

**Article XIII. — MILK DENTITION OF THE HYRACOID  
SAGHATHERIUM FROM THE UPPER EOCENE  
OF EGYPT.**

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I am indebted to my friend Professor Eberhard Fraas for a second opportunity to describe a fossil Hyracoid. The first was that afforded by the description of *Pliohyrax* from the Lower Pliocene of Samos. The present is that afforded by the kind transmission of a specimen from the Upper Eocene of the Fayûm, No. 11579, "Coll. Markgr. 1905," Stuttgart Museum.

The specimen consists of the anterior portion of the skull, which appears to correspond closely with *Saghatherium antiquum* of Andrews and Beadnell. Unlike the type of that species, which contains the adult dentition, the present specimen is in the milk stage; the permanent premolars and second and third molars not yet having erupted. The series is complete from the milk canine to the first permanent molar ( $m^1$ ).  $M^2$  is seen imbedded in the jaw while  $m^3$  has not yet formed. The permanent  $p^3$  is also embedded above the crown of  $dp^3$ . This interpretation is supported by the following observations: (1) The two alveoli of the most anterior cheek tooth indicate a two-rooted premolariform canine, as in the adult dentition of *Pliohyrax*, *Saghatherium*, *Megalohyrax*. (2) The crown of the tooth we have called  $m^1$  is much less worn and more hypselodont than that of  $dp^4$ . (3) In *Hyrax* the milk teeth and  $m^1$  are in use together, while  $m^2$  is buried in the jaw, and  $m^3$  has not yet formed;  $m^2$  apparently comes into use during the replacement, while  $m^3$  does not come into use until after the permanent premolars are all in place and more or less worn. As shown in the accompanying drawings, which are reproduced natural size, the cheek teeth are of the lophoselenodont type, that is, with short and very oblique well formed transverse crests in which the distinctness of the conules is apparent only on the protoloph. The ectoloph consists of two crescentic para- and metacones separated by a mesostyle which is far more prominent and distinct than in the existing genus *Hyrax*. The parastyle is also relatively more prominent. The internal cingulum is slightly less developed than in the milk teeth of *H. capensis*.

*Milk Premolars.* — Whereas in the type of *Saghatherium antiquum* the adult premolars exhibit imperfectly formed transverse crests

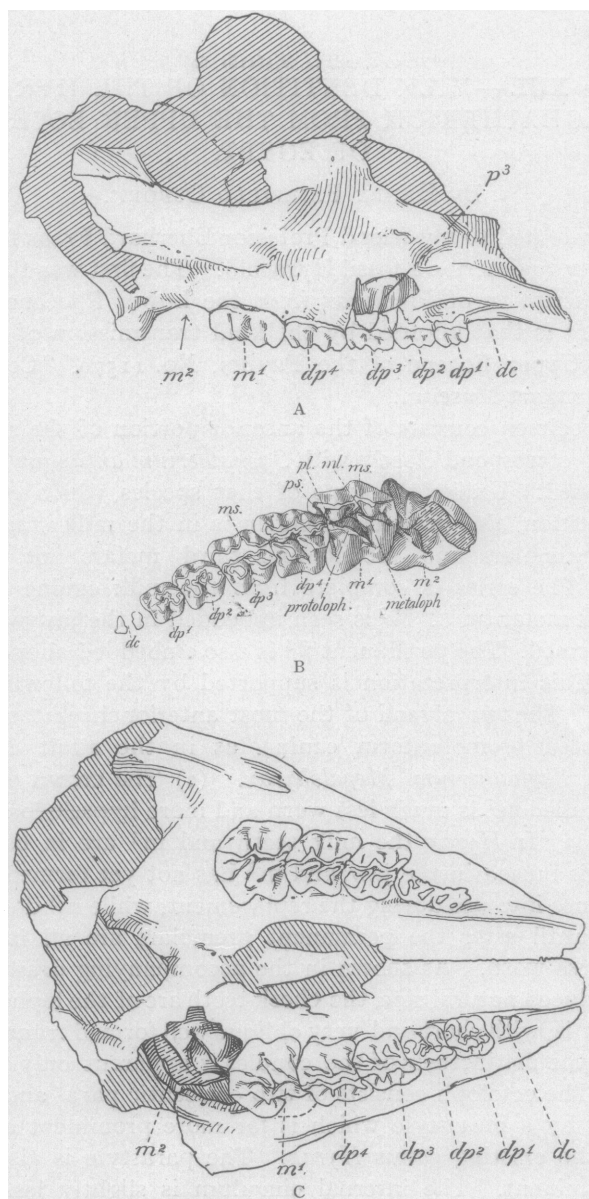


Fig. 1.—*Saghattherium antiquum* Andrews and Beadnell. No. 11570 Coll. Markgr. 1905, Stuttgart Museum. A, sideview of upper jaw and teeth; B, crown view of cheek teeth, left side; C, palatal view, upper jaw and teeth. All figures natural size.

in the milk dentition of the present specimen the premolars exhibit two well defined crests, protoloph and metaloph, and further resemble the molars in the presence of the mesostyle: on the whole the structure is simpler than that of the molars but of the same type. A small tubercle in the middle of the adult premolars of *S. antiquum* does not appear here.

#### COMPARATIVE MEASUREMENTS IN MILLIMETERS.

(Measurements of *Pliohyrax*, *Megalohyrax*, estimated from the published figures.)

	<i>Hyrax capensis</i>	<i>H. syriacus</i>	<i>Saghatherium minus</i> (type)	<i>S. antiquum</i> (No. 11579 Stuttgart)	<i>S. antiquum</i> (type)	<i>Pliohyrax kruppii</i> (type)	<i>Pliohyrax græcus</i> (fide Forsyth Major)	<i>Megalohyrax eocæus</i> (type)
dc.-m <sup>1</sup> , length	25	—	—	39	—	—	—	—
c-m <sup>3</sup> , " "	—	39	—	—	62	115	—	177
dc-dp <sup>4</sup> , " "	19	—	—	29	—	—	—	—
m <sup>1</sup> -m <sup>3</sup> , " "	—	20	20	—	34	59 <sup>e</sup>	85 <sup>e</sup>	"86"
m <sup>1</sup> ant. post. *	6	7	—	8	8	19	19	24 <sup>e</sup>
m <sup>1</sup> transv. †	6	7	—	9	10	21	26	27 <sup>e</sup>
m <sup>2</sup> ant. post. *	—	8	—	11	10	20	25	27 <sup>e</sup>
m <sup>2</sup> transv. †	—	7	—	10	11	21	31	33 <sup>e</sup>
m <sup>3</sup> ant. post. *	—	7	—	—	12	—	40	35 <sup>e</sup>
m <sup>3</sup> transv. †	—	7	—	—	11	—	35	30 <sup>e</sup>

\* Shortest ant. post. diam. along the middle line.

† Shortest transv. diam. mesostyle to mid-internal border.

The dimensions of the skull and position of the posterior opening of the palate may be obtained from the drawings. The palate appears to open more posteriorly than in the adult *H. syriacus*, but this is because m<sup>3</sup> has not yet been formed; the dental series converge more decidedly anteriorly than in the adult *H. syriacus*, but each tooth now is much less curved than in the milk dentition of that species.

This specimen decidedly confirms the general resemblance of these Eocene animals to the modern Hyracoids.

Comparison of the published figures and of the appended table of measurements brings out the following facts:

(1) *Saghatherium minus* may have been not much larger than *Hyrax syriacus*.

(2) *Pliohyrax græcus* is apparently separable from *Megalohyrax* by the oblique ectoloph of m<sup>3</sup>, which ends in a backwardly produced spur, also by the greater hypselodonty and greater relative breadth of the molars.

(3) *Pliohyrax kruppii* is smaller than *P. græcus* but is apparently generically identical with it.

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