the underlying crystalline rocks is original, and not due to movement, it may be mentioned that it presented similar features at most of the other exposures which were examined. These lay along the even upper surface of the basement-platform, where, on Carez' hypothesis, pronounced evidence of overthrusting would be expected. And even in the banks of the Maillet stream in the cirque de Troumouse (Pl. XVIII, Fig. 2), where the junction is disturbed by shearing, accompanied by mylonisation of the limestone, it does not coincide in direction with the movement, which is probably connected with the adjacent overthrust previously described.

(*To be concluded in our next Number.*)

NOTICES OF MEMOIRS.

I.—The Geology of the Tahan Range.[1] By J. B. Scrivenor, Geologist, F.M.S.

THE following account of the geology of the Tahan Range is based chiefly on notes collected during an ascent of Gunong Tahan in May, 1906, and subsequent journeys in Pahang.

The Tahan Range is remarkable in being composed almost entirely, as far as is known, of a series of estuarine rocks—comprising shale, sandstone, grit, and conglomerate—which is provisionally named the Tembeling Series. The main range of the Peninsula, which, although greatly more extensive in length, rises very little higher than Gunong Tahan, is believed to be all granite and its modifications, but for occasional areas of schistose rocks, representing altered sediments.

Two ranges, similar to the Tahan Range, but on a smaller scale, are known in the Federated Malay States. One of these is a long range of low hills in the west of Pahang, parallel to the main range, and referred to elsewhere as the Bentong-Telôm Range; the other is the small isolated Semanggol Range, forming the border between Larut and Krian in Perak.

No direct evidence of the age of this series of estuarine rocks has yet been derived from the Tembeling District of Pahang; but fossils discovered elsewhere point to a range in time dating from the Rhætic to the Inferior Oolite. The collections made, however, are not numerous, either in specimens or species.

The breadth of the outcrop of the Tembeling Series in the typical district is about thirty-five miles. The strike is roughly N.N.W.-S.S.E., and there is reason to suppose that the series extends into Johore, reappearing as far south as Singapore. The Tahan Range lies on the western side of the outcrop. It would appear that the Tembeling River, whose general course in the upper reaches is to the west, has been turned south by this enormous barrier.

[1] From the Journ. Federated Malay States Museum, vol. iii, January 29th, 1907 (printed April, 1908).

On either side the Tembeling Series is flanked by a wide outcrop of calcareous rocks and associated igneous rocks, named provisionally the Raub Series and the Pahang Volcanic Series respectively. One of the remarkable ranges of limestone hills belonging to the Raub Series was seen from the top of Gunong Tahan and visited later by the writer. It lies to the west of the range and is situated near Kampong Cherual in the Ulu of the Tanum, a left tributary of the Julai. From a peak in this limestone range a magnificent view of the Tahan Range, about fifteen miles distant, was obtained; and it appeared to the writer that it would be easier to ascend Gunong Tahan from this side than from the east.

Petrologically the conglomerate is remarkable for containing numerous pebbles of chert and carbonaceous shale with Radiolaria and Foraminifera. It is believed that these pebbles were derived from beds of similar chert and carbonaceous shale in the west of Pahang. The majority of the pebbles in the conglomerate are sandstone and quartz. The matrix is quartzose. The sandstone afforded andalusite on separating the grains by means of heavy liquids, and also a few grains of zircon and other minerals. In the Tahan River greenish schistose grits were found to contain a little tourmaline. The shale is generally red, owing to surface weathering.

On the gravel banks of the Tahan River there are found pebbles of quartz-porphyry and of a basic rock, which is of the same composition as dolerite. No outcrops of either rock *in sitû* were found here; but elsewhere data have been collected which make it probable that this rock is younger, not only than the Tembeling Series, but also than the granite of the Federated Malay States.

In the Rivers Tekai, Tembeling, and Tahan there is abundant evidence of the Tembeling Series having been thrown into a series of anticlines and synclines. In the part of the Tahan Range visited the predominant dip is about 45° W.S.W.

Malays can still be found who hint vaguely and mysteriously at mineral wealth in the Tahan Range. That small quantities of gold occur is extremely probable, and the presence of tourmaline makes it necessary to admit the possibility of tin ore being found also. To the prospector, however, the indications are most unattractive. The range would make an ideal health station.

II.—The Tenth Meeting of the International Geological Congress, held in the City of Mexico, 1906.

THE Compte Rendu de la Dixième Session (du) Congrès Géologique International, Mexico, 1906, has now been published. It consists of two parts, each measuring 11 inches by 8 inches, containing in all 1,358 pages, 56 plates or maps outside the text, and 42 figures in the text. The first 184 pages are devoted to the record of the preparations for the meeting, the social meetings, list of members, minutes of proceedings, and reports of commissions. Pages 185 to 1286 contain the scientific memoirs (forty-six in number) read at the

meetings. Their titles, somewhat abbreviated, are as follows:—[1] J. G. Aguilera, on the Geology of Mexico,* and on the Volcanoes of Mexico*; three papers by Professor R. J. Anderson, on the Drift, Granite, and Metamorphic Rocks of Galway; a paper by Dr. Tempest Anderson on the West Indian Eruptions, and another on the Eruption of Vesuvius; H. F. Bain, on Ore Deposition in the Mississippi Valley; Professor F. Becke, on Crystallization Schistosity and Piezocrystallization†; Professor W. Branca, on Volcanoes and Fissures†; Professor S. Calderon, on Contact Phenomena‡; Professor L. Cayeux, The Structure of Sandstones and Quartzites,* Insect Eggs of Lakes Chalco and Texcoco and the Formation of Oolites*; Professor A. P. Coleman, Interglacial Periods in Canada; Professor T. W. E. David, Glaciation in Lower Cambrian, possibly in Pre-Cambrian Time; Australasia, Climate at different geological epochs*; Climate at different Geological Epochs, with special reference to Glacial Epochs; Occurrence of Diamonds in Matrix near Inverrell, New South Wales; Professor G. De Lorenzo, The Bases of the Volcanoes Vulture and Etna§; Professor S. Diaz, Diary of the behaviour of the Volcano of Colima, 1893 to 1905‡; Professor F. Frech, on Climatal Changes of the Geologic Past†; Aviculidæ of Palæozoic habit from the Trias of Zacatecas†; Professor J. W. Gregory, Climatic Variations, their Extent and Causes; Professor U. Grubenmann, The Classification of the Crystalline Schists†; Professor Heilprin, Interrelation of Volcanic and Seismic Phenomena; Professor E. W. Hilgard, The Causes of the Glacial Epoch; Dr. E. O. Hovey, The Western Sierra Madre of the State of Chihuahua*; B. de Inkey, The Relation between the Propylitic state of Andesitic Rocks and their Mineral Veins*; Dr. K. Keilhack, The occurrence of Onyx at Etla†; Professor J. F. Kemp, Ore Deposits at the Contacts of Intrusive Rocks and Limestones; Professor J. Koenigsberger, on the Influence of Mountains, Lakes, etc., on the Geothermal Gradient†; Dr. G. F. Kunz, Gems and Precious Stones of Mexico; General L. de Lamothe, The Climate of North Africa in the Upper Pliocene and the Pleistocene*; Professor L. de Launay, The Genesis of the Metals of Italy*; Notes on Mines in Tuscany and Elba; W. Lindgren, The Relation of Ore Deposits to Physical Conditions; Dr. M. Manson, Climates of Past Geologic Epochs and their Cause*; Professor S. Meunier, A Theory of Volcanic Phenomena*; Professor A. G. Nathorst, Upper Jurassic Flora of Hope Bay, Graham Land; T. Ogawa, The Geotectonic of the Japanese Islands; Dr. C. Renz, The Older Mesozoic Rocks of Greece†; V. Sabatini, The last Eruption of Vesuvius*; Professor G. Stefanesca, *Dinotherium gigantissimum**; J. D. Villarello, on the infilling of certain Metalliferous Deposits*; Bailey Willis, The Geological Map of North America*. The brief account of the excursions made in connection with the Congress occupies pages 1289 to 1350, and a table of contents is given at the end of the second volume.

B. Hobson.

[1] Memoirs in English except those marked * in French, † in German, ‡ in Spanish, § in Italian.