

## **Aurignacian and Gravettian occupations in Eastern Europe between 33,000 and 23,000 uncal BP**

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### **Abstract**

The Early Upper Palaeolithic east of the Carpathian Mountains has been known since the 19<sup>th</sup> century. Through the years, major sites have yielded abundant data concerning the Aurignacian and the Gravettian cultures. Today it is possible to reconstruct the development of these techno-complexes through time, principally with the sequences from Molodova V and Mitoc-Malu Galben. This reconstruction shows that: (1) the two techno-complexes are contemporaneous at about 30,000 BP; (2) the Gravettian emerges at a very early stage in the area, as in Central Europe; (3) it is followed by a hiatus before the more consistent Gravettian occupations at about 26,500 BP; (4) shouldered points occur in the area, but probably without being part of the “Kostenki-Willendorf” culture; and (5) the Gravettian occupations are very rare after 23,000-22,000 BP until the re-emergence of the backed pieces tradition with the Epigravettian at about 20,000 BP.

### **1. Introduction**

The studied area, extending between the eastern range of the Carpathians and the Dniestr River, combines three political entities: Eastern Romania, Western Ukraine and the Republic of Moldova. This homogeneous region has been the focus of Palaeolithic research since the 19<sup>th</sup> century. Several cultural units have been defined for the first half of the Upper Palaeolithic and were recently the subject of a detailed synthesis (Noiret, 2004, 2009) aimed at clarifying the very different interpretations of the development of the Upper Palaeolithic proposed by local researchers (see, among others: Borziac, 1994, 1998; Chernysh, 1959, 1973, 1985; Chetraru, 1973; Chirica, 1987, 1989, 2001; Chirica *et al.*, 1996; Mogoşanu, 1983, 1986; Păunescu, 1984, 1998, 2000).

### **2. The archaeological sequence**

In Eastern Europe, three notable sites have provided long and complementary stratigraphic sequences, within which several archaeological levels have been identified: Mitoc-Malu Galben in Romania, Molodova V in the Ukraine and Cosăuți in the Republic of Moldova.

The Mitoc loess-palaeosol sequence around 13 meters thick (Chirica, 1993, 2001; Otte *et al.* (dir.), 2007), to the Aurignacian and the Gravettian (Fig. 1). A “lower” Aurignacian has been dated from 32,700 to 31,200 BP; only a few typical tools exist, including the classic carinated endscrapers. Aurignacian assemblage “I” dates from 31,000 to around 29,000 BP and is the most important of the Aurignacian occupations, containing carinated endscrapers and

especially carinated burins, which is the most common tool type. No Dufour bladelets were recovered, but fine sieving of a hearth sampled for dating revealed the presence of bladelet production from carinated core-tools (P. Noiret *et al.*, in press), already suspected in light of earlier discoveries (Noiret, 2005). More than 120 bladelets were thus collected from a single square meter and show a dichotomy in size (small bladelets and micro-bladelets).

Other comparable sites are located in the zone around Mitoc, but are poorly dated or not dated at all. At least one of these – Corpaci-Mâs – shows similarities to Aurignacian assemblage “I” at Mitoc, containing two Mladeč points identical to one from Mitoc; the lithic industry from Corpaci-Mâs is, however, slightly different in that while carinated endscrapers are present, carinated burins are absent. Other parallels can be considered at longer distances, with sites on the Russian Plain, in the Kostenki region, including Kostenki 1/III (Sinitsyn, 1993) and Kostenki 14/volcanic ash layer (Sinitsyn, 2003), and in the Crimea. Here the site of Siuren I, re-excavated in the 1990s (Demidenko *et al.*, 1998; Demidenko and Otte, 2000-2001), has yielded three Aurignacian levels in succession, demonstrating the presence of two very different technological assemblages with respect to bladelet production. The first assemblage (Unit H) contains core-like pieces from which large rectilinear bladelets were produced, used as blanks for Dufour bladelets (Dufour sub-type), while Units G and F particularly possess carinated tools from which smaller bladelets, included twisted bladelets, were produced as blanks for other Dufour bladelets (Roc-de-Combe sub-type). The French sequence thus appears to have been reproduced in Eastern Europe, illustrating the development from Proto-Aurignacian to the Early Aurignacian; however, the available dates from Siuren I raise questions. The three units are dated to around 30-29,000 BP (Pettitt, 1998): either these dates are correct although unusual to observe two technological assemblages so different yet nearly contemporaneous (even if they are in stratigraphic succession in the sequence), or they are too young, although it is impossible to determine *to what degree* they are too young. We tend to lean toward the second hypothesis since the many bone fragments from units H and G appear to be extremely mineralized and thus less likely to furnish viable dates. Recent attempts to obtain new datings on bones for these layers tend to indicate that 30,000 BP is acceptable for the uppermost unit (F) but too young for units G and H, because of mineralization.

At Mitoc, the sequence continues with the Aurignacian “II” assemblage, dated around 29,000-28,500 BP, in which carinated endscrapers are present and carinated burins absent (similar in this respect to Corpaci-Mâs). The Aurignacian “III” assemblage follows at around 28,000 BP and appears still less typical. At Mitoc, Aurignacian is still present up to 27,750 BP, if we consider the lithics found at the base unit 8 (Dambon and Haesaerts, 2007; Haesaerts *et al.*, 2010).

Again in the studied area, Ripiceni-Izvor has the reputation, according to its excavator Al. Păunescu, of having yielded four Aurignacian levels overlain by four Gravettian levels in stratigraphic sequence (Păunescu, 1993). We consider the most of these levels belong to another cultural complex related *sensu lato* to the Streletskian with bifacial tools on the Russian Plain, of which other occurrences are present in Moldova, at Brynzeni I/3, Gordinești and Corpaci/4 (P. Noiret, 2004, 2009; see also Borziac, 1990, 1994). This culture, called the Prut culture, may have been present in the region east of the Carpathians between 30,000 (?) and 26,000 BP (without further precision).

In contrast, the site of Climăuți II, based on a recent publication (Borziac *et al.*, 2007), could be considered Aurignacian *sensu stricto* and not “Late” Aurignacian as we first thought (Noiret, 2004). But then the available datings have to be considered as too young (lower layer:

24,840±410 BP [LU-2351] on humus, and upper layer: 20,350±230 [LU-2481] on mammoth molar).

The other long stratigraphic sequence of reference is that of Molodova V along the Dniestr in Western Ukraine (Chernysh, 1959, 1961, 1987), studied by I.K. Ivanova (1959, 1987) and more recently by P. Haesaerts (Haesaerts *et al.*, 2003, 2007). The first Upper Palaeolithic occurrences are layers 10 and 9, separated by the excavator but which may in fact form a single layer and assemblage (Ivanova, 1987). They belong to the upper humic complex (unit 10) and were encountered in loamy deposits framed by the humic horizons 10-2 and 10-3 dated 30,420 and 28,700 BP respectively. Charcoal clusters related to these layers were dated to around 29,300 BP, both by recently obtained dates and those from the 1960s (Haesaerts *et al.*, 2010). The attribution of these layers to the Gravettian has never posed serious problems (Otte, 1981; Kozłowski, 1986) and, more interestingly, their dating makes them pene-contemporaneous with the Aurignacian “II” assemblage at Mitoc. Large retouched and pointed blades are the most characteristic element, along with some microgravettes, clearly supporting the Gravettian attribution.

Such Aurignacian-Gravettian contemporaneity is also observed in central Europe. For instance, Aurignacian occurrences at Milovice (upper layers, Oliva (Ed.), 2009) and Alberndorf (Haesaerts *et al.*, 2007; Steguweit, L., Trnka, G., 2008 ) fit in the same time slice as the Early Gravettian at Willendorf II (Damblon *et al.*, 1996; Haesaerts *et al.*, 1996) and Krems-Hundssteig. At the latter site, recent excavations in 2000-2002 (Neugebauer-Maresch, 2008, 2010) yielded several archaeological horizons correspond to 6 cultural layers, with hearths and a few lithic pieces attributed to the Gravettian (Simon, 2010), with <sup>14</sup>C datings ranging mainly from 27,600 to 28,780 BP. This also indicate another key point concerning the Gravettian, *i.e.* the disparity of its geographical repartition; Gravettian does not correspond to a “simple” continuous occupation of a wide area, but to several regional facies, with internal chronological evolution in only some of these regions, like in Moldova, east of the Carpathians.

And indeed the Gravettian sequence continues in the area east of the Carpathians with Gravettian assemblage “I” at Mitoc, dated to 27,300-26,300 BP. Situated in the loess below the tundra gley dated around 26,000 BP (sub-unit 8a) at the transition from MIS 3 to MIS 2, this assemblage is characterized by the presence of microgravettes and pointed blades, with no carinated elements. Between layers 10 and 9 at Molodova V and Gravettian assemblage I at Mitoc, a hiatus of ca 2,000 years thus exists, difficult as yet to explain adequately, but which is not unique; once again in Central Europe, the same pattern is observed in the sequence of Willendorf II, between layers 5 and 6 (Haesaerts *et al.*, 1996).

The classical Gravettian of that area (the “Molodovian”) is next established, shown most clearly in the stratigraphy by Gravettian assemblage “II” at Mitoc and layer 8 at Molodova V, contemporaneous at around 26,500-25,500 BP. The Molodovian, including assemblage Gravettian “I”, is also contemporaneous with the Pavlovian in Moravia, but does not share the same notable artistic and ritual characteristics. Other equivalent assemblages are found in the Middle Dniester region, based on simple typological comparisons, for example the lower layer at Babin I (Chernysh, 1959).

From the beginning of MIS 2, the Molodovian changes little, apart from the appearance in some assemblages of shouldered points (Gravettian assemblage “IV” at Mitoc and layer 7 at Molodova V, 25,000-23,000 BP), evoking the horizon with shouldered points at

Willendorfen-Kostenken, and described from Central Europe to the Russian Plain. This appearance seems marginal in the area and, in addition, certain key sites do not seem to have yielded such characteristic armatures (i.e., they were not found at Korman IV: Chernysh, 1977). In contrast, the rest of the toolkit associated with this shouldered points phase is found in several assemblages that one can thus reasonably place at the beginning of MIS 2, such as Babin I (middle layer), Voronovitsa I (lower layer) and Korman IV (layer 6) (see Chernysh, 1959, 1977).

These sites point out the remarkable homogeneity of the Dniestr Gravettian between 26,500 and 23,000 BP, particularly marked by the absolute predominance of burins in the toolkit, with a relatively minor presence of lithic armatures (perhaps the result of the excavation techniques used in the 1950s-1970s), with a significant component of tools in organic materials related to hunting (spear points, pierced batons). At the same time, the occupations located along the Prut River, at Mitoc, have toolkits dominated by endscrapers and lack bone tools, but as for the Aurignacian, these are above all flint workshops.

After 23,000 BP, Moldovan occupations become less common and sites with lithic artifacts between 23,000 and 20,000 BP are quite rare, these artifacts never having been numerically or typologically significant: at Molodova V, artifacts have been recovered between layer 7 (Gravettian) and layer 6 (Epigravettian), but have never been correlated with a clearly identified or dated cultural level; at Crasnaleuca-Staniște and Cotu-Miculiniți, dates around 22-21,000 BP have been obtained (Brudiu, 1987), but no diagnostic artifacts are associated with them. One must wait until 21,500 BP and the establishment of Epigravettian occupations at Molodova V and Cosăuți (Haesaerts *et al.*, 2003), along the Middle Dniestr, for Moldova to once again be subject to intense human occupation, but this is another story.

### 3. Overview

The area east of the Carpathians is important, not only because of its impressive stratigraphical record of the time period in between 33,000 and 23,000 BP, but also because the key sites for that record are archaeological sites in which numerous cultural layers are well positioned and dated. Comparisons are thus easy within and outside the area. It shows that while the Aurignacian does not correspond there to very early occurrences, the Gravettian is especially well defined with old and consistent assemblages, lasting until the start of the LGM. The Molodovian is contemporaneous to the classic Pavlovian, but the occupation of the area appears to persist after 25,000 BP, with important occupations in Mitoc, Molodova V, Korman IV and probably other sites, in which lithic assemblages are marked by the appearance of some shouldered points, although this phenomenon is not well expressed in central Europe.

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Caption of figure 1 - Distribution of the Aurignacian and Gravettian occurrences with regard to the regional stratigraphic sequences (Central Danube Basin and East Carpathian Area).

Graphic symbols. 1) loess; 2) loamy loess; 3) loam; 4) humic horizon; 5) tundra gley; 6) Aurignacian; 7) Gravettian.

Abbreviations. Interstadial events; DV: Dolni Vestonice; Schwal: Schwallenbach; Mol: Molodova; MG: Malu Galben; GI: Greenland interstadials.. Palaeoenvironments; P: permafrost or deep frost; A: arctic; SA: sub-arctic; B: boreal; Sites of Lower Austria; Schwal.: Willendorf; Ag: Aggsbach; La: Langelois; Alb: Alberndorf; Kr: Krems-Hundssteig; Stz: Stratzing-Galgenberg; Gro: Grossweikersdorf. Sites of Moravia and Slovakia; NC: Nitra-Cerman; ML: Moravani-Lopata; Pav: Pavlov; DV: Dolni Vestonice; Mil: Milovice; StSk: Stranska skala. East Carpathian sites; Mol: Molodova V; M-MG: Mitoc-Malu Galben. Cultural assemblages; Grav: Gravettian; Pavl: Pavlovian; Au: Aurignacian.