



PLEISTOCENE MAMMAL FAUNAS FROM PONTE MOLLE (ROME)

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THE PONTE MOLLE FAUNA

At the end of the last century, the fluvial Tiber deposits near Ponte Molle (Ponte Milvio), yielded several fossil remains referred to the Galerian by different authors. At present it is not possible to observe the stratigraphy of the area because of its intense urbanization. Thus, we tried to deduce the stratigraphy by means of the biochronological significance of the fossil species collected from the deposits. It is shown here that the ‘Ponte Molle fauna’ is represented by a mixed fauna in which it is possible to distinguish at least four faunal assemblages referable to the early middle Galerian, the late Middle Pleistocene, the latest Middle Pleistocene–Late Pleistocene and the Holocene.

In the second-half of 19th century a large number of fossil mammal bones was collected from the Tiber alluvial deposits in the area of Ponte Molle (today Ponte Milvio), in Rome. Authors (Ponzi, 1867, 1878; Portis, 1893; Ambrosetti and Bonadonna, 1967) referred this faunal assemblage to a single stratigraphical layer (‘diluviale’ in Portis, correlated to the Ponte Galeria Formation in Ambrosetti and Bonadonna).

Ponzi (1867) studied for the first time both fossils and stratigraphy. He observed in the Ponte Molle and Tor di Quinto area two different deposits: a conglomerate yielding fossil mammals and sands with a subfossil fauna. He considered the fossil mammal assemblage to be homogeneous.

Portis (1893) described the Cava D’Alessandri deposit. He noticed conglomerate and sands laying in seven irregular levels. Basal levels yielded the faunal assemblages. Ambrosetti and Bonadonna (1967) had no possibility of examining the stratigraphy of the Ponte Molle area, which had become completely urbanized since the first half of 20th century, but considered the faunal assemblage homogeneous.

Detailed analysis of the faunal assemblages recovered from the Ponte Molle deposits is the only way to test the presence of different phases of fluvial deposits in this area (Table 1).

Examination of the faunal remains confirms the presence of a Galerian fauna, which comes from the ‘Ghiaie e sabbie di Ponte Molle’ as deduced from the labels in the Museum of Palaeontology of the University of Rome ‘La Sapienza’ and is associated with volcanic minerals. This faunal association is charac-

terized by a skull with antlers of *Cervus elaphus acoronatus*, by the abundant antler remains of *Euraxis eurygonos* and by some hippopotamus remains. The antlers of *Cervus elaphus acoronatus* show with certainty the typical features belonging to this red deer subspecies (Di Stefano and Petronio, 1992). The antler remains of *Euraxis eurygonos* (= *Pseudodama farnetensis sensu Azzaroli, 1992 pro parte*) consist both of basal parts, with rose and brow tine and of terminal forks: the basal parts are characterized by a brow tine forming an obtuse angle with the beam; the terminal forks show a reduced anterior tine and a bent and longer posterior tine. These features fit the variability field of *Euraxis eurygonos*.

Hippopotamus remains consist of several fragmentary canines, teeth and bones. A definite species attribution is not possible, but morphology and dimensions of canines (disposition of the furrows on the outward surface of the tooth) seem to be closest to those of *Hippopotamus antiquus* (Petronio, 1986).

A mandibular fragment is referred to *Canis* cfr. *Canis mosbachensis* on account of its small size and, above all, of the remarkable secodonty of the teeth (Capasso Barbato and Gliozzi, 1993); however, on the basis of some new data (Di Stefano *et al.*, 1992), it seems that this dog does not have a definite biochronological significance for it has been found in Italy even in late Middle Pleistocene (Capasso Barbato and Gliozzi, 1993) and Late Pleistocene faunas (Di Stefano *et al.*, 1992).

Within the Ponte Molle faunal assemblage, however, several species cannot be referred to an early or middle Galerian fauna but suggest the presence of other, younger faunas. Among these species are the rhinoceros remains ascribed to *Stephanorhinus hemitoechus* and to *Stephanorhinus kirchbergensis* on the basis of their morphological characteristics (Guérin, 1980); these two species are considered to be typical elements of the ‘Rianian’ (last Middle Pleistocene) and younger faunal associations. However, Fortelius *et al.* (1993) report their first occurrence in the middle Galerian reducing in effect their biochronological significance.

Elephas antiquus, *Bos primigenius* and some carnivores do not give any biochronological information considering their wide chronological distribution. In fact, even the numerous lynx remains, do not allow taxonomical separation between the Middle

TABLE 1. Stratigraphical distribution of the fossil mammals from Ponte Molle (Rome)

	Galerian			Rianian		Late Pleistocene
	Slivia F.U.	Isemia F.U.	Fontana Ranuccio F.U.	Torre in Pietra F.U.	Vitinia F.U.	
<i>Elephas antiquus</i>						
<i>Stephanorhinus hemitoechus</i>		-----				
<i>Stephanorhinus kirchbergensis</i>		-----				
<i>Equus caballus</i>						
<i>Equus hydruntinus</i>					-----	
<i>Hippopotamus</i> sp.						
<i>Hippopotamus</i> cfr. <i>antiquus</i>			-----	-----		
<i>Hippopotamus</i> cfr. <i>amphibius</i>			-----	-----		
<i>Sus scrofa</i>						
<i>Bos primigenius</i>		-----				
<i>Euraxis eurygonos</i>		-----				
<i>Cervus elaphus acoronatus</i>		-----				
<i>Dama clactoniana</i>		-----			-----	
<i>Dama dama</i> ssp.					-----	
<i>Capreolus capreolus</i>		-----				
<i>Ursus</i> sp.						
<i>Canis</i> cfr. <i>mosbachensis</i>						
<i>Canis lupus</i>				-----		
<i>Panthera leo</i>		-----				
<i>Lynx</i> sp.						
<i>Crocuta crocuta</i>		-----				
<i>Meles meles</i>						

Pleistocene *Lynx spelaea* and the Late Pleistocene *Lynx lynx* (Rustioni *et al.*, 1993).

On the contrary, cervids and equids permit some biochronological considerations. A fragmentary antler of fallow deer (a large anterior tine) can be attributed to *Dama clactoniana*. This species confirms the presence of a younger faunal assemblage that is comparable only with the late Galerian or 'Rianian' faunas. Several fallow deer remains (mandibles, postcranial remains and a skull with complete antlers) ascribed to '*Cervus* (*Dama*) *quirinus*' (Portis, 1920) show some archaic features (Fig. 1); these features, even if they are similar to those of the living fallow deer, surely reveal that this form precludes the modern *Dama dama*. Some remains morphologically very similar to the Ponte Molle fallow deer are present at Vitinia in levels referred to Stage 7 of the oxygen-isotope stratigraphy (Caloi *et al.*, 1983; Caloi *et al.*, 1993). It can be hypothesized that all the fallow deer preceding the Late Pleistocene show these archaic characteristics; if this is true, it would be possible to give some taxonomic significance to these forms. The authors are intending to study these remains in closer detail.

Abundant modern fallow deer, red deer and *Equus hydruntinus* are never observed before Stage 7 of the isotope record (Sedia del Diavolo, Torre in Pietra) (Caloi and Palombo, in press). These remains, therefore, suggest the presence of a third faunal association referable to the latest 'Rianian' (Vitinia).

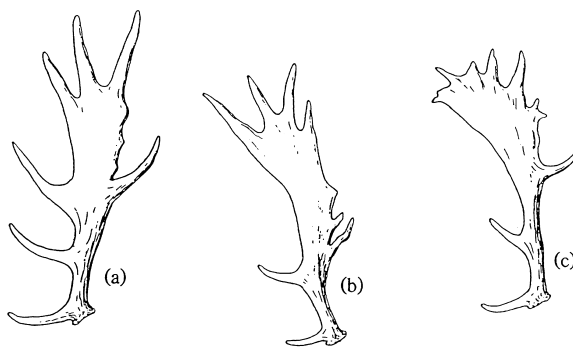


FIG. 1. Antlers of fallow deer. (a) *Dama clactoniana* from Clacton. (b) *Dama dama* ssp. from Ponte Molle and Vitinia. (c) Living *Dama dama*.

Finally, a subfossil fauna is represented by *Meles meles* and bovids and it is referable to the Holocene.

CONCLUSIONS

As already mentioned, the 'Ponte Molle fauna' shows a substantial biochronological incongruity. At present it is impossible to establish a detailed stratigraphy of the area under investigation; thus an attempt to draw a possible biostratigraphical framework from the biochronological significance of the various species in the faunal assemblage has been made.

From the analysis of the fossil remains, we can distinguish at least three faunal associations in the faunal complex of Ponte Molle.

The first faunal association, indicated by the presence of *Cervus elaphus acoronatus*, *Euraxis eurygonos* and, if the species attribution can be confirmed, by some hippopotamus remains ascribed to *Hippopotamus antiquus*, is referable to the Early and/or Middle Galerian.

The second faunal association can be identified on the basis of some *Dama clactoniana* remains: the certain stratigraphical distribution of this species ranges from the Late Galerian (Fontana Ranuccio) to the first part of 'Rianian' (Torre in Pietra).

The third faunal association is identified by the presence of a fallow deer with modern features but peculiar characteristics that allow us to separate it both from the Clacton fallow deer and from the typical Late Pleistocene and living fallow deer (Fig. 1). *Equus hydruntinus* and *Cervus elaphus elaphus* remains can be associated with the previous remains, thus constituting a typical faunal association of the latest Rianian (Vitinia). We cannot exclude other faunal associations referable to the Late Pleistocene, if we consider the wide biochronological range of some species and the impossibility of distinguishing any morphological characteristics in many postcranial remains of cervids.

Finally, some subfossil remains testify an Holocene fauna. It is important to emphasize that from the biochronological significance of the fossil species it is possible to reconstruct, with a good approximation, bioevents which occurred in a stratigraphically poorly known area, and even to make biostratigraphical correlations with other sites.

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