

> IN THE SITE

WE ARE ALL AWARE OF THE KEEN INTEREST IN ATAPUERCA OUTSIDE SPAIN > One of the steps we are taking to publicise our research is a summary page of the previous issue in English.



2001: "AN HISTORIC, PROLIFIC SEASON" UNREPEATABLE > This summer's excavations have yielded further proof that the Atapuerca 'goldmine' is endless. This year, new discoveries have set Atapuerca at the forefront of research into human evolution.

NOT 'JUST ANOTHER TOOTH' > Juan Luis Arsuaga was ecstatic. At last he was starting to see the light in the depths of the Bones Pit (Sima de los Huesos). For years, Arsuaga has been claiming that the piles of human and carnivore deposits at the bottom of the



Bones Pit were contemporaneous. The discovery of a human tooth may well help to confirm his theory. The tooth is a heavily worn incisor of a hominid who probably died at a late age. It was found on top of the sterile sand at the base of the site and below the large pile of bears and other carnivores including lions and foxes. This discovery allows us to advance the idea that the first living beings deposited at the bottom of the cave were humans, and that the bears and other carnivores fell in at a later date. If confirmed, it may be an indication that a considerable part of more than 30 hominids in the cave arrived there in a very short time span, as if there had been a catastrophe.

FEMUR > Another major discovery from the 2001 excavations in the Bones Pit was a complete hominid femur. This thighbone is almost as important as the famous "Elvis" pelvis discovered several years ago. It provides a precise clue to the height of the hominid on his death, his morphology, muscular insertions and thus the strength of his muscles and even the way he walked. According to anthropologist José Mi-

guel Carretero, this femur belonged to a 1.7 m tall human, 5 cm shorter than "Elvis", possibly weighing around 90 kg with large, powerful muscles like a specialized hunter who spent most of his life in constant movement searching for food. This discovery, which will have to be studied in fine detail, will make Atapuerca an almost compulsory destination for palaeoanthropologists from around the world who wish to study the shape and size of these Pleistocene hominids. (Photo: An unforgettable moment. Bermúdez de Castro, Carbonell and Arsuaga present the femur found in the Bones Pit at a press conference at the end of the year's excavations.)

SABRE TOOTH > Excavations at Level 10 in the Gran Dolina, formed 400,000 years ago, have yielded the remains of an extremely rare species in the European fossil record. Palaeontologists have identified the canine tooth of an extinct sabre-toothed tiger, known as Homotherium, which survived in America until 11,000 years ago but became extinct in Europe more than 500,000 years ago. These specialized felines had very strong forelegs and almost no tail. They are famous because of their well-developed saw-like upper canine teeth which they sank into their victims' necks, producing an unstoppable haemorrhage. A recent study by Mauricio Antón has proved that 'Homotherium' had amazingly flexible cervical vertebrae which enabled it to move its neck and pin down its victims. The presence of the sabre-toothed tiger at Atapuerca proves that it became extinct in Europe later than previous estimates. Its discovery amongst remains of primitive lions poses interesting questions about coexistence amongst these powerful hunters. Lions were probably specialist hunters in open environments, while the 'Homotherium' lived and hunted in the more scrubby areas of the Atapuerca Range. It also seems clear that the lions were more successful than their sabre-tooth 'cousins' because the latter disappeared earlier from Ata-

puerca and the rest of Europe. THE CAMPSITE > Excavations at Level 10 of the Gran Dolina, formed nearly 400,000 years ago, have continued to yield spectacular results. More than 1000 stone tools were unearthed, all manufactured by a group of 'Homo Heidelbergensis' who occupied the cave to feed, work on hides and wood, and develop group relationships. These hominids used Gran Dolina as a seasonal base camp. The enormous number of instruments produced from flint blocks, sandstone, quartzite stones and high quartz shows that they performed many activities which required a wide range of artefacts. The skeletons of deer, hors-

rounding clay, they watched the streak spread across for more than 3 metres. The colour was due to a large amount of burnt wood and amongst it, several reddish teeth and bones appeared. There was no doubt about it: evidence of deliberate fire had been discovered. Everything seems to suggest that the fire was used to cook the meat and bones of several herbivores. The level where fire has been found is not particularly old- (just over 150,000 years!), but it allows scientists to advance the idea that the human groups occupying the oldest sites such as Gran Dolina and Gallery never knew fire. The existence of bonfires in pre-



> Visiting

> VISITING ATAPUERCA FROM IBEAS DE JUARROS

ACAHIA - The cultural group's headquarters are in the 'Emiliano Aguirre archaeological workshop', on the highway running through the town. The Centre has a permanent exhibition including graphics, texts, stone and bone tools (originals and copies) from the sites. This is a good introduction to human evolution, the lifestyle of our ancestors and the type of prehistoric climate, fauna and flora.

• **Guided tours:** The Association organizes visits to the sites, accompanied by archaeologists working on the excavations.
> individuals (weekends and public holidays only): 11am and 1pm. (Reservations necessary several weeks in advance).
> groups (Tuesday to Sunday). Advanced reservations necessary.

> Closed: Monday, Tuesday and last weekend every month.

• Cost > individuals: 400 pts. (2,40 Euros). Children under 8 free. Weekends and public holidays, compulsory use of tour bus: 500 pesetas (3,01 Euros). Groups: 350 pesetas (2,10 Euros). • Information: 947 42 14 62. 10am to 2pm. info@atapuerca.net

> FROM ATAPUERCA TOWNSHIP

PALEORAMA - Before going up to the site, members of Paleorama, an association formed in 1995, give a talk about Atapuerca and prehistory at the archaeological park in the town, illustrated with slides and demonstrations of flint tool production. Reconstructed prehistoric objects, hominid skulls, masks and other resources are also used. They also explain the excavation process, what an archaeologist does and the different disciplines

and specialties involved: defining the age of a fossil, how a cave is formed, pollen analysis, etc.

• Opening times. Winter. Weekends and public holidays 11:30am (reservation necessary). Deaf visitors can be accompanied by a sign language interpreter.
• Cost > individuals: 400 pts. (2,4 Euros), groups: 350 pts. (2,1 Euros). • Information: 947 43 04 73. www.paleorama.es

ATAPUERCA ARCHAEOLOGICAL PARK. Last summer, an archaeological park was opened to entertain and teach prehistory to the general public, especially school children. The Park is funded by the Castilla y León Regional Government and designed by Paleorama. It includes reconstructed shelters, scenes of prehistoric activity, stone working and fire-making demonstrations using early techniques.

es, bison and lions are proof of their great hunting skill and their ability to transport their prey to the cave for the whole family group to consume.

HISTORIC ASHES >

One of the unresolved issues in Atapuerca has been surmounted in this summer's excavations. In the Elephant Cave, a site in the Railway Trench, archaeologists and palaeontologists were unearthing remains of horses and bison in the upper strata when a dark patch put them on alert. Digging away the su-

history was a revolution: fire gives off heat, it extends the hours of light and coexistence, it encourages the surrounding space to be distributed and allows more numerous and nutritious food to be used.

FIRST MAMMOTH FOSSIL, AN ANKLEBONE, UNEARTHED IN ELEPHANT PIT > A mammoth anklebone unearthed in 2001 gives credence to the name of the Elephant Pit, originally designated due to remains of a rhinoceros mistaken for an elephant.

With respect to the enigma of an elephant fossil in a cave, it seems most likely that humans dragged it in. What has to be resolved now is the reason that led them to take the anklebone in with them: food, aesthetics or a functional attraction?

'URSUS DOLINENSIS', AN UNKNOWN BEAR SPECIES > Bear from Gran Dolina base now has a name Biologist Nuria García, coordinator of research into the Atapuerca carnivores, has been digging at the site since 1989, and began to study remains

found in 1990-91. She noticed that they had similar features to the 'Ursus ningeri' fossils found in the Bones Pit and the present brown bear, but they were not exactly like any other, so she had to start afresh. Scientific recognition arrived eleven years later with the publication of her results in the French journal, 'Comptes Rendue de l'Académie des Sciences de Paris', including the definition of a new species, 'Ursus dolinensis'. Any discoveries of the same species elsewhere in Europe will now have to be given the same name, putting the 'Dolina' root in all the phonetic roots of Europe. 'Ursus dolinensis', which gets its name from the Gran Dolina where it was found, could be up to a million years old. It hibernated in the Sierra de Atapuerca caves, weighed more than a ton, was a great hunter and was more carnivorous than its descendants. Some of the remains show signs of having been skinned by hominids.

ATAPUERCA FOUNDATION AWARDS TEN RESEARCH GRANTS

> The Atapuerca Foundation has taken further steps to ensure the continuity of research and public awareness of the sites by awarding ten research grants. It will also renew its student collaboration contract with Burgos University (UBU). The Foundation is also working closely with UBU lecturers in the design of an education unit to be included in the upper secondary syllabus in Castilla y León.

PRIVATE ENTERPRISE STEPS UP COLLABORATION WITH ATAPUERCA

> Numerous companies have helped to make the 2001 excavation season a success. Our thanks go to Caja de Burgos, Campofrío, Coca Cola, Colonel Tapioca, Diario de Burgos, Iberdrola, Diario de Burgos, Igmo Catering, Imelsa Tents, Land Rover, Nivea, Prosegur, Martínez Cakes, Telefónica Movistar and Würth Tools.

BURGOS UNIVERSITY AT FOREFRONT OF ATAPUERCA RESEARCH

> When Regional Premier Juan Vicente Herrera officially opened the Research, Development and Innovation Building (R+D+I) at Burgos University (UBU) on June 19, the dream of having a centrally located space equipped with the latest scientific and research technology came true. The first floor of R+D+I, occupied by the UBU Atapuerca research project, an Associate Group of the

National Science Research Council, will specialize in human palaeontology and prehistory. It includes restoration laboratories, comparative prehistoric anatomy and technology, and a zone for storing and preserving fossils and prehistoric discoveries. It will be supplemented by the Inter-university Institute and the Research Centre planned for the Cavalry site alongside the Museum of Human Evolution. This will be the hub for a large part of the research currently being done at other Spanish and foreign centres.

The "Atapuerca craze" has been the launching pad for active UBU participation in a multitude of forums, congresses and seminars on human evolution, cultural and historic heritage and refresher courses for teachers. For the first time, the new Humanities syllabus envisages subjects linked directly to the research being conducted at Atapuerca, and even the possibility of a specific degree or major in cultural and biological anthropology, which will open new doors to students.

MUSEUM OF HUMAN EVOLUTION SET IN MOTION

> Burgos is immensely lucky to be the site of one of the world's best places to understand human evolution, and it needs to make the very most of the circumstances. The Museum of Human Evolution has taken its first steps: the initial archaeological work has been done, although the National Heritage body has approved an extension. Architect Juan Navarro is now working on the final project for the Museum. The Castilla y León Government has decided to join the initiative of Burgos Mayor Ángel Olivares, and has promised to cover a large part of the construction costs. The Culture Ministry has also joined the project, and UBU is determined not to miss the chance to create an Inter-university Research Institute in adjacent rooms to the Museum.

The possible location of a new bus station in the Museum basement will energize the entire stretch of the Arlanzón River and the southern part of the city. The Burgos Chamber of Commerce, professional guilds, business associations, the Tourist Board and ordinary citizens all agree that a Conference Hall and an Auditorium are indispensable in a city like Burgos, which is taking off industrially and scientifically but still lacks cultural infrastructure.