

## NOTICES OF MEMOIRS.

## I.—MEMOIRS OF THE GEOLOGICAL SURVEY.

THE following Memoirs, in addition to those already noticed, have been issued during the present year :—

- (1) **THE GEOLOGY OF THE SCILLY ISLES.** By GEORGE BARROW, F.G.S., with petrological contributions by J. S. FLETT, M.A., D.Sc. 8vo; pp. 37, with 7 plates. (Price 1s.)

In this memoir a particular description is given of the Granite and associated rocks which form the Isles of Scilly.

Attention is also directed to the various superficial deposits of Raised Beach and Blown Sand, and to the occurrence of Glacial Drift. The evidence of recent movements in the area is discussed, and remarks are made on the industries and on the water supply.

The memoir is accompanied by a colour-printed geological map (Sheets 357 and 360), and it contains six plates depicting the scenery. The map is the first issued of the area on the one-inch scale; the price is 1s. 6d.

- (2) **THE GEOLOGY OF THE COUNTRY NEAR SIDMOUTH AND LYME REGIS.** By H. B. WOODWARD, F.R.S., W. A. E. USSHER, F.G.S., with contributions by A. J. JUKES-BROWNE, B.A., F.G.S. 8vo; pp. 96, with a plate and 39 text-figures. (Price 1s.)

In this memoir there is a description of the strata exhibited in the fine cliff-sections from the New Red Sandstone and Marl of Sidmouth to the Rhætic Beds and Lias of Axmouth and Lyme Regis, together with an account of the overlying Gault, Upper Greensand, and Chalk. Inland the country around Honiton and Axminster is described. Figures are given of some of the common Lias fossils found in this richly fossiliferous region. The plateau and valley deposits, the famous Landslip of Bindon, and the economic products of the area receive due attention.

The memoir is accompanied by a colour-printed map (Sheets 326 and 340), price 1s. 6d.

- (3) **THE GEOLOGY OF THE COUNTRY AROUND MACCLESFIELD, CONGLETON, CREWE, AND MIDDLEWICH.** By T. I. POCOCK, M.A., with contributions by G. BARROW, W. GIBSON, B.Sc., C. B. WEDD, B.A., and J. A. HOWE, B.Sc., and notes on fossils by E. T. NEWTON, F.R.S. 8vo; pp. 138, with 2 plates and 8 text-figures. (Price 2s. 6d.)

This memoir is descriptive of parts of Cheshire and Staffordshire, including the northern end of the Potteries Coalfield, and portions of the coalfield and salt-bearing districts of Cheshire. We note that the term Pendleside Series is adopted for the strata between the Carboniferous Limestone and Millstone Grit.

The area, consisting mainly of Carboniferous and New Red rocks,

is extensively covered with drift; and a detailed account is given of these superficial deposits, together with notes on the shells from the high-level gravels of Macclesfield.

The memoir is accompanied by a colour-printed map (Sheet 110), price 1s. 6d.

- (4) **THE WATER SUPPLY OF SUFFOLK FROM UNDERGROUND SOURCES, WITH RECORDS OF SINKINGS AND BORINGS.** By W. WHITAKER, B.A., F.R.S., with contributions by H. F. PARSONS, M.D., H. R. MILL, D.Sc., and J. C. THRESH, D.Sc. 8vo; pp. 177, with map. (1906. Price 3s. 6d.)

In this memoir Mr. Whitaker gives a general outline of the water-bearing strata, and summarizes some points of special geological interest in connection with the numerous records of borings. Notable among these records is that of a boring at Glemsford, which proved a thickness of 470 feet of Glacial Drift, much to the perplexity of the well-borer, and of special interest to the geologist as being the greatest recorded thickness of Glacial Drift in Britain. Full details are given of the Stutton boring, which was carried down to a depth of 1,525 feet, reaching Palæozoic rocks beneath the Gault. The records deal mostly with wells or borings for water, and analyses of water are appended. Dr. Mill contributes a map and statistics relating to the rainfall.

- (5) **WATER SUPPLY OF THE EAST RIDING OF YORKSHIRE, FROM UNDERGROUND SOURCES, WITH RECORDS OF SINKINGS AND BORINGS.** By C. FOX-STRANGWAYS, F.G.S., with contributions by H. R. MILL, D.Sc. 8vo; pp. 181, with map and 3 illustrations. (Price 3s.)

This memoir contains an outline of the geology of the East Riding and of portions of the Vales of York and Pickering, with especial reference to the water-bearing strata. It contains records of all known sinkings and borings in the area, together with analyses of waters, and a bibliography. There is also a section on the rainfall with a colour-printed map, by Dr. Mill.

- (6) **SOILS AND SUB-SOILS FROM A SANITARY POINT OF VIEW. WITH ESPECIAL REFERENCE TO LONDON AND ITS NEIGHBOURHOOD.** By HORACE B. WOODWARD, F.R.S. 8vo; pp. 58, with 18 illustrations and colour-printed map. Second edition. (Price 1s. 6d.)

The object of this work has been to supply information regarding sites for houses and other questions involving the applications of geology to sanitary science; and it includes notes on sewage-farms and cemeteries. In this second edition the chapter treating of water-supply and drainage has been enlarged, with especial reference to the residential areas within easy reach of the Metropolis. A new colour-printed map on the scale of an inch to four miles is given in the memoir. It includes Guildford, Sevenoaks, Chelmsford, and Rickmansworth.

II. — THE TENTH MEETING OF THE INTERNATIONAL GEOLOGICAL CONGRESS, held in the City of México, September, 1906. [Being the Abstract of a Report prepared and communicated by BERNARD HOBSON, M.Sc. Vict., F.G.S., a Memb. Int. Geol. Congress.]

THE tenth triennial meeting of the International Geological Congress was held this year in the city of México. The Mexican Government acted with the greatest liberality towards the members of the Congress, while the inhabitants of the country did their utmost to make their visitors feel that Mexico was not behind any other country in its hospitality to strangers. Excursions to places of geological interest were set on foot, and an excellent guidebook, containing the most recent information relating to the districts to be visited, was provided. The excursions included visits to Vera Cruz, the volcanoes of Jorullo and Colima, Mitla Monterrey, San Luis Potosi, the isthmus of Tehuantepec, etc.

The Congress was opened in the School of Mines on September 6th by the President of the Republic, General Porfirio Diaz.

The first paper presented was a memoir entitled "Die Trochilskien," by M. Karpinski. These are fossils of problematic origin, limited to the Devonian. Mr. Heilprin read a paper on "The concurrence and interrelation of Volcanic and Seismic Phenomena," in which he advanced the opinion that earthquakes considered to be of tectonic origin may really be due to volcanic agency sometimes remote from the seat of the disturbances. In the discussion which followed Professor A. C. Lawson, of Berkeley, California, dissented from this view.

Dr. Renz's paper, "Ueber das ältere Mesozoicum Griechenlands," showed the importance of the marine Trias of Alpine facies in Greece, and pointed to the identity with the Trias of some marmorized limestones hitherto regarded as Cretaceous.

On September 7th a party of the members, under the guidance of the Secretary, Mr. E. Ordóñez, inspected the olivine-basalt lava stream at Coyoacan, six miles S.S.W. of México. The lava issued from the volcano of Xitli, and it covers 60 square kilometres, being 30 kilometres long and 5 kilometres in maximum width (E. Ordóñez in Bol. del Inst. Geol. de México, No. 2, 1895).

At the meeting on the 8th September Professor F. D. Adams, of Montreal, described the Geological Map of North America prepared at the expense of the Geological Survey of the United States, the material having been supplied by the Geological Surveys of Mexico, the United States, and Canada. The nomenclature adopted is that of the American Survey. In the discussion following the reading of this paper the nomenclature was in some points called in question by the Canadian geologists present.

Professor Edgeworth David, of Sydney, then read a paper on "Changes of Geological Climates," with special reference to Cambrian and Permo-Carboniferous glaciation in Australia and India.

The climatic evolution of the earth from the Palæozoic to the

present epoch was the subject of a paper by Professor Frech, of Breslau, who maintained that this evolution has always progressed in correlation with changes in the proportion of carbon dioxide and aqueous vapour in the atmosphere. A discussion upon this paper took place at the afternoon session. Professor Stefanescu, of Bucharest, described a new species of *Dinotherium*, viz. *D. gigantissimum* (Stef.), which he discovered in 1888 at Manzati, in Roumania. This is the first complete skeleton found up to the present time.

An excursion, in which 190 members of the Congress took part, was made on the following day (9th September), under the auspices of the Mexican Geological Society, to Cuernavaca, 74 miles south of the city of México. Fine views were obtained *en route*, including a distant one of the snow-capped Popocatepetl.

On the 10th September the discussion on the condition of climates in geological time was renewed and concluded, and on the 11th a large number of members joined in an excursion to San Juan Teotihuacan, the sacred city of the ancient Toltecs, situated 29 miles north-east of México. Here they inspected two pyramids dedicated to the Sun and Moon, the former 216 and the latter 151 feet in height.

The meeting of the 12th September was occupied by the reading and discussion of a paper by Mr. Joh. Königsberger, entitled "Ueber den Verlauf der Geoisothermen in Bergen und seine Beeinflussung durch Schichtstellung, Wasserläufe, und chemische Prozesse." It was followed by papers on the latest eruption of Vesuvius by Mr. Sabatini and Dr. Tempest Anderson, and in the evening of that day the members of the Congress were entertained at a banquet at the palace of His Excellency the President.

An excursion to the silver-mines of Pachuca was carried out on the 13th September.

On the 14th September Professor A. C. Lawson presented his paper on the earthquake of San Francisco, which provoked an interesting discussion. Professor Frech pointed out the analogy between the Californian earthquakes and those preceding them in Europe, notably that of Dobratsch, in Carinthia. He drew attention to the fact that the earthquake of Dobratsch followed, equally with that of California, a certain tectonic line which was conspicuous both in the mountain formation and in the course of the valleys. He also pointed out the remarkable fact that in neither country was there any true volcanic action.

A paper, which must have proved interesting to the glacialists, was read by Professor A. P. Coleman, of Toronto, on "Interglacial Periods in Canada."

"A Meteorite Crater of Arizona" was the subject of a communication by Professor H. L. Fairchild, of Philadelphia, and in the afternoon of the same day Professor Edgeworth David read his paper on the occurrence of diamond in matrix at Oakey Creek, Inverel, New South Wales.

Mr. H. F. Reid, of Baltimore, then communicated an extract from the report of the International Committee on glaciers, and the

General Secretary that of the Committee on Co-operation in Geological Investigations.

Mr. Sjögren, of Stockholm, gave an invitation for the eleventh meeting of the Congress to take place at Stockholm, at the instance of Messrs. Törnebohm and J. G. Anderson, President and Secretary of the Swedish Committee. This invitation was gladly accepted, and, after some congratulatory remarks by the President and others, the Congress was declared closed.

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## R E V I E W S.

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### I.—GEOLOGY OF ARMENIA.

A TREATISE ON THE GEOLOGY OF ARMENIA. By FELIX OSWALD, B.A., D.Sc. Thesis accepted by the University of London for the Degree of Doctor of Science. In two parts: I. Geological results of a journey by the author through Turkish Armenia. II. The Geological Record of Armenia. 8vo; pp. ix, 516, maps, plates, and sections. London (printed at Dulwich by the author, and published by the author at Iona, Beeston, Notts), October, 1906. Price one guinea, net, 100 copies only printed.

THIS is a remarkable book in more ways than one. It is no small feat to write a book on the geology of Armenia, which embodies all that has gone before, plus a vast amount of original research; but when the traveller and author deliberately sits down to set up his own manuscript, draw, print, and colour his own maps and sections, and turn out the five hundred and odd pages of a complete book, with the sole exception of the binding, it demands more than passing attention.

Mr. (now Dr.) Oswald accompanied Mr. H. F. B. Lynch on his second journey through Turkish Armenia in 1898. Mr. Lynch's volumes appeared in 1901, and the delay in publication of Dr. Oswald's book is due to the fact that he prepared many of the maps, plans, and other illustrations for his friend's work, before finding the necessary leisure to prepare his own. He acknowledges help received from Dr. T. G. Bonney, Mr. R. B. Newton, Mr. G. C. Crick, Col. F. R. Maunsell, and Col. G. S. Elliot, and these names, together with the Bibliography (pp. 487-500) and the general treatise on Armenian geology, show that the work has been sweeping and comprehensive in character.

The country dealt with lies between the Caspian and Black Seas, including to the south the Euphrates and Tigris rivers and the lakes Van and Urmi. The author's route, told in successive chapters each geologically treated, was as follows:—Constantinople to Trebizond, Trebizond to the Vavuk Pass, to Erzerum, to Khinis, to Tutakh, to Akhlát, thence to the Tauric Heights, the Nimrud Volcano, Akhlát to Sipan, to Khamur, to the Bingöl Cliffs, Bingöl Volcano, Erzerum to Trebizond. The observations made during this journey occupy thirteen chapters, and the remaining ten chapters treat of the general