

lithologically, but more certainly and effectually by their fossils, which our paper shows only need a little extra perseverance to be detected almost everywhere. It may be urged that if we draw the lines of separation at the horizons mentioned, these boundaries will have as strange an appearance on the map as a diagram of the contortions to which their irregularities are due. But for the purpose of science, the strata must be separated, if not in the present, then in the future, and wherever the divisional lines may be drawn, the same difficulties will occur.

One thing is plain from the large list of fossils we have discovered—all that is necessary is careful untiring work amongst these strange old strata, and these will in time fall into their proper groups, and form as grand and interesting a series as the typical Silurians themselves.

NOTICES OF MEMOIRS.

I.—ON THE FOSSIL MAMMALS OF AUSTRALIA.—Part V. Genus *Nototherium*, Owen.¹

By Prof. R. OWEN, F.R.S.

THE genus of large extinct Marsupial herbivores which forms the subject of the present paper was founded on specimens transmitted (in 1842) to the author by the Surveyor-General of Australia, Sir Thomas Mitchell, C.B. They consisted of mutilated fossil mandibles and teeth. Subsequent specimens confirmed the distinction of *Nototherium* from *Diprotodon*, and more especially exemplified a singular and extreme modification of the cranium of the former genus. A detailed description is given of this part from specimens of portions of the skull in the British Museum, and from a cast and photographs of the entire cranium in the Australian Museum at Sydney, New South Wales. The descriptions of the mandible, and of the dentition in both upper and lower jaws, are taken from actual specimens in the British Museum, in the Museum of Natural History at Worcester, and in the Museum at Adelaide, S. Australia, all of which have been confided to the author for this purpose. The results of comparisons of these fossils of *Nototherium* with the answerable parts in *Diprotodon*, *Macropus*, *Phascolarctos*, and *Phascolumys* are detailed.

Characters of three species, *Nototherium Mitchelli*, *N. inerme*, and *N. Victoriae*, are defined chiefly from modifications of the mandible and mandibular molars. A table of the localities where fossils of *Nototherium* have been found, with the dates of discovery and names of the finders or donors, is appended. The paper is illustrated by subjects for nine quarto plates.

¹ Abstracted from the Proceedings of the Royal Society, No. 129, 1871.

II.—ON THE PRESENCE OF A REPTILE OF THE MOSASAURIAN TYPE
IN THE UPPER JURASSIC FORMATIONS OF BOULOGNE-SUR-MER.¹

By M. H. E. SAUVAGE.

THE most ancient Mosasaurian known is the *Geosaurus Semmeringii*, of Monheim and Solenhofen. This last-named locality belongs to the Lower Kimmeridgian; nor have any been heretofore noticed higher up in the Jurassic series. Re-appearing in the Greensand of New Jersey (where we find *Geosaurus Mitchelli*, and *Mosaurus Maximiliani*), this type is extended to the Lower Chalk by the *Mosaurus Hofmanni* and *M. gracilis*. There is then a break in the life of the Mosasaurian type, but only an apparent break, for the types are always continuous throughout the whole period; they never disappear entirely, and then re-appear higher up: such breaks are only the result of the imperfect state of our knowledge.

Prof. Owen has published, under the name of *Leiodon*, a reptile of the Mosasaurian type, characterized by its teeth, of which the inside is as convex as the out, and whose crown, of an elliptical form, is bordered on each side by a sharp edge.

The only known species, *Leiodon anceps*, occurs in the Chalk of Norfolk and of Meudon. It is to this genus *Leiodon* that the teeth, and a fragment of jaw found in the Middle Portland Marls of Portel, near Boulogne, and in the clays which form the Upper Kimmeridgian, belong; this genus is also found a little lower, namely, in the zone of *Ammonites longispinus* of the Middle Kimmeridgian. The genus *Leiodon* appears then almost as early as the genus *Geosaurus*, and has lived during the Upper Jurassic epoch, along with the *Steneosauri*, the *Pliosaurus*, *Megalosaurus*, and *Pterodactyle*; we have, in fact, found these genera again in our Kimmeridge and Portland strata.

The species which we propose to name *Leiodon primævum* is characterized by smooth strong teeth, more or less large and curved, according to the place which they occupy, with faces regularly convex, separated on each side by a strong sharp cutting edge running from the base to the crown, which is pointed. The largest teeth are 65 millimètres high, the diameters near the base being 25×18 . As M. P. Gervais has remarked, it is wrong that "they described the teeth of the *Mososauri* as really acrodont, like those of many of the true Saurians." In our *Leiodon* the teeth are inserted in large and deep sockets, which occupy nearly the whole depth of the jaw; the root therefore is closely united to the body of the bone by the bed of cement which surrounds it; the pulp-cavity is filled with a mould of calcareo-siliceous matter, arising from petrification; this cavity, which regularly and imperceptibly contracts, runs from the base of the root to near the crown of the tooth; extending to a little above the half of the latter. The Pterygoid bones were very probably furnished with smaller teeth, one of the faces of which is visibly flatter.

¹ Read at the meeting of the Académie des Sciences, July 10th, 1871.