



News and Views

Early Pleistocene “hominid remains” from southern Spain and the taxonomic assignment of the Cueva Victoria phalanx

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Introduction

Recent paleoanthropological and archaeological work at the gateways of Europe (including the Caucasian Region and the Iberian Peninsula) demonstrates that the northern Mediterranean area witnessed an early Pleistocene human presence (Bermúdez de Castro et al., 1997; Martínez-Navarro et al., 1997; Arribas and Palmqvist, 1999; Gabunia et al., 2000; Oms et al., 2000; Roebroeks, 2001; Mithen and Reed, 2002; Vekua et al., 2002;

Dennell, 2003; Antón and Swisher, 2004). During the last decades, however, an intense controversy over several fossil specimens found in southeastern Spain at Orce and Cueva Victoria (Fig. 1) have seriously confounded this debate, rendering dubious the hypothesis of an early human occupation of this area. The controversy has overshadowed the evidence from the extensive lithic assemblages from Fuente Nueva-3 (FN-3) and Barranco León-5 (BL-5) in Orce, which include more than fourteen hundred pieces of limestone cobbles and knapped flint associated with a faunal assemblage of early Pleistocene mammals (Martínez-Navarro et al., 1997, 2003; Oms et al., 2000).

The four putative “hominid” remains from the Orce region, a skull fragment (VM-0) and two

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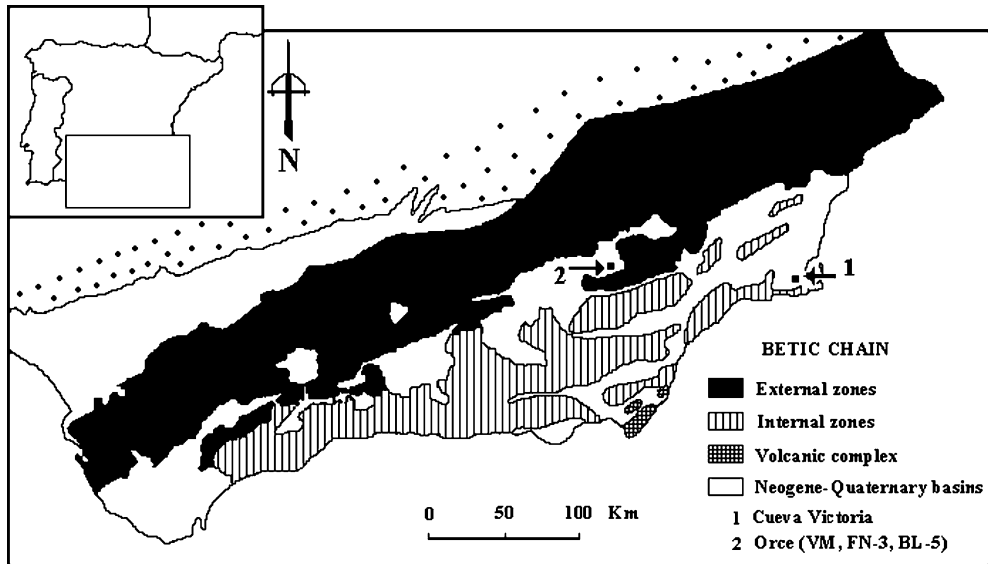


Fig. 1. Geographic location of the Orce sites (Venta Micena, Fuente Nueva-3, and Barranco León-5) and the Cueva Victoria site on the southeast Iberian Peninsula.



Fig. 2. The phalanx CV-0 from Cueva Victoria. From left to right: (top row) dorsal view, lateral internal view, plantar view, lateral external view; (bottom row) proximal view and distal view. The proximal view shows the absence of the proximal articulation facets. Scale in cm.

humeral fragments (VM-1960 and VM-3691) from Venta Micena and a tooth fragment (BL5-0) from Barranco León, have been extensively published, but none of them has been accepted as an unequivocal human fossil. In fact, VM-0, the most famous and controversial specimen, has already generated eight articles in peer-reviewed journals, as well as many other publications in other journals and edited books. However, this cranial fragment has recently been ascribed to a female individual of a large ruminant that lacked cranial appendages (Martínez-Navarro, 2002).

The “hominids” of Cueva Victoria

Three fossil bones from the karstic site of Cueva Victoria (~1.0 Ma) have also been attributed to the genus *Homo*. Two of them are distal humeri (CV-1 and CV-2; Gibert et al., 1992) with very poor anatomical preservation. The third specimen, CV-0 (Fig. 2), was published as a complete intermediate phalanx corresponding to the 5th finger of a human hand (Gibert and Pons-Moyà, 1985; Pons-Moyà, 1985).

The study of this phalanx has been carried out through comparisons with intermediate phalanges of other pentadactyl mammals, including carnivores (*Ursus spelaeus*, *Ursus arctos*, *Indarctos vireti*, *Hyaena* sp., and *Phoca* sp.), cercopithecoid primates (*Macaca sylvanus*, *Cercopithecus nictitans*, *Papio hamadryas*, and *Mandrillus sphinx*), apes (*Hylobates* sp., *Pongo pygmaeus*, *Pan troglodytes*, and *Gorilla gorilla*), and humans (*Homo neanderthalensis* and *H. sapiens*). Comparative anatomical, radiological, and morphometric techniques were employed in these studies (Gibert et al., 1989; Gibert and Pérez-Pérez, 1989; Santamaría and Gibert, 1992; Palmqvist et al., 1996; Gibert et al., 2002), and the general conclusion has been that CV-0 is a human phalanx. However, the Cueva Victoria evidence has been omitted from most studies on the chronology of the first peopling of Europe (e.g., Roebroeks, 2001).

The anatomy of CV-0

Specimen CV-0 is a small piece and the anatomy is only moderately well preserved, but two

mistakes were made in the previous descriptions of this fossil. First, although it was published as a complete specimen, it corresponds to a juvenile or subadult individual, as it does not preserve the proximal epiphysis, which had not fused at the time of death (Fig. 2). Second, the fossil was not compared to *Theropithecus oswaldi*, the only primate species actually documented from the Cueva Victoria site (Gibert et al., 1995).

The anatomy of CV-0 (Fig. 2) exhibits several features that allow it to be discriminated from intermediate phalanges of *Homo* (Fig. 3): 1) in *Homo*, the distal trochlea of the intermediate phalanx is typically marked by a groove on the

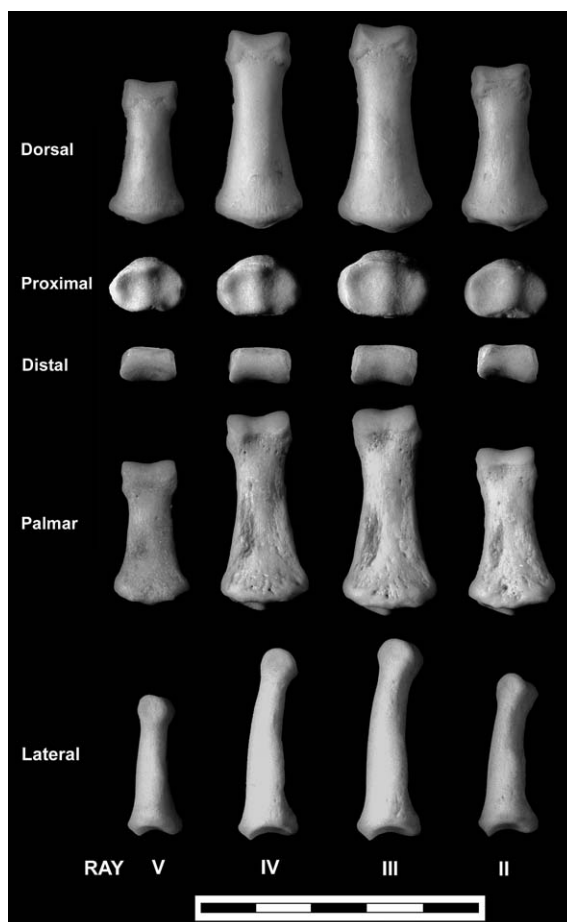


Fig. 3. Intermediate human phalanges from the left hand of the HTH-2484 specimen (Hamann-Todd collection, Cleveland Museum of Natural History). Scale in cm.

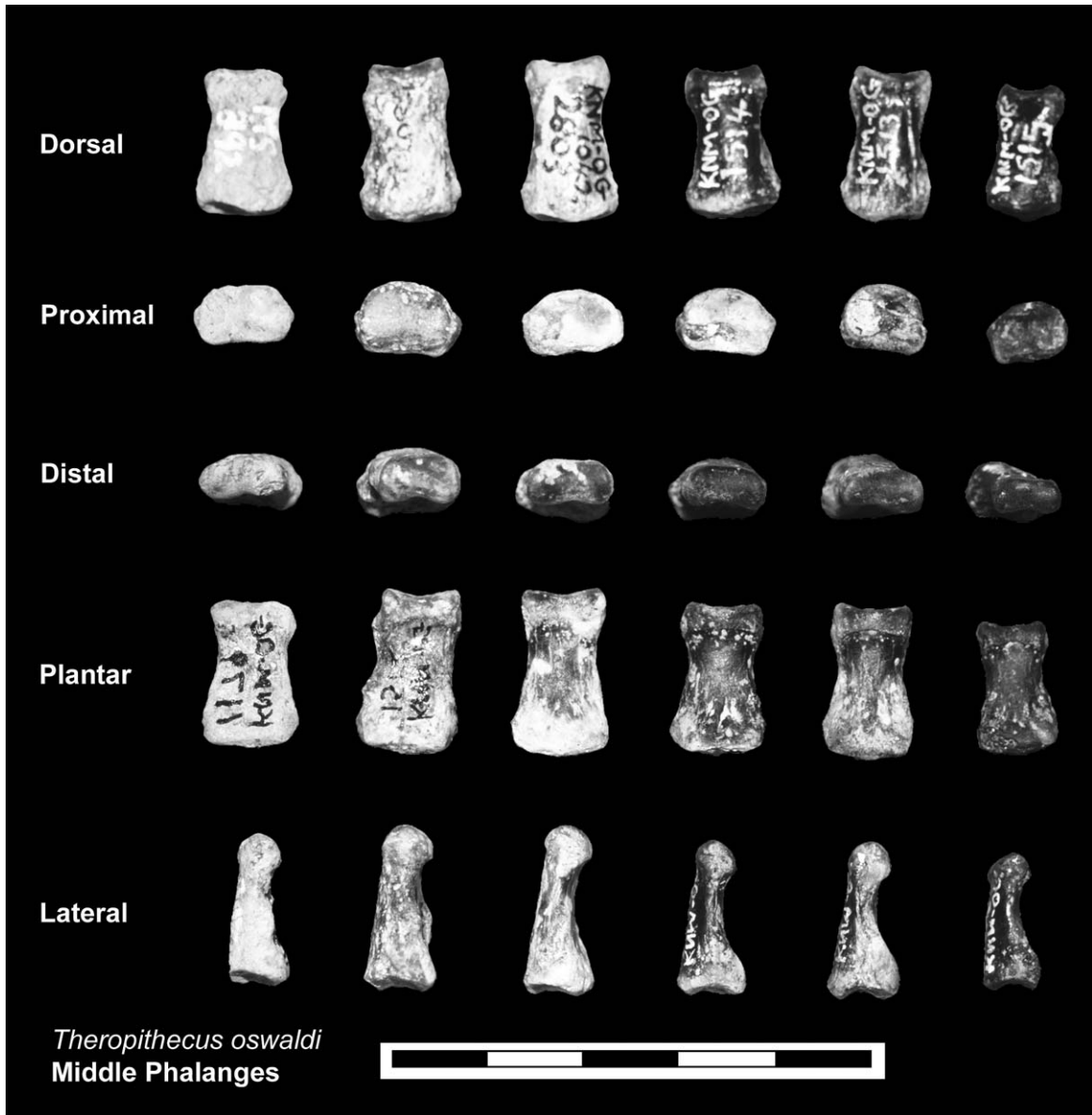


Fig. 4. Intermediate foot phalanges of *Theropithecus oswaldi* from Olorgesailie. From left to right: KNM OG-1179, KNM OG-1512, KNM OG-1042, KNM OG-1514, KNM OG-1513, and KNM OG-1515. From top to bottom: dorsal, proximal, distal, plantar and lateral views. Scale in cm.

palmar face, but in CV-0, the shape of the distal trochlea is more cylindrical; 2) in CV-0, the insertion for the flexor digitorum superficialis extends along the complete length of the lateral borders of the diaphysis, but in *Homo*, this insertion is located

more proximally and there is a small gap between the muscle insertion and the trochlea; 3) in dorsal view, the medial and lateral borders of the middle phalanges of *Homo* are more convergent distally than in the CV-0 specimen, which are subparallel;

Table 1

The intermediate phalanx CV-0 from Cueva Victoria compared with the same element for *Theropithecus oswaldi* (manus and pes) from the late early Pleistocene site of Ologesailie, Kenya

	L	PTD	PA-PD	MTD	MA-PD	DTD	DA-PD
Cueva Victoria							
CV-0	16.3	10.4	7.0	7.0	4.9	7.9	4.6
<i>Theropithecus oswaldi</i> , pedal 2 nd phalanx (n = 23)							
Mean	14.7	9.0	6.3	6.4	3.5	7.7	4.1
Median	15.3	9.2	6.4	6.5	3.5	7.9	4.0
S.D.	1.9	0.9	0.7	0.7	0.5	0.8	0.7
Max.	17.4	9.9	7.7	7.8	5.1	9.2	6.2
Min.	10.4	7.4	5.1	4.7	2.8	6.4	2.9
<i>Theropithecus oswaldi</i> , manual 2 nd phalanx (n = 8)							
Mean	12.3	7.7	5.4	5.6	3.1	6.5	3.4
Median	13.1	7.9	5.6	5.6	3.1	6.5	3.4
S.D.	1.7	0.8	0.7	0.5	0.3	0.7	0.3
Max.	14.0	8.5	6.1	6.4	3.7	7.8	3.8
Min.	9.0	6.0	4.0	4.7	2.7	5.5	2.6

Abbreviations: L = length, PTD = proximal transverse diameter, PA-PD = proximal anteroposterior diameter, MTD = medial transverse diameter, MA-PD = medial anteroposterior diameter, DTD = distal transverse diameter, DA-PD = distal anteroposterior diameter.

and 4) CV-0 exhibits lateral tubercles near the proximal base, which is unusual in immature human phalanges (Greulich and Pyle, 1959).

Comparison of CV-0 with *Theropithecus oswaldi*

The comparison with *T. oswaldi* was not previously undertaken because researchers did not have access to a sufficiently large collection of *Theropithecus* phalanges. It was assumed that the phalanges of *Theropithecus* were similar to those of other terrestrial cercopithecids such as *Papio* and *Mandrillus* (Palmqvist et al., 1996). However, the middle phalanges of *Theropithecus* are proportionately shorter and stouter than those of *Papio* and *Mandrillus* (Jablonski, 1986).

An anatomical comparison of CV-0 to the intermediate phalanges of *T. oswaldi* from Ologesailie (Kenya) shows that the Spanish fossil resembles pedal specimens of *Theropithecus* from the Kenyan site (e.g., the cylindrical shape of the distal trochlea and the general shape of the diaphysis) (Figs. 2 and 4). Moreover, a comparison of metrical data of CV-0 with adult intermediate hand and foot phalanges of *T. oswaldi* (Table 1)

reveals that the Spanish fossil matches those of the foot. In fact, the only difference is that the proximal transverse diameter of CV-0 is a bit larger (10.4 vs. 9.9 mm for the largest foot specimen from the Kenyan site), probably because the Spanish fossil is from a juvenile or subadult individual with the proximal epiphysis unfused.

Conclusion

We can conclude that the previous assignment of CV-0 to the genus *Homo* was due to the misidentification of the specimen as coming from an adult individual, and because it was compared to a taxonomically inadequate sample. We have compared the specimen to fossils of *T. oswaldi*, the only primate species indisputably preserved at Cueva Victoria (Gibert et al., 1995), and thereby the interpretive context has changed. The new data analyzed here allow us to draw the definitive conclusion that the anatomy of CV-0 does not correspond to the genus *Homo*. Given the fact that this fossil phalanx closely matches the anatomy of the foot phalanges of the only primate species

previously recorded at Cueva Victoria, it is most parsimonious to refer it to *T. oswaldi*. As a consequence, the only clear evidence for an early Pleistocene human occupation of the southeast Iberian Peninsula are the tool assemblages from FN-3 and BL-5 in the area of Orce (Martínez-Navarro et al., 1997; Oms et al., 2000).

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