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Macaca sylvanus florentina (Cocchi, 1872) from the Pleistocene Mugello basin (Northern Apennines, Italy)

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ABSTRACT – The *Macaca* remains described by Ristori in 1890 from the Mugello basin (Late Villafranchian) were re-discovered in the collections of the Museo di Storia Naturale e del Territorio (University of Pisa) and are here shown to be identical to those from the Upper Valdarno.

RIASSUNTO – [*Macaca sylvanus florentina* (Cocchi, 1872) dal bacino pleistocenico del Mugello (Appennino settentrionale, Italia)] – I resti fossili di *Macaca* provenienti dal bacino del Mugello (Villafranchiano Superiore) originariamente descritti da Ristori nel 1890 sono stati ritrovati nelle collezioni del Museo di Storia Naturale e del Territorio (Università di Pisa) e vengono qui confrontati con quelli del Valdarno Superiore.

FOREWORD

The Mugello valley is a intermountain basin located north of Florence, in the Sieve valley. The fluvio-lacustrine succession of the Mugello basin developed in two main sedimentary phases, following a pattern common to other Plio-Pleistocene basins of Northern Apennines (Martini & Sagri, 1993). The deposition of terrigenous sediments in this basin probably began between the end of the Pliocene and the beginning of the Pleistocene (Benvenuti, 1995). The first sedimentary phase (Late Pliocene?–Early Pleistocene) was characterised by a fluvio-lacustrine succession; the second one (Early?/Middle Pleistocene–Holocene) by alluvial sedimentation (Sanesi, 1965; Benvenuti, 1995).

The first reports of vertebrate faunas in the sediments of the Mugello basin were made by Ristori (1889) and De Stefani (1891), though a more detailed faunal list was only published later by Nelli (1923). A recent systematic study of the fossil assemblages found in the basin has revealed the occurrence of forms belonging to different faunal units (Abbazzi *et al.*, 1995). This revision revealed a fairly complex picture, in which the fossils that document the fluvio-lacustrine phase are distributed over a period that includes parts of the Tasso and Farneta Faunal Units (Late Villafranchian; late Early Pleistocene). In particular, some of the remains collected from the lignitiferous sediments could belong to the former Faunal Unit, while the occurrence of *Mammuthus (Archidiskodon) meridionalis*

vestinus and of a rhinoceros with characteristics very close to *Stephanorhinus hundsheimensis* would prove the existence of levels attributable to the Farneta Faunal Unit. Obviously, in the absence of direct stratigraphic control, the possibility that all the taxa recorded belong to a single assemblage (which would in that case document a faunal unit intermediate between Tasso and Farneta) cannot be ruled out (Abbazzi *et al.*, 1995).

THE FOSSIL MACAQUE FROM MUGELLO

Ristori (1890) described and illustrated a few teeth collected during the lignite exploitation at Barberino di Mugello⁽¹⁾. The fossils were thought lost for a long time, and the only known *Macaca* remains from this basin were a few fragments stored in the Museo di Geologia e Paleontologia of the University of Florence. Here, inventoried as IGF 13088, are kept a right P⁴ a fragment of upper molar, a fragment of upper incisor and other indeterminate fragments.

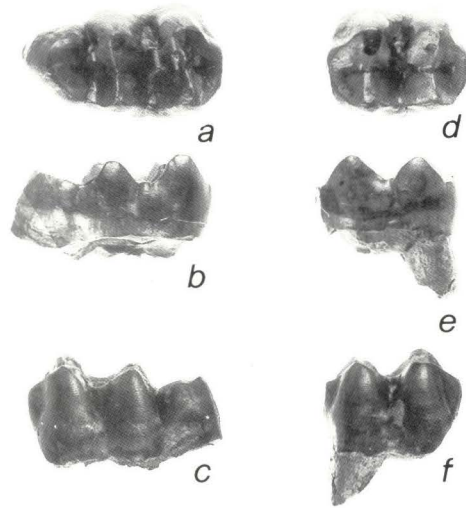
Only recently, during a search in the storage room of the Museo di Storia Naturale e del Territorio of the University of Pisa (Certosa di Calci, Pisa), was I able to «re-discover» this fossil sample. The aim of the present note is to give an

1) «[...] A tutti questi resti devesi aggiungere due molari inferiori 2° e 3° ed un frammento di canino trovati nelle ligniti plioceniche di Barberino di Mugello e donati dal sig. Bechi al Museo di Pisa [...]» (Ristori, 1890, p. 227).

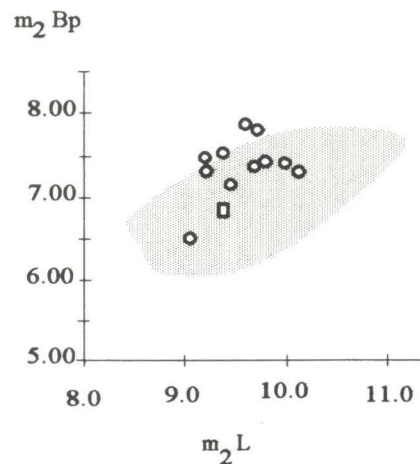
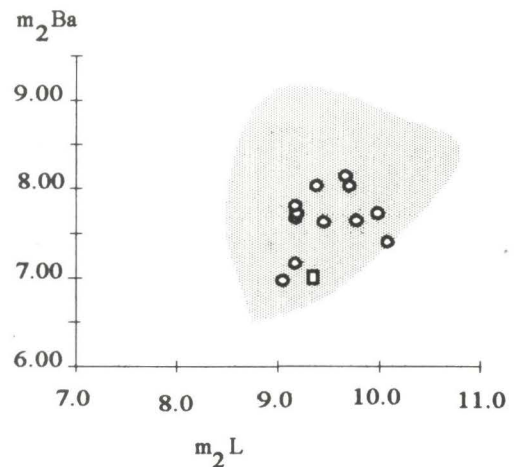
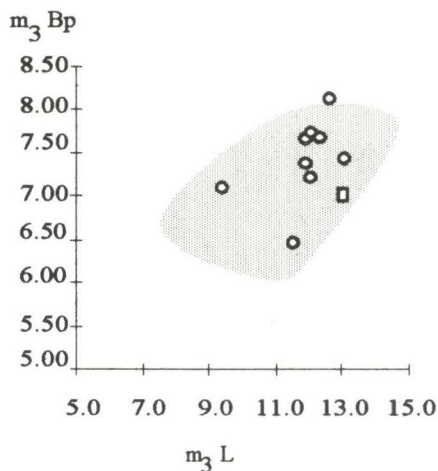
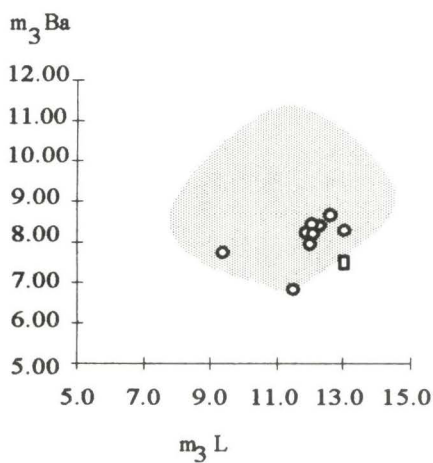
adequate illustration of these important fossils, newly restored and properly stored in the collections of the Calci Museum.

Ristori studied those specimens by courtesy of prof. Meneghini and accurately compared the teeth with the material from Upper Valdarno. The result of his study was a complete identity of the Mugello sample with the type population of *Macaca florentina* (Cocchi 1872), apart from minor differences interpreted as individual variability.

The Mugello *Macaca sylvanus florentina* sample, although very small, is important as it increases the known and accessible documentation of fossil monkeys from the Italian Pleistocene. The sample consists of three specimens: a fragment of lower canine, a right M_2 and left M_3 (Text-fig. 1). As noted by Ristori in his careful study, the two molars are morphologically and metrically indistinguishable from the Upper Valdarno sample. In the bivariate plots of Text-fig. 2, data on fossil macaques are plot-



Text-fig. 1 - *Macaca sylvanus florentina* from the Mugello basin. a-c: left M_3 , a) occlusal, b) labial, c) lingual view. d-f: right M_2 , d) occlusal, e) labial, f) lingual view. All figures 2x.



Text-fig. 2 - Bivariate plots for M_2 and M_3 of extant and fossil macaques. Ba = anterior breadth; Bp = posterior breadth; L = length. Measurements in millimetres. Open square = *Macaca sylvanus florentina* from Mugello; Open circle = *Macaca sylvanus florentina* from Upper Valdarno (Type population). The dotted area represents a sample of extant *Macaca sylvanus*; 36 individuals for M_2 and 29 for M_3 (data from Gentili & Mottura, unpublished).

ted on a dotted area representing the values of an extant *Macaca sylvanus* sample.

Is worthwhile to mention that since the early studies concerning fossil macaques (Cocchi, 1872; Ristori, 1890), the difficulties in the recognition of marked difference between Pleistocene and living *Macaca* species has been emphasized. Recent studies argue that, comparing the fossil Pleistocene macaques from several localities in the circum-Mediterranean area with extant *Macaca sylvanus* of north-western Africa, a clear specific separation is not supported by any morphologic character (Delson, 1974; Szalay & Delson, 1979; Delson, 1980).

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