

RE-EXAMINATION OF “ANCIENT” FOSSILS DISCOVERED IN THE MIDDLE OF THE 20TH CENTURY. LATE MIDDLE PLEISTOCENE HOMININS FROM MONTMAURIN CAVES (SOUTHWEST OF FRANCE)

ABSTRACT

In 1945, the activity of the quarries settled near the village of Montmaurin, 75km south-west from Toulouse in France, led to the discovery of several caves filled by archeological deposits. After the visit done by H. Begouën and the Abbey H. Breuil, L. Méroc did excavations from 1946 to 1961 mainly in the Coupe-Gorge cavity which has yielded a lot of lithics and bones. Among them, there were human remains: a juvenile partial mandible (corresponding to the symphyseal part), a right maxillary bone bearing P4-C and 3 isolated teeth (1 canine, P3 and M3). In a nearby vertical gallery called La Niche, one complete adult mandible bearing its molars, 2 vertebrae and one fragmentary tibia were also discovered. All these fossils, except the 3 latter ones, were published in detail. But, due to the lack of radiometric dating, such fossils were less and less included in studies. The purpose of this paper is to re-examine these human remains which are relevant to discuss the emergence of the Neandertal lineage in Europe. Indeed, the mandible from La Niche, dated to the IS7 based on biochronology, is not fully Neandertal but it shows a combination of archaic and derived features, respectively on the bone itself and on teeth, which keeps open the discussion.

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THE MONTMAURIN CAVES

The Montmaurin mandible is still presented in anthropological studies but the Montmaurin site (Fig. 1), its history and the other fossils discovered there are generally overlooked. Indeed, these caves, located on the right bank of the Seygouade, in the Coume Robert massif, northwest of the village of Montmaurin (Haute-Garonne), played an important role in anthropology in the middle of the 20th century, but were neglected and forgotten after the death of Louis Méroc (1904-1970), the director of excavations (Vialet 2018, Vialet accepted).



Fig. 1: The mandible discovered in the cave called La Niche in Montmaurin (Haute-Garonne). © JC Domenech-MNHN, collection MNHN.

The site is, in reality, a network of cavities on three levels, correlated with the stepped terraces of the Garonne and the Quaternary glaciations, consisting of: the four Putois caves, situated above the road, 4 m above the river, the caves of Coupe-Gorge and La Niche, 28 m above the river, then the Terrasse rock shelter and Boule Cave at 40 m. The bones from this latter cave, formerly called Montmaurin Cave, were studied by Marcellin Boule (1861-1942) and Count René de Saint-Périer (1877-1950), at the beginning of the 20th century (Boule 1902, Saint-Périer 1922). Several years later, the development of quarrying activities led to the discovery of the other cavities. Coupe-Gorge and La Niche were the first two sites reported

by Raoul Cammas (1905-1987) and were visited by Count Henri Bégouën (1863-1956) and Abbott Henri Breuil (1904-1970), who entrusted the excavation to Méroc in 1946.

It was at Coupe-Gorge that the first grid system was used for recording the “Cartesian coordinates” of the remains (Laplace-Jaureche and Méroc 1954). The 27 excavation campaigns conducted until 1961 revealed abundant lithic and faunal material, which were studied long after the death of Méroc (Gaillard 1979, Serra 1980, Guadelli 1990, Thiam 2018), including several human remains: a fragment (symphyseal part) of a juvenile mandible (Méroç 1969, Billy 1985), a right maxillary bone bearing its two premolars and the canine (Méroç 1954, Billy 1982, 1985) and three isolated teeth: one upper left canine, one lower left P2, and one lower right M3 (Billy 1982). Granat and Peyre (2012) expressed doubts regarding the attribution of the upper right canine to the maxillary, but Vialet et al. (2017) confirmed this association, formerly described by Billy (1982, 1985).

Unlike at Coupe-Gorge, no systematic excavations were undertaken in the cavity of La Niche, as Méroc considered the filling to be in secondary position, deriving from the racking of sediments from La Terrasse rock shelter on the upper level (Méroç 1963). As a result, it's Cammas who regularly collected remains from this cavity noting their position or depth. In this way, on 18 June 1949, he discovered a whole mandible still bearing six molars, which caused quite a commotion on account of its archaic characteristics (Vallois 1956). It was attributed to an early Neandertal (Billy and Vallois 1977a, 1977b), or more recently to *Homo heidelbergensis* (Mounier 2009, Vialet et al. 2018). Cammas went on to publish the stratigraphy of the deposits, which were in primary position according to him, contrary to Méroc's interpretation, as well as two other human remains: one right tibia and one thoracic vertebra (Cammass and Tavoso 1986). Another vertebra (T1 or T2) has since been identified in the collections and is currently being studied.

CHRONOLOGICAL ATTRIBUTION

As these excavations took place in the 1950s, no radiometric dating was carried out to establish an accurate chrono-stratigraphic framework of the infilling of these cavities. However, their formation period can be estimated by correlation with the alluvial terraces of the Garonne. In this way, the middle terrace (Coupe-Gorge and La Niche) would correspond to the low 30 m terrace deposited during the course of the Saalian (Jarry 2011). In the Coupe-Gorge infilling, which is about 7 m thick, two flowstones delimit levels 3x and 3w, attributed to the Eemian (Girard and Miskovsky 1979, Renault-Miskovsky and Girard 1998). The mandible fragment comes from the overlying layer (3z) and is thus correlated with the beginning of the last glaciation, while the other human remains (maxillary bone and isolated teeth), discovered in the underlying layer (3t), are older. The base of the stratigraphy of La Niche (level C3), where the mandible, two vertebrae and the tibia were found, was chronologically attributed to IS 7 due to the presence of *Ursus spelaeus deningeroides*, the large size of the horse and conversely, the small size of the wolf, characteristic of this temperate period of the Late Middle Pleistocene (Crégut-Bonnoure et al. 2010).

CONTRIBUTION OF THE HUMAN REMAINS FROM MONTMAURIN TO THE QUESTION OF THE ORIGIN OF NEANDERTALS

Apart from the fragmentary juvenile mandible from Coupe-Gorge, which is more recent than IS 5, the human remains from the Montmaurin caves are probably related to IS 7-6, which is the period of the emergence of Neandertals. Fossils for this period are rare and include the cranial and dental remains discovered in the open-air site of Biache-Saint-Vaast, near Arras,

in the North of France, which were extensively studied recently (Rougier 2003, Guipert *et al.* 2011). These remains correspond to two individuals and consist of: the back of a skull, the base of the right and left maxillaries bearing the left P1-M3 and I2 for Biache 1 and a frontal bone, left sphenoid-parieto-temporal fragments and the condylar part of the occipital bone for Biache 2. They were attributed to IS 7 but these fossils are morphologically and metrically very similar to Neandertals. Conversely, the morphology of the contemporaneous mandible from Montmaurin-La Niche and the maxillary from Montmaurin-Coupe-Gorge is not fully Neandertal (Violet and Martinez de Pinillos 2017, Violet *et al.* 2018). Indeed, the symphyseal region of the first presents an archaic disposition (presence of an alveolar planum) and the second shows relatively slight facial extension and regular convexity in the anterior part of the dental arcade (incisor-canine). We can thus consider that two morphotypes existed about 250 ky ago; a fully Neandertal morphotype in the North of France, and a southern morphotype with plesiomorphic characters. Are these differences linked to the geographic isolation of these groups? The Montmaurin specimens and the more recent fossils from Lazaret Cave, Nice (Lumley 2018) in the southern zone could be indicative of a lineage conserving archaic characters for longer. However, the contemporaneous face of the Steinheim specimen, in Germany, is similar to that of the maxillary from Montmaurin-Coupe-Gorge, although the former is deformed. Therefore, the geographic factor does not seem to be pivotal. On these two specimens, we observe that the face is not yet in total expansion during IS 7, unlike for later Neandertals. We can infer that the cranial characters of the Biache-Saint-Vaast fossils (frontal, occipital and temporal bones) are already derived, as are the dental traits (Montmaurin-LN and CG, Biache), whereas those of the mandibular bone (Montmaurin-LN) and the face (Montmaurin-CG, Steinheim) are still plesiomorphic. If all these specimens are part of the Neandertal lineage, we must consider that the development of characters affected first of all the skull and teeth, then the face, including the mandible. An alternative is to consider these fossils as representative of different lineages: in this case, the fossils from Biache would be part of the Neandertal lineage and those from Montmaurin would represent a group with more primitive characters. The latter would extend over a longer time period and include the fossils from the Caune de l'Arago in Tautavel, dated to about 450 000 years ago, and those from the Lazaret, dated to approximately 160 ky ago.

CONCLUSION

The aim of this article was to shed light on the “forgotten” fossils discovered in the prehistoric sites of Montmaurin (Haute-Garonne) in the 1950s: in the cavity of La Niche (one mandible, two thoracic vertebrae, a right tibia) and in Coupe-Gorge Cave (a fragment of a juvenile mandible, a right maxillary with C-P4, three isolated teeth). These human remains date from the end of the Middle Pleistocene and are of particular interest for examining the emergence of the Neandertal lineage. They are contemporaneous with the Neandertal-like fossils from Biache-Saint-Vaast. However, those from Montmaurin present many plesiomorphic characters, in particular on the face (maxillary bone from Coupe-Gorge) and the mandibular bone (mandible from La Niche). If all these hominins are representatives of the Neandertal lineage, we must consider that only dental and cranial characters are in place during IS 7. Alternatively, we could consider that these fossils represent two different groups; one in the Neandertal lineage (Biache) and the other conserving more primitive traits (Montmaurin).

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