

AMERICAN MUSEUM NOVITATES

Number 51

November 21, 1922

56.9,61

REVISION OF *PALÆOMASTODON* AND *MÆRITHERIUM*.

PALÆOMASTODON INTERMEDIUS, AND *PHIOMIA* *OSBORNI*, NEW SPECIES

By H. MATSUMOTO

This communication is a preliminary abstract of results reached in the author's researches during the year 1921 on the American Museum collections of *Palæomastodon*, *Phiomia*, and *Mærittherium*, in comparison with the type collections in the British Museum which were described by Charles W. Andrews between 1901 and 1906. The abstract was prepared from Dr. H. Matsumoto's MS. by Dr. Charles C. Mook, August, 1922. The full paper will appear in the American Museum Bulletin.

I.—*PALÆOMASTODON*, *PHIOMIA*

The genus *Palæomastodon* should be subdivided into two genera as follows:

- A. Palate wide in proportion to the length of cheek teeth series. Symphysis rather short, its posterior end lying at a considerable distance anterior to the anteriormost cheek tooth (P_3); the most conspicuous one of the anterior mental foramina lying just below the anteriormost cheek tooth, as well as a considerable distance behind the posterior end of the symphysis.

$$\text{Ridge formula: } Dm \frac{???}{???}, P \frac{1.1.2}{1+.2}, M \frac{2+2+2+}{2+2+2-3+}$$

Last premolars and all molars bunolophodont, appearing like typically lophodont teeth when moderately worn; no trefoil pattern of cusps

= *PALÆOMASTODON* Andrews.

Genotype: *Palæomastodon beadnelli* Andrews, 1901.

- B. Palate long and narrow. Symphysis long, its posterior end lying only a little anterior to or posterior to the anterior end of the anteriormost cheek tooth (P_3); the most conspicuous one of the anterior mental foramina lying far anterior to the anteriormost cheek tooth, as well as to the posterior end of the symphysis.

$$\text{Ridge formula: } Dm \frac{1.2.3}{1.2.3}, P \frac{1.1-1+.2}{1+.2}, M \frac{3.3.2+-3}{3.3.3-3+}$$

Last premolars and all molars typically bunodont; trefoil pattern of cusps well developed..... = *PHIOMIA* Andrews.

Genotype: *Phiomia serridens* Andrews and Beadnell, 1902.

***Palæomastodon parvus* Andrews, 1905**

Andrews, 1905, Geol. Mag., Dec. V, N. S., II, pp. 562, 563.

Type fig.: Andrews, 1906, 'Descr. Cat. Tertiary Vertebrata of Fayûm, Egypt,' p. 163, fig. 55.

American Museum specimens: No. 13497 from Fluvio-marine formation.

***Palæomastodon intermedius*, new species**

Type: American Museum No. 14547; fragment of left mandibular ramus, bearing all three molars *in situ*, with parts of alveoli of penultimate and last premolars.

Paratype: American Museum No. 13480; a fragment of left mandibular ramus bearing last molar and posterior root of penultimate molar *in situ*.

American Museum referred specimens: Nos. 13449, 14548.

All from Fluvio-marine formation.

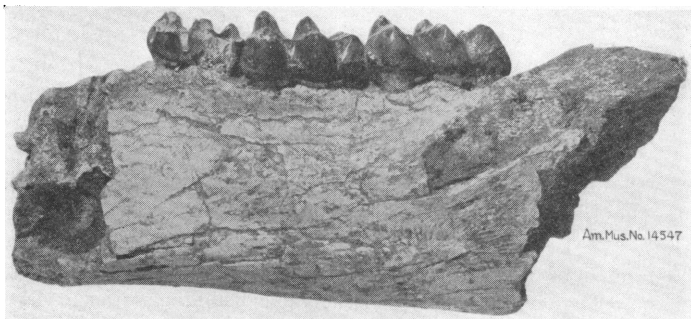


Fig. 1. Type specimen of *Palæomastodon intermedius*, new species. Matsumoto. Amer. Mus. No. 14547, Fayûm Collection. Slightly over one-fourth natural size.

The palate of paratype specimen of *Palæomastodon intermedius*, No. 13499, measures as follows:

Length from the frontal plane tangential to the anterior limits of the crowns of the two P ² to the tip of the posteriorly directed process at the posterior limit of the median suture between the two palatines.....	250 mm.
Distance between the two P ²	53 mm.
Distance between the two M ¹	77 mm.
Distance between the two M ³	75 mm.

All the upper molars are distinctly bilophodont, as a generic character; the rudiment of the third ridge being much feebler and much less conspicuous than that of the lower molars. The mode of wearing corresponds well to what is stated of the lower molars. Besides, all the generic characters of all the cheek teeth of this species are the same as those stated in the diagnosis of the genus.

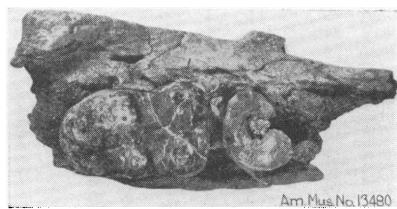


Fig. 2. Paratype specimen of *Palæomastodon intermedius*, new species. Amer. Mus. No. 13480, Fayûm Collection. Slightly over one-third natural size.

***Palæomastodon beadnelli* Andrews, 1901**

Andrews, 1901, Tagebl. d. V, Intern. Zoöl. Congress, Berlin, No. 6, p. 4.

Type fig.: Andrews, 1901, Geol. Mag., Dec. IV, N. S., VIII, text fig. 1, A, B, p. 401.

American Museum referred specimen: No. 13481.

***Phiomia (minus) minor* Andrews, 1904**

(*Palæomastodon beadnelli* Andrews, 1901; *Pal. barroisi* Pontier, 1907.)

Andrews, 1904, Geol. Mag., Dec. V, N. S., I, p. 115.

Type fig.: 1906, Pl. xiv, figs. 1, 1A, text fig. 50D.

American Museum referred specimens: Nos. 13469, 13471, 13475, 13483, 13486, 13448, 13455, 13461, 13464, 13465, 13467.

***Phiomia wintoni* Andrews, 1905**

(*Phiomia serridens* Andrews and Beadnell, 1902; *Palæomastodon beadnelli* Andrews, 1901; *Pal. wintoni* Andrews, 1905; *Pal. barroisi* Pontier, 1907.)

Andrews, 1905, Geol. Mag., Dec. V, N. S., II, p. 563.

"The paratype (Andrews' fig. 3) of *Phiomia serridens* is merely a hyracoid, as subsequently referred to by Andrews himself."

Type fig.: Andrews, 1906, p. 157, fig. 53.

American Museum referred specimens: Nos. 13470, 13474, 13476, 13477, 13484, 13485, 13494, 13450, 13451, 13452, 13453, 13454, 13456, 13457, 13458, 13459, 13460, 13479, 13482, 13488, 13489, 13491, 13492, 13493, 13327, 13463, 13466.

***Phiomia osborni*, new species**

Type: American Museum No. 13468; a nearly complete mandible, bearing all the teeth *in situ*.

Type fig.: Fig. 3 of this paper.

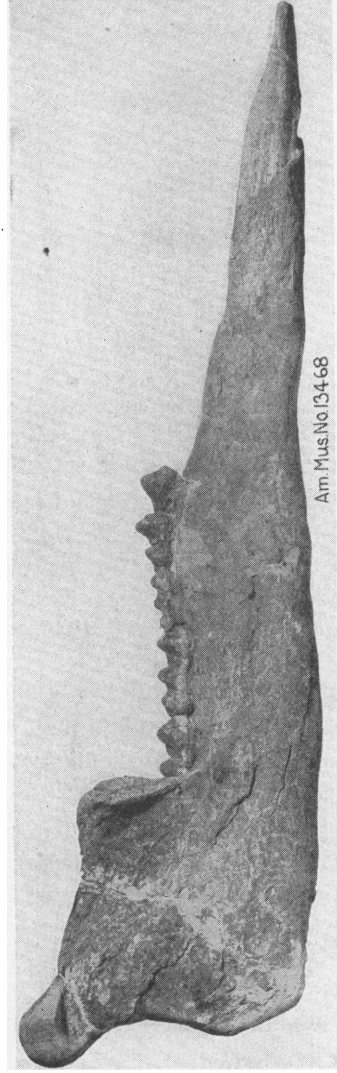


Fig. 3. Type specimen of *Phiomia osborni*, new species. Amer. Mus. No. 13468, Faydm Collection. One-fifth natural size.

This species, *Phiomia osborni*, appears to be more progressive than *Phiomia minor* and *Phiomia wintoni* in the better developed posterior ridge of the first and second lower molars and in the better developed posterior talon of the last lower molar; and to be more archetypal than the same in the more gradual increase in size posteriorly of the lower cheek teeth.

II.—MÆRITHERIUM

Genotype: *Mæritherium lyonsi* Andrews, 1901

Andrews distinguishes three species of *Mæritherium*:

M. lyonsi Andrews, 1901. Large form from Qasr-el-Sagha. Matsumoto does not specify a type but gives dimensions of Andrews' specimen, Geol. Mag., Dec. IV, N. S., VIII, pp. 403-405, fig. 2, p. 403. Some of the dimensions are estimated from Andrews' figures.

M. gracile Andrews, 1902. Small form from Qasr-el-Sagha formation. (Geol. Mag., Dec. IV, N. S., IX, p. 292.)

Type fig.: Andrews, 1906, Pl. xvii, figs. 1, 2.

M. (trigodon) trigonodon Andrews, 1904. Small form from Fluvio-marine formation. (Geol. Mag., Dec. V, N. S., I, p. 112.)

Type fig.: Andrews, 1906, Pl. ix, fig. 5.

Schlosser divided Andrews' *M. lyonsi* into *M. lyonsi*, restricted, large form from the Qasr-el-Sagha formation, and *M. andrewsi*, large form from the Fluvio-marine formation.

He considered the small forms to be based upon sexual characters only. Matsumoto considers that the name *M. trigodon* has precedence of *M. andrewsi*.

Matsumoto identifies in the American Museum material:

1. Large form from Qasr-el-Sagha formation, part of No. 13444.

Mæritherium lyonsi Andrews, 1901.

2. Small form from Qasr-el-Sagha formation, No. 13443, part of 13444, 13445, 13446. *Mæritherium gracile* Andrews, 1902.

3. Large form from Fluvio-marine formation.

Type fig.: Andrews, 1906, Pls. VIII, IX. Specimens provisionally referred to *M. lyonsi*.

American Museum Nos. 13432, 13437.

Mæritherium andrewsi Schlosser, 1911.

4. Small form from the Fluvio-marine formation, Nos. 13430, 13431, 13433, 13435, 13436, 13439. (Andrews, 1904, Geol. Mag., Dec. V, N. S., I, p. 112.)

NOTE BY HENRY FAIRFIELD OSBORN, August, 1922.—(1) The significance of the above revision is that the true *Palæomastodon beadnelli* has bilophodont intermediate molars and a relatively broad skull; it is a rare animal both in the British Museum and American Museum collections; according to Andrews (1922) the genotype (*Palæomastodon beadnelli*) was found at the very base of the Fluvio-marine Beds, Lower Oligocene, 50 or 100 feet BELOW the *Phiomia* level. The original type specimen was destroyed in the Custom House at Cairo, but the type is fortunately now represented by the British Museum cast. Associated with the type is a very large femur and humerus.

(2) *Phiomia*.—The various specimens of *Phiomia* were found 50 or 100 feet ABOVE the type level of *Palæomastodon beadnelli*; the genotype (*Phiomia serridens*) is a very immature specimen close in size to the type of *Phiomia minor* which may be a synonym; the genotype is validated by an immature milk tooth specimen of a slightly larger animal. *Phiomia* is a very long-jawed animal, with trilophodont intermediate molars, whereas *Palæomastodon* is a relatively short-jawed animal, with bilophodont intermediate molars.

(3) Matsumoto's revision of these genera conforms to Andrews' observations of 1905, p. 562: "The species of *Palæomastodon* fall into two sections, in one of which the posterior end of the symphysis of the mandible is situated considerably in front of the level of the anterior premolar, while in the other it is only very little in front of that point. The first group, moreover, is distinguished by the comparative simplicity of the molars, in which the accessory cusps are scarcely at all developed, and by the small size of the talon of the last lower molar; into this subdivision the original species, *P. beadnelli*, falls, together with a much smaller form for which the name *P. parvus* is now proposed. The type-specimen of this new species is the right ramus of the mandible, with the premolars and molars *in situ*, though somewhat crushed."

Dr. Andrews has also kindly reviewed the matter (letter July, 1922), and while he does not specifically confirm Matsumoto's revision, he does not offer to dissent from it.

