

Defining the Aurignacian

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ABSTRACT The paper discusses several issues pertaining to definitions of “Aurignacian” assemblages. It emphasizes the observation that by widening the definition to include assemblages that do not contain the most basic types of this entity, as originally described and defined (e.g., nosed and carinated scrapers on thick flakes, Dufour bladelets, as well as some bone and antler objects), we introduce confusion into our understanding of the archeological record. Straight and lateral carinated cores for the production of bladelets, which differ from relatively flat frontal carinated scrapers on flakes, appear in the archeological record all along the prehistoric Upper Paleolithic sequence, and thus are not necessarily a particular Aurignacian characteristic. The same applies to bi-point antler objects or pendants made of animal teeth. Two examples, one from the Upper Paleolithic of the Caucasus and the other relating to the Levantine Kebaran entity, illustrate this observation.

Therefore, we need clearer and better definitions of the lithic industries which can be achieved through combining the study of operational sequences (*chaîne opératoire*) with the traditional type-lists. Adding to these data plenty of lithic illustrations, we may achieve a greater understanding of the choices and decisions made by the prehistoric artisans. Having this kind of information will facilitate to tackle the currently popular off hand equation of “Aurignacian” with the early dispersal of modern humans into Europe. Moreover, there is a host of Initial Upper Paleolithic industries across Europe which mark the advent of a new population. In spite of the ambiguities involved in the radiocarbon dates from 50-47 through 38-35 kyr BP and especially in their calibration to calendrical dates, it becomes clear that the Initial Upper Paleolithic industries in western Asia and eastern Europe were older than the western European Aurignacian.

The issue of “who made these tools?”

The demise of the Neandertals and the colonization of Europe by modern humans puzzled several generations of anthropologists and archeologists. What is understood today from archeological studies and supported by ancient DNA research as population replacement in Europe and western Asia, is marked by a major cultural change defined as the “transition” from the Middle to the Upper Paleolithic periods. Discoveries of fragmentary or complete human fossils of Neandertals and modern humans, sometimes in dubious geological contexts or through old, poorly controlled excavations brought about debates concerning the relationship between the archeological materials and the fossils, resulting in numerous disagreements (see Zilhão, this volume, for a comprehensive survey).

In order to solve this conundrum we need to have a fresh look at two of the fundamental issues in Early Upper Paleolithic archeology of Eurasia, namely, the stratigraphic evidence and the definition of the “Aurignacian”. I propose to treat them separately: (a) summarizing the ambiguities concerning the relationship between the human fossils and their archeological contexts within the Châtelperronian, considered as the first Upper Paleolithic industry in western Europe and originally named the “Lower Aurignacian” (Breuil, 1913), and (b) briefly review the definitions of the “Aurignacian” entity mainly based on its stone tools.

The first point, namely, the Neandertal remains in Châtelperronian contexts, is not an easy issue to deal with because the original finds, the burial from St.-Césaire and the isolated teeth from Grotte du Renne, were not published in detail, although they were exposed some 25-50 years ago, though the latter will be soon published (Hublin, personal communication). Reservations concerning the St. Césaire burial were already raised in the literature (Lucas et al., 2003; Bordes, 1981)

The Neandertal teeth in the Grotte du Renne were recognized as representing these populations by A. Leroi-Gourhan, the excavator. Although the excavations were not conducted according to current field techniques, the information published by B. Schmider and associates (2002), and the summary description provided by H. Movius (1969), who visited the site, make it clear that there are good reasons to suspect admixture of Mousterian age elements within the Châtelperronian contexts (layers X-VIII, from the lower to the upper). The Châtelperronian habitation activities entailed digging into the earlier Mousterian deposits including postholes and hearths, which caused removal and redeposition of Mousterian components within the depositional processes of the later layers. In addition, the earlier layers near the cave walls are often higher than in the central area, thus one may expect a continuous, although reduced, Mousterian contribution from these layers to the later, Châtelperronian deposits in the central area (and see Schmider et al., 2002; Figs. 20-21). Hence, finding most of the ornaments in the early Châtelperronian layer together with the largest number of Neandertal teeth can be interpreted as the result of the newcomers' activities in the cave. They had settled down on top of the Mousterian deposits, produced their own lithic and bone artifacts including ornaments, and at the same time dug into the Mousterian layers below causing the redeposition of the Mousterian material including the Neandertal isolated teeth within the earliest Châtelperronian layer. Worth noting is that nowhere across Europe did late Mousterian contexts contain the same kind of ornaments as found in the Châtelperronian layers of the Grotte du Renne. In addition, these ornaments were made by the same technique as that employed in the production of the Aurignacian ornaments and thus testify for a local regional production tradition that continued through time (d'Errico, in press). In sum, it seems that the Châtelperronians were the ancestors of the Aurignacian and not the late Neandertals.

The second case of doubtful correlation between the human fossil and the supposedly Châtelperronian context is the secondary burial in St.-Césaire. Doubts were first cast because of the different nature of the deposits of the burial area and those of the other parts of the Châtelperronian layer, as described by Gilbaud (1994). An alternative interpretation would be that the secondary burial of this Neandertal was done by his/her group members, who under the pressure of the advancing Châtelperronians flagged the site as their own. We should keep in mind that the two groups were contemporaries and possibly encountered and confronted each other. Inter-group relationships of hunter-gatherers, especially if they belonged to different ethno-linguistic entities (Marlowe, 2005), could have been friendly (eventually leading to interbreeding); they could also ignore each other or they could confront each other resulting in physical conflicts. Hence, as long as we do not have an intact, articulated Neandertal burial in a clear Châtelperronian context, it is quite probable that this prehistoric culture was the product of modern humans.

Generalized Upper Paleolithic terminology

One cannot over-exaggerate the impact of poorly defined cultural markers for industries that are intuitively attributed to the Upper Paleolithic on the continuous misunderstandings concerning the beginning of this period. The worse example is that of the indiscriminate use of the term “Aurignacian” for assemblages far removed typologically from the original definition as coined in western Europe. However, before we delve into this problem, it would be worth considering several general terms often employed in reference to the Middle to Upper Paleolithic transition or the “Upper Paleolithic revolution”. These are the terms used in the relative chronological attribution of sites and assemblages across Eurasia. For clarification, I suggest, in the footsteps of other authors, to employ the following three terms accordingly:

Early Upper Paleolithic (EUP) means the period of the first ten or twenty millennia of Upper Paleolithic industries-cum-entities since the end of the Middle Paleolithic. It is a temporal term that has no cultural connotations and may include any prehistoric culture or cultural complex that we believe are dated to this period. EUP entities can be of one age in one region (e.g., the Levant, ca. 45-37 000 BP) or much younger in another area (e.g., the Caucasus region, 35-23 000 BP).

Initial Upper Paleolithic (IUP) means those cultural entities that were formerly considered as “Transitional Industries” and marked the onset of the Upper Paleolithic period through a clear change of the operational sequences (e.g., Marks, 1990; Kuhn et al., 1999; Goring-Morris and Belfer-Cohen, 2003).

Transitional Industry means an industry or industries that we consider as marking the observable change from the Mousterian lithic technology to one or more of the Upper Paleolithic entities. In the Levant it was used to designate the industries of Boker Tachtit, Emireh cave, Ksar Akil layers XXV- XXI (e.g., Copeland, 1975; Marks, 1983; Garrod, 1951, 1957; Bourguignon, 1998; Belfer-Cohen and Goring-Morris, 2003; Fox, 2003; Kuhn, 2003; Goring-Morris and Belfer-Cohen, this volume). The question which remains open is whether there were several cases of “Transitional Industries” or only one or two that marked the change within a particular Middle Paleolithic population that became the forefathers of the Upper Paleolithic people. Perhaps, in view of the ambiguities that accumulated through the use of this term in the last three or four decades, it would be advisable to use the IUP term as that which implies the dated earliest cultural change.

The definition of the Aurignacian

The historical review of the original definition of the Aurignacian in western Europe is provided by several authors in the present volume (cf. also Bon, 2002; Conard and Bolus, 2003; Bordes, 2003) and, previously, in general volumes on prehistory (e.g., Bordes, 1968; Taborin, 1992; Djindjian et al., 1999). Whether we take the definition of the “Early Aurignacian” or of the “Recent Aurignacian”, we find commonalities as described in the papers mentioned above. Similar operational sequences were responsible for the production of bladelets with different forms of what we normally classify as cores. Some are “carinated scrapers” on thick flakes where the bladelets were removed from the thickness of the flake creating “narrow

carinated scrapers". When the bladelet removal from a flake is limited by a retouched notch it is known as a "busked burin". Bladelets detached from "cores" that are known as "carinated (keeled) scrapers" (*grattoir caréné surélevé*) were named already by Bourlon and Bouyssonie (1912) as *grattoirs nucléiformes* and *rabots*. Hence, it seems that the aim of the artisans was to obtain short, curved and twisted bladelets, which in part were later retouched to become the Dufour bladelets, or "inversely retouched bladelets". At the same time there were also regular (i.e., not exhausted cores) carinated and nosed scrapers, where the front is shaped through flaking of shorter mini-flakes and sometime bladelets; endscrapers on blades and flakes, Aurignacian blades, and in particular areas, mostly in central Europe through the Levant, also Font-Yves, or Krems, or el-Wad points on blades/bladelets of various sizes.

The Aurignacian features rich assemblages of teeth, bone, antler and ivory items modified to serve as body ornaments, tools, and imagery objects. The challenge, as mentioned by Marks (2003), is to identify the Aurignacian solely through its lithic component in sites where preservation of organic material is rather poor. In this case, certain loess contexts are not much different from the semi-arid areas of western Asia. Apparently, this is possible, as, for example, a classical "Aurignacian" assemblage was identified in Stránská skála (Svoboda and Bar-Yosef, 2003). Hence, one could have an almost full suite of lithic tools and debitage products in an open air site that would make its assemblage comparable to cave contexts. Not surprisingly, the cases of "Aurignacoid" assemblages described from the Negev and similar arid areas in Jordan on the basis of the proliferation of scrapers (mostly lateral ones, some of which are made on thick flakes) and were called Levantine Aurignacian, are not considered anymore as belonging to the Aurignacian culture (Belfer-Cohen and Goring-Morris, 2003). Yet, clearly classic Aurignacian assemblages were reported from Kebara, el-Wad, Hayonim and Yabrud III cave sites and perhaps should be called simply Aurignacian without the "Levantine" prefix (Belfer-Cohen and Bar-Yosef, 1981, 1999; Goring-Morris and Belfer-Cohen, this volume). If we retain the "Levantine", then we should be systematic and have similar geographic subdivisions in other parts of Eurasia where the Aurignacian is well recorded.

The most basic confusion of the Aurignacian with other industries does not only stem from the mere absence of bone or antler tools but primarily from the use of carinated cores by other groups of people in different times. As mentioned above, these carinated cores represent a particular reduction sequence for obtaining narrow bladelets, a technique employed by a host of late Upper Paleolithic entities in western Asia. One of the best illustrative cases is recorded in the caves of the southern slopes of the Caucasus. In the excavation of Dzudzuana cave (Meshveliani et al., 2004), the industry rich in carinated cores was dated by seven readings to 23-20 kyr BP (uncalibrated). Directly dated bone and antler tools from other Georgian sites, thought to be Aurignacian, provided similar readings (Nioradze and Otte, 2000). Needless to mention that most of the bladelets, shaped from the laminar blanks obtained from the carinated cores, cannot be classified as Dufour bladelets. In addition, none of the other Aurignacian tool-types, like nosed scrapers and Aurignacian blades, are present in these assemblages.

Another case where carinated cores were the basic source for bladelets is the Kebaran assemblages from sites such as Ein Gev I (Jordan Valley, Israel). We can note the absence of nosed scrapers, el-Wad points, and inversely retouched bladelets. Instead, the dominant microlithic types are finely retouched curved bladelets, obliquely truncated backed bladelets (known also as Kebara points), along with mostly flat endscrapers and various types of burins (apart from the "narrow carinated types" on the flake's thickness). The dates for this industry are 18-14.5 kyr BP (uncalibrated). It is not surprising that in the first report on this site (Stekelis and Bar-Yosef, 1965) we referred to the presence of the carinated cores as an "Aurignacoid"

character. This, of course, was done because both Stekelis and I employed the French terminology. The use of this comparison with the French Aurignacian *rabot*, in the absence of radiometric dates in those days, had the implicit connotation of indicating a degree of relatedness between the industries.

In sum, a minimal number of lithic characteristics such as nosed scrapers, carinated scrapers on thick flakes from which often small twisted bladelets were removed (known as *lamelle Dufour*), regular carinated scrapers on flat flakes, as well as, where preservation is fine, the presence of bone and antler objects (e.g., split-based points), characterize the original Aurignacian culture which emerged around 36.5 kyr BP (Zilhão and d'Errico, 1999), and clearly developed, in my view, from local west European IUP industries (see also Bon and Bordes, this volume).

Discussion

There is a growing awareness among scholars that the IUP in southwestern Asia is earlier than in Europe, although additional radiocarbon and TL dates are needed. The makers of these assemblages focused on the production of blade blanks demonstrating that their technical attributes originated in particular Mousterian knapping techniques (Marks, 1983; Marks and Ferring, 1988; Fox, 2003; Tostevin, 2003; Monigal, 2003; Meignen and Bar-Yosef, 2000). The best recorded assemblages are found in the Levant (e.g., Boker Tachtit and Ksar 'Akil). The next cultural change is the entity called the Ahmarian. Although the exact time that passed since the IUP and the fully blade industry is unknown (but could have been just a couple of millennia), the classical Upper Paleolithic appearance of this industry is evident (e.g., Monigal, 2003; Belfer-Cohen and Goring-Morris, 2003). Not surprisingly, European scholars now suggest that the early blade industries of this continent emerged from the Ahmarian (e.g., Kozowski, 2004).

Similar blade industries in Bulgaria (Temnata and Bacho Kiro caves), and the Czech Republic (Stránská skála), indicate the route of the Cro-Magnon expansion through the Danube Corridor (Kozowski, 2004; Teyssandier, 2005; Teyssandier and Liolios, 2003; Conard and Bolus, 2003). As the first IUP, real "Transitional Industry" emerged from the Mousterian, and if the bearers of these tool-kits dispersed rapidly, their lithics may resemble on several instances the local late Mousterian leading to erroneous conclusions about "local cultural continuity". However, there are some good examples when the local Mousterian is very different from the industry of the newcomers. Such is the Bohunician, whose knapping technique differs entirely from local Mousterian tool production. I suspect that when further examinations will be conducted as regards other IUP European entities, they will produce similar results, in particular when natural mixing in stratified sites of Middle and Upper Paleolithic deposits will be clarified (e.g., Bordes, 2003). Another case of lack of relationship between the Late Mousterian and the Early Upper Paleolithic is observed on both the northern and southern slopes of the Caucasus, where the first Upper Paleolithic assemblages overlaying the Mousterian date to 34-33 kyr BP. These UP assemblages are dominated by tool forms comprising retouched bladelets, small endscrapers and bone tools (Meshveliani et al., 2004).

The overall cultural differences between the Middle and Upper Paleolithic contexts are visible in the observed rate of change in lithic assemblages. Archeologists have paid little attention to the reasons for the retention of stereotyped knapping techniques among Middle Paleolithic populations. The use of the same one or two methods for shaping blanks and the retention of the same or similar tool forms over a period of 100 000 to 40 000 years seems

to reflect a high degree of technological and, by extension, social conservatism. The change during the Upper Paleolithic is clearly evident. All across Eurasia, modern human groups are characterized by faster shifts in shaping their stone tools, and a greater geographic range of typological variability. This may signify the appearance of individual ethno-linguistic cultures in well defined territories, in contrast to the large regions where Middle Paleolithic tool-kits characterized both the Neandertals and the archaic modern humans (i.e., the Skhul-Qafzeh group).

From a survey of the relevant literature, it seems that what we miss today in prehistoric research is not theoretical approaches but well-defined and justifiable terminology. No one doubts that the research of prehistoric periods began in western Europe. Therefore, most of the common terminologies were created by European scholars and carried over into other parts of the Old World, either by European-trained archeologists who worked in Asia and North Africa or through the available literature. Only in regions remote from western Europe did local archeologists create their own terminology. One example is South Africa, where the term Middle Stone Age (MSA) was originally an English translation of Middle Paleolithic (MP), the latter coined after the scholarly tradition of using Greek words, and now is widely used in the sub-Saharan African literature.

Justifiably, the Aurignacian assemblages of western Europe received considerable attention due to the wealth of mobiliary art, elaborate bone, antler and ivory industries, and the earliest cave art (e.g., Conard and Bolus, this volume). It was and still is erroneously considered, as mentioned above, to have been the first culture of modern humans, and scholars are searching its origin in the east parts of the ancient world (western Asia and beyond). It would be advisable to keep the two aspects separated, namely, the definition of the industry and its chronological range should be unrelated to the issue of which particular human population was its carrier. We first need to agree about what assemblages we can call “Aurignacian” and what are the names to be given to other entities. By keeping the definition of an entity or culture to a cluster of sites within a given geographic space and time, we get closer to identify an ethno-linguistic group of past hunter-gatherers. The current aim of Middle and Upper Paleolithic archeology is not only to uncover past behaviors of human populations and their particular adaptations to the environment, but also the tracing of their idiosyncratic, dynamic histories.

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