

Revue Internationale des Sciences, May, 1881.—M. Debierre, on physical dynamism and biological dynamism (concluded).—A. Charpentier, on the examination of the powers of vision, from a general medical point of view.—J. Morton, the city of Gheel, in Belgium, and its asylums.—H. Müller, on the pretended refutation of Boumer of the theory of flowers (translated from *Kosmos*).

Nyt Magazin for Naturvidenskaberne, Christiania, 1880-1881. Band 26, Heft 1.—Herr Leonhard Stejneger continues his contributions to the ornithology of Madagascar, and describes a new *Tylas*, which appears to be closely allied to the *T. madagasc.* of Grandidier.—L. Meinich gives the result of his examination of the quartz and sandstone formations of the Trysilfeld near Kongsberg, Norway, and Herr H. Rensch, editor of *Naturen*, describes the geological character of the strangely dislocated and fissured fjeld known as the Torghattee, on an island off the Heligoland coast. The same writer occupies nearly all the pages of Heft 2, first in giving the remainder of his observations of the Torghatten caverns and rocks, and next in a comprehensive and elaborate description of the character of the conglomerate sandstones and metamorphosed schists in the Nordfjord and Gøndfjord districts near Berglun, to which he adds the analyses and histological results obtained from the examinations of these rocks in the Leipzig mineralogical laboratory. These numbers of the magazine contain, however, some specially interesting communications by Herren Daniellssen and Koren of the various new forms of Gephyrea and Echinodermata obtained in the Norwegian Arctic Expedition. These observers describe a form of Bonellia, to which they have given the name of *Hamingia Arctica*, which approximates closely to *Bonellia viridis*, first found in the northern seas about forty years ago by Herr Koren. Only one specimen was obtained of *Hamingia*. In regard to echinoderms the expedition has proved more fortunate, and Herren Daniellssen and Koren describe several new forms of Asterias, Solaster, and Asterina.

SOCIETIES AND ACADEMIES

LONDON

Mathematical Society, June 9.—S. Roberts, F.R.S., president, in the chair.—Prof. Mannheim and Mr. T. Craig (United States Coast Survey) were admitted into the Society, and Mr. G. R. Dick, Professor of Mathematics in the Royal College, Mauritius, was elected a member.—Much interest was excited at the meeting by the fact that one of the Society's Foreign Members was present, and proposed to read a paper. M. Mannheim is well known in this country to be a most elegant cultivator of the modern geometry on the lines of Poncelet and Chasles. He has more especially worked at the following subjects:—(1) The method of geometrical transformation, following out in this direction Poncelet's researches in the theory of reciprocal polars; (2) the plane representation of certain space-figures; (3) the wave surface (his early papers form the subject of an article in the *Quarterly Journal* for 1878 by Prof. C. Niven, F.R.S.); but lastly, he has been more particularly engaged upon the study of properties relative to the displacement of figures in space; to this he has given the name of "Géométrie Cinématique" (Dr. Ball in his "Theory of Screws" says, "To M. Mannheim belongs the credit of having been the first to study geometrically the kinematics of a constrained body from a perfectly general point of view");—his recent work with this title has obtained a warm recognition *propter merita* in this country—on this occasion Prof. Mannheim communicated a paper "Sur les surfaces parallèles," which was characterised by all the clearness and power of exposition so well known to belong to mathematicians of the French school. Dr. Hirst, F.R.S., in proposing a vote of thanks, lightly touched upon the novelties of the communication, and expressed the pleasure it gave him and the meeting to see his fellow-student and friend present in the Society's rooms. A cordial vote of thanks having been carried, M. Mannheim briefly thanked the members present for their kind reception of him.—Other communications were:—On certain symbolic operators, by Mr. J. W. L. Glaisher, F.R.S.—On a system of co-ordinates, by Prof. Genese.—Note on a system of Cartesian ovals passing through four points on a circle, by Mr. R. A. Roberts.—On the Gaussian theory of surfaces, by Prof. Cayley, F.R.S.—On a theorem in the calculus of operations, by Mr. J. J. Walker.—On spherical quartics, with a quadruple cyclic arc and a triple focus, by Mr. H. M. Jeffery, F.R.S.—Note on the wave surface, by Prof. Mannheim.

Chemical Society, June 2.—Prof. Roscoe, president, in the chair.—It was announced that a ballot for the election of Fellows would take place at the next meeting of the Society (June 16).—The following papers were read:—Experimental researches on the amalgamation of silver ores, by C. Rammelsberg.—On the action of solvents on saponified oils and waxes, by A. H. Allen and W. Thomson. The authors have made many experiments with a view of discovering a correct method for the analysis of mixtures of hydrocarbons with animal and vegetable fatty matters. Two methods are suggested. In both, the sample is boiled with a solution of caustic soda in alcohol, which is, in one case, diluted with water, and then shaken up with ether, to dissolve out the unsaponifiable matter, leaving the soap in the solution; in the other method alcohol is added to the mixture, and then some sodium bicarbonate and ignited sand; the whole is dried and extracted by petroleum spirit in a Soxhlet apparatus. Some analyses are given in the paper; good results were obtained.—On the sulphides of copper and a determination of their molecular weight, by S. U. Pickering. The author has heated cupric sulphide alone, in a current of hydrogen and in a current of carbonic acid, and concludes that the sulphur is given off in two separate and equal portions at totally different temperatures; therefore the molecule contains two atoms of sulphur. Hydrogen reduced the sulphide to the metallic state.—Chemical examination of the Buxton thermal water, by J. C. Thresh. The author has disproved the extraordinary statements of Playfair and Muspratt that one gallon of this water contains 206 and 504 cubic inches of nitrogen. The water really contains 22.98 c.c. of nitrogen per litre. He points out how the error originated. A complete analysis of the mineral constituents is given; amongst them are molybdenic acid, cobalt oxide, &c.—On potable waters; determination of total solids, by E. J. Mills. This determination is made by carefully noting the time required by a glass bulb to rise a given distance through the water.—On the estimation of the value of zinc powder and on a gauge for measuring the volume of gases without calculation for temperature and pressure, by J. Barnes.

Zoological Society, June 7.—Prof. W. H. Flower, LL.D., F.R.S., president, in the chair.—The Secretary called the attention of the meeting to the opening of the Insectarium in the Society's Gardens, which had taken place on April 25, and read a report on the insects that had been reared and exhibited there, drawn up by Mr. W. Watkins, the Superintending Entomologist.—Mr. F. M. Balfour, F.Z.S., read a paper on the development of the skeleton of the paired fins of Elasmobranchs considered in relation to its bearings on the nature of the limbs of the Vertebrata. The object of the investigations recorded in this paper was explained by the author to be twofold—viz., on the one hand to test how far the study of the development of the skeleton of the fins supported the view which had previously been arrived at by the author, to the effect that the paired fins were the specialised and highly-developed remnants of a once continuous lateral fin on each side, and on the other to decide between the views of Gegenbaur and Huxley and Thacker and Mivart as to the primitive type of fin-skeleton. The author pointed out that the results of his researches were entirely favourable to the view that the paired fins were structures of the same nature as the unpaired, and that they gave a general support to the views of Thacker and Mivart. They clearly showed that the pelvic fins retain more primitive character than the pectoral. Conclusions were drawn somewhat adverse to the views recently put forward on the structure of the fin by Gegenbaur and Huxley, both of whom considered the primitive type of fin to be most nearly retained in *Ceratodus*, and to consist of a central multisegmented axis with numerous rays on its two sides. It appeared, in fact, that the development of the skeleton demonstrates that a biserial type of fin like that of *Ceratodus* could not have been primitive, but that it must have been secondarily derived from a uniserial type, by the primitive bar along the base of the fin (the *basipterygium*) being rotated outwards, and a second set of rays being developed on its posterior border.—Mr. W. T. Blanford, F.Z.S., read some notes on a collection of Persian reptiles recently added to the British Museum, amongst which was an example of a new species of lizard, proposed to be called *Agama Persica*.—A communication was read from the Rev. O. P. Cambridge, C.M.Z.S., on a new spider of the family Theraphosidae. The chief interest attaching to this spider was the fact that it had lived in the Gardens of the Society from March to October, 1880. Mr. Cambridge proposed to name the species *Homocomma Stradlingii*, after Dr. Stradling, who had brought the specimen

in question home from Bahia.—Mr. G. E. Dobson, C.M.Z.S., read a paper on the pharynx, larynx, and hyoid bones in the *Epornophori*, indicating some very remarkable peculiarities of structure, in which these bats appear to differ not only from all other Chiroptera, but from all other mammals. Pharyngeal air-sacs were also described in the males of *Epornophori monstruosus*, *franqueti*, and *comptus*.—Mr. J. Gwyn Jeffreys, F.R.S., read the third of the series of his memoirs on the Mollusca procured during the *Lightning* and *Porcupine* expeditions, 1868–70. The present paper contained an account of the families from *Kelliida* to *Tellinida*. Eleven new or hitherto unfigured species were described. The geographical, hydrographical, and geological distribution of the species enumerated were fully given.—Mr. F. C. Selous read a paper on the South African Rhinoceroses, based upon specimens collected and observations made during nine years' hunting in Southern and South-Central Africa. Mr. Selous had come to the conclusion that in these countries only two well-marked species of *Rhinoceros* existed—namely, the square-mouthed *Rhinoceros simus*, and the preheuse-lipped *R. bicornis*.

Entomological Society, June 1.—Mr. H. T. Stainton, president, in the chair.—Rev. E. N. Bloomfield, M.A., was elected a Subscriber to the Society.—Mr. J. Jenner Weir, on behalf of Mr. J. W. Douglas, exhibited, and read remarks on, various British species of *Aleurodes* and *Orthoena*, one of which was described as new to science under the name of *O. Normani*.—Mr. T. R. Milpils exhibited specimens of *Cynbro clavipes*, L., and *Malorchus minor*, L.—Mr. J. Sang exhibited some interesting varieties, &c., of British *Lepidoptera*.—The Secretary read a communication from Mr. G. E. Piercey respecting a creature stated to be noxious to travellers in Turkestan. It was suggested that this was probably identical with the well-known *Argas Persicus*.—The Secretary also read a report from the Committee appointed at the last meeting of the Society to inquire into the supposed presence of *Phylloxera* on the vines in Victoria; also a communication from the Colonial Office respecting an insect stated to be destructive to the eggs of locusts in the Troad.—Lord Walsingham read a paper on the *Tortricide*, *Tineide*, and *Pterophoride* of South Africa.—Mr. A. G. Butler communicated a memoir on the genus *Sygnia*.—Mr. W. L. Distant communicated descriptions of *Rhynchota* from the Australian and Pacific regions.

PARIS

Academy of Sciences, June 6.—M. Wurtz in the chair.—The Secretary read telegrams from the Emperor of Brazil (of May 31 and June 2) announcing the discovery of a comet.—On the right ascensions of the moon observed at Algiers by M. Trepied, by M. Faye. Hansen's tables, defective for long-period inequalities, are shown to be perfect for ordinary inequalities. Newcomb's correction, instead of being too great, has to be increased 1".—Researches on sulphide of nitrogen, by MM. Berthelot and Vielle. *Inter alia*, it detonates with violence under the hammer, but it is less sensible to shock than fulminate of mercury or nitrate of diazobenzol. In heating, it deflagrates about 207°. The heat of formation is negative. The pressures arising from explosion in a closed vessel are very near those from fulminate, but the velocity of decomposition is very different.—On the report of M. Roudaire, on his last expedition in the Tunisian Chotts, by M. de Lesseps. Further examination confirms the feasibility of the inland sea project, the political advantages of which (with others) are noted.—On the geological results of M. Roudaire's mission, by M. Hébert. Tunisia seems to have emerged during the long periods between the deposit of the Senonian Chalk and that of the Middle Miocene. The basin of the Chotts, with the Cretaceous masses bordering it on either side (their strata anticlinal), are like a button-hole, the Chotts forming the aperture.—New analyses of jadeite and some sodiferous rocks, by M. d'Amour. It is proved that beds of jadeite (which is largely used in India and China for ornaments, and found in the form of coins, hatchets, &c., in European dolmens and caves), exist in Asia, especially the Thibet region; also in North and South America. From analysis of some European rocks the author finds reason to suppose that beds of jadeite may also be found in the Alpine chain, or region near; thus the prehistoric articles in Europe would be naturally explained, without migration of Asiatic peoples. MM. Bousingault and Daubrèe made remarks on the subject.—Study of electricity on board modern ships; incidental remarks (1) on the influence of the mode of junction in complex electric circuits, and (2) on the

principle of an electric hygrometer and a fire-alarm, by M. Lediou. The iron hulls of fast ships, sheathed with wood, then copper, both fixed metallicly, form a complex pile, which the author studied. Experimenting with a moist piece of wood having copper nails in it, he found a battery current had much greater intensity when the rheophores were applied to the nails than when applied to the wood. Using dry wood with the former arrangement, the intensity varied with the atmospheric moisture. This might be applied, e.g. in measuring dew-formation. For a fire-alarm he would keep the wood slightly moist by means of spongy matter on its surface connected with water. A galvanometer would indicate the degree of dryness of the wood, and if a certain limit were reached the needle would cause a bell to ring.—On the rôle of phosphoric acid in volcanic soils, by M. de Gasparin. He controverts Prof. Ricciardi's view that the fertility of the eruptive strata of Etna is due to presence of this mineral. The concomitance of muddy formations, and the climate, hastening the decomposition of lava, are the chief factors.—The vines of Soudan of the late M. Légard, by M. Planchon.—The solar parallax deduced from American photographs of the transit of Venus of 1874, by Mr. Todd.—On the functions of two variables arising from the inversion of integrals of two given functions, by M. Fuchs.—On the expressions of co-ordinates of an algebraic curve by Fuchsian functions of a parameter, by M. Picard.—On a property of uniform functions, by M. Poincaré.—On the liquid state and the gaseous state, by Mr. Hannay. He claims to have proved, more than a year before, for all pressures, what MM. Cailliet and Hautefeuille have lately established for a single pressure: viz., that the continuity of the liquid and gaseous states (Andrews) is only apparent.—Cyanides of sodium and barium, by M. Joannès.—On the combinations of iodide of lead with alkaline iodides, by M. Ditte.—On the rôle and the origin of certain microzymes, by M. Béchamp. The microzymes in rocks, earth, mould, street-dust, or the slime of marshes, have no other origin than those forming an integral part of every living organism, and whose rôle is the total destruction of this after death; after which they remain in the soil or the air, ready chiefly for transformation of organic matter for vegetation.—On the non-existence of *Microzyma Cretæ*; reply to M. Béchamp, by MM. Chamberland and Roux.—On the mechanism of troubles produced by cortical lesions, by M. Couty. Unilateral and limited cortical lesions involve profound modifications of the various functions of the medulla oblongata and the spinal cord opposite, leaving intact the brain-functions.—On the embryology of Ascidians of the genus *Lithonephora*, by M. Giard.—On the stomatorrhiza of *Succutina carcini*, Thompson, by M. Jourdain.—On the morphology of the foetal envelopes of Chiroptera, by M. Robin.—Contributions to the cryptogamic flora of Banks's Peninsula (New Zealand), by M. Cric.—Mr. Stone's star-catalogue was presented by M. d'Abbadie.

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