

VII.—BRIEF NOTICES.

1. ON THE SKELETON OF *ORNITHODESMUS LATIDENS*: AN ORNITHOSAUR FROM THE WEALDEN SHALES OF ATHERFIELD, Isle of Wight. By R. W. HOOLEY. Quart. Journ. Geol. Soc., vol. lxix, pp. 372-422, pls. xxxvi-xl, 1913.

In this important paper Mr. Hooley gives a very complete description of a new species of Pterodactyl, founded mainly on a remarkable specimen in which the bones are most perfectly preserved and quite uncrushed. The author was able to remove the very hard matrix to such an extent that he could find by actual trial the natural motions of the bones on one another, and in this way to study the mechanics of the reptile's wings. The type is a very remarkable one and of great interest, because it represents an extremely large animal, spread of wing about 5 metres, belonging to quite a different group from the other well-known large types, the toothless *Ornithostoma* of the Kansas Chalk. The paper concludes with a discussion of some points in the structure of Pterodactyls and of their classification in the light of this new type.

2. REKONSTRUKTIONEN DES FLUGSAURIERS, *RHAMPHORHYNCHUS GEMMINGI*, H. v. M. By ERNST STROMEN, of Munich. Neues Jahrbuch für Min. Geol. u. Pal., January, 1913, Bd. ii, S. 49-68, Taf. iii-v.

An important paper, dealing with many points in the osteology of Pterodactyls, illustrated by a beautiful drawing of a restoration of the skeleton, and photographs of a remarkable life-size model of the skeleton from three aspects, which give a much better idea of the build of a long-tailed Ornithosaur than has previously been possible.

3. ON SOME NEW GENERA AND SPECIES OF DICYNODONT REPTILES, WITH NOTES ON A FEW OTHERS. By R. BROOM. Bull. Amer. Mus. Nat. Hist., vol. xxxii, art. xxvi, pp. 441-57.

A description of three new genera and thirteen new species of Dicynodont reptiles. The specific and generic characters are mostly drawn from the features of the top of the skull in the pineal region, particularly from the relations of the pre-parietal, which are illustrated by clear figures.

4. NOTE ON *EQUUS CAPENSIS*, BROOM. Bull. Amer. Mus. Nat. Hist., vol. xxxii, art. xxv, pp. 437-9.

A description of upper premolar (pm.⁴) of the large *E. capensis*, which is found associated with the extinct *Bos bairi*, *Connochates antiquus*, *Colus venterae*, and human implements.

5. ON EVIDENCE OF A MAMMAL-LIKE DENTAL SUCCESSION IN THE DICYNODONT REPTILES. By R. BROOM. Bull. Amer. Mus. Nat. Hist., vol. xxxii, art. xxviii, pp. 465-8.

Dr. Broom describes a specimen which appears to give satisfactory evidence of the replacement of canines, incisors, and milk molars in *Diademodon*, a discovery of very great importance, as hitherto, although examples of Therocephalia, Gorgonopsids, and Cynodonts showing replacements of the canine have been fairly common, and

specimens showing replacements of the incisors known, none have shown any replacement of cheek-teeth, a fact which has told somewhat against the relation of these types to mammals. It now seems probable that the group will show us all the stages, from the indefinite replacement of teeth in the ordinary reptilia to a very definite replacement similar to that occurring in mammals. The specimen is perhaps not absolutely conclusive, but affords very considerable reasons for believing that Dr. Broom's interpretation is correct.

6. ON THE ORIGIN OF THE CHEIROPTERYGIUM. By R. BROOM. Bull. Amer. Mus. Nat. Hist., vol. xxxii, art. xxvii, pp. 459-64.

A description of the well-known fin of *Sauripterus taylori*, and the suggestion that the Tetrapod limb may have been derived from such a fin by the development of some of the pre-axial skeletal elements and the loss of the post-axial, which continued to support the fin during the change.

7. THE SKULL ELEMENTS OF THE PERMIAN TETRAPODA IN THE AMERICAN MUSEUM OF NATURAL HISTORY, New York. By F. v. HUENE, Tübingen.

In this large paper the author gives short descriptions and figures of many of the types of reptiles found in the 'Permian' of Texas. This paper is important in that it contains the views and criticisms of a distinguished and independent author on many of the disputed facts of structure of these very interesting forms. Dr. v. Huene not only adds to our knowledge by determining many new sutures, but also by redetermining some of the bones figured by Case. The author adds some interesting discussion on morphological points and on taxonomy.

8. THE TEGELEN BEAR.—Mr. E. T. Newton has described under the name of *Ursus etruscus* (= *U. arvernensis*) a number of teeth from the Pliocene clay of Tegelen-sur-Meuse (Geological Proceedings for Netherlands and Colonies, 's Gravenhage, 1913). He remarks that "At present *U. etruscus* is only known from Pliocene deposits of Europe; but there are indications of somewhat similar fossil forms occurring in India and China, and it may well be that from these Pliocene species the modern Black Bears are descended which to-day are found widely distributed in America and Asia".

9. MR. CHESTER G. GILBERT and Mr. Joseph E. Pogue contribute to the Proceedings of the United States National Museum, vol. xlv, 1913, a paper on "The Mount Lyell Copper District of Tasmania", in which they gave a succinct account of the geology and mode of working the famous copper-mines. The paper, which is the outcome of a study of a representative collection of rocks received in 1910 by the museum from Mr. Robert Slicht, manager of the Mount Lyell Mining and Railway Co., is largely based upon Professor J. W. Gregory's well-known memoir.

10. In the Bulletin de la Société Belge de Géologie, vol. xxvii, 1913, M. A. Ledoux gives the results of an elaborate study of quartz crystals from Belgium, and records altogether eighty-one forms. Twins are very common, and, indeed, etching figures show that

simple individuals are rare. Groups of crossed crystals are often met with which are not true twins. The various occurrences—in eruptive rocks, metalliferous veins, quartz veins, and sedimentary rocks—are described in detail. The paper is amply illustrated.

11. FLUTING AND PITTING OF GRANITES.—An interesting and well-illustrated article on this subject, by Mr. J. C. Branner, has been published by the American Philosophical Society (Proc. lii, April, 1913). The fluting of granites and other crystalline rocks appears to be confined to tropical and possibly sub-tropical countries. Striking examples are seen near Quixadá, in Ceará State, Brazil, mostly in massive coarse-grained gneissoid granodiorites. The furrows start at or near the summit of the exposed rock, and run straight down the rock-slopes by the shortest possible routes. Some reach a depth of nearly 2 metres measured at right angles to the general surface of the rock-masses. In the same region the fluted rocks have been hollowed into “great rounded caldron-like pits, some of which are associated directly or indirectly with the fluting”. These pits seldom exceed 2 metres in depth and their diameter is about 2 metres. In certain cases they occur in a nearly vertical row, connected by a furrow, and having the appearance of a great irregular staircase mounting the hill. The fluting seems to occur only on steep slopes, with an angle of 45° or more, and it is caused by the rainfall, small in amount, that acts in part chemically, in part mechanically. The pits are formed by the disintegration and dissolution of minerals.

REPORTS AND PROCEEDINGS.

I.—GEOLOGICAL SOCIETY OF LONDON.

November 5, 1913.—Dr. Aubrey Strahan, F.R.S., President, in the Chair.

The following communication was read:—

“Geological Sections through the Andes of Peru and Bolivia.” By James Archibald Douglas, M.A., B.Sc., F.G.S.

This paper deals with the geological structure of the South American Andes, as illustrated by a horizontal section drawn from the port of Arica in the extreme north of Chile (formerly Peruvian territory) across the mountain-ranges or ‘Cordilleras’ to the forested region of the Amazon slopes, in the district known as the Bolivian ‘Yungas’, following the route of the new Arica—La Paz railway, which was under course of construction at the time of the author’s visit.

It is the partial result of two years’ geological exploration in Peru, undertaken on behalf of Mr. W. E. Balston, F.G.S., for the Oxford University Museum. After a description of the general physiography of the Peruvian Andes, the topographical features of the country traversed by the railway are discussed in some detail.

Its geological structure is then described under three headings: (1) The Mesozoic sediments of the coastal region with their contemporaneous igneous rocks, the intruded core of granodiorite, and the