

## >NEWS FROM ATAPUERCA IN ENGLISH



### > DIGGING AT THE LOOKOUT (EL MIRADOR) FOCUSES ON SEARCH FOR NEANDERTHAL REMAINS

>Expanding material used to get beyond rock barrier

>Mobile solar energy equipment installed in July

>This year's digging season at the Lookout Cave (El Mirador) is set to be one of the most interesting since work began inside seven years ago.

We are reaching the end of the levels where Neolithic herdsman and crop growers have been found, and we are getting closer to the sediment built up during the occupation by hunter-gatherers around these Hills from 10,000 BP onwards. However, at the end of the previous season, the Mirador team encountered an unexpected obstacle: five metres down there was a level choked with boulders that had fallen from the roof, covering the 6m<sup>2</sup> sampling area and preventing any further excavation.

This season's priority was to remove the blocks without using explosives or pneumatic drills, as any vibrations could cause further collapses inside the cave. The technical solution was to use expansive cement. This system consists of carefully boring small holes in the rock that we want to break up, and then pouring in a product that acts on the rock with an expansive power of up to 9,000 tonnes per square metre, cracking it in a few hours. Once the fragments are hoisted to the surface by a small crane, we will be able to know whether the cave was occupied before the arrival of the Neolithic groups. If the sequence is maintained, remains with a similar chronology to the

Altamira cave paintings will be superimposed on the Neanderthal occupations, one of our main goals here ever since the start of our excavation work.

### OTHER SITES

>SUBSIDENCE (HUNDIDERO). Sampling begun in 2004 was expanded a further 4m<sup>2</sup> in an attempt to distinguish between the different Middle Palaeolithic stages already documented and verify the continuity of this ancient lakeside site's occupation 60,000 years ago.

>GRAN DOLINA. The challenging goal here is to conclude digging at Level 10, a stratum with a massive volume of bones and tools in a small depth of clay dating back al-

# A selection of highlights from the previous issue

most 400,000 years. Work on levels TD7 and

TD6 is also continuing, where new Homo antecessor remains are expected to be unearthed.

>BEAR CLAW CAVITY (COVACHA DE LOS ZARPAZOS). Digging will continue on a rich Middle Pleistocene level from 300,000 BP, and the outline of the last stratum to be occupied before the complete closure of the cave will be defined.

>ELEPHANT PIT (SIMA DEL ELEFANTE). Work is expected to continue on the lower levels as we try to identify new stone tools dating back more than a million years and describe the type of occupation by the first hominids who arrived in the Atapuerca Hills.

>BONES PIT (SIMA DE LOS HUESOS). This year, pure excavation work may be resumed as we strive to extract more human bones from 400,000 years ago that will complete the fossil record of Middle Pleistocene hominids.

>THE PORCH (PORTALÓN). Highly ambitious work is planned for this site, where more than 20 scientists will try to define the limits of former excavations, remove jumbled sediment, discover the sequences from the Neolithic and Bronze Age, and dig the intact sediment with a view to describing the lifestyle of the first farmer and grazer communities.

### ATD6 96 JAWBONE OPENS UP DEBATE ABOUT H. ANTECESSOR ORIGINS

>Last April, the jawbone unearthed in 2003 at Level 6 in Gran Dolina was presented to the world community in the prestigious US journal Proceedings of the National Academy of Sciences of the USA.

This mandible, nicknamed Letizia, along with a skull fragment from the same year and a hundred-odd human remains found between 1994 and 1996 at the site, are improving our understanding of the Homo antecessor species, particularly with a view to defining new family connections.

This is a small jawbone with a primitive development model from a roughly 17 year old youth.

The most novel aspect of the study is linked to the features it shares with African and more particularly Asian spe-



cimens on account of its surprising gracility. Evidence strongly suggests that Chinese hominids shared a common forebear with Homo antecessor, and that the European species was of Asian origin.

The paper also backs the hypothesis suggested a few years ago that the Atapuerca hominids are in the same evolutionary line that led to our own species, Homo sapiens.

### TECHNOLOGY AND HUMANS

>Xosé Pedro Rodríguez Álvarez. Senior Lecturer at Rovira i Virgili University. ARG member.

used. Why do we study such ancient tools? What sort of information can we gather and to what point is this information important?

>Technology has always accompanied humans. We can state without any doubt that our extraordinary ability to adapt is based on technology.

In contrast to other species, which are adapted to more or less specific ecosystems, humans have devised technology that helps us to survive anywhere on earth.

>As with humans, the birthplace of technology is Africa. However, 1.8 million ye-

ars ago, some humans had already left Africa and had reached the Caucasus. The populating process in Asia began to increase from that point onwards. One and a half million years ago, humans had already populated some areas of China and probably Java (Indonesia).

The occupation of Europe began a little over a million years ago. In the Atapuerca Hills, we have discovered a lot of information about the first Europeans (particularly at sites like the Elephant Pit and Gran Dolina). Much later, 50,000 or 60,000 years ago, our species occupied Australia and New Guinea. The last of the great continents to be populated by humans was America, at least 15,000 years ago.

>Our evolutionary success has depended, and still largely depends, on our ability to manufacture tools. In this sense, technology is an intrinsically human phenomenon, and so the study of prehistoric tools helps us to understand how our intelligence has evolved and how we have arrived at our present state.

>In the not-too-distant future, technological development will help our attempts to occupy other planets, but on the other hand, it may lead to the destruction of our own. Technology allows us to take increasingly firm steps in the understanding of our own bodies, to the point where it influences our genetic structure, which could help to prevent and cure many disorders. However, we are better prepared technologically to wipe out a larger number of our fellows. In spite of everything, technology should not be regarded as dangerous.

Technological development is extremely positive. In fact, it has allowed us to survive as a genus and as a species. However, the inappropriate use of technology by some humans could lead to the destruction of the work of thousands of generations. The solution is not to do away with technology and return to an illusory paradise where the lack of technology will prevent its misuse. The solution is to use technology to create and not to destroy, to disseminate technology throughout the planet and make it available to everybody (that would be true globalization), rather than relinquishing progress in fear of its consequences. In fact, if we have learned anything from the study of prehis-

toric tools over the last 2.5 million years, it is that the development of technology is unstoppable. Technological advance will ultimately prevail, and there is no turning back. If we know how to use technology, our species will ultimately achieve everything that we propose.

### MARINA LOZANO DEFENDS PHD THESIS ON BONES PIT HOMINIDS

>Marina Lozano now has a PhD in Prehistory at the Rovira y Virgili University of Tarragona. On June 6 she defended her thesis on *Homo heidelbergensis* front tooth decay, and was awarded the highest qualification, a unanimous High Distinction cum laude. She conducted a microscope-based analysis of all the alterations in the collection of nearly 200 incisors and canines found in the Bones Pit in an attempt to distinguish between wear caused by chewing in these grooves and decay produced by other uses or habits during the hominids' lifetime.

### DNA STUDIES OF CATTLE AND HORSES IN THE PORCH

>The Human Evolution Lab at Burgos University, in collaboration with Madrid's Complutense University and Uppsala University (Sweden), is undertaking a genetic study of cattle and horse remains from the Porch site excavation in the Atapuerca Hills. This study, published in the digital version of the Proceedings of the National Academy of Sciences (PNAS), concludes that while the majority of the specimens are descendents of European ancestors, some Bronze Age specimens show a clear African origin, which these scientists interpret as the result of contacts that go beyond the level of mere exotic objects and even reach the level of organised animal transport.

### CASTILE HERITAGE FOUNDATION SCHOLARSHIP

Ángel Carrancho Alonso, Humanities graduate from Burgos University and member of the Atapuerca Research Group, has been chosen as one of ten scholarship winners by the Fundación del Patrimonio Histórico de Castilla y León. The renewable two year grant will allow Carrancho to work under Dr. Juan-José Villalain on the analysis of the magnetic properties of the limestone backfill of the Atapuerca Hills with a view to the identification of combustion structures and paleo-environmental definition.

### SCIENTISTS FROM ACROSS EUROPE GATHER IN SEDANO TO DEBATE CAMPANIFORME PERIOD

>May 8 saw the official closure of an International Scientific Meeting organised by the Archeologie e Gobelets Association in the Burgos Province town of Sedano. Nearly 70 scientists from across Europe, including two representatives from Burgos University, debated the latest proposals and took part in the official opening of an exhibition in Aranda de Duero entitled The Campaniforme on the Meseta. Symbols of power in prehistory 2500-2000 BC. This period is also represented in

Atapuerca as both a habitat (The Porch) and as a burial site (Atapuerca Dolmen).



About 2.5 million years ago, a few hominids began to manufacture tools using stones and probably organic material such as wood and bone. The stone tools best preserved, which is why they are the main focus of scientists who study prehistoric technology.

>Our discipline not only analyses the shape of these objects, but also how they were produced and how they were

used. Why do we study such ancient tools? What sort of information can we gather and to what point is this information important?

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