

Ancient Magdalenian of the French Massif Central revisited: A reappraisal of unit F2 of the Rond du Barry cave (Polignac, Haute-Loire, France)

Audrey Lafarge (1), Vincent Delvigne (2), Delphine Rémy (1), Paul Fernandes (2,3), Jean-Paul Raynal (2,4)

(1) Université de Montpellier, UMR 5140 "Archéologie des sociétés méditerranéennes", route de Mende, F-34199, Montpellier, audreylafarge@laposte.net

(2) Université Bordeaux 1 sciences et technologies, UMR 5199 PACEA, IPGQ, Bât. B18, av. des Facultés, F-33405 Talence

(3) SARL Paléotime, F-38250 Villard-de-Lans

(4) Department of Human Evolution, Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, D-04103 Leipzig

Abstract: Located in Velay within the high plateau of the South-eastern Massif Central, the cave known as the Rond du Barry is the largest Magdalenian stratified site in the Auvergne. It was excavated between 1966 and 1988 by Roger de Bayle des Hermens. Several stratigraphic units (D, E and F) and their subdivisions have been examined. They have yielded human remains, including a complete skull, and two engraved *bâton percé*, one featuring an engraved "Venus". The assemblage from archaeo-stratigraphic Unit F2 was initially considered to be Ancient Magdalenian and a large part of the lithic material was considered to consist mostly of imports from the margins of the Paris basin. Following a new archaeo-zoological analysis by Costamagno in 1999, the finds are currently being re-examined in a collaborative research project covering raw material procurement, lithic technology and the utilization of reindeer antlers and also bone material. New data demonstrate that raw materials were mostly gathered from local and semi-local sources while long-distance procurement of flint played a secondary role. The technological and typological characteristics of the lithic assemblage do not fit well with those of the Badegoulian (large blade production, high ratio of backed bladelets, dominant dihedral burins versus few graters and transverse burins). While the dominant species hunted are Horse and Ibex, reindeer antlers are an important faunal component. However, the bone technology does not match that of the classic Magdalenian but shares some specific characteristics with older techno-complexes, especially regarding the different techniques employed to produce useful pieces. However, radiocarbon dates obtained from bone fragments, using both classical or AMS methodologies, indicate a chronological position between 15.5 and 17 ka BP that does not fit with an extra-regional position within the Badegoulian. Extra-regional affinities of the Rond du Barry Magdalenian facies and adaptation strategies in the context of its mid-mountain location will be discussed and compared with contemporary open-air sites of the lowland Auvergne.

The site:

The Rond de Barry is a cave located inside the massif of Sainte-Anne composed of hyaloclastic tuffs that form the ancient volcanic cone at Sinzelles in Haute-Loire (Auvergne, France). Today, this cavity is smaller than previously due to the ceiling collapse during the Pleistocene. The Magdalenian population settled on the surface created by this huge rock-fall. Today, the cave is almost 42 metres long and 14 metres wide at the entrance.

The excavation made by Bayle des Hermens never reached bed-rock but the levels that were excavated revealed successive Magdalenian layers lying above a discrete Mousterian occupation zone with several loci near the entrance as well as deeper inside the cavity. Among the six main archaeo-stratigraphic units, "F2" presents important evidence for

understanding human behaviour at the end of the late glacial, as it contains an extensive lithic assemblage associated with a large fauna sample and an extremely well preserved bone industry, which is very rare in the Auvergne.

Previous studies of unit F2:

Unit F2 was first studied by its excavator Roger de Bayle des Hermens. In considering the characteristics of the lithic assemblage, he situated F2 in the middle part of the Old Magdalenian period. With regard to the sources for the raw materials, Torti (1980) and Masson (1991) debated whether they came from a strictly local origin (Torti, 1980) or mainly from further afield in the Paris Basin (Masson, 1991). Costamagno (1999) carried out an archaeo-zoological study on the bone remains, underlining a preference for hunting horse and ibex.

New data and a contrasting cultural attribution:

The bone industry:

Reindeers appear to have been the main source of materials for bone tool manufacture. At this stage, the study of the bone artefacts raises questions about the age of the technological complex, especially with regard to the extraction techniques of the blanks. Indeed, along with the classical Magdalenian techniques (figure, 1 and 2), those known in older techno-complexes (figure, 3) remained in use.

Origins of lithic materials:

Analysis of the Rond du Barry flint artefacts based on the optimization of the observation techniques commonly used in petrography, mineralogy, micropalaeontology and morphoscopy at different scales, (Fernandes 2006, Fernandes et Raynal 2006) reveals different results than those of previous studies (Torti 1980, Masson, 1981). Our analysis indicates significant use of semilocal flint (35%) whereas distant sources represent only 22% of the total supply. Similar results have been obtained for the diversity of the material where previously just 14 types of flint were recognized, there are now 42 varieties.

The lithic industry:

The lithic assemblage of F2 is composed of 10,488 elements which although a relatively homogenous set is nevertheless complex. The reduction sequence resulted in debitage consisting of medium-sized, small and tiny flakes and pieces, an individualized production of flakes. The latter corresponds to the transformation of one category of flakes into "raclettes". The technological evidence is much too weak to attribute this particular industry to Old Magdalenian, a conclusion that seems confirmed by recent studies on the Badegoulian (Ducasse, 2010).

This new analysis seems to support an attribution of the Rond du Barry F2 lithic industry with blade-bladelet characteristics to the Badegoulian, despite the absence of some characteristic tools of this period (transversal "burin", pièce de la Bertonne").

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