HUMAN PRESENCE AND ANTHROPOIC ACTION
IN THE S.E. OF IBERIAN PENINSULA DURING
THE LOWER PLEISTOCENE

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ABSTRACT
We describe the human remains (three fragments of humerus) found in the southeast of the Iberian Peninsula sites, (Venta Micena and Cueva Victoria) which confirm the existence of humans in Europe during the Lower Pleistocene. We describe evidences of anthropic action in Venta Micena, too.

Keywords: Orce, Venta Micena, Cueva Victoria, Human remains, Anthropic action.

RESUMEN
Se describen los restos humanos (tres fragmentos de húmeros) encontrados en Venta Micena (Orce, Granada) y Cueva Victoria (Cartagena, Murcia). Se describen también evidencias de la acción antrópica en la región de Orce (industrias líticas, cutmarks, huesos rotos por percusión).

Palabras clave: Orce, Venta Micena, Cueva Victoria, Hominidos, Acción Antrópica.

INTRODUCTION
In 1983 a fragment of the occipital region of a skull was found in the site of Venta Micena (Orce, Granada, Spain). It was initially assigned to the genus Homo by Gibert (1984). The presence of a small ridge on the surface of the occipital upper scale, and the morphology of the digital impressions made some authors doubt its human affinities, Shapiro & Janzen (1960). In 1987, Campillo, showed that digital impressions are usual among children. The digital impressions are absent when the child is born, but appear before the anterior fontanelle closes (14 months), and become more marked up to he is 6 years old, remaining stationary till he is 10 years old, and from this age will weaken onwards. The reason for their appearance is not clear yet, although it is generally accepted that they are due to cerebral growth. One of us, (Gibert et al., 1989 c) has found Neolithic human occipital fragments with similar impressions to those of the skull of Orce. The presence of a sagittal crest which originates in the apex of the squama occipitalis does not weaken the diagnosis (Campillo, 1989).

García-Olivares et al. (1989), detected human al-
LOCALIZATION, GEOLOGY

The sites at Venta Micena (Orce, Granada) and Cueva Victoria (Cartagena, Murcia) are located in the southeast of the Iberian Peninsula.

A major phase of lacustrine expansion during the Early Pleistocene period is recorded in the marginal zone, Venta Micena is on the fringe of the lacustrine Baza basin (Southern Spain). A sequence of limestones, mudstones, marls and sandstones, up to 22 m. thick, was formed during this phase. This sequence overlies calcareous and dolomitic mudstones with interbedded sandstones which are deposited in a mudflat related to a previous receding water-level phase (Anadon et al., 1987). The Venta Micena site was a marginal zone of the lake exposed to sporadic desiccation. The level of the water would probably not have exceeded a dozen meters. The fossiliferous accumulation took place likely in one of the mentioned emissions episodes (Figure 1 and 2).

Cueva Victoria is a karstic deposit consisting of six sedimentary layers, 1) descalcification clay, 2) primary allochthonous sediments, 3) ossiferous breach, 4) silting up, 5) erosion, and resedimentation, and 6) alluvial deposits (Ferrández et al., 1989).

The ossiferous breach develops when the cavity opens out to the exterior and is filled with detritus deposits of calcareous origin that proceed from the erosion of the surrounding hillsides and the selective transport of bones by carnivora (Gibert 1989 b).

VENTA MICENA AND CUEVA VICTORIA AGE

The Venta Micena bed is located in the biozone MmQ-2 (Agustí et al., 1987) fauna is characterized by the presence of Allophaiomys plicaenicus, which replaces to Mimomys ostramosensis, type species from MmQ-1. The systematic overlook of fauna from this site is carried out by Martínez (1991) shows the presence of faunai association, characteristic form of the first moments of Lower Pleistocene, it is make up by the following taxonomy, Homo sp., Desmanus sp., Allophaiomys plicaenicus, Apodemus aff. mystacinus, Castiliomys crusafonti sp., Elomys intermedius, Hystrix major, Prolagus calpensis, Oryctolagus cf. lacosti, Ursus euruscus, Canis euruscus, Canis falkneri, Vulpes paeoglacialis, Homotherium latidens, Megantereon sp., Lynx sp., Pachycrocuta brevirostris, Cj. Meles, sp., Mammutthus meridionalis, Equus stenonis granatensis, Dicerorhinus euruscus brachycéphalus, Hippopotamus amphibius antiquus, Praemegaceros solihucus, ‘Cervus’ elaphoides, Bovini gen. et sp. indet., Praeovibos sp., Soergelia minor, Capra alba, Testudo sp., Lacerta sp., Ophidia indet., Rana sp., Charadriiforme indet.
From Gibert work (1986) based on the magnetostratigraphic data from SEMAH (1985, unpublished), it is concluded that Venta Micena bed is located between the sites of Orce-2, which is placed in the normal paleomagnetic time, Olduvai (1.87-1.67 m.y. ago) and it is associated with Mimosos osframosensis and Orce-3, which is placed in the inverse paleomagnetic time comprised between Gilsa and Jaramillo era, 1.6 and 0.95 m.y. ago, which is associated with Allophialmys plioecaenicus. Stratigraphically Venta Micena site is located between 1 and 2 m. over Orce-2 and 17 m. from the top of Limoso-Calizo part from Vera et al. (1984), part where is not found any sedimentary hiatus, whose upper levels in the zone correspond to Orce-3. Applying one speed of continuous sedimentation, proves that Venta Micena, according to these criteria, is found in the early age of 1.6 m.y. ago.

Martinez and Gibert (1991 in press.) suggest a new biostratigraphy chart for the Lower Pleistocene, based on the human presence from Bovini tribe. The Bovini species gen. et sp. indet. correspond to a new type correlated with the most primitive Bovini located in the Siwaliks, type Proamphibos (Pilgrim, 1939), emigrated to Europe in the primary time of Lower Pleistocene, similar to those of ruminants that are found in Venta Micena site. At this moment, this species replaces to the ‘villafranchien’ elements represented by Leptobos and they are substituted later on by the first bison, Eobison sp. from Pirro Nord (De Giuli et al., 19877, associated to Allophialmys plioecaenicus, dated 1.2 m.y. ago.

Cueva Victoria is a site where the presence of Castillomys crusafonti species is found, Carbonell et al. (1981), muridae which is extinguished in the Lower Pleistocene, it is associated to Bison sp., with its fauna similar to the Sainzelles french bed, dated radiometrically in 1.4 m.y. ago (Couthures et Pastre, 1982), by deduction its age may be comprised within 1.2 and 1.3 m.y. ago.

Therefore, Venta Micena is close to 1.6 m.y. old and Cueva Victoria 1.2 - 1.3 m.y. old.

**ANTHROPIC ACTION**

Level 3C (Soria, 1986) crops out in the banks of Orce river and Cañada de Velez, where in many sites with vertebrate fossils, including Venta Micena, occurs. In some of them we have faunac industries, choppers and flakes in the Cortijo de Don Alfonso-Barranco del Paso (similar age to Orce 2, 1.6 1.8 m.y. ago), Flake and chopping tool in Barranco Leon (1.2 m.y. ago). In the Venta Micena site there are some aholochotonous limestones to the sediment between 4 and 8 cm. in size, a silex nucleous with small lateral retouches (Gibert et al., 1989 a); (Figure 3-4), and anthropic action on bones (Gibert et al., 1985) (Graphic, I).

**CUTMARKS**

There have been found cutmarks at Corte III in Venta Micena, too. Trampling marks can be excluded by means of the sedimentological conditions (Anadon et al., Soria, op. cit.). We have identified marks produced by roots, dissolution and larvae (Gibert et al., 1985), easily identifiable and very different from the anthropic ones. Other marks that have been identified are those produced by carnivora and some from rodents. They have been discriminated using microscopic (Gibert & Jimenez, in press) and morphological criteria (length, section and groove shapes and anatomic position).
Figure 3. Choppers from Barranco del Paso site.
marks have also been compared with those of positive result from Fx Jj 50 sites at Turkana and MNKII and BKII at Olduvai. Fig. 5 shows cutmarks in an *Equus stenonis* metapodial, a *Cervus sp.* hip bone fragment, and an indeterminated fragment from a large bone.

The anatomic and morphological position, and also the microestriation (detected by SEM) (figure 5-6) are the right ones for antropic action, and discriminate these cutmarks from those produced by the scavengers and rodents.

**HUMAIN REMAINS**

**Morphology.**

*VM. 1960.*

Diaphysis of a left humerus child, 185 mm. in length, slightly bowed and flattened at the proximal end into the radioulnar direction (fig. 7a, sections 8-11). The cross-section of the distal end reveals a scalene triangle shape with rounded vertices. The shortest side constitutes the anterointernal face, the ongest, the dorsal face, and the third, the anteroexternal face, (fig. 7a, sections 1 to 5). The sections of the latter are rhomboid in shape (figure 7a, sections 6 and 7). The nutrient foramen is found in the anterointernal face very close to the boundary with the dorsal face and 103 mm. from the proximal end. At the anteroexternal face a light deltid impression is found 55 mm. from the proximal end. The distal end of the ulnar (internal) edge is rounded. In the lower third of the diaphysis, both ulnar or internal and radial or external edges are well defined. They show a tendency to converge when they become far from the distal end. The dorsal face is flat and varies its an-
Gle from the distal end closely to the middle of the diaphysis. The distal half of the anteroexternal face is meteorised and signs of the activity of carnivora are observed at the distal end (figure 8.1).

**CV.I.**

Distal fragment of a diaphysis 92 mm. in length. The section of the distal end shows a scalene triangle shape (fig. 8.3 and fig. 9) similar to the above described case. It shows a progressive change to an isosceles triangle shape with the shorter side in the dorsal face and the two sides of equal length in the anterointernal face and the anteroexternal face, respectively. The dorsal face is flat and changes progressively its inclination.
The ulnar edge is rounded at the distal end, and the radial edge is rectilineal (figure 8.4).

COMPARISON WITH RECENT SPECIMENS

The morphology of the humeral diaphysis varies according to the age and these changes are more pronounced at the proximal than at the distal end. In children, the proximal end is flat and tends to be rounded in young people and adults. Ordinates of figure 10 a. and 10 b. show the indices of robustness of sections at 15 mm intervals taken from the proximal edge of the olecranon fossa and numbered from 1, which corresponds to the most distal section up to the end of the diaphysis. The curves trace a similar trajectory for the distal end in children and adults (sections 1, 2, 3, 4) and vary considerably at the proximal end. Therefore, there is a downward curve in children (figure 10 a) as a result of the radioulnar compression of the last sections (9, 10, 11), which in the case of 'Venta Micena' extreme values are represented, whereas in young people and adults high values are maintained (figure 10b).

In the individual age from 2 to 3 years old (CO-1, CO-2, T-35) curves are simple. From 5-7 years old (N-1, N-2) they show complexity in the middle section of the diaphysis. The VM curve is simple and is similar to children between 2-3 years old, although its length suggests a more advanced age. The ascending line of the VM curve, at the top, branches off slightly from that of other children and approaches most of CV.2 and other juvenile specimens like M-1 (figure 10b). It is due to the ulnar and radial edges converge progressively from the distal end to the proximal end as occurs in CV.2 and in some juvenile specimens, therefore they are not parallel as it is normal in recent-specimens.

The section of the VM humerus show similar shapes to those of some infantile specimens at the present time, as it is the case of N-2. In both specimens, the sections show triangular shape at the distal end (sections 1, 2, 3, 4), varying to a rhomboidal shape in section 6, and exhibiting oval shapes flattened in the radioulnar direction in sections 8, 9, 10 and 11. The last section is more flattened in the VM-1960 than in recent specimens (figure 7a and 7b). The index of torsion is very similar to the present infantile specimens (Table 2).

COMPARISON WITH THE KNM WT-15000

The distribution of the indices of robustness of the right humerus of the KNM WT-15000, the specimen which is older than that of 'Venta Micena', is similar to its proximal end to that of VM1960. This suggests that a radioulnar compression exists in this area which is characteristic of the infantile specimens at the present time (CO-1, CO-2...). This is more pronounced in fossilized infantile specimens (VM.1960) and persists in the fossils up to juvenile age (KNM WET-15000) (Figure 10 a).
Figure 6. a) microestriaion from hip bone fragment; b) microestriaton from indeterminates fragment from a large bone.
**Figura 7.** Transversal sections of humeral taken at 15 mm. intervals from the proximal end of the olecranon fossa (1), a) VM. 1960, left-Infantile, b) N-1, at the present time, left-infantile (age 5-7 years old), c) female cercopithecoids, right-juvenile (*Papio hamadryas*), d) female carnivore, right-juvenile (*Panthera pardus*).

**COMPARISON BETWEEN CERCOPITHECOIDS AND CARNIVORA**

The infantile humerus found at ‘Venta Micena’ (VM.1960) differs from humeral diaphysis of cercopithecoids and carnivora in the more anterior position of the nutrient foramen. Also the slightly bowed shape of the anterior face is quite different from the angular form of the proximal end in cercopithecoids and carnivora. The curvature of ulnar and radial edges is convergent in VM.1960 and the present infantile specimens (fig. 7a and 7b), whereas in cercopithecoids and carnivora take a bend (figures 7c and 7d). Morphology of the sections is also different (fig. 7a, 7b, 7c and 7d). The index of torsion is a very significant value, so that the human bones show a very high standard for this parameter that is far from those of having the cercopithe-
coids. The torsion in the felids is minimum or does not exist and the ursids is minor or similar to the cercopithecoids. (100° for Ursus arctos), (Table 1). According to Khussman (1967), the index of torsion from Homo sp. is located between 134° and 156,2° changing according to the biological age. The index of torsion from VM-1960 is 136°, this means, that is within of the human variability where is situated in normal values of infantile humerus (Table 2).

**Table 1**

Index of torsion (according Knussmann, 1967)

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<thead>
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<th></th>
<th>n</th>
<th>x1</th>
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<td>30</td>
<td>137,3</td>
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<td>Pan</td>
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<td>133,9</td>
<td>123,0-144,8</td>
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<td>119,5</td>
<td>106,8-132,2</td>
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<td>113,8</td>
<td>105,0-122,6</td>
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<td>Hylobates</td>
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<td>101,0-120,4</td>
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<td>Macaca</td>
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<td>98,8</td>
<td>92,1-105,5</td>
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<td>Papio</td>
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<td>82,2-109,8</td>
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<td>97,0</td>
<td>88,5-105,5</td>
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**Figure 9.** Transversal section of right humeral diaphysis taken as in Figure, 7, a) ‘Cueva Victoria’ 2 (CV.2), adult, b) ‘Cueva Victoria’ 1 (CV.1) juvenile c) adult male cercopithecoid (Mandrillus sphinx), d) adult male carnivore (Panthera pardus).

**Figure 10.** a) Changes of robustness indices in infantile specimens, abscissa, robustness index, ordinate, length of the diaphysis from the proximal of the olecranon fossa (1), 15 mm. intervals. CO-1, CO-2, and T-35 correspond to individual age from 2 to 3 years old, N-1 and N-2 to individual age about 5-7 years old, WT-I5000, Homo erectus, KNM WT-I5000 Homo sp. from ‘Venta Micena’ (VM.1960). b) Changes of robustness indices in juvenile adult specimens. T-92, CO-3 adults, M-1 juvenile-adult, CV.2, Homo sp. from ‘Cueva Victoria’.
The humerus found at ‘Cueva Victoria’ differs from those of cercopithecoids and carnivora in the morphology of the sections and the curvatures of ulnar and radial edges (figure 8). The specimen CV.1 shows in the flattened dorsal face a change in its inclination (figure 9b) which is a characteristic feature of human humerus and different from that is found in cercopithecoids and carnivora. This finding is also seen in VM. 1960 (figure 7a). The medullar channel is very reduced as in VM-1960 as in CV-I. This feature is characteristic from primitive fossil bones according to the Tattersall et al. 1988, and it is not found in cercopithecoids and carnivora (figure 11).

(P.S. Bovini gen. et sp. indet. corresponds to a *Bubalus* genera representant of a very small size).

Table 2

<table>
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<tr>
<th>n.º</th>
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<tr>
<td>1C-19</td>
<td>138</td>
<td>7-9</td>
</tr>
<tr>
<td>VM-1960</td>
<td>136</td>
<td>?</td>
</tr>
<tr>
<td>CO-2</td>
<td>134</td>
<td>6-7</td>
</tr>
<tr>
<td>CO-1</td>
<td>132</td>
<td>5</td>
</tr>
<tr>
<td>IPC-32B</td>
<td>130</td>
<td>5</td>
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