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MESOPITHECUS PENTELICUS WAGNER, 1839 FROM PIKERMİ IN THE COLLECTIONS OF THE UNIVERSITY OF FLORENCE

Abstract - Two fossil specimens of *Mesopithecus pentelicus* Wagner, 1839, from the locality of Pikermi (Greece) currently housed in the collections of the "Museo di Storia Naturale, Sezione di Geologia e Paleontologia" of the University of Florence, are herein described. Both perfectly fit, metrically and morphologically, with the type population from Pikermi. Their features permit to assign them to young male individuals.

Key Words - *Mesopithecus pentelicus*, Primates, Cercopithecoidea, Pikermi, Late Miocene.

Riassunto - *Mesopithecus pentelicus* Wagner, 1839 di Pikermi nelle collezioni della Università di Firenze. Nelle collezioni del Museo di Storia Naturale (Sezione di Geologia e Paleontologia) dell'Università di Firenze sono conservate due mandibole di *Mesopithecus pentelicus* Wagner, 1839, provenienti dalla località Pikermi (Grecia). I due fossili furono donati al Museo da A. Gaudry, uno nel 1861 l'altro nel 1870. Entrambi i reperti sono pienamente confrontabili, morfologicamente e metricamente, con il campione della popolazione tipo di Pikermi.

Parole chiave - *Mesopithecus pentelicus*, Primates, Cercopithecoidea, Pikermi, Miocene Superiore.

INTRODUCTION

Pikermi is one of the most famous Late Miocene European mammalian localities and has yielded a rich fossil fauna (now stored in various European Museums), very important in the biochronology and mammalian faunas evolution of the Mediterranean Late Miocene. The faunal assemblage was subject of many studies since the second half of the last century (Wagner, 1839, 1857; Roth and Wagner 1855; Gaudry, 1860, 1862) and has been recently revised and new excavations have been made (Marinos and Symeonidis, 1972, 1974; Solounias, 1981; de Bruijn, 1976; Benda and Meulenkamp, 1979; Bernor *et al.*, 1996). The main Pikermi localities are attributable to the MN 11/12 units (Early Turolian) in the European biochronological scale (Mein, 1990; de Bruijn *et al.*, 1992; Steininger *et al.*, 1996).

The Pikermi fauna is extremely rich both in number of taxa and of individuals. Among abundant fossil remains, including almost all mammal Orders, over one hundred individuals of a species of a medium-sized colobine monkey are represented. On this

material the genus *Mesopithecus* was erected with the species *M. pentelicus* by Wagner in 1839. The species was further described by Gaudry (1862), and more recently was studied in detail, among others, by Delson (1973, 1975), Heintz *et al.* (1981), de Bonis *et al.* (1990; 1997), and Hohenegger and Zapfe (1990). In 1991 Zapfe published an exhaustive monograph on this species.

The colobine monkey *Mesopithecus*

Genus *Mesopithecus* bears the typical characters of the cercopithecids and it has been included in the subfamily Colobinae because of several shared derived characters (Strasser and Delson, 1987). *Mesopithecus* ranges from the late Vallesian to early Villafranchian in southern and central eastern Europe. The species *M. pentelicus* is represented also in the Turolian of Iran and Afghanistan (de Bonis *et al.*, 1990; Heintz *et al.*, 1991).

One isolated upper premolar from Wissberg (MN9?) was identified by Delson (1973) as belonging to a colobine of the size of *M. pentelicus*. This finding is doubtful but if the identification is confirmed it is an important datum registering the earliest occurrence of the family in Eurasia (Andrews *et al.*, 1996).

Two species are currently included in the genus: *Mesopithecus pentelicus* Wagner, 1839. Vallesian - Late Turolian.

It is a medium-sized species. The skull, the jaw, all teeth and most elements of the postcranial skeleton are known. The mandibular body is shallow, it presents a planum alveolare steeply inclined and a weak inferior torus. It is characterized by a P_3 with a well marked and short metalophid, premolars with well marked fovea and M_3 with hypoconulid of variable size but usually small.

Mesopithecus monspessulanus (Gervais, 1849). Latest Turolian (?) - earliest Villafranchian.

This small-sized species is well represented in Ruscinian faunas of southern France (Montpellier); its last occurrence is at Villafranca d'Asti (Italy; early Villafranchian). *Mesopithecus monspessulanus* is characterized by narrow $M_{1,2}$, reduced molar flare and mesiodistally compressed cusps on the lower molars. The few partial limb bones known suggest a somewhat less terrestrial adaptation.

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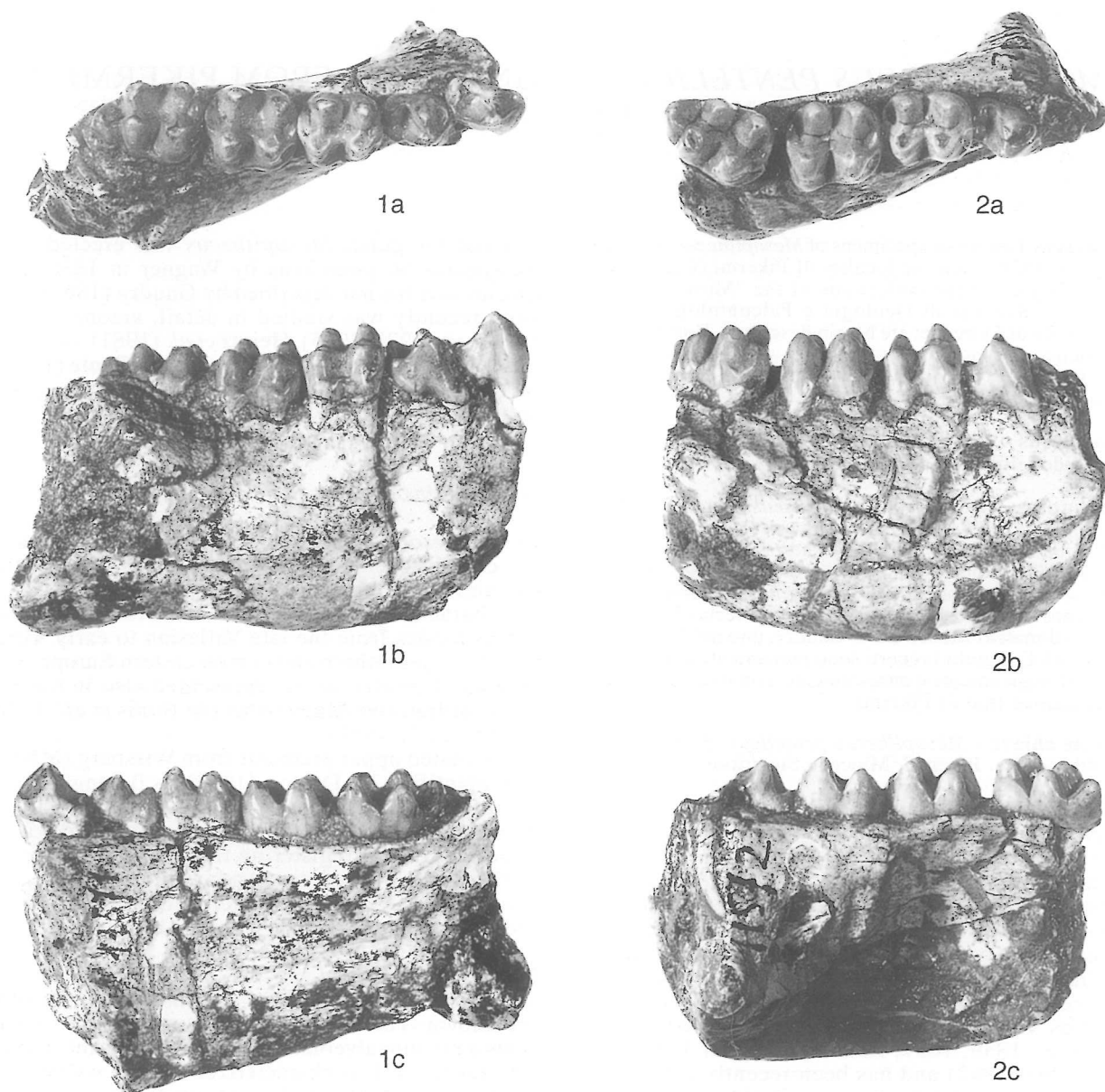


Plate 1 - *Mesopithecus pentelicus* from Pikermi. Mandibles housed in the Museum of Florence. 1- right mandible IGF 11571; 2- right mandible IGF 11572. a) occlusal, b) labial, c) lingual views. All figures 1,5x.

The species *M. pentelicus* has been reported from several Turolian localities (Yugoslavia, Bulgaria, Hungary, Greece) without documented differences from the type specimens, except the mandible from Maragheh, Iran, and specimens from Macedonia, Greece (Delson, 1973; de Bonis *et al.*, 1990). It is worthwhile to mention that de Bonis *et al.* (1990) described a small sample from Ravin des Zouaves 5 (Macedonia, Greece) as a different species (*Mesopithecus delsoni*), which they distinguished from *M. pentelicus* by larger M_3 , longer lower molar and pre-

molar rows and some differences in the mandibular body. However there is no general agreement on the validity of this taxon (see discussion in Andrews *et al.*, 1996).

The Pikermi Mesopithecus in the collections of the Florence Museum

In the collection of the "Museo di Storia Naturale (Sezione di Geologia e Paleontologia)" of the University of Florence are housed some specimens from

the locality of Pikermi. Among them *Mesopithecus pentelicus* is represented by plaster casts of two skulls (IGF 11573, IGF 11574) and one mandible (IGF 11575) obtained by the Munich Museum in 1975 and by two original specimens. They are two fragmentary right mandibular rami obtained in exchange from prof. A. Gaudry, one (IGF 11572) in 1861, the other one (IGF 11571) few years later, in 1870. These two fossils consist in right mandibular bodies, both lacking ascending ramus, mandibular condylar process, and symphysis. IGF 11571 bears P_3 - M_2 while IGF 11572 bears the posterior root of P_3 , P_4 - M_3 . The mandibular body of IGF 11572 is slightly compressed on the mesial side, and this produced a slight twist of the M_3 towards the lingual side.

Description

IGF 11571 (P1. 1, Fig. 1a, b, c)

Corpus mandibulae - the thickness (width) of the mandibular body below M_1 , is 8.4 mm. The height is virtually constant between P_4 and M_2 (21.8 mm and 21.0 mm respectively).

Teeth - Incisors and Canine are not preserved. P_3 protrudes a little more than P_4 above the occlusal plane and is a little longer. It is aligned in a position slanting slightly towards the row of molars. The crown shows a slightly worn main cusp, the protoconid, with a transverse crest running from it to the lingual margin of the tooth. This median crest separates the mesial basin of the trigonid from that of the "talonid". A true metaconid does not emerge clearly. There is only a trace of it in a weak ridge at the point where the crest meets the lingual wall of the tooth. The protoconid is preceded by a sloping mesial flange. Its anterior margin is unfortunately damaged but can be appreciated as sinking well below the level of alveolar plane. This feature is correlated to sexual dimorphism (Delson, 1975) and evidences a male individual.

P_4 is more molariform than P_3 . The protoconid and the metaconid may be clearly distinguished, joined by a transverse crest (the metalophid). The small mesial fovea (the trigonid basin) is of a rounded form, whilst distal to the metalophid, at a much lower height, there is a wide talonid basin. On the distal margin two small cusps (entoconid and hypoconid) can be distinguished. On both buccal and lingual surfaces of the crown no vertical grooves dividing the trigonid from the talonid can be observed (poor molarization).

The molars display subequal heights of the crowns. M_1 and M_2 are bilobate, with four cusps clearly separate; protoconid and hypoconid on the buccal side are slightly worn in comparison with metaconid and entoconid (the lingual cusps). M_3 has a small fifth cusp (hypoconulid) and this gives it a trilobate shape. Wear on this tooth is very low, affecting only the protoconid.

In all molars the mesial fovea (arranged mesially to the metalophid) is considerably smaller than in the talonid basin (arranged distally to the metalophid). In M_1 the mesial fovea is very reduced. In M_3 distal

to the talonid is a distal fovea, which is sharply delimited by the fifth cusp (hypoconulid) and mesially by the hypolophyd.

On the mesio-buccal side the crowns of all molars display an evident cingulum and also P_4 has a rudimental one. On the lingual side of the molars an interloph vertical groove is present.

IGF 11572 (P1. 1, fig. 2a, b, c)

Corpus mandibulae - the thickness of the mandibular body as well as its height at M_2 , are not measurable due to the lateral compression of the specimen. Only the height of the body at P_4 can be inferred (about 23 mm).

Teeth - Incisors and Canine are not preserved. P_3 is represented only by the distal side of the talonid basin. In P_4 the protoconid and the metaconid may be clearly distinguished. They are joined by a transverse crest (the metalophid). The mesial fovea is very small, on the contrary distal to the metalophid, at a much lower height, there is a wide talonid basin. On the distal margin two small cusps (entoconid and hypoconid) can be hardly distinguished. This indicates a molarization less pronounced than in the P_4 of the IGF 11571 specimen.

Like in the previously described specimen the series of molars displays subequal heights of the crowns. M_1 and M_2 are bilobate, with the four cusps clearly separate. protoconid and hypoconid are more worn in comparison with metaconid and entoconid, with the dentine showing in places (to a lesser degree in M_2). In all molars the mesial fovea (very reduced in M_1) is considerably smaller than in the talonid basin. M_3 has a distal fovea sharply delimited by the hypoconulid and, mesially, by the hypolophyd. M_1 and M_2 display no mesio-buccal cingulum, but there is a rudimental one on M_3 .

CONCLUSIVE REMARKS

Both specimens of *Mesopithecus pentelicus* illustrated here represent young individuals (modest tooth wear), and fit perfectly well, for the overall dimension and morphological features of teeth and mandibular bodies, with the original reference material from the Pikermi population (as described and illustrated by Wagner 1839, Gaudry 1862, Delson, 1973 and Zapfe, 1991). The absolute dimensions of the IGF specimens dentition lie within the range of variability observed in the type population, with a constant tendency towards the highest values (table 1). This fact, in addition to the values of M_1 - M_3 and to the P_3 morphology (at least for IGF 11571), suggests male sex. Even if the P_4 in both specimens show no great molarization, a feature which according to Mottura and Ardito (1992) should be correlated to sexual dimorphism as female characters, the overall dimensions dental morphology of the specimens suggest that both IGF 11571 and IGF 11572 represent young male individuals.

Table 1 - Measurements in mm of the two *Mesopithecus* mandibles of the Museum of Florence. (m), male; (f), female; *, Pikermi population data from Delson (in litteris) and Ardito and Mottura (1992)

| | | <i>Mesopithecus pentelicus</i> from Pikermi * | | | | IGF 11571 | IGF 11572 |
|--------------------------------|----|---|----------|----------|----------|--------------|--------------|
| | | min | | max | | | |
| P ₃ | L | (m) 6.80 | (f) 6.10 | (m) 8.20 | (f) 6.90 | 7.25 | - |
| | W | (m) 5.50 | (f) 3.30 | (m) 4.50 | (f) 4.00 | 4.15 | - |
| P ₄ | L | 4.80 | | 6.80 | | 5.80 | 6.40 |
| | W | 4.20 | | 4.90 | | 4.85 | 4.70 |
| M ₁ | L | 6.00 | | 7.50 | | 7.35 | 7.60 |
| | AW | 5.00 | | 6.50 | | 6.15 | 6.20 |
| | PW | 5.10 | | 6.70 | | 6.50 | 6.15 |
| | L | 6.80 | | 8.50 | | 8.05 | 8.45 |
| M ₂ | AW | 5.90 | | 7.10 | | 7.05 | 7.05 |
| | PW | 6.10 | | 7.70 | | 7.45 | 7.50 |
| | L | 8.30 | | 10.50 | | 9.45 | 9.90 |
| M ₃ | AW | 5.90 | | 7.30 | | 7.20 | 6.55 |
| | PW | 5.50 | | 7.30 | | 6.65 | 6.15 |
| M ₁ -M ₃ | | (m) 23.3 | (f) 22.6 | (m) 25.8 | (f) 23.0 | 24.85 | 25.95 |

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