PALEOLITHIC AND MESOLITHIC FINDS FROM PROFILE OF THE ZEMUN LOESS

Abstract: Segment of the material from these two sites was published already in 1984. Owing to circumstances two new Paleolithic sites discovered in the territory of Serbia in recent times have made possible placing of the finds from the sites ‘Ekonomija 13 maj’ and Beljarica in the new context. This work, by revising already published material and also by presenting the artifacts discovered in the meantime, expands the data base related to the human settlements on the fringes of the Pannonian basin, i.e. in the territory of present-day Serbia during Middle and Late Paleolithic but also during Mesolithic period.

Key words: Chipped artifacts, Middle Paleolithic, Late Paleolithic, Mesolithic, raw materials, chert, quartzite, handaxes, hand points, shouldered projectiles/points, sidescrapers, geometric microliths.

Introduction

The first indirect evidence for the existence of the Paleolithic stations in the Belgrade city territory were provided in the works of H. Breuil, G. Mac Curdy, H. Obermaier and J. Skutil quoting the data about the existence of caves with the Aurignacian finds but on the other hand S. Brodar denied and doubted it in his work from 1954. The finds of the Pleistocene fauna in a few cave entrances and one rock shelter on the southwestern slopes of Banovo Brdo, between Čukarica and Žarkovo discovered in 1955 actualized at that time once again the assumptions concerning the settling of the Paleolithic populations in the vicinity of the present day Belgrade. To the mentioned assumptions was added the story of the human scull with the characteristics of the Neanderthal man as interpreted by N. Županić.1 This fossil skull, which was found near the former Vidin kapija (Vidin Gate) in a layer together with the teeth of Elephas antiquus in 1919, has been lost in the meantime, so the mentioned claims could not be verified today. The first chipped stone artifacts ascribed to the Paleolithic period were the chance finds from the Sava river bank few hundred meters far from the layers with the Pleistocene fauna at Banovo Brdo and they were published in 1958.2 There are also some unreliable data impossible to verify that

1 Gavela 1956.
2 Gavela 1958.

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Josip Šarić, e-mail: josips@eunet.rs
the remains of *Elephas cf. primigenius* Blum., fragments of small singed(?) bones, resin, charcoal and triangular wedges of *lajtovac* have been found under the foundations of the palace ‘Albanija’ in Terazije in Belgrade and indicating the existence of the Paleolithic, according to the author, probably the Gravettian settlement. In the period between 1958 and 1984, i.e. for almost thirty years, there have been no new data about the Paleolithic finds in the territory of Belgrade. However, in that year (1984) was published a text concerning the segment of a large assemblage of chipped stone artifacts gathered on the Danube river bank few kilometers upstream of Zemun. Some articles about the excavations in the vicinity of Vršac and the test trench excavations in the Smolučka pećina were published in 1984 but also in 1986 and in the years following the publishing of these texts the investigations of the Paleolithic sites throughout Serbia have been conducted, so there were more published texts with very significant results. The results of excavations in the Šalitrena pećina were published in 1985 and from 1985 to 1987 were published the results of investigations in the Smolučka pećina. New discoveries of the chipped stone artifacts from the Vršac Paleolithic sites were published in 1989, and an accidental but very important find of the Mousterian endscraper from Rušanj was published in 1990. Kaluđerović published comprehensive work in 1991 concerning the Paleolithic in the light of more recent investigations while the results of excavations of the Paleolithic sites in the vicinity of Vršac were published in the following year.

The data concerning excavations in Drenaića pećina were published the results of investigations conducted in the eastern Serbia was published by D. Mihailović and Z. Kaludjerović in 1997. In 2001 after the revision of the osteological material of Belgrade. The synthetic work about the investigations of the Paleolithic conducted so far in the eastern Serbia was published by D. Mihailović, Lj. Djuričić and Z. Kaludjerović in 1997. In 2001 after the revision of the osteological material in the collection of the Institute for Regional Geology and Paleontology of the Faculty of Mining and Geology in Belgrade, the academic public was informed about a very important anthropological find. It is the fragment of right half of the mandible discovered some time ago by Prof. V. D. Laskarev but never published. On the basis of the morphological characteristics M. Roksandić and V. Dimitrijević came to conclusion that this was an individual belonging to the Upper Paleolithic population. The investigations in Hadži Prodanova pećina near Ivanjica suggested the existence of Middle and Upper Paleolithic industry and these results were published in 2006. The most recent excavations at the Petrovaradin fortress near Novi Sad that brought to light rich Mousterian (and somewhat less abundant Late Paleolithic) assemblage of chipped stone artifacts as well as already mentioned Mousterian endscraper from Rušanj are the best proofs that we should seriously count on the finds from the Middle Paleolithic stations in the Pannonia region in Serbia. These finds are at the same time obvious confirmation that the assumption about the existence of the Mousterian in the Zemun loess suggested already in 1984 was absolutely justified. The most recent results of the investigations of the Paleolithic in the territory of Serbia are the works of B. Mihailović and D. Mihailović concerning the finds from Šalitrena pećina published in 2007 and 2008 and the finds from the cave Baranica also published in 2008.

The new information resulting from the investigations conducted in the previous years, some new finds from the mentioned site in the vicinity of Zemun as well as the need to revise the published material from Zemun are the reasons for writing this treatise.

**Zemun loess plateau and location of the sites “Ekonomija 13. maj” and Beljarica**

The mountain ridge of Fruška Gora was a barrier, which caused the creation of the Srem loess plateau as a result of accumulation of the loess sand. The Zemun loess plateau is situated in the south east periphery of Srem, bordering on the Danube in the northeast, on the Sava in the southeast and the line connecting Stari Banovci and Boljevci in the west. The loess plateau consists of alternating layers of light yellow loess and dark layers of the buried i.e. fossil soil.

3 *Lajtovac* is a local name for a Miocene limestone occurs in vicinity of Belgrade.
4 Stevanović 1977.
5 Šarić 1984.
6 Kaluderović 1984; Radovanović 1986.
7 Jež i Kaluderović 1985.
10 Kaluderović 1990.
13 Kaluderović i Jež 1996.
14 Kaluderović i Đurić 1996.
15 Đurić 1996.
16 Sladić i Jovanović 1996.
17 Kaluderović 1996.
18 Mihailović, Đurić i Kaluderović 1997.
20 Mihailović 2006b.
21 Mihailović 2006a.
B. Laskarov is of the opinion that loess is the creation of interglacial period while A. Penk and B. Bula relate the creation of the loess plateau and sandy terrains to the glacial period. This assumption is corroborated by the field investigations of B. Ž. Milojević as well as of D. Mihajlović-Matić.24

Zeremski, Maruščak and Butrim define the existence of two segments within the Zemun loess plateau – the bottom one, consisting of river-marshy sediments dating from the Riss glaciation and the top one consisting of four layers of loess and four layers of fossil soils dating from the Riss and Würm periods. The problem of defining relative and absolute chronology of the Zemun loess plateau is a very complex one as it is confirmed by striking difference in number of layers of loess or fossil soils distinguished by different authors. In his first works about the Zemun loess plateau Gorjanović identified four layers of loess and three layers of fossil soils while V. Laskarov distinguished five layers of loess and four layers of fossil soils.25 J. M. Marković identified eight layers of loess and eight layers of fossil soils on a profile near Batajnica, Maruščak and Butrim identified 10 layers of loess and 12 layers of fossil soils at the same location while Rakić and al. recognized four layers of loess and four layers of fossil soils (Fig. 1).26

The main reason for this problematic synchronization lies in the subjective stratigraphic assessments as well as in the scarce paleontological material, which, in addition, has not been sufficiently studied.27 The situation is aggravated also by the fact that the analyses using thermoluminescence technique provided data, which coincide only partially with the stratigraphic division while even the C14 dating for the loess horizons in central Europe and the Danube basin, for the Würm as the latest stratigraphic element of the Pleistocene, offered considerably different results. On the basis of all results achieved so far in the attempts to determine precise chrono-stratigraphy of the loess in Vojvodina it became clear that methods of dating using thermoluminescence and C14 together with biogenetic, paleontological, sedimentological and archaeological data should be supplemented and combined with the results of investigation of the dynamic geomorphology. This means that data about erosion-denudation and neotectonic processes to which the loess complex had been exposed to should be taken into account.28

The highest points on the fringes of the Zemun loess plateau on the Danube are Kapela (114 meters above sea level) and Gornji grad in Zemun (103 meters asl). On the south fringes are Bežanija (with 114 meters asl) and Surčin (103 meters asl). Between Zemun and Surčin is broad and shallow depression with absolute altitude between 97 m and 80 m. Considering that the pre-loess relief was of marshy character it could be assumed that this broad depression is filled up marshy ground.

The Zemun loess plateau is in its northeastern periphery bordering on the steep often vertical cliffs, which are due to erosion of the Danube waters still

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24 Mihajlović-Matić 1952.
26 Zeremski, Maruščak i Butrim 1991.
27 Stevanović 1977.
28 Zeremski, Maruščak i Butrim 1991.
very active even today. In this area is located also considerable number of the escarps (locally called surduk), i.e. the initial valley forms, which transect the edge of the loess plateau and where the access from the plateau to the Danube bank is easiest. The Danube waters were undermining the loess plateau and took away huge quantities of accumulation for which exceptionally large river energy had been necessary. This implies the large quantity of water and corresponding big water fall that besides taking away the loess accumulation would not accumulate the material on the banks. Such conditions existed in the Pannonian plain only in the time of accumulation of the loess. Namely, the level of the Black Sea was much lower during the Würm period than it is today, so the erosion of the Danube banks was very intensive because of the falling of the Black Sea level and the faster flow of the water mass.29

The Paleolithic site ‘Ekonomija 13. maj’ is situated in the northwestern periphery of Zemun on a high loess hill, which dominates the right Danube bank, while the site Beljarica is situated somewhat more upstream at around 2.5 km from ‘Ekonomija 13. maj’ (Fig. 2). Considering the fact that it is impossible to locate the cultural layers in the hill profile the initial idea was to determine the position of the site in the loess hill on the basis of the texts about the Zemun loess and dating of horizons of terrestrial loess and fossil soils as well as on the basis of the chronological determination of the artifacts. Unfortunately, the discrepancy in the works of the authors investigating the origin and dating of the Zemun loess plateau pushed this initial idea in the background so this work would be primarily dealing with the analysis of the chipped stone artifacts in an attempt to draw attention of the academic public to this geographic region as an important zone where probably more finds of this kind could be expected.

For the cave sites is quite clear why they are often multi-layered with cultural layers dating from the Middle Paleolithic through all later periods and sometimes even to the Middle Ages. Also the site ‘Ekonomija 13. maj’ although it is the site in the open area revealed just the same stratigraphic picture according to the finds from the collapsed profile. At first it could seem strange that site in the open area covers such large chronological span. Nevertheless, the things that should be kept in mind are the favorable position for settling on the loess hill protected from flooding and considerable increase in population that resulted in much higher population density in the course of time. Due to the concatenation of circumstances in the area where in one time resided the Paleolithic man, people resided successively for longer or shorter periods until the late medieval times. The mentioned web of circumstances is also confirmed by the finds from the nearby site Beljarica where the finds from Late Paleolithic and Mesolithic are entirely missing while just two artifacts date from the Middle Paleolithic, but as at the site ‘Ekonomija 13. maj’ there are finds from the Bronze and Iron Age and from Antiquite to the medieval finds. The discovery of the mentioned two Paleolithic artifacts is the result of happy coincidence but also an indirect indication that the Middle Paleolithic station in this area was of considerably smaller size than at the site ‘Ekonomija 13. maj’.

Certain amount of osteological finds, which were submitted for the analysis to Dr. V. Dimitrijević from the Department of Paleontology at the Faculty of Mining and Geology have been found with the material gathered from the site ‘Ekonomija 13. maj’.

29 Mihajlović-Matić 1952.
Unfortunately, this osteological material was in such fragmentary state and it was damaged so much by the water that it was absolutely impossible to determine the animal species, so the dating of the chipped artifacts to the Pleistocene could not have been confirmed on the basis of these osteological remains if there were any from the Pleistocene period at all.

One of the indirect although unreliable indicators of the Pleistocene date of the artifacts from the site 'Ekonomija 13. maj' are one cowrie shell and two fragments of *Dentalium* shells, which had often been used as the fossils of interesting shape for making necklaces during the Late Paleolithic period. The use of *Dentalium* shells together with snail shells and deer teeth for making necklaces is also recorded in the Late Epigravettian layers at the site Badanj near Stolac (Bosnia and Herzegovina) although author incorrectly identified them as bone tubules. Unfortunately, these fossil shells also drew the attention of the populations from the later periods so there are examples that cowrie shells were used even in the medieval period. When the characteristics of the Neolithic material gathered on the Danube bank at the site 'Ekonomija 13. maj' are concerned it should be particularly emphasized that it differs considerably from the material found at the site Beljarica. While very abundant Neolithic material from Beljarica dates from the classic Vinča culture and includes feet of red burnished goblets, black burnished vessels with punctuated meanders, fragments of pros-opomorphic lids, zoomorphic protomes from the vessels, ground stone trapeze-shaped axes and chisels, the Neolithic material from the site 'Ekonomija 13. maj' is very small in quantity and consists of few trapeze-shaped ground stone axes and relatively atypical pottery fragments of which one vessel bottom with perforated small conical feet most probably belongs to the Tiszapolgár culture. Besides, we should bear in mind that the amount of chipped stone artifacts from the site 'Ekonomija 13. maj' is much greater than the amount encountered at the site Beljarica. This is already one of indirect but very conspicuous indicators that flint industry from the site Beljarica dates from the classic Vinča culture and includes feet of red burnished goblets, black burnished vessels with punctuated meanders, fragments of pros-opomorphic lids, zoomorphic protomes from the vessels, ground stone trapeze-shaped axes and chisels, the Neolithic material from the site 'Ekonomija 13. maj' is very small in quantity and consists of few trapeze-shaped ground stone axes and relatively atypical pottery fragments of which one vessel bottom with perforated small conical feet most probably belongs to the Tiszapolgár culture. Besides, we should bear in mind that the amount of chipped stone artifacts from the site 'Ekonomija 13. maj' is much greater than the amount encountered at the site Beljarica. This is already one of indirect but very conspicuous indicators that flint industry from the site 'Ekonomija 13. maj' is a phenomenon, which deserves special attention.

**Characteristics of the assemblage of Paleolithic and Mesolithic chipped stone artifacts**

Two Paleolithic artifacts from the site Beljarica have been found among the dislocated material on the Danube river bank upstream from the escarp (*surduk*) giving access to the bank and under almost vertical over 20 meters high loess profile. Although the finds from the Late Neolithic, La Tène and Roman period are prevailing in that area these two artifacts were clearly distinguishable from the Neolithic material according to the raw materials they were made and also on the basis of their technological and morphological characteristics.

The assemblage of the chipped artifacts from the site 'Ekonomija 13. maj' resulted from many years of material gathering (when the water level was low) on the pebbly river bank within an area around 250 meters long and 20 meters wide. This is the section of the bank upstream and downstream from the pump station, which provided water for the agricultural estate on the hill. The mixing of material makes attribution of some artifacts difficult to a considerable degree and many of them will, unfortunately, remain useless for more precise analyses only because these were the tool types (primarily endscrapers on blades and flakes), which are chronologically relatively irrelevant. Fortunately, one group of chipped artifacts because of their distinct typological and morphological characteristics is clearly distinguishable from the mentioned chronologically irrelevant material, which is one of the characteristics of the Neolithic as well as the ensuing prehistoric epochs. These are the artifacts, which indicate by their presence that people lived in this area already during the Middle Paleolithic and possibly also stayed here longer during the Late Paleolithic and the Mesolithic.

The petrological analysis based on investigation of few microscopic samples confirmed that mostly used raw materials were chert, precrystallized radiolarite and radiolarite. The macroscopic inspection confirmed that also quartzite (Plate II/1), silicified magnesite or resilicified radiolarite (Plate II/3, 4), metaquartzite sandstone (PlateII/7) and corneite (Plate I/1) had been sporadically used. These rocks also have clearly conspicuous characteristics essential for successful knapping – great hardness and conchoidal fracture so it is understandable why they had also been used besides the chert and radiolarite. The river pebble cortex is conspicuous on one group of the artifacts while the cortex identified on other specimens indicates the use of raw materials from the primary deposits. The chert, which occurs in a very large spectrum of colors in the primary deposits, could be found as sediments in the Jurassic layers on the slopes of Fruška Gora but also

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30 Bárta 1974.
31 Basler 1979a.
32 Bajalović-Birtišević 1960.
33 Šarić 1984.
34 The assemblage of the chipped stone artefacts is a result of many years of collecting with generous help of the boys living in the houses nearby. They spent their summer holiday not only in swimming in the rapid Danube waters but also in collecting the chipped stone artefacts after I draw their attention to them after their inquisitive questions when we first met long ago in 1977. In the course of time the assemblage reached over 7,000 chipped stone artefacts.
in the wider surroundings of Belgrade. Secondary deposits occur in the river accumulations of the Sava and the Danube.\textsuperscript{35}

The artifacts, which according to their morpho-technical characteristics date from the Middle Paleolithic make a group of finds from the sites Beljarica and ‘Ekonomija 13. maj’ with clearly distinguished characteristics, which do not leave any doubt in their attribution. Particularly interesting in that group are Mousterian hand points, the largest specimen being the one from Beljarica (Plate I/1) made of corneite and specimen from the site ‘Ekonomija 13. maj’ (Plate I/2) made of chert of dark brown color.\textsuperscript{36} The point from specimen from the site ‘Ekonomija 13. maj’ with clearly distinguished technical characteristics date from the Middle Paleolithic period. Although some specimens were retouched as denticulated double side-scaper on the Levallois blade made of silificed magnetite or recrystallized radiolarite with distinct milk-white patina (Plate II/3), one unretouched Levallois blade (Plate II/4) made of the same material and short Levallois blade made of chert with direct irregular and denticulated retouch, which covers the distal end of both edges (Plate II/5).

Two more tools could be determined as the Mousterian artifacts from the site ‘Ekonomija 13. maj’. These are finely retouched double sidescraper on the Levallois flake (Plate III/1) and the retouched Levallois flake with clearly defined notch on the left edge (Plate III/2). Both these tools were made of the high quality chert.

The Late Paleolithic artifacts from the site ‘Ekonomija 13. maj’ are represented by many specimens and they reveal technological and morphological characteristics that define them as Gravettian/Epigravettian finds and they were all made of chert and radiolarite. Few finds including two nosed endscrapers on flakes (Plate III/3, 4), three trapeze endscrapers on flakes (Plate III/6-8) and large atypical nosed endscraper (Plate III/5) are in fact tools, which still reveal the influences of the Aurignacian technological tradition. Particularly important finds from this site are two shouldered projectiles/points (Plate IV/1, 2),\textsuperscript{38} two endscrapers-perforators on flakes (Plate IV/3, 4) and one shouldered perforator (Plate IV/5). These are so characteristic specimens, from the morphological point of view, that it could be easily said that they are the ‘identity card’ of a given site. In addition, in the group of Late Paleolithic artifacts have also been identified small circular endscrapers (Plate IV/6-10), short thumbnail endscraper (Plate IV/11-28), so-called stemmed blades (Plate V/1, 2), burins (Plate V/3, 4), abruptly retouched blades most of which are perforators (Plate V/5-13) and short and narrow backed blade (Plate V/14).

Group of 21 short blades with retouched truncation (Plate V/15-34) could be related either to the very end of the Late Paleolithic period or to the Mesolithic period. Although some specimens were retouched as perforators (Plate V/15) most of them are shaped as artifacts used for composite tools. This is also suggested by the use polish covering the triangular surface.\textsuperscript{38}

\textsuperscript{35} Šarić 1984.
\textsuperscript{36} Šarić 1984.
\textsuperscript{37} Mihailović 1993.
\textsuperscript{38} Šarić 1984, 2005b.
typical of the artifacts, which were parts of sickles or composite knives (Plate V/16, 17, 21-26, 28, 29, 31, 33) and this could possibly be the indicator of their Mesolithic provenance.

Rather large is the group of classic geometric microliths that includes one triangle (Plate VI/1), seven segments (Plate VI/2-8), 47 trapezes (Plate VI/ 9-55), three rectangles (Plate VI/56-58) and one atypical specimen with one truncation retouched convexly and the other retouched concavely (PlateVI/59). The use polish identified as characteristic triangular surface could be noticed on 19 geometric microliths (Plate VI/1, 12, 21, 25, 28, 30, 32-35, 37, 38, 40, 44, 45, 49-51, 55).

This completes the review of the most characteristic artifacts, which indicate by their techno-morphological characteristics the undoubted importance of these two sites for the study of the Paleolithic, not only on the southernmost borders of the Pannonian plain but also in the territory of Serbia as well.

Conclusion

Despite two handaxes, which are somewhat larger than other Mousterian inventory from Beljarica and the site ‘Ekonomija 13. maj’ the striking dominant characteristic is the microlithization of artifacts as one of the characteristics of the Micocian facies, which has been defined on many sites in the Mediterranean basin. But, we should bear in mind also possible enforced microlithization caused by frequent use of river pebbles, which because of their small size dictate the final size of the artifacts made of them. Even the handaxe as one of the largest tools from the site ‘Ekonomija 13. maj’ that is slightly less than 9 cm long (Plate I/2) was made of the river pebble as it is confirmed by the preserved cortex.

It could not be said with absolute certainty that this Mousterian industry was characterized by the high degree of standardization because it should be taken into account that presented specimens are the result of selection in order to illustrate the most typical artifacts, which make possible the dating in the situation when there is no stratigraphy. It means that they perhaps represent only smaller proportion of the entire Mousterian material, which could have not been presented because it is atypical. On the other hand it could not be ignored and denied that these presented specimens are typologically clearly defined examples and that being the essential characteristic of this industry indicate theoretically somewhat later phases of the Mousterian. The handaxes, cleaver, choppers and sidescrapers from these two sites fit, according to the noticed characteristics, into already established picture of the Mediterranean Mousterian. But we certainly must take into account that this geographic concept could not be associated exclusively with those sites, which are located along the coast but that it is a complex spreading much farther and deep into the hinterland. It is particularly important to stress their microlithic habitus that clearly relates them to the Mousterian finds from Zagojje in Croatia as the closest analogies in the region, although microlithization is conspicuous also among the finds from the cave habitations in Montenegro.39

The Late Paleolithic industry from the Zemun loess shows evident and great similarities to the industry of the Kostjenki-Borshevo complex. There are close resemblances to the industries in the territory of Slovakia and Check Republic as well as in the material from many sites in northern Bosnia. Speaking about this segment of the assemblage of chipped artifacts from the Zemun loess it is necessary to point to some exceptionally characteristic finds, which because of their characteristics are genuine keystones for dating but also geographical linking of this site with the regions where the cultural influences arrived from.

In the first group are so-called atypical shouldered projectiles/points, which are actually very typical and easily recognizable (Plate IV/1, 2). The easternmost sites where the occurrence of shouldered projectiles/points have been recorded are the sites Gvardžilas Klde, Kvačara and Cahata in Georgia having in mind that finds from the complex Kvačara are dated into Early Mesolithic.40 Number of these points is considerably increasing in the area of the Russian steppe and in Crimea, so they were encountered in Moldova 5 (layers VII and VIII dating from 24th millennium BC to the 17th millennium BC), in Puškari 1 (dating before the 24th millennium BC), in Kostenki 1 (layers also dating before 24th millennium BC), Kostenki 4 (around 17th millennium BC) and Borshevo 1 (initial dating suggested the Aurignacian date but sometime later it was dated in the late Solutrean).41 More to the south and somewhat to the west from these sites the shouldered projectiles/points were found at the sites Bistricioara-Lutărie and Bafu Mic in present-day Romania where they were dated in the final Gravettian.42

Few Late Paleolithic sites have been recorded in the region of the west Rhodope, in present-day Bulgaria, and the particularly interesting one is the mountain site specialized in production of Epigravettian points and especially the shouldered projectiles/points.43

39 Malez 1978; Basler 1979c; Duričić 2006.
40 Praslov i Rogačev 1982.
41 Praslov i Rogačev 1982; Borikovski 1984.
42 Păunescu 1970.
43 Ivanova 2008.
Considerable number of shouldered projectiles/points has been recorded in the central Europe and particularly important are the finds from Slovakia, from the sites Žakovska and Podkovica where they are dated in the Gravettian period. Farther to the west the atypical shouldered projectiles/points and their variant known as the Willendorf-Kostenki type appear at the eponymous site in Austria where they are dated between 30,000 and 20,000 BC. In Laussel in France, such specimens have been found in the layers of the same date as in Willendorf and that corresponds to the Aurignacian period.68 From the rock shelter Schmidt in Bavaria also comes few shouldered projectiles/points for which the author of excavations emphasizes that they indicate clear eastern influences and relates them to the Russian late Aurignacian of the Kostenki complex emphasizing that two small shouldered points have their analogies in the Paleolithic of the Lower Austrian loess.47

The shouldered projectiles/points, which have been found in the material from the Tardigravettian layers of Jama v Lozi in Slovenia,48 in the layers of the advanced Gravettian in the Sandalja cave near Pula in Croatia,49 in the Epigravettian layers in the rock shelter Badanj in Herzegovina50 and in the Late Paleolithic layers in the Asprochaliko cave in Greece51 are the indicators of the southward routes taken by the bearers of the culture with the points and they are probably the farthest points of their intrusion when the south borders of the European continent is concerned. On that route, from the east, i.e. the Russian steppe via central Europe towards these south peripheries was also the Pannonian plain and on its fringes is the site ‘Ekonomija 13. maj’ with two shouldered points.

Particularly significant for the dating of the finds from the site ‘Ekonomija 13. maj’ are the shouldered projectiles/points which combine the functions of endscraper and perforator (Plate IV/3, 4). They were made on flakes or short blades in such a way that convex working edge of the endscraper was created on one end while from one of lateral edges was retouched a concave surface, which creates a point with the other edge. Something particularly characteristic for these tools is that the point was additionally emphasized and defined by the burin-type retouch at the right angle to the tool edge.

The tools of this type were encountered at the sites Mezino (dating between 23rd and 17th millennium BC), Kostenki 19 (new dating for Kostenki 17 provides calibrated dates between 37th and 41st millennium BC),52 Borikovo 1 (Late Solutrean)53 and Sakažija (Late Paleolithic).54

As an indicator of the Paleolithic date of the assemblage of the artifacts from the site ‘Ekonomija 13. maj’ could be also used the atypical nosed endscraper (Plate III/5), which is dated in the Middle Aurignacian at the site Křepice in Slovakia.55 But it should be taken into account that this is very old type of the artifact whose origin dates back to the layers of the Middle Pleistocene period at the site Kumari.56

Also, the trapeze endscrapers (Plate III/6-8) fit into the basic scheme of the eastern technocomplex as it is confirmed by similar specimens from the site Afontova Gora II.57

Small shouldered perforator (Plate IV/5) for which there are analogous, though slightly larger, specimens at the site Molodova 5, in the layers dated 23rd and 17th millennia BC58 also belongs to this technocomplex or to the successors of this technocomplex. Similar perforators have also been found in the material from the layers with late Gravettian inventory at the site Kadar in Bosnia and Herzegovina.59

The discoid endscrapers (Plate IV/6-10) and short thumbnail endscrapers (Plate IV/11-28) have analogies in the central Balkans in Crvena Stijena (Montenegro) and Badanj (Bosnia and Herzegovina) where they are dated in the Epipaleolithic, i.e. in the Epigravettian period.60 The ‘Gravettianized’ blades/point from the site ‘Ekonomička 13. maj’ (Plate V/5-13) also have analogies in the material from Crvena Stijena (Montenegro) and Badanj and Kadar (Bosnia and Herzegovina) where they are dated in the Late Epigravettian.61

The closest analogy for the single short and narrow backed blade (Plate V/14) is the specimen from the Epigravettian layer in Šalitrena pećina near the village Breždje, around 100 km to the southwest of Belgrade.62

The conclusion of N. Krstić that after Paudorfinterstidal it was too cold for men to reside at our geographic latitudes based on the finds of the Columnella columnella snails in the top loess horizon dating from Würm-3 period (they live today only in the northermost parts of Europe) could not be accepted.

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57 Borikovski 1984.
58 Praslov and Rogačev 1982.
59 Basler 1979a.
60 Basler 1979b, 1979c.
61 Basler 1979c, 1979a, 1979b.
because it is the period when the transition from the Aurignacian to the Gravettian technocomplex within the Paleolithic cultures took place and just from that very period we have exceptionally abundant Aurignacian industry from the sites At-Vršac64 and Balata65 also near Vršac as well as the industry from the sites in the Zemun loess that reveals distinct characteristics of the one as well as the other technocomplex representing most probably the transitional stage between them.

This claim also confirms the conclusions stated by Basler when discussing the Aurignacian finds in the northern Bosnia. He emphasizes that these find have closest analogies in the material from the Pannonian sites in the vicinity of Vršac and in the Romanian Banat but also from Slavonia, northern Hungary and eastern Slovakia66 that is still another indirect evidence indicating the directions of intrusion of the bearers of that culture.

Short blades with retouched truncations (Plate V/15-34) and geometric microliths (Plate VI/1-59) are the specimens, which represent the latest finds among the artifacts presented in this work. These are the artifacts, which represent the significant characteristic of the Late Paleolithic period but they are even more significant indicator of the Mesolithic and the cultures starting to practice agriculture. The silica gloss or more precisely use polish could be frequently noticed on the geometric artifacts and therefore it has often been explained by the investigators as the clear indicator of use in the agricultural communities. Still, it should be taken into account that some artifacts have not been used long enough for the gloss to occur, some had been used for cutting wild grass used for thatched roofs or making straw mats, i.e. not for cutting semi-cultivated or cultivated cereals, some geometric microliths were the parts of projectiles on which the gloss could not occur… The problem of dating such type of the artifacts, without distinct chronological relations, is certainly a very complex one. Regardless of the fact that the term Tardenoisian or Balkan-Danubian Epigravettian with trapezes is used for this group of chipped artifacts as chronological determination, the chipped stone industry from the territory of Romania that is clearly connected to the Starčevo-Körös-Criş complex is characterized by distinct microlithization and large number of geometric microliths – primarily the trapezes.67 Very rich Tardenoisian chipped stone industry of the populations inhabiting also the territories of present-day Slovakia and Hungary68 as well as its indisputably strong and long-lasting influence on the peripannonian Neolithic settlements as it has been noticed at the site Donja Branjevina69 are clear indicators for the traces of the Tardenoisian settlement also at the site ‘Ekonomija 13. maj’.

Exactly the quarter of a century passed since portion of the Paleolithic chipped stone artifacts from the sites Beljarica and ‘Ekonomija 13. maj’ was published. During that period exceptionally important Paleolithic settlements have been discovered and they started to fill the gaps on the archaeological map of Serbia. Some authors understood the importance of the sites Beljarica and ‘Ekonomija 13. maj’ on the whole60 while some understood that importance only when the Late Paleolithic finds are concerned although the Mousterian component is much better represented and confirmed than it is the case with the isolated specimen from the site Cigan near Irig.71

Considerable shifting of the Danube riverbed to the south being at some spots many tens of meters since the Middle Ages poses the question to the investigators whether perhaps the largest section of the site ‘Ekonomija 13. maj’ had been destroyed explaining thus an exceptionally large quantity of chipped stone artifacts discovered on the bank where they remained after natural flotation process of the crumpled material.

The proximity of the open loess profile at Beljarica allows the assumption that the loess profile at the site ‘Ekonomija 13. maj’ is identical but its thick grass cover does not allow the distinguishing of possible cultural layers.

The existence of military and police installations on the hill and particularly in the zone where the largest amount of finds had been identified on the bank makes impossible, at least in this moment, more detailed investigations in an attempt to identify cultural layers in the trenches.

But, regardless of the mentioned problems and ambiguities concerning the location of the chipped stone artifacts in the loess profile, it is a happy coincidence that in that industry encompassing one rather long time span, there are many typologically clearly defined artifacts, which could be the reliable marks, from the cultural standpoint, for the dating of the site. Many analogous specimens from close or more distant neighborhood as well as the results achieved in investigations of the Paleolithic in Serbia in the last 25 years concede the author’s point in emphasizing once again the importance of the site Beljarica and in particular the site ‘Ekonomija 13. maj’ either as individual points of investigation or as the indicators to the investigators who should direct their attention in the future to the loess plateau in its entire length, from Zemun as far as Fruška Gora mountain.

64 Mihailović 1992b.
66 Basler 1979b.
67 Păunescu 1970.
69 Šarić 2005a.
70 Kaladerević 1991.
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Резиме

ЈОСИП ШАРИЋ, Археолошки институт, Београд

ПАЛЕОЛИТСКИ И МЕЗОЛИТСКИ НАЛАЗИ
ИЗ ПРОФИЛА ЗЕМУНСКОГ ЛЕСА

Кључне речи: Окресани артефакти, средњи палеолит, млађи палеолит, мезолит, сировине, рожнац, черт, кварцит, ручни клинови, ручни шиљци, коленасти пројектили/шиљци, пострушке, геометријски микролити, Земун, Србија.

Земунски лесни плато се налази на југоисточној периферији Срема, Дунавом ограничен са северистоком, Савом са југоистоком и линијом између Старих Бановаца и Бољеваца са запада. Изграђен је од наизменичних слојева светлозелених леса и тамних слојева погребене, односно, фосилне земље.

Палеолитски локалитет „Економија 13. мај” налази се на северозападној периферији Земуна, на високом лесном брегу шта је доминира лесном обалом Дунава, док је локалитет Белацарница локиран нешто узводније, на око 2,5 км од „Економија 13. мај”. За пешинску налазишту је потпуно јасно у реткулма што се чува у посађенству. У првом тренутку може се учинити чудним да налазиште било на отвореној земји. Резиме

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Plate 1 - Beljarica - 1, middle palaeolithic hand point; “13. maj” - 2-9, middle palaeolithic hand points

Таблица I - Бељарица - 1, средњопалеолитски ручни шиљак; „13. мај” - 2-9, средњопалеолитски ручни шиљаки
Plate II - Beljarica - 1, middle palaeolithic cleaver; “13. maj” - 2, 6, 7, middle palaeolithic cleavers/choppers; 3, middle palaeolithic double sidescraper on levallois blade; 4, middle palaeolithic unretouched levallois blade; 5, middle palaeolithic denticulated short levallois blade

Табла II - Бељарица - 1, средњопалеолитски cleaver; „13. мај” - 2, 6, 7, средињопалеолитски cleaver-i/chopper-i; 3, средињопалеолитска двојна пострушка на левалоа сечиво; 4, средињопалеолитско неретуширано левалоа сечиво; 5, средињопалеолитско назубљено країцо левалоа сечиво
Plate III - “13. maj” - 1, middle palaeolithic double sidescraper on levallois flake; 2, middle palaeolithic notched levallois flake; 3, 4, upper palaeolithic nosed endscrapers; 6-8, upper palaeolithic trapezoidal scrapers on massive flakes; 5, upper palaeolithic massive atypical nosed scraper

Табла III - „13. мај“ - 1, средњопалеолитска двојна пострушка на левалоа одбитак; 2, средњопалеолитски ретуширани левалоа одбитак са анкошом; 3, 4, млађепалеолитски кљунасти стругачи; 6-8, млађепалеолитски трапезасти стругачи; 5, млађепалеолитски атипични кљунасти стругач
Plate IV - “13. maj” - 1, 2, upper palaeolithic shouldered points; 3, 4, upper palaeolithic endscrapers/perforators; 5, upper palaeolithic shouldered perforator; 6-10, upper palaeolithic discoidal scrapers; 11-28, upper palaeolithic short endscrapers

Таблица IV - „13.маj” - 1, 2, млађепалеолитски коленасти пројектили; 3, 4, млађепалеолитски стругачи/перфоратери; 5, млађепалеолитски коленасти перфоратер; 6-10, млађепалеолитски кружни стругачи; 11-28, млађепалеолитски кратки ноктасти стругачи
Plate V - “13. maj” - 1, 2, upper palaeolithic stemmed blades; 3, 4, upper palaeolithic burins; 5-13, upper palaeolithic steep retouched blades (mostly of them are perforators); 14, upper palaeolithic narrow backed blade; 15-34, upper palaeolithic or mesolithic transversal retouched blades

Табла V - „13. мај“ - 1, 2, млађепалеолитска тзв. подвезана сечива, 3, 4, млађепалеолитска сечива се длетастим ретушем; 5-13, млађепалеолитска стрморетуширана сечива (већина су перфоратори); 14, млађепалеолитско уско сечиво се хрптом; 15-34, млађепалеолитска или мезолитска сечива са ретушираним преломом
Plate VI - “13. maj” - 1-59, mesolithic geometric microliths

Табла VI - „13. мај“ - 1-59, мезолитски геометријски микролити