HUMAN PRESENCE AND ANTHROPIC 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, Homínidos, 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 saggital crest which originates in the apex of the squama occipitalis does not weaken the diagnosis (Campillo, 1989).

García-Olivares *et al.* (1989), detected human albumin in the skull of Orce, and these results were also obtained by Lowenstein (in Gibert 1989 a) when analysing a sample of the skull.

The human-like features of the skull of Orce are the amplitude of the longitudinal and transversal curvatures, the saggital arch length, the S_4 suture, the morphology of the saggital and lambdoid sutures, the occipital superior angle and the distribution and shape of the digital impressions (Gibert *et al.*, 1989 a, b, c).

A human-like phalanx was found in the karstic deposits at Cueva Victoria. A preliminary note of the discovery was published by Pons-Moya (1985), and a preliminary morphological and morphometrical study followed (Gibert and Pérez-Pérez, 1989).

In this report, we describe human remains —the fragments of humerus and phalanx- found in 1988 at the sites of Venta Micena and Cueva Victoria. That confirms human presence during the Lower Pleistocene.

The fauna found at Cueva Victoria is homogenous throughout the cave. Some transportation of the sediments may have occured from the main hall to the galleries, but their faunal content only differs in size from that of the main hall. The karstic sediments may thus be considered synchronic.
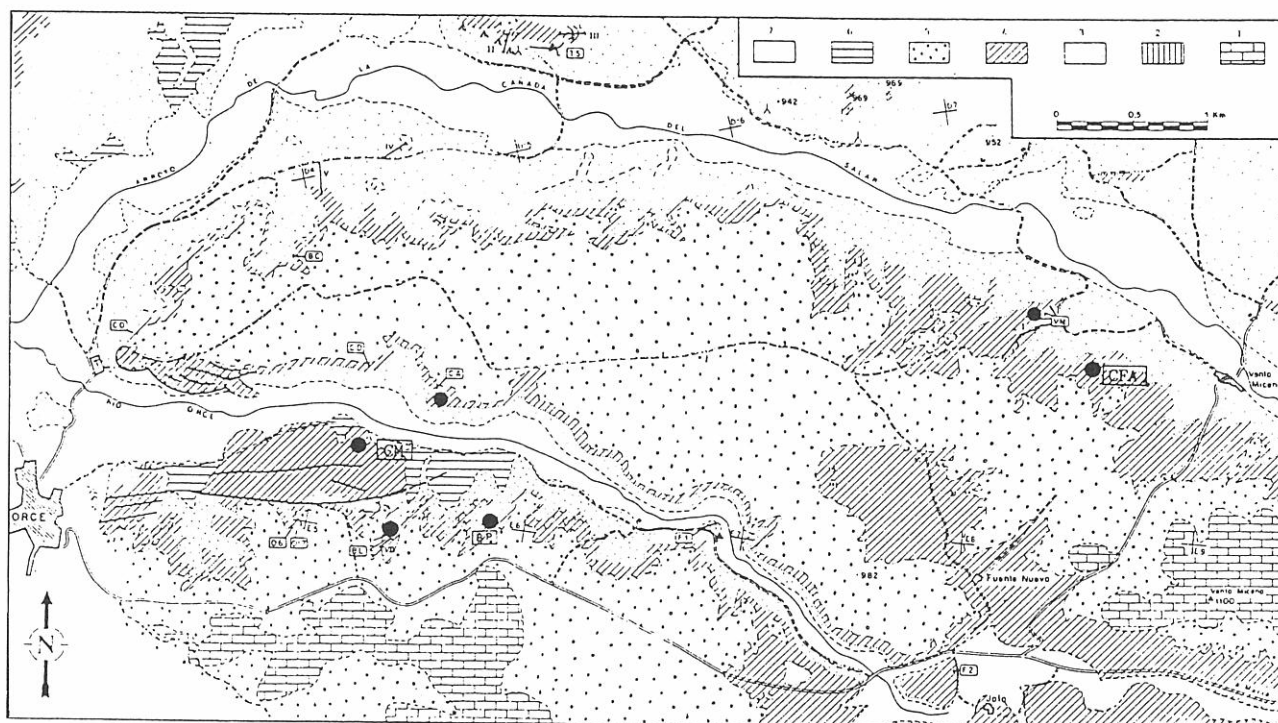
Figure 1.   Geologic map of Orce region. 1 Jurassic limestone. 2-3-4 Baza Formation (Pliocene-Pleistocene). 2 Limestones Member. 3 Red detrital Member. 4 Silt-Limestone Member. 5 Fill of the basin. 6 Terraces. 7 Present terraces. Anthropic action localities, VM Venta Micena, CFA. Cortijo F. Alcon, CA. Cortijo Alfonso, CM. Cortijo Doña Milagros, BL. Barranco León, BP. Barranco del Paso.
(Modified from Vera *et al.* 1984).

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 lacustral expansion during the Early Pleistocene period is recorded in the marginal zone, Venta Micena is on the fringe of the lacustrine Baza basin (Soutern 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 emersions episodes (Figure 1 and 2).

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

The ossiferous breach develops when de cavity opens out to the exterior and is filled with detritus deposits of calcareous origin that proceed from the ero-sion 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 (Agusti *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 faunal association, characteristic form of the first moments of Lower Pleistocene, it is make up by the following taxonomy, *Homo* sp., *Desmana* sp., *Allophaoimys plicaenicus, Apodemus aff. mystacinus, Castillomys crusafonti* ssp., *Eliomys intermedius, Hystrix major, Prolagus calpensis, Oryctolagus cf. lacosti, Ursus etruscus, Canis etruscus, Canis falconeri, Vulpes praeglacialis, Homotherium latidens, Megantereon* sp., *Lynx* sp., *Pachycrocuta brevirostris, Cf. Meles,* sp., *Mammuthus meridionalis, Equus stenonis granatensis, Dicerorhinus etruscus brachycephalus, Hippopotamus amphibius antiquus, Praemegaceros solilhacus, 'Cervus' elaphoides,* Bovini gen. et sp. indet., *Praeovibos* sp., *Soergelia minor, Capra alba, Testudo* sp., *Lacerta* sp., Ophidia indet., *Rana* sp., Charadriiforme indet.
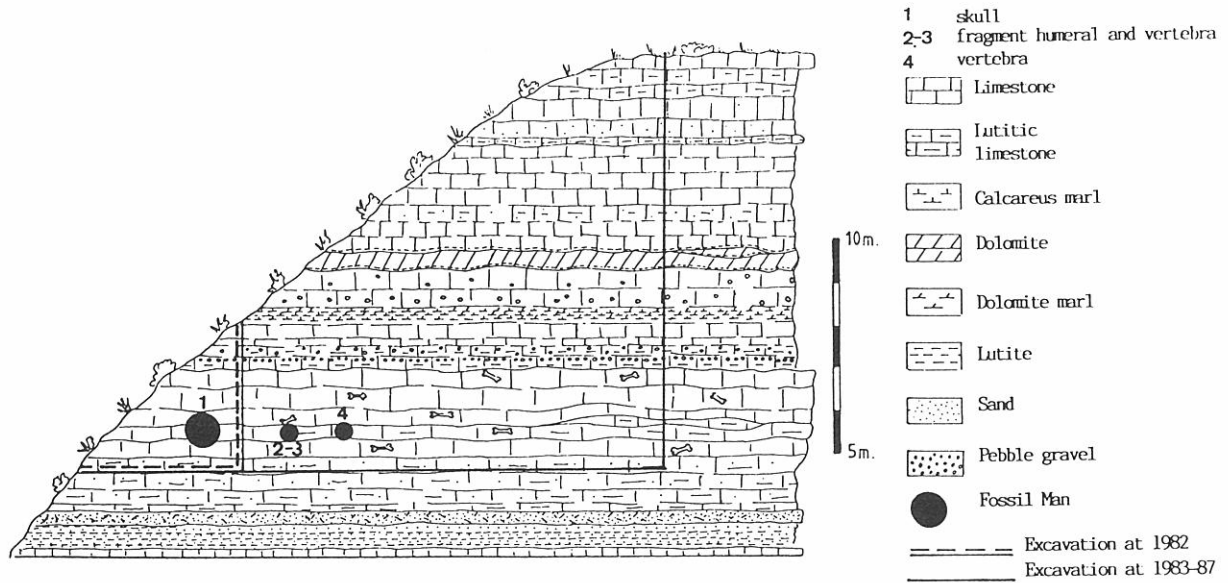
Figure 2. Section of Venta Micena site.

From Gibert work (1986) based on the magneostratigraphic 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 *Mimomys ostramosensis* 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 *Allophaiomys pliocaenicus.* 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.

Martínez 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 *Allophaiomys pliocaenicus,* 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 radiomemtrically in 1,4 m.y.ago (Couthures et Pastre, 1982), by de-

duction 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 found 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 allochtonous 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, 1).

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, disolution and larvae (Gibert *et al.,* 1985), easily identifiable and very diferent from the anthropic ones. Other marks that have beeni dentified 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). The
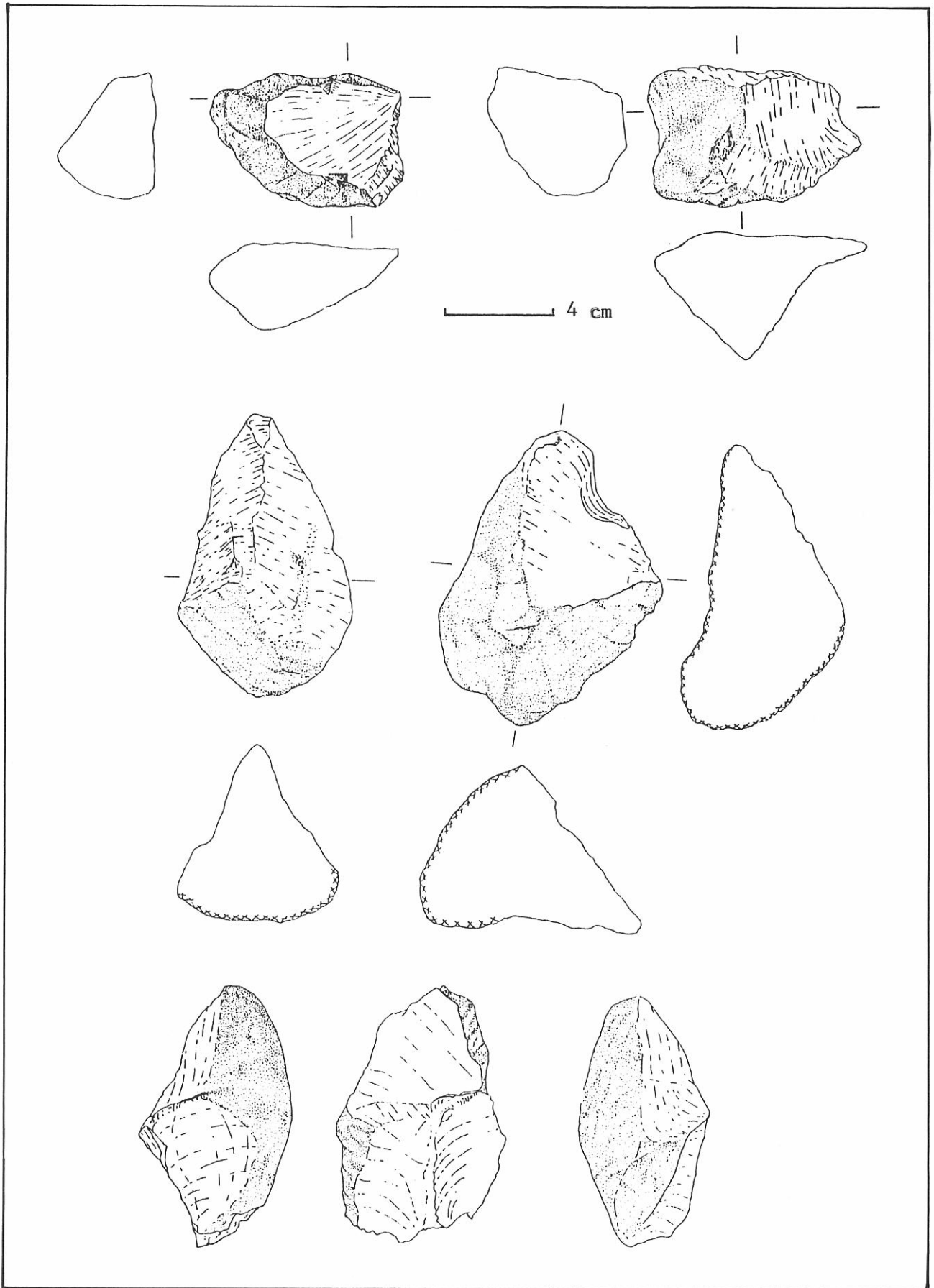
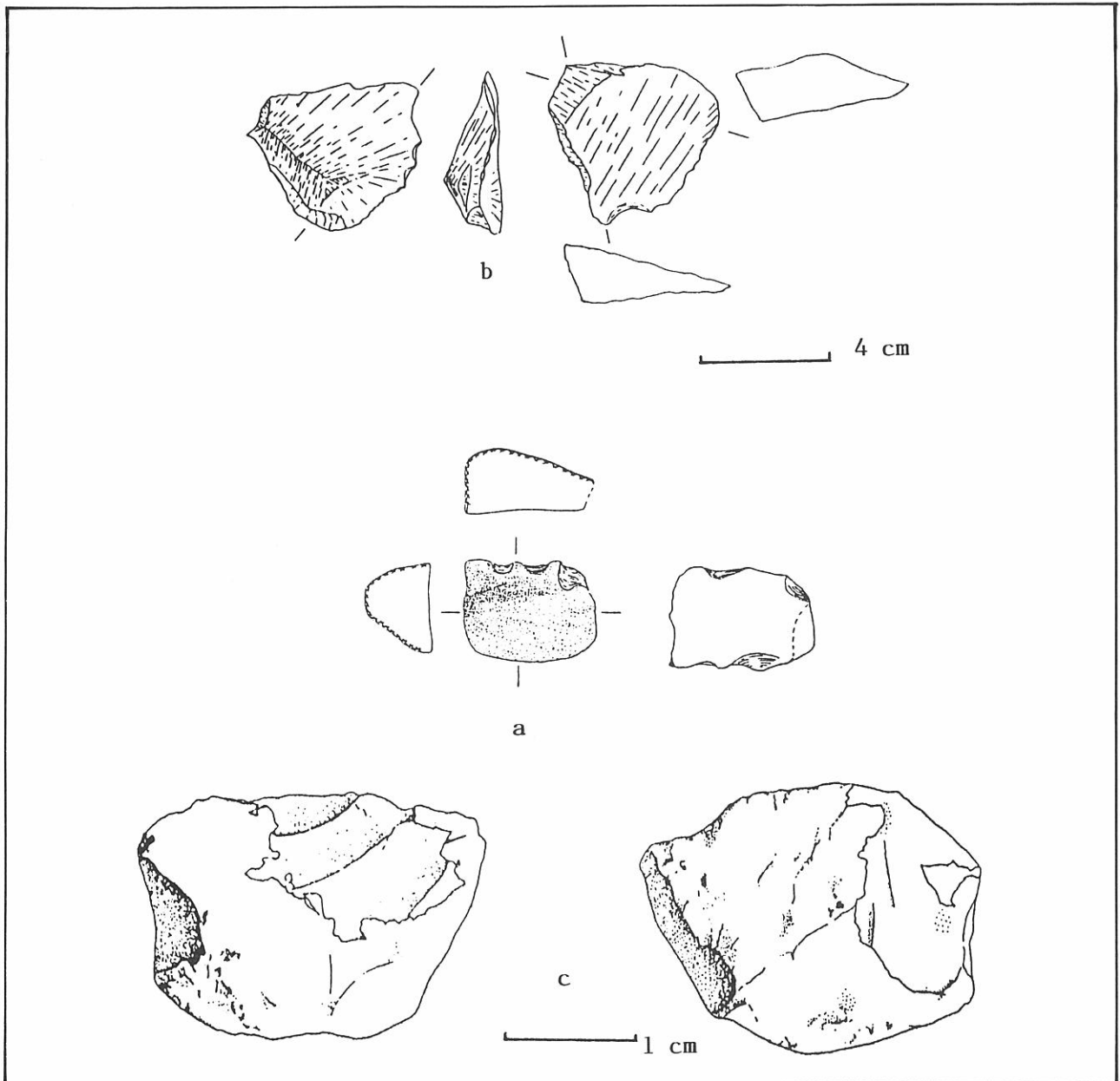**Figure 3.** Choppers from Barranco del Paso site.

Figure 4. a) flake, Barranco del Paso. b) flake Barranco Leon. c) nucleus VM.

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 *Eguus 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.

Diaphisis 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 longest, 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 deltoid 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-
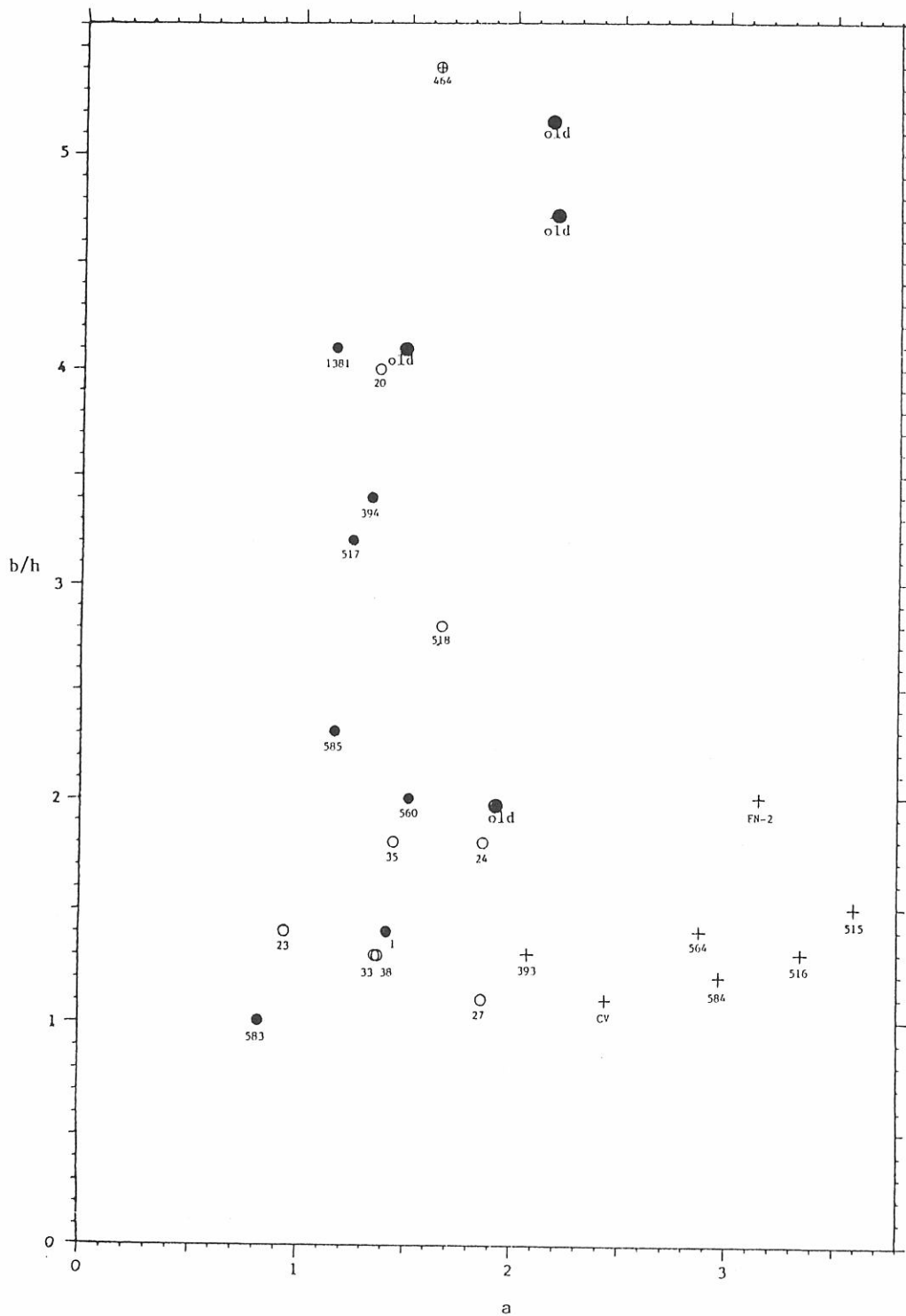
Graphic 1. Index versus b/h by Gibert and Ferrández (1989) to discriminate anthropic action from scavenger action. Anthropic action in Venta Micena. Anthropic action in Olduvai. Anthropic action to try, test. Scavenger action in Venta Micena site.

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.1.

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
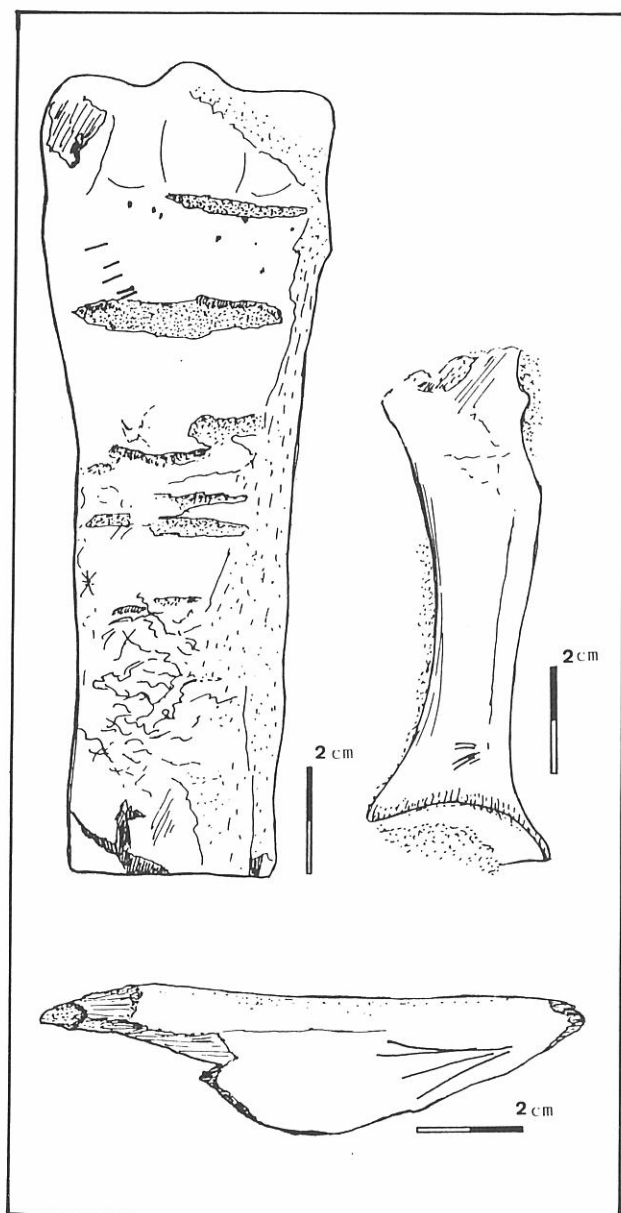
Figure 5. Cutmarks from Venta Micena site (metapod, hip bone fragment, indeterminated fragment).

from the dorsal end to the proximal end as in VM.1960. The ulnar and radial edges are well defined. The spinal canal is very narrow, and signs of muscular insertion are visible in the anterointernal face. There are signs of carnivorous action at the distal end on the dorsal face. We can see grooges on the anterointernal face and anteroexternal face which are difficult to make out.

CV.2.

Distal fragment of right humerus 65 mm. in lenght. All the cross-sections show a scalene triangle shape with rounded vertices as the two cases stated above (figure 9a), even though the anteroexternal face is slightly flattened in a dorsal direction. At both ends, there are signs of carnivorous action. The edge of the dorsal face that delimits with the radial margin is somewhat fragmen-

ted. 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 round 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 oleocranon fossa and numered 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 diaphysys. 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 occurrs 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 VM.1960. 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).
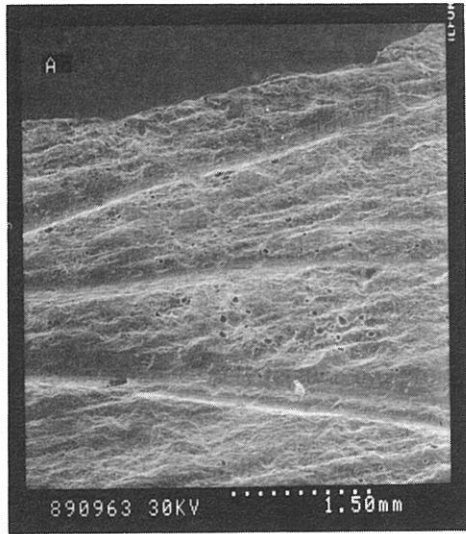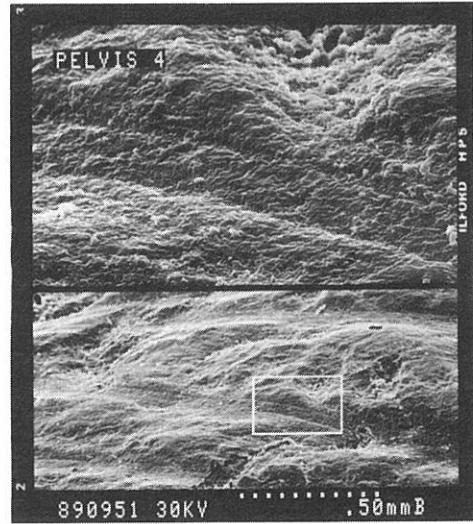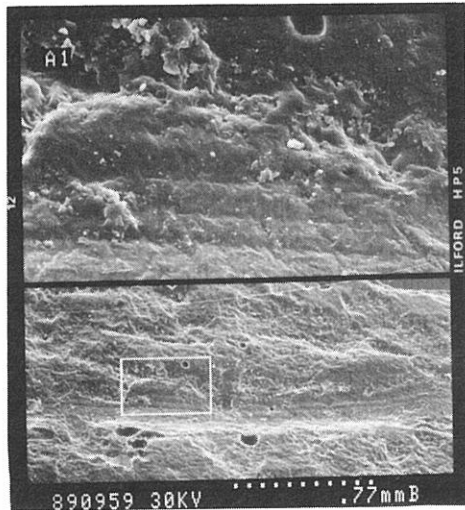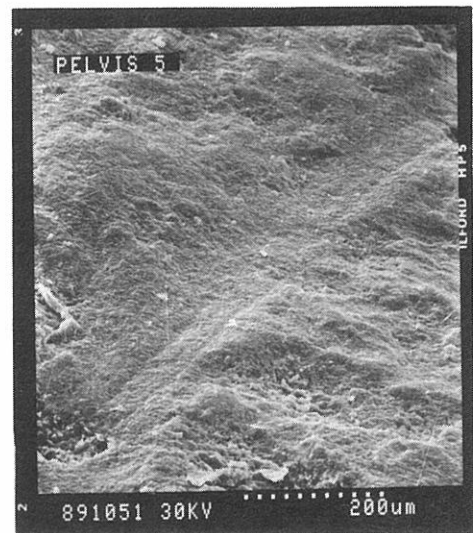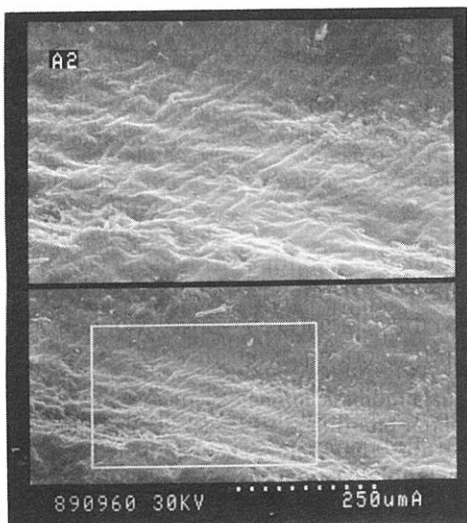
Figure 6.   a) microestriation from hip bone fragment; b) microestriaton from indeterminates fragment from a large bone.
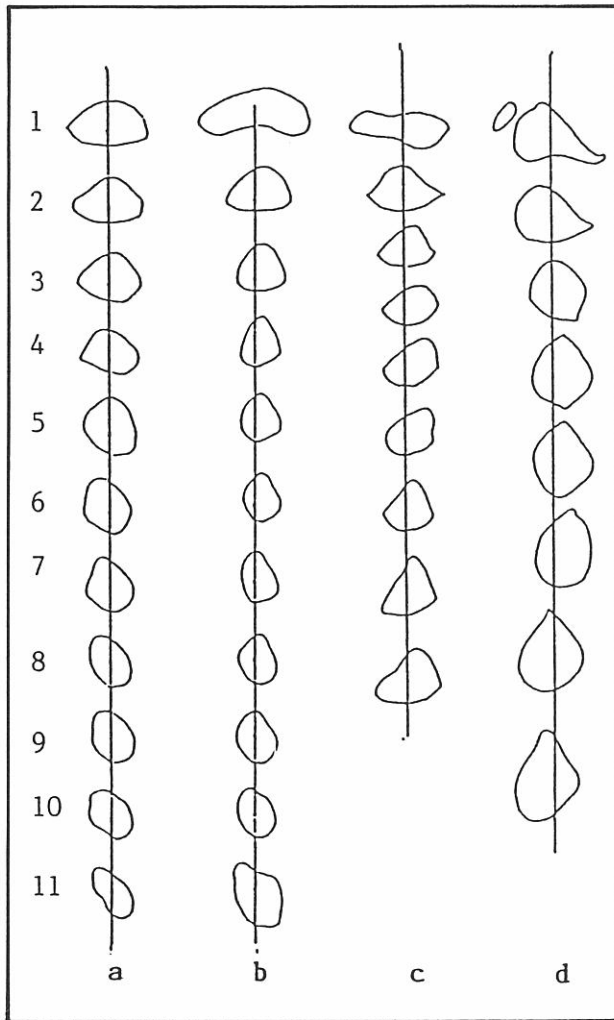
Figura 7. Transversal sections of humeral taken at 15 mm. intervals from the proximal end of the eleocranon fossa (1), a) VM. 1960, left-Infantile, b) N-1, at the present time, left-infantile (age 5-7 years old), c) female cercopithecoids, right-juvenile *(Papio hamadrias)*, d) female carnivore, right-juvenile *(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 specimenns (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-
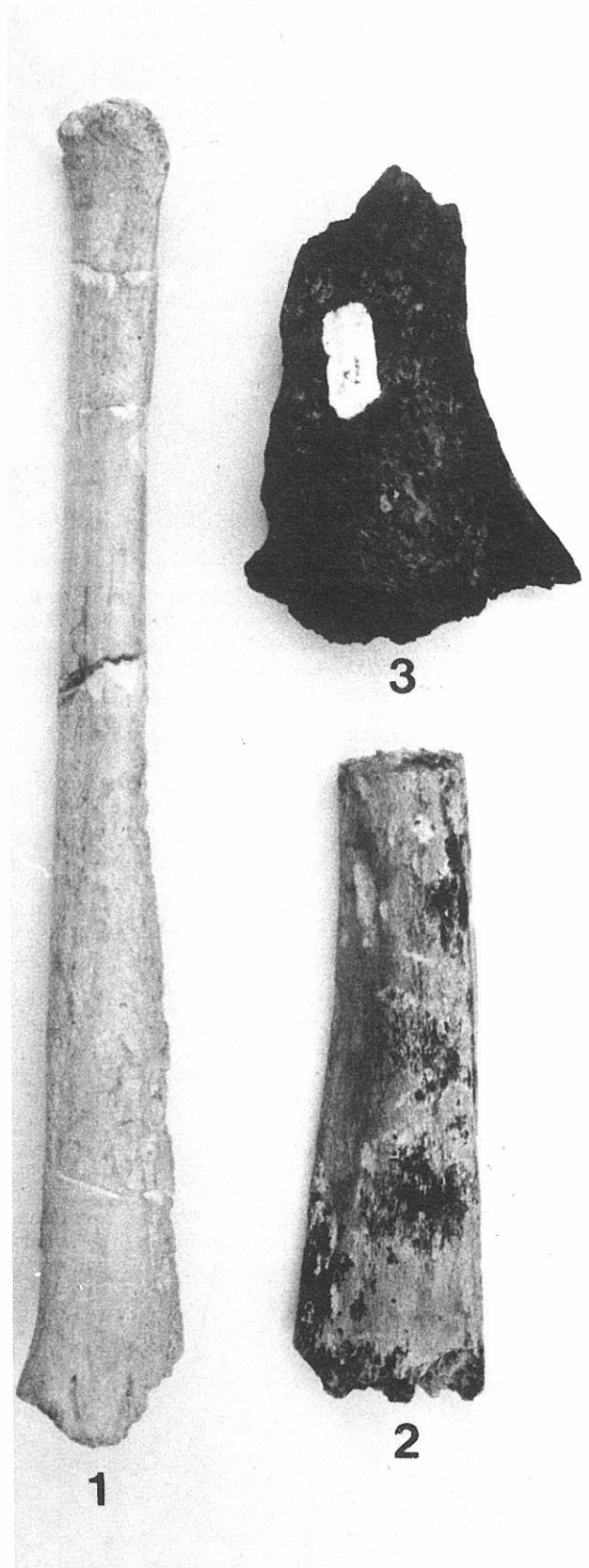

Figure 8. 1) VM.1960, diaphysis of a left humerus child found at 'Venta Micena', 2) CV.1, medial-distal fragment of right humerus juvenil-adults found at 'Cueva Victoria', 3) CV.2, distal fragment of a right humerus adult found at 'Cueva Victoria'. (Natural size).
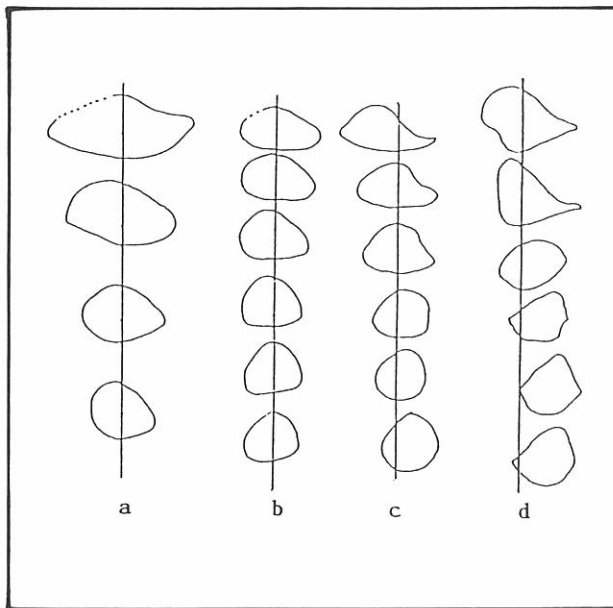
Figure 9. Transversal section of right humeral diaphysis taken as in Figure, 7, a) 'Cueva Victoria' 2 (CV.2), adult, b) 'Cueva Victoria' 1 (CV.1) juvenile c) adult male cercophithecoid (*Mandrillus sphins*), d) adult male carnivore *(Panthera pardus)*.

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)

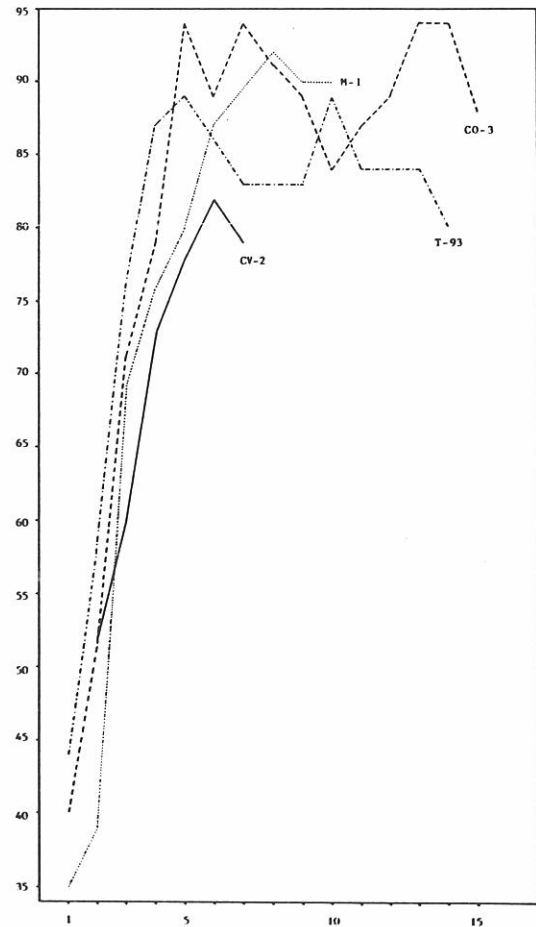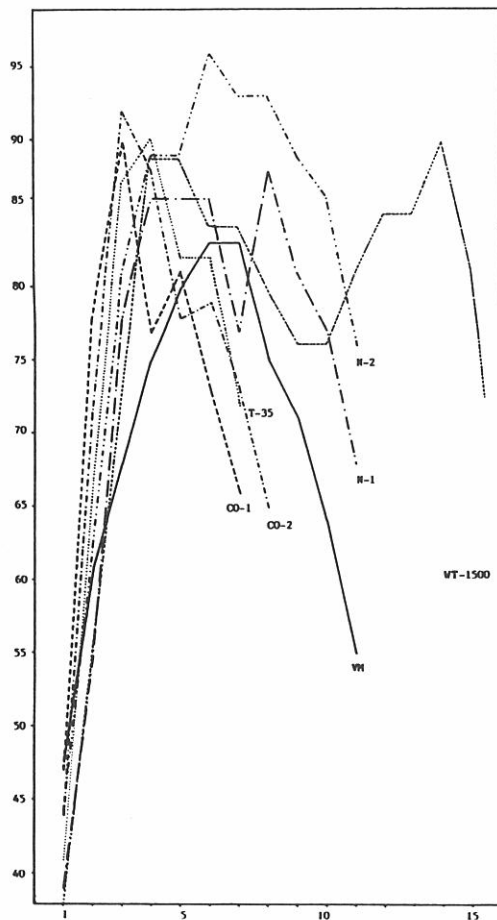|	n	x₁	Variación 1
Homo	150	145,1	134,0-156,2
Gorilla	30	137,3	127,9-146,7
Pan	33	133,9	123,0-144,8
Pongo	14	119,5	106,8-132,2
Symphalangus	8	113,8	105,0-122,6
Hylobates	48	110,7	101,0-120,4
Macaca	102	98,8	92,1-105,5
Papio	10	96,0	82,2-109,8
Cercocebus	8	99,1	92,6-105,6
Cercopithecus	16	97,0	88,5-105,5

Figure 10. a) Changes of robustness indices in infantile speciments, abscissa, robustness index, ordinate, length of the diaphisis from the proximal of the oleocranon fossa (1), 15 mm. intervals. CO-1, CO-2, and T-35 correspond to indifidual age from 2 to 3 years old, N-1 and N-2 to individual age about 5-7 years old, WT-15000, *Homo erectus,* KNM WT-15000 *Homo sp.* from 'Venta Micena' (VM.1960). b) Changes of robustness indices in juvenile adult specimens. T-93, CO-3 adults, M-1 juvenile-adult, CV.2, *Homo sp.* from 'Cueva Victoria'.

Table 2

n.º	Index of torsion	age
IP,C-32A	140	7-9
I,C-19	138	7-9
VM-1960	136	?
CO-2	134	6-7
CO-1	132	5
IP,C-32B	130	5

The humerus found at 'Cueva Victoria' differs from those of cercopithecoids and carnivora in the morpohology 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-1. 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).

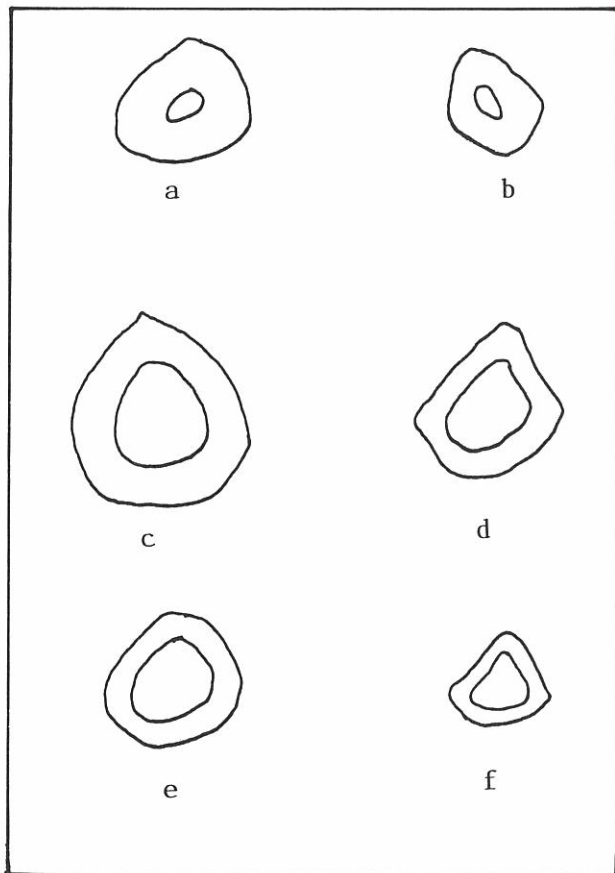(P.S. Bovini gen. et sp. indet. corresponds to a *Bubalus* genera representant of a very small size).

Figura 11. Cross-sections, a: CV-1, b: VM-1960, c. Felide Venta Micena d. *Mandrillus sphins* adult male e: *Panthera pardus*. Adult male f: *Papio hamadrias* infantile.

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