

V.—BRIEF NOTICES.

1. SOILS OF SOUTH AFRICA.—Dr. C. F. Juritz, in his Presidential Address to Section 2 of the South African Association for the Advancement of Science, on September 29, 1909, has some pertinent remarks on this subject. After sketching the general lines of soil investigation, he states: "We have not been able to do all this in the Cape Colony, because the entire work of investigating the Colony's soils has always been allocated to one solitary man, and even then it has been subject to constant interruption." He proceeds to point out what is done in the United States, and shows that the original staff of 10 men (not one man) had, ten years after its establishment, increased to 127 men, including 83 scientists and soil experts, 13 tobacco experts, and 29 clerks and other employés, and still was found inadequate for one-half the demands made upon it for investigations along its special lines. Dr. Juritz, quoting the official publications, points out that extraordinary increases in land value have followed the work of the Bureau of Soils in the United States. Soils in the Connecticut Valley, which the Bureau showed were adapted for growing a superior tobacco, increased in value threefold. Trucking soils of the Atlantic seaboard have risen from 5 dollars an acre to 200 dollars; rice lands of Louisiana from 5 to 50 dollars; and Florida patches, specially adapted for growing pine-apples, from nothing to over 500 dollars an acre. Upon these facts and many others Dr. Juritz comments: "Has not the time arrived for this important subject to be tackled in right earnest in our own South Africa instead of continuing merely to be toyed with?"

2. SOILS OF HUNGARY.—For many years the study of the soils of Hungary has occupied a number of her best investigators, and in February last year the Royal Hungarian Geological Institute (*Magyar kiralyi Földtani Intézet*) issued invitations for a Conference of Agrogeologists to meet in Budapest. This was, we believe, the first Agrogeological Congress, and the report of its deliberations is now before us as *Comptes Rendus de la première Conférence Internationale Agrogeologique*. The volume consists of 334 pages and has a soil map of Roumania with an inset map of the climatic zones of the same country. Sixty-nine pages are devoted to the reports of the meetings of the Congress, twenty to the excursions made to Hidegkut, Gödöllő, the Great Plain (Alföld), and to Lake Balaton; and the remainder of the volume is occupied by papers on various subjects as follows:—Soils of European and Asiatic Russia, by Glinka; Soils of Norway, by Björlykke; Daily Weathering in the light of Colloidal Chemistry, by Cornu; What is Weathering? by Treitz; Climatic Zones of Soils, by Cholnoky; Special Exigences of Agriculture with regard to Analyses of Soils, by Leplae; Methods of Soil Analysis in the Prussian Survey, by Schucht; Agrogeological Maps, by Timko and Güll; Agronomical Work in Bohemia, by Kopecky; Chemical Analyses of Soils, by Emszt and Sigmond; The Körös Floods, by Ujj; Soda-holding Soils, by Sigmond; Ampelogeological Maps, by Dicity; Lime-holding Soils, by Treitz; Mineral Soils, by Atterberg; Unification of Methods of Chemical Soil Analyses, by Hilgard; and the Soils of Roumania, by Murgoci.

3. THE WAKATIPU DISTRICT, NEW ZEALAND.—Professor James Park, in his Presidential Address to the Otago Institute, 1909, on the origin and history of the Wakatipu District, deduced from the facts observed by him in the course of his survey that probably in the Pleistocene Period the southern portion of the South Island of New Zealand had been covered by an ice-sheet, some 7500 feet in thickness. That is to say, there has been an Ice Age in New Zealand similar to that in the Northern Hemisphere.

4. THE TEMPERATURE OF THE EARTH AND EARTH-MOVEMENTS.—The Government of New Zealand has placed £200 at the disposal of the Philosophical Institute of Canterbury, New Zealand, to enable that body to investigate the temperature of the earth's crust and other geophysical and geological phenomena rendered possible by the construction of the Arthur's Pass Tunnel. It is further announced in the Proceedings of the New Zealand Institute that the Government are taking practical steps to erect bench-marks at suitable places along the coast.

5. THE TERTIARY BEDS OF NORTH-WEST GERMANY.—Dr. A. v. Koenig has brought together the latest information on the Tertiary of North-West Germany originally investigated by Beyrich fifty years ago. His pamphlet (2 *Jahresber. Niedersächsischen geol. Ver. zu Hannover*, 1909) sketches the Palæocene, the Oligocene, and the Miocene, and gives a list of fossils from Volpriehausen, with annotations as to similar occurrences in the Scaldisian and the English Crag.

6. THE GEOLOGY OF THE WATERBERG TIN-FIELDS, by H. Kynaston, E. T. Mellor, and U. P. Swinburne, forms No. 4 of the Geological Survey Memoirs of the Transvaal Mines Department, 1909. The ore occurs as Cassiterite. The geological structure of the country is comparatively simple. The central plateau is formed of the Upper Sandstones of the Waterberg system and the outer rim by the high ranges of granite and felsite which form the watershed between the Stark River and the Nyl and Magalakwin. Excellent coloured maps and sections accompany the paper.

7. THE COPPER, TIN, AND SILVER DEPOSITS OF PITKÄRANTA ON LAKE LADOGA form the subject of the *Bulletin de la Commission Géologique de Finlande*, No. 19 (November, 1907). The report is written by Otto Trüstedt, and occupies 334 pages. Many figures of rock-structure are given, and several plates are devoted to illustrating "Eozoon-Serpentine Zones". There is a coloured map, a table showing the output of the mines since 1814, and a list of all minerals recorded.

8. THE MIOCENE OF ASTORIA AND COOS BAY, OREGON (U.S. Geol. Surv., Prof. Paper 59, 1909).—Dr. W. H. Dall has reprinted twelve papers by previous authors on the same subject because of their inaccessibility to students living in the Pacific States. Happy students! And generous Government! The work itself is produced in Dr. Dall's customary careful style, and is well illustrated by twenty-two plates of fossils, text-figures, and map. Many new forms are described, the validity of several genera is discussed in detail, and a further description of the fossil sea-lion (*Pontolis magnus*), by F. W. True, is appended, and illustrations of its skull are given.

9. THE GOTLANDIAN OF FYLEDAL.—Professors J. E. Moberg and K. A. Grönwall have contributed to *Meddelande från Lunds Geologiska Fällklubb* (ser. B, No. 3, 1909) a paper on the Gotlandian of Fyledal. The beds are rich in the genus *Bellerophon*, and contain numerous ostracoda of a familiar type to those who work in similar English deposits. Thus of nineteen forms described seven or eight are identical with those recorded from the Upper Silurian of England by Jones and others.

10. NEW ZEALAND GEOLOGICAL SURVEY.—From the geology of the Whangaroa subdivision, Hokianga division, by J. M. Bell and E. de C. Clarke (Bull. N.Z. Geol. Surv., No. 8, 1909) we learn that the beds exposed in their area are pre-Cretaceous, late Mesozoic, Eocene, Miocene, and recent, with much intrusive and other igneous rock of doubtful age. Fossils are found of Cretaceous age, but they are imperfectly preserved and difficult to clean owing to the hardness of the matrix. They include *Trigonia*, *Desmoceras*, *Hamites*, *Ostrea*, and *Oxyrhina*, and these are said to be insufficient, even with other fragmentary remains, to allow of correlation with the other New Zealand Mesozoic beds. The igneous series are described in much detail, and numerous micro-sections of the rocks are given. The economic geology includes notes on cupriferous sulphides, mercury ores, precious metals, iron, manganese oxides, kauri-gum, oil, building and cement stones, mineral waters, and sulphur. A list of minerals met with, and a glossary of scientific and mining terms used in the report, are appended.

11. A FOSSIL HORSE IN SOUTH AFRICA.—Dr. R. Broom, among several Reptilian papers in the Annals of the South African Museum (vol. vii, pt. iii, April, 1909), calls attention to the evidence in favour of the existence of an extinct horse in South Africa. Three specimens have now been found, and the last "makes it pretty certain that a very large horse was a native of South Africa before European occupation". In a slab of the coast-limestone cast ashore at Yzerplaatz is the greater part of the lower jaw of a large horse. This he now calls *Equus capensis*. The third premolar shows no trace of the rudimentary protostylid as compared with that of the modern horse. Teeth of a horse were described by Fraas from South Africa in 1908, and on May 11, 1909, Professor Ridgeway showed a portion of the fossil jaw of one of the Equidæ from Naivastra, German East Africa, to the Zoological Society of London.

12. FOSSIL VERTEBRATES OF THE KARROO, SOUTH AFRICA.—In the same number of the Annals of the South African Museum, Dr. Broom makes an attempt to determine the horizons of the fossil vertebrates of the Karroo. In drawing up the table he has ignored types founded on vertebræ or fragments of skeletons, as most of these are probably portions of animals already known from their skulls.

13. DISTRIBUTION OF IRON ORES IN EGYPT.—Dr. Fraser Hume discusses the Distribution of Iron Ores in Egypt, in Survey Department Paper No. 20 (Ministry of Finance, Egypt, 1909). Southern Sinai, the N.E. and S.E. deserts, the oases, the ferruginous beds in the Nubian

Sandstone, Sudan, Darfur, Kordofan, and Abyssinia are all referred to, and a map is given showing the distribution. The iron of Egypt does not appear to be of much commercial importance, but that of Darfur and Kordofan may possibly be worth attention in future.

14. CRETACEOUS OF PONDOLAND. — With regard to the age of the Cretaceous rocks of Pondoland and those of Port Durnford to beyond St. Lucia Bay, it has been shown by Mr. Henry Woods (*Ann. South African Mus.*, iv (7), December, 1906) that they are the equivalent of the Campanian (Upper Senonian) of Europe, the Ariyalur Beds of Trichinopoli, and the Valudayur and Trigonoarca Beds of Pondicherri. Deposits of a similar age have been shown to occur in Madagascar. Griesbach supposed that five faunas could be recognized in successive zones of these African deposits, and correlated the uppermost with the Greensands and the White Chalk of England. Later on, Rogers and Schwarz showed that the fauna was more generally distributed vertically than Griesbach had supposed, and belonged to one deposit. Woods' work confirms this, and proves that only one zone is represented.

15. THE PHOSPHATE DEPOSITS OF SOUTH CAROLINA AND NEW BRUNSWICK. By G. F. MATTHEW, LL.D., F.R.S.C. *Bull. Nat. Hist. Society of New Brunswick*, vol. vi, pt. ii, p. 121.—This is a brief account of a visit to the deposits on the rivers of South Carolina, from which so much calcium-phosphate has been obtained of late years, chiefly in the form of bones and teeth of extinct forms of vertebrates taken from layers under the river beds of those streams. The remains are of various ages, from the Eocene upwards, but have been rolled in the sea and redeposited in beds, which contain many recent shells and so are comparatively modern. These recent deposits are compared with the vastly more ancient Cambrian phosphates of New Brunswick, which have been accumulated under somewhat similar conditions. In these last-named beds the phosphatic nodules are mingled with Brachiopod shells and the detached portions of the heads and body-segments of trilobites.

16. GEOLOGICAL TIME.—In an article on "The Accumulation of Helium in Geological Time" (*Proc. Roy. Soc.*, 1909, ser. A, vol. lxxxiii, p. 96) the Hon. R. J. Strutt gives the results of investigations among iron-stones which contain helium. He remarks that the results on hæmatite from co. Antrim are especially noteworthy, as it would appear that the Eocene period must be put back thirty million years.

17. ROYAL SCOTTISH MUSEUM, EDINBURGH.—A useful *Introduction to Petrography and Guide to the Collection of Rocks* in the museum has been prepared by Dr. S. J. Shand (pp. 50, 1909), and is sold at the price of one penny. It deals with the Igneous, Sedimentary, and Metamorphic rocks, and contains introductory remarks on the nature and genesis of rocks, and on the general character of minerals. Moreover, it has a good index.