

The Middle Pleistocene Human Cranium from Gruta da Aroeira Acheulian site Aroeira (Almonda Karst System, Torres Novas, Portugal)

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Human variability in the earlier Middle Pleistocene of Europe is poorly known, which makes it difficult to assess patterns of human diversity and possible regions for ancestral populations associated with the western Eurasian spread of the Acheulian technocomplex. A recently discovered partial cranium from the Gruta da Aroeira may shed some light on this period. U-series dating provides an age of ≈ 400 ka, placing the fossil in the relevant time period. This cave site was first excavated between 1998 and 2002, revealing a rich collection of Acheulian bifaces in association with large mammals and two human teeth. Work resumed in 2013, intent on reaching bedrock and establishing the chronology of the sequence, which spans 4 m and comprises three major stratigraphic units. A partial human cranium encased in rock-grade breccia was discovered at Unit 2. It consists of a large part of the right side of a braincase, lacking the occipital bone, but also preserving a portion of the left side of the frontal squama and supraorbital torus, as well as the interorbital region, including the vertical part of the nasal bones. A fragment of the right maxilla, with two molars partially preserved, was also found attached to the calvarium but not in anatomical position. Some Aroeira features are primitive traits found on some Middle Pleistocene fossils from the Sima de los Huesos, Caune de l'Arago and Ceprano, but not found in Neandertals and are consistent with a geological age between 400 ka and 500 ka.