the present creation. Pictet compares *Rhinellus* with *Belone*, and refers it to the family of *Esocidæ* as defined by Cuvier, who associated *Belone* with *Esox*. But the position of the dorsal fin in the middle of the body is too important a difference to admit such a union, either with the *Esocidæ* proper, or with the *Scomberesocidæ*.

EXPLANATION OF PLATE VI.

The principal figure is reduced in size, in the proportion of the two lines drawn below it. One of the scutes, from the right abdominal series, is drawn twice the natural size.

ABSTRACTS OF FOREIGN MEMOIRS.

DISCOVERY OF *PALOPLOTHERIUM* IN THE 'CALCAIRE GROSSIER SUPÉRIEUR.'

IN the 'Comptes Rendus,' vol. lviii., No. 21, May 23, 1864, M. A. Gaudry states that the Museum of Natural History, Paris, has from time to time received from M. Geurin, of Coucy-le-Château (Aisne), many portions of *Paloplotherium*, which have been found in the 'Calcaire Grossier,' of Jumencourt. The remains consist of an almost perfect skull, the two rami of a lower jaw, several other jaws, the upper portion of a radius, an astragalus, some fragments of the pelvic arch, and of the scapula.

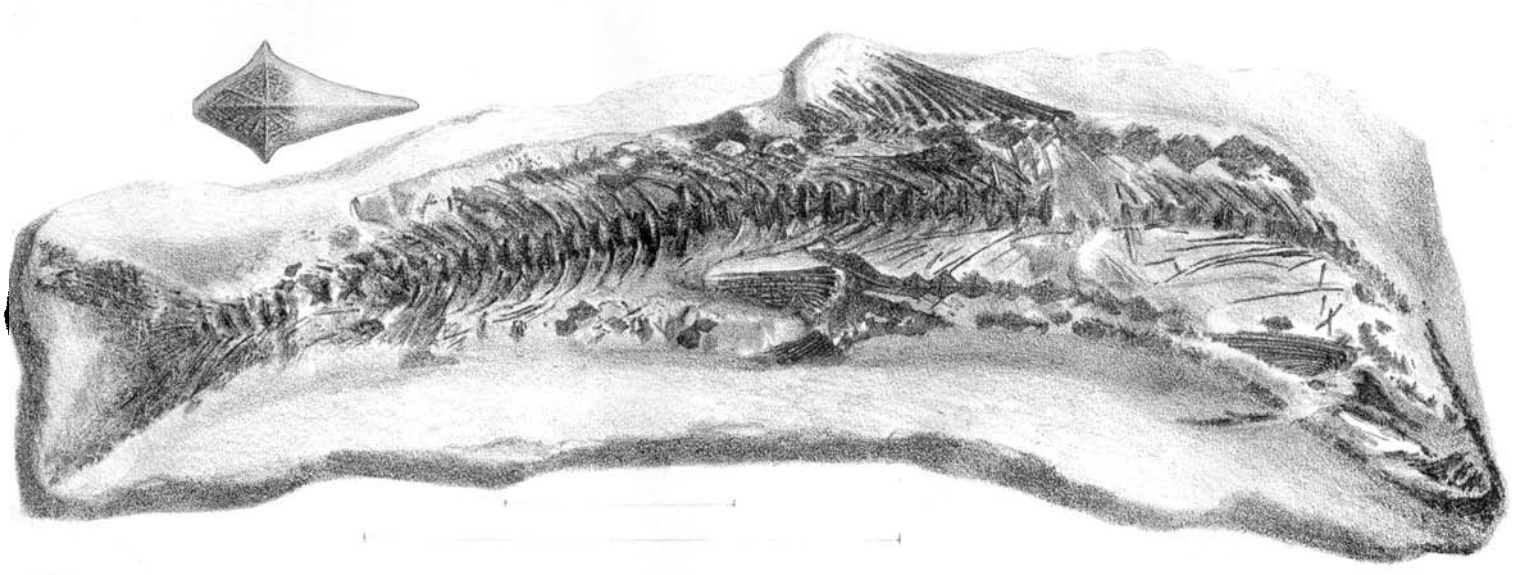
Paloplotherium has hitherto been unknown in the 'Calcaire Grossier.' The type of the genus is *P. annectens* (Owen), from the lacustrine beds of Hordwell, Hampshire, to which species that from Coucy bears a great resemblance. It has, however, four upper premolars, whilst the Hordwell species has three; the last upper premolar is a little narrower forwards, its external surface is not divided in the same way into two by a vertical ridge; the crown has no indication of a division into two parts; and the last lower molar has three lobes, whilst in *P. annectens* there are only two: still in a specimen from the Débruge, near Apt, referred by M. Gervais to that species, there are three lobes.

Palæotherium minus, Cuvier, has been placed in the genus *Paloplotherium*; it is much smaller than the Coucy fossil, and has only three upper premolars, the last of which is divided into two lobes and bears a vertical ridge across the middle of its outer surface.

The remarks of M. Aymard on the fossil of Puy, called by him *Palæotherium ovinum*, show that it ought to be placed in the genus *Paloplotherium*; but they are not sufficient for the determination of the species. If the *Paloplotherium* of Coucy differs from *P. ovinum*, M. Gaudry proposes to name it *Paloplotherium Codiciense*.

The principal differences in the species of *Paloplotherium* are as follows:—

There are three upper premolars in *P. annectens* and *P. minus*, four in *P. Codiciense*. The last upper premolar has four fangs in *P. annectens*, whilst there are three in *P. minus* and *P. Codiciense*. The hind molar in the lower jaw has two lobes in *P. annectens*; but



J. Dinkel, lith.

W. West, imp.

PLINTHOPHORUS ROBUSTUS. *Gthr*

in the *Paloplotheria* of the Débruge and of the Paris Basin there are three. The absence of a slight prominence on the inner surface of the lower molars is not very constant; it is hardly visible in *P. annectens* and *P. Codiciense*, but is very well shown in *P. minus*. The ridges of enamel which have been pointed out as occurring on the posterior portion of many of the molars constitute a peculiarity of equally slight importance.

Besides these unstable characters, there is one which is sufficiently persistent to warrant the generic separation of *Paloplotherium* and *Palæotherium*; in the former the back molars are markedly distinct from the premolars, whereas in the latter, all the molars and premolars, except the first premolar, are similar. This difference, however, is not even strictly defined in the three species of *Paloplotherium*; in *P. minus* the last premolar resembles more the hind molars than in *P. annectens*, and still more than in *P. Codiciense*.

It is interesting to note these modifications in relation to time. *P. Codiciense* is the oldest known form of the Palæotherian type, and is the farthest removed from the true *Palæotheria*. After it comes *P. annectens*, which is less distinct. Afterwards, in the 'époque du gypse,' there appears *P. minus*, so much resembling some species of *Palæotherium* that Cuvier considered it referable to that genus. The range in time of *Paloplotherium* is very limited; since the Miocene age it has been replaced by *Acerotherium*.—R. T.

Observations sur les principaux Eléments du Terrain Quaternaire; sur les Théories proposées pour en expliquer la Formation; et sur l'Age de l'Argile à Silex. Par M. E. Hébert. (Bullet. Soc. Géol. France, 2me Sér. vol. xxi. p. 58, &c.)

IN this memoir (read 16th November, 1863) the author compares the opinions of M. de Mercey and himself with regard to the Quaternary deposits of Picardy, in which of late years so many real, as well as some suspicious, remains of pre-historic man have been discovered. 1. He agrees that the clay of the plateaux in Picardy, regarded by M. Buteux as contemporaneous with that of the valleys, may be the most ancient of the Quaternary series; but he is not yet satisfied with the evidence. But he points out that, if so, this plateau-clay must be different from the *Limon Hesbayen* of Dumont, which has been identified by Lyell ('Antiq. Man') with the *Loess*; and different also from the clays worked at St. Acheul above the red gravel, which M. Buteux has regarded as the continuation of the plateau-clay. He points out also the close resemblance of the brick-clay of St. Acheul with that of Menchecourt as presenting a difficulty yet unexplained.

2. M. Hébert then alludes to the red gravel, pointing out its great importance and the small attention that he considers it has hitherto received. It is traceable over a large part of northern France. Under the name of 'old alluvium,' M. d'Archiac has connected it with the Loess of the Rhine; but with this view M. Hébert does not agree. It is in the red gravel that the original discoveries of M. Boucher de Perthes was made. Its uniform presence over a wide

tract renders it important as a land-mark, and as proving the greater antiquity of underlying 'diluvial' beds.

3. The gravel of Moulin Quignon is considered to be derived from débris washed down the slope of the hill, and to be a mixture of rolled flints with red gravel, whose date is not determined. It follows, of course, that, according to this view, the Moulin Quignon beds are newer than the red gravel.

4. The loess, or marly loam of Picardy, overlying the grey gravel, is regarded as older than the red gravel, and older than the loess of Paris.

5. In considering the various explanations of the deposits of the Quaternary period, M. Hébert does not adopt the theory that the Loess was the mud of the glaciers once covering Europe. He shows a section in which the red gravel covers and penetrates the Loess and upper beds of grey gravel, filling large and irregular swallow-holes, and affecting the upper beds of the Calcaire Grossier, at a height of 180 feet (55 mètres) above the sea, in precisely the same manner as it affects the grey gravel. He points to the agency of acid thermal waters as worthy of consideration; but thinks that for the present the sea and marine currents afford the best explanation, pointing out the terraces and parallel roads of Picardy as analogous to those of Glen Roy and others in the British Islands.

6. The age of the 'clay with flints' (*argile à silex*) of Picardy M. Hébert believes to be still doubtful. He had formerly regarded it as contemporaneous with the plastic clays of Picardy; but more recently has come to the conclusion that it is more ancient, as he finds sections in the Forest of Dreux in which the superposition of the plastic clay on this *clay with chalk-flints* is clear, and there is an intermediate bed of white and yellow sand. He remarks the similarity in the circumstances of deposit, when this clay is compared with the red gravel.—D. T. A.

NOTES ON FOREIGN GEOLOGY AND MINERALOGY.

By Dr. T. L. Phipson, F.C.S., &c.

The Mineral Riches of Roumania.—The Lake of Balta-Alba.—On the Colouring-matter of the Emerald.—Fossil Musk-ox at Précy.—Great Quantity of Human Remains from Moulin Quignon.

M. P. POENAR has written in the Belgian journal 'Le Progrès par la Science,' an interesting account of the *Mineral Resources of Roumania*, one of the Danubian Provinces. I will endeavour to condense the results of M. Poenar's observations:—

Several streams and rivers of Roumania are *auriferous*, especially the Olto, the Argis, the Dîmbovitza, and the Talomitza. The gold-washers find now and then grains of a considerable size adhering to a quartz-gangue.—Carbonate of *copper* is met with in the district of Mehedintzi, on the River Bîrza; copper-mines were worked when the Austrians occupied Little Wallachia, at Baja-de-Rama, the name of which hamlet signifies in English 'Mines of Copper.'—Carbonate and oxide of *iron* are met with in the district of Vilcca, also in those of Prahova, Comarnik, and Focsani, at the source of the River Rîmnik, where iron-ore is very abundant, and