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FROM THE LATE MIDDLE PALEOLITHIC TO THE EARLY UPPER PALEOLITHIC, BETWEEN THE ADRIATIC AND THE CASPIAN SEA: CONTINUITY OR DISCONTINUITY? AN INTRODUCTION

Prehistorians have since a long time focused their interest on the striking changes in the material record across the Middle Paleolithic/Upper Paleolithic boundary. Vigorous and stimulating debates about the meaning of these changes lasted all along the past decades and are still going on. Much effort has been developed on deciphering the processes of change insofar as the onset of the Upper Paleolithic is often associated with the appearance and spread of anatomically Modern Humans, a hypothesis still largely supported even if often controversial. The discussions have been even more vivid since the notion of "modern behaviour" *versus* "archaic behaviour" has been introduced in the debate, a quite recent notion that seems to have appeared, in the mid-1980s, since the development of mitochondrial genetic studies and the subsequent ascendance of the Out-of-Africa model (Brantingham *et al.* 2004b, preface).

In all these debates, many scholars are not reluctant to link human morphotypes with particular material cultural form (association of Neanderthal with Middle Paleolithic assemblages and modern *Homo sapiens* with Upper Paleolithic assemblages), then suggesting that behavioural evolution co-occurred with biological evolution. While lithic technological traditions resulting from learned behaviour transmitted from one generation to the next most probably reflect human groups, the data presently available do not show clear evidence for strict relationships with biological characteristics (human morphotypes), as exemplified for instance by the association of both anatomically modern humans – the Qafzeh/Skhul group – and Neanderthals with the Levallois technologies in the Levant. The question is

still largely debated (see for instance Bar Yosef, 2005, Brantingham *et al.* 2004a, for recent references) and no clear picture emerges till now, in particular because the fossil remains from the beginning of the Upper Paleolithic are fragmentary and often recovered in few secure geological contexts, keeping open controversial interpretations. Till now, no diagnostic and well-dated human remains have been found in clear archaeological context before the Middle Aurignacian; thus the often claimed assertion of Modern Humans being the authors of the very Early Upper Paleolithic has presently no archaeological grounds. Our research and interpretations thus must focus, in a first step, on the variability of the material culture (mostly technical lithic traditions and other elements such as bone-tools, ornaments, when available) and on settlement structure, and establish the patterns of changes at the Middle Paleolithic/Upper Paleolithic boundary first on these bases. Only in a second step, we should be able to pinpoint the possible relations between the observed cultural patterns and the human fossils in hands. Presently, a series of new dating projects, especially in Central Europe, are in progress which together with the recent discoveries of new fossil remains, will hopefully made available a better established database for such discussions [(Conard *et al.* 2004, Smith *et al.* 1999, Svoboda *et al.* 2002, Svoboda *et al.* 2004, Trinkaus *et al.* 2003) in Svoboda 2004b]. Thus in most cases, the bulk of evidence for "transition" is restricted to lithic technology and it is mostly on these bases that the processes of changes have been traced and discussed. During the period of transition from the Middle Paleolithic to the

Upper Paleolithic, depending on the geographical area, features indicating both continuities and discontinuities in the technological development have been described in the literature. These elements of both continuity and rupture in lithic traditions have been used to support a contrasting hypothesis for the Middle Paleolithic/Upper Paleolithic transition: the hypothesis of local independent evolution *versus* acculturation from some external tradition (Otte 1990). The main goal of the symposium entitled "*New Researches on the Late Middle Palaeolithic/Early Upper Palaeolithic Period, from the Adriatic to the Caspian Sea: Continuity or Discontinuity?*" that we organized with J. M. Geneste in September 2004 was to illustrate the diversity of those processes of change.

None of these topics is entirely new, as shown by the abundant literature and conferences focused on the issue of the onset of the Upper Paleolithic. But most often, the Europeocentric perspective dominates. For a long time, research was concentrated almost exclusively on southwestern Europe and secondarily on the Levant; technological changes that took place in eastern Europe, Russian plains and even central Asia were rarely incorporated into the overall picture. More recently, the situation has changed with new information coming from broader geographical perspectives, especially from central and eastern Europe, from Turkey, Russian plains, Altai Mountains, central Asia and northeastern Africa as well (see for recent publications: Brantingham *et al.* 2004a or 2004b, special issue *Anthropologie* XLII/3, 2004; recent researches of *Archaeology, Ethnology and Anthropology of Eurasia* published by the Russian Academy of Science, Novosibirsk branch, in which a debate has been initiated since 2001).

The present issue had its origin in the symposium that we organized at Lyon in the context of the EAA Congress; it reflects the recent general broadening over regions not often presented in the literature. It follows a previous special issue organized by J. Svoboda on the same topic, but more oriented towards the relationships between eastern Europe and northeastern Africa.

Data and ideas presented here reflect at the same time new results obtained in recent fieldwork, with better control on site-formation processes and dating sampling, in areas not so largely documented till recently. This research allowed to document the different processes of changes in several places such as the Transcarpathian area, southern Caucasus or central Europe, giving some support to the new hypothesis concerning the onset of the Upper Paleolithic. They also document the novel interpretations slowly emerging out of recent research in the prehistoric community, especially concerning the place of the Aurignacian complex in the onset of the Upper Paleolithic.

For several decades it has been commonly admitted that the Aurignacian was a homogeneous techno-complex related to the first diffusion of Modern Humans in Europe. Recent research conducted by Teyssandier in central

Europe and the Balkans (Teyssandier 2003, this issue) has questioned this model, especially concerning its first manifestations in Europe, i.e. discussing the reality of the so-called "Pre-Aurignacian" phase (Kozłowski, Otte 2000b) and the presence of Proto-Aurignacian assemblages in this area.

Indeed, recent technological studies (Teyssandier 2003, this issue, Tsanova, Bordes 2003) bring a new insight on the significance of the Bacho-Kirian industry (Bacho Kiro layer 11), from the Balkan region, for a long time considered as a plausible ancestor of the European Aurignacian (Kozłowski *et al.* 1982, Kozłowski, Otte 2000a). Both researches conducted in parallel on this assemblage have demonstrated the absence of clear Aurignacian characteristics, and rather the occurrence of still techno-typological Middle Paleolithic traits together with Upper Paleolithic tool typology, thus providing arguments against the generally adopted idea of complete cultural discontinuity between Middle Paleolithic and the Bacho-Kirian in the Balkans (Kozłowski, Otte 2000a). Based on this new technological information, Kozłowski (2004) suggests now to consider the Bacho-Kirian as "*another phase of the evolution of the earlier Levallois-derived industries of the Early Upper Paleolithic which could possibly originate in the Near East*" (Kozłowski 2004: 278). Then the initial hypothesis which connected the genesis of the Aurignacian with the Bacho-Kirian is worth reconsidering (Kozłowski 2004: 275).

Kuhn *et al.* (2004), in the concluding remarks of the volume mentioned above, have recently pointed out that "*in many of the regions discussed in this volume, the Aurignacian plays a much less important role in the trajectories of Upper Paleolithic cultural change. In eastern Europe, the Caucasus and central and northeastern Asia, the Aurignacian sensu stricto is poorly represented, if it is present at all. Where it does appear elsewhere (central Europe, the Crimea, the Levant), the Aurignacian is both a relatively late arrival, appearing well after the development of other Early Upper Paleolithic, and is typologically variable*" (Kuhn *et al.* 2004: 243).

Recent research in Transcarpathia gives support to these observations. Monigal *et al.* (this issue) document true Early Upper Paleolithic present in western Ukraine, around 39,000 years BP, long before the development of the classical Aurignacian in this area. In fact, these new data and ideas discount the widespread assumption that the Aurignacian represents the first wave of Upper Paleolithic populations' dispersal in Europe. The generalized acceptance of this "classical" hypothesis may have concealed for a long time the cultural diversity at the onset of the Upper Paleolithic.

Recently, more attention has been paid to the cultural differentiation encountered during the so-called "transitional" period. The development of several new field projects, of technological studies (based on the *chaîne opératoire* concept and refitting technique) as well as recent programs of radiometric dating (despite the ambiguities concerning the calibration of the dates for this period) allowed more

precise estimation of the variability encountered in this period in the different geographical areas.

Known under the general names of "transitional" industries, "Initial Upper Paleolithic" or even "Early Upper Paleolithic", depending on the authors and the geographical area under study, these types of industries often combining Levallois and Laminar (*sensu* Meignen 2000) technologies (i.e. the Levallois-leptolithic technology – Svoboda, Svoboda 1985) are largely spread and have been documented in several localities from central Europe to central Asia. They generally date to an earlier time span than the Aurignacian *sensu stricto* (either by their stratigraphical position or radiometric ages), somewhere between 45,000 to 36,000 years BP. Following Kuhn (Kuhn *et al.* 1999, Kuhn 2004), we suggest to use the general term of "Initial Upper Paleolithic" for these assemblages (for more historical information, see Marks 2003). They share a number of features that have been regularly described in different papers. As recently summarized by Kuhn (2004), the label "Initial Upper Paleolithic" refers to assemblages characterized by essentially Upper Paleolithic inventories of retouched tools (burins, endscrapers and retouched blades) sometimes with still a significant number of Middle Paleolithic types (sidescrapers and broad points). They demonstrate a dominant blade production from core reduction strategies combining elements of both Levallois and Laminar (volumetric) concepts [even sometimes observed on the same block as shown by refittings (Škrdla 1996, Škrdla 2003)]. Most of the blades are wide with faceted platforms and indicate still the use of hard hammer technique in relatively variable proportion. Such assemblages are largely spread in Eurasia (for instance Boker Tachtit lev. 1–4, Ksar Akil XXIV–XXI, Tor Sadaf A–B, Uçagizli I–F, Intermediate Paleolithic in Umm-el-Tlel, the Bohunician, Temnata layers VI and IV, Kara-Bom upper layers, Korolevo II/II and recently Bacho-Kiro layer 11).

However at a large scale, this "techno-complex" demonstrates an internal variability that could be evaluated on several criteria: more or less developed persistence of Middle Paleolithic tool types, of Levallois core reduction strategies, variable frequencies of the hard hammer *versus* "soft (organic or soft-stone) hammer/tangential gesture" technique, relative presence/absence of retouched points, presence/absence of intentional bladelet production; these internal variations have been identified at the regional scale, for instance in the El Kown basin (Boëda, Bonifauri, this issue). They have also been recognized in different stratigraphical contexts. Whether these variations represent a diachronical trend is not easy to decipher, taking into account the ambiguities of dating during this time gap. But in some cases, these changes are observed in stratigraphical sequences thus demonstrating their likely diachronical meaning, at least locally [Ksar-Akil (Bergman, Ohnuma 1987); Uçagizli (Kuhn 2004), Tor Sadaf (Fox 2003)].

Nevertheless, the relative homogeneity, as broadly defined above, of the Initial Upper Paleolithic allows to separate this technological "entity", from the "Early

Upper Paleolithic", a label that we suggest to keep for the earliest appearance of true Upper Paleolithic assemblages characterized by quasi-exclusive Upper Paleolithic tool inventories (including pointed blades/bladelets), thin blade/bladelet production following Laminar concept (prismatic cores) and emphasis on the soft (or soft stone) hammer technique together with abrasion/tangential gesture. As a consequence, in these Early Upper Paleolithic assemblages, faceting tends to disappear and platforms are mostly punctiform or linear. Whether this technological shift from hard hammer percussion to soft hammer (or soft stone)/tangential gesture percussion was an abrupt or a progressive phenomenon is not yet clear (see Ohnuma, Bergman 1990, and more recently Marks 2003: 260, Kuhn 2004 for the discussion). But it is in any case a major technical event, together with careful shaping of the cores, as part of a process of better control on the regularity of the end-products – blade/bladelet – production in the development of the Upper Paleolithic (Meignen, Bar-Yosef 2004). In the Near East, the Ahmarian will be a good example of such an Early Upper Paleolithic (see for instance, Goring-Morris, Davidzon this volume, but also recently, Monigal 2003 for a more detailed study of the core-reduction strategies involved), as well as assemblages such as Sokirnitsa and Korolevo I/Ia, in Transcarpathia (Monigal *et al.* this issue).

This full-fledged Upper Paleolithic seems to be the result of a general trend previously described in the intra-Initial Upper Paleolithic variability. Such a long-term continuity with the appearance of a new percussion technique together with the disappearance of the Levallois-like technology has been identified for instance in the stratigraphic sequences of Uçagizli in Turkey (Kuhn 2004), in the multilayered site of Ksar-Akil in Lebanon (Ohnuma, Bergman 1990), and at Tor Sadaf in Jordan (Fox 2003: 80); it is also evidenced in Transcarpathia although not happening in a single site (Monigal *et al.* this issue). But presently available data indicate that these technological changes resulting in the onset of full-fledged Upper Paleolithic are not synchronous in the different regions, as shown for instance by the relatively late dates of intermediate industries in Umm-el-Tlel (Boëda *et al.* 1996).

Due to the stratigraphic position of the Initial Upper Paleolithic industries, some scholars prefer to use the term of "intermediate industry", a position supported here by Boëda, Bonifauri (this volume), then adopting a totally neutral word which avoids the meaning of continuity implied by the term "transitional". As recently pointed out by Marks (2003) who raised the ambiguities of the different labels employed to designate these assemblages, we insist on the necessity to find soon a general consensus on the terminology that would facilitate communication in the international scientific discussions.

The relative homogeneity of the Initial Upper Paleolithic assemblages, as broadly defined above, comes along with some typological diversity, expressed in the different Middle Paleolithic *versus* Upper Paleolithic tool components

together with specific "cultural markers" as exemplified by the Emireh points in Southern Levant, or chamfrein pieces in Northern Levant.

The apparent homogeneity of these largely spread Initial Upper Paleolithic industries that we have already previously discussed, needs to be tested before interpreting them in terms of "*a single, widely diffused cultural complex or more generalized developmental stage between the Middle and Upper Paleolithic*" (Kuhn 2004: 276). In fact, at a large geographical scale, the assemblages encountered under the term of Initial Upper Paleolithic seem to cover a great deal of variability in relation with the local histories.

Lithic assemblages corresponding to the general definition given above have been recognized in a large area from Europe to central Asia. Even if all of these Initial Upper Paleolithic assemblages share the common technological characteristics that we have described above, in fact, at this large scale, the lithic components demonstrate some variability which reflects the diversity of the processes involved in the Middle Paleolithic/Upper Paleolithic "transitions" and of the preceding local backgrounds.

They are all dated between 45,000–36,000 years BP, within the period during which the Upper Paleolithic technological characteristics took place, and thus constitute a central basis for the understanding of the initial development of the Upper Paleolithic. Most of the scholars will agree with the evidence of Levallois roots for these Initial Upper Paleolithic technologies. In order to identify the processes that allowed their development, either from a local entity or as a result of cultural diffusion, research generally focused on determining if the local Initial Upper Paleolithic technologies in each region could be tracked down from the local Levallois technology or, on the contrary, if they had been introduced from adjacent or distant areas where Levallois concept was part of the technical knowledge. In the former case, they then should represent an expression of Neanderthal developmental dynamics, in the latter, they could be interpreted as an external influence and the resulting acculturation phenomenon. The later hypothesis is the most often supported (although not without controversy), especially for western Europe, and also largely favoured since the genetic studies promoted the Out-of-Africa model.

Recently published data and reflexions suggest that the situation is more complex than is commonly presented. They document not a unique, universal scenario but rather several processes of change leading to the establishment of the Upper Paleolithic along several different tracks depending on the local circumstances. Consequently, it seems important not to confine ourselves to a unique monolithic model, since clearly different processes of transformation seem to operate in different geographical areas and at different times. As recently stressed by Kuhn *et al.* (2004) in the conclusions of their well-documented publication, "*none of the regional archaeological records described in this volume provides unambiguous support for either of the simple scenarios for the spread of Modern*

Humans into Eurasia, universal regional continuity or a catastrophic wave of population advance out of Africa."

The presently available literature as well as the papers presented in this issue illustrate several examples of these different processes.

A strong continuity in the technical and behavioural development from the local Levallois Middle Paleolithic to Initial Upper Paleolithic and to the following Early Upper Paleolithic, is evidenced in some regions. For instance, in the Near East, since a long time, several researchers have supported the hypothesis of Middle Paleolithic/Early Upper Paleolithic continuity (Copeland 1975, Garrod 1955, Marks, Volkman 1983, but see Bar-Yosef 2002 for a different view). More recently, we have emphasized a technological shift, in the northern and central Levant, at the end of the Middle Paleolithic, from a specific variant of the Levallois concept, the unidirectional convergent method, as developed in the late Middle Paleolithic from Kebara (Meignen 1995) to unidirectional volumetric blade core reduction strategies as identified in most of the Initial Upper Paleolithic known in this area (Ksar Akil XXIV–XXI, Uçagizli I–F, Tor Sadaf A–B) (Meignen, Bar-Yosef 2002, 2004). The processes of change could have been different in the southern Levant (see Bar-Yosef 2000, Bar-Yosef *et al.* this issue), even if in this area, local continuity has been also argued, but on a different Middle Paleolithic background from the northern one (Marks 1992, 2003, Marks, Ferring 1988). Additionally there is a general consensus on the Initial Upper Paleolithic/Ahmarian continuity in this area, even if some steps in the developmental process are considered as missing (Goring-Morris, Davidzon, this issue).

Another convincing example of such technological continuity is represented by the sequence of Middle Paleolithic and Initial Upper Paleolithic assemblages recorded at Kara-Bom in the Altai Mountains (Derevianko 2001, Derevianko *et al.* 2000) even if the dating of the "transitional" industries [43,200±1500; 43,300±1600 (Goebel *et al.* 1993)] needs to be confirmed. The same process has been proposed for the appearance of the Early Upper Paleolithic from Sokirnitsa and Korolevo in the Transcarpathian region dated to 39,000 years BP (Monigal *et al.* this issue)

In some cases, the local origins are clearly open to question and the impact of external technical influences (whether in the form of diffusion of ideas and/or migration of people) must be taken into account. Recent investigations into Initial Upper Paleolithic of central Europe pointed out to their likely allochthonous origins. This is clearly exemplified by the Bohunician in which the Lepto-Levalloisian component may result from external influences (from adjacent regions such as Ukraine where Levallois Middle Paleolithic industries are present (a hypothesis recently discussed and rejected; Meignen *et al. in press*), or more probably from the Levant as suggested by the C¹⁴ dates) (Škrdla 2003, Svoboda 2004a, Svoboda, Bar-Yosef 2003, Tostevin 2000). The results presented here by Tostevin and Škrdla from their renewed excavations in

Bohunice (the eponymic site) show that the variability inside the Bohunician needs to be better traced and interpreted.

This model of a population moving westward with a new technology, but without completely overwhelming the local traditions is well illustrated by the Szeletian industries which show the survival of part of the preceding local Mousterian toolkit in the form of bifacial pieces. Whether the presence of bifacial tools made *in situ* in the Bohunice site (Tostevin, Škrdlá this issue) is significative of the same phenomenon, is a hypothesis rejected by these authors.

Finally, in some places, the pattern of cultural changes is fairly abrupt. Such is the case in the southern Caucasus where the Middle Paleolithic lasted until 35,000 years ago and where a full-fledged Upper Paleolithic (not Aurignacian in character) appeared suddenly and without local precedent, thus demonstrating clearly its totally intrusive character (Bar Yosef *et al.* this issue).

This scenario is even more commonly exemplified by Aurignacian occurrences, such as in Crimea for instance where the local Middle Paleolithic (the Crimean Micoquian and the western Crimean Mousterian) persisted till around 30,000 years ago (Chabai *et al.* 2004, Chabai 1998).

CONCLUSIONS

Taking into account the variety of the cultural and geographical contexts in which they developed, the complexity recognized in the origins of the Upper Paleolithic must not surprise. Under the influence of the ancient DNA studies, the Out-of-Africa model and the correlated diffusion hypothesis became prevalent. But the broadening of research in the past decade led to a more complex picture than often presented. Expansions of populations at different scales, within and among the main regions, are highly probable and were without doubt responsible for a part of the observed diversity as shown by abrupt intrusion of radically different technologies (for instance, Upper Paleolithic in northern and southern Caucasus; Aurignacian in the Levant), or by the persistent Middle Paleolithic bifacial component aside the new blade technologies in the Szeletian. But archaeological data presently available suggest also in several contexts an indisputable technological local continuity. This is exemplified by the Near Eastern record which even suggests different tracks for these technological changes in the northern and southern Levant. The technical knowledge (specific Levallois core-reduction strategies) acquired during the late Middle Paleolithic served as a background for the emergence of Upper Paleolithic blade production. Although the trigger mechanism for the change could have been the result of contact with foreign populations, all the technical elements for the emergence of the Upper Paleolithic lithic production were already in place. In this case, there is no need to invoke external influences as the sole cause of the technical change observed. The most parsimonious hypothesis is the gradual *in situ* evolution into

Upper Paleolithic technologies, as documented in the Ksar-Akil sequence for instance (Meignen, Bar-Yosef 2004). Moreover, it should be noted in such case that the technical changes observed at the onset of the Upper Paleolithic were not radical, but perhaps only represent the intensified exploitation of previous innovations already mastered during the Middle Paleolithic (blade production following the Laminar concept of debitage, soft hammer technique but only for shaping), and their novel arrangement (supremacy of the Laminar concept for blade production, use of soft hammer, this time for debitage – Meignen, Bar-Yosef 2002). Interestingly, such association of blade production using the soft hammer technique seems to be an innovation briefly adopted around 60,000–70,000 years BP in the MSA of South Africa – in the so-called "Howiesons Poort industries" (Wurz 2002) – which disappeared later without any continuation.

All the archaeological data lead us therefore to recognize a diversity of processes in the appearance of the Upper Paleolithic, even successively in the same area. As described before, *in situ* evolution is probably the mechanism involved in the development of Initial Upper Paleolithic and Early Upper Paleolithic in the Near East while the Aurignacian appears as intrusive (hypothetically emerging from western/central Europe – Bar Yosef *et al.* this issue, Teyssandier this issue – and expanding eastward later).

If we accept the basic assumption that lithic traditions reflect human populations, then the so-called "transitional" period would have probably been the scene of a complex history involving a series of population movements together with internal dynamic changes in the local groups. Whether these changes have been triggered by contact with an incoming population, is not always easy to control archaeologically, especially in areas where local people had the knowledge of those Levallois modalities already close to the following technologies. In these specific contexts, local emergence of the Upper Paleolithic technical package is the most probable explanation.

The idea of an early wave of human population prior to the Aurignacian, originating from the Near East (based on radiometric dates), identified by the Initial Upper Paleolithic technologies, emerged from the data presently in hands (Bar Yosef 2000, this issue, Kozłowski 2004, Svoboda, Bar-Yosef 2003, Tostevin 2000). But as shown in the above discussions, it is still probably a too schematic view. The available information suggests that the diffusion phenomenon functioned more as a stimulus for new combinations of pre-existing technologies with the in-coming ones rather than the simplistic scenario of a catastrophic wave of population and the resulting acculturation. This more balanced picture is also suggested "by recent re-evaluations of the genetic evidence which rejects simplistic scenarios of catastrophic replacement in favour of a series of smaller scale population segmentations, bottlenecks, expansions and migrations" (see Kuhn *et al.* 2004 for references). The variability we have described

above could result from such repetitive changes in human population patterns.

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