

The Romanian Mesolithic and the transition to farming. A case study: the Iron Gates

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Rezumat: *Tranziția de la economia de vânători-culegători la agricultură a căpătat în ultimele decenii o importanță deosebită. Cercetarea cu un caracter complex, prin implicarea unui număr mare de discipline, a făcut posibilă re-evaluarea unor concepte mai vechi, dar a ridicat și noi probleme și controverse. Cu o cantitate de informație în continuă creștere, din diverse părți ale lumii, a devenit evident că agricultura s-a dezvoltat independent în mai multe regiuni ale globului decât se credea mai înainte și că procesul de difuzie care a urmat a fost mult mai complex decât se credea. Un număr din ce în ce mai mare de arheologi acceptă acum aportul populației pre-neolitice la acest proces. Implicațiile sociale și ideologice asociate adopției agriculturii au devenit mai clare, fiind corelate cauzal cu schimbările economice. În ciuda acestui fapt, întrebări precum de ce apare agricultura și cum se răspândește au rămas în mare măsură fără răspuns.*

Din nefericire, cunoașterea modalităților de răspândire a agriculturii a fost limitată de o prea puțină cunoaștere a perioadei mezolitice. Această situație continuă să persiste în multe părți ale continentului. Cea mai mare parte a datelor și studiilor vin din nordul Europei unde au fost descoperite și studiate amănunțit numeroase situri mezolitice. Pe de altă parte, sărăcia siturilor din sudul și sud-estul Europei a făcut ca mezoliticul de la Porțile de Fier ale Dunării, din România, să capete o importanță deosebită.

Articolul de față își propune să readucă în atenție câteva dintre problemele tranziției de la mezolitic la neolitic în sud-estul Europei, cu particularizare pe cazul Porților de Fier ale Dunării. S-a considerat că pentru o bună înțelegere a fenomenului, o trecere în revistă a conceptelor de epipaleolitic și mezolitic, așa cum apare el în literatura arheologică românească a fost necesar pentru evitarea unor viitoare confuzii legate de existența sau nu a mezoliticului în diverse situri din zonă. S-a considerat de asemenea necesară o scurtă reluare a problematicii tranziției mezolitic-neolitic la nivel european și o discuție asupra tranziției vs. neolitizare.

La nivel arheologic, tranziția poate fi urmărită în diverse moduri: ceramica – caz predominant în studiile din sud-estul Europei, industria litică, industria materiilor dure animale, apariția unor plante și animale domestice, la nivel economic prin urmărirea ponderii vânătorii, datelor agriculturii, datelor ¹⁴C, analizelor de dietă sau studiilor genetice pentru determinarea migrației, difuziei culturale, participării locale etc. Toate aceste componente au fost urmărite – evident în linii generale și fără a avea pretenția de a fi epuizat subiectul, pentru regiunea Porților de Fier.

Cuvinte cheie: *mezolitic, neolitic timpuriu, mezolitic-neolitic, tranziție, neolitizare.*

Keywords: *Mesolithic, Early Neolithic, Mesolithic- Neolithic, transition, neolithisation.*

The transition from foraging to agriculture in the last few decades has become a subject increasingly studied in academia. More complex research involving a large number of disciplines has made possible a substantial reevaluation of older concepts, but has also raised new questions and controversies. With the growing body of data from different regions of the world, it has become apparent that agriculture developed independently in more areas than was previously thought, and that the process of its geographic diffusion was much more complex than initially envisioned. The important role played by pre-Neolithic populations has come to be accepted by a growing number of archaeologists. The social and ideological implications associated with the adoption of agriculture have become more relevant, involving an association of causal factors with aspects other than economics. Regardless, questions such as why agriculture and how did it spread remain unanswered to a large degree.

Most unfortunate, the body of knowledge related to the spread of agriculture in Europe was constrained by a relative neglect of the Mesolithic period. This situation persists in many parts of the continent. Most of the data and studies come from the northern lands of Europe where many Mesolithic sites were discovered. On the other hand, the scarcity of sites in south and southeastern Europe focused most of the research on one of the richest Mesolithic archaeological locations on the continent: the Danube "Iron Gates" canyon.

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The Mesolithic in Europe

The end of the Younger Dryas cold period marked the beginning of a warmer climate that favored Europe by 10000-9000 BC, due to the retreat of the Scandinavian and Alps glaciers. The result was a dramatic change on the face of the continent. Rivers, lakes, forests, and open shorelines presented numerous new possibilities for the hunting and gathering peoples who inhabited the land. Large areas of land were submerged in the North Atlantic, Adriatic, North Sea, and the Baltic. Due to the retreat of continental glaciation for the most part of the Early Holocene, the former peninsula of Britain became an island by 7500-7000 BC (8500-8000 BP, M. Joachim 2002, p. 115) and Europe became totally free of ice (D. Price 1991).

Throughout most of Europe a succession of periods based upon changes in pollen diagrams has been established. Three of these periods, Preboreal, Boreal and Atlantic, are generally associated with Mesolithic (fig. 1).

Name of period	Dates (bc)	Dominant vegetation	Climate
Subatlantic	After 300	Beech	Maritime
Subboreal	3000–300	Oak, beech	More continental
Atlantic	6200–3000	Oak, elm	Warmer and maritime
Boreal	7500–6200	Hazel, pine, oak	Warmer and continental
Preboreal	8300–7500	Birch, pine	Warm continental
Younger Dryas	8900–8300	Forest tundra	Arctic
Allerød	9800–8900	Birch, pine	Temperate continental
Older Dryas	10 100–9800	Tundra	Arctic
Bølling	10 800–10 100	Birch parkland	Subarctic
Oldest Dryas	Before 10 800	Tundra	Arctic

Fig. 1. Approximate climacteric fluctuations and dates (T. Champion *et alii* 1984).

Fluctuațiile climaterice aproximative și datele (T. Champion *et alii* 1984).

During the Preboreal period (8300-7500 BC), temperatures rapidly reached modern levels and seasonal variations were pronounced. The pioneer trees of birch and pine formed the dominant vegetation in much of the area, although a number of deciduous trees, such as oak, elm, and lime, together with hazel, were present as well.

Generally warmer, but drier, conditions prevailed during the subsequent Boreal (7500-6200 BC), which was characterized by a large increase in hazel, and a rise in deciduous trees as well. According to many scientists (B. Alley, M. Agustsdottir 2005; B. Alley *et alii* 1997; D. C. Barber *et alii* 1999; P. A. Mayewsky *et alii* 2004; A. Nesje *et alii* 2004), however, it appears that by 7500 – 7300 BC a rather drastic, but not long lasting, climatic deterioration may have occurred that effected the entire European continent.

Finally, during the Atlantic (6200-3000 BC), the postglacial maximum temperatures were reached and precipitation generally increased (fig. 2), encouraging the development in most areas of mixed oak forest containing a substantial number of elm and lime as well. By this time pine was relegated to higher elevations, southern Europe saw the spread of a mixed-oak forest; parts of Italy contained Mediterranean evergreen oak and even open grasslands in the south. In eastern-central Europe, spruce was dominant. North of the Black Sea open grasslands became widespread, and in the north and north-east, coniferous were abundant, often forming mixed forests of conifers and deciduous trees (J. Adams 1998; J. Negendank 2004).

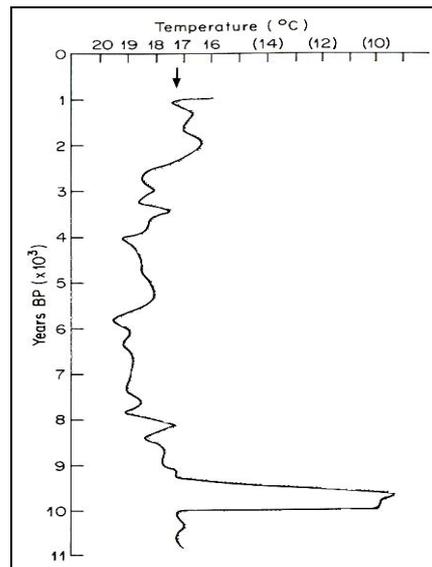


Fig. 2. Holocene temperature oscillation in Europe (T. Champion *et alii* 1984).
Oscilațiile de temperatură din Holocen în Europa (T. Champion *et alii* 1984).

Characteristic adaptation strategies of the period were hunting and fishing settlements along rivers, lakeshores, and coastal regions. Microliths, the typical stone implements of the Mesolithic period, were smaller and more delicate than those of the late Paleolithic period. It has been possible to identify a number of cultural continuums, like the Azilian, centered in the Pyrenees region, but which spread further to regions such as Switzerland and Belgium. The Azilian was followed by the Tardenoisian culture, which covered much of Europe; most of these settlements are found on dunes or sandy areas. During early-middle Mesolithic, the Maglemosian, named for a site in Denmark, is found in the Baltic region and northern England. It is there that hafted axes and bone tools have been found. The Eterbölle culture, also named for a site in Denmark, spans most of the late Mesolithic. It is also known as the kitchen-midden culture for the large deposits of mollusk shells found around the settlements. Other late Mesolithic cultures are the Campignian and Asturian, both of which may have had Neolithic contacts. The Mesolithic cultures of some parts of Europe were defined with such local accents as Kundian in Latvia and Estonia, Niemen in Lithuania (P. Dolukhanov 1997), Clisurian in southwestern Romania (V. Boroneanț 1970; idem 1973a; idem 1973c), Jaszag in Hungary (R. Kertesz 2003), Janislawice, Kukrek, Grebeniki, Muzark-Koba, and Shan-Koba in former western USSR (S.K. Kozłowski 1990); in addition to individual names of sites or areas (Franchthi Cave, Kleisoura Gorge, Theoptera, Maroulas, Alonnisos) in Greece (Y. Facorellis 2003), Konispol and Xare in Albania, Butovian in the central Russian plain (P. Dolukhanov 1997), Ukrainian Dnieper Mesolithic, and Asturian in the Iberian Peninsula (J. Zilhao 2004). Most of these, however, do fall within the layers of the cultural groups outlined in this paragraph. Kozłowski identifies 23 such general cultural groups.

Due to the new environmental conditions, territorial game such as deer and wild pig colonized the new forests. Consequently, hunters no longer followed the herds over vast distances. Instead, they confined their hunting to a smaller territory. The forests also contained many edible plants that could be gathered easily, such as hazelnuts and other nuts, tubers, rhizomes, berries, fruits, leaves and herbs, and seeds. Fish, shellfish, and snails, and probably a vast array of small creatures, completed the typical diet. Willow and hazel branches were used at Eterbölle sites to make conical fish traps that were set into streams and estuaries. These were designed so that fish could swim into them, but could not then escape (P. Bogucki 2004).

The new food-acquiring techniques permitted foragers to exploit resources in such ways that they could maintain their permanent settlement in one place for a large part of the year. The new concept of place and home replaced that of territory and home range that were held by the Ice Age hunting bands (P. Bogucki 2004; C. Tolan-Smith 2004).

Although chronological frameworks vary considerably across the continent, a useful distinction can be made between the Early and the Late Mesolithic periods. This distinction can be made on the basis of differences in stone tool technology, though many other aspects of life appear to differ between the two as well. The transition appears to have occurred roughly around the beginning of the Atlantic period (M. Jochim 2002).

Epipaleolithic and Mesolithic in Romania – the history of a name

Concerns for the prehistory of Romania existed since the XIXth century, mainly focusing on the exploration of caves, identification of fossil bones, of Paleolithic tools or Neolithic sherds. The Mesolithic, caught in between two “Primadonas” receive attention somewhat later. We shall follow, on the first part, the origins and the evolution of this period throughout Romania, with a larger concern for the Iron Gates area.

Then the article will approach the issue of the Mesolithic-Neolithic transition, first on a more general basis and then again, focusing on the Iron Gates.

1. The beginnings (1920-1940) or *Much Ado About Nothing*

In 1929 N. N. Moroșan made a series of discoveries to the north of Bassarabia (N. N. Moroșan 1929), among which some considered as the first appearance of the Romanian Mesolithic (N. N. Moroșan 1933, p. 10). 7 sites were mentioned: Naslavcea, Voloșcovo, Stânca, Piliwanoclar (Slobozia-Ianouți), Șein-Iar (Komarovo village, departament of Hotin), Vepriș (Komarovo), Restev-Atachi and three Epipaleolithic sites: Ciornăia-Lozi, Pe-Balaia, Beresti, all in the village of Binrova (departament of Soroca). The bassarabian Mesolithic, of macrolithic typology, was assigned by N. N. Moroșan to the Campignan, making its first brief appearance in the Romanian archaeology.

In Transylvania, in 1928, M. M. Roska found evidence of the Campignan first at Iozășel (two different locations): Cremenos and Plopăț (M. Roska 1930, p. 88)¹. Later, in 1942, that *facies* was enriched with five other sites, previously assigned by the same archaeologist to Lower Palaeolithic: Basarabasa-Brotuna, Valea Bradului and Prăvăleni² in the departament of Hunedoara, Valea Mare and Zimbru³ in the departament of Arad (M. Roska 1942, p. 319).

A third announcement for the Romanian Mesolithic was also made in 1929 C. S. Nicolăescu-Plopșor (1929, p. 14-15)⁴, perhaps under the influence of the discoveries in Bassarabia and Transylvania or of the (then recent) publications in the neighboring countries presenting the Mesolithic sites in Hungary, Slovakia, Poland and Russia (E. Hillerbrand 1925; J. Kozłowski 1926, p. 52-56). Plopșor's announcement, promising a detailed publication of the numerous Chwalibogowitian (Swiderien) discoveries in Oltenia (Cleanov-Fiera, departament of Mehedinți; Plopșor, Sălcuța, departament of Dolj; Zănoaga, departament of Romanați) – materialized only in 1931⁵, in the shape of a communication at the XV th Congress of Prehistoric Anthropology and Archaeology in Paris, Section II – Human Paleontology and Prehistoric Archaeology. “The Mesolithic cultures of Oltenia” as it was called, presented the two types of microlithic lithic industries identified by Plopșor and baptized “Cleanovian”, respectively “Plopșoreană”⁶, both similar to the Swiderian. Assigning them as Swiderian caught the attention of N. N. Moroșan, who, at the same congress expressed his own point of view (N. N. Moroșan 1932), underlining the paucity of the

¹ At Cremenos the uncovered lithic artifacts consist of a „tranchet” or a typical chisel of small size, and a secon artifact, heavy rolled. At Plopăț a third object was found, also rolled and badly worked. Together with these the author also mentions rounded endscrapers, microliths, assigned to the Campignan (M. Roska 1929, p. 87-88).

² Brotuna-Basarabasa - site „Coasta Cremenii”; Valea Bradului, site „La Secătură”; Prăvăleni, site „Vârful Cremenii” (M. Roska 1929, p. 115-116; idem 1942, p. 34, 297, 280).

³ Valea Mare, the sites Dudaiu and Gruiu; Zimbru, site „La pârâul Creminoși” (M. Roska 1929, p. 112; idem 1942, p. 309, 311).

⁴ The respective sites had been identified in 1924 (C. S. Nicolăescu-Plopșor 1941, p. 2) field surveys.

⁵ The first presentations appears in the „Memoriul V” publication of the newly established Institute for Oltenian Archaeology, Craiova 1931, after they had been presented at the XV-lea Congress of Anthropology and Prehistoric Archaeology in Paris, in the same year. (C. S. Nicolăescu-Plopșor 1941, p. 2).

⁶ The names were given, Plopșor said, not to increase the Mesolithic chaos, but to help and study them in detail and establish analogies (C. S. Nicolăescu-Plopșor 1931, p. 408).

materials but mainly the lack of archaeological excavations meant to confirm or disprove Ploșor's hypothesis. Moroșan proposed a change in the cultural assignation of the discoveries from Swiderian to Local Tardenoisian stressing the fact that it was the first microlithic industry uncovered in Romania and the Balkan peninsula. (N. N. Moroșan 1932, p. 4). Hence, the third actor on the Mesolithic stage had made its appearance: the Tardenoisian, the most long lasting and unjustified archaeological term among the three of them (A. Boroneanț 2005)

At the beginning of the third decade of the last century, C. S. Nicolăescu-Ploșor again presents his Oltenian discoveries on the Paleolithic and Mesolithic at the Congress in Warsaw in 1933, then at the International Congress of Prehistoric Sciences (N. N. Moroșan 1933, p. 13). 1932 is the year when I. Nestor published his PhD thesis also enumerating the three Mesolithic 'aspects' existing in Romania (I. Nestor 1932, p. 26-31). N. N. Moroșan reviews the Paleolithic research in the north-east Romania (N. N. Moroșan 1932). In 1936, C. S. Nicolăescu-Ploșor at his turn publishes his PhD dissertation with a few vague references to the lithic industry at Cleanov⁷ to be followed in 1939 by D. Berciu's "Archaeology of Oltenia". The latter also gives a series of lectures, within the universal history seminar of N. Iorga, among which one focusing on the Mesolithic (D. Berciu 1939b, p. 88-102).

The Prehistoric archaeology of Oltenia proposes a unification the two "aspect" of the Oltenian Mesolithic as Swidero-Tardenoisian⁸ and of the two lithic industries – the "Ploșorean" and "Cleanovian" in a single complex named: "the Ploșor-Cleanov complex" defined as "a lithic industry specific to the Tardenoisian with strong Swiderian influences" (D. Berciu 1939a, p. 14). Things get complicated even further as the two periods, previously separated, start to mix⁹, with the term Tardenoisian covering almost all Mesolithic groups. D. Berciu postulates the appearance of pottery during the Tardenoisian and the Campignan (D. Berciu 1939a, p. 15) and introduces a new term, the Proto/Pre-Neolithic, thus starting a dispute in Romanian archaeology to last for decades. This was seen as a "new concept, referring to a mixed civilization, little defined until now but theoretically possible and necessary to satisfy the spirits" (D. Berciu 1939a, p. 15). It would be associated to the Campignan. The introduction of the Proto/Pre-Neolithic will have long lasting repercussions for the Romanian archaeology: until very late, at the end of the '80-ies, Fl. Mogoșanu considered the Campignan as a period of transition between the Paleolithic and the Neolithic (Fl. Mogoșanu 1960, p. 125-129; idem 1962, p. 145-151; idem 1964, p. 337-350; idem 1969, p. 5-12).

Less confuse seem to be things in D. Berciu's lectures at the University where the Mesolithic was no longer seen as a mere transitory period from the Paleolithic to the Neolithic¹⁰ but as a time of "great changes and adaptation to new forms" (D. Berciu 1939b, p. 88). The publication was a real textbook (for the time), starting from the enumeration and explanation of the various Mesolithic aspects of the time, of the lithic industries and the "directing artifacts" and elaborating on the economy and art (in the case of the Azilian), on possible ethnographic parallels and aspects of funerary archaeology (the burials from Teviac and Offnet (D. Berciu 1939b, p. 90, 94-95).

One of the main drawbacks is given by the overrated geographical coverage granted to the Tardenoisian, from western Europe, over the Central one and down to Poland and south of Russia, and to the north up to Scotland and Lithuania and to the south down to Sicily (D. Berciu 1939b, p. 93). Originating here, the myth of the omnipresent Tardenoisian will survive in the Romanian archaeology, despite the fact between the microlithic industries to the north-west of Transylvania or the north-east of Moldavia and what it represents in France there is little in common but the microlithism, a feature present in most Mesolithic industries.

⁷ The author remarks the presence of some Paleolithic artifacts among the Mesolithic one recovered on that spot (C. S. Nicolăescu-Ploșor 1938, p. 63).

⁸ The idea was taken over from L.F. Zotz, Kulturgruppen des Tardenoisien in Mitteleuropa, PZ, XXIII, 1932, p. 19-45, fig. 5, 9. Zotz splits Mesolithic Europe in two – the Azilo-Tardenoisian to the west and the Swidero-Tardenoisian to the East.

⁹ The Tardenoisian is seen both as an Epipaleolithic (p. 12) and a Mesolithic one (p. 14).

¹⁰ Ploșor mentioned this also in 1931, but without insisting much on it.

D. Berciu's interests in the Mesolithic continues at the beginning of the '40-ies when he publishes two variants of an Archaeological catalogue – in French and Romanian – for the Paleolithic and the Mesolithic (D. Berciu 1941, p. 14-16; idem 1942, p. 589-592). The Mesolithic appeared then divided in two periods: the first between 10000 – 5000 BC, encompasses the Swidero-Tardenoisian, the Azillian, the Tardenoisian and the Cleanov-Ploșșor complex. The second, between 5000-3500 BC, prepares the appearance of the Neolithic, and was represented by the Campignan and Campignan elements (D. Berciu 1941, p. 14, idem 1942, p. 591). In 1941 D. Berciu quotes eight Mesolithic new sites and in 1942 their number reaches 13 as five more sites, previously assigned to the Lower Paleolithic were added. The change seems to have been independent from the publication, in the same year, of M. Roska's Repertorium for Transylvania¹¹ (D. Berciu 1942, p. 568, 590-591; M. Roska 1929, p. 88; 1930, p. 101, 115-116; idem 1942, p. 319).

Synthetizing, the Mesolithic of Oltenia had been successively attributed to the Swiderian (C. S. Nicolăescu-Ploșșor 1931, idem 1938), local Tardenoisian (N. N. Moroșan 1932), Swidero-Tardenoisian (D. Berciu 1939a, idem 1941, idem 1942), to some microlithic industries of Epipaleolithic origin (C. S. Nicolăescu-Ploșșor 1941), only to disappear from the Romanian archaeology in the 50-ies when they finally were assigned as Verbicioara/Sălcuța sites. But it was the first assignation (Swiderian) that had echoes in the archaeological literature of the neighboring territories until the middle of the 60-ies (B. Borisovski 1964, p. 16)¹².

In what the Campignan in Transylvania was concerned, all the artifacts were contested by C. S. Nicolăescu-Ploșșor and M. Moga, being considered as natural products¹³ (C. S. Nicolăescu-Ploșșor 1938, p. 80-88; M. Moga 1937, p. 158-175).

Thus, for the above mentioned period, two archeological trends could be identified: the first, having C. S. Nicolăescu-Ploșșor as a main exponent pleade for the existence of local aspects, showing minor but noticeable differences and requiring separate attention exactly for the specificity of each of them (see the Cleanovian and the Ploșșorean). The second was represented by D. Berciu, who supported a melt-down of local aspects into the European phenomenon (the Swidero-Tardenoisian, the Tardenoisian of European coverage). Beyond the linguistic ridicule of names such as Cleanovian, Ploșșorean (and later Clisorean), there is a possibility that exactly this ignoring in too large a scale of the regional lead to the over-generalization of the Tardenoisian.

As concluding remarks, for the beginnings of Mesolithic studies in Romania and setting aside the publication one could say that:

- There was an acute lack of archaeological excavations. All the assignations were made based on field surveys and the respective artifacts were recovered from the surface (C. S. Nicolăescu-Ploșșor 1931, p. 406-407, idem 1941, p. 3, 12; N. N. Moroșan 1929, p. 1, idem 1932, p. 3; M. Roska 1929, p. 87-88),
- The cultural assignations referred strictly to the typology of the lithic material (C. S. Nicolăescu-Ploșșor 1941, p. 12; N. N. Moroșan 1929, p. 8; M. Roska 1929, p. 88, idem 1930, p. 112) or based on published illustration or descriptions¹⁴,

¹¹ D. Berciu criticized M. Roska for each of the newly introduced sites in the Repertorium. It is also true that the latter had previously tried assigning them to at least other cultures.

¹² In 1964 Borisovski still considered that there was a connexion between the sites at Grebeniki, Erbiceni, Sita Buzăului and the so called Swiderian ones in Oltenia.

¹³ Basarabasa-Brotuna (Hunedoara dept.) – attributed by J. Hillebrand to the Protocampignanului and by M. Roska to the had been contested by E. Patte, C. S. Nicolăescu-Ploșșor and M. Moga, the artifacts being nothing else but natural formations. (Rep. Arh. al României, jud. Hunedoara, mss. P. 16); Prăvăleni (Hunedoara county) – eolian natural formations (Rep. Arh. al României, jud. Hunedoara, mss., p. 184); Valea Bradului (Hunedoara county) – „The man-made origin of the blades is stil unclear” (Rep. Arh al Rom., mss, p. 260); Valea Mare (Gurahonț village, Arad county). The artifacts coming from Dudaiu and Gruiu „seem to be the result of the geologic and climatic factors”, the dating of the site is still uncertain (Rep. Arh. al Mureșului Inferior 1999, p. 128-129); Zimbru (Arad county) the artifacts are natural products of no archaeological value’ (Rep. Arh. al Mureșului Inferior 1999, p. 140).

¹⁴ D. Berciu wrote his papers based on the existing publications. I. Nestor enumerates them with no further comment.

- The archaeological terms were borrowed from the French language, both in what concerns the artifacts and the cultural aspects. (C. S. Nicolăescu-Plopșor 1931, idem 1938, idem 1941; N. N. Moroșan 1929),
- The Mesolithic research is strongly influenced by the European archaeological trends especially those from the neighboring countries,
- The Epipaleolithic and the Mesolithic are generally considered as two distinct ages,
- The role and importance granted to the Mesolithic varies. The archaeologist abandon the idea of a cultural hiatus, stressing the idea of the mesolithic as a transition period between the Paleolithic and the Neolithic (N. N. Moroșan 1929, p. 12; D. Berciu 1939a, p. 11), of continuation and survival of the Paleolithic lifestyle (D. Berciu 1939a, p. 11) or of "*deep changes in the field of material and spiritual culture, of transformation and adaptation to new life forms*" (D. Berciu 1941, p. 14, idem 1939b, p. 88),
- The largest part of the sites assigned to the Mesolithic proved later to belong to other ages – hence, Must Ado about Nothing.

The '50 and '60-ies were the golden times of the Tardenoisian. Almost everything uncovered and catalogued as Mesolithic had to be Tardenoisian based on criteria such as the microlithism, the geometric shapes and the "chronology" (A. Boroneanț 2004). As the issues was dealt with elsewhere, we shall not insist upon it again. But it is worth mentioning that while in adjacent countries such as Hungary, Ukraine, Poland, this general blurry term had been replaced either by a local one (Poland and Ukraine) or by the neutral term of "Mesolithic industries" until the matter was cleared up (R. Kertesz, S.Pal 1999), in Romania the term continues to hangs around even today.

It is worth noting for the above mentioned period that despite the fact that excavations took place in sites later considered crucial for the Mesolithic Age, the lithic industry, predominantly microlithic, was then attributed to the Upper Paleolithic (at Târgușor – C. S. Nicolăescu-Plopșor et colab. 1959, p. 22; Cremenea Malu Dinu Buzea, În Poieniță - C. S. Nicolăescu-Plopșor I. Pop 1959, p. 53, 54) and in a few cases to some "*pre-pottery microlithic industries*" (Galoșpetreu, Valea lui Mihai - C. S. Nicolăescu-Plopșor, E. Kovacs 1959, p. 41).

One reason accounting for this was the attempt of C. S. Nicolăescu-Plopșor¹⁵ (in the 1950-ies) to deny the existence of the Mesolithic as a self-standing prehistoric age, considered "*to have lacked substance*", and to see the "*Proto-Neolithic connected naturally and organically to the Epi-Paleolithic, a direct link with no intermediate phase*" (C. S. Nicolăescu-Plopșor 1954, p. 69). The same author underlined that "*... in the present stage of the research... the passage from the Upper Paleolithic is done directly into the Early Neolithic, based on the microlithic Late Magdalenian background, tightly connected to the eastern traditions*" (C. S. Nicolăescu-Plopșor 1954, p. 70)¹⁶.

The idea was revived in 1957 (C. S. Nicolăescu-Plopșor 1957, p. 56), 1959 (C. S. Nicolăescu-Plopșor *et alii* 1959, p. 63) and 1960 (Fl. Mogoșanu 1960, p. 128). This alleged continuity between the Upper Paleolithic and Neolithic made C. S. Nicolăescu-Plopșor promptly and justly over a decade (D. Berciu 1958, p. 91-100, C. S. Nicolăescu-Plopșor 1959, p. 221-237). Thus, there was no place for the Mesolithic microlithic industries, and they were attached either to the Final Paleolithic or to the "Aceramic" Neolithic.

Starting from here, three stages can be identified on the development of the Mesolithic concept as a whole, in Romania.

The first one (triggered by C. S. Nicolăescu Plopșor's article in 1954) denied the Mesolithic as a prehistoric age and therefore, and all became Epi-Paleolithic (C. S. Nicolăescu Plopșor 1965b, p. 717; C. S. Nicolăescu-Plopșor *et alii* 1966, p. 319; Ist.mil. 1984, p. 8; M. Brudiu 1971, p. 363; idem 1974, p. 7, M. Cărciumaru, Al. Păunescu 1975, p. 317; M. Chirica, Gh. Enache 1984, p. 317). In the 1970-ies, following C. S. Nicolăescu-Plopșor' death, a part of the researchers considered

¹⁵Ironically, it was Nicolăescu-Plopșor himself who, in 1929, had introduced the Mesolithic concept to the Romanian archeology, connecting it to his discoveries from Plopșor, Cleanov and Sălcuța in Oltenia (C. S. Nicolăescu-Plopșor 1929, idem 1931).

¹⁶ The discussion turned to be a political issue and drifted away from archeology when Plopșor, based not on scientific but political reasons, attacked Fr. Bordes' typological approach and supported the methods of the Soviet archeology (C. S. Nicolăescu-Plopșor 1954, p. 69).

that the Epi-Paleolithic and the Mesolithic were in fact the very same thing, and the vague terms such as *"either Epi-Paleolithic or Mesolithic"* (Al. Păunescu 1978, p. 280; idem 1979a, p. 239; idem 1979b, p. 507) popped-up. With the '80-ies (although some thin voices had been previously heard as well) the Mesolithic grew almost generally accepted (E. Condurachi et alii, 1972, p. 9; Al. Păunescu 1980, p. 540; idem 1981, p. 479; idem 1993, p. 151 and the synthesis volumes in 1998, 1999, 2000, 2001; Vl. Dumitrescu, Al. Bolomey, Fl. Mogoșanu 1983, p. 29-55). And so it stayed until these days. Still, especially when it comes to the Iron Gates, the terminology, as it shall be seen, continued to be rather confuse.

Epipaleolithic versus Mesolithic in the Iron Gates

In 1963 at Belgrade, the Socialist republic of Romania and Socialist Federative Republic of Yugoslavia agreed to build a hydroelectric power-station (The Iron Gates I) at Gura Văii-Sip Km D 943 and a second one to the downstream limit of the sector, at Ostrovul Mare Km D 865-860, the Iron Gates II. The goal was an improvement of the traffic on the Danube and the generation of electricity. As a consequence two artificial lakes appeared upstream the two dams over a period of cca. 20 years.

First systematic excavations started in 1964 and ended in 1971 when the Iron Gates I dam was finished and the upstream sites flooded (C. S. Nicolăescu-Plopșor *et alii* 1968, p. 8). 99 potential archaeological sites of various ages had been identified stretching along 150 km between Turnu Severin and Baziaș (Atlasul Complex al Porților de Fier, 1973, p. 194).

In 1961, following some soundings in the Climente II cave and Cuina Turcului rock shelter, a team lead by C. S. Nicolăescu-Plopșor had uncovered two Epipaleolithic layers. Nicolăescu-Plopșor thought it to be a new cultural aspect baptized Clisorean (from the Clisura region of the Gorges) while Fl. Mogoșanu (1968, p. 9-10) talked about the "Romanellian" and Păunescu in 1973 about the "Romanello-Azillian".

Things seemed more complicated with a new aspect, uncovered V. Boroneanț first at Schela Cladovei and then in other sites upstream. Its features were different from the so-called "Clisorean"/Romanellian/Romanello-Azillian (it had a poorly typologically lithic inventory made on quartz and quartzite and a rich industry on bone and antler, a significant number of burials) V. Boroneanț saw it a normal development of the "Clisorean" (with possible influences of the quartzite Paleolithic) and belonging to the Epipaleolithic also (V. Boroneanț 1973a).

Fl. Mogoșanu saw it as directly derived from the Quartzite Paleolithic supporting his hypothesis with the finds from Peștera Hoților – Băile Herculane and other Paleolithic sites in the Banat mountains (Fl. Mogoșanu 1968, 1971).

After the construction of the Iron Gates II, all the detected Mesolithic and Early Neolithic site were covered by water, with the exception of the site at Schela Cladovei, only partly flooded¹⁷.

The following Epipaleolithic and Mesolithic sites were identified on the Romanian bank of the Danube: Climente I Cave - 1965, Climente II Cave, Veterani Cave - 1965, the rock shelter Cuina Turcului - 1965, Ostrovul Banului 1966, Veterani Terrace 1969 - Epipaleolithic and Schela Cladovei - 1965, 1967-1968, Ostrovul Banului - 1966, Icoana 1967-1969, Răzvrata - 1967, 1968, Veterani Terrace - 1969, Alibeg - 1971 - Mesolithic Among them, only Schela Cladovei survived, but also partly submerged.

Sites showing traces of Early Neolithic were identified at Moldova Veche, Liubcova (mentioned by Ida Kutzian), Pojejena, Sușca (identified by D. Tudor's team in 1961), Cuina Turcului, Alibeg, Icoana, Veterani Cave, Climente I Cave, Gura Ponicovei Cave, the place "La Balon" at the confluence of the Mraconia river with the Danube¹⁸, the place called Săcoviște – on the Danube bend at Ogradena¹⁹, Ostrovul Banului, Schela Cladovei (Atlasul Complex al Porților de Fier, 1973, p. 196, V. Boroneanț 1968, p. 3-5, 8, idem 1979).

¹⁷ 1982-1991 by Vasile Boroneanț with the support of the Iron Gates Museum, 1992-1997 during a Romanian-British joint research project between with the support of the Edinburgh University, in 2001-2002 archaeological excavations A. Boroneanț and V. Boroneanț.

¹⁸ A human skeleton was observed in the Danube bank (V. Boroneanț 1968, p. 8).

¹⁹ In the proximity of the Thracian burial (V. Boroneanț 1968, p. 8).

In a number of cases, because of the rapid rise of the Danube waters, no archaeological excavations were possible, as it was the case with a few places where Mesolithic/Neolithic remains had been noted: on the river terrace at Vărciorova, two places on the Ada-Kaleh island (previously disturbed by the already existing Vauban fortress), Işalniţa (a bit higher from the Roman fortress from Dierna), at Dubova (on the bank of the local river springing from "Tăul lui Mila"), Păzărişte, Vodneac, Ilişova (V. Boroneanţ 2000), Tişoviţa (higher from the ramification leading to the Eibenthal mine), Cozla, Drencova, Islaz km 1004²⁰, Plavişeviţa (at the entrance on the Cazanele Mari), Varniţa (Pescari-Coronini village), Moldova Veche, Pojejena (V. Boroneanţ 2000, p. 4).

On the right bank²¹, D. Srejšović started in 1965 the excavations at Lepenski Vir, lasting until 1970. In 1966 B. Jovanović was excavating at Hajdučka Vodenica (continued in 1967 and 1969) and in 1968 at Padina (continued in 1969 and 1970). On the Serbian bank the last explored site prior to the flooding was Vlasac in 1970 and 1971.

A new stage of research started in 1974 and ended in 1985, with the construction of the second dam – the Iron Gates II - 100 km downstream from the first one, on the Ostrovul Mare island (Sistemul Porţile de Fier II, 2000, p. 29). This triggered rescue excavations at Ostrovul Mare, Ostrovul Corbului (both started in 1977) and at Ajmana, Velesnica (1981-1982, 1984), Kula (1980-1983) on the Serbian bank.

Other several possible archaeological assigned (based on the recovered artifacts) to Mesolithic/Neolithic were also found on the high Danube terrace at the confluence of the Topolniţa river with the Danube, Şimian Island and Şimian village, Batoti, Tiganasi at the place called "La Isoare" (V. Boroneanţ, personal communication).

Caused by the rapid rhythm of the archaeological excavations and surveys sites were rather catalogued than explored. The correlation of the results from the two banks of the Danube was very poor. Until the '70-ies, there were less Romanian publications and they offered only general information the Serbian publications were faster and more detailed, perhaps because of the extraordinary character of the discoveries.

Advancing hypothesis and interpreting the results was hampered also by the fact that no previous research indicated the existence of a local Mesolithic. The pottery previously recovered was few, of poor quality, mostly of Starčevo-Criş origin. As those were the times of blossom for the "local centres of neolithisation" (M. Ozdogan 1993), it was the Early Neolithic that was sought for, in most of the cases. Perhaps this is why the Serbian sites where, during a first stage of research, attributed to the Neolithic. D. Srejšović initially saw Lepenski Vir as a predecessor of the Starčevo-Criş II, then he talked about a proto-Neolithic for the layer Lepenski Vir II (D. Srejšović 1966, p. 16-17), changing his position in 1968 when Lepenski Vir I and II became a distinct aceramic culture and Lepenski Vir IIIa, b were attributed to Starčevo-Criş.

What really triggered this Neolithic "debate" was probably the occurrence of pottery fragments – Starčevo – in the cultural layers of Lepenski Vir I, II (D. Srejšović 1989, p. 86). Later, the same author explained them as intrusions from the upper layers.

For the origins of the Mesolithic Lepenski Vir, D. Srejšović (D. Srejšović, 1969, p. 173-181, idem 1971, p. 19-20) suggested that the roots of the Lepenski Vir should be looked for on the Epipaleolithic identified only on the left bank²².

As the time passed various opinions were expressed over the significance and importance of the Iron Gates Mesolithic sites. However, such issues as hunter-gatherer complexity (T. D. Price 1985), territorial systems, and organizational structures, have never been addressed. While most of the excavated material from all Schela Cladovei culture sites still awaits examination, it may take a while until more will be known about these ancient people.

"Transition" or "neolithisation"?

²⁰At Şviniţa şi Ilişova archaeological excavations were started but for unclear reasons they were stopped before the Mesolithic layer was reached. (V. Boroneanţ 2000, p. 5).

²¹ There has been a methodological difference between the excavations on the Romanian and the Serbian banks: while the Romanian tried to survey as large an area as possible, the Serbians concentrated on a systematic research on a few sites (I. Radovanović 1996, p. 4).

²² The Epipaleolithic layers seemed to exist only on the left bank of the Danube. I. Radovanović, recalibrating some of the C14 from Vlasac obtained some results situating the earlier phases in the Epipaleolithic.

Transition, in the sense we shall use it in this paper refers *to the period of contact between two economic systems: hunting and gathering, and food production, and searching answers to a set of questions such as: when, how and why did the agriculture spread.* The traditional south-east European approach to this problem is different, though. The main issue debated has always been concerned with *the spread of the Neolithic into south-eastern Europe.* But does *transition* mean the same things as *neolithisation*? Yes and no. The two terms refer to the same phenomenon, but they approaches it differently.

First, under the "transition" approach one looks at the economic, social and ideological aspects whereas, when thinking at "neolithisation", the existence or non-existence of pottery prevails. Usually there is no discussion on the occurrence or spread of the "Neolithic package", as the Neolithic appears to be diagnosed solely based on the presence or absence of certain types of pottery. Pottery was used as a chronological and ethnic marker (M. Budja 1999, p. 33) in the genesis of the Neolithic as it had been traditionally considered, the backbone of archaeology' (D. Teocharis 1973, p. 39), or as observed by D. Borić "*the key artefactual issue in debates over the Mesolithic-Neolithic labeling*" (D. Borić 1999, p. 49). For the Balkan area, neolithisation has been associated to the spread of the monochrome horizon and the red-white pottery, despite the fact that the latest finds in Thessaly show that there was no monochrome layer in the real sense on the word (M. Budja 1999, p. 35, 36; S. Marinescu-Bîlcu 1975, p. 491).

It is apparent that most domesticated plants and animals of the European Neolithic were domesticated far to the east, in southwest Asia (C. Barigozzi 1986; M.J. Renfrew 1973). These plants and animals appeared in northwestern Europe by 4000 B.C., after some three millennia of an adventurous crossing of the continent (C. Barigozzi 1986; M.J. Renfrew 1973; P. Rowley-Conwy 1995, idem 2003). The incoming immigrants brought with them different kinds of knowledge, tools, domesticated plants and animals, permanent villages and a new architecture, world-view, and ideology. However, it is still problematic to offer a definition for what the term "Neolithic" actually means, what actually spread, and why it did (T. D. Price 2000b). Was it the nature of the people, was it the knowledge, or perhaps social factors that triggered such drastic change?

The Neolithic package is traditionally linked to four main innovations: sedentism, domestic plants and animals, polished stone tools and ceramics (D. Berciu 1973, p. 19; M. Budja 1999, p. 27). But did they all "travel" together? The archaeological evidence suggests they did not.²³

Secondly, when thinking of a transition one pictures in mind two communities and the "in between" from one to the other. Neolithisation *a priori* suggests the taking over of the Neolithic population over the (possible) local one. But was it really that the Mesolithic inhabitants of the continent did not stand a chance confronting the Neolithic newcomers, or did they adapt and adopt the new economic strategies they were now encountering? The majority of the studies on the transition to agriculture in southeastern Europe either almost completely ignored the subject of local hunter-gatherer populations, or else offered only a superficial view on this aspect. This situation was acknowledged by some (P. Bogucki 1996; C. Perles 2001). Some other archaeologists (R. Dennell 1985; idem 1992) emphasize the role played by Mesolithic groups, at times perhaps in a too drastic manner: "*Early farming in Europe always occurred in areas where there were already hunter-forager communities*" (R. Dennell 1992, p. 91).

The general scenario suggests that about a millennium after their appearance in Greece, agricultural communities were established in the southern Balkans, and by 5500 BC in the Danube valley itself. It has been presumed that waterways played an important role in the spread of Neolithic into Europe (P. Bogucki 1996; E. Comşa 1987; H. Todorova 1995). The sites stretched along the the river systems of Vardar-Morava-Sava-Tisza-all three Criş (Körös) rivers – Mureş (Maros), Struma-Isker-Olt, and Maritsa-Tunja-Yantra-Olt (E. Comşa 1987, p. 27; R. Tringham 2000), possibly implying that the Neolithic groups traveled north (fig. 2) covering an area which, based on the present day available data, had not been previously inhabited as opposed to regions in Montenegro and Bosnia, Iron Gates, northeastern Bulgaria, and southeastern Romania (P. Bogucki 1996; R. Tringham 2000; A. Whittle 1994). Consequently, it appears that the very first

²³ Bruce D. Smith 1998, p. 1651-1652 showed that in many areas of the world the „in between” developmental landscapes from foraging to farming are extremely large when measured chronologically, meaning, for example, that domestication does not trigger an immediate change in diet It took 6000 years in Mexico from the domestication of corn until it became a staple and 4000 years in North America.

phase of Neolithic economy to spread into Europe could have been a colonization process, but much more work needs to be done in this direction. While in other areas of Europe the role played by the indigenous people is now understood to a considerable degree, in eastern and southeastern Europe there are still far too many question marks and far too few answers.

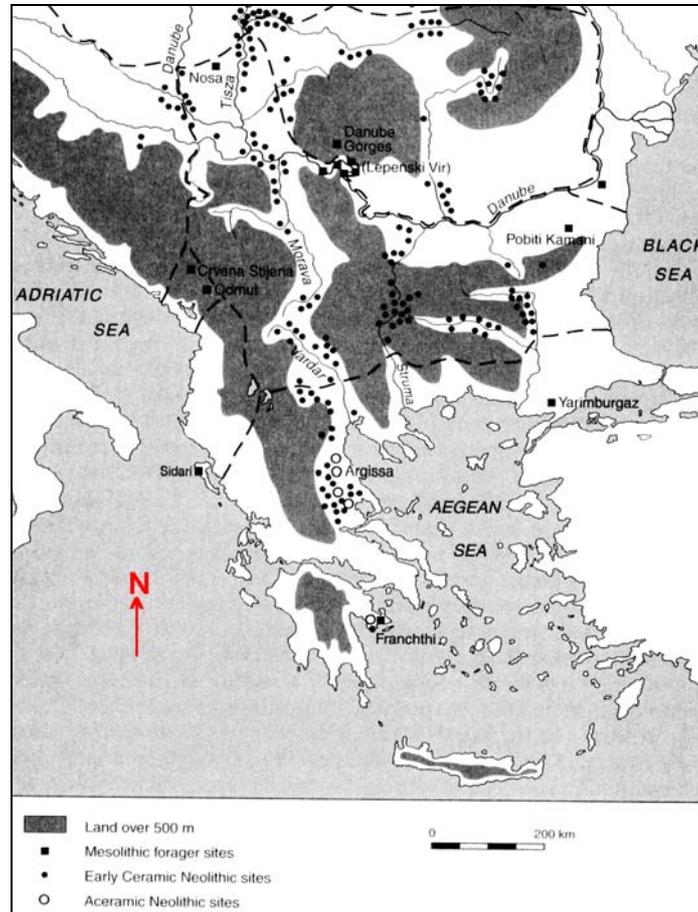


Fig. 3. Mesolithic and Early Neolithic sites in the Balkan Peninsula (R. Tringham 2000).
 Stațiuni mezolitice și neolitice timpurii din Peninsula Balcanică (R. Tringham 2000).

Transition models

Generally, the view on the mechanism of the Neolithic spread has divided scientists, into three major groups: the diffusionists, the indigenists, and those who see this process as more ramified and complex, considering the role played by both the Neolithic groups and the indigenous hunter-gather population. The diffusionists support the idea of migrations of people and technology from southern to northern Europe (G. Childe 1925, idem 1957; J. Ammerman, L. Cavalli-Sforza 1984). The indigenists support the idea of no population movement and large role played by the local groups in the development of agriculture (D. Srejović 1966; D. Srejović 1972; idem 1988, V. Boroneanț 1973b; idem 1979; idem 1990). The third groups thinks no movement of people took place but crops and agriculture technology spread though the area, as influenced by natural factors such as climate, or human factors such as exchange networks (R. Dennel 1983, G. Barker 1985). C. Renfrew suggested further that such a movement might have been responsible for the spread of Indo-European languages across Europe (K. J. Willis, K. D. Bennet 1994, p. 326).

The notion of a demic Neolithic spread along the Danube river into the heart of Europe became popular by the beginning of the 20th Century (G. Childe 1925; idem 1929). Basically this spread presents **a case of replacement of indigenous hunter-gather populations by farmers** spreading from the Near East *via* Greece and the Balkans. The process is seen as being

driven by population growth. The role played by the pre-Neolithic people is practically reduced to being negligible (H. van Andel, Runnels 1995; S. Vencle 1986).

The *apogaeum* of this paradigm is probably marked by the “Wave of Advance Model” (J. Ammerman, L. Cavalli-Sforza 1984; L. Cavalli-Sforza *et alii* 1994). This model received criticism from many archaeologists for various reasons. Some pointed out that Europe is only an elongation of the Eurasian landmass; therefore, during the millennia, it is more likely to have been the sink for many population dispersals. Anatolia represents only one of the main possible points of entry into the European continent (M. Zvelebil 1989; *idem* 1998). Further on, critiques on the radiocarbon dates were brought up (M. Richards 2003). It has also been argued that the elements constituting the “Neolithic package”, with the exception of some areas, rarely moved together, and that they might often be exchanged into Mesolithic communities (D. Price 2000a) thus rising questions about the uniformity of the spread (M. Zvelebil 1986). Moreover, it has been argued that there is no evidence in the archaeological record for a large scale Neolithic migration (M. Plucennik 1998; M. Zvelebil 2000), especially in Northern Europe where Neolithic developed over a long period of time (M. Zvelebil 1998).

Based on the morphological analysis of human remains some archaeologists (Pinhasi *et alii* 2004) raise criticisms of the Wave of Advance model, offering a totally contrasting image: Mesolithic-Neolithic transition has to be regarded as several historical events rather than a single demographically driven episode of gradual logistic growth (R. Pinhasi *et alii* 2004, p. 74).

According to this model, the first colonizing farmers of mainland Europe originated from Central Anatolia; there was little interaction between them and the local Mesolithic population of Southeastern Europe, in contrast with the situation existent in Western Europe. Pinhasi's and Plucennik's analysis outlines strong similarities between farmers from Çatal Höyük, Greek Neolithic sites, Criș-Körös, Starčevo, Neolithic Lepenski Vir, and the earliest LBK groups, at the same time showing no similarities with Mesolithic specimens from Franchthi Cave or Iron Gates.

Discussing the “Wave of Advance” model, other archaeologists (M. Lahr *et alii* 2000) offer a totally different perspective, **conferring a far greater role to the pre-Neolithic populations**. In a vast region from approximately northern Italy and Adriatic Sea up to present day Switzerland and southern Germany, and from southeastern France to much of Austria, it is suggested that **a possible advancing Neolithic population did not have any kind of influence on the local genetic map**. This implies that the transition to Neolithic economy was purely the result of cultural adoption.

M. Lahr *et alii*, however, do not belong to the school of thought that believes in the almost exclusive spread of the Neolithic in Europe by internal social and ideological restructuring, cultural diffusion, and frontier contact. With two noticeable exceptions in Serbia (D. Srejović 1966a; *idem* 1972; *idem* 1988) and Romania (V. Boroneanț 1973b; *idem* 1979; *idem* 1990b), indigenist positions were dominant in Britain and especially in northwestern Europe and Scandinavia, where there is strong evidence for such a process (R. Dennell 1985; R. Plucennik 1998). The indigenist model puts an accent on archaeological evidence that shows a lack of support for any kind of population movement.

Other researchers regard such processes as leapfrog colonization, frontier mobility and contact, and other more complex mechanisms to be more likely representative of agricultural transition (R. Chapman 1994; D. Price 1985; *idem* 1987; *idem* 1996; D. Price, Gebauer 1992; I. J. Thorpe 1996; R. Tringham 2000; J. Zilhao 1993; *idem* 2000; M. Zvelebil 1989; M. Zvelebil 1986). This is the position that most archaeologists adhere to. Based on archaeological evidence, this position offers the best explanation for the transition to farming in much of Europe.

The Mesolithic-Neolithic transition and the archaeological evidence

Once we are past proposing models for the transition in Europe, there still remains the issue of comparing them to the available archaeological evidence, checking whether they fit it at least at regional scale. What in the archaeological record entitles us to talk about “transition”?

1. Presence of pottery. As we have discussed above, pottery has been regarded –at least in south-eastern Europe as the main indicator for the “neolithisation”. The problem has seldom gone past establishing chronologies based on vessel types, paste, decoration (painted or not, styles of paintings etc.),

2. Lithic industry. Use of the same raw materials and the microlithism both in the Mesolithic and following Neolithic populations has been seen as an indicator of "contact" or influences between the two groups (Al. Păunescu 1964, idem 1979, idem 1980, idem 2000; I. Radovanović 1996). But the same raw materials were being used by the post-Neolithic communities without inferring contacts between Bronze Age groups and the Neolithic ones. The same goes for the lithic typology and microlithism,

3. Bone and antler tools were used to support the idea of a primitive agriculture practiced by the Mesolithic groups. But these tools were poorly represented in the Early Neolithic sites (S. Marinescu Bilcu 1975, p. 498) and some of them might have nothing to do with agriculture (A. Dinu 2006),

4. There has been generally accepted a traditionalist view over the simplicity and harshness of the hunters-gatherers' life, as opposed to the complex and abundant life of the first farmers. The Neolithic has been described as "*l'apparition des formes de civilization*" (M. Garašanin 1980, p. 58), thus suggesting a superiority of the Neolithic way of life over the savage Mesolithic one. But as the archaeological data suggests, the differences between the two groups are not that large (M. Zvelebil 1999, p. 5). The Wave of Advance proposed a general image of Neolithic communities as being rather large and densely populated, in contrast to the local Mesolithic groups seen as having low population densities. The archaeological evidence revealed a rather different image; in some parts of Europe, early Neolithic communities appear to have been quite small and mobile, especially the ones associated with Funnel Beaker pottery. The Mesolithic groups appear to have had a high degree of complexity, and a population density and degree of sedentism perhaps higher than previously thought (H. T. van Andel, C. Runnels 1995). The Mesolithic communities appear to be "*stable, relatively affluent, often-semisedentary... with relatively high population densities*", quite similar to the neolithic people who appear to have been "*mobile communities (who) relied on a mixture of farming, hunting, gathering and animal husbandry*" (M. Zvelebil 1999, p. 4).

5. Also, it has been considered that with the shift to agriculture, health improved, longevity increased and work declined. This was proved as incorrect as the adoption of agriculture meant overall decline in oral and general health "*The shift from foraging to farming led to a reduction in health status and well being, an increase in physiological stress, a decline in nutrition, an increase in birthrate and population growth and an alteration of activity types and workloads*" (C. Larsen 1995, p. 204)

6. Animal domestication. Local pig domestication was proposed to have taken place in Italy (M. R. Jarman 1976), Spain (J. Boessneck, A. von den Driesch 1980), Denmark and southern Scandinavia (C. Higham 1967; G. Nobis 1975). Without exception these studies were considering metrics and morphology only, simply ignoring other factors that may have influence these two parameters. It is interesting to mention the comments offered by Peter Rowley-Conwy (P. Rowley-Conwy 1995a) on the analysis of pig remains from some sites of southern Spain, on which he emphasizes the relations between the environmental conditions and the size of the animals, and the danger of misinterpreting such smaller wild animals as domestic: Domestic pigs are claimed in Mesolithic and Early Neolithic caves in southern Spain. The claim rests on the fact that the pigs from Nerja, Parralejo, and Sarsa in southern and eastern Spain are smaller than the wild boar from Zambujal in Portugal. This distinction between wild and domestic pigs at Zambujal is, however, problematic, and wild boar in the hotter and drier climate of Spain would be expected to be smaller than their Portuguese counterparts. (P. Rowley-Conwy 1995a, p. 347). The same author also offered critical analysis in many other instances related to the problem of animal domestication during the Mesolithic (P. Rowley-Conwy 1995a; idem 1995b; idem 1999; idem 2000; idem 2003) up to recently, when based on DNA evidence (L. Larson *et alii* 2005), he became a supporter of the hypothesis that European domestic pig may have been domesticated locally, probably in a number of culturally unrelated different locations.

Proof of domestic plants has been found in Greece in the Mesolithic layers at Theopetra cave but it seems that no plant domestication took place in the Balkans (M. Budja 1999, p. 32).

7. Changes in the economy: e.g. possible prevalence of agriculture over hunting and picking.

8. Landscape changes. Introduction of agriculture has been associated to various degrees of landscape changes (e.g. forest clearing to make room for agricultural land). It has

been suggested though that the introduction of farming was not of sufficient intensity to be detected upon landscape scale, or in other words, the impact of agriculture over the landscape, was not evidenced until 6000 BP. (K. J. Willis, K. D. Bennet 1994, p. 327),

9. ^{14}C dates for the Mesolithic and the Early Neolithic²⁴,

10. Stable isotope analysis.

Strontium isotope studies

Differences in strontium isotope ratios of the bone and teeth enamel of an individual have great potential for reflecting the residential history of a population. While *strontium elemental concentrations* in bone and teeth enamel is a measure of the trophic position of an individual (herbivorous, carnivorous or omnivorous), thus offering us information on the diet of the respective individual, the *strontium isotope ratios* in human bone and enamel are a reflection of the geology of the area where the individual lived, showing good applications in the study of migrations and inter-regional movements. (T. D. Price *et alii* 1994, p. 316; T. D. Price 2004²⁵).

Carbon isotope studies: $\delta^{13}\text{C} = ^{13}\text{C}/^{12}\text{C}$ increases over a continuum, from plants, to herbivores and carnivores, in both marine and terrestrial diets. $\delta^{13}\text{C}$ is higher in sea water bicarbonate than in atmospheric CO_2 . Applications for human populations are differentiating between the consumption of marine or terrestrial products.

Based on **Nitrogen isotope studies** $^{15}\text{N}/^{14}\text{N}$ it should be possible to examine human bone to distinguish the diets based on leguminous plants, marine diets or non-leguminous (terrestrial diets) (T. D. Price 1989).

11. Molecular archaeology is an emergent field in archaeology that has been brought about by the advancements of the recognition and understanding of DNA. This new developing branch of archaeology focuses on the acquisition of either DNA or mtDNA (mitochondrial DNA) and being able to determine species of natural archaeological finds as well as determine blood lines and/or sex of animal or human remains. These DNA "residues can be used to reconstruct subsistence and related cultural activities with an accuracy not possible using standard archaeological methods". As our technology advances as well as our knowledge of the DNA itself our understanding of ancient peoples, plants, and animals, will allow us a biological window into their lives.

The Iron Gates

The only Mesolithic habitation in the northern Balkans is to be witnessed in the Danube Iron Gates. The main characteristics have been presented above. The Early Neolithic in the area is represented by the Starčevo-Criș culture, identified on a number (possibly as many as 27 on the Romanian bank²⁶ and 10 on the Serbian of side²⁷), both upstream and downstream of the Gorges.

In the Iron Gates, only a few of the sites have been excavated searching for the Neolithic: Liubcova, Pojejena and Gornea. At Cuina Turcului, Climente I, Veterani cave the research focused

²⁴ As this is still a matter of hot debate, we shall not get into the depth of it. Several articles have published recently – and more are in press, providing new information on the chronology of the Iron Gates. A scenario has been presented – linked to the 8200 BP event searching to explain the conspicuous gap existing in the series of the radiocarbon dates between c. 8250 and 7900 cal BP (C. Bonsall *et alii* 2004), rejected by D. Boric, M. Preston, 2004. As this discussion is too long for the present article, we shall make it the subject of a future paper. Until now, we consider suffice to say the the radiocarbon dates so far do not disprove the possibility of a contact between the foragers and farmers in the Iron Gates.

²⁵ Human skeletal remains from Bell Beaker graves in southern Germany, Austria, the Czech Republic, and Hungary were analyzed for information on human migration. Strontium isotope ratios were measured in bone and tooth enamel to determine if these individuals had changed „geological” residence during their lifetimes. Strontium isotopes vary among different types of rock. They enter the body through diet and are deposited in the skeleton. Tooth enamel forms during early childhood and does not change. Bone changes continually through life. Difference in the strontium isotope ratio between bone and enamel in the same individual indicates change in residence. Results from the analysis of 81 Bell Beaker individuals indicated that 51 had moved during their lifetime’ (T. D. Price *et alii* 2004, p. 9).

²⁶ Divici, Pojejena-Nucet, Pojejena Susca (flooded settlement), Măcești (cartier in Moldova Nouă), Moldova Veche-Rat, Pescari, Gaura cu Muscă, Liubcova, Gornea, Cozla(?), Svinița(?), Gura Ponicovei, Cuina Turcului, Veterani Peștera, Sacoviște, Climente I, Icoana, La Balon, Ada Kaleh (?), Ostrovul Banului, Schela Cladovei, Simian, Ostrovul Corbului, Ostrovul Mare (km 873, km 875), Gogoșu (?), Batoti (?), Țigănași (?).

²⁷ Hajducka Vodenica, Lepenski Vir, Padina, Stubica, Vlasac, Velesnica, Kula, Knepijste, Kamenicki Potok, Ajmana.

on the Epipaleolithic layer while at Alibeg, Icoana, Schela Cladovei, Ostrovul Banului, and Ostrovul Mare while exposing the Mesolithic remains, the Neolithic layer had also been documented. On the rest of sites, the information on the Neolithic layer is still very brief.

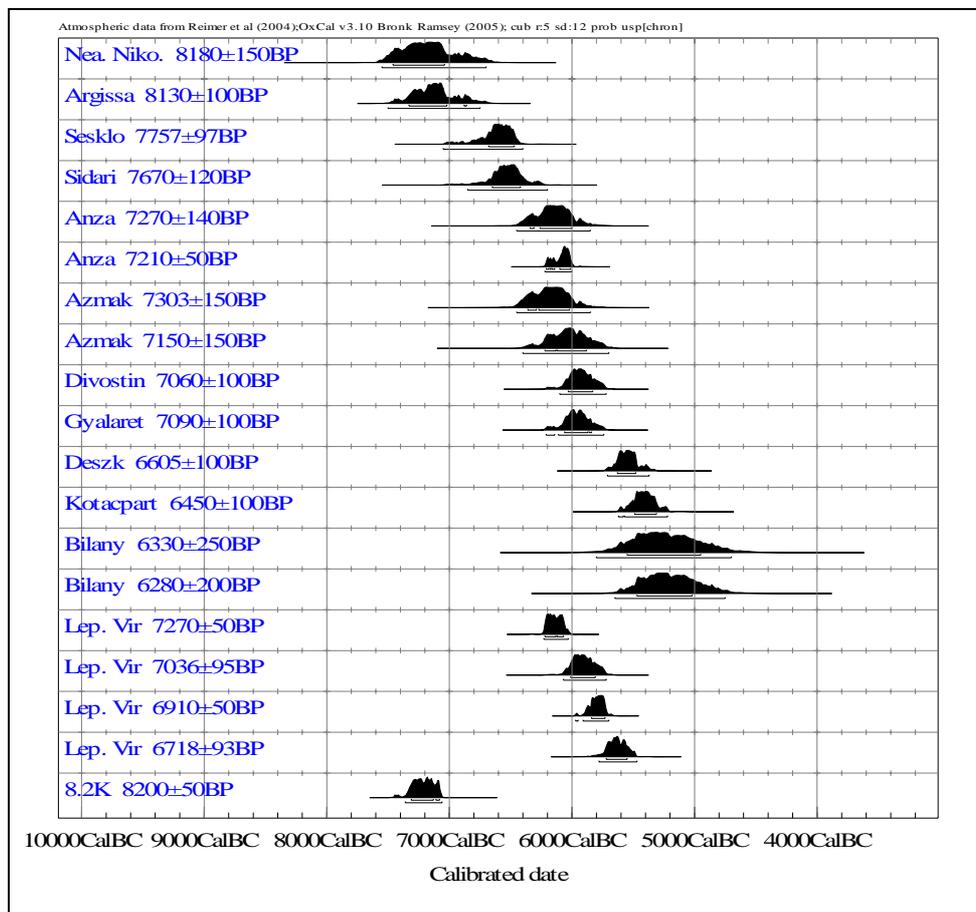


Fig. 4. Earliest radiocarbon dates reflecting the spread of the Neolithic from Greece to the Danubian valley (C. Perles 2001; M. Gimbutas 1991; C. Bonsall *et alii* 2002, C. Bonsall *et alii* 2004).

Cele mai vechi date radiocarbon care reflectă răspândirea neoliticului din Grecia spre valea Dunării.

Nea Nikomedia, Argissa, Sesklo, Sidari: Greek Neolithic,

Anza: Macedonian Neolithic,

Azmak: Karanovo Neolithic, Bulgaria,

Divostin: Starčevo Neolithic, Serbia,

Gyalaret, Deszk, Kotacpart: Starčevo Neolithic, Hungary,

Bilany: LBK, Czech Republic,

Lepenski Vir: Starčevo Iron Gates, Serbia.

Most of the Starčevo-Criş economy presented some standard elements, such as wheat, barley, domestic sheep/goats, cattle, and wood nuts (E. Comşa 1987; VI. Dumitrescu 1983; M. Gimbutas 1991), but also regional variations, for instance an accent on aquatic resources characteristic of Koros development in Hungary, but not in the adjacent areas. And of course, there's also the great bone of discontent, the pottery.

The neolithisation' of the Iron Gates- the proposed scenarios

Part of the difficulty of the problem in approaching the transition issue in the Iron Gates is that the results of the excavation have not been completely published and with the flooding, the opportunity of resuming the excavations is gone (with the exception of a very few sites). Still, starting from the available data, a few scenarios and transition models have been proposed.

It is impossible to talk about the neolithisation of the Iron Gates without linking it to the neolithisation of South-Eastern Europe, or of the whole of Romania, for that matter. The impact of the discovery of Lepenski Vir and adjacent sites was so big that it instantly became a possible

turning plate of the Neolithic spread. Most of the south-eastern European archaeologists linked their hypothesis, in a way or another, to this particular geographical area. The Iron Gates had been seen as either the beginning of the Neolithic in the area, or the exception from the rule.

For the Balkans and Iron Gates, most of the local archaeologists considered that an important part in the neolithisation was played by (sometimes only postulated) pre-Neolithic communities.

M. Garašanin believed in a two-step spread of the Neolithic: first a diffusion, through population migration from the Near East, followed by a possible acculturation or a process of local neolithisation, started by the autochthonous hunter-gatherers. He also mentioned an important role played by the local hunters-gatherers in the economy of Gura Baciului aspect, seen as the earliest Starčevo Neolithic horizon in the area (M. Garašanin 1980, p. 58, 71). One issue that has been never cleared up though, remains, the route of the "Neolithic population" in reaching Gura Baciului and the motivation of their choice.

D. Garašanin (1980) thought that the process of neolithisation had all to do with establishing a chronology and evolution phases as well as the origins of various Neolithic groups. And pottery has all to do with it. But she also stressed the dominant part played by the pre-Neolithic element with some outside influences and impulses.

From the mid-sixties D. Srejović used the Western language of the transition talking about migration, cultural diffusion, acculturation or local neolithisation (D. Srejović 1989, p. 21). He proposed that not only the economic factors should be taken into consideration when talking about the transition but also the ideological and the social ones. He disagreed to the fact that the transition should follow the Near East pattern elsewhere (1989, p. 21, 22). The neolithisation of the Iron Gates, thought D. Srejović, was determined by two major factors: the climatic change and the isolation. These two lead to a specialization within the members of the community and further on to social differences. These newly formed complex social structures imposed new rules of behaviour and certain rites, having as a final result of a certain art and ideology. Religion was the supreme authority, the burials belong to those respected. It follows that some of the sites are cultural and religious centres while some others are mere temporary camps. In conclusion the neolithisation is the result of specialization, of the separation of the sacred from the usual (D. Srejović 1989, p. 27). During the peak of the art and religion, cultivation and domestication appear, first for ritual purposes. As the sacred becomes everyday activity (generalization of domestication and cultivation, the culture meets its end as the ideology and religion can no longer stay sacred. The people never turn into real farmers or cattle breeders – the communities seem just to fade away. Turning the sacred into the habitual meant the disappearance of Lepenski Vir.

Initially, V. Boroneanț (1968) has seen the Neolithic as coming from the south (p. 9), presumably through a mixed migration and cultural diffusion. As it reached the Iron Gates, the first areas to be populated were the caves, then the open air settlements. The first dwellings were of the sunken hut types, followed by the surface ones. The local Mesolithic population was, *overwhelmed by the superior technique brought by the new comers and quickly assimilated* but not before passing on to them the flint and quartzite processing. As the excavations advanced and more Mesolithic and Neolithic sites were uncovered, and a "Proto-Sesklo" type of pottery was uncovered, V. Boroneanț embraced the idea of a local cultural continuity springing from the Upper Paleolithic (with possible influences of the quartzite Paleolithic) to the Early Neolithic. The local groups were still influenced by the trends coming from the south but they made their own changes and adaptations motivated by climate and ecosystem changes leading to a shift in their lifestyle and economy (sedentarisation). The neolithisation was thus seen as a local process, proved by the ornamental patterns from the Epipaleolithic industry of bone and antler transposed on the painted Starčevo pottery.

V. Boroneanț's views were contradicted by other Romanian archaeologists (Vi. Dumitrescu 1983) on the basis of the Starčevo cultural elements associated with early sites in Transylvania: *...la découvert du groupe culturel Gura Baciului-Circea a montre clairement qu'il ne peut exister aucun lien de filiation entre la culture epipaleolithique de Schela Cladovei et la culture Starčevo-Cris et d'autant moins, par consequent, avec les debuts du néolithique au nord du Danube.* (Vi. Dumitrescu 1983, p. 58)

Fi. Mogoșanu saw in the Quartzite Paleolithic the predecessor of the Schela Cladovei culture, with certain changes triggered by the climate (Fi. Mogoșanu 1978). The cultural Mesolithic

evolution is reflected by two developmental stages, attested by the evolution of the hearths' typology and stratigraphy. The Mesolithic age overlaps the Early Neolithic and the two population enter violent conflicts, leading to the defeat and disappearance of the local hunter-gatherer groups. Fl. Mogoşanu makes no comments on the possible economic, social or ideological adaptations.

Al. Păunescu considered the issue of the neolithisation as an unclear one – but still supporting Fl Mogoşanu in some of his ideas (Al. Păunescu 1980, idem 1990, idem 2000). What makes his viewpoint very different is the fact that although it accepted the idea of a single Mesolithic "culture" on both banks of the Danube, he excluded from it Lepeski Vir, exactly because of the monumental art and architecture: "*in what the Schela Cladovei Lepeski Vir complex is concerned, we believe that in between this two cultures there are major differences, as the most important and numerous finds from Lepeski Vir... are not to be found in any of the Schela Cladovei sites.*" (Al. Păunescu 2000, p. 93)²⁸. He also disagreed both with the violent disappearance of the Mesolithic communities and their assimilation by the Neolithic groups, as he believed that at the moment the first Neolithic people arrived, the Mesolithic people were long gone. An explanation for the fading away of the hunter-gatherers was never provided but , it appeared, that no contact existed (Al. Păunescu 1984; idem 2000)

Also connected to the Iron Gates area (or with application to it) are the hypotheses formulated by Gh. Lazarovici and Z. Maxim who believe in a three step migration from the south of the continent. The local hunter gatherers from the Clisura, ended up assimilated (Gh. Lazarovici 1979, p. 12). The newly arrived "culture", the Starčevo Cris, appeared to be in all ways "superior" to the local one: "*The first bearers of the Neolithic civilisation bring with them a developed society, with varied occupations and complex religious practices and customs*". Nevertheless, this contact lasted for a long time, and was mutually beneficial, as they "*reciprocally exchanged various elements...*" (Gh. Lazarovici 1983, p. 11, 1984, p. 50). Unfortunately, the contact period is studied only on the pottery bases.

Adopting a totally different direction, I. Radovanović offers an ambitious and exhaustive analysis of the archaeological data available at the time, considering the environmental conditions, economy, settlement and architecture, burial rites and portable artifacts (I. Radovanović 1996a; idem 1996b; idem 1999). Based on this information and the available radiocarbon dates, she identified six phases of cultural development for Upper and Lower Gorge Iron Gates Mesolithic. I. Radovanović associates the appearance of pottery with the second half of the 4th phase, by the end of 7th millennium BC. The delimitation of some of these phases appears, however, to be somewhat unclear. Further on, considering the arrangement of the settlements and the material culture, I. Radovanović identifies three different groups inhabiting the Gorges: one active in the Upper Gorges comprising the sites of Padina, Lepeski Vir and Vlasac, a second which split and moved downstream along the Danube at Kula and Ostrovul Mare, and a third settled in the Lower Gorges at Icoana, Razvrata Hajduca Vodenica, Ostrovul Banului, Schela Cladovei, and Ostrovul Corbului. The differentiation was made according to such common elements as architecture, burial procedure, mode of economy, as well as such differences as floors material composition, the presence of "reversed 'A' signs", appearance of "altars", rectangular hearts, elements of chipped stone industry, and some subsistence strategies (I. Radovanović 1996a, p. 314). The second group occupies an area between the first and the third, which would have been possible. However, the third group should have traveled across the land, cutting through the great loop

²⁸ It seems incredible that a culture could be represented by a single site situated in the middle of a cultural area well represented. It is also strange that only the differences between Lepeski Vir and the other sites are discussed, paying no attention to the similarities, as the lithic industry (D. Srejić, J. K. Kozłowski, S. T. Kozłowski 1980, p. 196 – *the lithic industries from Vlasac situate in the same cultural traditions the - Lepeski Vir civilisation*, J. K. Kozłowski, S. T. Kozłowski 1983, p. 267 – *the retouched lithics from Lepeski Vir and Vlasac are very similar and represent the same group - Lepeski Vir*, connecting them to the left bank of the Danube. Together with the Lepeski Vir, this culture also includes the Mesolithic layers from *Vlasac, Icoana, Schela Cladovei and Ostrovul Corbului* - J. K. Kozłowski, S. T. Kozłowski 1983, p. 275), with the bone and antler tools, the boar (V. Boroneanţ 2000, I. Radovanović 1996a) or the hearths types (I. Radovanović 1996a, V. Boroneanţ 2000).

made by the Danube, an alternative which considering the geography of that particular sector was not impossible, but less likely.

Having all these elements brought together, I. Radovanović concluded that: "...the *Iron Gates* community did not depend at all on food production, a basic trait for the Neolithic...". In the light of the existing data, it seems that food-producing groups did not necessarily transmit their new aspects of social and ideological behavior to the Mesolithic groups. In the same way, the appearance of greater social complexity and the rise of social power within Mesolithic groups cannot be related to the economic impact of domestication of certain species. Thus, contact with Mesolithic groups certainly did not introduce new aspects of social organization and ideology (I. Radovanović 1996a, p. 315).

Thus, Radovanović rejects to a significant degree reciprocal influence on cultural and economic terms between the Neolithic and Mesolithic groups encountering each other in the Gates area. She merely suggests that the presence of the Neolithic: "... could have only accelerated and intensified processes of increasing social complexity and ideological integration already present". (I. Radovanović 1996a, p. 315).

Although critical of I. Radovanović, Dusan Borić (D. Borić 2002; idem 2005b), constructs his argument much in the same way, considering settlement and architecture, pottery (D. Borić 1999; idem 2002), lithics, absolute dates, skeleton morphology (D. Borić 2005b; D. Borić, M. Preston 2004), ancient diet (D. Borić *et alii* 2004), archaeozoological data (D. Borić 2001), and monumental art in his analysis (D. Borić 2005a). D. Borić is critique of the "frontier model", and especially of Mark Zvebil²⁹ (D. Borić 2002; idem 2005b), and the "porous frontier" as described by M. Roksandic (2000, p. 96), D. Borić makes reference to the Great American West (2005b p.17) and states that: "... the representation present in the frontier model of the Mesolithic Neolithic transformation has deep roots in Western power relationships, where power, discourse, and representation of knowledge are inescapably enmeshed. By perpetuating this type of model, historical processes and identities are dichotomized, naturalized and essentialized, for the sake of proving acceptable, forcefully coherent and, most of all, recognizable accounts." (D. Borić 2005, p. 18).

Moreover, at times the entire process of interaction is presented as radically tragic and fatalistic: "Another frequent element of frontier models...is the notion of resistance and ultimate subjugation of local cultures." (D. Borić 2005b, p. 18) and the author wonders "why might the foragers view themselves inferior to the farmers?" (D. Borić, 1999, p. 46)

Generally, D. Borić (2002) accepts that there is no evidence for some groups with clearly Neolithic physical characteristics to have intensively mixed with the local population in the Gorges by the start of the Early Neolithic. The existence of both robust and gracile features is explained as: "... a consequence of long histories of occupation of these locales and local micro-evolution, foreign immigrants of different origin, sexual dimorphism, and/or occupational activities". (D. Borić 2002, p. 1037).

It is interesting to mention Roksandic's view on this matter: ... it is important to stress that this contact need not to be uniform and could have been site specific. For example, while there is no evidence for ceramics at the contact period in Vlasac, Hajdučka Vodenica is rich in potsherd, and ceramics were found in situ in Padina houses (M. Roksandic 2000, p. 86).

Most regrettably, there is not a petrographic or compositional analysis yet available of the paste used for manufacturing this pottery in order to determine raw material source.

Nevertheless, Borić 's view of the Mesolithic-Neolithic interaction is quite complex and challenging: "...my reading of *Lepenski Vir* and other sites in the Danube Gorges and southeast Europe emphasizes the fluidity and non-fixation in the construction of collective and personal identities." (D. Borić 2002, p. 1037). A more nuanced approach is suggested with the emphasis on the historical context of the sequence and a multi-facet perspective drawing on different lines of evidence. (D. Borić 2002, p. 1038).

²⁹ M. Zvebil: agricultural transition was in main, accomplished by the local hunter-gatherer communities with varying degrees of gene flow between hunter-gatherers and the settlement of Neolithic farmers, leading to „agricultural frontier zones“, p. 15.

R. Tringham's approach (R. Tringham 2000) is rather unexpected, considering the agriculturalists showing up around Iron Gates as being "inept" before contacting the Mesolithic foragers, but becoming apt after such contact (2000, p. 53), a transformation triggering the foragers' destruction. A similar image of the Starčevo farmers is offered by Chapman, who refers to the Neolithic communities surrounding the Iron Gates as living "a marginal way of life" (J. Chapman 1993; idem 1994).

According to Tringham, on the levels of subsistence, stability, local knowledge of resources, and motivation, in a contact situation, the most dynamic partners were the foragers. She constructs this image on the character of the early Starčevo settlements in the surrounding Djerdap region as having a disposition of temporality, experiment, and opportunism, far below the well-organized, affluent ones like Lepenski Vir and perhaps Schela Cladovei. Tringham seems to ignore the fact that all the other Mesolithic settlements are very small and far less affluent in character. She is also ignoring her own true statement that the entire region of Iron Gates has never constituted an attraction to agriculturalists and herders (R. Tringham 2000, p. 33); major Neolithic settlements never occurred in the area, during or after Starčevo culture.

It is obvious that R. Tringham overly idealizes the achievements of Mesolithic groups at the Gates when she considers factors like sedentism, food storage and exchange (B. Voytec, R. Tringham 1990). Artifacts like storage pits, pounders and mortars, and shelters for such activities as wild seed removal (B. Voytec, R. Tringham 1990, p. 493, 497) have never been identified as such by anybody else, including the excavators, at any of the sites. Identification of permanent settlements based on the presence and shape (!) of the hearths, and on faunal data in relation to domestication of pigs (although Al. Bolomey 1973), analyzing pig remains at Icoana simply denied this term), and an emphasis on long distance exchange of materials as obsidian are likewise not shared with anyone else (B. Voytec, R. Tringham 1990, p. 494). Obsidian is present, but rather accidentally, as for instance at Ostrovul Banului, and the stratigraphic association is unclear. The other two sites cited by B. Voytec and R. Tringham, Cuina Turcului and Băile Herculane (more likely Peștera Hoților, not far from Herculane) have nothing to do with the Mesolithic at Iron Gates (M. Bitiri 1959; E. Dinan 1996; C. S. Nicolăescu-Plopșor 1957; C.S. Nicolăescu-Plopșor, E. Comșa 1957; C. S. Nicolăescu-Plopșor, Al. Păunescu 1959; Al. Păunescu 1964; idem 1970; idem 1980; idem 2000; idem 2001). Furthermore, if the presence of new goods, such as beads made of non-local stone, is identified at Lepenski Vir, and considered to be the result of the local interaction with, "*an intrusive group of people who practiced a different economy and that there was a period of co-existence*" (B. Voytec, R. Tringham 1990, p. 495), why should these intrusive, handy new people, whose products were highly desired and prized, be "inept"?

The archaeological evidence for transition in the Iron Gates.

Occurrence of pottery

The first idea to trigger the idea of a Mesolithic and Neolithic contact in the Iron Gates was the occurrence of pottery in the assigned Mesolithic layers at Lepenski Vir. At Padina large amounts of pottery appeared in the context of what D. Srejović considered the Mesolithic platform, contra B. Jovanović who saw that particular horizon as early Neolithic (D. Srejović 1968, p. 86, idem 1969, p. 153-154, idem 1971, p. 5; B. Jovanović 1969, idem 1987; D. Borić 1999, idem 2002, p. 1026-1028). D. Borić's conclusion while analyzing the situation implies two alternatives that also include the appearance of Starčevo pottery at the Iron Gates: either the populations chronologically associated with the Early Neolithic at the Gates were new incomers and abandoned their dietary habits in favor of hunter-gatherer menus, or by the time of what is considered the transition to Neolithic, the existing population in the Gorges was unchanged, but some cultural-social changes occurred and were drastic enough to alter such conservative aspects of the daily life as diet. Commenting on the presence of pottery at Lepenski Vir and Padina, Borić takes a totally different position: "*It is difficult to imagine that large amounts of Early Neolithic pottery associated with trapezoidal buildings at Padina were imported from the area outside the Danube Gorges. It seems more reasonable to assume that these large amounts of pottery were manufactured locally at both Lepenski Vir and Padina.*" (D. Borić 2002, p. 1028). Yet, he does not specify who made this large amount of Starčevo pottery. Were they Neolithic incomers, or Mesolithic locals, or a mixed population? The decorative motifs remain unchanged, and it is rather

unusual that if the local population was manufacturing pottery, local motifs would not be incorporated.

On the Romanian bank as well, the field notes of V. Boroneanț show the association of Mesolithic assigned stone platforms with pottery sherds, also explained as infiltrations from the upper layers. The problem originates, we believe, in the lack of geologically observable stratigraphy of the Romanian banks (C. Bonsall *et alii* 1996), making impossible the recognition of archaeological features other than through artifacts, and therefore misleading in what the cultural assignation is concerned. Also, the Mesolithic layer is seriously disturbed by stratigraphically unobservable pits from various other ages, making possible the mixing of the archaeological materials.

V. Boroneanț believed that the local hunter-gatherer community was able to produce its own pottery, and so, the pottery on the sites is of local origin (V. Boroneanț, personal communication). But how come then it is so similar to earlier Starčevo pottery elsewhere? (S. Marinescu-Bilcu 1975).

In the Early Neolithic layers the Starčevo-Criș pottery is extremely abundant. This is probably why, almost all other categories of artifacts have been generally neglected, or at best, dealt with in a few lines. This is mirrored in the general concept of the neolithisation: "*The genesis of the Neolithic took place following the spread of the pottery through migration and diffusion from the Orient, through Anatolia, Cyclades and Thesally.*" (Z. Maxim 1999, p. 27).

The Early Neolithic is diagnosed only through pottery types, paste and decoration, not more. Almost each change in the pottery decoration is interpreted a new wave of migration (Gh. Lazarovici 1995, Z. Maxim 1999) although there is no archaeological evidence pointing in this direction along the presumed route taken by the group of migrating people. Also it is unclear whether we are talking about a migration in the sense described by M. Zvelebil (M. Zvelebil 1999, p. 4 - a large group moving together) or demic diffusion (small groups detaching themselves from the main community of farmers following demographic growth). As M. Zvelebil puts it, "*there too much continuity in most regions in Europe*" for a migration to go unnoticed, and as for the demic diffusion, there is no evidence for population pressure (M. Zvelebi 1999, p. 4).

Animal domestication and plant cultivation in the Iron Gates area

Throughout Romania, most of the research concentrated on the pottery typology, chronology, but only 11 sites have faunal analysis studies (and only five from the Iron Gates area³⁰). Faunal remain studies are even more rare – two for the whole Mesolithic period in the Romanian Gorges (M. Cârciumaru 1973, S. Mason *et alii* 1996).

Between 1965-1990 very little faunal analysis was undertaken on the excavated material associated with the Lepenski Vir-Schela Cladovei culture (Al. Bolomey 1973a; eadem 1973b; S. Haimovici 1987). The same is true for the period 1991-1994 when a joint Romania-British team reopened excavations at Schela Cladovei (L. Bartosiewicz *et alii* 2001; L. Bartosiewicz 1995). Only one study (Al. Bolomey 1973a) has been concerned with problems related to possible animal domestication during the Mesolithic period. Rather, in most studies the focus was usually put on species identification and calculation of MNI. The same situation existed on Serbian side of the Danube.

Since the publication of Al. Bolomey's faunal analysis for Icoana and Răzvrata (Al. Bolomey 1973a, eadem 1973b), the question of domestication, or human control of pigs, at these Iron Gates sites have become an issue that needs clarification. Al. Bolomey (1973, p. 48, 51, eadem 1973a, p. 11) rejected the term of 'domestic' for the pig population at the Iron Gates, but suggested that a human control over the pig population could be admitted, based on the selective killing for pigs. Although the term "domestication" was not used by Bolomey in association with her findings, some authors (V. Boroneanț 1973a; idem 1990; idem 2000; I. Thorpe 1996; R. Tringham 1968; eadem 2000; B. Voytec, R. Tringham 1990) appear to have reinterpreted and enhanced her statements. As a result, the idea of Mesolithic pig domestication in the Iron Gates region came to be accepted to varying degrees by many archaeologists, despite the fact that no in-depth studies have ever produced evidence in this direction. A. Dinu in a most recent study (in

³⁰ Cuina Turcului, Liubcova, Gornea, Moldova Veche, Schela Cladovei (A. Bălășescu *et alii* 2003, p. 27-57).

this volume) showed that there is no evidence for pig domestication in the Iron Gates during the Mesolithic (A. Dinu 2006).

The existence of cultivated plants during the Mesolithic is also a debatable issue – apart from the identification of the burnt grains of *Triticum monococum* (M. Cârciumaru 1973), no other evidence has been brought to support the hypothesis of local domestication of plants.

The lithics

It has been observed on many of the sites that the typology and technology of the stone tools has changed very little with the Neolithic. The presence of the microliths and the quartzite tools has been noted in both ages. This has been interpreted as a proof of contact between the two communities (V. Boroneanţ 1968, p. 13; I. Radovanović 1996, p. 382; M. Garašanin 1999, p. 65; Z. Maxim 1999, p. 29), but also as a southern influence (Gh. Lazarovici 1996) and a necessity (Gh. Lazarovici 1984, p. 74, idem 1970, p. 24). Objections were raised for the ground stone axes used forest clearing. (S. Marinescu-Bilcu 1975, p. 498-499). Actually such ground stone polished axes, clearly Neolithic were reported as Mesolithic at Lepenski Vir (D. Borić 1999, p. 54).

At Padina, Balkan flint artifacts – usually associated to the Early Neolithic were reported in Mesolithic contexts (structures associated to Lepenski Vir I, II) and were interpreted as evidence for possible contacts between the two groups (D. Borić 1999, p. 52).

As a whole the lithic industry does not show any kind of typological change over the years, the materials are locally obtained, no other foreign objects were found in large quantities.

The obsidian was postulated by some as having shown up during the Mesolithic (Al. Păunescu 2000, R. Tringham 2000, I. Radovanović 1996a) and as a Neolithic import by others (Gh. Lazarovici 1995, Z. Maxim 1999).

The bone/antler industry

One of the main features of the Mesolithic community in the Iron Gates was the incredible abundance of the bone and antler industry. The paucity of the early farmers' bone/antler toolkit is striking, when compared to the previous one. Also, no evidence for land working tools has been determined as digging tools do not necessarily mean agricultural tools.

The economic aspects

We believe that the overall view on the economic subsistence of the Early Farmers is estimated based more on vague common sense arguments rather than on scientific ones: *"...the nature of crafts results from the study of artifacts and workshops. Land cultivation is suggested through the main features of tools and plant remains. Animal breeding is demonstrated by the existence of zoomorphic idols, the remains of the domestic animals and even from the chemical analysis of soils (where animal breeding took place the concentration of phosphorus in the soil is higher). Hunting is suggested by the osteological remains of the wild animals and their artistic representations. Trading is given by the existence of 1. raw material sources, 2 various artifacts (pottery, wood, tools and weapons), 3, animals, 4 other (perhaps grains, hide and fabric)"* (Z. Maxim 1999, p. 21). The obsidian suggests economic exchanges (Gh. Lazarovici 1984, p. 75), the spatulas were used for ornamenting and decorating the pottery, the bone chisels for processing hides. The clay objects suggest hunting and fishing (?!) (Gh. Lazarovici 1984, p. 76). Thus, the economic activities were mostly inferred from the presumed functions of the artifacts recovered: hooks are a proof of fishing, the arrow tips of hunting, etc (Al. Păunescu 2000, V. Boroneanţ 1973a, idem 2000). True as they might be, these assumptions need to be backed by concrete archaeological evidence.

Evidence for diving was revealed (W. D. Frayer 1988; N. Miriţoiu *et alii* 2004, N. Miriţoiu *et alii* 2005) by analyzing bony anomalies located on either the posterior wall, or the floor of the lateral aspect of the tympanic portion of the temporal and projecting superiorly into the acoustic meatus of human skulls – suggesting diving for large fish.

With the Neolithic the same type of activities seem to be taking place – with the exception of the pottery making. In most of the sites hunting prevails still over the animal breeding (G. El Susi 1991, p. 23).

M. Garašanin (1980, p. 63-64) indicated that contrary to what happens in Thessaly, on the first stage of the neolithisation in the Balkans hunting, fishing, gathering still prevailed over

agriculture in the Iron Gates and also in other sites (as Buserna Obala 3). Only during the second stage agriculture became predominant. S. Marinescu Bilcu (1975, p. 499) also suggested that one can not talk about large scale agriculture: *"we do not believe that the Cris groups had got over the primitive stage of animal breeders practicing real agriculture"*.

Landscape changes: K. J. Willis and K. D. Bennet (1994, p. 327) **"introduction of farming was not of sufficient intensity to be detected upon landscape scale"** and the impact of agriculture is not evidenced in the landscape until ca. 6000 BP, idea also suggested by others (S. Marinescu-Bilcu 1975, p. 499).

The stable isotopes studies

I. Radovanović (2000, p. 343) saw important contacts between the Mesolithic and the Early Neolithic groups associated to important dietary change. Further data (G. T. Cook *et alii* 2001) indicated *"a change from a primarily aquatic to a mixed terrestrial diet around 7100 BP and this may be argues as supporting a shift from the Mesolithic to the Neolithic"*.

More recent research suggests that for the populations from the Gorges (Lepenski Vir the data was consistent to a 2-component dietary system. Final Mesolithic individuals showing Neolithic dietary pattern were interpreted either as incomers from early farming communities (present in Morava valley, approx. 120 km from Lepenski Vir, about 7300 BP (A. Whittle *et alii* 2002), or indigenous people placing the Earliest Neolithic of the Iron Gates. As a third possibility this group might have been represented by those individuals whose life-span overlapped a period of a short dietary change caused by various factors (climate, food preference) or we may add, a short lived social practice (C. Bonsall *et alii* 2004, p. 300). Also, there is no unequivocal evidence that farming was practiced anywhere in the Middle or the Lower Danube Basin (outside the Iron Gates) during the period 7400-7100 BP, but population of Lepenski Vir had knowledge of agriculture, regardless of practicing it prior to 7100 BP (C. Bonsall *et alii* 2004, p. 298).

A different opinion is offered by M. Roksandic *et alii* (2006) stating that *"dietary information suggests that the crucial change between Pre/contact and Post/contact diet type did not take place"* – but no further data supporting the statement followed.

D. Borić (2004b) offers a detailed discussion of this scenario, touching on the aspects considered by C. Bonsall (2000). Borić's discussion includes aquatic and terrestrial food, fish species, the possibility of agricultural practices, and a rework of the stable isotope analysis. Borić concludes that: *"...the assumption about a Mesolithic-Neolithic subsistence dichotomy – from largely fish-based subsistence in the Mesolithic to a diet significantly altered by the introduction of agricultural products in the early Neolithic – is overly simplistic and not supported by the existing evidence in the Danube Gorges on the basis of our extended isotopic study of human burials from Vlasac and Lepenski Vir"*. (D. Borić 2004b, p. 241).

Human population changes

Some of the physical anthropologists distinguished in the Iron Gates the presence of two human types: "a Paleolithic survival" and the Cromagnon (Z. Mikic 1992). D. Borić (D. Borić 2002, p. 1037), believes that through micro-evolutionary processes (?) resulted two mixed types. This was used to support the indigenist model of transition for the Iron Gates: *"Both anthropological and archaeological finds indicate that there was population and cultural continuity in the Iron Gates from the Lower Paleolithic through Mesolithic and the heyday of the Neolithic Starčevo culture, and it was possible to describe the neolithisation process on an anthropological level. It was thus established that this came as a result of continuous autochthonous development and not, as was believed until recently, of migration"* (Z. Mikic 1992, p. 41).

The statement is more problematic than it appears at the first sight. The metric and morphological distinctions between local people and other Mesolithic populations are significant. The uncovered Mesolithic skeletons at Iron Gates are comparable in size and morphology only to the Mesolithic populations of the Dnepr region (N. Mirițoiu *et alii* 2005). According to the cranial and post-cranial analysis performed on human remains from some of the Romanian sites, the Mesolithic population at Iron Gates presents metric and morphologic characteristics identical to the population of the Dnepr Mesolithic, and distinct from all Mesolithic humans remains of Western and Central Europe. N. Mirițoiu advanced the hypothesis of a northern Black Sea origin of the Gorges Mesolithic.

It is not exactly clear what D. Borić means by local micro-evolution and foreign immigrants of different origins, but it appears that he refers to the data offered by Nemeskeri and Szathmari, morphologically and metrically discussed, rejected, and drastically reinterpreted and rejected by M. Roksandić (2000, p. 77-78) in the light of her own and other research.

M. Roksandić sees the Mesolithic-Neolithic interaction at Iron Gates from the flexible angle of a "porous frontier" concept (M. Roksandić 2000; idem 2001; idem 2004). In terms of biological difference within this period, she thinks that some regrouping of the population is evident: Vlasac seems to be very closed and little population admixture occurs at the time of availability of contact. Similarities between Padina and Hajdučka Vodenica and Lepenski Vir seem to point towards greater mobility within the group as a result of possible pressure from outside. (M. Roksandić 2000, p. 86).

According to her morphometric and non-metric analysis, migrants among Mesolithic communities appear to be mostly males, but this rather minor population exchange did not bring a change in the economy. Consequently, M. Roksandić thinks that the incomers were not members of agricultural societies, but members of more remote Mesolithic communities moving in perhaps under the pressure from farming communities, making Iron Gates a type of a last refuge area. Based on her analysis of human remains, change in subsistence economy and diet did not occur at a significant scale. Whatever evidence may be offered in supporting of such change must be related, not to the appearance of a population's anatomical differentiation in relation to the presence of a new economic system at the Gates, but to internal cultural and social factors operating within the old Mesolithic system. In terms of biological difference within this period, she thinks that some regrouping of the population is evident: Vlasac seems to be very closed and little population admixture occurs at the time of availability of contact. Similarities between Padina and Hajdučka Vodenica and Lepenski Vir seem to point towards greater mobility within the group as a result of possible pressure from outside. (M. Roksandić 2000, p. 86).

There seems to be a great deal of difference between the Mesolithic and Neolithic mortuary practices. While the Mesolithic burials are quite abundant (the inhumation position is laid on the back, the dead being buried under the house floor or within the immediate perimeter of the site) the Early Neolithic burials are practically inexistant in the Iron Gates area (and very few in Romania – less than 40; the position of the skeleton is flexed on one side, but also seem to be located under or around houses (Z. Maxim 1999).

The analysis of the Iron Gates human remains, and of the projectile points inserted into them, revealed that the weapons were made locally, suggesting fighting among indigenous groups. Some (B. Voytec, R. Tringham 1990; C. Bonsall *et alii* 1996) suggest violent contacts between local and immigrant populations at Lepenski Vir, but others (I. Radovanović 1996a; idem 1996b; idem 1999; M. Roksandić, idem 2000) associate these manifestations of violence with local conflicts.

DNA studies

The pig DNA analysis revealed that Neolithic domestic pigs in southern Romania originated in Asia Minor. More radiocarbon dated pig DNA samples from both shores of the Danube must be compared with the information offered by the ceramic analysis, in order to clarify the timing of Starčevo Neolithic penetration in the region, and if it represented a mostly cultural or economic advancement. Recent ancient DNA studies (L. Larson *et alii* 2005) suggested that the modern European domestic pig is a descendent of the European wild boar. The evidence offered by this research was not intended to, and clearly does not exclude the possibility of local independent pig domestication in Europe. It may raise, however, some questions in a different direction: if at early Neolithic sites of Northern Balkans and northern Danube the first Neolithic communities owned domestic pigs obviously brought from Asia Minor, what determined these people to abandon these pigs, and to domesticate local wild ones? Or if these local wild pigs were domesticated by the local Mesolithic groups, what happened with the Asia Minor domestic pigs, to a degree that no genetic traces were left in the modern domestic pig population? After all, even if by 5000-4000 BC some European pigs were domesticated, the Asia Minor domestic pigs were by far numerically dominant by the time, at least in some area of the continent.

Concluding remarks

Danube's area of Iron Gates represents a great example of the importance played by the environment in shaping the life of the Mesolithic groups inhabiting the region. With the river as the key element, and the topographic particularities as a decisive addition, the general geographical setting generated a number of microclimates optimal for hunting and gathering economies like the Schela Cladovei culture. Additionally, the geography and the geology of the region, totally unsuitable for agriculture, played a decisive role during the time of the Mesolithic-Neolithic contacts by conferring distinctive characteristics to the relationship between the farmers and the hunters.

Besides pottery, there is no evidence for other developments associated with a food production economy. Of an extreme importance is a future pottery petrographic and chemical analysis by the excavated levels at least for Icoana and Schela Cladovei, in order to determine the earliest level with Starčevo ceramics at each site. Although all Mesolithic sites in the canyon proper are presently under water, it is not excluded that more sites may still exist on the islands of Ostrovul Banului and Ostrovul Corbului. The stratigraphy of the sites on both banks of the Danube need to be clarified and re-interpreted.

Claims for the practice of agriculture during the Mesolithic do not stand up to scrutiny, and in the archaeological strata associated with the appearance of Starčevo Neolithic in the area, agricultural implements are almost absent. There is also no evidence of domestic animals besides dog. It has been shown (A. Dinu *et alii*, this volume) that during Late Mesolithic no local domestication of European wild pig took place along the Lower Danube frontier between Starčevo Neolithic and the local Mesolithic cultures. It is not clear at this point when Starčevo domestic Asia Minor pigs showed up at Iron Gates, but it is more probable that it happened after 5500 BC. Subsequently, if a replacement of the Starčevo Asia Minor domestic pigs took place in the following centuries, it is clear that Mesolithic Iron Gates played no role in wild pigs domestication north of the Danube.

As shown by the radiocarbon dates, contact between the Mesolithic and the Early Neolithic groups was chronologically possible. Still, there are no clear signs of influences in between these groups (economic exchanges, ideology religion etc.).

There is still to be clarified the problem of the Mesolithic communities disappearance and the origins and way of penetration of the Early Neolithic.

Bibliography:

- *** 1973 *Atlasul Complex al Porților de Fier, București: Ed. Academiei.*
- *** 1999 *Repertoriul arheologic al Mureșului Inferior. Județul Arad, BHAB, XXIV.*
- *** 1984 *Istoria Militară a Poporului Român, București: editura Militară.*
- J. Adams 1998 *Europe During the Last 150,000 Years,*
<http://www.esd.ornl.gov/projects/qen/nercEUROPE.html>.
- U. Albarella, S. Payne 2005 *Neolithic Pigs from Durrington Walls, Wiltshire, England: A Biometrical Database, in JAS 32, p. 589-599.*
- B. R. Alley, M. A. Agustsdottir 2005 *The 8K Event: Cause and Consequences of a Major Holocene Abrupt Climate Change, in Quaternary Science Reviews 24, p. 1123-1149.*
- B. R. Alley *et alii* 1997 B. R. Alley, P. A. Mayewsky, T. Sowers, M. Stuiver, K. C. Taylor, P. U. Clark, *Holocene Climatic Instability: A Prominent, Widespread Event 8200 yr Ago, in Geology 25(6), p. 483-486.*
- C. Ambrojevici 1932 *Câteva cuvinte despre prezența paleoliticului în regiunea Nistrului din Basarabia de Nord, in BFSC 6, p. 170-173.*
- J. A. Ammerman, L. L. Cavalli-Sforza 1984 *The Neolithic Transition and the Genetics of Populations in Europe,* Princeton: Princeton University Press.

- J. Ammerman, A. von den Driesch 1984 *The Neolithic Transition and the Genetics of Populations in Europe*. Princeton: Princeton University Press.
- H. S. Andersen 1985 *Tybrind Vig: A Preliminary Report of a Submerged Eterbolle Settlement on the West Coast of Fyn*, in *Journal of Danish Archaeology* 4, p. 52-67.
- A. Bălăşescu *et alii* 2003 A. Bălăşescu, M. Udrescu, V. Radu, D. Popovici, *Archeozoologie en Roumanie, Corpus de donnees*, Bibliotheca Muzeului Național, Seria Cercetări Pluridisciplinare, vol. 5, Târgoviște.
- D. C. Barber *et alii* 1999 D. C. Barber, A. Dyke, C. Hillaire-Marcel, A. E. Jennings, J. T. Andrews, M. W. Kerwin, G. Bilodeau, R. McNeely, J. Southon, M. D. Morehead, and J.-M. Gagnon, *Forcing of the Cold Event of 8200 Years Ago by Catastrophic Drainage of Laurentide Lakes*, in *Nature* 400, p. 344-348.
- C. Barigozzi (ed.) 1986 *The Origin and Domestication of Cultivated Plants*. Amsterdam: Elsevier.
- G. Barker 1985 *Prehistoric Farming in Europe*, Cambridge: Cambridge University Press.
- L. Bartosiewicz 1995 *Schela Cladovei: A Review of the Prehistoric Fauna*, in *MM* 16(2), p. 2-19.
- L. Bartosiewicz *et alii* 2001 L. Bartosiewicz, C. Bonsall, V. Boroneanț, S. Stallibrass, *New Data on the Prehistoric Fauna of the Iron Gates: A Case Study from Schela Cladovei, Romania*, in *From Mesolithic to Neolithic*. K. R. and M. J., eds. Budapest: Archaeolonga (Main Series).
- D. Berciu 1939a *Arheologia preistorică a Olteniei*, p. 11-15.
- D. Berciu 1939b *Îndrumări în preistorie (O serie de prelegeri ținute la seminarul de istorie universală supt conducerea domnului profesor N.Iorga)*, p. 88-102.
- D. Berciu 1941 *Repertoriu arheologic de stațiuni și descoperiri preistorice în România*, in *Revista Arhivelor* 3, p. 4-16.
- D. Berciu 1942 *Le Paleolithique et le mesolithique en Roumanie*, in *Bulletin d'Institut Roumain de Sofia* 1, 2, p. 567-592.
- D. Berciu 1973 *Contribuții la problemele neoliticului din România*, București.
- P. Biagi *et alii* 2005 P. Biagi, St. Shennan, M. Spataro, *Rapid Rivers and Slow Seas? New Data for the Radiocarbon Chronology of the Balkan Peninsula*, in *Prehistoric Archaeology & Anthropological Theory and Education* 6-7, p. 41-52.
- M. Bitiri 1959 *Un nou tip de unealtă între microlitele de la Băile Herculane* in *SCIV*, 10, 2, p.453-458.
- P. Bogucki 1996 *The Spread of Early Farming in Europe*, in *American Scientist* 84, p. 242-254.
- P. Bogucki 2000 *How Agriculture Came to North-Central Europe*, in *Europe's First Farmers*. T.D. Price (ed.), p. 197-218. Cambridge: Cambridge University Press.
- P. Bogucki 2004 *The Mesolithic of Northern Europe*. In *Ancient Europe 8000 B.C - A.D. 1000*. P. Bogucki and J. P. Crabtree, eds. New York, Detroit, San Diego, San Francisco, Cleveland, New Heaven, Waterville, London, Munich: Thomson Gale, p. 132-140.
- S. Bökönyi 1970 *Animal Remains from Lepenski Vir*, in *Science* 167, p. 1702-1704.

- S. Bökönyi 1975 *Vlasac: An Early Site of Dog Domestication*, in *Archaeozoological Studies*. A. T. Clason (ed.) Amsterdam: North-Holland Publishing Company.
- S. Bökönyi 1978 *The Vertebrate Fauna of Vlasac*, in *Vlasac. A Mesolithic Settlement in the Iron Gates*, M. Garašanin (ed.), Beograd: Serbian Academy of Sciences and Arts, p. 35-65.
- S. Bökönyi 1989 *Definition of Animal Domestication*, in *The Walking Larder*, J. Clutton-Brock (ed.), London: Unwin Hyman, p. 22-27.
- Al. Bolomey 1970 *Cîteva observații asupra faunei de mamifere din straturile romanello-aziliene de la Cuina Turcului*, in *SCIV* 21, p. 37-39.
- Al. Bolomey 1973a *An Outline of the Late Epipaleolithic Economy at the Iron Gates: The Evidence of Bones*, in *Dacia N.S.* 17, p. 41-52.
- Al. Bolomey 1973b *The Present Stage of Knowledge of Mammal Exploitation During the Epipaleolithic and the Earliest Neolithic on the Territory of Romania*, in *Domestikationforschung und Geschichte der Haustiere*. Budapest: Akademia Kiado.
- C. Bonsall *et alii* 1996 C. Bonsall, V. Boroneanț, D. Srežović, *AMS Radiocarbon Determinations on Human Bone from Lepenski Vir, Vlasac and Schela Cladovei*, in *MM* 17 (2), p. 6-10.
- C. Bonsall *et alii* 1997 C. Bonsall, L. Rosemary, K. McSweeney, S. Carolina, H. Douglas, V. Boroneanț, L. Bartosiewicz, P. Robert, J. Chapman, *Mesolithic and Early Neolithic in the Iron Gates: A Paleodietary Perspective*, in *JEA* 5, p. 50-92.
- C. Bonsall *et alii* 2000 C. Bonsall, G. T. Cook, R. Harkness, D. D. Scott, L. Bartosiewicz, K. McSweeney, *Stable Isotopes, Radiocarbon and the Mesolithic-Neolithic Transition in the Iron Gates*, in *DocPraeh* 27, p. 119-132.
- C. Bonsall *et alii* 2002 C. Bonsall, M. G. Macklin, R. W. Payton, A. Boroneanț, *Climate, Foods and River Goods: Environment Changes and the Meso-Neolithic Transition in Southeast Europe. Before Farming* 4(2).
- C. Bonsall *et alii* 2004 C. Bonsall, G. T. Cook, R. E. M. Hedges, T. F. G. Higham, C. Pickard, I. Radovanović, *Radiocarbon and Stable Isotope Evidence of Dietary Change from the Mesolithic to the Middle Ages in the Iron Gates: New Results from Lepenski Vir*, in *Radiocarbon* 46 (1), p. 293-300.
- D. Borić 1999 *Places that Created Time in the Danube Gorges and Beyond, c.9000-5500 BC*, in *DocPraeh* 26, p. 41-70.
- D. Borić 2001 *Mesolithic and Early Neolithic Hunters and Fishers in the Danube Gorges: An Analysis of Archaeozoological Data*, in *From Mesolithic to Neolithic*. (Proceedings of the International Archaeological Conference held in the Damjanich Museum of Szolonok, September 22-27, 1996), R. Kertesz and J. Makkay (eds.), Budapest.
- D. Borić 2002 *The Lepenski Vir Conundrum: Reinterpreting of the Mesolithic and Neolithic Sequences in the Danube Gorges*, in *Antiquity* 76, p. 1026-1039.
- D. Borić 2005a *Body Metamorphosis and Animality: Volatile Bodies and Boulder Artworks from Lepenski Vir* in *Cambridge Archaeological Journal* 15(1), p. 35-69.
- D. Borić 2005b *Deconstructing Essentialism: Unsettling Frontiers of Mesolithic-Neolithic Balkans*, in *(Un)settling the Neolithic*, D. Bailey, A. Whittle, V. Cummings (eds.), Oxford, UK: Oxbow Books, p. 16-31.

- D. Borić *et alii* 2004 D. Borić, G. Grupe, J. Peters, Z. Mikic, *Is the Mesolithic-Neolithic Subsistence Dichotomy Real? New Stable Isotope Evidence from the Danube Gorges*, in *EJA* 7, (3), p. 221-248.
- D. Borić, M. Preston 2004 *Mesolithic and Neolithic (Dis)continuities in the Danube Gorges: New AMS Dates from Padina and Hajdučka Vodenica (Serbia)*, in *OJA* 23(4), p. 341-371.
- P. I. Borisovski 1964 *Problemele paleoliticului superior și mezoliticului de pe coasta de nord-est a Mării Negre*, in *SCIV*, 15, 1, p. 5-17.
- A. Boroneanț 2005 *The Tardenoisian, a false problem?*, in *SP* 2, p. 17-46.
- V. Boroneanț 1968 *Neoliticul timpuriu în zona Porțile de Fier*, Craiova, seria Comunicări.
- V. Boroneanț 1970 *La Periode Epipaleolithique sur la Rivier Roumaine des Portes de Fer du Danube*, in *PZ* 45, p. 1-25.
- V. Boroneanț 1973a *Apercu de la Culture Epipaleolithique Schela Cladovei*. Actes du V-ieme Congress International des Sciences Prehistoriques, Belgrade, Vol. 7, p. 165-172.
- V. Boroneanț 1973b *Începuturile cultivării pământului în zona Porților de Fier*, in *Terra Nostra* 3, p. 115-123.
- V. Boroneanț 1973c *Recherches Archeologiques sur la Culture Schela Cladovei de la Zone des "Portes de Fer"*, in *Dacia NS* 17, p. 35-39.
- V. Boroneanț 1979 *Descoperiri arheologice în unele pesteri din defileul Dunării*, in *Speologia*, p. 168-175.
- V. Boroneanț 1980 *Betrachtungen uber das Epipaleolithikum (Mesolithikum) in Rumanien. Mesolithicum in Europa*. 2nd Internationales Symposium Posdam, Posdam, Veröffentlichungen des Museums für Ur- und Frühgeschichte Posdam 14/15. Berlin.
- V. Boroneanț 1990 *Thoughts on the Chronological Relations Between the Epi-Paleolithic and the Neolithic of the Low Danube*, in *The Mesolithic in Europe*, C. Bonsall (ed.) Edinburgh: John Donald.
- V. Boroneanț 2000 *Paleolithique Superior et Epipaleolithique dans la Zone des Portes de Fer*, București.
- V. Boroneanț *et alii* 1995 V. Boroneanț, C. Bonsall, K. McSweeney, P. Robert, M. G. Macklin, *A Mesolithic Burial Area at Schela Cladovei, Romania. In Epipaleolithique et Mesolithic en Europe, Paleoenvironment, Peuplements et Systems Cultureles*. Actes du 5^e Colloque International UISPP (Commission 11), Grenoble, 8-23 September 1995. Paris.
- P. I. Borisovski 1965 *Problemele paleoliticului superior și mezoliticului de pe coasta de nord-est a Mării Negre*, in *SCIV* 15, 1, p. 5-17.
- J. A. Brown 1893 *On the continuity of the Paleolithic and the Neolithic periods*, in *Journal AIGB* 22 (1, 2), p. 66-98.
- M. Brudiu 1971 *Primele descoperiri tardenoasiene din sud-estul Moldovei*, in *SCIV* 22, 3, p. 361-375.
- M. Brudiu 1974 *Paleoliticul superior și epipaleoliticul din Moldova*, Biblioteca de Arheologie-Seria complementară 2.
- M. Brudiu 1985 *Descoperiri paleolitice și epipaleolitice pe teritoriul comunei Lumina*, in *Pontica* 18, p. 13-29.
- M. Budja 1999 *The transition to farming in south-eastern Europe, perspectives from pottery*, in *DocPraeh* 28, p. 27-48.

- M. Cârciumaru 1973 *Analiza polinică a coprolitelor din stațiunea arheologică de la Icoana (Defileul Dunării)*, in *SCIV* 24(1), p. 5-14.
- M. Cârciumaru 1980 *Mediul geografic în pleistocenul superior și culturile paleolitice din România*, București.
- M. Cârciumaru 1985 *La relation homme-environment, element important de la dynamique de la société humaine au cours du paleolithique et epipaleolithique sur le territoire de la Roumanie*, in *Dacia NS* 29, p. 7-34.
- M. Cârciumaru, Al. Păunescu 1975 *Cronostratigrafia și paleoclimatul tardenoasianului din depresiunea Întorsura Buzăului* în *SCIVA*, 26, 3, p. 315-342.
- L. L. Cavalli-Sforza *et alii* 1994 L. L. Cavalli-Sforza, P. Menozzi, A. Piazza, *The History and Geography of Human Genes*. Princeton: Princeton University Pres.
- T. Champion *et alii* 1984 T. Champion, C. Gamble, S. Shennan, A. Whittle, *Prehistoric Europe*. London: Academic Press, INC.
- J. Chapman 1993 *Social Power in the Iron Gates Mesolithic*, in *Cultural Transformations and Interactions in Eastern Europe*, J. Chapman and M.P. Dolukhanov (eds.), Aldershot, U.K.: Avebury, p. 71-121.
- J. Chapman 1994 *The Origin of Farming in Southeast Europe*, in *Prehistoire Europeenne* 6, p. 133-156.
- G. Childe 1925 *The Dawn of European Civilization*, London: Kegan Paul.
- G. Childe 1929 *Danube in Prehistory*. Oxford: Clarendon Press.
- A. T. Clason 1980 *Padina and Starčevo: Game, Fish, and Cattle*. Haarlem: Fibula-Van Dishoeck.
- E. Comșa 1965 *Considerații cu privire la complexe neolitice din preajma Dunării în sud-vestul României*, in *SCIV* 16 (3), p. 545-554.
- E. Comșa 1987 *Neoliticul pe Teritoriul Romaniei. Consideratii*. Bucuresti: Editura Academiei Republicii Socialiste Romania.
- E. Condurachi *et alii* 1972 E. Condurachi, Vl. Dumitrescu, M.D. Matei, *Harta arheologică a României*, p. 7-27.
- G. T. Cook *et alii* 2001 G. T. Cook, C. Bonsall, R. E. M. Hedges, K. McSweeney, V. Boroneanț, L. Bartosiewicz, P. B. Petite, *A Freshwater Diet - Derived C14 Reservoir Effect at the Stone Age Sites in the Iron Gates Gorge*, in *Radiocarbon* 43 (2A), p. 453-460.
- G. T. Cook *et alii* 2002 G. T. Cook, C. Bonsall, R. E. M. Hedges, K. McSweeney, V. Boroneanț, L. Bartosiewicz, P. B. Petite, *Problems of Dating Human Bones from the Iron Gates*, in *Antiquity* 76, p. 77-85.
- R. Dennell 1985 *The Hunter-Gatherer/Agricultural Frontier in Prehistoric Temperate Europe*, in *The Archaeology of Frontiers and Boundaries*, S. Green and S. M. Perlman (eds.), New York: Academic Press, p. 113-140.
- R. Dennel 1992 *The Origin Of Crop Agriculture in Europe*, in *The Origins of Agriculture*. C. Wesley Cowan and P. J. Watson, eds. p. 71-110. Washington: Smithsonian Institution Press.
- V. Dimitrijević 2000 *The Lepenski Vir Fauna*, in *DocPraeh* 27, p. 101-117.
- A. Dinu 2006 *The question of pig domestication at Mesolithic Iron Gates*. Ph.D. Dissertation, University of Wisconsin in Madison, Dpt. of Anthropology, 472 p.
- P. M. Dolukhanov 1997 *The Pleistocene-Holocene Transition in Northern Eurasia: Environmental Changes and Human Adaptations*, in *Quaternary International* 41/42, p. 181-191.
- Vl. Dumitrescu 1964 *Faze tipologice și realități stratigrafice*, in *SCIV* 15, 1, p. 45-52.

- VI. Dumitrescu 1971 *Le debut du neolithique au nord du danube en Roumanie*, in *Actes du VIIIe Congres International de Sciences Prehistoriques et protohistoriques*, Beograd, I, p. 5-96.
- VI. Dumitrescu 1983 *Epoque Neolithique et Eneolithique*, in *Esquisse d'une Prehistoire de la Roumanie*, VI. Dumitrescu, Al. Bolomey, Fl. Mogoşeanu, p. 56-128.
- G. El Susi 1991 *Analiza resturilor de fauna din asezarea Starčevo-Criş de la Pojejena-Nucet, jud. Caraş Severin*, in *Revista Muzeelor* 28, 2, p.2 0-24.
- G. El Susi 1996 *Vânători, pescari și crescători de animale în Banatul mileniilor VI-I.Ch - Id.Ch.*, Timișoara: Mirton.
- Y. Facorellis 2003 *Radiocarbon Dating the Greek Mesolithic*, in *The Greek Mesolithic*, N. Galanidou and C. Perles (eds.), Athens: British School at Athens. Studies 10.
- W. D. Frayer 1988 *Auditory Exostoses and Evidence for Fishing at Vlasac*, in *Current Anthropology* 29 (2).
- D. Furlan 1977 *The Climate of Southeast Europe. In Climates of Central and Southern Europe*, in C. C. Wallen (ed.), Amsterdam-Oxford-New York: Elsevier Scientific Publishing Company, p. 185-236.
- D. Garašanin 1980 *Origines et relations de groupes du complexe Balkano-pannonien du neolithique ancien*, in *Problemes de la neolithisation dans certaines regions de l'Europe*, Krakow.
- M. Garašanin 1980 *Les origins du neolithique dans le basin mediteraneen et dans le sud-ouest Europeen*, in *Problemes de la neolithisation dans certaines regions de l'Europe*, Krakow.
- I. Gatsov 1982 *The Archaeological Cultures of the Late Pleistocene and Early Holocene in the Western Black Sea Region, and Their Significance for the Formation of the Neolithic Industries*, in *Origin of the Chipped Stone Industries of the Early Farming Cultures in Balkans*, J.K. Kozłowski (ed.), Warszawa, Krakow: Panstwowe Wydawnictwo Naukowe, p. 111-130.
- I. Gatsov 2000 *Chipped stone assemblages from South Bulgaria and NW Turkey*, in *Technology, Style and Society. Contributions to the Innovations between the Alps and the Black Sea in Prehistory* (ed. Lolita Nikolova), p. 1-28.
- M. Gimbutas 1991 *The Civilization of the Goddess. The World of Old Europe*. San Francisco: Harper San Francisco. A Division of Harper Collins Publishers.
- S. Haimovici 1987 *L'Etude de la faune decouverte dans l'etablissement de Ostrovul Corbului (culture Schela Cladovei)*, in *La genesse et l'evolution des cultures paleolithiques sur le territoire de la Roumanie*. C. Vasile (ed.), Iași.
- C. F. W. Higham 1967 *Stock Rearing as a Cultural Factor in Prehistoric Europe* in *Proceedings of the Prehistoric Society* 33, p. 84-106.
- J. Hillerbrand 1936 *Der Stand der Erforschung der alteren Steinzeit in Ungarn*.
- M. Jakes *et alii* in press M. Jakes, M. Roksandic, C. Meiklejohn, *Demography of the Djerdap Mesolithic-Neolithic Transition*, in *The Iron gates in Prehistory: New Perspectives*. C. Bonsall, V. Boroneat, I. Radovanović (eds.) Oxford: Archaeopress.

- Jarman M. R. 1976 *Prehistoric Economic Development in Sub-Alpine Italy* in *Problems in Economic and Social Archaeology*. G.D.G. Sieveking, I.H. Longworth, and K.E. eds. Wilson, London: Duckworth, p. 375-399.
- B. Jovanović 1969 *Chronological Frames of the Iron Gates Group of the Early Neolithic Period*, in *Archaeologica Jugoslavica* 10, p. 23-38.
- B. Jovanović 1972 *The Autochthonous and the Migrational Components of the Early Neolithic of the Iron Gates*, in *Balkanica* 3, p. 49-58.
- B. Jovanović 1975 *The Origins of the Early Neolithic in Djerdap*, in *Godisnjak* 14.
- B. Jovanović 1987 *Die Architektur und Keramik der Siedlung Padina B am Eiserner Tor, Jugoslawien*, in *Germania*, 65(1), p. 1-16.
- B. Jovanović 2004 *Padina and Hajduca Vodenica Sites of Lepenski Vir Culture in Upper and Lower Gorges in the Iron Gates*, in *Acts of the XIVth UISPP Congress*, University of Liege, Belgium, 2-8 September 2001. BAR International Series 1302. Edited by Le Secretariat du Congress.
- M. Joachim 2002 *The Mesolithic. In European Prehistory; A Survey*. S. Milisauskas, ed., p. 115-141. New York, Boston, Dordrecht, London, Moscow: Kluwer Academic/Plenum Publishers.
- R. Kertesz 1996 *The Mesolithic in the Great Hungarian Plain: A Survey of the Evidence*, in *At the Fringes of three worlds: Hunters, gatherers and farmers in the middle of Tisza Valley*, p. 5-65.
- R. Kertesz 2003 *The Mesolithic: Towards a Production Economy*, in *Hungarian Archaeology at the Turn of the Millennium*. Budapest: Ministry of National Cultural Heritage. Teleki Laszlo Foundation.
- R. Kertesz, Sumegi Pal 1999 *Azzaki-kozephegyseg negyedidoszak vegi ostortenete in A Nograd megyei muzeumok evkonyve*, XXIII, p. 66-92.
- L. Kozlowski 1926 *L'epoque mesolithique en Pologne*, in *L'Anthropologie*, 4, p. 52-56.
- J. K. Kozlowski, S. K. Kozlowski 1982 *Lithic Industries from the Multi-Layer Mesolithic Site Vlasac in Yugoslavia*, in *Origins of the Chipped Stone Industries of the Early Farming Cultures in Balkans*. J.K. Kozlowski ed.), Warszawa, Krakow: Panstwowe Wydawnictwo Naukowe, p. 11-111.
- J. K. Kozlowski, S. K. Kozlowski 1987 *Upper Paleolithic and Mesolithic in Europe. Taxonomy and Paleohistory*
- S.K. Kozlowski 1990 *A Survey of Early Holocene Cultures of the Western Part of the Russian Plain*. In *The Mesolithic in Europe*. C. Bonsall, ed., Edinburgh: John Donald Publishers LTD, p. 424-441.
- M. M. Lahr *et alii* 2000 *M. M. Lahr, R. A. Foley, R. Pinhasi, Expected Regional Patterns of Mesolithic-Neolithic Human Population Admixture in Europe Based on Archaeological Evidence*, in *Archaeogenetics: DNA and the Population Prehistory of Europe*, C. Renfrew, K. Boyle (eds.) Cambridge: McDonald Institute Monographs.
- C. S. Larsen 1995 *Biological changes in Human Populations with agriculture*, in *Annual Revue of Anthropology* 124, p. 185-213.
- G. Larson *et alii* 2005 *G. Larson, K. Dobney, U. Albarella, M. Fang, E. Matisso-Smith, J. Robins, S. Lowden, H. Finlaison, T. Brand, E. Willerslev, P. Rowley-Conwy, L. Anderson A. Cooper, Worldwide Phylogeny of Wild Boar Reveals Multiple Centers of Pig Domestication* in *Science* 307, p. 1918-1621
- Gh. Lazarovici 1969 *Cultura Starčevo-Criș in Banat*, in *AMN* 6, p. 3-26.
- Gh. Lazarovici 1970 *Câteva probleme privind sfârșitul neoliticului timpuriu din nord-vestul României*, in *AMN* 17, p. 13-30.

- Gh. Lazarovici 1979 Neoliticul Banatului
- Gh. Lazarovici 1983 *Neoliticul timpuriu în zona Porților de Fier (Clisura)*, in *Banatica* 7, p. 9-34.
- Gh. Lazarovici 1984: *Neoliticul timpuriu în România*, in *AMP* 8, p. 49-104.
- Gh. Lazarovici, Z. Maxim 1995 *Gura Baciului. Monografie arheologică*, Cluj.
- P. A. Mayewsky *et alii* 2004 P. A. Mayewsky, E. E. Rohling., J. C. Stager, W. Karlen, K. A. Maasch, L. D. Meeker, E. A. Meyerson, F. Gasse, S. van Kreveland, K. Holmgren, J. Lee-Thorp, G. Rosqvist, F. Rack, M. Staubwasser, R. R. Schneider, E. J. Steig, *Holocene Climate Variability*, in *Quaternary Research* 62, p. 243-250.
- S. Marinescu-Bîlcu 1975 *Asupra unor probleme ale culturii Criș*, in *SCIVA* 26 (4), p. 487-506.
- S. Mason *et alii* 1996 S. Mason, V. Boroneanț, C. Bonsall, *Plant Remains from Schela Cladovei, Romania*, in *MM* 17 (2), p. 11-14.
- Z. Maxim 1999 *Neo-eneoliticul din Transilvania*, Cluj.
- J. Mellaart 1975 *The Neolithic of the Near East*, London: Thames and Hudson.
- Z. Mikic 1992 *The Mesolithic Populations of the Iron Gates Region*, in *Balkanica* 23.
- N. Mirițoiu *et alii* 2005 N. Mirițoiu, N. Sultana, A. Soficaru, *Asupra unui craniu dintr-o descoperire întâmplătoare de la Schela Cladovei*, in *SP* 2, p. 47-73.
- M. Moga 1937 *Paleoliticul Inferior din Transilvania*, în *Anuarul Comisiunii Monumentelor istorice, Secția pentru Transilvania*, IV (1932-1937), p. 158-175.
- Fl. Mogoșanu 1960 *Unele aspecte ale paleoliticului de sfârșit din țara noastră*, in *SCIV* 11, 1, p. 125-129.
- Fl. Mogoșanu 1962 *Șantierul de la Lapoș*, in *Materiale* 8, p. 145-151.
- Fl. Mogoșanu 1964 *Probleme noi în așezarea de la Lapoș*, in *SCIV* 15, 3, p. 337-30.
- Fl. Mogoșanu 1968 *Importanța descoperirilor arheologice din zona Porților de Fier pentru înțelegerea paleoliticului din Banat*, in *Comunicări. Seria arheologică*, Craiova, VIII, p. 8-14.
- Fl. Mogoșanu 1969 *Paleoliticul și epipaleoliticul de la Lapoș*, in *Studii și materiale privitoare la trecutul istoric al județului Prahova*, p. 5-12.
- Fl. Mogoșanu 1971 *Rezultatele ultimelor săpături arheologice privind paleoliticul din peștera Hoților*, in *SCIV*, 22(1), p. 3-14.
- Fl. Mogoșanu 1978 *Mezoliticul de la Ostrovul Corbului*, in *SCIVA* 29, 3, p. 335-352.
- Fl. Mogoșanu, M. Bitiri 1961 *Asupra prezenței campignanului în România*, în *SCIV*, 12(2), p. 215-226
- N.N. Moroșan 1929 *Noi contribuțiuni preistorice asupra Basarabiei de Nord*, Academia Română, Memoriile Secțiunii Științifice, seria 3, Mem. 6.
- N. N. Moroșan 1932 *Asupra mezoliticului din Oltenia*, Institutul de Arheologie Olteană, Craiova, Memoriul VI, Muzeul regional al Olteniei, Craiova.
- N. N. Moroșan 1933 *Evoluția cercetărilor preistorico-paleolitice din România de nord-est și rezultatele obținute*.
- O. Necrasov, D. Botezatu 1981 *Les caractéristiques anthropologiques d'un squelette decouvert a Ostrovu Corbului, appartenant a l'aspect culturel Schela Cladovei*, in *Annuaire Roumain Anthropologique* 18 (11-14).
- J. F. W. Negendank 2004 *Holocene*, in *The Climate in Historical Times*, H. Fischer, T. Kumke, G. Lohmann, G. Floser, H. Miller, H. Storch von, J. F. W. Negendank (eds.), p. 1-12.

- A. Nesje et alii 2004 A. Nesje, O. D. Svein, J. Bakke, *Were abrupt Lateglacial and Early-Holocene climatic changes in Northwest Europe linked to freshwater outbursts to the North Atlantic and Arctic Oceans?*, in *The Holocene* 14 (2), p. 299-310.
- I. Nestor 1932 *Der Stand der Vorgeschicht Forschung in Rumanien*, in *Bericht der Romisch-Germanischen Kommission* 22, p. 26-31.
- C. S. Nicolăescu-Plopșor, E. Comșa 1957 *Microlitele de la Băile Herculane* in *SCIV*, 8,1, p. 17-26.
- C. S. Nicolăescu-Plopșor, E. Kovacs 1959 *Cercetările paleolitice din regiunea Baia-Mare*, in *Materiale* 6, p. 33-42.
- C. S. Nicolăescu-Plopșor, I. Pop 1959 *Cercetările și săpăturile paleolitice de la Cremenea și împrejurimi*, in *Materiale* 6, p. 51-56.
- C. S. Nicolăescu-Plopșor 1929 *Mesoliticul în România*, în *Cercul științific craiovean, Memoriile Muzeului Regional al Olteniei, memoriul III-VI*, I, p. 14 -15.
- C. S. Nicolăescu-Plopșor 1931 *Les cultures mesolithiques en Oltenie*, in *Arh. Olt*, 10, p. 406-409.
- C. S. Nicolăescu-Plopșor 1938 *Le paleolithique en Roumanie*, in *Dacia*, NS. 5-6, p. 41-107.
- C. S. Nicolăescu-Plopșor 1941 *Industries mesolithiques en Oltenie*, in *Dacia*, N.S. 7-8, p. 1-12
- C. S. Nicolăescu-Plopșor 1954 *Introducere în problemele paleoliticului în R.P.R.*, in *PA* 1, p. 59-71.
- C. S. Nicolăescu-Plopșor 1957 *Le paleolithique en Roumanie a la lumiere de dernieres recherches*, in *Dacia N.S.* 1, p. 41-60.
- C. S. Nicolăescu-Plopșor 1959 *Discuții pe marginea paleoliticului de sfârșit și începuturilor neoliticului nostru*, in *SCIV* 10, 2, p. 221-237.
- C. S. Nicolăescu-Plopșor 1960 *Descoperiri tardenosiene în RSS Moldovenească (recenzie)*, in *SCIV* 9, 1, p. 179.
- C. S. Nicolăescu-Plopșor 1964 *Date noi cu privire la cunoașterea începutului și sfârșitului paleoliticului în România*, in *SCIV* 15, 3, p. 307-320.
- C. S. Nicolăescu-Plopșor 1965a *Epipaleolitic și mezolitic. O problemă de terminologie*, in *SCIV* 16, 4, p. 765-773.
- C. S. Nicolăescu-Plopșor 1965b *Oamenii din vârsta veche a pietrei*, București, Ed. Științifică.
- C. S. Nicolăescu-Plopșor, Al Păunescu 1959 *Raport preliminar asupra cercetărilor paleolitice din anul 1956*, I, *Dobrogea* in *Materiale*, 6, p. 11-42.
- C. S. Nicolăescu-Plopșor et alii 1966 C.S. Nicolăescu-Plopșor, Al. Păunescu, Fl. Mogoșanu, *Le paleolithique de Ceahlău*, in *Dacia* N.S. 10, p. 5-116.
- C. S. Nicolăescu-Plopșor et alii 1968 C. S. Nicolăescu-Plopșor, Fl. Mogoșanu, Al. Păunescu, P. Roman, *Les recherches archeologiques dans la zone des Portes de Fer*, Memoires, Serie archeologique, V, p. 1-13.
- C. S. Nicolăescu-Plopșor et alii 1959 *Șantierul arheologic Bicz*, in *Materiale* 6, p. 57-83.
- G. Nobis 1975 *Zur Fauna des Ellerbekzeitlichen Wohnplatzes Rosenhof in Ostholstein I*. In *Schriften des Naturwissenschaftlichen vereins fur Schleswig-Holstein* 45, p. 5-30.
- M. Otte, P. Noiret 2001 *Le Mesolithique du basin Pannonien et la Formation du Rubanne*, in *L'Anthropologie* 105, p. 409-419.
- M. Ozdogan 1993 *Vinca and Anatolia: A new look at a very old problem (or redefining Vinca)*, in *Anatolica*, XIC (Anatolia and the Balkans), p. 173-193

- Al. Păunescu 1964 *Cu privire la perioada de sfârșit a Epipaleoliticului în Nord-vestul și Nord-Estul României și unele persistențe ale lui în Neoliticul Vechi*, in *SCIV* 15 (3), p. 321-336.
- Al. Păunescu 1970 *Epipaleoliticul de la Cuina Turcului-Dubova*, in *SCIVA* 21, (1), p. 3-47.
- Al. Păunescu, 1978 *Complexele de locuire musteriene descoperite în așezarea de la Ripiceni-Izvor și unele considerații privind tipul de locuire paleolitic*, in *SCIVA*, 29 (3), p. 317-334.
- Al. Păunescu 1979a *Așezarea tardenoasiană de la Icușeni (com. Vorona, jud. Botoșani)*, in *SCIVA* 30 (2), p.187-195.
- Al. Păunescu 1979b *Tardenoazianul din Sud-Estul României și unele considerații asupra perioadei cuprinse între sfârșitul paleoliticului și începuturile neoliticului în aceasta regiune*, in *SCIVA* 30, (4), p. 507-526.
- Al. Păunescu 1980 *Evoluția istorică pe teritoriul României din paleolitic până la începuturile neoliticului*, in *SCIVA* 31, (4), p. 522-526.
- Al. Păunescu 1981 *Mezoliticul de la Erbiceni și Ripiceni Izvor, expresie a tardenoasianului nord-vest pontic*, in *SCIVA*, 32 (4), p. 479-509.
- Al. Păunescu 1993 *Ripiceni-Izvor. Paleolitic și mezolitic. Studiu monographic.*
- Al. Păunescu 1996 *Ostrovul Corbului*. Bucuresti: Verlag Caro.
- Al. Păunescu 1998 *Paleoliticul și epipaleoliticul de pe teritoriul Moldovei dintre Siret și Prut, I*, București: Ed. Satya Sai.
- Al. Păunescu 1999 *Paleoliticul și epipaleoliticul de pe teritoriul Moldovei dintre Siret și Prut, II*, București: Ed. Satya Sai.
- Al. Păunescu 2000 *Paleoliticul și mezoliticul de pe teritoriul Dobrogei*, București, ed. Agir
- Al. Păunescu 2000 *Paleoliticul și mezoliticul din spațiul cuprins între Carpați și Dunăre*. Bucuresti: Editura Agir.
- Al. Păunescu 2001 *Paleoliticul și mezoliticul din spațiul Transilvănean*. Bucuresti: Editura Agir.
- I. Paul 1962 *Sondajul arheologic de la Ocna Sibiului*, in *Materiale* 8, p. 193-204.
- C. Perles 2001 *The Early Neolithic in Greece*. Cambridge: Cambridge University Press.
- R. Pinhasi *et alii* 2005 R. Pinhasi, J. Fort, J. A. Ammerman, *Tracing the origin and spread of agriculture in Europe*, in *PLoS Biology* 3, (12), p. 410-418.
- R. Pinhasi *et alii* 2004 R. Pinhasi, M. Plucennik, Al. Bentley, J.-P. Bocquet-Appel *et alii*, *A regional biological approach to the spread of farming in Europe. Anatolia, the Levant, South-Eastern Europe, and the Mediterranean*1/Comments/Reply, in *Current Anthropology* 45, p. 59-83.
- M. Plucennik 1998 *Deconstructing the Mesolithic-Neolithic Transition*, in *Understanding the Neolithic of North-Western Europe*, M. Edmons and M. Richards (eds.), Glasgow: Cruithne Press, p. 61-83..
- D. Popescu 1960 *Săpăturile arheologice din R.P.R. în 1959*, in *SCIV* 9, 1, p. 182-188.
- T. D. Price 1985 *Affluent foragers of mesolithic southern Scandinavia*, in *Prehistoric Hunter-Gatherer: The Emergence of Cultural Complexity*, T.D. Price, A.J. Brown (eds.), p. 341-360. Orlando: Academic Press.
- T. D. Price 1987 *The Mesolithic of Western Europe* in *Journal of World Prehistory* 1(3), p. 225-305.

- T. D. Price 1989 *The reconstruction of the Mesolithic diets, in The Mesolithic in Europe, Proceedings of the Third International Symposium, C. Bonsall (ed.), Edinburgh: Edinburgh University Press, p. 48-59.*
- T.D. Price 1991 *The Mesolithic of Northern Europe in Annual Review of Anthropology, 20, p. 211-233*
- T.D. Price 1996 *The First Farmers of Southern Scandinavia in The Origin and Spread of Agriculture and Pastoralism in Eurasia, D. Harris, ed. p. 346-363. London: UCL Press.*
- T. D. Price 2000a *Europe's First Farmers: An Introduction, in Europe's First Farmers, T.D. Price (ed.), Cambridge: Cambridge University Press, p. 1-18.*
- T. D. Price 2000b *Lessons in Transition to Agriculture, in Europe's First Farmers, T. D. Price, ed.. Cambridge: Cambridge University Press, p. 319-376.*
- T.D. Price A. B. Gebauer 1992 *The Final Frontier: Foragers to Farmers in Southern Scandinavia. In Transitions to Agriculture in Prehistory. Monographs in World Archaeology No.4, A.B. Gebauer and T.D. Price, eds. p. 97-115. Madison: Prehistory Press.*
- I. Radovanović 1996a *The Iron Gates Mesolithic, Volume Archaeological Series 11, International Monographs in Prehistory.*
- I. Radovanović 1996b *Mesolithic/Neolithic Contacts: A Case of the Iron Gates Region, in Porocilo O Raziskovanju Paleolitika, Neolitika, Eneolitika V, Slovenji XXIII. Ljubliana.*
- I. Radovanović 1999 *Mesolithic and Early Neolithic in the Iron Gates Region - Settlements, Subsistence and Chronology, in L'Europe des Dernieres Chasseuses. Editions du CTHS. Paris. A. Thevenin (ed.).*
- I. Radovanović 2000 *Houses and Burials at Lepenski Vir in European Journal of Archaeology 3(3), p. 330-349.*
- M. J. Renfrew 1973 *Paleoethnobotany: The Prehistoric Food Plants of the Near East and Europe. New York: Columbia University Press.*
- M. Roksandic 2000 *Between Foragers and Farmers in the Iron Gates Gorge: Physical Anthropological Perspective, in DocPraeh 27, p. 1-100.*
- M. Roksandic 2001 *Transition from Mesolithic to Neolithic in the Iron Gates, National Library of Canada. Ottawa.*
- M. Roksandic 2006 *Interpersonal Violence at Lepenski Vir Mesolithic-Neolithic Complex of the Iron gates (Serbia-Romania), in American Journal of Physical Anthropology 129, p. 339-348.*
- P. Roman 1987 *Despre istoricul cercetărilor și stratigrafia unor așezări din Ostrovul Corbului, in SCIVA 38 (4), p. 335-365.*
- M. Roska 1924 *Recherches prehistoriques pendant l'annee 1924, in Dacia 9, p. 297-316.*
- M. Roska 1926 *Az osregesztet kezikönyve I.A.*
- M. Roska 1930 *Paleolithic Ardealului, in AIGR, 14 (1929), p. 99-125.*
- M. Roska 1942 *Erdély régészeti repertorium I.*
- P. Rowley-Conwy 1995 *Wild or Domestic? On the Evidence for the Earliest Domestic Cattle and Pigs in Southern Scandinavia and Iberia, in International Journal of Osteoarchaeology, 5, p. 115-126.*
- P. Rowley-Conwy 1999 *But Pigs Go On Forever: Domestication from the Baltic to the Sea of Japan. In Current and Recent Research in Osteoarchaeology 2, S. Anderson, ed. Oxford: Oxbow Books.*

- P. Rowley-Conwy 2000 *Milking Caprines, Hunting Pigs: The Neolithic Economy of Arene Candide in its West Mediterranean Context. In Animal Bones, Human Societies.* R.-C. Peter, ed. Oxford: Oxbow Books
- P. Rowley-Conwy 2003 *Early Domestic Animals in Europe: Imported or Locally Domesticated?* Pp. Manuscript. Personal Communication.
- C. Runnels 2004 *First Farmers of Europe, in Ancient Europe 8000B.C. to 1000 A.D.,* P. Bogucki and J.P. Crabtree (eds.), p. 218-226. New York: Thomson Gale.
- C. Runnels *et alii* 1995 C. Runnels, M. Korkuti, L. M. Galaty, M. E. Timpson, J. C. Whittaker, S.R. Stocker, J. L. Smith, S. Bruce, *The Emergence of Agriculture,* New York: Scientific American Library. A Division of HPHLP.
- C. Runnels *et alii* 1998 C. Runnels, M. Korkuti, L. M. Galaty, M. E. Timpson, J. C. Whittaker, S. R. Stocker, J. L. Smith, S. Bruce, *Between foraging and farming,* in *Science* 279 (5357), p. 163-165.
- B. D. Smith 1998 *Between foraging and farming in Science, 279 (5357),* p. 1651-1852.
- D. Srejović 1965 *Lepenski Vir: A New Prehistoric Culture in the Danubian Region,* in *Archaeologica Jugoslavica* 7, p. 13-18.
- D. Srejović 1966 *Lepenski Vir: A New Prehistoric Culture in the Danubian Region,* in *Archaeologica Jugoslavica* 7, p. 13-18.
- D. Srejović 1967 *Lepenski Vir, Boljetin-praijstoriski naselje in Arheoloski Pregled,* 9, p. 73-74.
- D. Srejović 1968 *Lepenski Vir, Boljetin – prednesolistka I neolitska naselja,* in *Arheoloski Pregled,* 10, p. 85-87.
- D. Srejović 1971 *The roots of the Lepenski Vir culture in,* *Archaeologia Jugoslavica,* X, p. 13-21.
- D. Srejović 1972 *Europe's First Monumental Sculpture: New Discoveries at Lepenski Vir.* New York: Stein and Day.
- D. Srejović 1978 *Neolithisation dans la region des Portes de Fer,* in *Godisnjak* 16, p. 21-29.
- D. Srejović 1988 *The Neolithic of Serbia: A Review of Research,* in *The Neolithic of Serbia: Archaeological Research,* D. Srejović (ed.) Belgrade: University of Belgrade.
- D. Srejović 1989 *The Mesolithic of Serbia and Muntenegro, The Mesolithic in Europe: Papers presented at the Third International Symposium, Edinburgh 1985,* p. 481-491.
- D. Srejović, J. K. Kozłowski, S. T. Kozłowski 1980 *Les industries lithiques de Vlasac et de Lepenski Vir,* in *Problemes de la neolithisation dans certaines regions de l'Europe,* p. 195-205
- D. Teocharis 1973 *Neolithic Greece,* Athens
- I. J. Thorpe 1996 *The Origins of Agriculture in Europe.* London: Routledge.
- C. Tolan-Smith 2004 *The Mesolithic of Northwest Europe. in Ancient Europe 8000 BC - AD 1000.* P. Bogucki and J.P. Crabtree, eds., p. 144-151. New York: Thomson Gale.
- R. Tringham 1968 *Hunters, Fishers and farmers of Eastern Europe, 6000-3000 BC.* London: Hutchinson.
- R. Tringham 1973 *The Mesolithic of Southeastern Europe,* in *Warsaw,* S. K. Kozłowski (ed.) Warsaw University Press.

- R. Tringham 2000 *Southeastern Europe in the Transition to Agriculture in Europe: Bridge, Buffer, or Mosaic, in Europe's First Farmers*, T. D. Price (ed.) Cambridge: Cambridge University Press.
- D. Tudor 1965 *Cercetări arheologice în zona viitorului lac de acumulare al hidrocentralei "Porțile de Fier"*, in *SCIVA* 16 (2), p. 395-406.
- H. Todorova 1995 *The Neolithic, Eneolithic and Transitional Period in Bulgarian Prehistory*, in *Prehistoric Bulgaria. Monographs in World Archaeology* 22, W.D. Bailey and I. Panayotov (eds.), p. 79-88, Madison, WI: Prehistory Press.
- H. T. van Andel, C. Runnels 1995 *The Earliest Farmers in Europe*, in *Antiquity* 69 (264), p. 481-500.
- B. Voytec, R. Tringham 1990 *Rethinking the Mesolithic: The Case of South-East Europe*, in *The Mesolithic of Europe*, C. Bonsall (ed.) Edinburgh: John Donald LTD.
- A. von den Driesch 1976 *A Guide to the Measurements of Animal Bones from Archaeological Sites*. Harvard: Peabody Museum of Archaeology and Ethnology.
- A. Whittle 1994 *The First farmers*. In *The Oxford Illustrated Prehistory of Europe*. B. Cunliffe, ed., p. 136-166, Oxford: Oxford University Press.
- A. Whittle 2000 *New research on the Hungarian Early Neolithic*, in *Antiquity* 74, p. 13-14.
- A Whittle *et alii* 2002 A. Whittle, L. Bartosiewicz, D. Boric, P. Petitt, M. Richards, *In the beginning: new radiocarbon dates for the Early Neolithic in norther Serbia and South east Hungary*, in *Antaeus*, 25, p. 60-117
- K. J. Willis, K. D. Bennet 1994 *The Neolithic transition – fact or fiction? Paleocological evidence from the Balkans*, in *The Holocene* 4, 3, p. 326-330.
- J. Zilhao 1993 *The Spread of Agro-Pastoral Economies Across Mediterranean Europe: View from the Far West*, in *Journal of Mediterranean Archaeology* 6, p. 5-63.
- J. Zilhao 2000 *From the Mesolithic to the Neolithic in the Iberian Peninsula*, in *Europe's First Farmers*, Cambridge: Cambridge University Press, p. 144-182.
- J. Zilhao 2004 *The Mesolithic of Iberia*, in *Ancient Europe*, P. Bogucki and J.P. Crabtree (eds.), Vol. 1. New York: Thomson Gale, p. 157-164.
- M. Zvelebil 1986 *Postglacial Foraging in the Forests of Europe*, in *Scientific American* 254, p.86-92.
- M. Zvelebil 1989 *On the Transition to Farming in Europe, or what Was Spreading with the Neolithic: A reply to Ammerman*, in *Antiquity* 63, p. 379-383.
- M. Zvelebil 1998 *Genetic and Cultural Diversity of Europe: A Comment on Cavalli-Sforza*, in *Journal of Anthropological Research*, 54, p.411-417
- M. Zvelebil 1999 *The agricultural transition and the origins of Neolithic societies in Europe*, in *DocPraeh* 28, p. 1-26.
- M. Zvelebil 2000 *The Social Context of the Agricultural Transition in Europe. In Archaeogenetics: DNA and the Population Prehistory of Europe*, C. Renfrew and K. Boyle, eds. p. 57-79, Cambridge: Mc Donald Institute of Monographs