SOCIETIES AND ACADEMIES

LONDON

Royal Society, May 2.—"On some Elementary Principles in Animal Mechanics.—No. V. On the most perfect form of a Plane Quadrilateral Muscle connecting two Bones.—No. VI. Theory of Skew Muscles, and investigation of the conditions necessary for Maximum Work." By Rev. Prof. Haughton, F.R.S.

"On the Rings produced by Crystals when submitted to Circularly Polarised Light." By William Spottiswoode, Treas. R.S.

Geological Society, April 24.—Prof. Ramsay, F.R.S. V.P. in the chair. 1. "An Extract from a Despatch from H.M. Minister in Teheran." This letter described the effects of some severe earthquake shocks experienced at Khabooshan in North-Western Khorassan. On December 23, 1871, an earthquake occurred which destroyed half the town of Khabooshan, and buried about 2,000 of its inhabitants in the ruins. On January 6, 1872, another severe shock destroyed the remainder of the town, and killed about 4,000 people. Four forts near the town were so completely buried that not a trace of them can be seen. It was estimated that 30,000 lives were lost in Khabooshan, Bojnoord, and the surrounding villages by the effects of these earthquakes. 2. "Notes on the Geology of the Colony of Queensland," by R. Daintree. The author stated that Alluvial deposits are very scanty in Queensland, except on the northern shores of Carpentaria and near the mouths of the larger rivers. The fossil remains of extinct Mammalia (*Diprotodon, Macropus, Thylacoleo, Nototherium*, &c.) are found in old brecciated alluvia, representing beds of old watercourses, through which modern creeks have cut their channels. With these mammalia are found shells of existing species. Of Cainozoic deposits the most important is called the "Desert Sandstone" by the author; it consists of horizontal beds of coarse grit and conglomerate, nowhere exceeding 400 feet in thickness, forming a sandy barren soil by their disintegration. The only fossils found in it are rolled fragments of coniferous wood; and its stratigraphical position is determined solely by its resting unconformably upon beds containing apparently Cretaceous fossils. The author considered that this deposit formerly covered nearly the whole of Australia. Beds containing Mesozoic forms of fossils, and referred by the author to the Cretaceous series, occur upon the Upper Flinders. At Marathon these deposits consist of a fine-grained yellow sandstone, and below this a series of sandstones and argillaceous limestones, containing four species of *Inoceramus*, with a species of *Ichthyosaurus* and two of *Plesiosaurus*. At Hughenden station, near Mount Walker, there is a series of calcareo-argillaceous beds, probably inferior to those of Marathon, and containing two species of Ammonites, with *Avicula gryphæoides*, a *Pecten*, &c. At Hughenden Cattle Station, twenty miles farther up the river, numerous Belemnites are found loose upon the surface. The Mesozoic rocks also extend down the Thompson River and its tributaries. The author referred to the fossils described by Mr. Charles Moore as probably Oolitic, and stated that it is more than probable that Oolitic and Cretaceous rocks extend throughout the whole of Central Queensland, and thence to Western Australia. On the eastern side of the dividing range a small patch of ferruginous grit containing *Panopæa plicata* occurs near Pelican Creek; and from Gordon Downs species of *Panopæa, Pholadomya*, and *Cucullæa* have been obtained. These beds probably represent a lower horizon than those on the Flinders River; and a large portion of the colony east of the dividing range is covered by freshwater deposits, containing plant-remains (including *Tæniopteris*), and in their upper part a fauna apparently intermediate between the Gordon Downs and Flinders River series. In these deposits, on the Cnodamine, Brisbane, and Mary rivers, numerous Coal-seams exist. The author supposes that, contemporaneously with the deposition of a series of marine beds to the west of the dividing range, during the Oolitic and part of the Cretaceous period, a vast lacustrine deposit was accumulated over a large area to the eastward of the range, to which the sea subsequently obtained access. Among the Palæozoic deposits, the author distinguished Carboniferous and Devonian rocks. The *Carboniferous* series was said to be represented in Northern Queensland by an extensive Coal-field. The upper portion of the series (grits, sandstones, and shales) contains chiefly fossil plants, the most abundant being a *Glossopteris*. The lower strata (generally *argillaceous* limestone) contain *Producti, Spiriferæ*, &c. of true Carboniferous type, intermixed with scanty and imperfect remains of the above-mentioned plants. A set of fossils from the head of the Don River were said to agree with those found in the Hunter River series of New South Wales. *Devonian* rocks extend from 18° S. lat. to the southern boundary of Queensland and for 200 miles inland. They consist of slates, sandstones, and Coral-limestones. The upper portion of this series contains an abundance of fossil plants, the deposits containing which, at Mount Wyatt, are interstratified with beds containing *Spiriferæ*, and other fossils of Devonian type occur in beds reached by shafts sunk through these strata. In the limestone of the lower portion of the series corals are very numerous. On the Broken River this formation may be best studied. Gold is found in many parts of the Devonian district, and the author entered in considerable detail into its mode of occurrence there. Metamorphic rocks were described by the author as occurring in various localities. At the Cloncurry, Cape River, Gilbert, Peak Downs, Black Snake, Kilkwan, and Goaroomjain Diggings there are mica- and hornblende-schists, whilst at the Ravenswood Diggings the rock is a granite with triclinic felspar. The latter, which contains more or less hornblende, the author regarded as of metamorphic origin. The author noticed the connection between the presence of certain trappean rocks in these metamorphic areas and in the Devonian area, and the production of auriferous and cupriferous lodes. True *Granites* crop out along the eastern coast of Queensland, and these vary much, passing into porphyry and quartz-porphyry, but monoclinic felspar always predominates in them. The intrusive Trappean rocks, which are regarded as influencing the production of auriferous vein-stones in the Devonian and Metamorphic rocks, are noticed at considerable length by the author, and consist of pyritous porphyrites and porphyries, pyritous diorites and diabases, chrome-iron serpentines and pyritous felsites; the author considers that this order probably indicates the succession of these rocks in time. The veinstones he thinks were probably deposits of mineral matter from the hydrothermal action which preceded, accompanied, and continued long after the cooling of the traps themselves. The volcanic rocks, in the author's opinion, have played a most important part in determining the elevation and present physical outline of North-eastern Queensland; they follow the line of greatest elevation on the main watershed at altitudes of from 1,500 to 2,000 feet above the sea-level. The general arrangement of the other rocks referred to is epitomised by the author as follows:—"With the exception of the McKinlay ranges, a line drawn parallel with the eastern coast at a distance of 250 miles would include all the Palæozoic, Metamorphic, Granitic, Trappean, and Volcanic rocks represented in the colony, both coal-groups lying within the same area. The Mesozoic and Cainozoic systems occupy the surface area to the westward. The descent going eastward is first locally a thin capping of 'Desert Sandstone,' next Carboniferous, then Devonian, and possibly Silurian, with patches of metamorphic and granitic rocks interspersed. The chief granitic mass extends from Broad Sound to Cape York, with an occasional capping of 'Desert Sandstone.'" The paper contained numerous analyses of the various rocks, and the fossils have been worked out by Messrs. Etheridge and Carruthers, whose lists and descriptions of them are appended to the paper.

Linnean Society, May 2.—Mr. G. Bentham, president, in the chair.—Dr. Joseph Leidy, of Philadelphia, and Prof. Notaris, of Genoa, were elected to the two vacant places in the list of foreign members.—On *Alibertia edulis*, by Senor Correa de Mello.—Mr. Miers exhibited a substance which he had received from the Brazilian Government, which it was thought might, to a certain extent, become a substitute for cotton. It is a product of the liber of a climbing plant of unknown relationship, and can be procured in any quantity, furnishing a fibre of very strong and silky texture.

Anthropological Institute, May 6.—Sir John Lubbock, Bart., president, in the chair. The following papers were read:—"Note on the Peculiarities of the Australian Cranium," by Mr. S. M. Bradley, F.R.C.S.; "Notes on a Scaphoid Skull," by Dr. Barnard Davis, F.R.S.; "On Certain Points concerning the Origin and Relations of the Basque Race," by Rev. W. Webster and Mr. Stuart Menteath; "Mann: its names and their origins," by Mr. J. M. Jeffcott; "Vocabulary of Original Dialects of Queensland," by Mrs. Barlow; "On the Mode of Preparing the Dead among the Natives of the Upper Mary River, Queensland," by Mr. A. McDonald.

DUBLIN

Natural History Society, February 7.—Prof. E. Perceval Wright, M.D., in the chair.—The following gentlemen were

elected as officers and council of the society for the present session:—President—Prof. E. Perceval Wright, M.D.; Vice-Presidents—Mr. William Archer, Dr. Alexander Carte, Dr. Robert M'Donnell, Lord Ventry; Honorary Treasurer—Mr. A. Andrews; Honorary Secretaries—Mr. William Andrews and Dr. A. W. Foot; Council—Mr. R. Ball, Mr. H. Barton, Rev. S. Haughton, M.D., M. A. Jacob, M.D., Mr. T. Kift, Mr. A. Macalister, M.B., Mr. D. Moore, Mr. M. Barrington, Mr. Edward Crowe, Dr. Fraser, Rev. T. O'Mahony, M.A., Rev. Eugene O'Meara, M.A., and Mr. George Porte. Dr. E. P. Wright returned thanks to the members for the honour they had conferred upon him, and stated that, at the suggestion of the Hon. Secretary, he would defer the introductory address to the next meeting of the Society.

KILKENNY

Royal Historical and Archæological Association of Ireland, April 3.—Rev. P. Moore in the chair.—The secretary exhibited an ancient ecclesiastical seal of the Primatial See of Armagh, and read a report on the state of the Round Tower of Kilmacduagh, County Galway. The following papers were read: "On the old Church of Donaghmore, County Limerick, with a photograph," by the Rev. M. Malone; "On the old Kilkenny Canal," by A. Walters; "On the Corrack or Ancient Wicker Boat covered with Skin," by W. F. Wakeman; "On an Ancient Bell found near the old Church of Drumrath, County Tyrone, with a photograph, and on a Silver Ring-brooch found in the Cran nog of Aghalougher, County Antrim," by J. Nolan.

VIENNA

Imperial Academy of Sciences, March 21. — Prof. Hlasiwetz presented a memoir by M. A. Exner, on the synthesis of hyponitric acid, N^2O^4. — Prof. Suess made a preliminary communication on the structure of the Italian Peninsula, in which he showed that the mountain chain which forms the Calabrian peninsula is a fragment of the tectonic axis of the peninsula, but that the continuation of this axis lies concealed under the Tyrrhenian sea. The southern half of the western part of the Alps is also sunk beneath the plain of Lombardy. The Appenines form the north-eastern, and Sicily a fragment of the south-western, subsidiary zone of the Tyrrhenian mountain chain; and the volcanoes stand for the most part either in series on the margins of fracture, or in groups in the middle of the regions of depression. The relation of the Hungarian trachytes to the Carpathians is the same as that of the Italian volcanoes to the Appenines.—Prof. E. Weiss reported upon the difference of longitude between the observatory of Vienna and that at the Military Academy of Wiener-Neustadt.—Dr. H. W. Reichardt reported upon the Botanical Results of the Polar Expedition of 1871. The number of species brought by Lieutenant Payer was about thirty; they were collected in the southern part of Spitzbergen and some adjacent islands, and in Hope Island.

BOOKS RECEIVED

ENGLISH.—Extracts from the 13th vol. of the Astronomical Observations made at the Royal Observatory, Edinburgh: C. P. Smyth (Neil and Co., Edinburgh).—Botany for Beginners, Dr. M. T. Masters (Bradbury and Evans).—Beeton's Science, Art, and Literature, a Dictionary of Universal Information, Vol. i. (Ward, Lock, and Tyler).—The Martyrdom of Man: Winwood Reade (Trübner and Co.).—Spiritualism Answered by Science, 2nd edition: E. W. Cox (Longmans).

PAMPHLETS RECEIVED

ENGLISH.—Journal of the Quekett Microscopical Club, April.—Concerning Sewage and its Economical Disposal: F. H. Danchell.—The Ukara Lake: R. F. Burton.—The Scottish Naturalist, April.—Quarterly Journal of Science, April.—Journal of the Statistical Society, March.—A Series of Chemical Labels for Use in Laboratories: Mottershead.— University of Cambridge: Report of the Museums and Lecture Rooms Syndicate.—On the Curability of Cancer: Dr. G. von Schmidt.—Proceedings of the Cleveland Institute of Engineers, March.—Currents and Surface Temperature of the North Atlantic Ocean.—Proceedings of the Bristol Naturalists' Society, 1871.—An Appeal to Reason to Reform Itself.—39th Annual Report of the Royal Cornwall Polytechnic Society, 1871.—The Miners' Association of Devon and Cornwall, Report of Annual Meeting.—Report of the Rugby School Natural History Society, 1872.—Quarterly Journal of Microscopical Science, April.—Proceedings of the Royal Physical Society of Edinburgh, 1870-71.—On Teaching Geology and Botany as part of a Liberal Education: J. M. Wilson.—Annual Report of the Maidstone and Mid-Kent Natural History and Philosophical Society, 1871.

AMERICAN AND COLONIAL.—Third Annual Report of the State Board of Health, Massachusetts.—On two new Ornithosaurians from Kansas: E. D. Cope.—Some Phases of Modern Philosophy: E. K. Price.—The Use and Origin of the Arrangements of Leaves in Plants: Dr. Chauncey Wright.—A Continuation to a Catalogue of Maps of the British Possessions of India.—The Development of *Limulus polyphemus*: A. S. Packard.—On the Families of Fishes: E. D Cope.—Historical Notes on the Systems of Weather Telegraphy in the United States: C. Abbé.—The Cincinnati Medical News, Vol. i., No. 3.—The Indiana Journal of Medicine, Vol. ii., No. 2.—Medical Education in America: J. H. Bigelow.—Preliminary Report of the United States Geological Survey of Montana: Prof. Hayden.—Canadian Naturalist, Vol. vi., No. 3.—Report of the Chief Commissioner of Mines for the Province of Nova Scotia, 1871.—Acoustical Experiments: Alfred M. Mayer.

FOREIGN.—Öfversigt af konig. Vetenskaps Akad. Förhandlinger.—Anwendung der Darwinschen Lehre auf Bienen: H. Müller.—Memorie della Societa degli Spettroscopisti Italiani, 3 nos.—Bulletin de la Société d'Anthropologie de Paris, July and August, 1871.—Contributions to the Biology and History of the Development of the *Ustilagineæ*: Dr. A. Fischer von Waldheim.—La Belgique Horticole, March and April.—k. k. Akademie der Wissenschaften zu Wien, No. 7, 1872.—Académie Royale de Belgique, 1872.—Berichte der k. sächsischen Gesellschaft der Wissenschaften, July, 1871.—Notes sur des singes fossiles trouvés en Italie: C. J. Forsyth Major.

DIARY

THURSDAY, MAY 9.

SOCIETY OF ANTIQUARIES, at 8.30.—Inventories of Westminster, Waltham, and St. Albans: Rev. M. E. C. Walcott, F.S.A.

LONDON INSTITUTION, at 7.30.—On Solution and Supersaturation: C. Tomlinson, F.R.S.

MATHEMATICAL SOCIETY, at 8.

ROYAL INSTITUTION, at 3.—On Heat and Light: Prof. Tyndall, F.R.S.

FRIDAY, MAY 10.

ASTRONOMICAL SOCIETY, at 8.

QUEKETT MICROSCOPICAL CLUB, at 8.

ROYAL INSTITUTION, at 9.—On Meteoric Stones: Nevil Story-Maskelyne.

SATURDAY, MAY 11.

ROYAL INSTITUTION, at 3.—The Star-Depths: R. A. Proctor.

GOVERNMENT SCHOOL OF MINES, at 8.—On Geology: Dr. Cobbold, F.R.S.

MONDAY, MAY 13.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.

TUESDAY, MAY 14.

ROYAL INSTITUTION, at 3.—On the Development of Belief and Custom amongst the Lower Races of Mankind: E. B. Tylor, F.R.S.

PHOTOGRAPHIC SOCIETY, at 8.

WEDNESDAY, MAY 15.

SOCIETY OF ARTS, at 8.—On a New Mode of Utilising Sewage Precipitates: Major-General H. Y. D. Scott, C.B.

PHARMACEUTICAL SOCIETY, at 11 A.M.—Anniversary Meeting.

THURSDAY, MAY 16.

ROYAL SOCIETY, at 8.30.

SOCIETY OF ANTIQUARIES, at 8.30.

CHEMICAL SOCIETY, at 8.

ROYAL INSTITUTION, at 3.—On Heat and Light: Prof. Tyndall, F.R.S.

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