



The Early Pleistocene large mammal assemblages from Orce (Spain) and the earliest evidences of human presence in Western Europe

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FIRST PARAGRAPH: The Orce series, in the eastern sector of the Guadix-Baza intramontaneous basin (southern Spain), preserves one of the best Early Pleistocene paleobiological record of Eurasia. Three are the sites that have been systematically excavated: Venta Micena, Fuente Nueva-3 and Barranco León.

Keywords: Early Pleistocene; Orce; Western Europe; lithic artifacts

早更新世西班牙奥茨的大型哺乳动物群及西欧人类最早活动的证据

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首节: 瓜迪克斯-巴扎盆地东部的奥茨遗址群是保存欧亚大陆早更新世时期古生物化石记录最好的地区之一。

其中已经被系统发掘过的三个遗址是米塞纳废墟, 新源头-3 和狮子谷遗址。

关键词: 早更新世; 奥茨; 西欧; 人工石器

The oldest site, Venta Micena, is included in the biozone of *Allophaiomys pliocaenicus*, its age has been estimated in around 1.5 ± 0.1 Ma and taphonomic studies indicate that the large mammals assemblage from this site was accumulated by hayenids. However, although the assemblage has remarkably similarities to the one from the Early Pleistocene Georgian site of Dmanisi, it is worth noting that by the moment no evidence of human presence has been found in Venta Micena. This assemblage shows exceptional biomolecular preservation, which has allowed estimating the abundance of carbon-, nitrogen-, and oxygen-isotopes. These biogeochemical data have provided interesting clues on the feeding behavior and habitat preferences of the large mammals species, as well as for reconstructing predator-prey relationships.

The other two sites, Fuente Nueva-3 and Barranco León-D, are stratigraphically placed above the Venta Micena level in the biozone of *Allophaiomys* aff. *lavocati*, with a chronology

of 1.3-1.4 Ma. Both have similar large mammals assemblages to that of Venta Micena, but with a few new elements (eg, *Ammotragus europaeus* and *Equus sussenbornensis*) that are not recorded at the latter locality. These sites record one of the oldest human presence in Western Eurasia, which is based on the finding of lithic artifacts and cut-marks on bones.

The Early Pleistocene of Eurasia is dominated by the presence and activity of the giant, short-faced hyena *Pachycrocuta brevirostris*. It is recorded from the Iberian Peninsula to China and Indonesia. In addition, it is the most important bone-accumulating agent for macrovertebrates in sites from 2.0 to 0.9 Ma along Eurasia. Given its highly specialized scavenging behavior, it probably was the main competitor with hominins where both taxa coincided in time and space. The sites of Orce have one of the best records of *P. brevirostris* along the continent, as fossil remains of this species and evidence of its bone-modifying activities have been recorded at the three sites:

Venta Micena, Fuente Nueva-3 and Barranco León. In the last two sites it has been detected also an intense competition between hominins and hyenas.

最古老的米塞纳废墟遗址属于上新异费鼠(*Allophaiomys liocaenicus*)古生物带。该遗址的年代估算在距今约150万至10万年之间。埋藏学研究同时表明这个遗址中的大型哺乳动物化石组合随着鬣狗类化石的增加而增加。这些化石组合与早更新世时期的格鲁吉亚遗址(德曼尼西)中的情况非常相似,但我们必须注意到这个时期的米塞纳废墟遗址中并没有发现人类活动的证据。遗址中的化石组合保存了使我们能够估计当时碳、氮和氧同位素丰度的特殊生物分子标记。这些生物地球化学数据提供了有关大型哺乳动物摄食行为和栖息地偏好的有趣线索,同时也为重建古代动物捕食关系提供了参考。

另外两个遗址(新源头-3和狮子谷-D)位于米塞纳废墟遗址地层之上,属于拉瓦异费鼠(*Allophaiomys aff. lavocati*)古生物带,距今

130到140万年。这两个遗址都具有和米塞纳废墟遗址类似的大型哺乳动物化石组合,但都还包括一些新的化石种类(如欧洲鬣羊 *Ammotragus europaeus* 和苏氏欧洲纤马 *Equus sussenbornensis*)。由于在这两个遗址中都发现了人工石器文物和动物骨头上的切割痕迹,研究者认为这两个遗址记录了西部欧亚大陆上最古老的人类活动。

短吻硕鬣狗(*Pachycrocuta brevirostris*)主导性地活动在早更新世时期的欧亚大陆上。从伊比利亚半岛到中国以及印度尼西亚都能发现这种动物的化石记录。同时它也是200万到90万年前欧亚大陆遗址中大型脊椎动物骨头堆积的重要因素。鉴于其高度专业化的食腐行为,它可能是古人类最主要的生存竞争者。奥茨遗址群中拥有欧亚大陆上最完整的短吻硕鬣狗化石记录。这个物种的化石及其对动物骨骼改变活动的证据在米塞纳废墟,新源头-3和狮子谷三个遗址中均有发现。在后两个遗址中还发现了古人类和鬣狗激烈竞争的重要证据。(覃振东 译)