

# How Many Core Areas? The “Upper Paleolithic Revolution” In An East Eurasian Perspective

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## INTRODUCTION

I first came across the work of Professor Ronen in 1980 when I just started to study archaeology. Since then his publications have occupied a permanent place on my working table serving as an invaluable source of ideas and information. This paper is devoted to one of the subjects that always have been in the center of Prof. Ronen’s interests.

The dominant scenario of the Middle to Upper Paleolithic transition is the one which suggests that initially the technological changes forming the hallmark of a new developmental stage occurred in one more or less restricted area (core area), whereupon the innovations spread over most of the Late Pleistocene *oecumene* (Bar-Yosef 2000:12, 2001:282). Their spreading is often thought to be a result of migrations, followed by replacement and/or acculturation processes (*e.g.*, Allsworth-Jones 1986; Kozłowski 1992; Mellars 1996, 1996a). This theory is apparently congruent with that of biological replacement of Neanderthals and other “archaic” hominids by anatomically modern humans, and usually it is assumed that it was the latter who invented and disseminated new and more complex forms of subsistence, technological, social, communicative and artistic behavior. Recent efforts to cast doubt on this scenario succeeded in demonstrating its shortcomings (Zilhão and d’Errico 1999), but did not offer a competitive alternative. Partly this could be due to the fact that this brilliant analysis was based on the same data that served for many years the proponents of the “core area” and “acculturation” hypotheses, that is on the West/Central European and Near Eastern record. What follows is basically

an attempt to show that the growing body of East Eurasian data if incorporated into the “big picture” of the transition may change the balance of evidence in favor of polycentric scenarios, and can contribute to the elaboration of what may be called the “multiregional theory” of the Middle to Upper Paleolithic transition. In addition, it will be argued that the broadening geography of the “Upper Paleolithic revolution” alongside some theoretical considerations, may open a possibility for revising our ideas of the underlying causes of this process.

### EAST EURASIAN EVIDENCE

By East Eurasia I mean here the lands stretching to the east of the Dnieper and Black Sea. Today there are no doubts that, in several parts of this huge area, the first Upper Paleolithic (hereafter UP) industries appeared as early as in Western Europe and the Zagros. This applies well to the Middle Don basin in the South Russian Plain, Altai Mountains in South Siberia, and Lake Baikal region in East Siberia. More ambiguous is the situation with some putatively early UP assemblages in Turkestan (the former Soviet Central Asia) which, in this author’s view, should rather be considered still Middle Paleolithic (hereafter MP).

**South Russian Plain.** In the whole of the Russian Plain there are not more than a dozen known UP assemblages that can confidently be dated to the period older than 30 kyr bp (Vishnyatsky and Nehoroshev 2004). The overwhelming majority of them are concentrated within the borders of a small rural district (Kostenki) in the Middle Don area, 40 km south of Voronezh. The earliest of the Kostenki assemblages can securely be dated to older than 36 kyr bp and may be as old as 40 kyr bp or even older. This is evidenced both by a number of conventional and AMS radiocarbon dates and by the stratigraphic position of some cultural layers occurring in a fossil soil (lower humic bed) below a well-marked horizon of volcanic ash. This horizon is connected with the eruptions of Campi Flegrei (Flegrian Fields) in Italy and is believed to be as old as 35 ka or even 38 ka (Hoffecker 1999:137).

Most of the earliest UP assemblages from Kostenki are usually attributed to two archaeological cultures: Streletskian (Kostenki 12/III,<sup>1</sup> Kostenki 6, Kostenki 1/V) and Spitsynian (Kostenki 17/II). Both of them have rich stone industries based on flint (Anikovich 1992:226-231, 2000; Rogachev and Anikovich 1984:179-181). The Streletskian is distinguished first of all by the presence of bifacially worked triangular

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<sup>1</sup> In this paper Arabic and Roman numerals are used to designate sites and cultural layers, respectively.

points with concave or straight base. In addition, most Streletskian assemblages include short subtriangular endscrapers with or without ventral thinning, chisel-like tools (*pices esquillées*), retouched points of the Mousterian aspect, simple, convergent, and angular sidescrapers. Most cores are flat, prismatic cores are extremely rare, flakes strongly predominate over blades, and the majority of tools are made on flakes. Unlike the Streletskian inventories, the Spitsynian lacks any "archaic" features and looks like a "full-fledged" UP with prismatic cores being the only form of nucleus and blades dominating among blanks. The tool set consists mainly of retouched blades, endscrapers on blades with subparallel unretouched edges, and burins which are especially numerous and make up about a half of all tools. In addition to stone artifacts, the collection includes a few bone tools and about 50 pendants with perforated holes made of arctic fox canines, belemnites, stone, fossil shells and corals. Recent fieldwork at Kostenki has led to the discovery of several more early assemblages that yielded materials with unclear cultural affiliation. One of these is layer IVb of Kostenki 14 which is remarkable for its well developed bone inventory, perforated shells and a carved ivory sculpture (Sinitsyn 2000, 2002). According to Sinitsyn, based on paleomagnetic and palynological data and a single RSL date of  $44,9 \pm 3,8$  kyr bp (UIC-748) obtained on burned loessic loam, the age of this assemblage may exceed 42 kyr bp (Sinitsyn 2002:229-230), but this hypothesis needs further confirmation. For the time being, the age of 37-38 kyr bp seems more realistic and accords well both with a series of radiocarbon dates on charcoal ranging from  $34,940 \pm 630/590$  (GrA-13302) to  $37,240 \pm 430/400$  (GrA-10948) and with another RSL date on burned loessic loam ( $34,3 \pm 2,9$  – UIC-749) (Sinitsyn *et al.* 2002). The same or similar antiquity may be supposed for cultural layer IV of Kostenki 12 overlain by a stratum with a radiocarbon date of  $36,280 \pm 360$  (GrA-5551) and underlain with horizons that yielded 3 RSL dates ranging from  $43,470 \pm 3,670$  (UIC-946) to  $46,910 \pm 3,860$  (UIC-947) (Anikovich *et al.* 2002).

Several diverse hypotheses have been put forward to explain the genesis of the earliest Kostenki industries. Especially well known and thoroughly worked out is the idea linking the Streletskian with the MP industries of the Crimea (Zaskalnaya, Chokurcha, *etc.*) and the south-west of the Russian Plain (Trinka 3/III) where similar forms of bifacial points were found (*e.g.*, Anikovich 1999). As to the origin of the Spitsynian and the other early UP traditions all the existing hypotheses hang in mid-air due to the rarity of representative and reliably dated late MP assemblages. Probably the only MP assemblage in the Russian Plain that can now be dated with confidence to the period directly preceding the appearance of the first UP industries is layer VIII of the open-air site of Shlyakh in the southern part of the Middle Don basin (Nehoroshev and Vishnyatsky 2000). Two AMS radiocarbon dates obtained on bone from layer VIII point to an age of *ca.* 45 kyr bp. Such a chronology is corroborated by the results of palynological and paleomagnetic

studies, the latter of which suggest that layer VIII directly postdates the Kargopolovo paleomagnetic excursion (*ca.* 42/45 kyr bp). The collection of retouched tools consists of sidescrapers, proto-Kostenki and backed knives, Mousterian points, some retouched blades, endscrapers and burins, while bifaces, so characteristic of many of East European MP assemblages, are totally absent. Of particular significance is the fact that the industry is characterized by a proto-prismatic technology aimed at the production of blades from wedge-shaped cores. While the character of the industry by no means allows for direct links to any of the early UP cultures known in the Russian Plain, it clearly shows that a trend towards laminar technologies existed in the local Mousterian and became very pronounced by the end of the MP.

**The Altai Mountains.** This region is known for a number of open air and cave sites with very early transitional and UP assemblages. The oldest of them may well predate the 40 kyr bp boundary. The most famous, of course, is Kara-Bom (Derevianko *et al.* 1998) with its rich stone inventory based mainly on good quality hornstone. The laminar industries from occupation levels 5 and 6 contain both MP and UP tool forms (retouched points, sidescrapers, notches, backed knives, endscrapers, burins, *etc.*), and technologically seem to be tightly connected with the preceding local Mousterian assemblages characterized by numerous Levallois elements (Kara-Bom, Denisova cave, *etc.*). According to Derevianko (2001), a very similar industry dated to the same period of time was found also at Orhon in Mongolian Altai. Somewhat later is layer 11 of Denisova Cave which is reported to have yielded numerous and various stone artifacts both of MP and UP aspect (including fragments of leafshaped points), as well as a representative collection of bone tools (including needles) and personal ornaments of animal teeth and ivory (Derevianko 2001). A number of other UP assemblages known today in the Altai may also be early enough to consider them in the context of the MP-UP transition including, for example, layers 11-9 of Ust-Karakol (Table 1).

Table 1: Absolute chronology of the earliest UP sites in Altai.

Site and layer	Date	Material	Lab No.	Source
Kara-Bom, layer 6	43,200±1,500	Charcoal	GX-17597	Goebel et al. 1993
Kara-Bom, layer 5	43,300±1,600	Charcoal	GX-17596	
Denisova Cave, layer 11	>37,235	Bone	SOAN-2504	Derevianko 2001
Ust-Karakol 1, layer 10	35,100±2,850	Charcoal	SOAN 3259	

**Lake Baikal region.** This part of East Siberia appears to be very rich in early UP sites. They are known now both to the north of the lake in the Angara and Lena basins and to the south of it in Transbaikalian. Judging by the available absolute (radiocarbon) dates the earliest of these assemblages are older than 38 kyr bp (Table 2). At Makarovo 4 (the Upper Lena basin) the primary flaking technology, while being blade-oriented, retains numerous features usually associated with the MP (*e.g.*, flat cores). The tool kit includes forms typical for both UP contexts, as well as choppers, sidescrapers, *etc.* The same is characteristic of Varvarina Gora in Transbaikalian (Goebel and Aksenov 1995). The stone inventory of Podzvonkaya in Transbaikalian is said to display many similarities with the transitional industry from Kara-Bom. In addition, the former site has yielded some bone tools, but only one or two of them are made with the use of polishing and cutting, while the rest were formed by flaking like stone artifacts. Some late Middle Paleolithic traditions known in this region (*e.g.*, Hotyk) could have been a source for the formation of local UP industries.

Table 2: Absolute chronology of the earliest UP sites in the Lake Baikal region.

Site and layer	Date	Material	Lab No.	Source
<i>Upper Lena basin</i>				
Makarovo 4, layer 3a	>38,000	Bone	AA-8878	Goebel and Aksenov 1995
	>38,000	Bone	AA-8879	
	>39,000	Bone	AA-8880	
<i>Transbaikalian</i>				
Podzvonkaya	>36800	Bone	AA-26742	Klement'ev 2000
	38900±3300	Bone	AA-26741	Klement'ev 2000
Varvarina Gora, layer 3	>34,050	Bone	AA-8875	Goebel and Aksenov 1995
	>35,300	Bone	AA-8893	
	34,900±780	Bone	SOAN-1524	Bazarov <i>et al.</i> 1982
	30,600±500	Bone	SOAN-850	

**Turkestan (the former Soviet Central Asia).** The earliest UP in this region is believed by some authors to be represented in the upper strata (14-2) of the Obi-Rakhmat shelter, Uzbekistan (Derevianko *et al.* 2001; Suleimanov 1972), which is 100 km northeast of Tashkent. Five AMS radiocarbon dates obtained recently for some of the supposedly UP layers of the site range from about 40 to 50 kyr bp (Table 3). All these layers contain a very homogenous industry based on silicified limestone supplemented with quartz

and quartz sandstone pebbles. The industry is characterized by an abundance of long blades with even, sharp edges, which were struck from single-platform or bipolar cores. Tools are represented mainly by blades retouched along one or both edges, including elongated points. Sidescrapers on flakes are relatively rare, as are discoidal cores. In view of Derevianko *et al.* (2001) this is sufficient to consider the industry UP. According to others, however, it is viewed as MP (Schäfer and Ranov 1998; Vishnyatsky 1999). Despite the abundance of blades, true prismatic cores are nearly absent, and the overwhelming majority of blades have rather thick platforms which is indicative of non-marginal flaking. This MP blade technology is combined with a very ambiguous tool kit poor in typically MP forms but lacking also well defined UP tools. True, there are some burin spalls and burins, as well as endscrapers, but both types are far from UP standards and may well be defined as atypical.

Table 3: Obi-Rakhmat absolute chronology.

Layer	Date	Material	Lab No.	Source
7	41,400±1,600	Charcoal		Derevianko et al. 1999
8	44,000±2,000	Charcoal	AA-31580	
	42,100±1,700	Charcoal	AA-31581	
13	>46,000	Charcoal	AA-35318	
14	48,800±2,400	Charcoal	AA-36746	

A somewhat similar industry of roughly the same age comes from the open-air site of Khudji, Tadjikistan, which is 40 km west of Dushanbe. A radiocarbon date of 38,900±700 kyr bp (GIN-2905), obtained from a charcoal sample collected in the late 1970s, has recently been corroborated by a series of five new determinations ranging from 36 to 42 kyr bp (Ranov and Laukhin 2000). Stone artifacts are made mainly of fine-grained quartz sandstone and alevrolite. Cores are diverse, often amorphous, with some representing narrow face wedge-shaped cores and flat cores of parallel flaking. Intact blades are almost as numerous as intact flakes, and more than half of the retouched tools are on blades, indicating that the technology was oriented toward the production of elongated blade blanks. Most of the retouched blades are described as sidescrapers (single, double, and convergent) and points. The rest of the tools are retouched flakes, notches, denticulates, single burins and putative endscrapers. There can be little doubt that, based on most of its typological and technological characteristics, the industry of Khudji should be considered MP.

### **Geography of the Upper Paleolithic revolution**

The most conspicuous traits that allow for distinguishing between the UP and MP are: 1) in the realm of stone working the prevalence of technologies aimed at the mass production of blades and the predominance of tools on blades, including many types not characteristic of the MP; 2) in the realm of bone working the appearance of numerous and diverse tools made with the use of techniques which are either inapplicable or not easily applicable to most rocks (cutting, planing, grinding, boring); 3) in the non-utilitarian (that is unconnected directly with life-maintenance in its biological sense) sphere the appearance of indisputable and relatively rich evidence of symbolism (adornments, pictorial art). Although most of these features can be found (usually in underdeveloped condition) in some MP assemblages too, taken together they form what may be considered a complex of UP cultural outpomorphies. Certainly, the transition could and should also have been associated with some change in subsistence practices, settlement patterns, modes of raw material acquisition and use, etc., but usually such innovations are less obvious and more disputable than those listed above.

Since early in the last century archaeologists have been looking for the core area where the UP outpomorphies mentioned above appeared for the first time and from where they subsequently could have spread to other regions. The primary attention has traditionally been paid to the Middle East, and it is the west of this region – the Near East or the Levant (with the adjacent areas of North Africa) – that seems to be the most popular “candidate” for the core area now (for one of the latest and most informative reviews see Bar-Yosef 2000). Both the early presence of anatomically modern humans and old enough dates for a number of UP sites give credit to such a hypothesis. It finds further confirmation in the fact that at some multilevel sites (particularly at Ksar Akil) one may observe a smooth enough technological evolution between the MP and UP industries. However, as the data from other regions accumulates, the meaning of the East Levantine record seems increasingly more obscure. On one hand, if we accept the well known dates for Boker Tachtit and Kebara at face value one cannot but admit that the first UP industries appear in the Near East earlier than elsewhere. On the other hand, however, in different parts of Europe and Asia from the Pyrenees to East Siberia a whole number of more or less reliably dated UP assemblages is known now that appear to be just 2-3 thousand years younger than Boker Tachtit, level 1, or Kebara, levels III-IV. Moreover, if one takes into account that the UP nature of the former assemblage is not unequivocal, and the latter one has not yet been published in any detail, then the question of whether the Levant really was the cradle of the UP will seem even more complicated.

Let us assume, however, that both industries do represent the true UP and are as old as claimed (that is around 43/45 kyr bp). Would this inevitably lead us to believe that the single core area scenario is correct? I think the best answer would be: “not necessarily”.



Figure 1: The distribution of the earliest Upper Paleolithic industries and their minimum ages.

Some regions where the UP appeared only 2-3 (or less) millennia later than in the Levant are separated from the latter by many thousands of kilometers even if measured as the crow flies (Fig. 1), and I find it difficult to believe that Upper Paleolithic hunters and gatherers had enough incentives to traverse such a huge area during such a short period of time (about 100 generations). Archaeologists have long been accustomed to thinking that our Old Stone Age ancestors “migrated” in the literal sense of the word, but there are also those who argue that “Paleolithic people did not migrate – they expanded their numbers and territories. These range expansions were done without very much movement of people at all, merely small bands of foragers budding off and relocating just a few kilometers further in search of food each generation” (Eckhardt 2000:242). In my view, this model is much more realistic. If one accepts it, the roughly simultaneous appearance of different early UP industries in Cantabria, the Balkans, Central Europe and South Russian Plain some 40 kyr ago can hardly be accounted for by their spread from one core area (be it the Levant, the Nile corridor, or any other place). Even more difficult to imagine is the rapid penetration of the UP into such distant parts of East Eurasia as the Altai and the Baikal regions, all the more since in the Altai the earliest transitional or UP assemblages may be coeval with those of the Levant (see above). In addition, let us not forget that, for the time being, no UP sites older than 36 and perhaps even 32 kyr bp are known either in the Caucasus or in Anatolia, that is in large regions representing the only two passages from the Levant to Europe.

Therefore, for those who are not inclined to liken Paleolithic people to present-day tourists rushing to distant lands just out of curiosity to see something different from what they see in their everyday life, the geography and chronology of the MP/UP transition speak rather in favor of multiple core areas than a single core area scenario. Though the



possibility of migrations of early UP populations from region to region can by no means be excluded and is highly probable for some adjacent areas (*e.g.*, North Africa and the Levant), in most instances independent development appears to be much more plausible. It will seem even more plausible if one takes into account the two following facts. First, most of the transitional/early UP industries are very peculiar from the typological standpoint and show no signs of common roots or mutual influence (the only possible exclusion to this rule may be the case of the Emiran and Bohunician). Second, nearly all early UP industries known in different regions can be linked with some local late MP assemblages (except Buhunician and, perhaps, Aurignacian).

### **Why did the transition occur?**

A very popular objection against the multiple core areas scenario is that "in purely statistical terms <...> it would seem to demand an extraordinary degree of convergent and coincidental cultural development" (Mellars 2000:38). However, such a "coincidence" may seem strange and unlikely only if one proceeds from the conviction that the transition resulted from some unique, specific circumstances, such as a [biological] speciation event or fortuitous discovery of a new technology. If, on the contrary, we do not rule out from the outset that there could have been a universal cause(s) effective over a considerable part of the Paleolithic *oecumene* and capable of raising a universal trend(s) in cultural development, the multiplicity of "core areas" may seem quite possible. Therefore, what we need to do now is to make an inventory of possible causes of the cultural changes marking the transition. Let us consider briefly the most popular explanations.

**1) Biological explanation.** According to this line of reasoning the MP-UP transition was a consequence of some very important changes in human biology that took place with the origin of modern *Homo sapiens*. However, judging by the facts that neither the appearance of anatomically modern humans about 120 kyr ago entailed any significant changes in culture, nor the anatomy of Neanderthals prevented them from making UP stone and bone artifacts including ornaments, the straightforward biological explanation should be rejected. In fact, we even do not know for sure who were the creators of the earliest Aurignacian assemblages.

**2) Accumulationist explanation.** Very often the development of culture in prehistory is considered to be a mere and inevitable result of gradual accumulation of knowledge and experience, skills, inventions, and discoveries. It is taken for granted that once humans are able to do something "useful" (clay pots, bone points, geometric tools, and so on) they immediately materialize this ability. This could seem true if not for the numerous instances of what may be called "delayed innovations". For example, it is now well known that MP people both in Africa and in Europe were quite able to manufacture formal bone tools by means of cutting, planing and polishing, but for tens of thousands of years these practices

remained very rare. Equally, we know that UP people sometimes made clay vessels and figurines, or polished stone tools, but it was only in the Neolithic that all these skills were widely adopted and became true innovations. Therefore, to explain the spread of bone points, blade technologies, personal ornaments, *etc.* is first of all to explain not why these innovations became possible but why they became necessary, why people had to replace old and reliable technologies with new, more complex and labor-consuming ones.

**3) Sociological explanation.** It asserts that important cultural transformations associated with the onset of the UP were caused first of all by changes in social (interpersonal and intergroup) relations. One of the most interesting efforts to prove this thesis was undertaken by Soffer who proceeded mainly from paleoanthropological data (Soffer 1992, 1994). She was successful in demonstrating that at least some human societies did experience some structural changes in the period under consideration. However, it still remains unclear whether these changes were the cause or the consequence of transformations in other realms of culture. Moreover, even if we assume they were the cause, we still have to explain why they themselves occurred. Once the latter question remains unanswered, the whole problem remains unresolved.

**4) Linguistic explanation.** It is particularly popular among anglophone scholars many of whom believe that it was the appearance of the modern syntactic form of language that caused social, technological and other changes known to take place about 40 kyr ago (*e.g.*, Clark 1995; Mellars 1996, 1998; Noble and Davidson 1991). For some it even “seems impossible not to believe that these [changes] are associated with a change in the nature of language” (Mithen 1998:175). However, there is no direct evidence that could confirm this hypothesis (*i.e.*, that language in its modern form appeared at the period under consideration), and therefore it remains purely speculative. Another weak point of this explanation is that it cannot answer why language change itself should have occurred without resorting to biological or sociological causes.

**5) Demoeological explanation.** The main point of this approach is that to avoid circular reasoning the ultimate cause(s) of cultural changes in prehistory in general and during the MP-UP transition, in particular, should be sought beyond culture in nature (*e.g.*, Vishnyatsky 2002 and references herein). “Progressive” cultural innovations are considered a side effect of people’s efforts to maintain habitual ways of life and living standards under stress conditions that result from climatic and demographic changes. A primary role is ascribed to the latter. Of course, when we speak about the Paleolithic any reconstructions of demographic parameters such as population numbers and/or densities are highly vulnerable to criticism. Nonetheless there is a number of facts suggesting the existence of an important causal link between the demographic situation that had formed in much of the Old World by the middle of the Upper Pleistocene and the intensification of cultural development that is described by archaeologists as the MP-UP transition. It was

exactly by the end of Middle Paleolithic times that the Old World *oecumene* had acquired a shape similar to the present one, and almost all areas with tolerable environments had been occupied. Judging by the distribution of archaeological sites, late MP people colonized all of Africa, nearly all of Europe including southern Scandinavia and transpolar Ural, as well as the Middle East, the Indian subcontinent, Central and Eastern Asia, and a considerable part of Siberia. It is important that at the very same period about 50-60 kyr ago (and at any rate no later than 40 kyr ago) humans began to penetrate into Australia (O'Connell and Allen 1998; Thorne *et al.* 1999) which may be taken as an indirect evidence of the rise of demographic pressure on the mainland. Further, as can be inferred from genetic data, the appearance of the earliest UP was preceded by (and perhaps accompanied with) a demographic explosion. The study of DNA variability in modern populations suggests that there was something like a demographic explosion among ancestral hominids between 100 and 50 kyr ago (*e.g.*, Harpending *et al.* 1998; Reich and Goldstein 1998). This conclusion is corroborated by the results of recent archaeozoological research which shows an expansion of diet breadth of some late MP-early UP populations at the expense of small and agile, but quickly reproducing animals (hair, partridge, *etc.*), whose procurement and processing was very costly (that is time- and energy-consuming). A diet expansion of this kind can be taken as an indirect indicator of growing population pressure (Stiner 2001; Stiner *et al.* 1999;).

While admitting the fact of population growth in the period under consideration, some authors consider it a mere consequence of technological and/or social change (Ambrose 1998; Cachel 1997; Mellars 1996a, 1998a). However, in this case, the changes themselves remain unexplained (see above), while the trend of any population to grow is quite natural and needs no special explanation. Would it not be more logical to suppose that the demographic factors served as the cause, while cultural changes were the consequence? It is interesting that, in the same way in late 1960s, the cause and consequence changed places in explanations of the "Neolithic revolution".

### **No revolutions without the Neanderthal party!**

The brief consideration of the principal approaches to the explanation of the MP-UP transition undertaken in the previous section shows that most of them either are at variance with the available evidence (biological and accumulationist models) or refer to such causes of change which themselves remain unexplained (sociological and linguistic models). The only approach that seems to be devoid of these shortcomings is the demoeological one, assigning the major part to demographic factors. Let us now dwell on one possible demoeological scenario for the transition in more detail.

As has been noted by Carbonell and Vaquero (1998:392), "the geographical area in which cultural features defining the UP appeared after 40 kyr B.P. coincides with the area

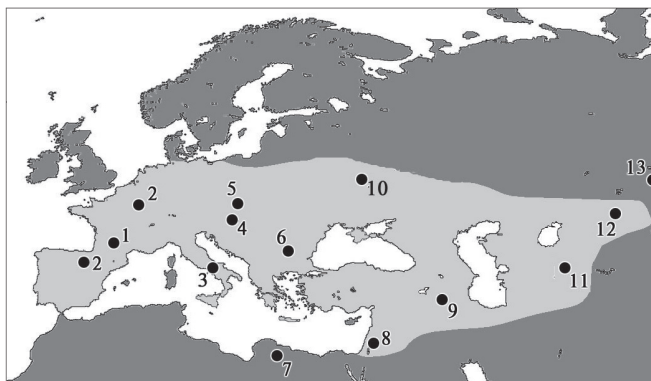


Figure 2: The location of the main transitional/early Upper Paleolithic industries and the probable distribution area of Neanderthals after 60 kyr bp. : 1 – *Chatelperronian*, 2 – *Aurignacian*, 3 – *Uluzzian*, 4 – *Szeletian*, 5 – *Bohunician*, 6 – *Bachokirian*, 7 – *Dabban*, 8 – *Emiran* and *Ahmarian*, 9 – *Baradostian*, 10 – *Streletskian* and *Spitsynian*, 11 – *Kara-Kamar*, 12 – *Kara-Bom* and other Altai sites, 13 – *Makarovo* 4 and other East Siberian sites.

inhabited by Neandertals” (cf. Svoboda and Siman 1989:320; Vishnyatsky 2000:259). Indeed, the distribution of the earliest UP industries is very close to the distribution of the Neanderthal skeletal remains (Fig. 2). Though Neanderthals have not yet been found in the South Russian Plain (see however Kharitonov and Batsevich 1997) and southern Siberia (except some debatable specimens), there can be little doubt that their discovery is a question of time only (to date, no taxonomically identifiable human bones are known to be associated with the MP assemblages in both regions). On the other hand, the regions where no Neanderthals are known have not yielded any true UP at all (East/Southeast Asia, Australia) or yielded rather late UP/LSA (Indian subcontinent, most of North Asia). Even in sub-Saharan Africa despite the long presence of anatomically modern humans, one finds only sparse, isolated and often ambiguous evidence of such innovations that could be compared to those taking place in Europe, West Asia, and South Siberia (see however McBrearty and Brooks 2000). It can thus be argued that the technological and other changes associated with the transition took place there and only there where the expanding modern populations met Neanderthals (and/or vice versa) and where the former and the latter had to compete for vital resources.

Neither the available chronological data nor what we know about the association between different early UP industries and hominid morphotypes give grounds to believe

that the UP culture(s) was brought to Europe, West Asia, South Siberia, *etc.* from elsewhere. Rather, there was a series of broadly coeval local transitions prompted by the need to intensify the resource procurement under stress conditions when escaping to free lands was no longer possible. This need forced both the Neanderthals and anatomically modern humans to put into practice the techniques and skills that had probably been invented tens of thousands of years earlier, but "for a long time were kept in the recessive part of cultural 'genofond' without manifesting themselves appreciably in living cultures or archaeological materials" (Vishnyatsky 1994:138-139).

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