

6th Annual Meeting of the

European Society for the study of Human Evolution

14-17 September 2016
MADRID / SPAIN



Journal of Human Evolution



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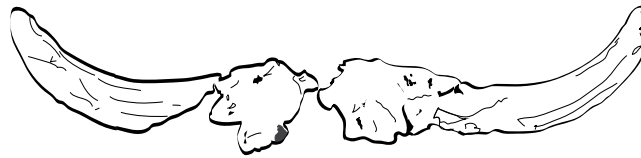
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Welcome Letter

Dear Participants of the 6th Annual meeting of the *European Society for the study of Human Evolution*,

¡Bienvenido a Madrid!

We are delighted to welcome you to the historical city of Alcalá de Henares in the Community of Madrid. Spain has made a tremendous contribution to European palaeoanthropology, beginning with precursors such as Casiano de Prado in the 1860's. It is also the place where palaeolithic rock art was first recognised in 1879, when the nine year old daughter of Marcelino Sanz de Sautuloa cried out “¡Mira papá, bueyes!” (“look papa, bulls!”) in the Altamira Cave. This discovery was followed by intense debate within the entire European archaeological community, ending only with the memorable *mea culpa* by Émile Cartailhac in 1902. Since then, Spain has continued to be the focus of attention for many prehistorians, most notably including early famous figures, such as Henri Breuil and Hugo Obermaier. In recent decades, Spanish palaeoanthropology has witnessed spectacular development, boosted by the extraordinary discoveries in the Atapuerca area and the pioneering work of Emiliano Aguirre. This has given birth to a new generation of young, prolific researchers.

As we open the 6th Annual ESHE meeting, we celebrate the ongoing success of the society, which I am honoured to have been a part of since its conception. This year, we accepted more abstracts than ever before, and as of August, have over 525 members. The success of the society means that each year we are able to present to you even more exciting and ground-breaking research, which shapes our knowledge of our remote past to help us better understand our present and prepare for the future. Thanks to the kind support of the Museo Arqueológico Regional, we have not only been able to host our conference in a stunning location, but also host special guest Fernando Colmenares as our keynote speaker, as well as visit the rich and historical site of Pinilla del Valle.

As in previous years, we are able to encourage and support our student members to attend and participate in the conferences by providing travel grants to those presenting at this year's meeting. In addition to our yearly student poster prize, we are also able to introduce a Pecha Kucha Prize this year for students thanks to the kind donation by the Journal of Human Evolution, who will also host a workshop over the weekend to help young researchers get their work published.

This meeting would not be possible without the hard work of our local organisers in Madrid. I would firstly like to thank Juan Luis Arsuaga and Enrique Baquedano, director of the Museo Arqueológico, for scouting and providing us with this amazing venue. I would also like to give special thanks to their teams, Belén Marquez Mora and Bárbara Rodríguez Álvarez for taking care of local organisation and making this entire conference possible.

The 6th Annual ESHE meeting is sponsored by the Museo Arqueológico Regional, the Journal of Human Evolution, Aicon 3D Systems and Nature Ecology and Evolution.

The organisation of this meeting and the preparation of the abstract volume was diligently undertaken by the tireless work of Mikaela Lui and our ESHE Board Members, in particular Phillipp Gunz, Shannon McPherron, Marie Soressi and Thomas Terberger.

We thank you for taking part in making this year's ESHE meeting a success, and we look forward to seeing you all at the 7th Annual meeting in Leiden in the Netherlands in 2017.

With best wishes,

Jean-Jacques Hublin
President, European Society for the study of Human Evolution.

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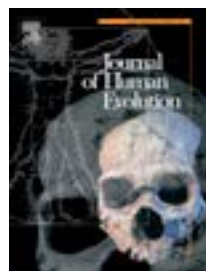
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Podium Presentation: Session 7, Fr (17:00)

A new Middle Pleistocene cranium in an Acheulian context at Gruta da Aroeira (Almonda karst system, Torres Novas, Portugal)

Joan Daura¹, Montserrat Sanz¹, Juan Luis Arsuaga², Rolf Quam³, Maria Cruz Ortega², Elena Santos², Dirk L. Hoffmann⁴, Sandra Gómez⁵, Angel Rubio⁶, Lucia Villaseca⁵, Pedro Souto⁷, João Mauricio⁷, Filipa Rodrigues⁷, Artur Ferreira⁷, Paulo Godinho⁷, Erik Trinkaus⁸, João Zilhão^{1,9,10}

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Despite the abundant remains from Sima de los Huesos and Arago, human cranial 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 of stratigraphically overlying flowstone provides a minimum age of 390 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 [1-2]. Work resumed in 2013, intent on reaching bedrock and establishing the chronology of the stratigraphic sequence, which, at the back of the cave, spans 4 m and comprises three major stratigraphic units. Unit 1 is a colmatation breccia. Unit 2 is a 2.2 m-thick mud-supported breccia rich in angular and sub-rounded clasts comprising Acheulean layer X. Basal unit 3 is a fluvial cave deposit comprising two layers: XI, with faunal remains but no artefacts; XII, sterile. The layer X lithics include handaxes and other bifacial tools; the Levallois method was not used. The highly fragmented faunal remains are dominated by cervids and equids and include Rhinocerotidae, bear, a large bovid, a caprid, and tortoise. Burnt bone fragments were recovered at the base of layer X. A partial human cranium encased in rock-grade breccia was discovered at the base of layer X. 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. Based on the degree of synostosis of the right coronal suture, the individual was a mature adult. There is no plastic deformation of the preserved regions although an extensive area of the outer surface of the frontal squama and the supraorbital torus was mechanically eroded (abraded) before final deposition, indicating a certain amount of transportation. As a consequence of the abrasion, the frontal squama was considerably thinned and the midorbital and lateral (trigone) parts of the supraorbital arches are lost. The fossil was mechanically removed from the breccia with great care and accuracy, and then CT-scanned and virtually reconstructed, using the Mimics v.18 software program. Although neither the sagittal suture nor bregma are preserved, there remains enough of the right portion of the frontal bone (including the interior frontal crest) to identify the midline. The preserved portions were mirror-imaged and the main transverse neurocranial diameters were measured. The Aroeira skull shows relatively thick bones, and an angular torus is present on the right parietal bone. This latter feature is a primitive trait found on some Middle Pleistocene fossils from the Sima de los Huesos, Caune de l'Arago and Ceprano, but not found in Neandertals and is consistent with a geological age between 400 ka and 500 ka. When the reconstructed braincase is viewed posteriorly, the parietal walls are fairly vertical but converge slightly towards the top. The general measurements of the Aroeira neurocranium are well within the ranges of the Sima de los Huesos (Atapuerca) collection and other European fossils attributed to the mid Middle Pleistocene, although the thickness of the supraorbital torus and the interorbital breadth are outstanding.

Fieldworks were funded by Câmara Municipal de Torres Novas and Fundação para a Ciência e Tecnologia.

References: [1] Marks, A.E., Brugal, J.-P., Chabai, V.P., Monigal, K., Goldberg, P., et al. 2002. Le gisement Pléistocène moyen de Galeria Pesada, (Estrémadura, Portugal): premiers résultats. *Paléo*. 14, 77–100. [2] Trinkaus, E., Marks, A.E., Brugal, J.-P., Bailey, S.E., Rink, W.J., Richter, D., 2003. Later Middle Pleistocene human remains from the Almonda Karstic system, Torres Novas, Portugal. *Journal of Human Evolution*. 45, 219–226. [3] Hoffmann, D.L., Pike, A.W.G., Wainer, K., Zilhão, J., 2013. New U-series results for the speleogenesis and the Palaeolithic archaeology of the Almonda karstic system (Torres Novas, Portugal). *Quaternary International*. 294, 168–182 [4] Arsuaga, J.L., Martínez, I., Arnold, L.J., Aranburu, A., Gracia-Téllez, A., et al. 2014. Neandertal roots: Cranial and chronological evidence from Sima de los Huesos. *Science*. 344, 1358–1363.