PROCEEDINGS OF LEARNED SOCIETIES.

GEOLOGICAL SOCIETY.

December 20, 1882.—J. W. Hulke, Esq., F.R.S., President, in the Chair.

The following communication was read:—

"On Generic Characters in the Order Sauropterygia." By Prof. Owen, C.B., F.R.S., F.G.S., &c.

After referring to the subdivision of De la Beche's group of Enaliosauria into the orders Ichthyopterygia and Sauropterygia, the author indicated that the latter showed differences in the proportional length of the neck and the number and form of its vertebræ bearing relation to the size of the head, together with modifications of the teeth, of the sterno-coraco-scapular frame and of the paddle-bones, leading to the formation of two genera, namely *Plesiosaurus* and *Pliosaurus*, the latter so called to indicate the nearer approach made by it to a generalized Saurian type. In Crocodilia the crowns of the teeth show a pair of strong enamel ridges, placed on opposite sides of the teeth; and these occur also in *Pliosaurus*, while in *Plesiosaurus* they are not present. *Pliosaurus* further approaches the fresh-water Saurians by the large size of the head and the shortness of the neck.

The author described the sterno-coraco-scapular frame in the Sauropterygia generally as consisting chiefly of a pair of large coracoid bones meeting in the middle in a straight suture, but separated by a notch anteriorly and posteriorly; in front of these is an episternum, also notched in front; and attached to this on each side is a scapula, directed outward and backward, joined at its distal part by suture to the antero-lateral margin of the coracoid, and forming the outer border of the "coraco-scapular vacuity," a rounded aperture which exists on each side in the fore part of the sterno-coraco-scapular mass. The humeral articulation is formed by the outer margin of the fore part of the coracoid and the extremity of the scapula on each side. The chief distinctive character in *Pliosaurus* consists in the retention of a typical character of the scapula which is lost in the more specialized Plesiosaurian forms, namely the production of part of the blade-bone laterad and dorsad, where it terminates freely, this portion representing the main body of the scapula in the higher vertebrates. In *Pliosaurus* this portion is separated by a large notch from that which in both genera joins the coracoid and assists to form the glenoid cavity. The latter portion also extends further mesiad than in the Plesiosaurs, so that its sutural border unites with the fore end of the coracoid, which is much produced forward. The author finds the true homology of the constituents of this sterno-coraco-scapular mass in the endo-

skeleton of the Chelonia; *Pliosaurus* shows characters resembling those of contemporary Crocodilia. A third modification of the Sauropterygian type is indicated by teeth and a portion of the skull upon which the genus *Polyptychodon* has been founded.

January 24, 1883.—R. Etheridge, Esq., F.R.S., Vice-President, in the Chair.

The following communications were read:—

1. "On *Streptelasma Rœmeri*, sp. nov., from the Wenlock Shale." By Prof. P. Martin Duncan, F.R.S., V.P.G.S.

A great number of simple corals were found amongst the washings of Wenlock Shale prepared by Mr. George Maw, F.G.S.; and most of them belong to a genus new to England, but which has been observed by Messrs. Nicholson and Etheridge at Girvan. The species now described is allied to the Scottish form, but differs in having a fossula in the calice, a smaller septal number, and fewer dissepiments and tabulæ. The author described the new species from sections and perfect corals, showing the great variability of the septal, and the persistence of the calicular arrangement, and explained the remarkable method of growth by increase at certain points of the calice only. He enlarged upon the variability of the same coral during growth, and noticed the bisymmetry of this coral. The relation of the double pinnation of the costæ to the septa was noticed, and also the relation of a constant vertical pair of costæ to the fossula. Agreeing with Messrs. Nicholson and Etheridge upon all material points regarding the diagnosis of *Streptelasma*, the author maintained that there is a true theca with costæ and not a simple epitheca. With those authors he placed the genus in the Zaphrentidæ. The morphological data indicate that transverse sections of Rugose corals are apt to mislead when taken alone as furnishing specific characters.

2. "On *Cyathophyllum Fletcheri*, Edw. & H., sp." By Prof. P. Martin Duncan, F.R.S., V.P.G.S.

This was a short communication explanatory of the finding of this coral in the Wenlock Shale with *Streptelasma Rœmeri*. The author referred to his essay in the 'Philosophical Transactions,' 1867, in which he showed that the group of *Palæocycli*, M.-Edw. & H., belonged to the genus *Cyathophyllum*—to the Rugosa and not to the Fungidæ. Milaschewitsch having associated the name of Kunth with that of the author in proving the non-Fungoid character of the group, it was explained that Kunth wrote in 1869, and that he had nothing whatever to do with the original work. The author alluded to his late researches into the nature of synapticulæ, read before the Linnean Society, and explained the probable cause of the error of the distinguished French zoophytologists in their differentiation of *Palæocyclus porpita*.

3. "On the Fossil Madreporaria of the Great Oolite of the Counties of Gloucester and Oxford." By Robert F. Tomes, Esq., F.G.S.

This paper is in continuation of the papers which the author has already published in the 'Quarterly Journal of the Geological Society.' The author called attention to the fact that there has been sometimes in the study of corals a confusion made between growth by fissiparity and by gemmation. If the former process result from the gradual conjunction of two opposite septa, so as to form a new divisional wall in the calyx, there is no risk of any such confusion; but if the separation has been by the formation of a constriction in the central part of an elongated calyx, this may be, and has been, confused with growth by gemmation.

A large number of the forms here described by the author are in the collection of Mr. T. S. Slatter, F.G.S., and were collected near Fairford, Gloucestershire. They occur in a white marly clay, occurring between the Forest Marble and the Cornbrash. A detailed section was given, and the particulars of some other coralliferous beds. These, the author showed, are not all upon the same horizon, though there is a considerable relation between their coral faunas. The author gave a description of twenty genera and thirty-four species. Of these the following genera are new to the British Oolites:—*Bathycœnia*, a new group of the family Astræidæ (*Eusmilinæ*), containing two species; *Favia*, *Astrocœnia*, *Enallohelia*, and *Trycycloseris* are for the first time recorded as occurring in the British Oolites; and *Confusastræa* and *Oroseris*, recorded by the author from the Inferior Oolite, are now added to the coral-fauna of the Great Oolite. The latter part of the paper consisted of an elaborate description of the genera and species.

February 21, 1883.—J. W. Hulke, Esq., F.R.S., President, in the Chair.

The following communication was read:—

"Notes on the Corals and Bryozoans of the Wenlock Shales (Mr. Maw's Washings)." By G. R. Vine, Esq. Communicated by Prof. P. Martin Duncan, M.B., F.R.S., V.P.G.S.

The author briefly discussed the views of different writers upon the systematic position of the genera *Chætetes*, *Monticulipora*, and their allies, and also of the forms referred to the Polyzoa, and gave a list of 39 species and varieties of Corals and Polyzoa obtained by him from Mr. Maw's washings of deposits belonging to the Wenlock series in Shropshire. These forms were referred by him to the genera *Dekayia*, *Monticulipora*, *Callopora*, *Heliolites*, *Thecia*, *Favosites*, *Syringopora*, *Halysites*, *Cœnites*, *Cyathophyllum*, *Lindstrœmia*, *Cladopora*, *Leioclema*, *Ceriopora*, and *Ceramopora*. New species are *Leioclema granatum* and *pulchellum*.

March 7, 1883.—J. W. Hulke, Esq., F.R.S., President, in the Chair.

The following communications were read :—

1. "Notes on some Fossils, chiefly Mollusca, from the Inferior Oolite." By the Rev. G. F. Whidborne, M.A., F.G.S.

The fossils described by the author are, with the exception of some in the British Museum and a few of his own collecting, in the collections from the Inferior Oolite which enrich the Bristol Museum. Several of the species are new; of these there are *Ostrea* 2, *Gryphæa* 3, *Exogyra* 1, *Pecten* 4, *Harpax* 1, *Plicatula* 1, *Placuna* 1, *Gervillia* 3, *Pinna* 2, *Lima* 11, *Mytilus* 2, *Arca* 3, *Nucula* 1, *Cardium* 2, *Cypricardia* 1, *Myoconcha* 2, *Astarte* 1, *Opis* 1, *Thracia* 1, *Pholadomya* 3, *Myacites* 1, and *Terebratula* 2, besides one or two more that are doubtful.

2. "On some Fossil Sponges from the Inferior Oolite." By Prof. W. J. Sollas, M.A., F.G.S.

Some fossil Sponges have been described from the Inferior Oolite of the continent; but hitherto none have appeared in the lists of fossils from this formation in British localities. The collection of Sponges described by the author was made by the Rev. G. F. Whidborne. The author described 11 species (6 of which he identified with those already described from continental localities) belonging to 9 genera, and concluded his paper with some general remarks. These Sponges are calcareous, but are considered by the author to have been originally siliceous, replacement of the one mineral by the other having taken place as already noticed by him. The beds in which these Sponges are found bear all the appearance of being comparatively shallow-water deposits.

3. "On the Dinosaurs from the Maastricht Beds." By Prof. H. G. Seeley, F.R.S., F.G.S.

In this paper the author described five fragmentary bones arranged among the remains of *Mosasaurus* in the Van-Breda collection when received by the British Museum. One of these is a femur wanting the distal end, and worn at the proximal extremity, $11\frac{1}{2}$ inches long, with an average thickness of about $1\frac{1}{2}$ inch, and "remarkable for its slender form, its superior bow-shape curvature, the lateral compression of the proximal articulation, and the extent to which it is directed inward, for the trochanter, which is separated from the proximal end of the bone in front, and for the proximal position and small size of the lateral trochanter." For the species indicated by this bone the author proposed the name of *Megalosaurus Bredai*.

Another femur, slightly imperfect at its articular end, $19\frac{1}{2}$ inches long, has a remarkably straight and strong shaft, subtriangular at the proximal end, subquadrate in its lower part, and bearing the lateral trochanter in the middle, and has the proximal and distal

ends modified on the Iguanodont plan. This form was considered by the author nearly allied to *Iguanodon*, and to approach *Hadrosaurus* in most points in which it differs from the former genus. He proposed to establish for it a new genus, *Orthomerus*, and to name the species *O. Dolloi*. The collection further included a tibia and metatarsal bone referable to the same form. These Maastricht Dinosaurs furnish the most recent known evidence of the existence of the order.

BIBLIOGRAPHICAL NOTICES.

The Micrographic Dictionary: a Guide to the Examination and Investigation of the Structure and Nature of Microscopic Objects. By J. W. Griffith, M.D., and Arthur Henfrey. Fourth edition, edited by J. W. Griffith, assisted by the Rev. M. J. Berkeley and T. Rupert Jones. 8vo. London: Van Voorst, 1881–3.

It is with no small pleasure that we find ourselves once more called upon to announce the completion of a new edition of this important work. Having assisted, in the French sense of the word at any rate, at the first appearance of the book in 1855, and having welcomed the second edition in 1859, the completion of which was saddened by the recent death of one of the authors, and the third edition in 1874, we not unnaturally feel considerable interest in its success, and a hope that at each successive appearance it may be found to have grown in usefulness as in bulk.

In this respect the purchasers of this fourth edition will have no reason to complain; but, from the very nature of the case, it is impossible for us to say much more on this subject than that a great amount of labour has evidently been bestowed upon the book, and that much new information has been worked into it. The alterations and new articles are necessarily so scattered through the pages of a book the contents of which are alphabetically arranged, that it is for the most part a vain effort to try to seize any thing sufficiently striking to be worthy of special mention. One article, however, we may particularly refer to, namely that on the microscopic structure of rocks, for which the editor acknowledges his indebtedness to Prof. Rutley. This article gives an excellent summary of the principles of petrology, and is illustrated by a very nice plate of coloured figures. The portions of the work dealing with the preparation and preservation of objects have hardly received so much attention as we should have expected; but the article on angular aperture has been remodelled so as to take up the results of recent researches upon this much discussed subject, and a new article on microphotography has been introduced.

Prof. Rupert Jones has again attended to the revision of the parts of the work dealing with the Foraminifera; and the general treatise