III.—ON THE MILK DENTITION OF *PALÆOTHERIUM MAGNUM*.

By Professor HUXLEY, LL.D., F.R.S.

(PLATE VI.)

IN the British Museum there is the right ramus of the mandible of a young *Palæotherium magnum*, obtained by M. Bravard from the Eocene strata of Vaucluse, which possesses a peculiar interest, inasmuch as the three principal milk molars are completely cut, though their unworn crowns show that they have not long been in place. The ramus itself must have been nearly eight inches long when it was complete, while the distance from the articular surface of the condyle to the lower margin is about 3·25in. The symphysial surface is oval, rugose, and extends back nearly as far as the anterior margin of the crown of the first visible grinder; the anterior, or mental region of the ramus, is inclined upwards and forwards, and is slightly convex, as in all the true *Palæotheria*. In front of the most anterior milk molar which is in place, there is an oval fossa about 0·2in. long; which appears to lead into the alveolus of the proper first milk molar (dm^1); and further forward (but not more than 0·2in., so that the diastema of the milk teeth must have been exceedingly short) a series of depressions on the truncated anterior end of the ramus represent the bottoms of the alveoli of the canine and incisors.

The ramus of the mandible of an adult *Palæotherium magnum*, in the same collection, can hardly have been less than 15 inches long. The diastema between the small first grinding tooth and the great canine is about 0·8in. long, and the symphysis extends back to a little behind the anterior edge of pm^2 .

The three milk molars which are in place (viz., dm^2 , dm^3 , and dm^4) in the jaw of the young *Palæotherium*, occupy a length of 3·6in., which is identically the same space as that taken up by the second, third, and fourth premolars of the adult jaw.

The length of the crown of	dm^2	; of	pm^2 .
is	1·07in.	"	1·10in.
"	dm^3	"	pm^2 .
"	1·23	"	1·2
"	dm^4	"	pm^4 .
"	1·25	"	1·25

The individual teeth, therefore, correspond in length as nearly as possible.

The height of the crown, measured from the alveolar margin to its highest point, of	dm^2	; of	pm^2 .
is	0·6in.	"	0·9in.
"	dm^3	"	pm^3 .
"	0·8	"	1·0
"	dm^4	"	pm^4 .
"	0·92	"	1·05

Thus the crowns of the grinding teeth of the adult are all not only absolutely higher than those of the young, but, relatively, they are much higher. The vertical striæ on the enamel are also more

coarse, and the cingulum which surrounds the whole base of the crown is stronger in the adult.

The patterns of the crowns of the milk molars present the closest resemblance to those of the crowns of the corresponding premolars. The anterior division of the crown of dm^2 , however, is more nearly straight than that of the crown of pm^2 , so that dm^2 departs more from the bicuspid pattern than pm^2 does. The sharp backwardly directed ridge (Plate VI., Fig. A, a) upon the outer face of the anterior division of this tooth, which takes the place of the rounded and convex surface of the anterior crescent of the other teeth, appears to be somewhat more marked in the milk than in the permanent tooth. I can discern no differences of more than individual value between the other milk teeth and those permanent teeth which replace them.

In the adult dentition, the hindermost molar has, as in all other Palæotherian mammals, a strong posterior lobe, with a convex outer and concave inner aspect. It is 0.7 in. long, or nearly a third as long as the whole crown, which measures 2.2 in.

The milk dentition of the Rhinoceroses and of the Horses is, at one period, in a condition which exactly corresponds with that of *Palæotherium magnum*. That is to say, the three posterior milk molars, dm^2 , dm^3 , dm^4 , are in place and ready for use, while dm^1 remains in its alveolus, and is only cut very much later.

The foal differs from the young *Palæotherium* in the length of the crown of dm^2 , which is as great as, if not greater than, that of the crowns of the other two milk molars; in the greater distance of the alveolus of dm^1 from dm^2 , and in the much greater length of the diastema.

In the Rhinoceroses on the other hand (e.g. *Rh. indicus*) dm^2 is smaller in proportion to dm^3 than in the *Palæotherium*, and, if there were a canine tooth, the diastema would be as short as in the latter.

In the form of the ramus the Horse lies between the *Palæotherium* and the Rhinoceros.

It follows, from what has been stated, the rule which has been laid down for the *Ungulata* in general, that the crown of the last milk molar in the lower jaw always resembles that of the last true molar, does not hold good for *Palæotherium*. The genus *Paloplotherium* was founded upon the supposition that it did, and Pictet in the following passage very properly bases the distinctness of *Paloplotherium* from *Plagiolophus*, only on the ground that *Paloplotherium* is asserted to have no third lobe to its posterior lower molar.

Il résulte de là :—1. Que le *P. minus* et le *P. annectens* se ressemblent par tout l'ensemble de leur dentition, et qu'ils diffèrent par plusieurs points essentiels des vrais *Palæotherium*.

2. Qu'ils se distinguent cependant l'un de l'autre par la forme de la dernière molaire inférieure, qu'elle est à trois collines dans le premier et à deux dans le dernier.

3. Que le *P. annectens* doit en conséquence former un sous genre spécial qui conserverait le nom de *Paloplotherium*, donné par M. Owen, et que le *P. minus* est le type d'un autre sous genre très

voisin, mais distinct, auquel doit être attribué le nom de *Plagiolophus*, Pomel.¹

The first volume of Pictet's "Paléontologie" was published in 1853. The "Memoire" from which the extract just quoted is given, appeared in 1855; so that if M. Pictet rectified the character of *Paloplotherium* in the former year, he rectified his rectification in the latter.

As the originator of the error by which Pictet was misled now admits (what was very well known before) that the genus *Paloplotherium* was founded upon a mistake,² of course it disappears from zoological nomenclature, unless, indeed, it be retained for M. Gaudy's *P. codiciense*, which is very different from *Plagiolophus*.

March, 21, 1870.

EXPLANATION OF PLATE VI.

The right ramus of the mandible of a young *Palæotherium magnum*, of the natural size, with three milk molars. From the Eocene of Vauluse.

A. Viewed from the outer side.

B. The crown of the teeth seen from above.

C. Viewed from the inner side.

IV.—NOTES ON THE TERTIARY ENTOMOSTRACA OF ENGLAND.

By Prof. T. RUPERT JONES, F.G.S., of the Royal Military College, Sandhurst.

IN the February number of the GEOLOGICAL MAGAZINE is a revised list of the Cretaceous Entomostraca, described and figured in my Pal. Soc. Monograph of 1849; and I now propose to offer a revision of the Tertiary Entomostraca published in my Pal. Soc. Monograph of 1856. The general observations on the subject offered in February will hold good in this instance also. A corrected list of the generic and specific names is appended; and to this the numbers in the following notes refer.

No. 1. Mr. G. S. Brady has pointed out (Monogr. Recent Brit. Ostrac., Trans. Linn. Soc., vol. xxvi., 1868, p. 382) that this must be the same as *Candona compressa*, Koch, sp.

No. 3. Mr. Brady (*op. cit.* p. 374) refers this to Müller's *Cypris levis*.

No. 5. This is a *Cypris* according to Mr. Brady (*op. cit.* p. 370).

Nos. 6 and 7. These were referred to *Candona*, on account of their general agreement in shape and *lucid spots* with the foregoing (No. 5); but, like it, they may really belong to *Cypris*.

No. 9. Mr. Brady finds this living in the British Seas (*op. cit.* p. 408).

No. 10. Mr. Brady has taken great trouble with this species. He believes it to be a true *Cytheridea*; and he regards the smooth form (Monogr. Tert. Entom. pl. 2, fig. 1e) as belonging to a different species (*C. littoralis*). There has been much confusion in the nomenclature of this species, which, with some allies, has been found in several localities; but Mr. Brady has done much to clear up the

¹ Mémoire sur les Animaux Vertébrés trouvés dans le Terrain siderilitique du canton de Vaud (p. 36).

² See the last number of the GEOLOGICAL MAGAZINE, p. 143.