PALEOLITHIC AND MESOLITHIC OF SLOVENIA AND CROATIA

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A data base was collected primarily from published literature (Tables 1,2 and 3) of over 200 assemblages (sites or strate within a site) from sites primarily in Slovenia and Croatia (Fig. 1) with a few sites from the mediterranean part of Montenegro and Herzegovina. Included are 149 assemblages associated with archaeological remains (Table 1) and 55 strictly paleontological assemblages (Table 2). Paleontological assemblages with only bear remains are omitted from the analysis.

Each assemblage is presented as separte record in the data base and consists of a list of identified mammalian species. Contextual information about the assemblages is presented under the following headings: site, level, period, date, and reference (all references in: Miracle 1991). Site is the finding place name. Level refers to the particular level or group of levels included in a particular faunal assemblage. Period refers to the associated archaeological materials, and has been used in the analysis as a major factor for grouping assemblages by chronological periods. Date list any absolute dates for the assemblages. Reference indicates the source of the information. The presence of a taxon in an assemblage is indicated with 1, while the most abundant taxon, when known, is indicated with a 2. Most rodent species have been omitted from the analysis, as have a few relatively rare carnivores (dhole, otter), and ungulates (musk, saiga antelope, fallow deer). The small mustelids have been grouped together, as have the bears. The analysis then proceeds by tabulating the relative frequency of occurrence (expressed as the percentage of assemblages in which a given taxon is found) of species in assemblages of differnt types. Results are expressed numerically (Table 3) with values potentially ranging from 0 (taxon not present in any assemblage) to 100 (taxon present in all assemblages).

Faunal assemblages associated with archaeological remains have been grouped into the following four chronological periods (after Gamble 1986): middle palcolithic (MP), early upper paleolithic (EUP), late upper paleolithic (LUP) and mesolithic (MES). The lack of absolute dates makes it necessary to rely primarily on the archaeological remains themselves to chronologically sort out the assemblages. Relatively broad groupings have been deliberately chosen to match the coarseness of much of the archaeological data, and yet pick out some of the important changes through time. It is important to keep in mind that many of the typological assignements used in the relative dating of assemblages were based on very small numbers of formal tools, in many cases far fewer than the 100 tool standard considered necessary for accurate chronostratigraphic analyses. As a result, one can justifiably question the assignement of some layers and sites to particular time periods. Nonetheless, the existing absolute dates

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are consistent with the scheme presented above and are taken as strong support for these broad temporal groupings.

From the standpoint of the archaeological materials, MP assemblages are defined by preponderance of flake and core/chopping "tools" and in many cases have been typologically classified as mousterian. Assemblages so classified probably date from 128-35 kyr (thousands of years BP), although we have only 3 absolute dates on MP assemblages: Krapina and level K at Vindija about 130 kyr, level G3 at Vindija 42 kyr, Divje babe 47 - 43 kyr. Climatic conditions progressively deteriorated from warm, interglacial (oxygen isotope stage 5e, ca. 128-118 kyr), to more temperate (oxygen isotope stages 5d-5a, ca. 188-75 kyr), to glacial during the first half of the Wurm (oxygen istope stage 4, ca. 75-35 kyr).

In later artifact assemblages (EUP, LUP), formal tools are most commonly made on blades as opposed to flakes. This follows the classic differentiation between the middle and upper paleolithic periods in European Prehistory. The EUP assemblages are caracterized by formal "tools" made on large blades and include those typologically identified as aurignacian and gravettian. The earliest and latest dates for EUP asseblages are 33,850 BP (Velika pećina) and 18.388 BP (Pećina u Brini) respectively. It is therefore assumed that EUP assemblages date from between about 35 and 20 kyr. LUP assemblages are identified by an increased importance of formal tools made on small blades, "bladelets" and microlithic tools. LUP assemblages include those assemblages typologically identified as tardigravettian, epigravettian and magdalenian. The earliest date on a LUP assemblage is 19,540 BP (Ovčja jama). The upper time boundary for the LUP is arbitrarily set at the end of the pleistocene, here placed at 10,000 BP. As it is often difficult to identify distinct mesolithic assemblages in the Mediterranean region on purely typological grounds, criteria including the cahracteristics of the associated sediments, absolute dates, and faunal communities have also been used in the identification of MES assemblages. Most MES assemblages probably date to between 10 kyr and the appearance of farming communities (roughly 7-6 kyr in the region).

It is mutch difficult to chronologically arrange the paleontological assemblages. There are very few dates and few other criteria independent of the faunal assemblages themselves for relative dating.

However, the most well-known sites are Krapina and Vindija from the mountainous karstlike Hrvatsko zagorje in northwestern Croatia:

-Excavation of Krapina was conducted by Gorjanović-Kramberger from 1899 to 1905 and produced some 800 hominid skeletal fragments, as well as extensive faunal and archaeological remains. The total morphological pattern of the Krapina hominids clearly aligns them with Neandertals, and although there is considerable variation, no feature excludes any Krapina specimen from this hominid group. All hominid specimens are associated with the mousterian; and although a few Upper Paleolithic-like elements are found, all cultural strata are clearly representative of the Middle Paleolithic.

-The hominid remains from Vindija can be divided stratigraphically into three groups. The earliest and largest group comes from level G3 and is associated with mousterian assemblage. The middle group comes partly from level G1 (33,000 BP). The only diagnostic artifact from this level is a split-based bone point, which suggest an aurignacian level. Also included with this group are three isolated teeth and a parietal fragment from the aurignacian levels Fd and Fd/d. The latest group comes from level D and is associated with gravettian industry.

CITED FROM:
MIRACLE P., 1991: Carnivore Dens or Carnivore Hunts? - A Review of Upper Pleistocene Mammalian Assemblages in Croatia and Slovenia. Rad Hrv. akad. znan. umjetn., 458/25, 193- 219, Zagreb.
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MONTET- WHITE A., 1996: Le Paleolithique en ancienne Yougoslavie. J. Millon, 268 pp. Grenoble.
POHAR V., 1997: The Influence of Late Glacial Temperature Oscilattions on the Macrofauna in Slovenia. Razprave SAZU, 38/6, 117-135, Ljubljana.
ŠERCELJ A., 1996: The Origins and Development of Forests in Slovenia. Opera SAZU, 35, 142 pp., Ljubljana.

PALEOLITHIC OF MACEDONIA

The lack of new informations from Macedonia makes it necessary to rely on only one reference from 1979.: MALEZ M.: Prirodni okviri, rad na istraživanju i nalazišta paleolitksog doba u Makedoniji. u: Benac A. (ur.): Praistorija jugoslavenskih zemalja. I Paleolitsko i mezolitsko doba. 407-417, Svjetlost, Sarajevo. Only Makarovec cave is registered as a paleolithic (?aurignacian or gravettian) site. Also a few findings of ?mousterian tools are found near Titov Veles (see also: Montet-White, 1996).

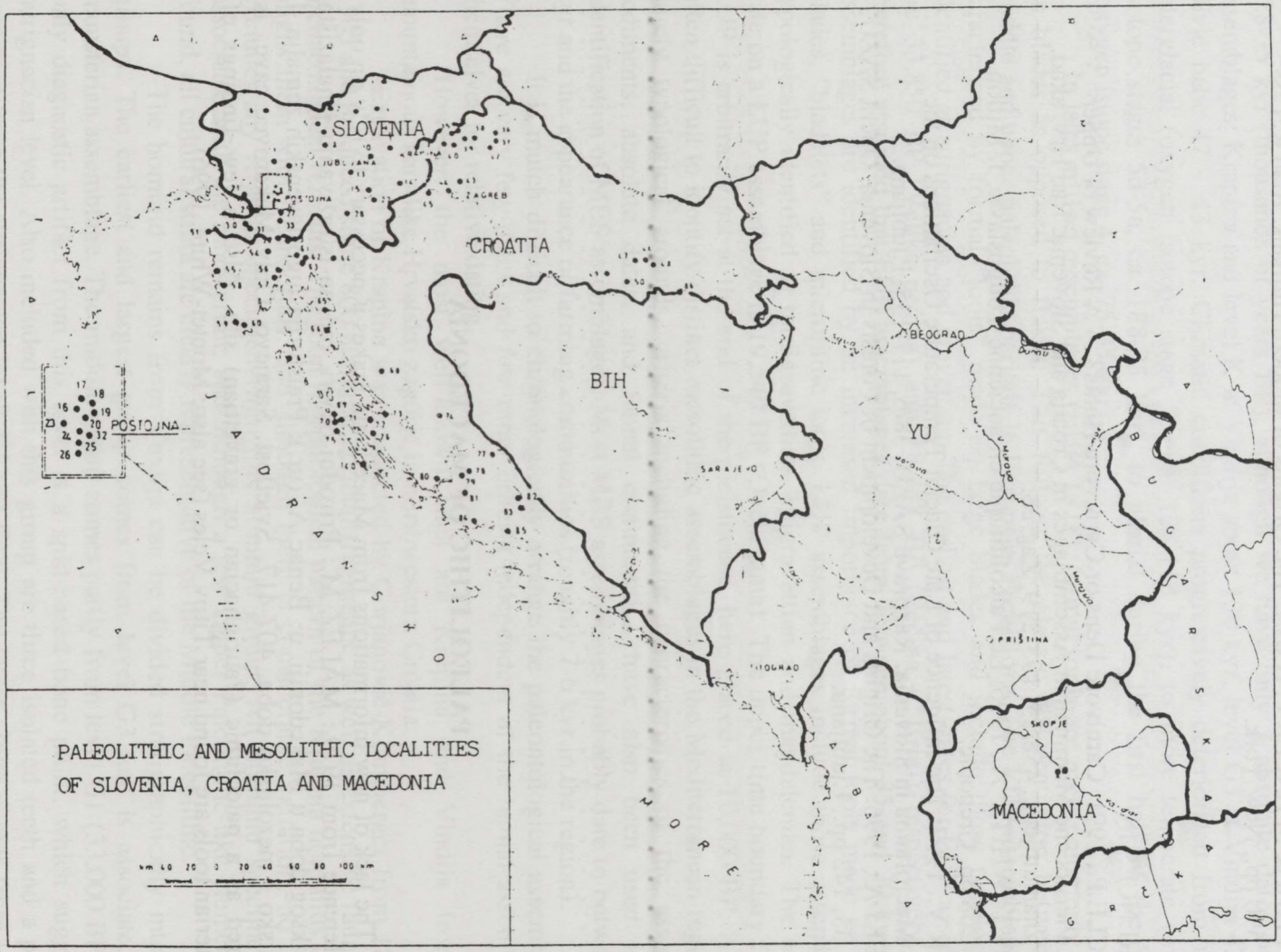
SLOVENIA
CROATIA
BIH
YU
MACEDONIA
BEOGRAD
SARAJEVO
PRIŠTINA
SKOPJE
POSTOJNA
PALEOLITHIC AND MESOLITHIC LOCALITIES
OF SLOVENIA, CROATIA AND MACEDONIA

FIG. 1

Table 1. Archaeological Faunal Assemblages (after MIRACLE 1991)

Site	Level	Per.	Date	Ref.	MAM	COL	RHI	BOV	CER	HOR	RED	FEN	PIG	C/I	ROE	BEA	LEO	HYN	WOL	PAR	VUL	ALO	MEL	MUS	GUL	LYN	FEL	FIB	MAR	LEP
BABUA JAMA	5	LUP		1,25				1	2		1	1				1			1		1							1	1	
BADANJ	2AB-1	MES		18				1		1	2		1	1	1				1		1		1			1	1			1
BADANJ	3 - 9	LUP	12380	18				1		1	2		1	1	1				1							1				1
BADANJ	10 - 17	LUP	13200	18				1		1	2		1	1	1				1		1					1			1	1
BETALOV SPODMOL	VI	MES		1,29									2	1					1				1	1				1	1	
BETALOV SPODMOL	Va	LUP		1,29					1			1	1		1	2						1							1	1
BETALOV SPODMOL	V	MP		1,29				1	1							2					1								1	1
BETALOV SPODMOL	IV/V	MP		1,29					1		1					2														1
BETALOV SPODMOL	IV	MP		1,29					1				1			2								1					1	1
BETALOV SPODMOL	III	MP		1,29			1		1		1		1			2		1	1		1								1	1
BREG		MES	6830	24				1			2		1		1	1			1									1		
BUKOVAC PEĆINA	c	EUP	>9040	4,16							1					2				1										1
CEROVAČKA PEĆINA		EUP	>40000	8,16						1	1			1		2	1							1						
CIGANSKA JAMA	3	LUP		1								1																	1	
CRVIENA STIJENA	4a	MES		27				1			2		1	1							1		1				1			1
CRVIENA STIJENA	4b1	MES		27				1			2		1	1	1	1					1		1			1	1			1
CRVIENA STIJENA	4b2	MES		27							2		1	1																
CRVIENA STIJENA	5	LUP		6,27							2		1																	1
CRVIENA STIJENA	6	LUP		6,27							2																			
CRVIENA STIJENA	7	LUP		6							1																		1	
CRVIENA STIJENA	8	LUP		6				1			2		1	1	1	1										1				
CRVIENA STIJENA	9	EUP		6,27				1			1		1	1												1			2	1

Table 2. Paleontological Assemblages (after MIRACLE 1991)

Site	Level	Per.	Date	Ref.	MAM	COU	RHI	BOV	CER	HOR	RED	REN	PIG	C/I	ROE	BEA	LEO	HYN	WOL	PAR	VUL	ALC	MEL	MUS	GUL	LYN	FEL	FIB	MAR	LEP
AJDOVSKA JAMA		PNT		32							2					1													1	
BABA CAVE		PNT		10										1		1			1										1	1
BABJA JAMA	1 - 4	PNT		25											1						1									
BERIČEVO		PNT		32	1																									
ČRNI KAL	4	PNT		1,28							2				1						1									
ČRNI KAL	5	PNT		1,28							2				1															
ČRNI KAL	7	PNT		1,28																	1									
ČRNI KAL	8	PNT		1,28			1	1		1	2			1	1	1		1												
ČRNI KAL	9	PNT		1,28							1					2														
ČRNI KAL	11	PNT		1,28												2	1													
ČRNI KAL	12	PNT		1,28												2	1	1												
ČRNI KAL	13	PNT		1,28												2		1	1											
ČRNI KAL	17	PNT		1,28											1	2														
DIVJE BABE I	22	PNT		34												2														
DIVJE BABE I	23	PNT		34												2														
DIVJE BABE I	24	PNT		34												2														
DIVJE BABE I	25	PNT		34												2														
DIVJE BABE I	26	PNT		34												2														
DRUŠKA PEČ, UČKA		PNT	16986	4,8										1		2	1		1										1	
ĐURKOVINA II		PNT	16781	14										1		2		1												
GOSPODSKA PEČINA	c,d	PNT		9							2		1		1				1		1									1
GOSPODSKA PEČINA	g,h	PNT		9				1			1			1		2		1	1											
HIJENSKA PEČINA		PNT		16				1	1	1	1			1	1	1	1	1	1	1	1		1							
POD HERKOVIMI PEČMI	2	PNT		1,22				1			1	1	1	1		2			1				1				1		1	
JAMA TREH BRATOV		PNT		32										1		1													1	
KOSTANJEVICA, KRKA		PNT		1,32	1			1								1														
KRALJEVA CAVE		PNT		20							1					1														
KUPIČI PEČINA		PNT		20							1					2					1									1
LAZNIKARJEVA ZIJALKA		PNT		32												1													1	
LOZA KOD ŠAPJANA		PNT		20												1			1						1					
MOKRIŠKA JAMA	5	PNT		1												1			1					1						
MORNOVA ZIJALKA	2	PNT		1												1													1	
MRAČNA PEČINA		PNT		20												1				1										
MRZLA JAMA		PNT		20		2										1			1						1					
OTOŠKA JAMA		PNT		1												1														
PEČINA KOD SV. ANE		PNT		4							1		1					1												
PEČINA NA BREHU		PNT		16												2													1	
PEČINA NA GRADINI		PNT		4							1					2	1		1										1	
PEČINA NA ŠAFTICI		PNT		4							1					2								1					2	11
PEČINA NA KLEKU	b	PNT		15				1						1		2						1							1	11
PEČINA NA STERNICI		PNT		4						1						2														
PEČINA u BRINI EAST	c	PNT		5																									1	
PISANA STINA		PNT		16					1	1	1			2		1				1			1							
POSTOJNSKA JAMA	red	PNT		1												2														
POSTOJNSKA JAMA		PNT		1				1			1					2	1	1	1											
POTOČKA ZIJALKA	4	PNT		1												2			1					1					1	
POTOČKA ZIJALKA	6	PNT		1												2			1		1								1	11
POTOČKA ZIJALKA	9	PNT		1												2								1		1				
ROŠKA ŠPILJA		PNT		1				1			1					1														
ŠEČOVLJE		PNT		20			2	1	1		1	1	1		1	1	1	1	1		1						1			
ŠUPLJASTA PEČINA	c	PNT		8							1					2														
VETERNICA	d	PNT		2				1			1		1	1	1	2			1		1		1	1		1	1		1	11
VETERNICA	e	PNT		2							1		1	1	1	2	1		1											11
ZELENA PEČINA		PNT	27376	16							1		1	1	1														1	11
ŽMIJINAC PEČINA		PNT	19399	9,16					1		2		1		1	1			1		1							1		11

A KEY TO ABREVIATIONS IN TABLE 3

TABLE 3 - FREQUENCY (in %) OF TAXA BY ASSEMBLAGE TYPE (after MIRACLE 1991)

	Paleontological	Archaeological Assemblages						
Taxon	Assemblages	All	Bear-dominated	Other	MES	LUP	EUP	MP
Mammoth (MAM)	4	2	0	4	0	7	0	1
Woolly Rhino (COL)	18	5	5	5	0	3	3	8
Merck's Rhino (RHI)	4	9	5	14	0	0	0	19
Bovid (BOV)	20	43	32	64	58	52	32	42
Large Cervid (CER)	7	26	32	24	0	34	38	20
Equids (HOR)	7	17	12	24	8	21	29	12
Red Deer (RED)	44	56	45	69	92	76	41	50
Reindeer (REN)	4	13	9	18	0	45	12	4
Pig (PIG)	13	35	17	54	92	55	26	22
Chamois/Ibex (C/I)	24	37	37	38	58	31	41	34
Roe Deer (ROE)	22	26	15	35	75	45	12	16
Bear (BEA)	84	74	100	47	33	48	94	81
Lion (LEO)	15	18	33	4	0	7	38	16
Hyena (HYN)	16	9	16	3	0	3	18	9
Wolf (WOL)	35	46	61	31	33	34	56	49
Leopard (PAR)	5	9	9	8	0	0	12	12
Fox (VUL)	18	17	16	20	42	34	15	8
Blue Fox (ALO)	2	7	12	3	0	7	21	3
Badger (MEL)	7	11	7	18	50	21	9	3
Mustelid (MUS)	9	24	28	22	33	24	29	20
Wolverine (GUL)	4	7	12	3	0	0	21	5
Lynx (LYN)	4	17	13	22	33	28	18	9
Wild Cat (FEL)	5	12	7	19	58	14	9	5
Beaver (FIB)	2	13	3	24	25	17	6	12
Marmot (MAR)	27	36	31	42	8	69	41	24
Hare (LEP)	18	26	24	16	25	45	32	15
N	55	149	75	74	12	29	34	74

MP = MIDDLE PALEOLITHIC

EUP = EARLY UPPER PALEOLITHIC

LUP = LATE UPPER PALEOLITHIC

MES = MESOLITHIC