>NEWS FROM ATAPUERCA IN ENGLISH

A selection of highlights from the previous issue


Atapuerca

El Equipo de Investigación buscará nuevos fósiles de *Homo antecessor*

Todo a punto para la nueva campaña

Atapuerca y las aves

> RESEARCH TEAM TO SEARCH FOR MORE *HOMO ANTECESOR* BONES

>Following the presentation of Europe's oldest human jawbone in Burgos on 27 March, our scientists plan to focus on digging the lowest levels of Sima del Elefante (Elephant Pit) and the base of Gran Dolina Level 6.

Both sites have yielded bones from Europe's first human species, *Homo antecessor*, dated at 1.2 million BP in Sima del Elefante and 800,000 BP in Gran Dolina.

This year, our digs are going down several layers beneath the level where we discovered the jawbone that was given front cover treatment by the British Journal Nature, so any discovery of human remains, tools or traces of anthropic activity (e.g., cut marks) will require the date of the first arrival of hominids to southern Europe to be wound back even further.

In addition, at Gran Dolina we are going to dig the levels beneath the Aurora stratum, which has also yielded remains of several *H. antecessor* individuals. The presence of more hominid bones will indicate that the cave was used for a long time as an area occupied by societies which practised gastronomic cannibalism.

Editorial
ATAPUERCA AND BURGOS UNIVERSITY
>Alfonso Murillo Villar
Chancellor, University of Burgos

The election for the post of Chancellor at Burgos University was held on 20 May this year. The University community voted in large numbers, and privilege me with its trust to oversee the city's most important academic and scientific body, for which I feel proud but also a great sense of responsibility at the same time. Facing this challenge with great enthusiasm, and backed by a wonderful team, I aspire to make the University of Burgos a more transparent, participatory, plural and flexible institution, with a greater critical spirit towards itself and its environment.

> One of the main assets that we have is, without a doubt, the Sierra de Atapuerca archaeological sites, part of UNESCO's World Heritage network just 15 km from the campus, where a massive amount of work is being conducted by a team that has been honoured with the Prince of Asturias Prize. It is composed of researchers who are publishing papers in the world's leading scientific journals, some of them staff members at our University. In addition, there is also the tourist, cultural and economic attraction of the Sierra and the new associated infrastructure being built in our city: the National Human Evolution Research Centre (CENIEH) and the Museum of Human Evolution (MEH), which aspire to act as a driving force for science and the dissemination of knowledge.

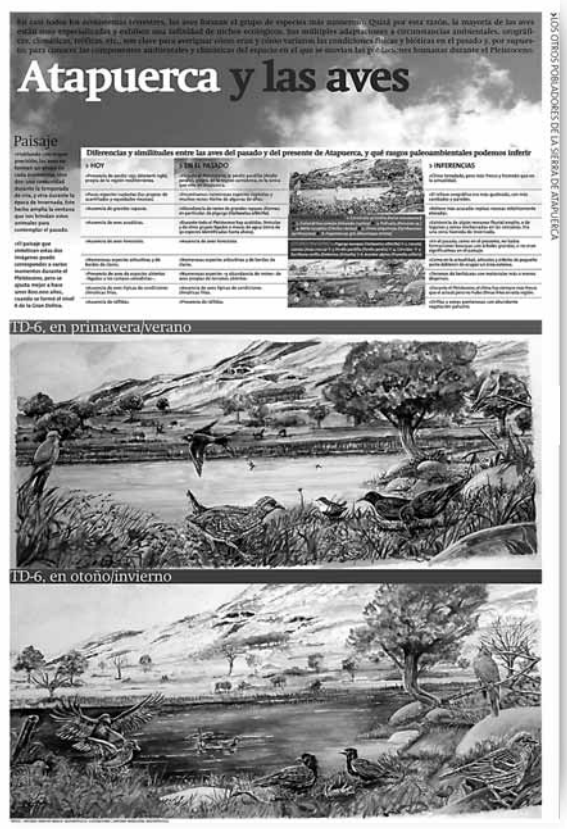
>Atapuerca is not a passing fad with a short use-by date. It is an authentic fact, which is going to yield high-profile archaeological remains for many decades that will help to improve our understanding of history, while at the same time acting as an impulse for Earth and Life Sciences. Our university cannot remain aloof from the Atapuerca phenomenon. We plan to participate in an active, supportive way with all the organisations and people which are directly involved, as well as with Burgos society as a whole, in a project that is making our city a world reference point in the study of human evolution and the first steps taken by our ancestors in Europe.

> As scientists, teachers and citizens of Burgos, it is our obligation to give Atapuerca our closest attention and our greatest encouragement, striving to give our University a more prominent role in the future of the projects underway. The new team governing the University of Burgos plans to promote all of these fields and make Atapuerca officially a Priority and Strategic Area. In the lecturing field, we want the new study plans for the Humanities and Education Faculty, which we must now design under the guidelines of the European Space for Higher Education, to encourage the study of Human Evolution. We have to organise, for example, a specialist stream in Palaeontology and Prehistory with a Master course, and even undertake the ambitious task of designing high-quality PhD courses in these fields.

> The forthcoming completion and inauguration of the building in Burgos which will house the CENIEH, the extraordinary social and scientific importance of its activities, and the ascription of leading researchers who work in the field of Human Evolution to the University of Burgos, will set an optimum framework for a determined involvement by our University in both the Centre's research programmes and its actual organisation.

> To be able to do this, we must have a larger number of lecturers of our own, and recruit staff via agreements with the CENIEH and the Complutense and Rovira i Virgili Universities in order to ensure the quality standards required for all our University courses. Our University should also provide backing for research, and act as a pillar on which to rest the subsequent stage of knowledge dissemination, as we aspire, with absolute loyalty, to join and share the leadership in the great discoveries and studies being generated in Sierra de Atapuerca, providing generous investment in equipment, technicians and researchers. The CENIEH and our University must renew and expand our existing agreements, striving to make the most of the synergies which the two institutions are able to generate together.

> This coming summer we plan to make an institutional visit to the sites with a view to assessing the shortfalls, requirements and potential for future work. We want all the citizens of Burgos to know that we will strive to remain at the forefront of the science and education being generated by Atapuerca. We owe it to Burgos society, and we must make a firm offer of participation. It would be extremely difficult to imagine Atapuerca without the University of Burgos, or the University of Burgos without Atapuerca. The destiny of both institutions inevitably requires their mutual understanding and their collaboration.


Atapuerca y las aves

Paisaje

Diferencias y similitudes entre las aves del pasado y del presente de Atapuerca, y qué rasgos paleoambientales podemos inferir

> HOY

> EN EL PASADO

> INFERENCIAS

> LOS OTROS POBLADORES DE LA SIERRA DE ATAPUERCA

TD-6, en primavera/verano

TD-6, en otoño/invierno

FURTHER EIA ACTIVITIES

>NEW DISCOVERIES AT MALTRAVIESO CAVE. The marine habitat of two drilled *Patella vulgati* and *Littorina obtusata* shells has enabled the scientists in the "First Extremadura Inhabitants" research team led by ANTONI CANALS to establish the existence of trade contacts between groups from the Portuguese coast with those who lived in inland Extremadura 22,000 years ago, during the Gravetiense period.

>At Burgos University, CARLOS DÍEZ and MARTA NAVAZO have published the results of experimental work in which they analyse the way and the degree to which agriculture disturbs the surface archaeological record. This has serious repercussions on interpretations of spatial use and exploitation by hunter-gatherer societies. Their paper was published by the international journal Geoarchaeology.

SERGIO MORAL, along with other staff members from Burgos University and Barcelona's Autonoma University, has worked on two publications, one of which analyses the settlement network in the Campaniforme period along the Douro River banks in Valladolid province (published in Zephyrus), while the other looks at Cardial ceramics and their imitations in inland Iberia (published in Veleia).

>In PLoS Biology, **JESÚS RODRÍGUEZ** from the CENIEH in conjunction with an international team of scientists have found that the extinction of the woolly mammoth 3700 years ago was primarily caused by climate change, although if this happened quickly, it was because this climatic event also paved the way for the incursion of modern humans and their increasingly complex and effective hunting methods into their last glacial redoubts.

>The journal Gallaecia presents the results of a Compostela University-led project about the first settlers in north-western Iberia, in which **XOSE PEDRO RODRÍGUEZ** and other members of the Atapuerca project team have taken part. Surface prospecting in the study area, the middle reaches of the Miño River, and sample digs in several of the documented caves, provide an up-to-date look at knowledge about Galician prehistory.

>CHRISTOPHE FALGUÈRES and other scientists have recently published an article in the Journal of Human Evolution on the results of gamma ray spectrometry dating work done on *Homo erectus* bones found in central Java. Their estimations show that they survived on the island until 40,000 years ago, which means that there could have been contacts between the first modern humans who arrived in this part of the world and the last *Homo erectus*.

> Recent excavations at the Balma de la Massana site in Lleida Province have permitted the documentation of a new early Neolithic site. This work, led by **ALEX SOLÉ**, is part of a project entitled "Techno-cultural and landscape changes in the transition from the Pleistocene to the Holocene in the areas under Mediterranean influence on the Iberian Peninsula". Under head researcher FRANCESC BURJACHS, the team hopes to be able to characterise the economy of the first agricultural societies and discover late Palaeolithic levels.

> Restoration of *H. antecessor* jawbone published in Journal of Human Evolution. The restoration work on *Homo antecessor* jawbone ATD6-96, discovered in Level 6 sediment at Gran Dolina, mix science and technology in a spectacular way. The article in the London-based Journal of Human Evolution describes the work led by expert restorer **LUCÍA LÓPEZ-POLÍN**, in which all the hard calcium carbonate coating had to be removed in an extremely delicate process.

> A new dental study of Dmanisi remains situates the origins of the Homo genus in Eurasia. The British Journal of Human Evolution has published an article on hominid teeth in Dmanisi (Georgia). The authors of the paper include several members of the ARG working at the CENIEH in Burgos, led by **MARÍA MARTINÓN** and Dmanisi director, DAVID LORDKIPANIDZE, along with several researchers from the National Museum of Georgia in the capital, Tbilisi.

>Evolutionary Anthropology, 17: 8-21 **G. PHILIP RIGHTMIRE**

HOMO IN THE MIDDLE PLEISTOCENE: HYPODIGMS, VARIATION, AND SPECIES RECOGNITION

> (…) This review of the morphology of Middle Pleistocene hominins raises several points that can usefully direct a discussion of systematics and species-level taxonomy. First, the more complete specimens from Africa resemble their European contemporaries.

There is variation within both groups, which presumably is attributable to sex dimorphism and differences among local populations. However, magnitudes of variation within the mid-Pleistocene group are evidently not greater than in *Homo erectus*. On the strength on these findings, it can be proposed that the crania from Africa and Europe constitute a single, species level hypodigm. If all of the earlier Middle Pleistocene fossils, including the Mauer mandible, belong to a single lineage, then this species should be called *Homo heidelbergensis*. Also, it can be argued that later in the Middle Pleistocene, some populations of this species dispersed northward within Europe, where they were repeatedly subject to episodes of extreme cold. During glacial advances and retreats occurring over several hundred Ka, these hominins continued to adapt to harsher (cold, dry) conditions and evolved the specialized craniofacial characters and body build of the Neanderthals. In this same interval of time, other representatives of *Homo heidelbergensis* in Africa were becoming more like modern humans.

An alternative reading of the evidence has been advanced by Bermúdez de Castro, Arsuaga and coworkers. Here the remains from Gran Dolina are attributed to *Homo antecessor*. This species is viewed as a descendant of African *Homo erectus*.

Homo antecessor is presumed to have given rise *to Homo heidelbergensis*. In this scenario, the *heidelbergensis* lineage was confined exclusively to Europe, where its members gradually acquired morphology of the Neanderthals. This is the accretion hypothesis. (…) The African fossils are lumped in a separate species, for which the nomen *Homo rhodesiensis*.

Indeed, recent discoveries are prompting changes in the interpretation offered earlier. Carbonell and colleagues report that a hemimandible found in 2003 resembles Asian rather than African *Homo erectus*. Thus, Carbonell and coworkers now deny any role for *Homo Antecessor* in the ancestry of *Homo heidelbergensis* (*sensu stricto)* and the Neanderthals.

Here there is a conundrum. Mid-Pleistocene Africans are to be regarded as a distinct lineage, descended from a stem such as *Homo antecessor* or evolved directly from *Homo erectus*.

In summary, there are two reasonable phylogenetic hypotheses that must be studied further. One holds that all of the European fossils make up a single lineage. Such a lineage can be traced back at least to the Sima population, present in the Atapuerca region near the beginning of the Middle Pleistocene. The appropriate species nomen is *Homo neanderthalensis*.

This hypothesis will be strengthened if it can be demonstrated that the Sima individuals display "true" rather than "incipient" Neanderthal autapomorphies or if similar diagnostic morphology can be confirmed in other early European assemblages. An alternative view lumps both European and African fossils in the geographically widespread species *Homo heidelbergensis*.