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Paleolithic Settlement Patterns in Northern Bosnia

ABSTRACT

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This review of available data from Paleolithic sites of Northern Bosnia attempts to generate trends in settlements patterns through time. The focus is on two episodes of Paleolithic occupation attributed to the Aurignacian and the Gravettian respectively. During the Aurignacian, human occupation is limited to brief incursion along river valleys in order to procure raw materials and perhaps animal resources as well. The Late Upper Paleolithic occupations are better understood. The LUP settlement system included base camps and hunting stations that extended well into the Central European lowlands. The mountain zones of northern Bosnia were at the boundary of hunting territories and appear to have been occupied sparingly during the Paleolithic. A summary of the reduction sequence at an Aurignacian workshop is presented.

Parola chiave: Paleolitico, Bosnia, modelli di insediamento, sequenza di riduzione.

Key words: Paleolithic, Bosnia, settlement patterns, reduction sequence.

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Knowledge of Paleolithic settlements in northern Bosnia derives in large part from the surveys, tests and surface collections done by a single individual, Djuro Basler, who in the 50's and 60's recorded about 70 sites. His survey focused on the series of loam deposits that accumulated on the region's uplands and bluff slopes in the late Pleistocene. Erosion, construction works and cultivation combined to destroy these deposits in many areas. But remnants were still visible at the time of the survey and Basler's strategy was to spot and examine localities where traces of these deposits could be seen. Most of his research focused on the Doboj Basin at the confluence of the Bosna and the Usora Rivers, the Derventa and Kulaši areas along the Ukrina. Excavations were conducted at several sites, including Londza (BASLER, 1961) and Kamen in the Doboj basin, Lušić (BASLER & JANEKOVIC, 1961) and Mala Gradina (BASLER, 1978) near Kulaši, Visoko Brdo (BASLER, 1962) near Derventa, and more recently at Kadar and Zobiste (MONTET-WHITE, LAVILLE & LÉZINE, 1986).

In addition, MALEZ and his collaborators (1974) did limited work at several cave sites and a few more open-air sites came to light recently as a result of salvage work along the Vrbas. In spite of obvious limitations, the recorded sites provide a spatial and temporal cross section of Paleolithic settlements in the region. A review of available evidence indicates that, during the Paleolithic, human occupations were sporadic and marginal in comparison to other areas of the Central European Basin where greater concentrations of Paleolithic sites have been identified. The contrast between Northern Bosnia and other sections of central Europe raises questions concerning the dynamics of human settlements in the region and the organization of territories and margins during the Paleolithic.

The following is a brief outline of results and questions for a region that stretches from the low lying plain of the Sava River to the mountains and high plateaus of the Dinaric Alps.

1. Spatial distribution of Paleolithic sites

Northern Bosnia is a region of dissected landscape limited by the Sava River to the north, the Una River to the west and the Drina River to the east. The system of parallel valleys that runs from south to north into the Sava are the most notable topographic features of the region. In their upper course the rivers cut narrow valleys through mountains that reach altitudes of 1000 m and above and basins form at the confluences of several streams. Valleys widen in their mid and lower sections where surrounding uplands range between 600 m and 400 m sloping down to about 120 m along the Sava ridge. In terms of climate and vegetation, the region now forms a transition between the modified Mediterranean environment of the Dinaric Alps and that of the Central European Plain. A different situation prevailed in the late Pleistocene especially when lower sea levels reduced the Adriatic to a gulf. The region that includes the Sava and its southern tributaries was then an integral part of the Central European Basin. And the spatial distribution of Paleolithic sites must be considered in the light of the region's geographic situation as a boundary as well as a transition between two environmental zones.

A first series of sites is located in the lower section of the valley immediately along the Sava ridge, like Kadar, or close to it, like Pećine on the Vrbas. A second series is

found in the valleys' midsections. Some are located on a ledge along the bluff like Londza and Kamen and others occupy the hilltops like Zobište and Visoko Brdo. A third group is located on hilltops and terraces further up river and well into the mountain zone. The Kulaši sites in a somewhat wider, more open area at the junction of the 2 upper branches of the Ukrina are the best examples of the third group. Lastly, the cave sites near the rivers headwaters contain faunal remains of bear, marmot and other cave dwellers as well as occasional traces of human occupation. But there is a marked contrast between the Bosnian cave sites so seldom used by Paleolithic hunters (BASLER, 1979) and the Slovenian (OSOLE, 1965, 1979) and, more especially, the Croatian karst caves like Vindjia or Veternica located north of the Sava (MALEZ, 1979) where substantial records of Paleolithic occupations were uncovered. A relative scarcity of game in and around the Bosnian caves during the late Pleistocene could account for the small number of Paleolithic remains as the relative abundance of faunal resources probably determined the organization of seasonal rounds and hunting territories. A comparative study of faunal assemblages from caves north and south of the Sava River would shed some light on the matter as, unfortunately, bone is not preserved in the acidic sediments of the known open-air sites.

2. Temporal distribution of paleolithic occupations

Paleolithic sites range from Mousterian to Epigravettian. However, recorded assemblages cluster in well defined groups and the region's cultural sequence includes several major stratigraphic gaps.

(1) *Mousterian* levels in place have been recorded at Visoko Brdo, Kadar, Zobište and Londza (fig. 1). Laville (MONTET-WHITE, LAVILLE & LEZINE, 1986) placed Kadar, Zobište and Visoko Brdo within the same episode marked by relative humidity. His view is confirmed by the Kadar pollen profile which records percentages of arboreal pollen varying between 24 and 48 and includes a variety of deciduous trees as well as pine. TL dates derived from burned flint samples from Zobište place these occupations around 90,000. Assemblages recovered from these sites are characterized by the relative importance of Levallois debitage and high frequencies of naturally backed knives and side scrapers (BAUMLER, 1989).

A number of sites recorded by BASLER (1979) were identified as Mousterian. Although information about the sedimentological context of these scattered finds is lacking, the lithic assemblages they yielded belong to the same type of industry as Zobište and may be assumed to have been roughly contemporaneous. This suggests a strong implantation of early Mousterian groups in the region and a single horizon which falls within the early stages of the last glaciation.

(2) *Aurignacian* components were identified at Lušćić and Mala Gradina near Kulaši and at Londza and Kamen near Dobož (fig. 2). At Londza artifacts were found within a 30 cm thick deposits which may indicate recurring occupations. At Lušćić, on the other hand, the Aurignacian level was one artifact thick representing perhaps a single occupation.

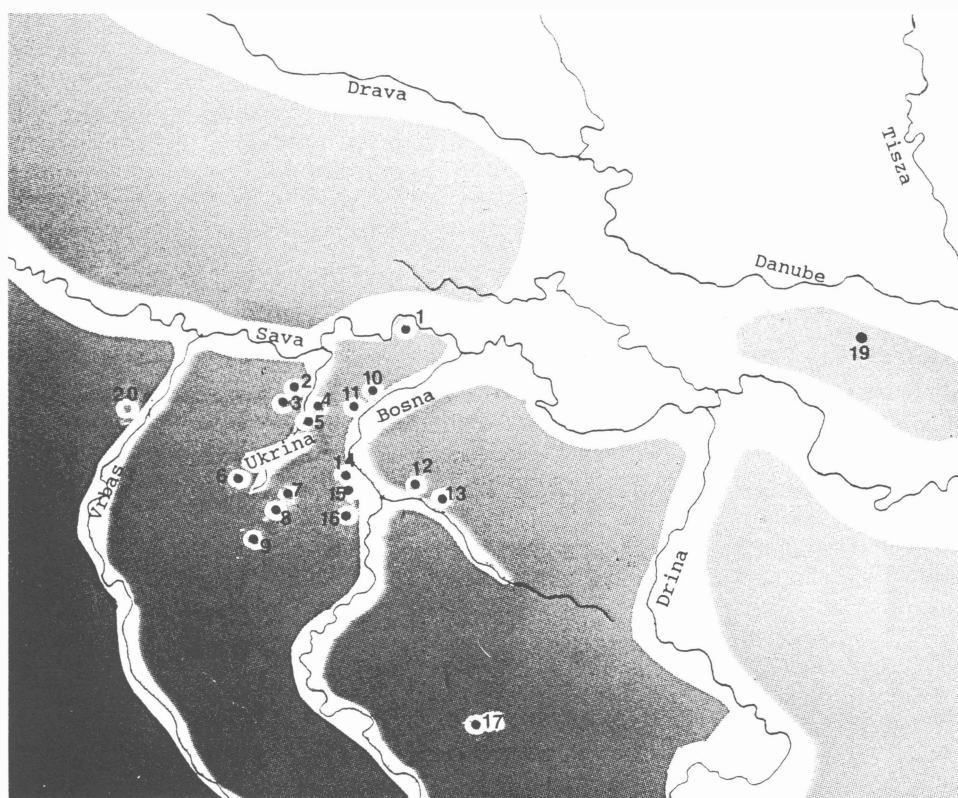


Fig. 1 - Distribution of Mousterian sites along the Bosna, Ukrina and Vrbas Rivers. 1, Kadar; 15, Londza; 4, Zobište; 5, Visoko Brdo; 6, Rastuca Cave.

The Lušćić archaeological horizon was found in layer III which Laville described as a sediment of aeolian origin affected by the formation of a polygonal network (*système de fentes polygonales*). He related the sediments alteration to the inter Krinides-Photolivos cold episode which is largely confirmed by TL dates ranging between 30,000 and 27,000 BP (MONTET-WHITE, LAVILLE & LEZINE, 1986). Several other Aurignacian sites were located around Kulaši. Mala Gradina was probably the most important but the stratigraphic context of the Paleolithic artifacts is not known.

The time period that corresponds to the inter Mousterian/Epigravettian (60-20,000) is not registered in the stratigraphic sequence of the plateau sites. Epigravettian levels are directly superimposed on the Mousterian bearing sediments at Kadar, at Zobište and probably also at Visoko Brdo indicating a major erosional episode that affected large sections of the region's deposits. So the view we have of the distribution of Aurignacian settlements is seriously handicapped by a stratigraphic hiatus. Available data, especially the thin cultural horizon at Lušćić, suggests a more limited implantation than during the Mousterian and perhaps no more than brief incursions in the Ukrina and Bosna valleys. The site of Pećine, north of Banja Luka, on the west bank of the Vrbas river, on the other hand, appears to contain an abundance of materials and a variety of artifacts forming a

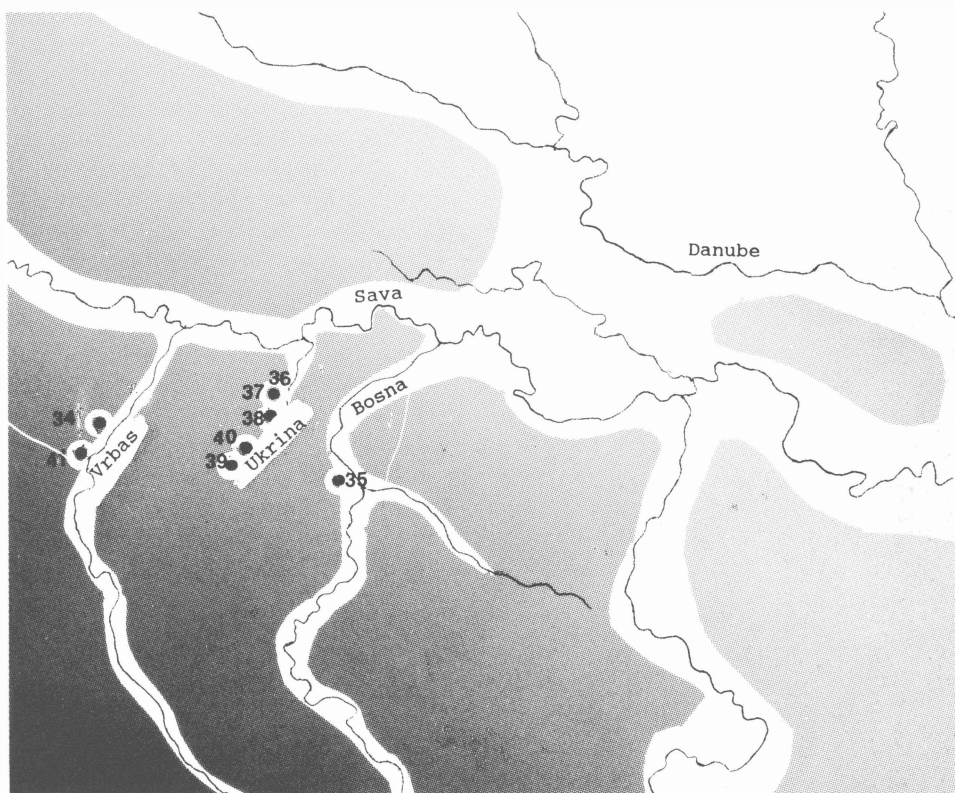


Fig. 2 - Distribution of Aurignacian sites along the Bosna, Ukrina and Vrbas Rivers. 40, Lušćić; 39, Mala Gradina; 36 Londza.

thick accumulation. The site has not been systematically excavated but it seems a good candidate for a residential camp and the only one for the Aurignacian. A settlement shift from one valley system to another during the time period corresponding to the Aurignacian is a possible interpretation that further field work could consider and elucidate.

(3) A series of *Epigravettian* occupations were recorded at Kadar where they corresponded to a period of aeolian sedimentation and soil formation. The pollen diagram showed that a park steppe with 17 to 28% arboreal pollen (oak, linden, elm, hazel, and pine) covered the area at the time. Laville associated the layer with the Philippi stage of the Thenaghi-Philippou sequence. The T1 dates place the Epigravettian between $24,200 \pm 2,000$ (I-west level 2b) and $16,200 \pm 2,000$ for level 2a. The Kadar industries were related to the shouldered point horizon found also in Slovenia, Croatia and along both sides of the Adriatic Basin (MONTET-WHITE & KOZLOWSKI, 1985). Other Epigravettian components were recorded at Zobište and Londza but at both sites the levels were truncated by early Holocene erosional surfaces and further dismantled by plowing. The «gravettian» level at Visoko Brdo could be associated with an earlier phase; it contained very few artifacts.

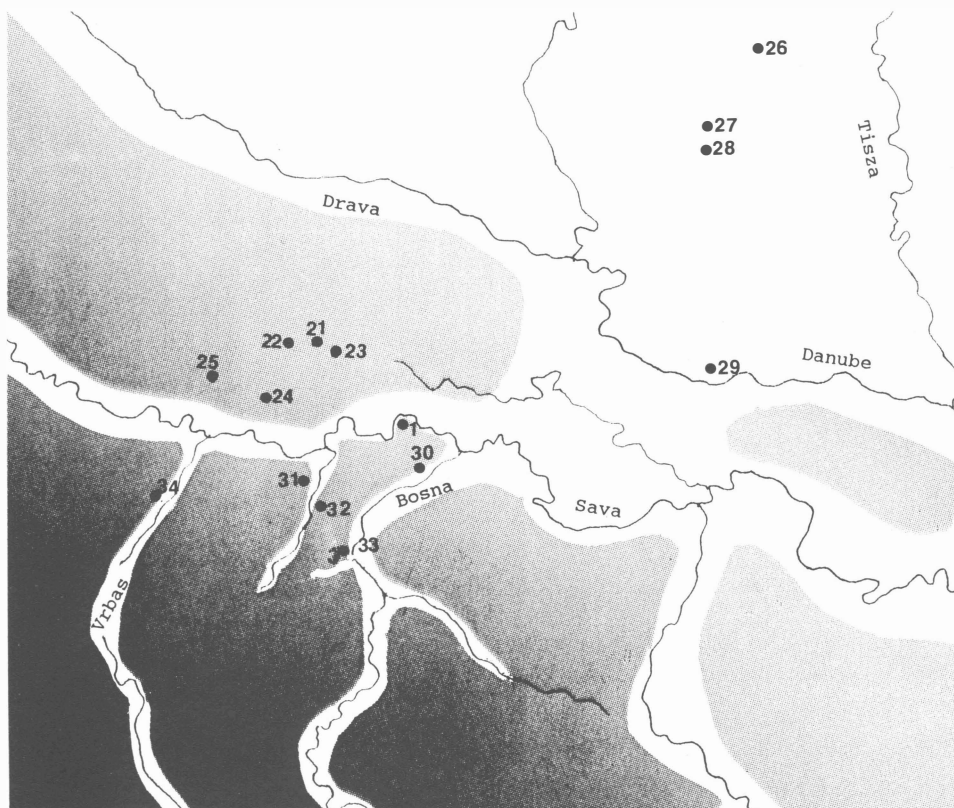


Fig. 3 - Distribution of Late Paleolithic sites in the Sava and Drava region. 1, Kadar.

The map illustrating the distribution of sites attributed to the late Upper Paleolithic (fig. 3) shows that territories occupied at that period extended toward lowlands and plains while less use was made of the midmountain zones. A shift in hunting strategies and group organization at the time of the last glacial maximum may well account for the change in settlement pattern.

3. Site function and site use

3.1. Spatial organization of archaeological materials within sites

Sites recorded to date consist of artifact scatters, 10 m to 25 m in diameter, covering 120 to 260 m² in surface area, and comprised of lithic tools and debitage, hammerstones, abraders and anvils. At the exception of Kadar where bovid teeth were recovered, bone is not preserved in the highly acidic sediments of the Bosnian open-air

sites. The Kadar hearths and posthole are the only identified site features in the region. As a result, the quantities and varieties of lithic artifacts are the only kind of data that can be used to infer sites function. Even within the limits of available evidence, the contrast in terms of site use between Kadar, the only well preserved Epigravettian site, and Lušćić, the most recently excavated Aurignacian site is clearly marked. The quantity and variety of artifact types and tools recovered from the site as well as the spatial patterning identified within and between different areas of the site set Kadar apart. It is clear that Kadar was a camp where multiple activities were performed. What is more, activities were spatially segregated reflecting the organization of various tasks within the group who occupied the camp. Lastly, the site was occupied repeatedly over a long period of time.

Lušćić presented a very different situation. The most notable piece of site furniture recovered during the 1980 excavations was a large sandstone slab broken in 3 pieces which was marked with striations and pitting. Cores and hammerstones were scattered around. Curiously, the area surrounding the anvil was relatively clear of debris and the density of lithic debitage increased as one moved away from the anvil. The observed patterning indicated some level of spatial organization. But in contrast to Kadar, there was no difference between the site's different spatial units; all units contained the same categories of debitage and tools indicating repeated performances of similar tasks.

3.2.Reduction sequence and raw material use

Notable differences in the use of raw material resources separate Kadar and Lušćić. In both cases the raw material consisted of radiolarite cobbles collected from river gravels. Lušćić was right at the river edge and the site's occupants had immediate access to an abundant resource whereas Kadar was a few miles away from the nearest gravel bar.

Pie diagrams (figs. 4 and 5) illustrate how an «average» cobble was used at each site. It is immediately evident that cores represent a much higher percentage of the raw material volume at Lušćić than at Kadar. Tools and blades constitute less than 10% of the volume of raw material processed at Lušćić but account for 33 % at Kadar. The high proportion of blades and tools found at Kadar (table I) is indicative of intensive use of lithic resources whereas Lušćić is marked by a much greater proportion of flakes and a low level of blade and tool production.

Furthermore, the relative proportion of blades to cores (an average of 18 blades per core at Kadar, 9 per core at Lušćić) and that of tools to blades (1.5 / 2 blades for 1 tool at

Table 1 - Artifacts Distribution at Kadar and Lušćić.

	Kadar		Ie	Kadar		Iw	Lušćić (1980)	
Excavated Surface Area	55 m ²			32 m ²			24 m ²	
Cores	16	2%		28	3%		15	3%
Blades	387	44%		416	48%		141	24%
Flakes	290	33%		125	14%		397	68%
Tools	185	21%		295	34%		29	5%

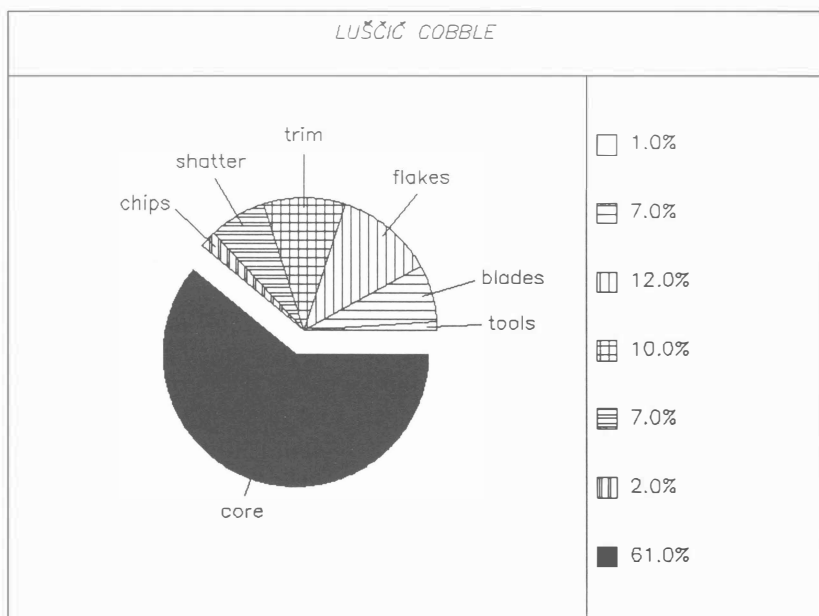


Fig. 4 - The Lušćić cobble pie diagram shows the manner in which the material from an average cobble was used.

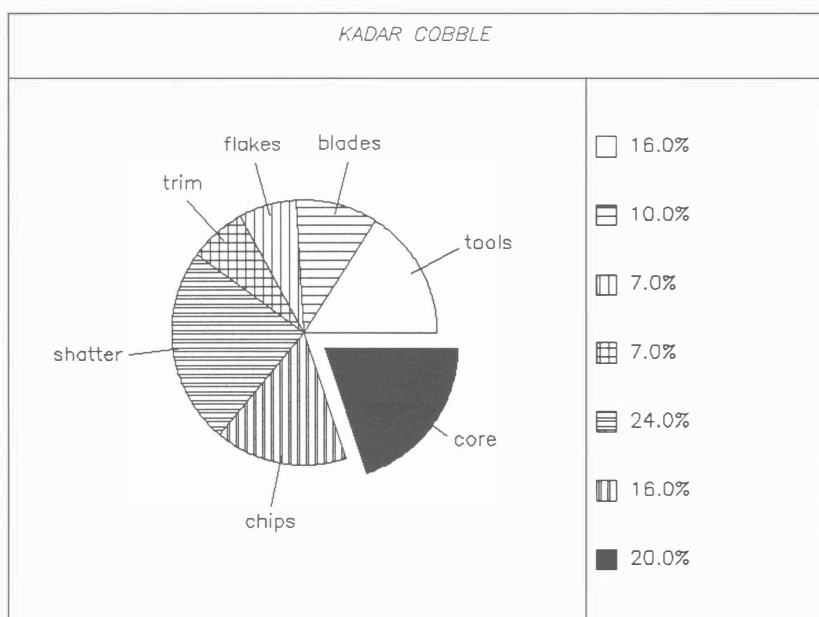


Fig. 5 - The Kadar cobble pie diagram shows the manner in which raw material from an average cobble was used at the site.

Kadar, 4 blades for 1 tool at Lušćić) reflect the more intensive preparation and use of lithic tools at Kadar, consistent with its functioning as a base camp. A more detailed analysis of the Lušćić assemblage provided a better understanding of the range of activities performed at the site. The assemblage included products and by-products of a blade production technology (table II). The assemblage is clearly that of a workshop where a large number of cobbles were brought in and tested. Many cobbles shattered since a large proportion of the cobbles were subjected to sub freezing conditions. The number of initial flakes (entames) is relatively high compared to Kadar where there were only 2 amidst a much larger assemblage of artifacts and tools, implying that at the latter site cobbles were introduced after some initial testing.

Table 2 - The Lušćić assemblage.

Shatter	Cobble testing: 176
Initial flakes	Core Preparation: 25
Cortical flakes:	
«Lemon wedges»	7
parallel dorsal pattern:	
lateral cortex	14
distal cortex	3
multidirectional dorsal pattern:	
lateral cortex	20
distal cortex	11
proximal cortex	4
Pre-cores	53
Platform tablets	9
Crest blades	2
	Core maintenance:
Internal flakes:	
parallel dorsal pattern	28
multidir. dorsal pattern	90
Flake fragments	186
Chips	315
	Blade production:
Cortical blades:	
lateral cortex	12
distal cortex	1
Complete blades	44
Blade fragments	84
Cores	15
Tools	17