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NOTE ON THE FIRST EOCENE MAMMAL FROM SOUTH CHINA[1]

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During the late spring of 1938, a left lower jaw with m_3 was collected by Messrs. M. N. Bien, Y. Y. Lee, and the present writer, from the "Red Beds" extensively developed in the Hengyang Basin. This specimen was unearthed at a spot about 200 meters from the small town named Changpiliang, about 15 kilometers northeast of Hengyang (Young and Bien, 1939; Young, Bien, and Lee, 1938). It represents, so far, the only determinable mammalian fossil from this basin. In the northern part of Hengyang, apparently from the same formation, very fragmentary specimens of turtles and crocodiles have been found but are not yet described. The discovery of the lower jaw of an early mammal thus gives the only proof that the "Red Beds" in Hunan, the age of which has been debated among geologists without decision, really belong to the Eocene. It is, therefore, of interest to have the specimen adequately described.[3] The present note is based upon a line drawing by the artist of the National Geological Survey of China and brought by me to the American Museum of Natural History in New York for comparison. It is my pleasure to express my cordial thanks to members of the staff of this Museum for all the courtesy during my stay there.

DESCRIPTION

FAMILY PALAEOHIPPIDAE

Subfamily Hyracotherinae

GENUS PROPALAEOTHERIUM GERVAIS

Propalaeotherium hengyangensis, new species

MATERIAL: Cenozoic Research Laboratory No. V-214. A left lower jaw with m_3.

HORIZON AND LOCALITY: Middle Eocene from the "Red Beds" of the Hengyang Basin at Changpiliang, about 15 kilometers northeast of Hengyang, Hunan Province, China. Collected by C. C. Young, M. N. Bien, and Y. Y. Lee, 1938.

DIAGNOSIS: A small Hyracotherinae somewhat smaller than *Propalaeotherium sinensis*. The outline of the crown of m_3 tapers considerably backwards. The posterior arm of the first lobe (metaconid) is distinctly subdivided. The inner margin of the three lobes is low and deeply open and marked by a series of small "wrinkles." Cingulum well developed only on the anterior and the external sides.

DESCRIPTION: The lower jaw has the anterior part in front of the third molar and the posterior part of the ascendens process broken off. Both the ascending ramus and the angular process start to expand immediately behind the posterior margin of m_3 in a noticeable way. The third molar is composed of three lobes abruptly decreasing in size backwards. This backwards tapering of the tooth is remarkably similar to that of *Propalaeotherium argentonicum*. The tooth shows no trace of wear and be-

[1] Published by permission of the Director of the National Geological Survey of China.

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[3] When the specimen was first discovered in the field, no reference or comparative material was available, due to war conditions. Because of the subdivision of the metaconid of this lower molar 3, I compared it by memory with the problematic specimen *Adapidium yuanchuensis*, from Yuanchü, and later mentioned this possible comparison in the two papers referred to above. Subsequent studies, however, have proved the Hunan specimen so brachyodont that the possibility of relationship to *Adapidium* is out of the question.

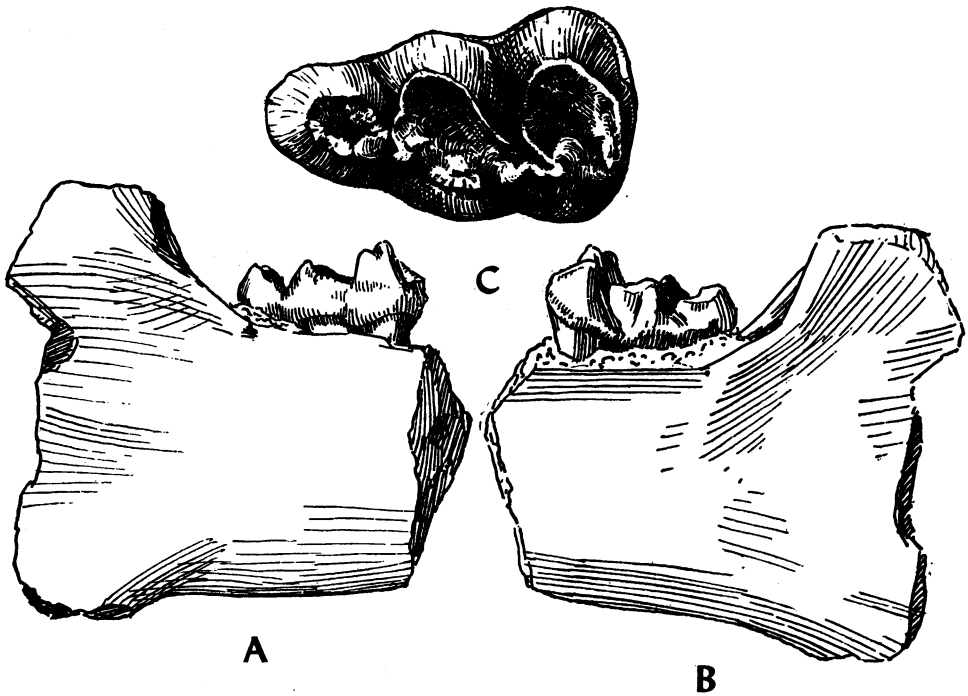

Fig. 1. *Propalaeotherium hengyangensis*, new species. Cenozoic Research Laboratory No. V-214. Left lower jaw, inner view (A), and outer view (B). Twice natural size. Lower molar 3, crown view (C). Five times natural size.

longs certainly to a young individual. In external view, the tooth is moderately brachyodont, being marked by a distinct cingulum which extends also anteriorly, while in inner view the tooth is less in height and there is no trace of cingulum. In the crown view, the three lobes form three basins, respectively, with the inner side low and partly open. The external side of the anterior two lobes is curved in such a gentle manner that it forms no sharp, recognizable angle, as in other species of the genus. The inner side of the posterior arm of the first lobe, which represents the highest part of the tooth (metaconid), is distinctly subdivided. Along the margin posterior to that point the tooth is marked by a number of small, fine wrinkles. The second lobe is lower than the posterior part of the first lobe and is again sharply separated by the third lobe which forms a nearly closed basin.

MEASUREMENTS

Height of the jaw behind the tooth (external) . . . . . 19.0 mm.
External length of m_3 at the base . . . . . 12.0 mm.
Median length of m_3 above the crown . . 8.0 mm.
Median length of m_3 at the base . . . . . 10.0 mm.
Anterior maximum breadth of m_3 at the base . . . . . 5.8 mm.

COMPARISONS AND DETERMINATION: The general structure of the tooth fits well with that of *Palaeotherium sinensis* described by Zdansky from Kuanchuang, Mengyin Hsien, in Shantung Province (Zdansky, 1930). But our form is a little smaller (length and breadth of m_3 of *P. sinensis* 13-13.3; 6.2-6.6, respectively). In addition, the second lobe of *P. sinensis* is about the same size as the first one, and in that of the present form it is distinctly smaller. This is chiefly responsible for a difference in outline between both forms. Furthermore the present specimen is characterized by the subdivision of the meta-

conid, by the narrower opening of the lobes on the inner side, and by the presence of small wrinkles along the inner margin. The latter character may be due simply to the less worn state of the tooth.

In view of the differences mentioned above, I prefer to erect a new species for the Hunan specimen, for which the name *Propalaeotherium hengyangensis*, new species, is proposed. It may be noted that the species name is purposely dedicated not only to the locality where the specimen was found but also in memory of the severe battleground Hengyang has become against the invaders in 1944.

The genus *Propalaeotherium* is known only from the middle Eocene in Europe, and *P. sinensis* is regarded by Zdansky as also belonging to the same age. The present form thus gives a clue for dating the "Red Beds" in Hunan.

P. hengyangensis is derived from a rather lower level of the Red Beds. It is highly probable that the Hengyang Red Beds were deposited since the Eocene, immediately after the Early Tertiary disturbance. How late the Red Beds extend into younger geological time, there is no definite proof, but probably their deposition was stopped by the Hengyang movement. The dating of the Red Beds near Changpiliang, therefore, does not necessarily mean that the whole formation is middle Eocene in age. The present form, so far, represents the first determinable mammalian fossil from South China.

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