

## NEWS FROM ATAPUERCA IN ENGLISH


**> 30TH ANNIVERSARY OF THE FIRST HUMAN JAWBONE DISCOVERED IN ATAPUERCA**

**TRINIDAD DE TORRES: "I felt worried when I was holding the jawbone in my hands"**

The first dated fossil from Atapuerca, AT1, a *Homo heidelbergensis* jawbone discovered in 1976 by a team led by Trino Torres when they were searching for bear bones, is now part of the Atapuerca legend. This human fossil set the plans for the archaeological works and the multidisciplinary team that have continued down to the present day.

**—How did a railway engineer get involved in palaeontology?**

—Because you always find weird people in everything, but in any case, mining engineers have had a long tradition in prehistory. It may well have been my contact with Emiliano Aguirre 45 years ago, when I was 13. I must have been a repugnant kid—those ones that like bones instead of toys.

**—What about your special interest in bears?**

—To be honest, the first bones I found were mountain goats, so, I don't know, mountain goats, horns... it sounded horrible, and seeing that there were bears as well, I decided to focus on bears. It was probably that my engineering training has made me believe in statistical work—lots of specimens, and the bear group had the largest number of specimens.

**—Was your contact with Emiliano Aguirre also your first contact with archaeology?**

—Emiliano, the priest Aguirre, because at the time he was a Jesuit, or as the gypsies called him, the bones priest, took me in marvelously at the Science Museum, and made me number the bones that had been found at the Torralba and Ambrona sites, although there were no bears there because they were almost all from elephants.

**—What was your first contact with Atapuerca?**

—I did my graduation project on the bear site in El Reguerillo cave, and afterwards I decided to review all the bear bones on the Iberian Peninsula. I dug in the Basque Country and I visited the Palaeontological Museum in Sabadell where there was a real character, Miguel Crusafont, who gave me a wonderful welcome. That was where I first saw material from Atapuerca— from the Railway Cutting. I found it extremely curious, something I had never seen before, and I decided to dig there. I asked the Directorate— General of Fine Arts for permission, and I began to dig there in 1976. Although the permit for 1977 was in my name, I left it.

**—When you arrived at Atapuerca, your reference point were the backfills in the Cutting.**

—Yes, I called them Tres Simas [Three Pits] because Galería didn't exist. Francisco Jordá had been digging there, and he got disheartened because it was heavily cemented—hard as concrete. We also got disheartened after wearing our fingers to the bone. We also set up some grids at the base of Gran Dolina, which yielded bears and the odd stone tool, which were badly deteriorated.

Then the cavers from the Edelweiss Group mentioned that there was a pit in Cueva Mayor [Main Cave] that was open to discoura-

# A selection of highlights from the previous issue

ge people from trying to enter the Painting Gallery.

I sent a team to explore and they came back with two rucksacks full of bear teeth. So we decided to set up a group in the Bones Pit, but not to dig in the archaeological sense—it was more to collect disturbed material, because it was all destroyed. There was a stratigraphic marker for the material that had been disturbed, and there were cigarette

butts and filters. The bones had knife marks, made by people who had gouged around to get tusks for their girlfriends, which was a local tradition. We sifted the sediment with our hands, and what seemed to be residue was thrown into a small depression in the floor. Some of the things that had escaped us have been recovered in recent excavations.

One day a human molar appeared. It wasn't big, and it was heavily worn, but because we had found ceramics we thought it was related to recent occupation, but then a jawbone came out that was broken in two. You didn't have to be a paleoanthropologist to know what we were holding in our hands. At that point I got worried. There is a clear problem in every country, in Spain as well, which is the "monkey addiction" amongst quaternarists. Things got a little too rushed as a result of that discovery. I was not at all interested, particularly in paleoanthropology, and I wasn't going to focus on it, so

words, you get a result that is not cross-checked strictly enough before it reaches the press, even the science press.

**—What do you think of the science scene in Spain?**

—We are well positioned in Europe, but in comparison with the USA, we are always lagging behind. It's a question of economic possibilities.

**—Do the four documented species, dolinensis, spelaeus, arc-**

tos and deningeri, mean that Atapuerca was a paradise for bears?

—You can find paradise in the large fossil record of the karst backfills. Those caves have been inhabited by bears over hundreds of thousands of years. Yes, it must have been a local paradise: it was a mountain range with the right sort of plants for bears, which were essentially vegetarians, surrounded by a high plain where they probably had little chance to feed properly.

of site exploitation, not only in scientific terms but also with the media.

**—What sort of applications are there for research into fossil remains from the latest progress in genetics?**

—It is very promising, but I am still a bit afraid because it is really easy to sell it to the media, and sometimes they build up what I call "scientific artefacts"—in other

**—¿What do you think has been the relationship between bears and humans in Prehistory?**

—I don't think they had anything beyond a casual relationship. I think that both the hominids from the Bones Pit and their successors, the Neanderthals and the old Cro-Magnons, were not particularly interested in meeting up with a 700-800 kilo brute. Coming across a bear with a broken leg or

during the washing-sieving stage of each dig on the banks of the Arlanzón River. It synthesises and confirms the climatic and landscape evolution proposed by the team from the Zaragoza University, which was based on a study of rodents.

In another study, presented in Aix-en-Provence, Marie-Pierre Coumont analysed several pits that were used as traps during the Palaeolithic period. This Marseilles researcher looked at a various French sites as well as Level TD4 in Gran Dolina and Level GIII of the Gallery site, both at Atapuerca.

**>EDITORIAL I AM A GEOCHRONOLOGIST**

**>Jim Bischoff**

I'm a geochronologist. A geochronologist determines the age of earth materials, such as rocks, sediments, spring deposits, stalagmites/stalactites, and other cave formations using radioactive isotopes. I work at the United States Geological Survey located near San Francisco, California. Samples that I collect

from the Atapuerca sites are carried to my laboratory in California where I make the analyses for the radioactive isotopes and calculate the age of the material.

My focus is the age of the human skeletons found in the world-famous Sima de los Huesos. Deep within the Cueva Mayor-Cueva cave system of the Sierra de Atapuerca, far removed from any surface entrance, is the enigmatic Sima de los Huesos containing the

cal deposit is at the entrance to a cave system, that is a rock shelter open to the air. They consist of the debris discarded by the human inhabitants, such as the bones of the animals eaten by the inhabitants, and a few stone tools, but rarely a human bone. The SH collection now comprises more than 80% of the entire Middle Pleistocene record world-wide of human bones and provides for an unprecedented study of within-population variation. The SH hominids are the evolutionary ancestors to the Neanderthals. Dating of the deposit is clearly of great importance but has been here-to-for problematical.

Today the Sima de los Huesos is reached by traversing a half-kilometer labyrinth of maze-passages. The humans must have entered the Sima by some other entrance that is closer, and that has long since been destroyed and sealed in the evolution of the cave over the past hundreds of thousands of years. The final entrance today is down a dizzying 13 m shaft on a wire ladder. The area of excavation itself consists of the Rampa and the Sima de los Huesos. The Rampa is an inclined linear chamber that borders the Sima de los Huesos and under which are found human bones.

In my dating work I look for "flowstone", a kind of stalagmite that covers the cave floor. Flowstone forms from the dripping of calcium-rich waters from the cave ceiling. Calcium compounds solidify from these waters which, after drying, have the consistency of concrete. Such flowstone is ideal material for your dating method. I use the Uranium-thorium method of dating. When calcium compounds form from the dripping of water from the cave ceiling, it traps tiny amounts of uranium from the water. With time, uranium decays to thorium, and the ratio between the two allows me to calculate the time since formation.

Ancient flowstone often covers human deposits, and is in turn covered by later deposits including sediments and perhaps later flowstones. So the age of a flowstone covering human bones is younger than the bones, thereby giving a minimum age for the bones. In ideal conditions, bones may be sandwiched between flowstones, allowing determination of minimum and maximum ages.

Recent excavation at the top of the Rampa exposed a 14-cm thick flowstone. In a bed immediately below this flowstone, bones belonging to over 55 human fossils were found. Clearly, the flowstone formed after the bones were deposited. So my current work is devoted to analyzing this flowstone. After complete analyses, the results will be published in a scientific journal along with an interpretation of what the ages mean in terms of the evolutionary positions of the human fossils.

**>FAREWELL TO DR. PERE DE PALOL.**

Archaeologist Pere de Palol i Salellas died in Barcelona on Sunday 4 December at the age of 82. Born in Girona in 1923, he devoted his life to archaeology, and his intense work resulted in the spread of knowledge about our country's past. He was the Excavation Director at the Roman city of Clunia (Burgos) for 30 years, in 1970 he was appointed Professor of Archaeology, Epigraphy and Numismatics at the University of Valladolid. Later, at the University of Barcelona he held the Chair of Christian and Medieval Archaeology until 1988, when he retired. His legacy includes 280 publications, many awards and a string of important official recognitions of his life's work.



## >American Journal of Physical Anthropology, 130:294–307 (2006) NEW RECONSTRUCTION OF KRAPINA 5, A MALE NEANDERTAL CRANIAL VAULT FROM KRAPINA, CROATIA

**RACHEL CASPAR AND JAKOV RADOVC**

Department of Sociology, Anthropology and Social Work, Central Michigan University, Mt. Pleasant, MI 48859  
Croatian Natural History Museum, Hrvatski Prirodoslovni Muzej, 10000 Zagreb, Croatia

>Small size, gracility, and other features traditionally associated with the Krapina hominid sample were attributed both to phylogeny and to geological age.

Some size-related features, such as small cranial capacity, were therefore interpreted to reflect earlier expression of evolutionary trends, supporting assessments of temporal changes over time in Neandertals.

However, an alternative explanation for many Krapina metrics is that they may reflect a third factor, sex/age bias, because the most complete Krapina remains are female

or juvenile. Smith (1976, 1980) recognized that since the best-known Krapina specimens were female, there was a tendency on the part of some workers to think of the entire collection as smaller (and therefore perhaps more primitive) than the Western European Neandertal sample that is predominately male.

The preponderance of juveniles at Krapina, as at Sima de los Huesos, may reflect a demographic crisis (Bocquet-Appel and Arsuaga, 1999); these authors suggested that the age structure at both sites indicates a catastrophic pattern, resembling the life pyra-

mid (with larger numbers of juveniles), rather than the attritional pattern of a death distribution. However, at Krapina, there appears to be a sex bias as well, with a high representation of gracile adults that may be female (Ahern, 1998; Smith, 1976, 1980).

It is presently unclear whether the apparent overrepresentation of females is a consequence of demography, taphonomy, or stochastic factors, and this is the object of further study. Whatever the cause, it has resulted in a mischaracterization of the interglacial Neandertal population from Krapina.

I called Emiliano Aguirre and showed him the bones.

**—What was that meeting like?**

—I called him and said I had a pithecanthropus jawbone. He came to my house and was astonished because it was "really beautiful" material. When he saw the jawbone he said warmly, "All you bastards are lucky".

**—It's 30 years since you arrived at Atapuerca. What do you think of it now?**

—I believe it is the paradigm

of site exploitation, not only in scientific terms but also with the media.

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**>FRENCH INTEREST IN THE ATAPUERCA SITES**

In recent months, we have seen a powerful upsurge in French interest in the Atapuerca sites, including the presentation of a several PhD theses involving research into our sites. The Parisian theses by Hugues-Alexander Blain involves a study of more than 40,000 bear remains recovered

world's most extraordinary accumulation of Middle Pleistocene fossil humans. Here in an ancient mud-breccia were found the well-preserved, but scattered and fragmented, skeletal remains of dozens of human individuals in a jumbled mud-bed laying below a jumble of the bones of the Middle-Pleistocene cave bear. The Sima deposit is absolutely unique in all the world. In typical hominid sites, preservation of actual human bones is extremely rare. The typi-