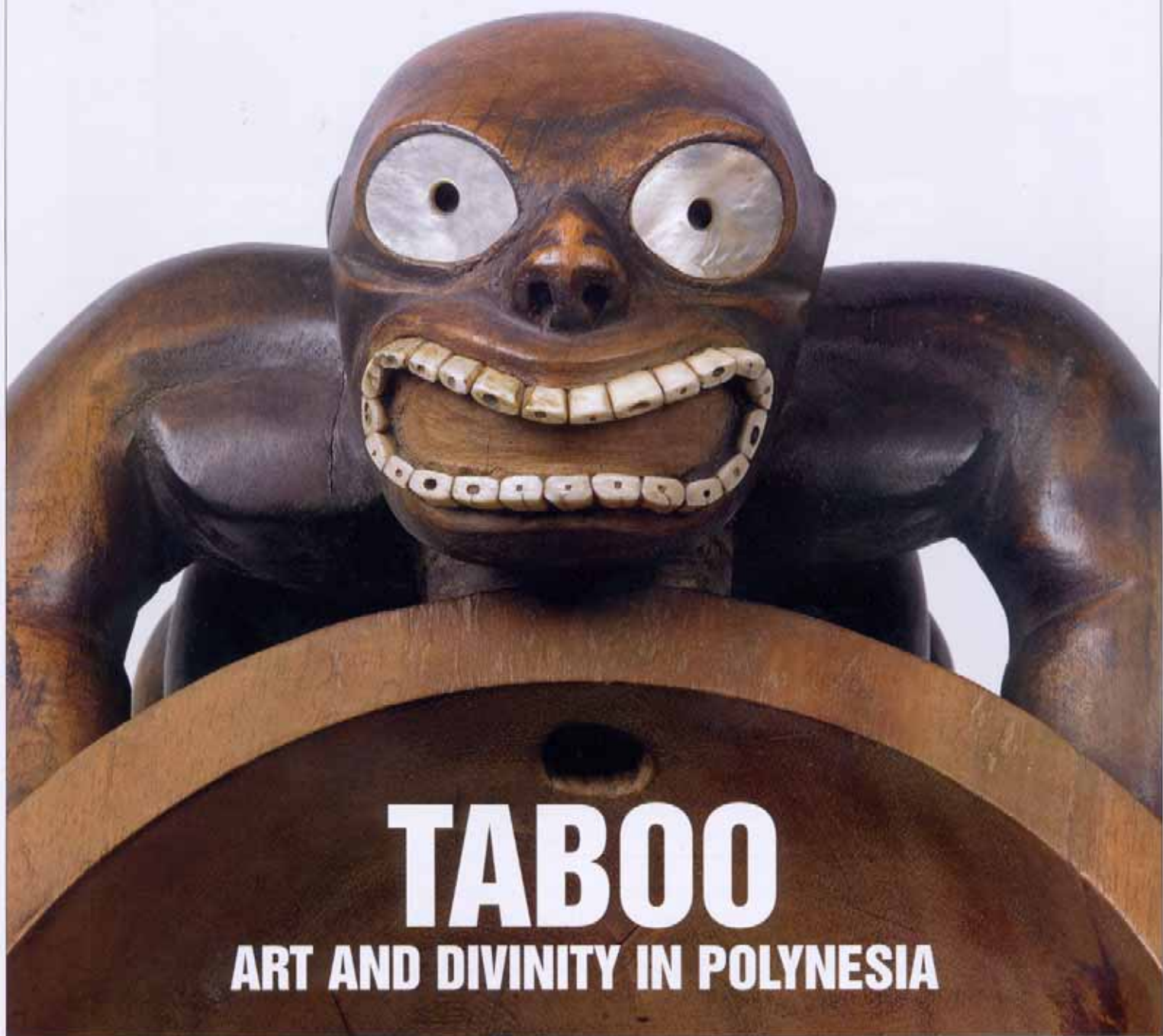


current **world**
archaeology

DIGS & DISCOVERIES FROM AROUND THE WORLD

No.20



TABOO

ART AND DIVINITY IN POLYNESIA



ROME'S OTHER PORT
THE MIGHTY HARBOUR AT PORTUS

OUT OF AFRICA
STORY OF THE EARLIEST HUMANS IN SPAIN

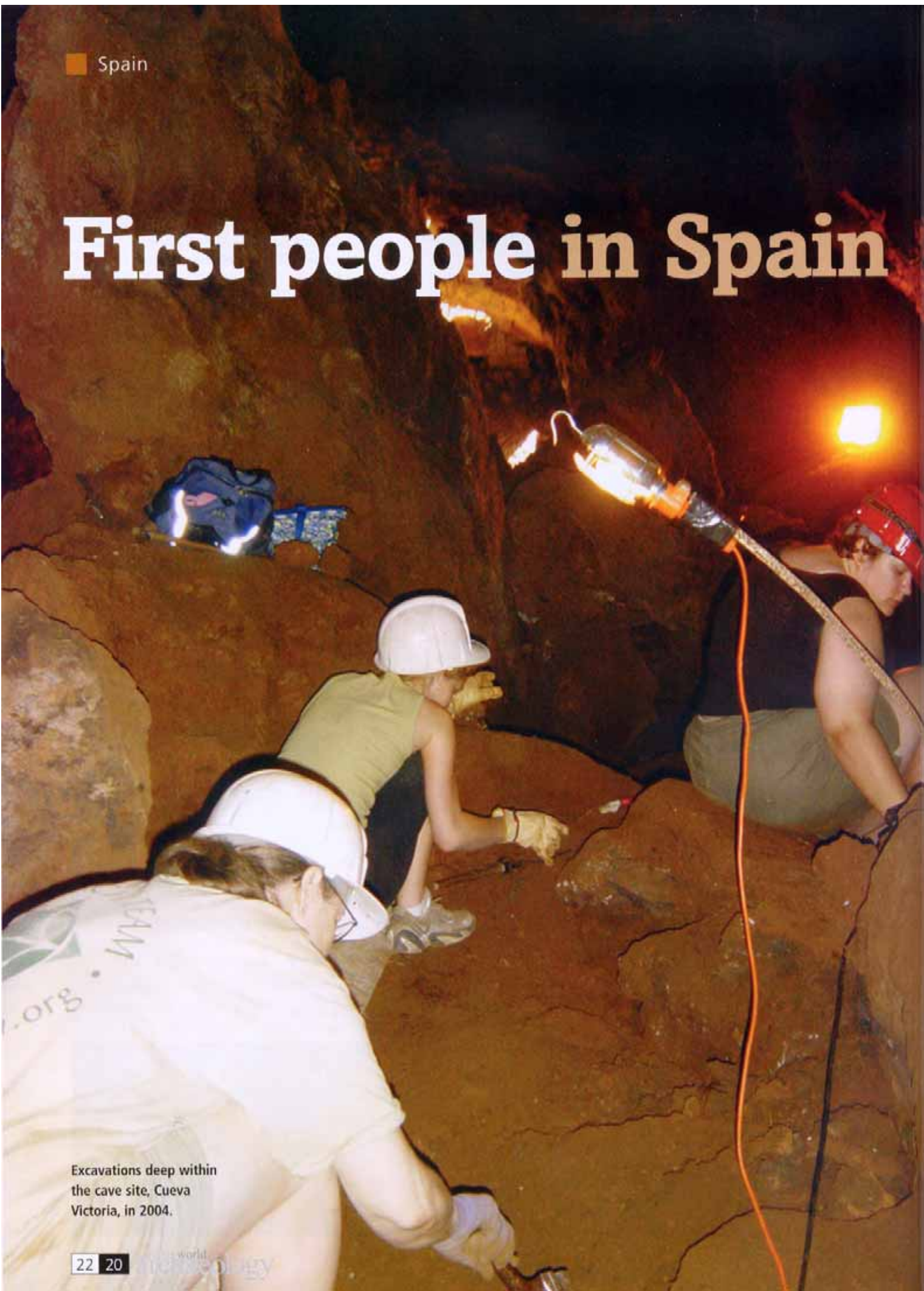
ISSN 1745582007



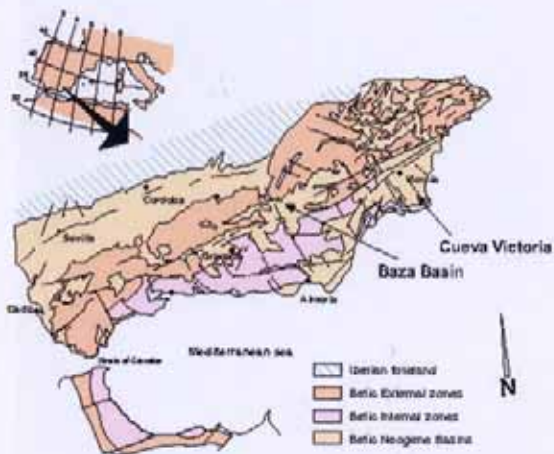
Number 20
www.archaeology.co.uk

£4

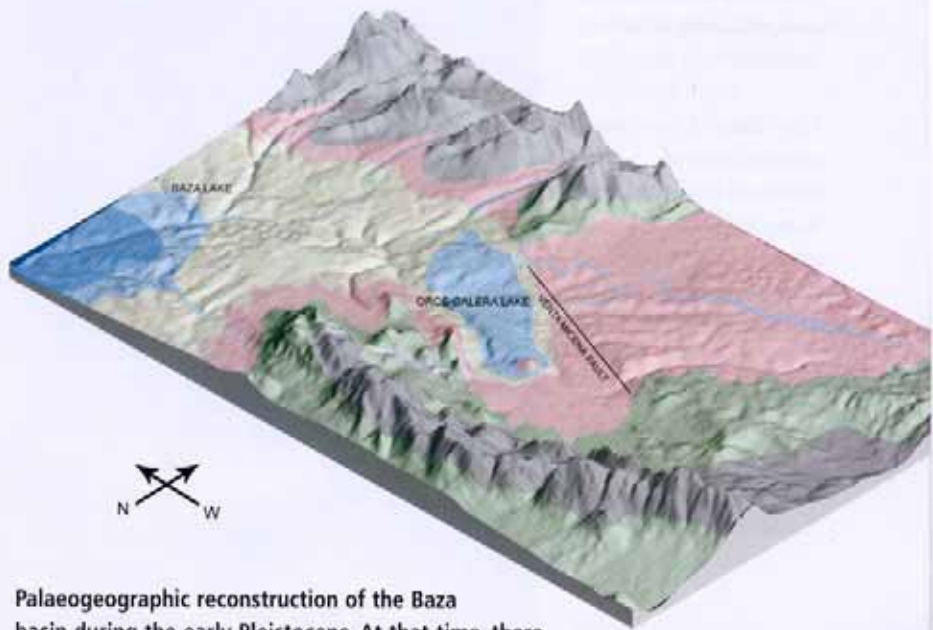
First people in Spain



Excavations deep within the cave site, Cueva Victoria, in 2004.



Location map marking the Baza basin and Cueva Victoria sites in South East Spain.



Palaeogeographic reconstruction of the Baza basin during the early Pleistocene. At that time, there was a marginal freshwater lake in the North East sector of the Basin (Orce region) while a saline lake developed in the central area of the basin.

An important archaeological project at sites in Orce and Cueva Victoria in Spain is rewriting the story of the early hominid colonisation of Europe; **Josep Gibert Clois** and **Lluís Gibert Beotas** report.

We have been digging at sites in Orce and Cueva Victoria in South East Spain that have revealed the oldest evidence of humans in Western Europe. The rich archaeological and palaeontological record comes thanks to the special geology of the area. This is largely the result of ancient tectonic movements; about six million years ago, the Mediterranean Sea drew back and left an isolated saline lake system – marked Baza Lake on the map – that encompassed over 1500km. Thereafter, lake and fluvial deposits accumulated in the lake's basin, until around 400,000 years ago when tectonic movements connected Baza Lake with the Guadalquivir valley. Today, a massive 600m of sediment has built up in the area creating one of Europe's best sedimentary and palaeontological records of the past 6 million years. However, it is the period between 2 and 1 million years that is a key time to unlocking the secrets of the first human dispersion out of Africa.



The Velez Canyon – the location of the earliest-known human material in western Europe

Left The present landscape of the Orce area, exposing all lake deposits.



Right View of accumulation of mammals bones in Venta Micena site from where Orce man was discovered.



Revelations at Orce

The significance of the Orce area, on the North East side sector of the very ancient, now dried-up, lake of Baza, has long been recognised. Back in 1976, one of us, the palaeoanthropologist Dr J.Gibert, discovered an important site there: that of Venta Micena. Our excavations in 1982 turned up an early skull fragment known as the "Orce man" (recently dated to about 1.3 million years old). Thereafter, we found ever more evidence for early humans, including other fragmentary human fossils, stone tools and artificially broken bones.

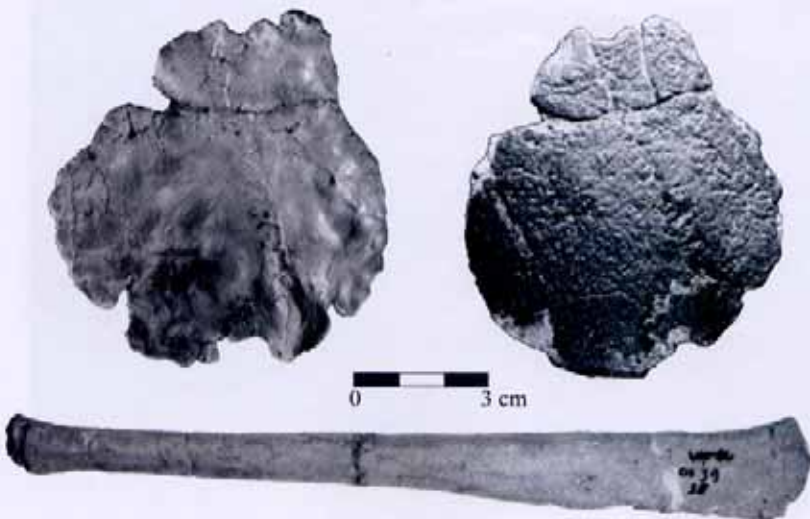
Orce has two main canyons that cut Baza's palaeolake deposits. One of them, the Velez canyon, where our work has focused, is located near the shore of the palaeolake and is the ideal place to find mammal fossils. Indeed, we do not find mammal bones or stone tools in the central or deep areas of fossil lakes, but always near the shores where the fauna lived and, more to the point, died.

There are almost 80m of sediments at the Vélez and Salar Canyons. Recent investigations

headed by Dr Gary Scott from Berkeley Geochronology Center have demonstrated that the beds located in the lower part of the valley date to 2.1 million years ago while the upper beds were deposited around 1.1 million years ago. Our investigations at the Velez Canyon during the past decades have uncovered a series of palaeontological and archaeological sites at different heights in the valley that date between 2.1 and 1.1 million years ago. Some of these sites contain the oldest evidence of humans in Western Europe – and have recently been dated to just under 1.3 million years ago.

In 2001, we linked up with the charity Earthwatch and set up a project entitled 'Early Man in Spain' that has supplied us with funding and bands of volunteers. Our project has concentrated on five quarry sites located at different stratigraphic levels in the Velez Canyon. Starting with the oldest and moving to the youngest, we investigated Fuentenuueva 1 (during 2002), Barranco del Paso (in 1991), Venta Micena (in 1982), Barranco León 5 (in 1995) and Fuentenuueva 3 (also in 1995).

Below The Orce skull and a fragment of human humerus found in Venta Micena site.



Discovered: oldest tools in Western Europe

We found evidence of human presence at the last three sites – the minimum estimated age for the sites is 1.3 million years for Venta Micena, 1.25 million years for Barranco León-5, and 1.2 million years for Fuentenuueva-3. Evidence of our ancestors comprised fragmentary human fossil bones – a piece of an infant's skull that included two parietal and the occipital bones, two humeral fragments and part of a molar. We also found hundreds of Oldowan-type tools made of flint or quartzite. Indeed, at the Barranco León we found over 100 tools surrounding the remains of an hippopotamus.

As readers will be aware, the Oldowan mode



Left

An excavation quarry opened during field season 2002 with Earthwatch volunteers in the Fuentenueva-1 site.

Left below

General view of the Fuentenueva-1 excavation in 2002. At 1.6 million years old this is the oldest site in the Orce region. It is yet to supply evidence of a human presence (although only one excavation season has been undertaken, so who knows what the future might bring).

Below

The human molar, found in Barranco León site. The molar was broken and the arrow points to a section close-up (bottom left of the shot). This permits the comparison of the characteristic thickness of human enamel with a modern human molar (bottom right). Humans have a particularly thick enamel, this is related to our wide diet: we can use our molars to eat meat but also hard grains or soft fruits.



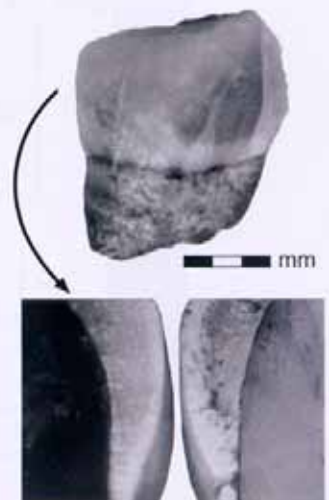
ergaster. They were made from 2.4 to 1.5 million years, making it reasonable to find them in the slightly younger deposits of Barranco León-5 or Fuentenueva-3 Sites.

Fuentenueva-3 was a particularly fruitful site, and we discovered many simple tools often represented by flakes and related cores. With these basic flakes it would have been possible for our ancestors to cut up the remains of large mammals such as hippos, elephants or horses. They would then have taken the meat to safe areas away from any threat from hyenas or sabre tooth tigers. We also discovered broken bones scored with cut marks made by stone tools. In addition, we noted the presence of limestone blocks (1-2kg) that come from the nearby Sierra de Orce. We think such blocks were transported to the site and used to break bones to obtain the marrow. Through digging these sites, we are beginning to build up a picture of the lives of the first human settlers in Spain, and the way they adapted to their new landscape.

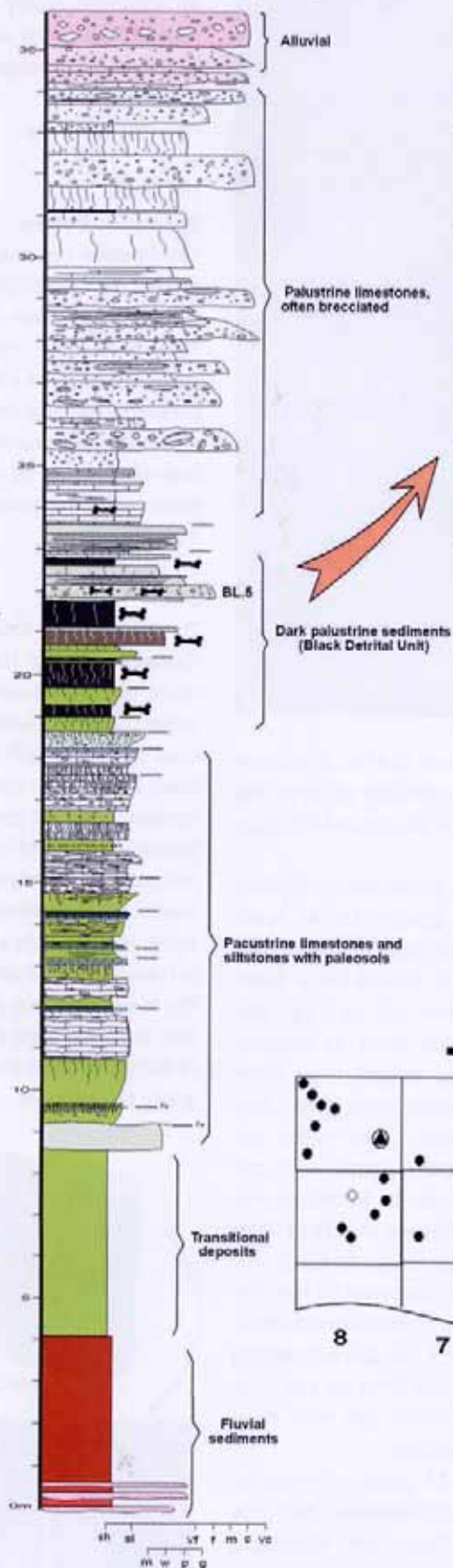
Sadly, in 2003, after 28 years of work in Orce, the Andalusian administration did not permit further digging at these sites, so during the past couple of years we have increased our activity in other areas including Morocco,

of production is the earliest of all human-made tools and was produced by our first stone-tool making relative, the handy-man, or *Homo habilis*. *Homo habilis* had leapt forward in terms of cultural and social progress: along side an increase of their brain capacity, they produced stone tools, and began to eat a different diet – one that seems to have included more meat (a diet seemingly comprising around 30% meat and 70% grains, vegetables and fruits). Moreover, *Homo habilis* was our first ancestor to move out of Africa.

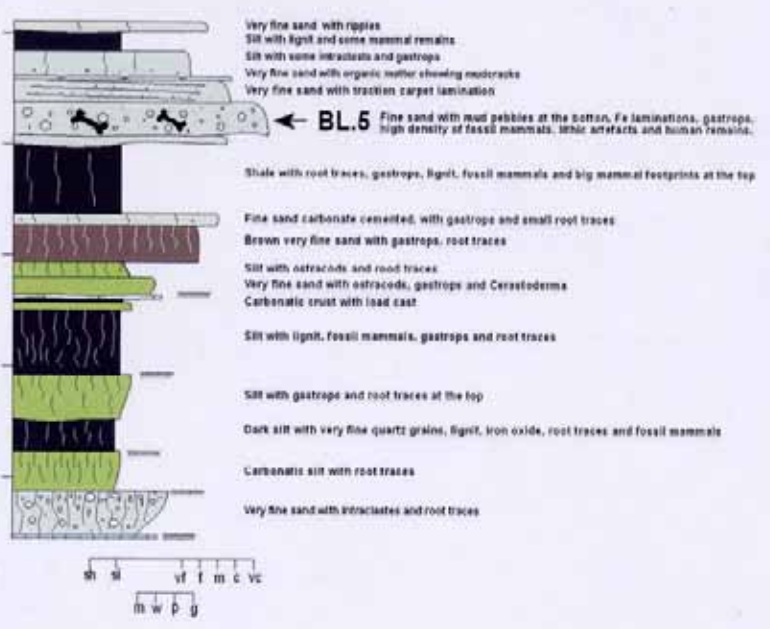
The first Oldowan tools are known from the Olduvai Gorge, Tanzania, and in Africa, are associated with both *Homo habilis* and *Homo*



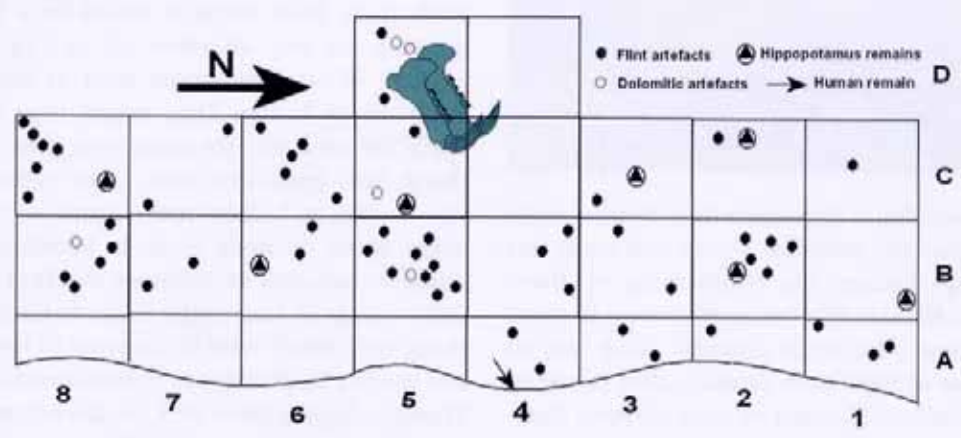
B. León sedimentary sequence



Detailed section of the Black Detrital Unit



Barranco León 5 excavation plan



Stratigraphic excavation figure from the first excavation in Barranco León in 1995. It shows the distribution of stone tools around a hippopotamus mandible.



Left
View of Oldowan tools assemblage from Barranco León site, these tools consist of non retouched flakes.

Left below
13. Oldowan tools from Fuentenueva-3 site, located 5m above Barranco León site.



Above Earthwatch volunteers sieving sediment in Cueva Victoria during 2005 field season.



Left Sketch of Cueva Victoria site showing the present situation after mining activity in the cave 100 years ago. (Drawing by Dr. C. Ferrandez.)

where we have been working on prehistoric sites with Dr. Nagib el Hamouti of Nador University, and sites such as Cueva Victoria in the Murcia region of South East Spain. Cueva Victoria has turned out to be of particular interest to the story of our earliest predecessors in Spain. But this cave site is not any old cave.

Cueva Victoria, is near the Mediterranean coast, in the San Gines mountain close of the town of El Estrecho de San Gines in the Murcia region. It is a huge cave – with over 3km of galleries. Part of this cave was literally filled with sediment and mammal bones during Early Pleistocene times. Over 60 different species of vertebrates have been identified in this site including fragmentary human remains of a similar age to those in Orce region. The fossils are distributed in different rooms and galleries. The sediment rich in fossil once filled the whole cave but mining activity at the beginning of the 20th century removed most of this, and it can now only be found in the walls



Left As part of an Earthwatch sponsored project, volunteers are involved in all different types of field work which form part of this research. It includes digging, sieving, restorations of fossil material, surveys, sampling collection for micromammals or geochronology etc. Here we see volunteer Catherina Flint restoring a bird skull from Cueva Victoria. (Photo: Chiss Niessen.)

and ceiling of the cavity. Some of these deposits are also now found on the floor, but in a secondary position, mixed with large blocks of mined material.

However, the study of the fossil remains has revealed a large proportion of bones with hyena bite marks that are also associated with hyena coprolites. Among the bones are those of seals, these too have hyena tooth marks, suggesting that the hyenas transported the meaty bones from the sea shore to the cave. Three fragmentary human bones, including a human phalanx, also present hyenas' marks, and since no stone tools have been found in this cave, we

Right
Hypothetical palaeo-geographic reconstruction of the Straits of Gibraltar using the present topography for a period of fall in sea level. Note that with 100m fall, the distance is reduced and some islands appear between Africa and Europe. The figure shows the model of human dispersion out of Africa during the Early Pleistocene which explain the presence of humans in South East Spain before 1.3 million years ago.

Below
Digs underway at Cueva Victoria - this is a general view of the room known as "Sala Union". This room, which is over 100m long, contains the largest accumulation of fossil bones in the cave.

interpret this site as a hyena den where all kinds of mammal remains were introduced to feed their young.

But what is perhaps of further interest is the fact that at Cueva Victoria we also found remains of various other African species, notably the ape *Theropithecus oswaldi*, as well as the *Hipopotamus antiquus*, hippos of African origin.

Out of Africa

So how did our ancestors – and other beasts – get to Spain? We are proposing a migration across the Strait of Gibraltar from Africa into Spain during the Early Pleistocene. And it seems this traffic was two-way, with some European species – such as the bear *Ursus etruscus* – migrating down to Africa.

During that time, the tectonic activity between the African and Iberian plates would have meant that some Quaternary beaches would have been raised more than 100m in some places. Although we are yet to have a detailed palaeogeography of the Straits of Gibraltar, the movement of different animal types suggests favourable conditions for migration occurred during the Early Pleistocene. Since we were joined by other animals, it cannot be claimed that it was simply our special intelligence that allowed our handy-man ancestor to migrate, though of course this will have helped us on our journey.



This is the first time that such a route across the Straits from Africa and into Spain has been proposed. We consider that the new palaeontological and archaeological data presented above support the hypothesis for this passage of migration from Africa to Europe in the Early Pleistocene. These migrations should be contemporaneous to other, potentially more famous, routes of migration known to have occurred from Africa to the Levant corridor to the south Caucasus, or on towards Java in the East. Thus our work on the sites in South East Spain is adding whole new pieces to the jigsaw of our early past. ■



Dr Josep Gibert has been a researcher at the Palaeontological Institute, Crusafont, in Sabadell (Barcelona) since its foundation in 1969. In 1976 he began exploring Early Pleistocene material from South East Spain. New projects include research in Morocco where he expects to find more evidence of early humans and Africa-European fauna exchange during the early Pleistocene.

Dr Lluís Gibert has a PhD in the stratigraphy and geochronology of the Baza basin. He has been excavating the Orce sites since 1979, and at Cueva Victoria since 1987. He has now joined his father on a new project in Morocco.