

## Further notes on Mesolithic-Neolithic contacts in the Iron Gates Region and the Central Balkans

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**ABSTRACT** – *Hunter-gatherer/farmer contact in the Iron Gates region is re-examined in view of recent archaeological research, and the social dynamics, population movements and interactions of small scale societies. Full, non-hostile interaction between hunter-gatherers and farmers in the Iron Gates region is proposed for the mid- 7th millennium calBC, followed by hunter-gatherer encapsulation at the end 7th millennium calBC. The lack of archaeological records on the Central Balkan Post-glacial and Early Holocene hunter-gatherers is highlighted as a major obstacle to fully understanding cultural transformations, including the Neolithic transition, in this region.*

**IZVLEČEK** – *V luči sodobnih arheoloških raziskav smo ponovno preučili kontakt med lovci in nabiralci ter poljedelci na območju Železnih vrat in socialno dinamiko, populacijske premike ter interakcije majhnih družb. Predlagamo, da je med lovci in nabiralci ter poljedelci na območju Železnih vrat v sredini sedmega tisočletja calBC obstajala popolna, nesovražna interakcija, ki ji je sledila kapsulacija lovcev in nabiralcev na koncu sedmega tisočletja calBC. Poudarili smo, da je glavna ovira pri popolnemu razumevanju kulturnih transformacij, tudi neolitske tranzicije v tej regiji, pomanjkanje arheoloških zapisov o centralno balkanskih post glacialnih in zgodnje holocenskih lovcih in nabiralcih.*

**KEY WORDS** – *Balkans; Mesolithic; Neolithic; Lepenski Vir; hunter-gatherer/farmer; interaction; migration; landscape learning*

### Introduction

The idea of the potential contact between hunter-gatherers and early food producers during the 7<sup>th</sup> and early 6<sup>th</sup> millennium calBC emerged because of the contemporaneity of the Central Balkan Early Neolithic sites with the Iron Gates Mesolithic, along with the occurrence of items and features traditionally related to the 'Neolithic package'<sup>1</sup> in Mesolithic contexts (*Garašanin and Radovanović 2001; Jovanović 1972; Kaczanowska and Kozłowski 2003; Pâunescu 1987; Radovanović 1996c; Voytek and Tringham 1989*).

Apart from the Danube Iron Gates Gorges, the existing archaeological record does not imply any straight-

forward evidence of contact between hunter-gatherers and early food producers elsewhere in this region. A few sites in the Morava valley, all of them Early Neolithic, may only indicate the possibility of such contact, since the time of their occupation overlaps with the time of the Late Mesolithic and Early Neolithic in the not so distant Danube Gorges. On these grounds, a patchy distribution of rare 'last hunter-gatherers' who co-existed with regional Early Neolithic groups has been proposed (*Chapman 1989; Radovanović 1996c; Tringham 2000; Voytek and Tringham 1989*). Confirmed contact of the Iron Gates Mesolithic with the Early Neolithic, based on the presence of various material culture elements assumed

<sup>1</sup> In the Balkans, the classic 'Neolithic package' items and features, although marked by important regional variability, may include all or only some of the following: monochrome and/or painted pottery, fired clay objects, rectangular structures constructed from wattle-and-daub, macro-blade chipped stone industries, polished stone objects and grinding stones, domesticated plants and animals (sheep, goat, cattle, pig, wheat, barley, lentils, peas), intramural human burials in contracted position, etc.

to be a part of the 'Neolithic package', goes back at least to 6300 cal BC. It is unlikely that the demographics of the Central Balkans were marked at that time by a proportion of food-producing groups so large as to lead to the encapsulation of the remaining hunter-gatherers. The situation may more accurately be described as a mosaic of diverse hunter-gatherer and early food producing groups having settled different niches, or even sharing them to a certain extent. The early food producers were more probably surrounded by the hunter-gatherers at that time, than vice-versa. The beginning of this contact – preceding 6300 calBC – could be imagined with small 'pioneer' Neolithic groups who had entered this area, but were not able to begin pursuing their established mode of production, based on domesticated plant and animal exploitation, without co-operation with local hunter-gatherers (for a variety of reasons discussed below). This possibility cannot be ruled out only because the diagnostic 'Neolithic package' elements preceding 6300 calBC are absent from Iron Gates Mesolithic contexts. It should initially be explored by identifying changes in a number of different aspects of the IGM hunter-gatherers' material culture, and by investigating whether they could be a direct or an indirect result of that contact (see also *Radovanović 2006a; Tringham 2000.44*). The encapsulation of hunter-gatherers' may be probable only in the final stages of the Neolithic settlement of the Danube Gorges and elsewhere over several centuries following 5900 calBC, during the Middle Neolithic Starčevo. The goal of this paper is to discuss such contacts and their impact on different groups living in the area at that time.

### Late Pleistocene and Early Holocene research bias in the Central Balkans

Regrettably, we still know very little about prehistoric hunter-gatherers in Central Balkan areas other than the Danube Gorges. Only in the past few years have a more intensive survey and test excavations targeting the Late Pleistocene sites in this region begun to yield very promising results (*Mihailović D. and Mihailović B. pers. com*), providing further evidence that the Central Balkans is not a Palaeolithic/Mesolithic void, as has been assumed (but see *Tringham 2000.32*) (Fig. 1). It is quite unlikely that the Late Palaeolithic and Early Mesolithic hunter-gatherers, or their Palaeolithic predecessors, who frequented the Danube Gorges were the only groups present in the region. It is even less likely, since the Balkan Peninsula was an important *refugium* for the European living world during the Ice Ages (*Kozłowski*

*1999, Mišić 1981; Taberlet and Cheddadi 2002; Tzedakis et al. 2000*), with no indication of living conditions worsening to such a degree as to force all hunter-gatherers to abandon the entire region at any time during the Pleistocene or later. Some of the evidence could indeed be missing due to the erosive and accumulative processes responsible for the destruction and deep burial of sediments containing a potential Pleistocene and Early Holocene archaeological record (*Dolukhanov 1979; Montet-White 1999*). However, recent research in Serbia indicates that such explanations are not applicable to the entire Central and/or Eastern Balkans.

Therefore, the scarcity of fully explored geological, palaeontological, and archaeological record from the Late Pleistocene and Early Holocene can be noted as the main cause of the inadequate knowledge of and, hence, questionable interpretations regarding the cultural change and transformations that took place during earlier prehistoric periods in the Central Balkans. No wonder that the scarcity of this record influenced so strongly, for example, some versions of the Neolithic demic diffusion model, which portray a relentless population 'wave' advancing from the Middle East over the Central Balkan 'void', circumventing only the Danube Gorges' coastal areas which were settled by the solitary hunter-gatherers.

Why is the Palaeolithic/Mesolithic evidence so scarce? The most important reason is the very low priority that Palaeolithic and Mesolithic explorations had in the archaeology of the Central Balkans (principally Serbia) during most of the 20<sup>th</sup> century. Prehistoric archaeology in Central and South-East Europe was, and to a great extent still is, practiced within the long tradition of the cultural-historical approach, with a significant penchant for the study of the Neolithic and later prehistoric periods. In contrast to neighbouring areas (Hungary, Romania and, much later, Bosnia and Herzegovina, Montenegro, Bulgaria, Greece, and Albania), the Pleistocene and Early Holocene hunter-gatherer settlements in Serbia were of only peripheral interest for most local scholars. The lack of systematic archaeological surveys and scarcity of regional quaternary studies was a recognized fact, but it did not initiate any substantial revision of the 'mainstream' agenda. The belief that the Central Balkans was devoid of human settlement during the Late Pleistocene and Early Holocene was, albeit illogically, reinforced. No wonder that the results of the survey and rescue excavations on the right banks of the Danube Gorges and downstream areas in the mid 1960s, which brought to light evi-

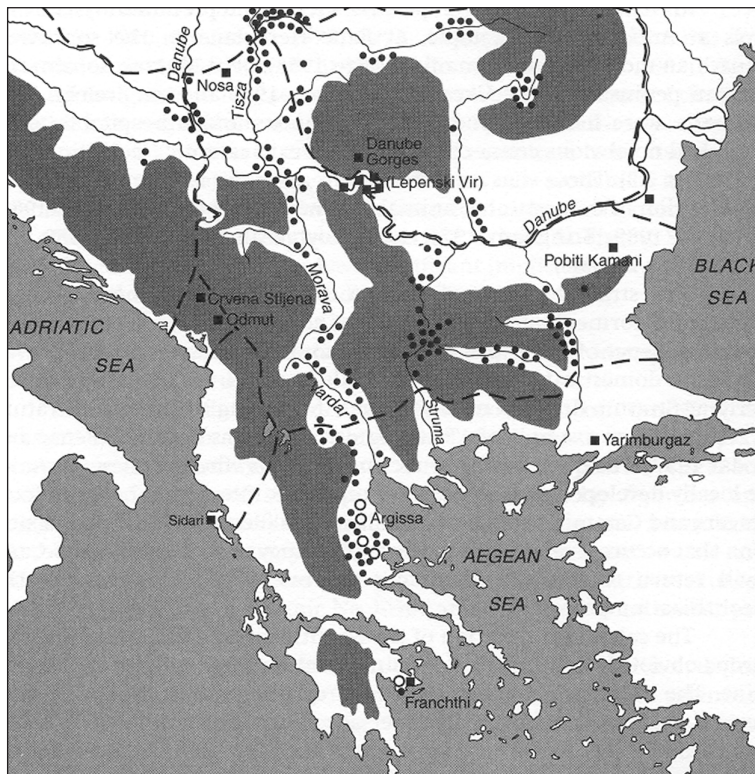


Fig. 1. Balkan Peninsula with locations of Mesolithic (■) and Early Neolithic sites (●○) (after Tringham 2000).

dence of Early and Late Mesolithic camp sites, came as a complete surprise.

It is true that the Childean perception of the Balkans as a 'bridge' and/or a 'buffer-zone' between the Near East and Europe influenced the research goals of scholars in both regions, in the past and today (Kotsakis 2003.217; Tringham 2000.19–56). A significant emphasis was on topics such as the origins of food production, metallurgy, social complexity, and the ensuing processes of their diffusion over the Balkans through population movements, acculturation and exchange, believed to be directly reflected in the spatial and temporal variability of material culture (especially pottery).

### The study of hunter-gatherers and its potential in the Central and Southern Balkans

Similarly to the Central Balkans, the Palaeolithic and Mesolithic were understudied in Greece in comparison to other parts of Europe. This situation began to change in the 1970s, and Palaeolithic-Mesolithic research has steadily intensified ever since (for recent reviews see Bailey *et al.* 1999; Galanidou and Perlès 2003). However, some questions remained open, particularly in regard to the Post-glacial and Early Holocene human occupation that is of interest for

our topic. While the distribution and density of Central Balkan Mesolithic settlements is still largely unknown, the Greek record shows an uneven geographical distribution, with hunter-gatherer sites in the Epirus, Argolid, and on the coasts. Other parts of the country, according to the results of extensive survey, were virtually uninhabited between 13 000 BP and the beginning of the Holocene (Runnels 2003.128). Kotsakis (2001.66; 2003.218), however, does not see this hiatus in occupation as a demographic reality, but rather as another preconception caused by insufficient research (especially evident after the discovery of the Mesolithic in the Theopetra cave in NW Thessaly), coupled with the archaeological invisibility of the sites situated on the now submerged coasts, or in locations buried under alluvium. Perlès (2003.103) concurs with Runnels that Greece was extensively surveyed, arguing that it was "sparsely populated during the Palaeolithic and Mesolithic",

with the additional setback of the low visibility of Mesolithic open air sites (in contrast to caves) which were occupied for brief periods of time, thus leaving no substantial material record. She supposes that "if a local dynamic towards more complex and more sedentary societies had taken place, the settlements would have become all the more important and archaeologically visible...exemplified not only by the Near and Middle East with the Natufian and Querezmian settlements, but also, for instance the Iron Gates Mesolithic or Ertebølle complex."

Perlès' note on the subject of hunter-gatherers' shift to greater complexity and/or sedentism driven by 'local dynamics' may be a good opportunity to clarify the term 'hunter-gatherers', either simple, complex or sedentary.

In the early ethnographic literature, hunter-gatherer groups were portrayed as self-sufficient, practicing a pure foraging economy, timeless and stuck in a developmental *cul-de-sac*. They were marked by "...little personal property and an egalitarian social system; sporadic gathering of the bands, and much mobility of individuals between bands; fluid organization involving no territorial rights; no food storage and no group strongly attached to a parti-

cular area...” (Rowley-Conwy 2001.40). Deviations from this description such as territoriality, trade, social hierarchy, restricted mobility and/or sedentism, and other traits associated with greater complexity, were seen not as genuine behaviours, but as by-products of recent acculturation (Bird-David 1995.17; Layton 2001.293).

However, anthropological understanding of the term has been redefined over the past five decades, based both on the observations of hunter-gatherer variability in the modern ethnographic and ethno-historical record, and a diversity of analytical approaches marked by emphasis on one or another aspect of hunter-gatherer existence: economy, behavioural ecology, technology, society, or ideology. A variety of more refined classifications of hunter-gatherers resulted from this work, such as Binford’s foragers or collectors, groups with residential or logistic mobility, or Woodburn’s groups with immediate- or delayed-return. In terms of social organization they were commonly described as egalitarian and ‘simple’ or non-egalitarian and ‘complex’ – (for comprehensive reviews and discussions see papers in Ingold, Riches and Woodburn 1995; Panter-Brick, Layton and Rowley-Conwy 2001). These studies had a different impact on archaeologists and anthropologists, caused, among other things, by the different time-scale of their research. Socio-cultural anthropologists’ synchronic approach led to a greater awareness of the hunter-gatherers’ variability, which encompasses numerous culturally specific economic, technological, social, and ideological responses to local environmental and demographic conditions. The archaeologists’ diachronic approach leaned towards progressivist assumptions about hunter-gatherers: that there is a trend from ‘simple’ to ‘complex’ groups, that a greater social complexity of hunter-gatherers automatically implies that it had to emerge from a prior simple form, such as the ‘Original Affluent Society’ described by Sahlins (1972), that a change toward complexity occurs slowly, leads to agriculture as its logical outcome, and that such change is irreversible. Yet, based both on the analyses of ethnographic and archaeological record, each of these assumptions was shown to be incorrect (Rowley-Conwy 2001.44–52; 2004.86). The above noted differences in approaches are certainly simplified, since not all archaeologists are progressivist, and those who are would not subscribe to all these common assumptions. In relation to my topic here, they may help understand the roots of a major disagreement among scholars about the relationship (or a lack of it) between the Iron Gates Mesolithic and Early Neolithic of the Central Balkans.

The main split between archaeologists interpreting the same evidence from the Danube Gorges occurred along the line which divides (often implicit) progressivist approaches from their alternatives, which were more concerned with hunter-gatherer responses to the local environmental and social conditions and their historical trajectories (for the history of research in the Danube Gorges area since the 1960s and the effects of these approaches on interpretation, see Radovanović 1996a).

Having argued for a non-progressivist, ‘local dynamics’ approach, Rowley-Conwy classifies the ethnographically observed varieties of hunter-gatherer groups into four types (2001.42):

- “❶ the OAS [Sahlins’ “Original Affluent Society” type]: groups with little or no logistic movement of resources or food storage, found mostly in tropical regions (e.g. the Aborigines); some occur in higher latitude areas, where resources are available throughout the year and people can move from one resource to the next, exploiting them in sequence without the need for much storage;
- ❷ logistic groups that do not defend territories, such as most Inuit;
- ❸ logistic groups that do defend territories – many of Woodburn’s delayed return groups;
- ❹ sedentary groups who invariably defend territories and store resources, forming a continuation of type 3.”

These types do not develop from one another following a path beginning with type 1 (i.e., ‘simple’, egalitarian, OAS, foragers, residentially mobile, immediate-return groups) and ending with type 4. All but type 1 can be defined as complex (i.e., non-egalitarian, collectors, logistically mobile or sedentary, delayed-return groups). Further discussion on type 1 will show that labelling it as ‘simple’ is yet again questionable.

In the complex, delayed-return small-scale societies (pastoral, agricultural and hunter-gatherer), “*the binding commitments and dependencies are most often those of kinship and affinity: we may find lineages, clans and other kinship groups (...) marriage alliances between groups (...) and other sorts of formal contractual bonds to which people are committed*” (Woodburn 1995.34).

In contrast to these, the social organization of groups with immediate-return systems (Rowley-Conwy’s type 1) are marked by “*flexible social groupings, often*

changing their composition, individuals that have a choice whom they associate with in residence, in the food quest, in trade and exchange and in ritual contexts; people are not dependent on specific other people, whether relationship of kinship or other relationships, stress sharing and mutuality, but do not involve long-term binding commitments of the sort that characterize delayed-return systems; distinctions – other than those between sexes – of wealth, power and status are systematically eliminated” (Woodburn 1995.34). One among many other examples is the south Indian Nayaka’s egalitarian hunter-gatherers’ view of kinship, which “was primarily made by recurring social actions of sharing and relating with, not by blood or by descent, not by biology or by myth or genealogy”, also a person is sensed as one “with whom we share with” (Bird-David 1999.73). The systematic elimination or discouraging of socially unacceptable behaviours in egalitarian hunter-gatherer groups implies a collective consensus, but it also implies social control and pressure to maintain it; but who is in control and where does the pressure come from? Since egalitarian groups “place enormous emphasis on creating and maintaining communal consensus”, this often sparks “a kind of equally elaborate reaction formation” of “the extreme forms of symbolic violence”<sup>2</sup> (Graeber 2004.25 and also Clastres 1997). The consensus is thus maintained by re-affirming internalized cultural tradition through various aspects of symbolic conflict (Chamberlain 2006.42). The qualification of these societies as ‘simple’ does not make much sense, knowing that such symbolic means of control and pressure act in order to uphold the egalitarian system. Even if the symbolic means are ‘imaginary’ from the *etic* standpoint, they are not less real and powerful in the *emic* view. Along with various types of non-egalitarian hunter-gatherer societies, and “from the perspective of the flexibility, mobility and social equality”, egalitarian hunter-gatherer society “may be the most remarkable and specialized social form that humans have ever evolved. It has no claim to be the original human condition” (Rowley-Conwy 2001.65).

Furthermore, ethnographically known egalitarian hunter-gatherers were not found in situations of ‘pristine isolation’, but in interaction with other

groups (including ethnographers), with whom they co-operate through relationships of symbiosis, or dependence and subordination (Layton 2001.299–302, 306; Pennigton 2001.178; Woodburn 1995.35). The ethnographic record shows that many of these groups were versatile, switching between foraging and horticulturalist or herding modes of production to suit current conditions (Layton 2001.303). These oscillations between the ‘genuine’ simple hunter-gatherer mode and more complex ones underline the significant role of the local environmental and social dynamics that perpetuated them.

The ethnographic record also shows that egalitarian groups are not pre-existing cultural entities, but special alliances of individuals created in opposition to the internal social dynamics of their ‘parental’ group and/or to the external pressure of neighbours. This is why they are marked by great fluidity, establishing their ‘kinship’, in Bird-David’s words “not by blood or by descent, not by biology or by myth or genealogy” (*l.c.*). Such observations are important for archaeologists, especially when they study prehistoric hunter-gatherers’ interaction with other groups, either hunter-gatherers, food producers or both.

In this respect I agree with Perlès’ comment above about the importance of local dynamics in the formation of prehistoric hunter-gatherer settlement patterns which directly determines the visibility of the archaeological record. The assumed low visibility of Mesolithic open-air sites in Greece may indeed be the consequence of greater hunter-gatherer mobility (type 1) at that time. Previous discussion also points to a fact that most of the ethnographically known egalitarian groups (i.e., residentially mobile or immediate-return groups) were, at the time anthropologists studied them, surrounded or encapsulated by other small- or large scale societies with whom they may have co-operated. The high mobility (and egalitarianism) of the Greek Mesolithic groups could therefore have been a result of the interaction with the neighbouring, complex (logistic) hunter-gatherer groups, but the settlements of such logistic groups have yet to be found (along the now submerged coasts or deep under the alluvium, according to Kotsakis). We have also seen that egalitarian groups could be formed through avoidance of co-operation,

<sup>2</sup> Drawing these ideas about symbolic violence, which is reflected in these societies’ cosmologies, myths and rituals, from P. Clastres, Graeber continues “...there is a striking contrast between the cosmological content, which is nothing if not tumultuous, and social process, which is all about mediation, arriving at consensus. None of these societies are entirely egalitarian: there are always certain key forms of dominance, at least of men over women, elders over juniors. (...) It is hardly a coincidence that when larger, more systematically violent forms of domination do emerge, they draw on precisely these idioms of age and gender to justify themselves.”

provided that the resources they foraged were available all-year round and distributed in niches different from those used by logistic, delay-return groups. In both cases, egalitarian, consensus based groups are created in response and opposition to surrounding groups. They cannot emerge and exist without 'the other'. Woodburn (1995:63) states that "oppositional egalitarian solidarity" may have been repeatedly "invented and re-invented" where "economic circumstances were appropriate" without the need to be triggered by outside pressure. One can also argue that the 'invention' of oppositional egalitarian solidarity may be a response to internal social pressure: social tensions growing inside the parental delayed-return group (which then becomes 'the other').

The low archaeological visibility of highly mobile hunter-gatherer groups in the Mesolithic in Greece may apply to the period when farming communities were established and attained greater population densities. Some local hunter-gatherer groups (egalitarian or otherwise) were then assimilated, while others could have remained encapsulated for some time, leaving a 'simple' mobile hunter-gatherer signature in the archaeological record.

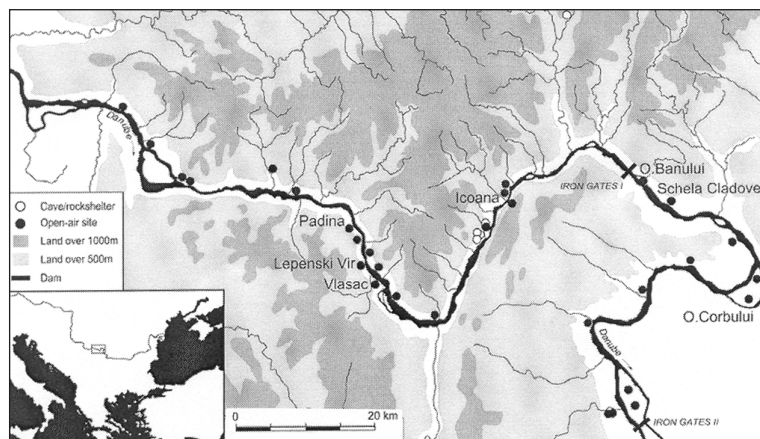
The above discussion on hunter-gatherer variability based on the ethnographic record was interspersed with my comments on recent research in Greece. They served as a 'proxy' to better understand the circumstances of the early to mid-Holocene hunter-gatherer research in the Central Balkans and its potential. Apart from geographical proximity (although not a geographical resemblance), such an alternative was also chosen because of the historical similarities in the mainstream research agendas in both regions which resulted in a considerable dearth of studies of the prehistoric hunter-gatherer record. It not only delayed research of hunter-gatherer variability in this part of the world, but also impeded better understanding of the 'Neolithisation process' which for a long time was, and still is, the main focus of the regional archaeological explorations. This research was heavily biased toward only one side of the 'Neolithisation' coin: that of established food producing groups. This process cannot be known without a much better grasp of the local hunter-gatherers' way of life, settlement patterns, ways in which they interacted with other groups, long- and short-distance exchange networks and routes and, in relation to these, the effects of long- and short- distance (small or large scale) population movements; and last but not least, the effects of changing environmental conditions.

A brief reminder of the solitary Late Post-glacial and Holocene hunter-gatherer archaeological evidence until the time of contact with early food producers from the Central Balkans, i.e., the Danube Gorges now follows.

### Late Post-glacial and Early-Mid Holocene in the Danube Gorges

The process by which settlement intensified in the Late Post-glacial and Early Holocene in the Danube Gorges is well documented, including the ongoing process of settlement and reinforcement of distinct local cultural identity markers observed in the standards of material culture production (Radovanović 1996b) (Fig. 2). The Iron Gates region witnessed extensive settlement in this period at the Climente II cave, the rock shelter at Cuina Turcului, and at the open air sites of Padina (layer A1) and the earliest occupation at Vlasac (Kozłowski 1999; Radovanović 1981; 1996a). While the caves and rock-shelter sites in the Iron Gates area of this period are marked by activities such as the specialized hunting of ibex (Cuina Turcului) or red deer and wild boar (Climente II), the open air camps at Padina A, Vlasac and probably a number of other sites, specialized in fishing. These sites were not all-year-round settlements, but locations belonging to a broader network of sites used by local hunter-gatherer groups. The full territorial extent and complexity of this network is still unknown.

The local hunter-gatherers' inclination of establishing and frequenting fishing camps along the Danube, both in the Iron Gates Gorges and downstream, continued to intensify in the Early Holocene through inter-group competition, sometimes resulting in hostile interactions (Lourandos 1995:150; Radovanović 2006b; Roksandic et al. 2006). These camps were regularly revisited, with the material culture record reflecting the presence of logistic, territorial and complex hunter-gatherer groups who established permanent structures and formal disposal areas at Padina, Vlasac, Proto-Lepenski Vir, Icoana, Hajdučka Vodenica, Schela Cladovei, Kula (Radovanović 1996a) (Figs. 3 and 4). The growing significance of aquatic resources in the subsistence of these communities was confirmed both by the predominance of fish in the faunal remains and palaeodietary analyses revealing a strong aquatic signature (Bonsall et al. 1997). A trend toward greater social complexity, permanence of settlements and the territoriality of coastal hunter-gatherers whose subsistence was based on aquatic resources (either from the sea, lakes or large



**Fig. 2. Mesolithic sites in the Iron Gates Gorges (after Radovanović 1996a).**

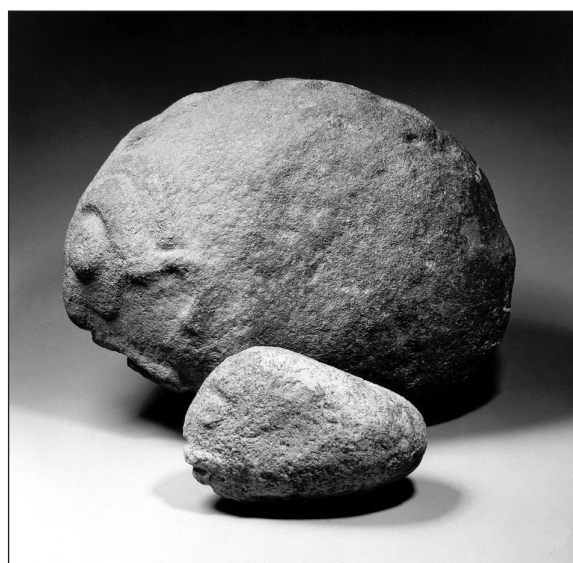
ivers) is a well explored phenomenon in archaeology and ethnography (for example, see *Palsson 1995:194 ff* on the strong correlation between dependence on coastal resources and permanence of settlement).

However, there was a major shift from aquatic resources to mixed a terrestrial diet around the mid-7<sup>th</sup> millennium calBC (*Bonsall et al. 1997*). Several other lines of evidence also mark a considerable change in the Iron Gates Mesolithic community's way of life at that time. Studies of the material culture from the entire region imply a restriction of the size of territory settled by Iron Gates Mesolithic hunter-gatherers in this period, and the abandonment of the entire left bank and parts of the right bank of the Danube with downstream areas (for the abandonment of sites implied by stratigraphic gaps and discontinuities in traditional technologies see: *Antonović 2006; Radovanović 1996a; 1996c*). This assumption was supported by *Bonsall and his collaborators' (2000)* discussion on the lack of continuity in <sup>14</sup>C dates for the period between ca 6300–5900 calBC at Vlasac, Icoana, Ostrovul Banului, Ostrovul Corbului, and Schela Cladovei, and the later re-occupation of these locations at 5900 cal BC. Post 6300 calBC, massive site abandonment coincides with the establishment of a new series of permanent structures in only two (explored) settlements in the Upper Gorges: Padina B and Lepenski Vir I–II. Traditional forms of settlement organization, architectural elements and burial practice were modified, and new material, such as pottery and other artefacts of local Early Neolithic provenance was incorporated (*Garašanin and Radovanović 2001; Radovanović 1996c; 2000; 2006a*). There is evidence confirming continuity at the Lepenski Vir settlement between 6300 and 5900 calBC (*Bonsall et al. 2004*), and a conti-

nity of the settlement at Padina has also been proposed (*Borić and Miracle 2004*).

The presence of new material culture elements has led archaeologists to assume the co-existence of Lepenski Vir and Padina communities with the regional Early Neolithic groups. Among the main elements indicating direct contact with Early Neolithic groups are diagnostic raw materials and technologies (see also different arguments, but the same general idea, in *Borić 1999; Jovanović 1987; Kaczanowska and Kozłowski 2003;*

*Kozłowski 1982; Kozłowski and Kozłowski 1984; Pâunescu 1987; Radovanović 1996a; Voytek and Tringham 1989*). The question of the presence of pottery between 6300 calBC and 5700 calBC in the Iron Gates Mesolithic in the Upper Gorges has been explored (*Garašanin and Radovanović 2001; Radovanović 1996a*) in view of the stratigraphically secure evidence from Lepenski Vir phases LV I/2–3 and Padina B/I–III. In order to clarify which Neolithic group came into contact with the Mesolithic community at Lepenski Vir and Padina, this evidence was correlated with the Early Neolithic of the Central Balkans (see Tab. 2 in *Garašanin and Radovanović 2001*). A conclusion very similar to *Srejović's (1966b)* first interpretation of the Lepenski Vir stratigraphy was reached, that is: Lepenski Vir I represents phase I of the Starčevo culture in terms of pottery presence, while Lepenski Vir IIIa and IIIb correspond to Star-



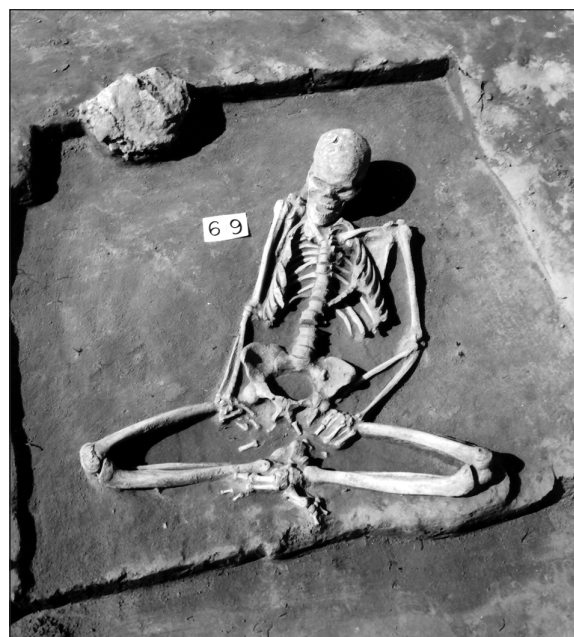
**Fig. 3. Sculptures from Lepenski Vir structures (Institute of Archaeology, Belgrade).**

čevo IIa and Starčevo IIb respectively. Effectively, 'Proto-Starčevo' and Starčevo I would represent one and the same initial phase in the Starčevo cultural sequence, strongly marked by early elements of the Balkan-Anatolian complex of the Early Neolithic (Fig. 5).

The Danube Gorges will be reoccupied at a later date, after 5900 calBC. These settlements (apart from Padina and Lepenski Vir, where the Mesolithic 'cultural identity' markers still endured) were built according to 'classic' Neolithic standards: irregular dugout dwellings and/or above ground huts, with rectangular ground-plans furnished with circular hearth constructions, such as at Râzvrata II, Ostrovul Mare km. 873, Ostrovul Corbului II/hor.VII, Hajdučka Vodenica II, Donje Butorke, Ajmana, Pesak-Vajuga, Velesnica, Ušće kameničkog potoka, Knjepište, and Alibeg at the entrance of the Danube to the upper gorges (Radovanović 1996c:43–44).

Bonsall et al. (2000) hypothesized that the abandonment of a large number of the Iron Gates Mesolithic sites in the period 6300–5900 cal BC could have been triggered by the global climatic oscillation at 8250–7900 BP (cca 6300–5950 calBC). This event was marked by cooler and wetter conditions, and may have resulted in extensive periodical flooding of the Danube banks. In their view, the exception would be the settlement of Lepenski Vir, which the Iron Gates Mesolithic community probably regarded as a sacred site, and therefore chose not to abandon. The duration of this climatic oscillation corresponds to the construction of the Lepenski Vir I structures, with floors made of a heavy-duty mixture of limestone and sand unique in the whole Iron Gates area (Fig. 6). These sturdy floors have been interpreted as protection against the structures being washed away by flooding (see also Chapman 2000:195).

Borić and Miracle (2004) opposed this interpretation because of the lack of evidence of sediments that may correspond to floods. The palaeo-climatological record on the effects of the '8200 BP cold event' in South-Eastern Europe is still inconclusive. In contrast to North-western and Central Europe where a high-resolution record about this event was assembled, its magnitude and effects farther east in Eurasia are unknown (Davis et al. 2003; Morrill and Jacobsen 2005; Veski, Seppä, and Ojala 2004) Although the abandonment of the Iron Gates Mesolithic sites cannot be explained only in terms of climatic deterioration, some floods and their impact on local groups cannot be excluded. Srejić (1966a) observed 'a



**Fig. 4. Early Mesolithic burial, from Proto-Lepenski Vir (Institute of Archaeology, Belgrade).**

thin layer of brown loessic sand' at places between the LV I and LV II settlements, and supposed that the site could have been abandoned for some time. In my view, the lowermost parts of this site might have been abandoned: according to my 1996 phasing of LV I settlements, the latest phase of Lepenski Vir I (LV I/3, corresponding roughly to Srejić's phases LV Id–e) consists of somewhat overcrowded rows of houses located on a steep slope in the rear of the settlement (Radovanović 1996a: Figs. 3.17, 3.22, 3.23 and especially 3.36). It is therefore likely that the retreat of the entire settlement higher up the slope might have been related to an increased danger of flooding at the lower elevations. Therefore the structures in these elevated parts of the site could have avoided periodical flooding. A similar trend of 'retreat up the slope' of the chronologically latest houses has also been observed at Padina, another Mesolithic site that continued to be used over a considerable time during the VI millennium calBC (Radovanović 1996a: Fig. 3.5).

### Contacts and transitions

The internal relationships within a small-scale society that constitute their social organization are often separated in anthropological literature (for analytical purposes) from external relationships with neighbours, traders, newcomers, etc. This external relationship is usually termed 'contact' (for a critique of this analytical division see Bird-David 1995:17), 'co-existence' and 'interaction' that ranges from the sym-



LV settlement phases	LV pottery phases	AMS dates	EN dispersal and landscape learning in IGM	EN Balkan-Anatolian complex	EN Carpatho-Danubian complex
LV I/1	?	?	Pioneer colonization; rapid dispersal and landscape learning. Full non-hostile interaction with resident population. Abandonment of the Mesolithic Lepenski Vir by 5800 BC	Anzabegovo Ia Proto-Sesklo	Starčevo I
LV I/2	LV IIIa1	Between 6380-6200 BC and 6080-5970 BC		Anzabegovo Ib	
LV I/3-				Anzabegovo Ic Gura Baciului	Starčevo IIa
LV II	LV IIIa2	At or after 6010-5810 BC		Abandonment of Lepenski Vir after 5550 BC	Anzabegovo II
LV IIIb	LV IIIb	At or before 5720-5550 BC			

**Fig. 5. Correlations of AMS calendar dates from Lepenski Vir with the Early Neolithic periodization of the Central Balkans (adapted after Garašanin and Radovanović 2001 and Bonsall et al. 2004).**

biosis to dependence and subordination of one group to another (Layton 2001:295–301).

The following discussion focuses on contact between hunter-gatherers and farmers. Although it is another analytical division that may be criticized (we only need to remember the above-noted oscillations in the production mode of ‘egalitarian’ small-scale societies), Rowley-Conwy (2004:97) stated that the hunter-gatherer:farmer dichotomy is analytically and empirically valid. He compared three phases (availability, substitution, consolidation) of the model of transition to agriculture (Zvelebil and Rowley-Conwy 1986) to the results of Hunn and Williams’ (1982) study of the economic practices of 200 ethnographically known small-scale societies. Zvelebil and Rowley-Conwy’s *availability* phase predicts that a small-



**Fig. 6. Lepenski Vir I structures (Institute of Archaeology, Belgrade).**

scale society depends on less than 5% of agricultural products in their diet; the *substitution* phase would include 5%–50%, and the *consolidation* phase more than 50%. Hunn and Williams’ study has shown that in ethnographically known small-scale societies, agricultural products contribute either less than 5% to the diet (these are hunter-gatherers, corresponding to Zvelebil and Rowley-Conwy’s *availability* phase) or more than 45% (agriculturalists, corresponding to the *consolidation* phase). Statistically negligible percentage reflected 5%–50% participation of agricultural products (*substitution* phase), implying that this phase is unstable and probably of very short duration, and would probably be difficult to detect in archaeological record. According to these data the small-scale societies would consist of either hunter-gatherers or farmers, not likely to linger in the intermediate substitution phase (Rowley-Conwy 2004: 97). This brings us to the topic of current palaeo-dietary studies in the Iron Gates Mesolithic

A new and larger series of radio-carbon measurements of the remaining and still datable archaeological record from the Iron Gates Mesolithic sites has been vital for further clarification of the duration, continuities and actual contemporaneity of particular settlements. The combination of dating human bones with the use of  $\delta$ -<sup>13</sup>C and  $\delta$ -<sup>15</sup>N dietary analyses has produced a powerful (although not entirely conclusive) tool for the understanding of burial record, deposition processes and habitat in the area (Bonsall et al. 2006).

According to the initial study of Bonsall et al. (1997), there was a shift from a considerable intake of aquatic resources to a broad-spectrum diet, with emphasis on terrestrial resources, based upon the values of

$\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  in the collagen extracted from human bones from the sites of Lepenski Vir, Vlasac and Schela Cladovei. Another explanation was offered, relying upon Schulting's model (1998), emphasizing a shift from a marine/aquatic to a mixed diet, with a considerable intake of freshwater fish. It was pointed out (Radovanović 2000) that regardless of the differences between these two models, they both imply that a significant dietary change took place in the Iron Gates Gorges after the mid-VII millennium cal BC and, for the convenience, the diets were marked as 'Early' (before the dietary shift at the mid-VII millennium cal BC) and 'Late' (after the dietary shift).

In further discussion on the stable isotopes and food resources in the Iron Gates area, Bonsall et al. (2000) rejected the suggestion that anadromous fish (which may contribute to the "marine aquatic" signature) could be a source of the high  $\delta^{15}\text{N}$  values in some Mesolithic skeletons – which were higher than those expected for a diet based on freshwater fish only – "because there was no corresponding enrichment in  $\delta^{13}\text{C}$  values, and because average  $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$  for Mesolithic adults in Schela Cladovei (where there is abundant evidence for Mesolithic exploitation of sturgeon) appeared very similar to those of their counterparts at Lepenski Vir and Vlasac where no sturgeon remains were identified..." Part of this argument would be contested by a later report stating that sturgeon remains were identified in the faunal assemblage collected from and/or beneath Lepenski Vir house floors, apparently missed in the course of S. Bökönyi's initial analysis of this material in 1960s (Borić et al. 2004). Nevertheless, this new information does not substantially affect the argument of Bonsall and collaborators, since the Danube *Acipenseridae* were in fact freshwater fish until 5600 calBC, when the Black Sea became a marine environment after rejoining the waters of the Mediterranean (Bonsall et al. 2000; Ryan et al. 1997). On the basis of stable isotope analyses Bonsall and collaborators proposed palaeo-dietary groupings of the skeletal remains from Lepenski Vir, Vlasac and Schela Cladovei into two periods – Mesolithic and Neolithic – the former marked by high  $\delta^{15}\text{N}$  values, and the latter with these values depleted. These data were then imposed on Srejšević's (1969; 1972) phasing of occupation at these two sites. However, after the new AMS dates were correlated to Srejšević's phases LV Ia–d, LV IIIa1–a2 and LV IIIb, they appeared to be inconsistent both with the phasing and the known radiometric measurements of the charcoal samples from Lepenski Vir structures. A problem emerged, since the AMS dates from bone samples seemed to be older than

the radio-carbon measurements of charcoal samples from the concurrent contexts.

Cook et al. (2001; 2002) succeeded in overcoming this problem, having found that the AMS dates from the bone collagen have to be corrected for a freshwater reservoir effect (FWR), based on the premise that "human diet may have included material from a reservoir that differed in  $^{14}\text{C}$  specific activity from the contemporary atmosphere". The AMS dates of individual human bones were corrected for the corresponding FWR, and this procedure resulted in a series of radio-carbon dates that were, at this time, more satisfactorily correlated with known  $^{14}\text{C}$  dates obtained from charcoal samples at Lepenski Vir and other sites. Nevertheless, the problems of the inconsistency of human burial dates with those of the house phases at Lepenski Vir remained (Bonsall et al. 2006; Radovanović 2006b) (Fig. 7).

Further analyses of the stable isotope signatures from the Iron Gates Mesolithic ensued. Grupe et al. (2003) provided additional information about stable isotope signatures from Lepenski Vir and Vlasac, noting that the "younger human finds at Lepenski Vir are not only morphologically totally different from the older finds, but tend at the same time to have the lowest  $\delta^{15}\text{N}$  values". Similarly to Bonsall et al. (2000), their analysis implies a diachronic change in palaeo-dietary habits at this site. Bonsall et al. (2000; 2002) maintain that the "younger" sample has a strong "terrestrial" isotopic profile, based on the increase of  $\delta^{13}\text{C}$  in the isotopic signature, which corresponds to cattle rather than to deer. It remained less clear why they refer to this type of signature as the signature of domestic cattle only (see also Grupe et al. 2003). Bonsall et al. (2000) provided two possible scenarios for the palaeo-dietary change in the Iron Gates Mesolithic: either the adoption of a food producing economy, or exchange for agricultural products with neighbouring farmers (see also Tringham 2000; Voytek and Tringham 1989).

Other scenarios proposed that a decrease in the importance of fish as a staple food resource was triggered by contact with first farmers (Radovanović 1996a; 1997), or excluded the possibility of a diet based on agricultural products, since the lack of domesticated faunal remains at Lepenski Vir does not support such a possibility, along with the fact that the Danube Gorges are quite unsuitable for agriculture (Borić et al. 2004). These two scenarios imply that the local hunter-gatherers switched to the mixed broad spectrum diet (based on hunting and fishing)

Lepenski Vir phases	Ranges of FWR corrected and calibrated AMS dates	Number of occurrences
Proto-Lepenski Vir	9320–9190 BC 8310–8180 BC	2
Lepenski Vir I/1		none
Lepenski Vir I/2–3	6380–6200 BC 6080–5970 BC	12
Lepenski Vir II	6010–5810 BC	5
Lepenski Vir IIIb	5720–5550 BC	

**Fig. 7. The AMS dates and stable isotope evidence from a new series of 14 samples from the site of Lepenski Vir (Bonsall et al. 2004; with more detail in Bonsall et al. in press), together with five earlier measurements from this site (Bonsall et al. 1997). It is important to note that AMS dates in this table represent the occurrence of dated human bone samples originating from the Lepenski Vir settlement contexts, but they do not necessarily date these contexts (see also Bonsall et al. 2006).**

at the time of contact with the Early Neolithic. I have earlier (Radovanović 1996a, 314; 1997) attempted to explain the contradiction between the faunal record in the post 6300 calBC Lepenski Vir (reflecting the significance of *K*-selected resources and the ensuing greater mobility of hunter-gatherers) and the perpetuation of settlement's permanency and symbolic displays (in spite of the diminished importance of *r*-selected resources i.e. fish) in terms of the local Mesolithic population's social and ideological resistance to contact with Early Neolithic groups.

I will here add yet another potential scenario that does take into account an intake of domestic food resources (as proposed by Bonsall et al. 2000) by the individuals interred at Lepenski Vir after 6300 calBC. These individuals could in fact have been affiliated to the early farming communities who lived in areas outside the Danube Gorges, at least during the past 10 years of their lives. The settlement of Lepenski Vir is usually, and with very good reason, taken to be quite dissimilar to other sites in the Danube Gorges, because it is the only site with substantial durable structures containing sculptures and other symbolic artefacts, a record of complex burial procedures, a strong demographic bias of burials in favour of males, along with a large number of newborns and infants beneath the trapezoid structure

floors. Archaeologists have never viewed it as just another fishing camp, but as a probable aggregation site that may have witnessed intense ritual activities<sup>3</sup> since its Early Mesolithic (Proto-Lepenski Vir) phase, and which continued to play an important social and ritual role in the lives of local communities in later periods, both during and after the above-noted abandonment of sites on the left Danube bank and the Lower Gorges. According to this third scenario, if the structure of faunal remains at Lepenski Vir contradicts the palaeo-dietary signature of the individuals buried at this same site, it is clear that Lepenski Vir could not have been a hunter-gatherer residential site, since it does not reflect the everyday subsistence activities of the group who used it.

The question, therefore, is not if Mesolithic hunter-gatherers interacted with the Early Neolithic groups, but how were these groups affected by this interaction. Do Lepenski Vir settlements I and II reflect the availability phase (a hunter-gatherer diet, based on the faunal remains and a palaeo-dietary signature interpreted as wild resource intake), or consolidation phase (farmer's diet, based on the palaeo-dietary signature interpreted as domestic resource intake) in terms of Zvebil and Rowley-Conwy's agricultural transition model.

Before exploring these scenarios further, let us first revisit briefly the concept of migration, since it has had an important role in archaeological interpretations of the Meso/Neolithic transition in South-east Europe.

### Migrations and landscape learning

Anthony's (1990) comprehensive review of this concept describes the causes for migration in terms of *push* (economic and/or social tension in the home region) and *pull* (attraction in the destination region) factors. He distinguishes long and short distance migrations with the likelihood of a *long-distance migration* to occur "much more rapidly among societies with focal economies, since they were likely to deplete critical resources within a given unit

<sup>3</sup> Ritual performances at residential and aggregation camps in the ethnographic record involve visits by supernatural beings who appear through trance and dance, or make their voices heard, for example 'shaking tent ritual' among the Cree, the !Kung 'medicine dance', the Hadza's 'sacred epeme dance, the Batek 'fruit season's singing session' and the Palyan and Pandaram 'spirit possession'. These ritual performances may be held as frequently as weekly among the Hadza, monthly among the Hadza, and "whenever need arises" among the Pandaram, and they could include up to one third of the community (Bird-David 1999, 78).

area more rapidly than societies practising diffuse or broad-spectrum subsistence strategies..." i.e., among farmers, and "given the proper mix of home negatives, destination positives, and low transport cost, focally adapted farmers might be considered *more* likely to migrate long distances than broad spectrum hunter-gatherers... Local moves would have only subtle effects on material culture, and would therefore be difficult but not impossible." (*ibid.* 901) *Short-distance* migration will consist of slow gradual moves and is generally distinctive for hunter-gatherers.

The migration process begins with movements of a few people ('scouts'), often along known, previously used routes in long-distance exchanges. Such small groups are goal-oriented, since migration is unlikely if there is no information about the destination region. Scout movements can be rapid (*leap-frog* migration), reaching quickly and deep into the new lands, and they are archaeologically detectable as 'islands', separated by less desirable (either settled or unsettled) territory.

A secondary flow (*chain* or *stream migration*) of larger groups will follow, "which is quite different in goal orientation and composition from the initial migrant group" (*Anthony 1990.902*), moving along the known route and establishing the 'residential' phase of more substantial land use (*Runnels 2003.126-127*). Migrants will move along *mega-patches*, such as easily traceable geographic features, rivers, linear mountain chains, clear ecological zones, i.e. landscapes more easily internalized into a cognitive map (*Kelly 2003.54*). This brings us to an explanation of the concept of *landscape learning*, which describes the consistent process of developing knowledge about a new environment. It is a "social response to situations in which there is both a lack of knowledge of the distribution of natural resources in a region and a lack of access to previously acquired knowledge about that distribution" (*Rockman 2003.12*), which is precisely the situation that the pioneer colonizers had to confront.

Drawing upon Rockman (*2003*), Meltzer (*2003*) offers a model that takes the factor of new landscape learning and its speed, curve and mode, as an important part of colonizing success, which may contribute significantly to our understanding of the process of settling in unfamiliar environments. He proposed a basic division: landscape learning with no resident population, and landscape learning with a resident population. Since there was a resident population in the Balkans, I will note only the part of

his model regarding the modalities of interaction between the resident population and the colonizers: no interaction; limited or hostile interaction; and full (non-hostile) interaction. In all cases the newcomers would have to learn about the environment from landscape cues and the indigenous population. The mode of learning would have been copying in the case of 'no interaction', and tutorial in cases of 'limited' and 'full interaction'. However, the speed of learning is greatest and the learning curve steepest only in the case of full and non-hostile interaction.

Landscape learning is slow, and includes not only building personal experience, but also incorporating those of preceding generations. Its slow rate stands in contrast to the fast pioneer colonization (or rapid directional dispersal) model established for the Early Neolithic colonization of Southeast Europe (*Perlès 2003; Zvelebil 2001*). This model is supported by a number of recent studies of ancient and modern DNA (*Bentley, Chikhi, and Price 2003.63; Haak et al. 2005.1017; Richards 2003.159*) and the latest series of the Final Mesolithic and Early Neolithic radio-carbon dates from the Central Balkans (*Bonsall et al. 2004; Borić and Miracle 2004; Whittle et al. 2002*). Kelly (*2003.54*) explains, when discussing the fast rate of colonization process that "...people are not able to learn landscapes, since learning requires personal experience that is gathered from an early age and that is encoded in folklore that requires some time depth in development" and adds "that this means, coincidentally, that the nature of the adaptation brought with a colonizing population will have a strong influence over the initial choices made." Since the new environment cannot be learned quickly, migrants need to rely upon a more generalized knowledge, choosing to settle areas ecologically and topographically similar to those in their homeland or, in the absence of these, in areas with less than optimal conditions for their traditional mode of production.

The colonizers' choice of particular ecological niches is detectable in the archaeological record, since they preferred to settle in the flood plains where they could practice agriculture optimally, in Thessaly, for example, and later in the Pannonian basin (*van Andel and Runnels 1995.481*). A preference for such niches is reflected in the establishment of long-term settlements. It cannot be explained only in terms of topographical, hydrographical, and ecological conditions and how well they seemed to fit the migrants' expectations. Such choices of niches may also imply an awareness of the fixed inter-group bounda-

ries separating farmers from the surrounding niches exploited by the local hunter-gatherers. In the Thessalian Early Neolithic, for example, such boundaries are reflected in a deliberate avoidance of exploitation of the wild resources, local lithic raw materials and use of caves and rock-shelters, which is interpreted as an implication of a possible cultural prohibition (Perlès 2001.5; 2003.106; see also Thomas 2003.69). Discussing the faunal record from the Balkan Early Neolithic sites south of the Morava/Vardar watershed and Sredna Gora mountains in Bulgaria, Tringham (2000.25) also notes that wild food resources in the local rich micro- and macro-environment were under-utilized, but she wonders if it was “through ignorance or through resistance to venturing far in space or concept into the unknown.” Both scenarios are viable, since the niche separation could initially have been the result of ‘non-interaction’ or ‘limited interaction’, or, basically a hostile interaction with local hunter-gatherers. A slow pace of landscape learning is therefore implicated (‘a resistance to venturing in space’). The encapsulation of the local hunter-gatherers at a time when a greater population density in the Early Neolithic of Southern Balkans was reached, may have led to the introduction of such ‘cultural prohibitions’, and this brings to mind similarities with more recent examples of the hunter-gatherer/farmer social interaction from the ethnographic record (Woodburn 1995.37–40)<sup>4</sup>.

However, following Meltzer’s model, learning a new landscape may also have been a fairly rapid process, due to a completely non-hostile interaction with the local population. In the case of the Central Balkans and the Iron Gates region, one can easily recognize the archaeological signature of the initial Neolithic as a ‘rapid directional dispersal’, including the Meso/Neolithic ‘mix’ that occurred in the Lepenski Vir settlements.

The very first Early Neolithic settlers in the Central Balkans were individuals or smaller groups that actually needed the support of the indigenous hunter-gatherers in order to gain crucial information about

a variety of factors such as the local topography, short-term seasonal climatic, hydrographic and ecological fluctuations, long-term changes in the availability of resources and the likelihood of catastrophic events – information that otherwise has to be learned over several generations. As stated at the beginning of this paper, we know almost nothing about these hunter-gatherers outside the Iron Gates region. However, we can see that the archaeological signature of the Early Neolithic settlements in the Central Balkans stands in contrast to those in the South. The settlements are short-term, tactical, and ‘opportunistic’, and there is no clear ‘niche separation’ (local lithic raw materials are used along with exotic ones; caves and rock-shelters were utilized; wild game exploitation is practiced), in contrast to the above discussed Thessalian and Bulgarian record (Tringham 2000.25).

In the Danube Gorges case, learning about the new landscape may have required learning *from* the resident population and *within the framework of the resident population’s tradition* – understood here as the totality of “the socially and culturally defined normative rules for the transmission of knowledge and practical skill from one generation to another” (Zvelebil 2001.1). The archaeological signature of the Meso-Neolithic contact in the Danube Gorges, for example, implies that encounters with the local Mesolithic population were not marked by conflict, quite in contrast to the local inter-group or inter-personal violence during the Early Mesolithic reported at Vlasac and Schela Cladovei (Boroneanț 1973; Roksandic et al. 2006). Ensuring this support necessitates very close social links with a resident group, including exchange and inter-marriage. Regardless of their knowledge of plant cultivation and stock breeding from their homeland (and in spite of bringing some or all of the ‘Neolithic package’), the newcomers could not have been self-sufficient, either economically or socially, for some time in the novel and unfamiliar surroundings (Tringham 2000.49, Zvelebil and Lillie 2000.64–65). In this respect I agree with Tringham (*ibid.* 47) that the (Mesolithic) “fora-

<sup>4</sup> Such cultural prohibitions targeted at the hunter-gatherers are conceivable in the circumstances of their encapsulation. Woodburn (1995.34, 40) notes that “...nomadic hunting and gathering as a way of life does offer so many patterned contrasts to the cherished values of successful farmers that it is readily represented as alien and unintelligible; for farmers, it simply cannot be a ‘real’ coherent way of life at all and must be a bastardized form.” These cultural prohibitions would justify a farming community’s pressure on the hunter-gatherers, which may include some or all the following: “attempts to kill or injure them or to coerce them using violence; to classify them as inferiors and to treat them as such; to seize and entice them (especially their women and children) to work as slaves, servants or clients; to dispossess them of their land or the natural resources of their land; to seize their artefacts, or wild resources they have harvested; to divert them from working to meet their own needs into working to obtain furs, ivory, honey, meat, or other goods required by outsiders; to proselytize them and incorporate them, often in subsidiary roles, into outsider religious and ritual systems.”

gers in the Danube Gorges would have been the more dynamic partners in that interaction”, because “they had greater access to exchange relations with agriculturalists, along with ceremonial paraphernalia and social complexity that such status might imply.”

The post-6000 calBC farmers and stock-breeders in the Morava and Middle Danube valley would actually represent a part of the “secondary flow”, a further north-westerly move of the south-east European agricultural frontier (*van Andel and Runnels 1995; Zvelebil 2001; Zvelebil and Lillie 2000*). This possibility has been supported by the recent radio-carbon dating for a number of these settlements, along with the palaeoecological evidence (*Whittle et al. 2002; Willis and Bennett 1994*). The groups spinning off that population were those that re-occupied the Iron Gates Gorges, establishing classic Starčevo-type settlements in the previously abandoned locations (Vlasac, Schela Cladovei etc.) and in locations that were still in use, enduring since the mid 7<sup>th</sup> millennium calBC, at Lepenski Vir and Padina.

## Conclusion

The Mesolithic-Neolithic contact – preceding 6300 calBC – in the Danube Gorges was initiated by small ‘pioneer’ Neolithic groups. They were not self-sufficient economically and socially upon their arrival, and in order to subsist, had to co-operate with the resident population within the local framework of cultural traditions. Their ‘signature’ in the Iron gates Mesolithic include some elements of the Early Neolithic ‘package’, but may also be seen in some other aspects of the Late Mesolithic archaeological record (reflected in modifications of architectural standards and burial procedures). Based on the Early Neolithic record in the Central Balkans, a similar scenario of non-hostile interaction with local population may be expected. During this still unclear process of the early interaction between hunter-gatherers and farmers or stock-breeders around 6300 calBC, the Iron Gates Mesolithic sites were abandoned, except for Lepenski Vir and Padina, either as a result of climatic deterioration, increasing colonizers’ pressure, or both. These factors did not allow Mesolithic hunter-gatherers to continue the intensive exploitation of aquatic resources. Since the intensification of aquatic resources and more permanent settlement among coastal hunter-gatherer groups is primarily triggered by inter-group competition, the abandonment of almost all fishing camps implies that this kind of competition ceased. The palaeo-dietary signature of this population confirms that aquatic sources ceased to

be a staple food resource. These Late Mesolithic hunter-gatherers switched to a more mobile way of life, implied by the *K*-selected species in the faunal record. However, they continued to use the only two remaining locations – Lepenski Vir and Padina – probably as seasonal fishing camps and aggregation sites. On the one hand, the interaction with Neolithic groups was non-hostile and fully cooperative. On the other, the perpetuation of these locations’ use and symbolic displays in material culture probably reflect the above described ‘symbolic conflict’, especially at Lepenski Vir. In spite of the diminished importance of *r*-selected species (i.e., fish), this situation is interpreted in terms of the local Mesolithic population’s ideological, but not economic and social, resistance to contact with the Early Neolithic groups. According to another scenario, the mixed terrestrial signature in the palaeo-dietary record of the Lepenski Vir population is interpreted in terms of subsistence based on domestic food resources (but then, this population can no longer be a hunter-gatherer population).

The end of the cold and wet climatic oscillation at 5900 calBC corresponds to a more substantial Neolithic settlement of the Central Balkans, including the Iron Gates and neighbouring areas, as indicated by the increasing number of recorded Middle Neolithic archaeological sites. This secondary flow would correspond to larger farming population moving and settling in the Central Balkans, establishing longer-term settlements and more extensive land-use in the Morava and the middle Danube basin. The Danube Gorges sites were re-occupied, but this time by Neolithic groups displaying a full range of the ‘Neolithic package’ elements. The increase in Neolithic population density (which included the second wave of ‘colonizers’, descendants of early colonizers and local residents, and the assimilated groups of local hunter-gatherers) outside of the Danube Gorges, probably triggered the encapsulation of the remaining hunter-gatherers in the Upper Gorge. They continued for some time to re-affirm their cultural traditions by maintaining and revisiting the long-established Lepenski Vir and Padina aggregation camps, until in the mid-6<sup>th</sup> millennium when they were finally abandoned – but the surrounding Middle Neolithic settlements in the Danube Gorges were soon to be abandoned too. In their discussion on the Iron Gates Mesolithic, Fiedel and Anthony (2003) captured very well a probable reason for such development: “...the Neolithic farmers were less concerned with securing a good local fishing place than with winning control of this nexus of indigenous social

and ideological resistance. Once they accomplished their goal, they had little further interest in this agriculturally marginal area”.

Recent studies in the Meso/Neolithic transition based on, for example, genetic models (*Barbujani and Chikhi 2006*), population dynamics (*Davison et al. 2006*), and radio-carbon data (*Gkiasta et al. 2003*).

48) were not discussed here at great length. They all emphasize the 'overall process' and 'continent-wide patterns' which could not, so far, contribute substantially to a topic that attempted to explore local social (and demographic) dynamics, which we have seen to be of the utmost importance in the understanding of any kind of 'transition'.

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