THE MIDDLE PALAEOLITHIC RESEARCH IN ROMANIA. PAST AND CURRENT ISSUES

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Keywords: *Middle Palaeolithic, Romania, geochronology, radiocarbon dating, archaeozoology, lihtic analysis, hominin fossils*
Abstract: *This paper presents some new results concerning the Middle Palaeolithic in Romania. Recent research on loess-paleosoil sequences and tephra deposits has provided an accurate picture on the geochronology of the Pleistocene. Reliable absolute ages indicate that some Middle Palaeolithic occupations are much older than previously assumed, namely they date back to the Middle Pleistocene. Lithic industries, both coming from old and recent excavations were (re)interpreted from new perspectives, other than cultural-historical ones. The study of fauna still leaves to be desired, as it needs to go beyond mere taxa identification. Many loci that have yielded surface collections of lithics that could belong to the Middle Palaeolithic indicate a great potential for discovering new sites in Romania.*

Cuvinte-cheie: *Paleolitic Mijlociu, România, geocronologie, datări radiocarbon, arheozoologie, analiză litică, fosile umane*
Rezumat: *Acest articol prezintă câteva rezultate recente privind cercetarea Paleoliticului Mijlociu din România. Noi cercetări asupra secvențelor de loessuri și paleosoluri, precum și asupra nivelurilor de cenușă vulcanică au contribuit la crearea unei imagini mult mai exacte privind geocronologia Pleistocenului. Noi datări absolute arată că unele situri de Paleolitic Mijlociu sunt mai vechi decât fusese estimat anterior, având vârste din Pleistocenul Mijlociu. Industriile litice provenite atât din săpături vechi cât și recente au fost re/interpretate din noi puncte de vedere, diferite de perspectiva cultural-istorică. Studiile de arheozoologie pentru această perioadă lasă în continuare de dorit, deoarece în multe situații ele constau doar din simple identificări la nivelul speciei. Numeroasele locuri în care a fost descoperit material litic la suprafață, atribuibile Paleoliticului Mijlociu indică un mare potențial pentru descoperirea de situri noi din această perioadă.*

INTRODUCTION

By its geographical location in the northern Balkans and by the side of the Danube, the territory of present-day Romania has drawn lot of attention of the scientific community, given its resources for a better understanding of the colonization of Europe with Anatomically Modern Humans, as accounted by the fossils from the caves of Oase (Trinkaus *et alii* 2003), Muierii (Soficaru *et alii* 2006) and Cioclovina (Soficaru *et alii* 2007).

However, the general focus of the international community on the beginning of the Upper Palaeolithic in this region has somehow blurred important issues regarding the Middle Palaeolithic (MP) state of affairs. Therefore, I intend to provide an updated synthesis on the MP research in Romania, presenting the current situation regarding the main MP sites, geochronological framework, absolute ages, lithic industries, hominin fossil evidence, and archaeozoology.

HISTORY OF RESEARCH AND CURRENT SITUATION

The first reports on Pleistocene fauna were made by palaeontologists and geologists starting with the second half of the 19th century. In the first half of the 20th century, archaeologists and palaeontologists reported lithic collections coming from caves and open-air sites, both on the surface and in exposed profiles, some of them heralding MP sites that were subsequently excavated, others just signalling potential sites (Păunescu 1989).

Most of the research on the MP was carried out by Romanian archaeologists after the Second World War and resulted in a total of ca. 20 investigated sites, both in caves and in open-air loess environments; they mainly concentrate in northwestern Romania, in the Carpathians, on the river Prut and in southeastern Romania (Fig. 1). The results were presented in site monographs (Cârciumaru 2000; Cârciumaru *et alii* 2008a; Păunescu 1993) and regional monographs and syntheses (Anghelinu 1998; Bitiri 1972; Cârciumaru 1999; Cârciumaru *et alii* 2010; Dumitrescu *et alii* 1983; Mertens 1996; Mogoşanu 1978; Păunescu 1998; 1999a; 1999b; 2000; 2001), as well as in numerous academic papers.

The most important MP sites constitute a very heterogeneous lot: some only feature a handful of lithics, while others have yielded thousands lithics, fauna and combustion features, with Ripiceni – *Izvor* championing the MP sites in Romania. Some assemblages were assigned to the MP solely on typological grounds, as lithics were only found on the surface. Therefore, differences lie not only in the types and size of archaeological finds, but also within the context of discovery (Table 1).

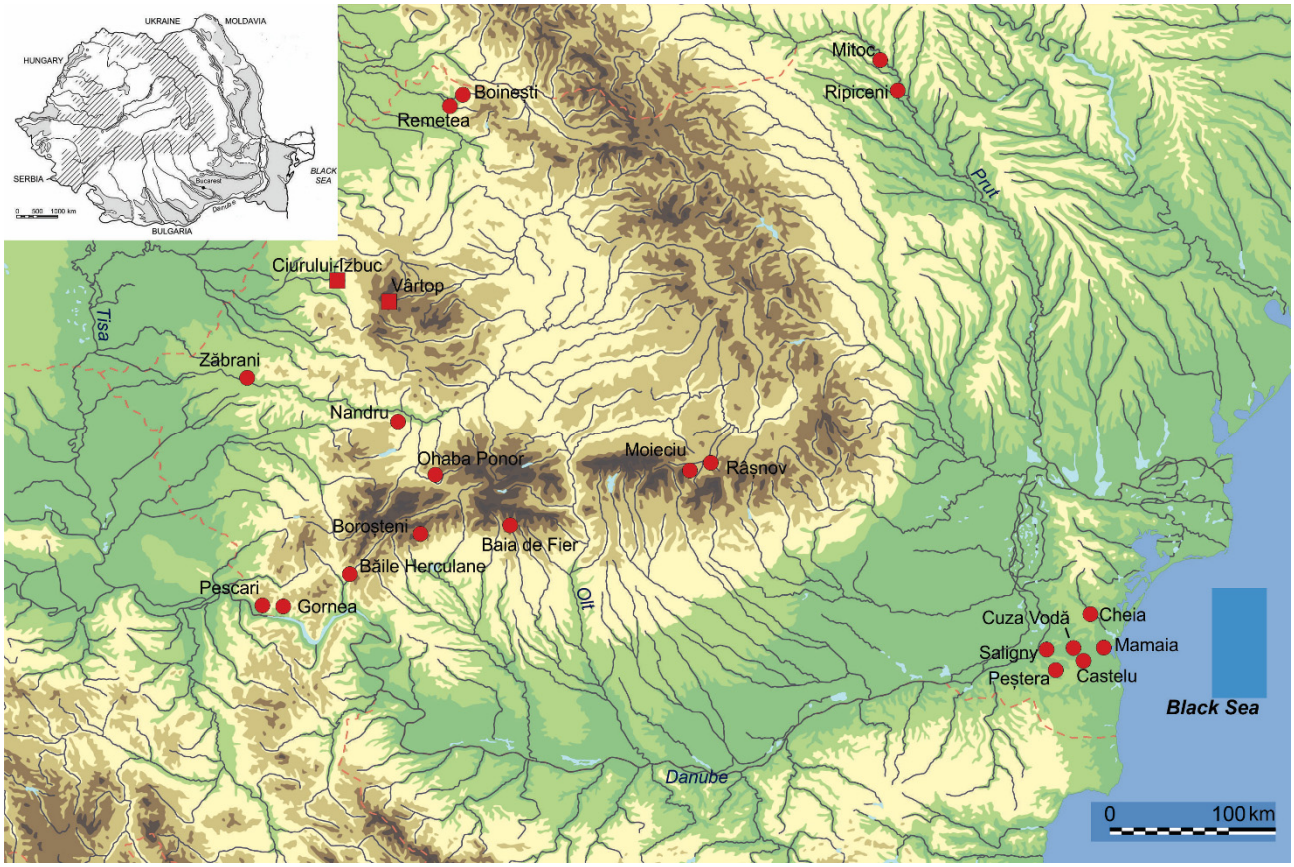

Figure 1. *Map with the most important MP sites in Romania (circles); caves with hominin footprints (squares). Upper left corner: Romania and its neighboring countries; grey areas indicate loess and loess-like deposits (modified after Balescu et alii 2003).*

Locality - Site	Type	Type of field research	Research years (first and last)	MP levels	Hearths	Fauna	Approx. no. of lithics*	References
Baia de Fier – *Peştera Muierii*	Cave	Excavation	1929; 1955	2	No	Yes	3200+	Doboş *et alii* 2010
Băile Herculane – *Peştera Hoţilor*	Cave	Excavation	1954; 1973	1	No	No	155	Mogoşanu 1978
Boineşti – *Coasta Boineştilor*	Open-air	Excavation	1960; 2000	1	No	No	350+	Tuffreau *et alii* 2013
Boroşteni – *Peştera Cioarei*	Cave	Excavation	1954; 1996	7	No	Yes	735	Cârciumaru 2000
Castelu – *Dealul Cainar*	Open-air	Surface + soundings	1971; 2010	1	No	No	330+	Doboş 2010
Cheia – *Peştera La Izvor*	Cave	Excavation	1956; 1970	1	No	Yes	124	Doboş 2010
Cuza Vodă – *La ESE de betonieră*	Open-air	Surface + soundings	1991; 2010	1	No	No	1143	Păunescu 1999a
Gornea – *Dealu Căuniţei*	Open-air	Excavation	1969-1970	1	No	No	147	Mogoşanu 1978
Mamaia – *sat*	Open-air	Surface + soundings	1958; 1978	2	No	No	1480+	Doboş 2010
Moieciu – *Peştera Valea Coacăzei*	Cave	Excavation	1934; 1985	1	Yes	Yes	29	Păunescu 2001
Mitoc – *Valea Izvorului*	Open-air	Excavation	1963; 2004	1	No	No	2000+	Tuffreau *et alii* 2007
Nandru – *Peştera Curată*	Cave	Excavation	1876; 1998	2	Yes	Yes	292	Păunescu 2001
Nandru – *Peştera Spurcată*	Cave	Excavation	1876; 1994	1	Yes	Yes	29	Păunescu 2001
Ohaba Ponor – *Peştera Bordu Mare*	Cave	Excavation	1923; 2000	4	Yes	Yes	1900+	Păunescu 2001
Pescari – *Peştera Livadiţa*	Cave	Excavation	1972; 1975	1	No	Yes	18+	Păunescu 2001
Moieciu – *Peştera Liliecilor*	Cave	Excavation	1957; 1998	1	Yes	Yes	44	Păunescu 2001
Peştera – *Dealul Peşterica*	Open-air	Surface	1971; 2012	1	No	No	180+	Doboş 2010
Râşnov – *Peştera Gura Cheii*	Cave	Excavation	1934; 2007	2	Yes	Yes	37+	Cârciumaru *et alii* 2008a
Remetea – *Şomoş I*	Open-air	Excavation	1962; 2005	1	No	No	225	Bitiri 1972
Ripiceni – *Izvor*	Open-air	Excavation	1930; 1981	6	Yes	Yes	55000+	Păunescu 1993
Saligny – *La Ghiol*	Open-air	Surface	1956; 2012	1	No	No	189	Doboş 2010
Zăbrani – *Dealul Pietrei*	Open-air	Excavation	1972; 2004	3	No	No	620+	Tuffreau *et alii* 2007

* In some cases, parts of the lithic collections once reported in publications are untraceable, and therefore a minimum number of lithics was provided

Table 1. *Most important MP sites in Romania.*

The research of the MP in Romania in the second half of the 20th century, when most of the sites were investigated, was proclaimed interdisciplinary, and to some extent it was as such, i.e. research teams comprised archaeologists, as well as archaeozoologists, geologists, etc. However, it is apparent that the main focus was the thorough description of the lithic assemblages, followed by other specialists' reports presented as appendixes; the various types of information were hardly tailored to be combined into a holistic image of a particular site. This situation can partially be explained through the isolation imposed by the communist regime over the community of scholars, which had limited access to latest developments in Western World archaeology such as taphonomy and site formation processes, mobility patterns, subsistence strategies, etc. After the fall of Communism (1989), Palaeolithic archaeologists from Romania had the opportunity to improve their knowledge on the contemporary research paradigms through numerous academic exchanges and participation in international projects focusing on various regions of Romania – for a comprehensive discussion see Anghelinu (2004) and Pop (2013).

Currently, a great deal of the research on MP is carried out through international collaborations, focusing both on the reappraisal of sites excavated in the 20th century, wherever possible, as well as on discovering new sites (see below). The potential of the territory of Romania for the research of the period is far greater than the handful of investigated sites may indicate. The number of loci where potentially MP lithic collections were identified, either on the surface or in exposed profiles, is over 100 (Cârciumaru *et alii* 2008b; Păunescu 1998; 1999a; 1999b; 2000; 2001).

Moreover, the geographic particularities of Romania also account for its potential in discovering new MP sites, both in caves and in open-air. Throughout the country were known over 8,000 caves, of which at least 2,300 are fossil, as can be learned through a search through the Romanian on-line cave inventory (http://www.speologie.org). Also, the areas at the south and east of the Carpathians feature extensive loess or loess-like deposits, which amount to ca. 20% of the country's territory.

GEOCHRONOLOGICAL SCHEME

Traditionally, the Romanian Palaeolithic archaeologists employed the Alpine geochronological system, and within this scheme the evolution of the MP was assigned to the Upper Pleistocene, most likely evolving from the early Würm until the end of Würm II (Nicolăescu-Plopşor 1961; Păunescu 1989). This 'short chronology' was also endorsed by the geochronological scheme based on pollen analyses (Cârciumaru 1989).

The landmarks of the Pleistocene geochronological scale were the loess-palaeosoil sequences from the province of Dobrogea (southeastern Romania), and their interpretation was subsequently extended to other regions of the country. The sequence of the profiles in Dobrogea comprised seven palaeosoils (labeled S, counted from S1 = most recent) separated by loessic deposits (Fig. 2); according to A. Conea (1970), they were spanning from Günz-Mindel interglacial to the last Würmian interstadial. Conea has assigned S3 to the Last Interglacial – MIS 5e, an assumption which has triggered the age estimation of any occupations found above S3 to the Upper Pleistocene.

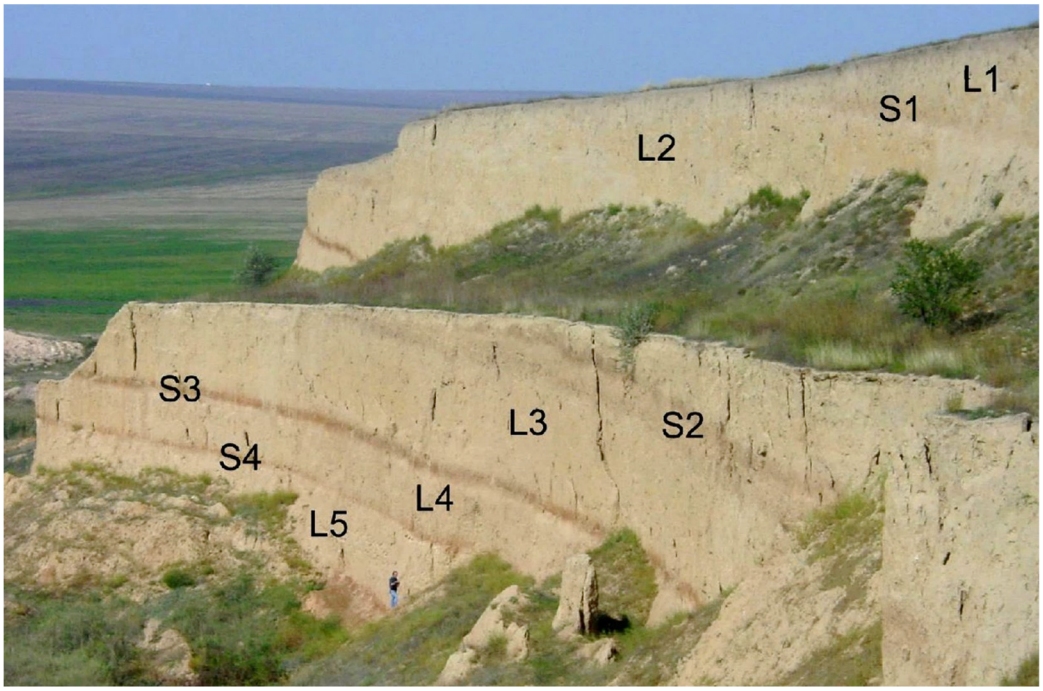

Figure 2. *Loess-paleosoil sequence at Mircea Vodă. For scale, note the person standing at the bottom of the profile (modified after Balescu 2013).*

Recent research, based on OSL and palaeomagnetism measurements, has revealed that the S3 was in fact much older, dating to MIS 9, not MIS 5e. Consequently, the Last Interglacial (MIS 5e) is associated to S1, and hence all the loess chronology turns out to be much longer: S2 is equivalent to MIS 7, S4 to MIS 11, etc. (Balescu 2013; Balescu *et alii* 2010). Also recently, in Dobrogea were identified tephra deposits from the Campanian Ignimbrite eruption, dated at ca. 39 kilo annum (ka), as is the case with the sequence from the quarry of Urluia (Fitzsimmons, Hambach 2014), a discovery which enriches the knowledge on Pleistocene geochronology north of Danube.

ABSOLUTE CHRONOLOGY

Most of the absolute ages for the MP occupations (Table 2) were obtained through conventional radiocarbon from samples collected since 1950s and mostly analysed during the 1980s in the facilities in Groningen and Berlin (Honea 1986; 1993; Păunescu 1984). They were in agreement with the short chronology inferred through the loess sequences and pollen analyses, and consequently, the oldest MP levels from Romanian sites were believed to have a MIS 4 age. The reliability of radiocarbon ages indicating ages over 30 ka with over 1 ka standard errors is limited, and therefore they should be regarded with extreme caution (Jöris, Street 2008; Van der Plicht 1999).

A fresh set of samples from two cave sites, Muierii and Nandru, dated through AMS (see references in the table) confirm the late character of the MP occupations for at least these two sites, as the difference between them and the conventional radiocarbon ages previously obtained is not statistically significant (p = .602).

Locality - Site	Context of the sample	Sampling year	Type	Code	Age uncal BP	Material	References
Baia de Fier – *Peştera Muierii*	Galeria Principală, -1.60 -1.70 m	1950–1953	AMS	OxA 16381	40950 +/- 450	Bone	Doboş *et alii* 2009
Baia de Fier – *Peştera Muierii*	Galeria Principală, -1.40 -1.60 m	1950–1953	AMS	OxA 16380	47500 +/- 900	Bone	Doboş *et alii* 2009
Baia de Fier – *Peştera Muierii*	Galeria Principală, -1.70 -1.90 m	1950–1953	AMS	OxA 16382	42700 +/- 550	Bone	Doboş *et alii* 2009
Baia de Fier – *Peştera Muierii*	Galeria Principală, -1.10 -1.20 m	1950–1953	AMS	OxA 15530	40850 +/- 450	Bone	Soficaru *et alii* 2006
Baia de Fier – *Peştera Muierii*	Galeria M, -1.40 -1.50 m	1950–1953	CR	GrN 16997	42560 +1310/-1120	Bone	Păunescu 2000, p. 313
Boroşteni – *Peştera Cioarei*	Level O, -0.95 m	1950–1953	CR	GrN 15045	25330 +/-240	Bone	Honea 1993
Boroşteni – *Peştera Cioarei*	Level L, -1.60 -1.70 m	1983	CR	GrN 13005	37750 +/-950	Bone	Honea 1986
Boroşteni – *Peştera Cioarei*	Level J, -2.15 -2.25 m	1983	CR	GrN 13001	43000 +1300/-1100	Bone	Honea 1986
Boroşteni – *Peştera Cioarei*	Level G, -2.75 -2.95 m	1983	CR	GrN 13002	49500 +3200/-1100	Bone	Honea 1986
Boroşteni – *Peştera Cioarei*	Level E, -4.10 -4.15 m	1980s	CR	GrN 15046	50900 +4400/-2800	Bone	Honea 1993
Boroşteni – *Peştera Cioarei*	Level K, -2.15 -2.25 m	1980s	CR	GrN 15052	47200 +2900/-2100	Bone	Honea 1993
Boroşteni – *Peştera Cioarei*	Level J, -2.45 -2.55 m	1980s	CR	GrN 15053	48900 +2100/-1700	?	Honea 1993
Boroşteni – *Peştera Cioarei*	Level H, -2.75 -2.85 m	1980s	CR	GrN 15054	48000 +1800/-1500	Bone	Honea 1993
Boroşteni – *Peştera Cioarei*	Level E -4.25 -4.35 m	1980s	CR	GrN 15048	51900 +5300/-3200	Bone	Honea 1993
Cheia – *Peştera La Izvor*	Mousterian, -0.58 m	1956–1957	CR	GrN 16987	36810 +790/-720	Bone	Păunescu 1999a
Cuza Vodă – *Carieră*	Level C bottom	2010	IRSL	EVA 1044b	121000 +/-19000	Loess	Iovita *et alii* 2014
Cuza Vodă – *Carieră*	Level C top	2010	IRSL	EVA 1043	54700 +/-7000	Loess	Iovita *et alii* 2014
Cuza Vodă – *Carieră*	Level B bottom	2010	IRSL	EVA 1044a	94700 +/-13900	Loess	Iovita *et alii* 2014
Mitoc – *Valea Izvorului*	Loessic Limon level, LL2	2004	OSL	MITOF 6	160000 +/-17000	Loess	Tuffreau *et alii* 2009
Nandru – *Peştera Curată*	Mousterian 2 c (superior), -1.90 - 2.15 m	?	AMS	GrA 13948	40800 +1050/-930	Bone	Păunescu 2001
Nandru – *Peştera Curată*	Mousterian 2 a (superior), -3.00 - 3.15 m	?	CR	GrN 24221	44600 +1900/-1500	Bone	Păunescu 2001
Nandru – *Peştera Curată*	Mousterian 1 b (inferior), S 3, - 4.15 -4.25 m (hearth)	?	CR	GrN 24222	45200 +4200/-2700	Bone	Păunescu 2001
Nandru – *Peştera Spurcată*	Mousterian, -1.30 m	?	CR	GrN 14622	30000 +1900/-1500	Bone	Păunescu 2001
Ohaba Ponor – *Peştera Bordu Mare*	Mousterian 3 c, -1.32 -1.47 m (hearth)	?	CR	GrN 14626	45500 +3500/-2400	Burnt bone	Păunescu 2001
Ohaba Ponor – *Peştera Bordu Mare*	Mousterian 3 b, -1.48 -1.55 m (hearth)	?	CR	GrN 12676	43600 +2800/-2100	Charcoal	Păunescu 1989
Moeciu – *Peştera Valea Coacăzii*	Mousterian, -1.00 -1.10 m	?	CR	GrN 16141	34400 +/- 500	Bone	Păunescu 2001
Moeciu – *Peştera Liliecilor*	Mousterian	?	CR	GrN 14618	38700 +/- 850	Bone	Păunescu 2001
Râşnov – *Peştera Gura Cheii*	Mousterian 2 a, -1.52 -1.62 m (hearth)	?	CR	GrN 13009	33300 +/- 900	Bone	Păunescu 1989
Râşnov – *Peştera Gura Cheii*	Mousterian 2 a + Mousterian 2 b, -1.40 -1.60 m	?	CR	GrN 13008	30450 +/- 300	Bone	Păunescu 1984
Râşnov – *Peştera Gura Cheii*	Mousterian 2 b, -1.20 -1.27 m (hearth)	1982	CR	GrN 11619	29700 +1700/-1400	Charcoal	Păunescu 1984
Râşnov – *Peştera Gura Cheii*	Mousterian 2 b, -1.20 -1.27 m (hearth)	?	CR	GrN 14620	28900 +2400/-1800	Charcoal	Păunescu 2001
Râşnov – *Peştera Gura Cheii*	Sterile below Level Mousterian 1, -1.90 m	?	CR	GrN 13010	44900 +1800/-1500	Charcoal	Păunescu 2001
Ripiceni – *Izvor*	Mousterian 3, -8 m (hearth)	1964	CR	GrN 11571	45000 +1400/-1200	Charcoal	Păunescu 1984

Locality - Site	Context of the sample	Sampling year	Type	Code	Age uncal BP	Material	References
Ripiceni – *Izvor*	Mousterian 4 (Micoquian), -7.30 m	1977	CR	GrN 9208	44800 +/- 1200	Charcoal	Honea 1981
Ripiceni – *Izvor*	Mousterian 5 (Micoquian), -6.80 - 6.88 m (hearth)	1977	CR	GrN 9210	40200 +/- 1050	Charcoal	Honea 1981
Ripiceni – *Izvor*	Mousterian 3, -8.20 m (hearth)	?	CR	GrN 14367	46200 +/- 1100	Charcoal	Păunescu 1993
Ripiceni – *Izvor*	Mousterian 4 (Micoquian), -7.30 m (hearth)	1977	CR	GrN 9209	42500 +/ - 1200	Charcoal	Honea 1981
Ripiceni – *Izvor*	Mousterian 4 (Micoquian), -6.70 m (hearth)	1964	CR	Bln 810	28780 +/- 2000	Charcoal	Păunescu 1984
Ripiceni – *Izvor*	Mousterian 3, -8.00 m (hearth)	1964	CR	GrN 11230	46400 +4700/-2900	Charcoal	Păunescu 1984
Ripiceni – *Izvor*	Mousterian 4 (Micoquian), -7.10 m	1977	CR	GrN 9207	43800 +/- 1050	Charcoal	Honea 1981
Ripiceni – *Izvor*	Mousterian 4 (Micoquian), S 2, -7.20 m	1972	AMS	OxA 24046	>45500	Bone	Doboș, Trinkaus 2012

Table 2. *Absolute ages for MP occupations in Romania.*

A different situation is encountered, however, for other sites, which turned out to be much older than previously presented. The MP levels of Mitoc – *Valea Izvorului* and Ripiceni – *Izvor* were regarded as quasi-contemporary (Păunescu 1989) and, according to a set of conventional radiocarbon ages obtained for Ripiceni – *Izvor*, they were dated roughly between ca. 40 ka – 50 ka (Honea 1981; Păunescu 1984).

The MP level B4 of Mitoc – *Valea Izvorului* has recently been dated through OSL to MIS 6, to 160 ka ± 17 ka (Tuffreau *et alii* 2009); for the MP level 4 of Ripiceni – *Izvor*, a recent AMS date indicates the infinite age of > 45.500 BP (Table 2), thus showing that the layer is older than previously believed (Doboș, Trinkaus 2012). Given the similarities between the two sites, it is reasonable to assume a pre-MIS 5e age for the oldest MP occupations of Ripiceni – *Izvor*.

The MP site of Cuza Vodă, situated near a limestone quarry, used to be mainly known through the lithic collection found on the surface, although Păunescu mentions that some lithic material was originating from a yellowish layer, below 0.7 m (Păunescu 1999a). Recently, the site was visited by a German-Romanian team which identified in situ artifacts in a ditch excavated for industrial purposes. Sediment samples from above and below an *in situ* core were dated through IRSL (Table 2) and provided a time bracket of roughly 55 ka – 95 ka (Iovita *et alii* 2014), and hence account for another fairly older MP occupation.

LITHIC ASSEMBLAGES (Fig. 3)

Lithic analysis was kept at an empiric and descriptive level, following the cultural-historical approach. The lithic material was divided between 'typical' (retouched tools) and 'atypical' (knapping products, shatters). Retouched tools were measured and described according to technology (Levallois, Pontinian, Clactonian, etc.), cortical surface, platform type and shape, typological group (scrapers, notches, etc.), type of retouch, and raw material. Unretouched pieces and cores were also described according to category (flakes, blades, shatters and Levallois, pyramidal, inform cores, respectively). The analysis of the site was regarded as completed when the lithic assemblage was assigned to one of the variants defined by Fr. Bordes according to the typological features of the 'typical' material (see for example the presentation of the site Cheia – *La Izvor* in Păunescu 1999a, p. 93–101).

Thus, it appears that lithic variability was correctly observed, but hardly ever explained otherwise than through elusive terms such as 'tradition' and 'influence'. According to the Bordian systematic, several variants were identified for the MP from Romania.

- Typical Mousterian was associated with levels 1-3 of Ripiceni – *Izvor*, Cheia – *La Izvor*, Castelu, Gornea, Zăbrani, Boinești, Peștera, Cuza Vodă, Mamaia, and were further refined according to the Levallois index into Levallois and non-Levallois assemblages (Păunescu 1989).
- Mousterian of Acheulean Tradition was associated with Mitoc – *Valea Izvorului* and levels 4-5 of Ripiceni – *Izvor* (Păunescu 1993; Păunescu 1999b); the presence of Pradnik knives at Ripiceni – *Izvor* may rather suggest the existence of Micoquian industries (Bocquet-Appel, Tuffreau 2009).
- Denticulate Mousterian was identified in level 6 of Ripiceni – *Izvor* and at Saligny (Păunescu 1993; Păunescu *et alii* 1972).
- The Charentian Mousterian was associated with Carpathian caves (Curată, Spurcată, Muierii, Cioarei, Gura Cheii, Bordu Mare, Hoților, Liliecilor, Valea Coacăzii), where lithic assemblages mainly comprised pieces on *tranche de citron* flakes in quartz/ite, hence the alternate name of Quartzite Mousterian. Whenever these sites featured several MP levels, the older ones were assigned to the Quartzite Mousterian *per se,* and the younger ones to a transitional industry dubbed 'Carpathian facies' (Cârciumaru 1999; Cârciumaru, Anghelinu 2000; Doboș *et alii* 2010).

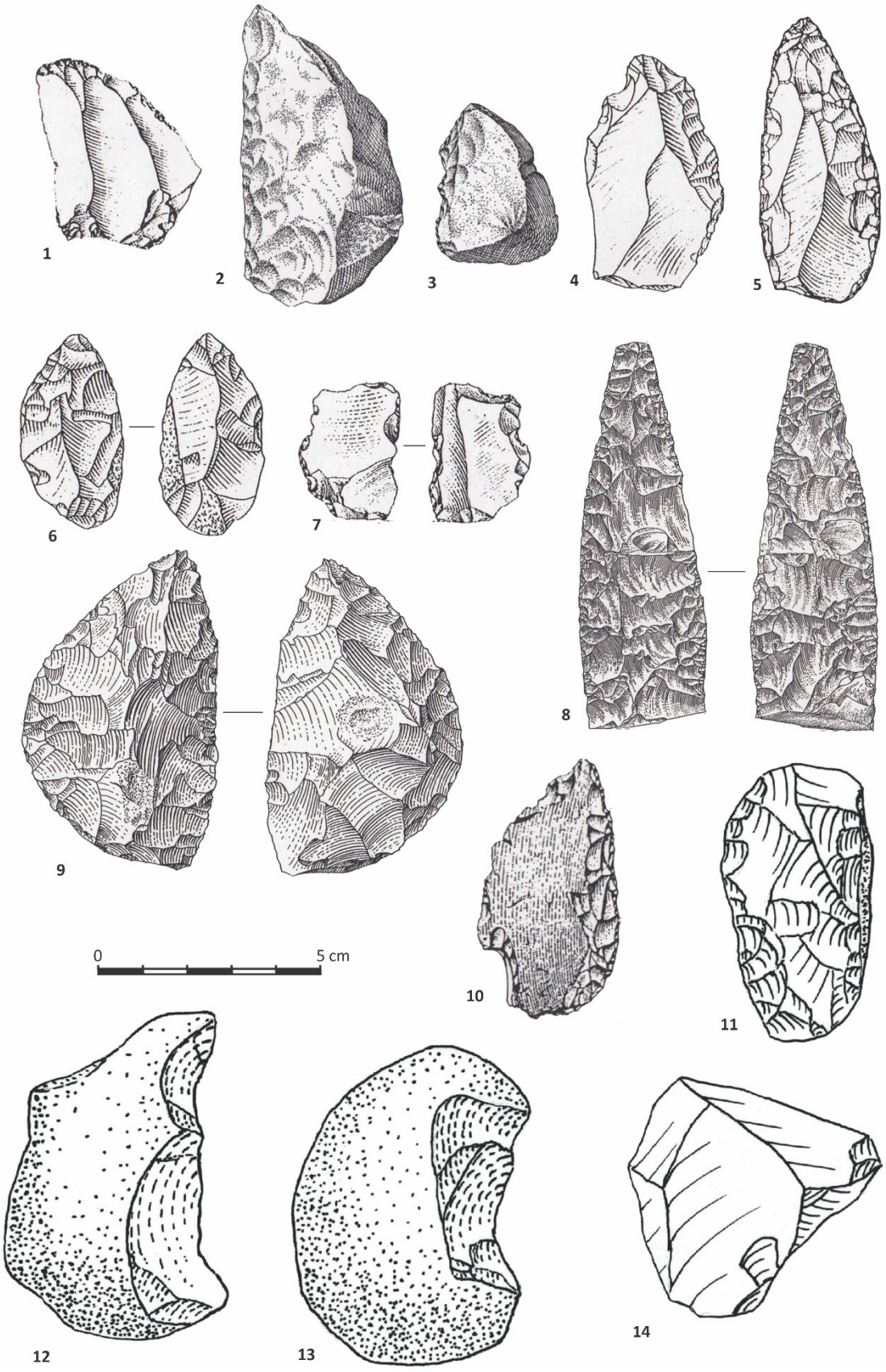

Figure 3. *MP stone tools. Ripiceni – Izvor: 1, 4. endscrapers, 5. Mousterian point, 8. biface, 9. Pradnik; Baia de Fier – Peştera Muierii: 2. sidescraper; Nandru – Peştera Curată: 3. denticulate; Mamaia – sat: 6. biface, 7. notch; Mitoc – Valea Izvorului: 8. biface; Ohaba Ponor – Bordu Mare: 10. sidescraper; Zăbrani – Dealul Pietrei: 11. sidescraper; 12. denticulate; 13. notch; 14. pseudo-Levallois point (1–10 modified after Păunescu 1989; 11–14 modified after Tuffreau et alii 2007).*

NEW PERSPECTIVES ON MP LITHIC INDUSTRIES

Given the conservatory approach on lithic variability, it was obvious that the re-assessment of old collections from new perspectives, other than cultural-historical, was much needed. Such innovative enterprises were hindered by several issues: during the excavations, archaeologists were biased towards selecting 'typical' lithics over 'atypical' and shatters; artefacts were bulk-provenienced, and more often than not, the information about their provenance was too general; lithic (and faunal) collections were split between several institutions, and sometimes parts of them got lost in repositories.

Despite the abovementioned caveats, by using the available information new syntheses were elaborated, in the attempt to provide different perspectives on the MP. These ventures were mostly based on the old lithic collections, and were materialized in Master's and Doctoral dissertations, as well as in academic publications, employing various approaches: a critical overview of the research on MP and the study of the relation between raw material and Neandertal mobility (Pop 2013), site function and raw material management (Doboş 2010; Doboş *et alii* 2010), technological aspects regarding the lithic industries from Carpathian caves (Nițu 2011), human land-use and mobility (Popescu 2015), hominin-environment interaction as reflected in lithic industries (Riel-Salvatore *et alii* 2008).

At the same time, excavations at some old sites were resumed, and by employing modern investigation methods new important information was gained on site formation processes, raw material management and associated reduction sequences, palaeoenvironement, etc., as was the case for the sites of Abri 122/1200 of Cheile Vârghișului (Cosac *et alii* 2015), Boinești (Tuffreau *et alii* 2013), Gura Cheii (Cârciumaru *et alii* 2008a), Mitoc – *Valea Izvorului* (Tuffreau *et alii* 2009), Zăbrani (Tuffreau *et alii* 2007).

HOMININ FOSSILS

Direct evidence. In the 1970s, in a Middle Palaeolithic level from Livadița cave (southwestern Romania) was found a phalange which was assigned to *Homo neanderthalensis* (Terzea 1979). Currently, this piece cannot be located (Păunescu 2001). In the Bordu Mare cave of Ohaba-Ponor (Transylvania), three phalanges (one from the foot and two from the hand) were found in the 1920s in level III, which subsequently was assigned to the Quartzite Mousterian. Although lost today, they were briefly described by J. Gall (Gall 1928), who assigned them to *Homo primigenius* Schwalbe. A third discovery, a dental bud of M1 of La Adam cave (Dobrogea) coming from a presumably Gravettian level was assigned to a *Homo sapiens* which also exhibited Neandertal features (Necrasov 1971). Same as the two previous discoveries, the dental bud is lost (Păunescu 1999a).

Indirect evidence. Two sites with Pleistocene footprints were reported; they are both unexcavated and with no Palaeolithic tools found on the surface.

- Vârtop Cave. In 1974, three footprints were found on the moonmilk floor of a remote chamber called "Sala Paşilor" (Room of the Steps), over a surface of ca. 1.5 m^2 (Viehmann *et alii* 1982). Only one print was completely preserved, and the calculations indicated an individual of ca. 146 cm tall. The age of the layer that comprises the footstep was assessed by dating a stalagmite from the above layer: three U-Th ages indicate around 62 ka, which thus represent a *terminus ante quem*. Consequently, the individual who produced the prints must have been a Neandertal (Onac *et alii* 2005).
- Peştera Ciurului – *Izbuc*. In 1965 were discovered ca. 400 hominin footprints overlapping with cave bear prints (Rişcuţia, Rişcuţia 1970). They were assigned to hominins exhibiting both Cro-Magnon and Neandertal features, and they were broadly dated to late Würm (Viehmann *et alii* 1970). Recent analysis, carried out for 51 prints, has determined a MNI ~ 7, children and adults, with heights ranging from 86.4 cm to 180.3 cm. For their chronological bracket, the *terminus post quem* was determined by radiocarbon dating of *Ursus spelaeus* bones right below the prints, which yielded an age of ca. 36.5 ka cal. BP. The *terminus ante quem* is provided by the trace of a human footstep overprinted by a bear, so it should be before the extinction of cave bears, at ca. 28.7 ka cal. BP. As for the hominin species, either the presence of a *Homo sapiens*/Neandertal hybrid or *Homo sapiens* is postulated (Webb *et alii* 2014).

ARCHAEOZOOLOGY

In the first decades after the Second World War, faunal analysis of the material coming from MP sites was in general limited to the identification of taxa, relative frequency, and brief anatomical descriptions; the species were used as mere climate indicators (Bombiță 1954; Terzea 1979). Discussion on subsistence and hunting were rather scarce and had a very theoretic character, i.e. faunal skeletal parts from the MP levels were expected to be fragmentary due to Neandertals' butchering activities, whereas in archaeologically sterile levels they tend to be complete (Gheorghiu, Haas 1954). The faunal assemblages in caves were dominated by *Ursus spelaeus* but numerous other carnivore and herbivore remains were present, and their role as taphonomic agents, as well as human intervention detected on bones, age-at-death of individuals, and seasonality are issues which remain unaddressed, with the notable exception of the study of a sample coming from Cioarei cave, carried out by M. Patou-Mathis (2000–2001).

It is worth mentioning here the work of the Romanian archaeozoologist Alexandra Bolomey, who advocated for new approaches in the study of faunal remains ever since the 1970s (Bolomey 1973). Her research was mainly focused on Neolithic and later periods, occasionally dealing with Upper Paleolithic (Bolomey 1989); unfortunately, the innovative approaches she advocated for remained largely ignored in the study of MP faunal assemblages.

The status of appendix of archaeozoological analyses can be well illustrated from the situation at Ripiceni – *Izvor*, as was pointed out by Pop (2013). In the monograph on the site (Păunescu 1993), a special chapter features malacofauna analysis (carried out by A. Grossu); in the oldest three levels were mentioned aquatic species, but there is no discussion on the potential water-induced disturbance of these levels.

DISCUSSION

When discussing the MP research in Romania, a few issues arise. First and foremost, the idea regarding the existence of a 'Late MP' throughout Romania should be abandoned. This is partially confirmed for two cave sites (Peştera Muierii and Peştera Curată), but should not necessarily be extrapolated to the others. It is possible that cave occupations were contemporary, but this assumption was mostly based on similarities in the lithic assemblages, which mostly feature quartz/ite, so perhaps the resemblance stems from the inner particularities of the raw material. They were paralleled with the site of Erd, in Hungary (Păunescu 1989), but in the neighbouring countries were discovered cave occupations from MIS 5, as is the case of Suba-Lyuk (Mester 2004), Tata (Bocquet-Appel, Tuffreau 2009), Krapina (Karavanić 2007), to mention just a few. Among the open-air sites, some date back to MIS 6, as was the case for *Valea Izvorului*; unfortunately, for Ripiceni – *Izvor*, the only reliable age is infinite. Same as with the cave sites, the surrounding areas harbor older sites dating from MIS 5, either from the Last Interglacial or more recent, such as the MP levels of Korolevo (Haesaerts, Koulakovska 2006), Crvena Stijena, Kulna, etc. (Bocquet-Appel, Tuffreau 2009).

Moreover, for the two levels of Mamaia-sat was recently hypothesized Middle Pleistocene age, MIS 7 and MIS 9 respectively, based on correlations with the loess-paleosoil sequences dated at the sites of Tuzla and Mircea Vodă (Balescu *et alii* 2015). Unfortunately, the site is currently destroyed by both industrial works related to the Danube-Black Sea Canal and domestic constructions.

Secondly, the study of lithic industries has been, until recently, focused on thorough description of the lithic material, but with little interpretation in raw material acquisition, subsistence strategies or mobility patterns. Recent attempts have tried to provide a broader picture on the economy of the MP communities, but these projects are partially hampered by poor information regarding the provenience of the objects, as well as sometimes incomplete assemblages. Given this situation, the reassessment of old collections is a partial solution, as well as resuming excavations in known sites, but the best solution is, in my view, the discovery of new sites to be investigated with modern methods.

The MP sites have also yielded fauna and a few hominin remains, mostly in cave sites (except for Ripiceni – *Izvor*). The faunal assemblages are understudied, and were generally presented (with very few exceptions) at a minimal level. Therefore, information on taphonomy which could be provided by archaeozoological analysis is incomplete.

The hominin fossil record for the MP is scarce, as the bone finds reported from cave sites are unfortunately lost; the sites where footprints were discovered and dated were not excavated to the moment, either inside the cave or in the surrounding areas. The presence of both categories however account for a certain potential for the future research in finding hominin remains from the MP**.**

CONCLUSION

Throughout the 20th century, valuable research on MP has been carried out by numerous Romanian scholars. In the recent decades, through local effort and international collaborations, significant progress was made.

The study of the loess-palaeosoil sequences and the identification of Campanian Ignimbrite tephra make possible a general assessment of the age of Palaeolithic occupations that will be discovered in the future in suitable contexts. We now know that the oldest MP occupations date to Middle Pleistocene, and the data available so far indicates that cave occupations are fairly young. The re-assessment of old lithic assemblages has attempted to provide a broader picture on various MP sites in Romania, which goes beyond mere cultural-historical description of lithic assemblages.

The least progress was made in the study of old faunal assemblages, but hopefully the collections available will be investigated with modern methods, so as to provide additional data to the picture(s) outlined through the study on stone tools.

Numerous surface collections that most probably belong to the MP, as well as numerous fossil caves and large loessic areas accounts for the great research potential Romania has for the study of this period.

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ABRÉVIATIONS / ABBREVIATIONS / ABREVIERI

AA – Archäologischer Anzeiger. Deutsches Archäologisches Institut, Darmstadt, München, Tübingen–Berlin
Acta MN – Acta Musei Napocensis Cluj-Napoca
ActaMP – Acta Musei Porolissensis, Zalău
AJA – American Journal of Archaeology, Boston
Altertum – Das Altertum, Deutsche Akademie der Wissenschaften zu Berlin Sektion für Altertumswissenschaft Akademie der Wissenschaften der DDR Zentralinstitut für Alte Geschichte und Archäologie, Berlin
AnB – Analele Banatului, Muzeul Banatului, Timişoara
Antiquity – Antiquity. A Review of World Archaeology, Durham, UK
ArchBulg – Archaeologia Bulgarica, Sofia
AIGR – Anuarul Institutului Geologic al României, Bucureşti
AIIA Cluj – Anuarul Institutului de Istorie şi Arheologie, Cluj-Napoca
AM – Mitteilungen des Deutschen Archäologischen Instituts, Athenische Abteilung
Apulum – Acta Musei Apulensis. Muzeul Naţional al Unirii, Alba Iulia
ArchKorr – Archäologisches Korrespondenzblatt, Mainz
Argesis – Argesis. Muzeul Judeţean Argeş. Piteşti
ArhMold – Arheologia Moldovei, Iaşi
BA – Biblioteca de Arheologie, Bucureşti
BAI – Bibliotheca Archaeologica Iassiensis, Iași
BARIntSer – British Archaeological Reports. International Series, Oxford
BCȘS – Buletinul Cercurilor Științifice Studențești. Arheologie – Istorie – Muzeologie, Alba-Iulia
BICS – Bulletin of the Institute of Classical Studies of the University of London, London
Bjb – Bonner Jahrbücher des Rheinischen Landesmuseums in Bonn, Bonn
BMA – Bibliotheca Memoriae Antiquitatis, Piatra-Neamţ
BMJT – Buletinul Muzeului Judeţean Teleorman, Alexandria
BMMN – Buletinul Muzeului Militar Naţional, Bucureşti
BMTA Giurgiu – Buletinul Muzeului „Teohari Antonescu”, Giurgiu
BPS – Baltic-Pontic Studies, Poznań
Britannia – Britannia. A Journal of Roman-British and Kindred Studies. Society for the Promotion of Roman Studies, Cambridge
BSA – British School at Athens, Athens
BSPF – Bulletin de la Societé Préhistorique Française, Paris
CA – Cercetări Arheologice, Bucureşti
Carpica – Carpica. Complexul Muzeal „Iulian Antonescu” Bacău, Bacău
Carst – Cercetare, explorare, Actualitatea speo, Recenzii, editorial, Știință, Tehnică, Cluj-Napoca
CCA – Cronica Cercetărilor Arheologice din România, Bucureşti
CCDJ – Cultură şi Civilizaţie la Dunărea de Jos, Călăraşi
CEFR – Collection de l’École Française de Rome
CercIst – Cercetări Istorice, Iaşi
Dacia – Dacia (Nouvelle Série). Revue d’archéologie et d’histoire ancienne. Académie Roumaine. Institut d’archéologie « V. Pârvan », Bucarest
Documenta Praehistorica – Documenta Praehistorica, University of Ljubljana, Faculty of Arts, Department of Archaeology
EphemNap – Ephemeris Napocensis. Academia Română, Institutul de Arheologie şi Istoria Artei, Cluj-Napoca
ERAUL – Études et Recherches archéologiques de l’Université de Liège
ÉtThas – Études thasiennes, École Française d’Athènes, Athènes-Paris
EurAnt – Eurasia Antiqua. Deutsche Archäologisches Institut, Berlin
GodișnikSofia – Godişnik na Sofijaskija Universitet „Sv. Kliment Ochridski”, Istoriceskij fakultet, Sofia
Hesperia – Hesperia. Journal of the American School of Classical Studies at Athens, Cambridge
IFAO – Institut français d'archéologie orientale, le Caire
JAS – Journal of Archaeological Science

Kernos – Revue internationale et pluridisciplinaire de religion grecque antique, Liège
Marisia – Marisia. Studii şi materiale. Arheologie – Istorie – Etnografie, Târgu Mureş
MemAnt – Memoria Antiquitatis, Piatra Neamţ
MCA – Materiale şi Cercetări Arheologice, Bucureşti
OLBA – Mersin University Publications of the Research Center of Cilician Archaeology, Mersin, Turkey
Paléo – Paléo. Revue d'Archéologie Préhistorique, Les Eyzies, France
Peuce – Peuce, Studii şi cercetări de istorie şi arheologie, Institutul de Cercetări Eco-Muzeale, Tulcea
Pontica – Pontica. Studii şi materiale de istorie, arheologie şi muzeografie, Muzeul de Istorie Naţională şi Arheologie Constanţa
Quartär – International Yearbook for Ice Age and Stone Age Research
RCRFActa– Rei Cretariae Romanae Fautorum
RE – Realenzyklopädie: Paulys realenzyklopädie der klassischen Altertumswissenschafts, Stuttgart, 1893
RI – Revista Istorică. Academia Română, Institutul de Istorie „Nicolae Iorga", Bucureşti
RESEE – Revue des Études Sud-Est Européennes. Academia Română, Institutul de Studii Sud-Est Europeene, Bucureşti
RevBistr – Revista Bistriței. Complexul Muzeal Bistriţa-Năsăud, Bistriţa
SAA – Studia Antiqua et Archaeologica, Iaşi
SCIV(A) – Studii şi Cercetări de Istorie Veche (şi Arheologie), Bucureşti
SlovArch – Slovenská Archeológia, Nitra
SMMIM – Studii și Materiale de Muzeografie și Istorie Militară, București
SP – Studii de Preistorie, Bucureşti
Suceava – Suceava. Anuarul Muzeului Bucovinei, Suceava
Th-D – Thraco-Dacica, București
Transylvanian Review – Transylvanian Review. Centrul de Studii Transilvane, Cluj-Napoca
Tyragetia – Tyragetia. Anuarul Muzeului Naţional de Istorie a Moldovei, Chişinău
VT – Vetus Testamentum