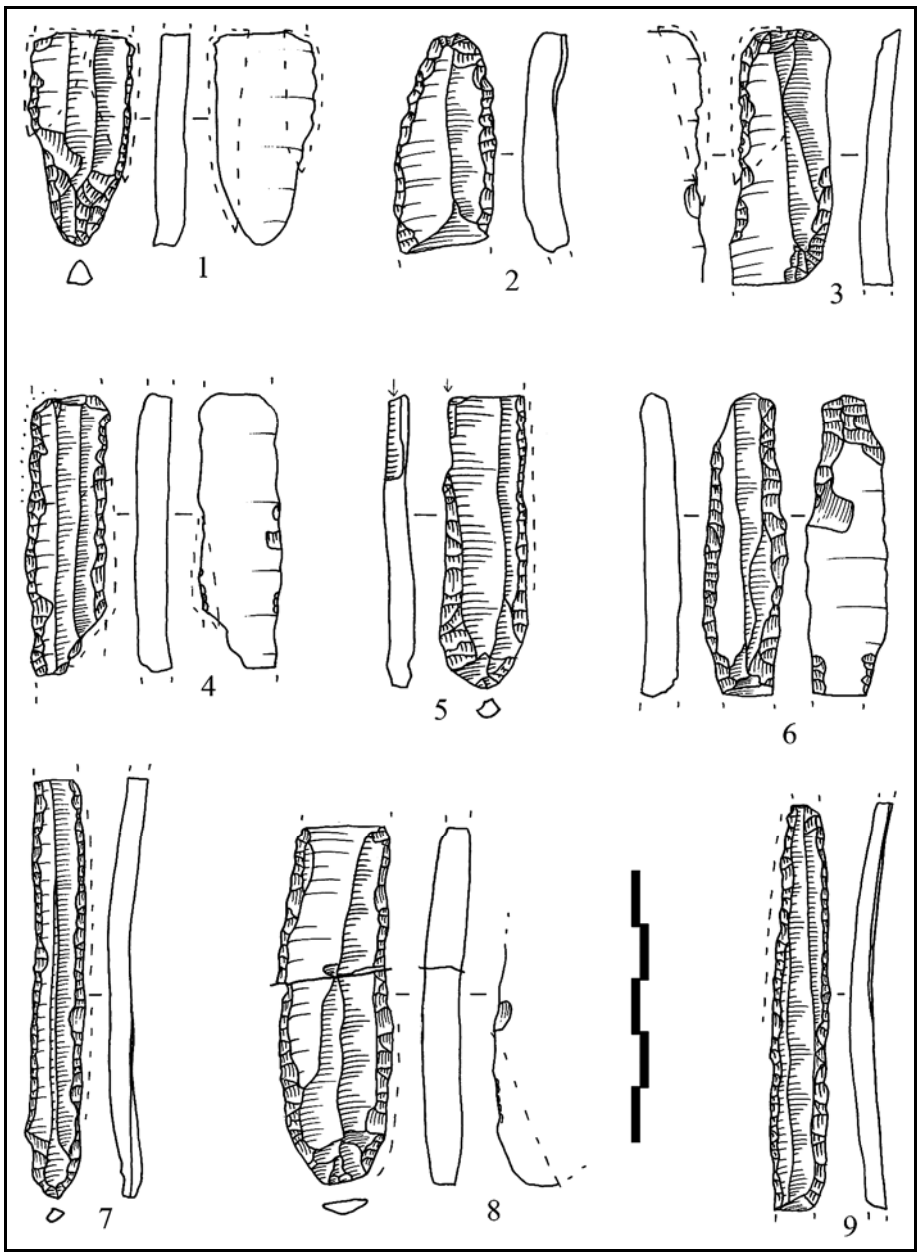

Figure 1. Formal flint toolkit from the early Neolithic site of Yabalkovo, Haskovo district (drawings M. Gurova).

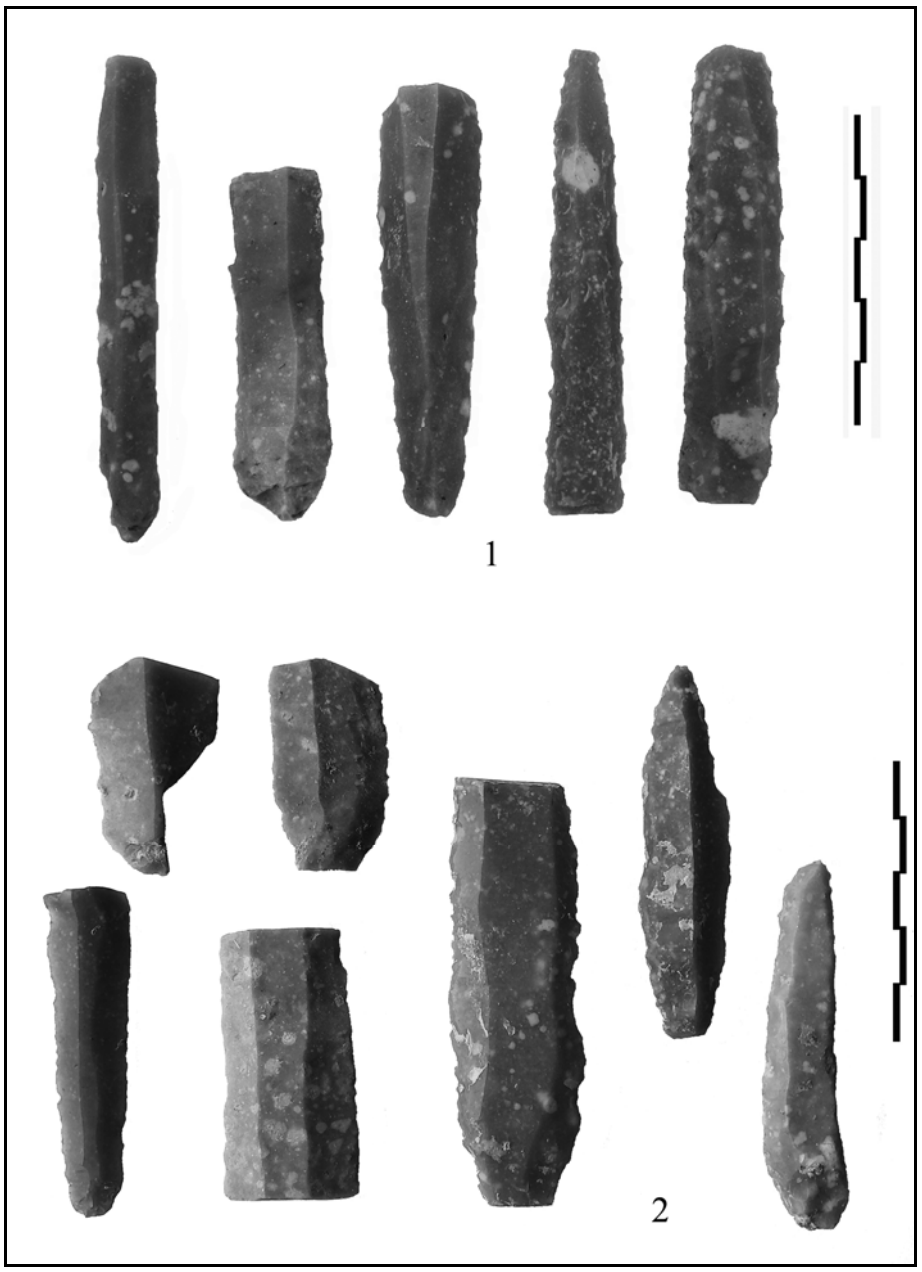

Figure 2. Early Neolithic artefacts of 'Balkan Flint': 1 – from the site of Yabalkovo (Haskovo district); 2 – from the site of Kovačevo (Blagoevgrad district) (photo M. Gurova).

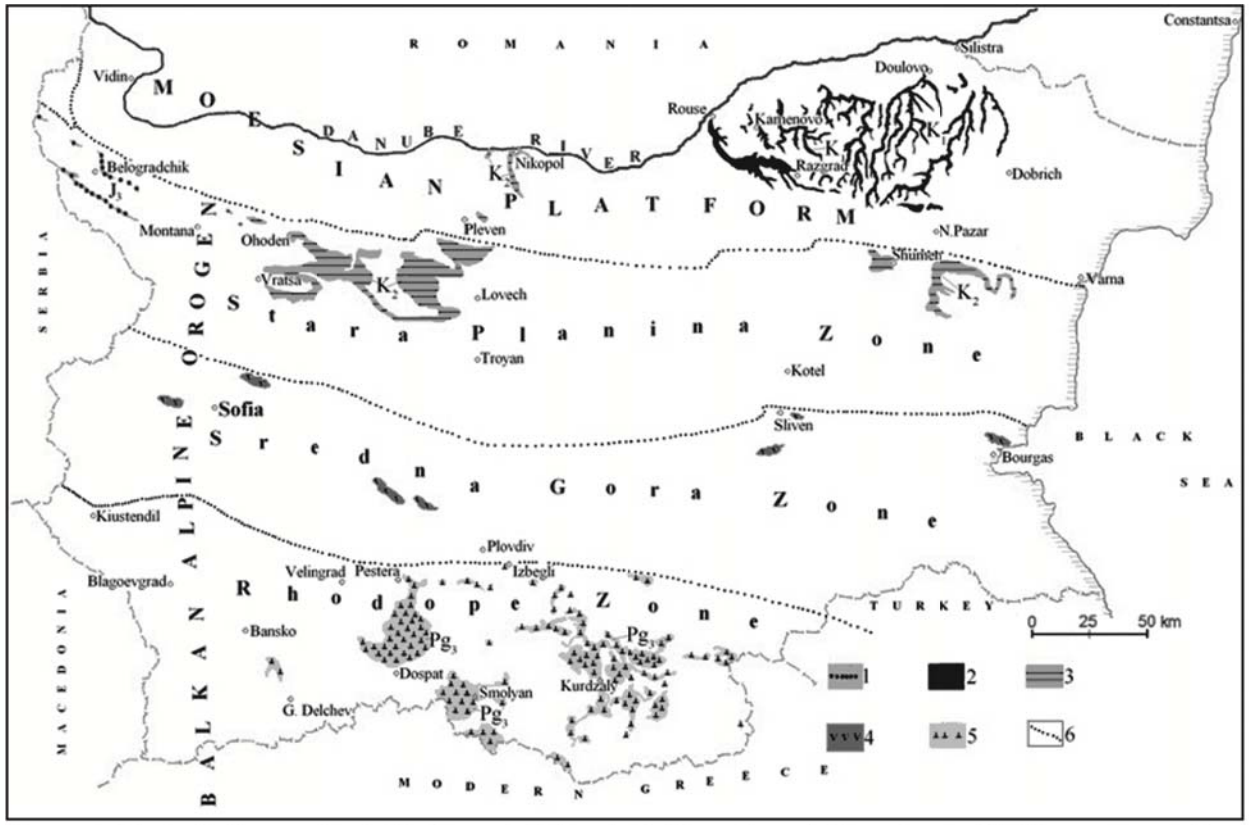

Figure 3. Geological map of main flint types in Bulgaria. 1. Upper Jurassic limestones withsiliceous concretions (J3); 2. Low Cretaceous (Aptian) limestones with siliceous concretions (K1); 3. Upper Cretaceous chalk and chalk-like limestones with siliceous concretions (K2); 4. Upper Cretaceous volcanogenous roks with chalcedony veins in Sredna Gora Zone; 5 – Oligocene volcanogenous roks with chalcedony veins in Sredna Gora Zone (Pg3); 6. Boundary between tectonic zones. (first published in M. Gurova, Ch. Nachev 2008, fig. 5).

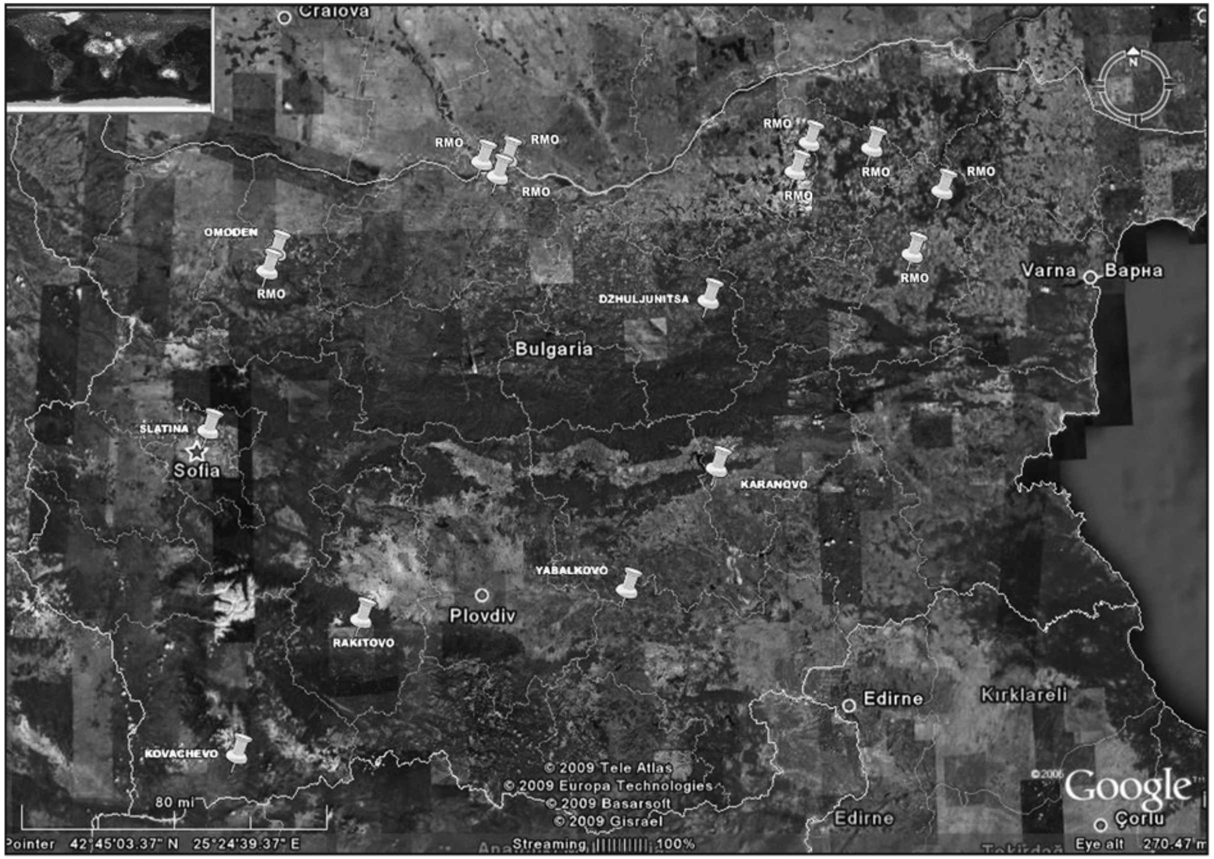

Figure 4. Map of Bulgaria, showing the locations of geological samples of Moesian and Ludogorie flints (with bleu abbreviation RMO) and archaeological samples from Early Neolithica sites (with red names) taken for thin-section and LA-ICP-MS analysis.

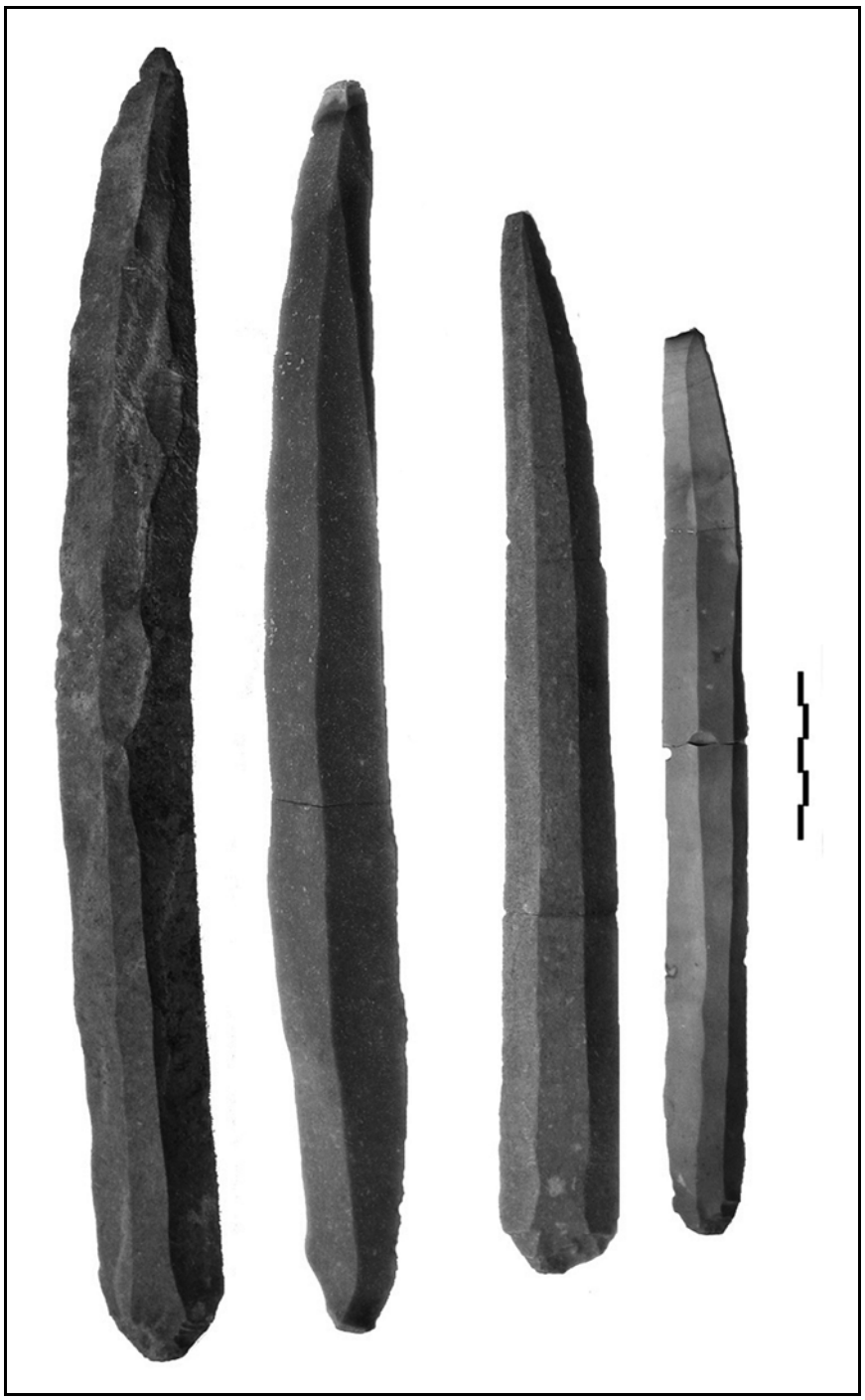

Figure 5. Super blades of Ludogorie flint from Varna cemetery (photo M. Gurova).

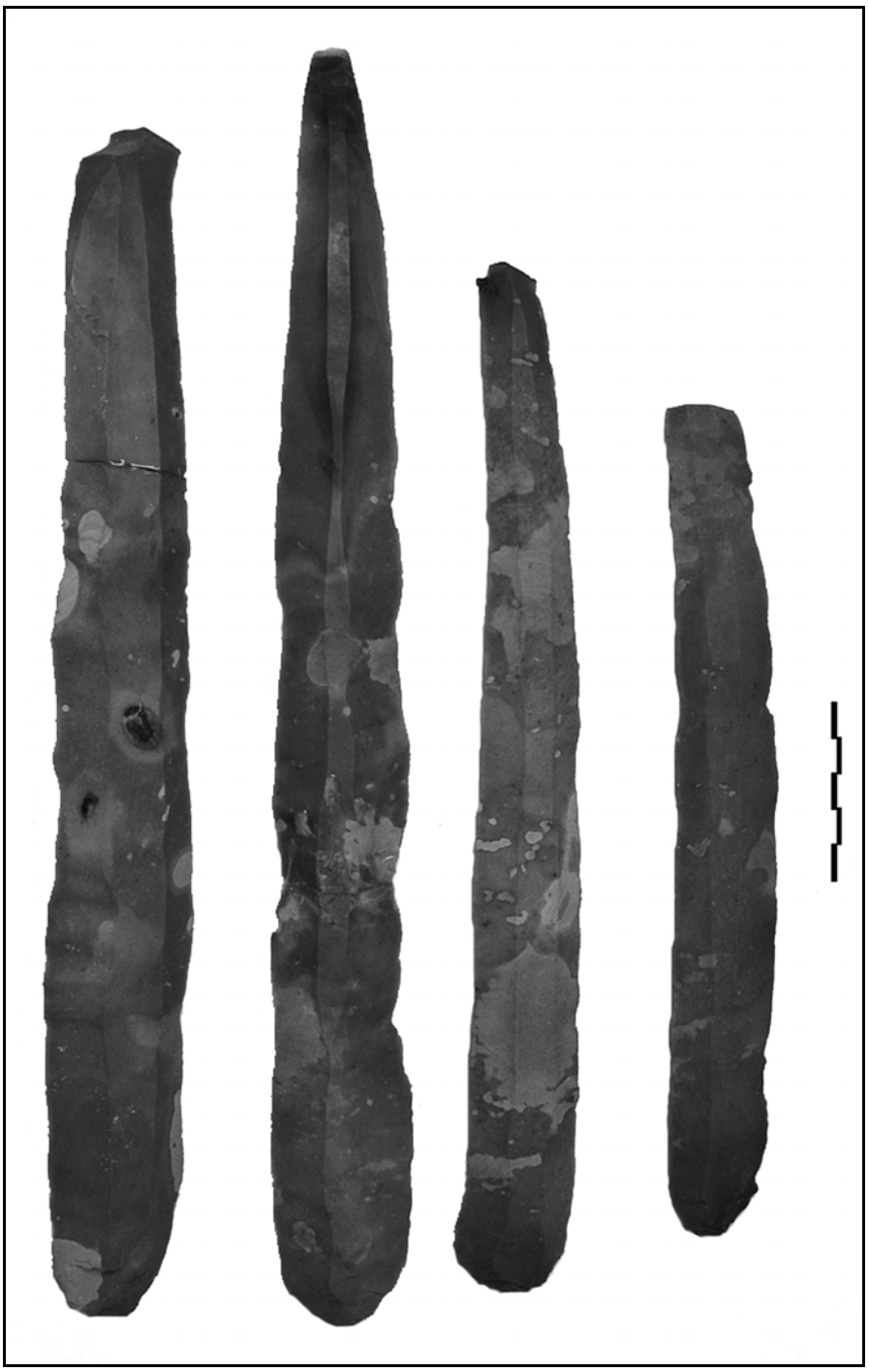

Figure 6. Super blades of Ludogorie flint from tell Smiadovo – hoard I (photo M. Gurova).

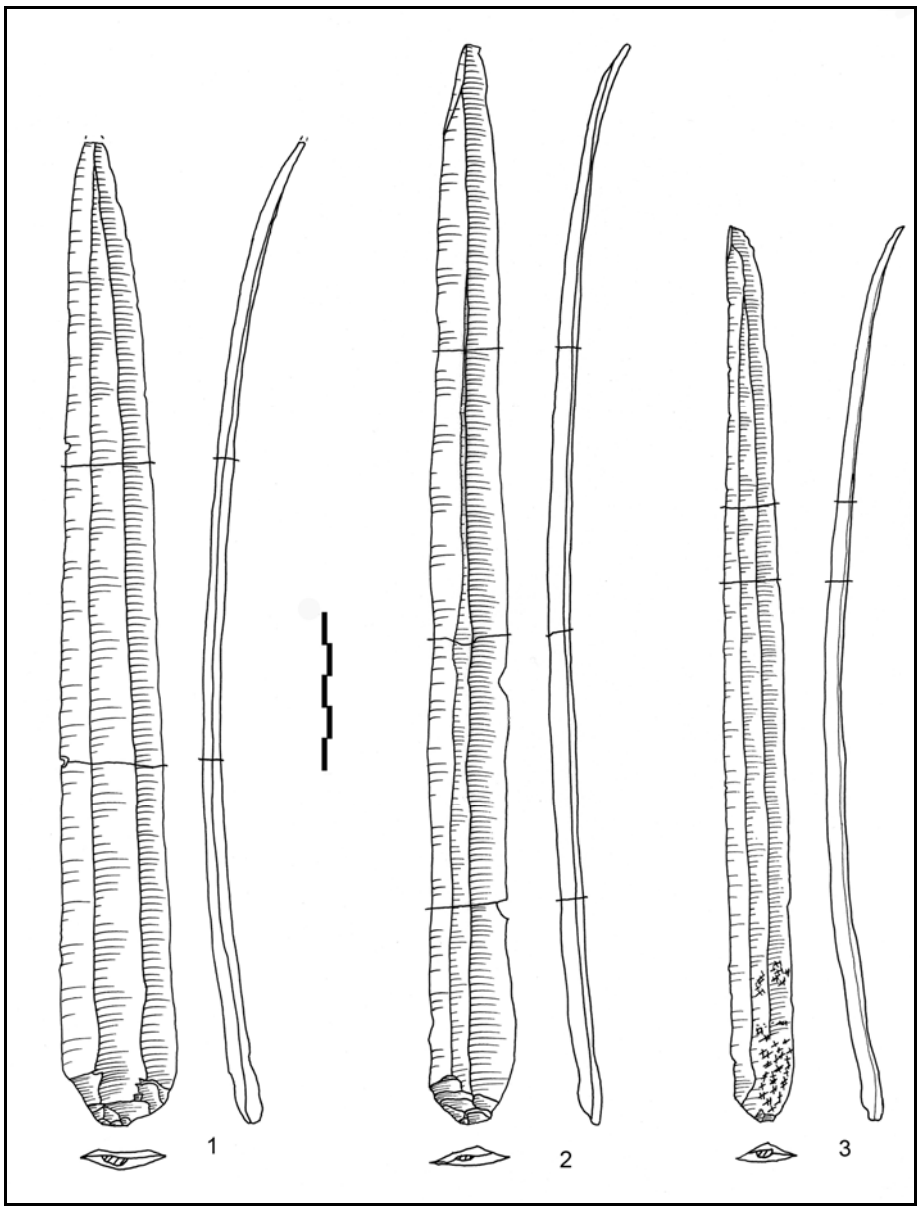

Figure 7. Super blades from Varna cemetery (drawings M. Gurova).