

made:—Continuation of a former paper on simplicissima, by W. J. C. Sharp.—Synthetical solutions in the conduction of heat, by E. W. Hobson.—Symmetric functions, part ii., by R. Lachlan.—On a law of attraction which might include both gravitation and cohesion, by G. S. Carr.—Messrs. Buchheim, Larmor, and Greenhill spoke upon the various papers.

PARIS.

Academy of Sciences, April 9.—M. Janssen, President, in the chair.—Observations of the minor planets made with the great meridian instrument of the Paris Observatory during the third and fourth quarters of the year 1887, by M. Mouchez. The right ascension, polar distance, and correction of ephemerides are tabulated for thirteen of the minor planets.—On Gompertz and Makeham's laws of mortality, by M. J. Bertrand. Some arguments are advanced to show that, although he does not mention them, Thomas Simpson must have been acquainted with one or both of these laws.—Observations on the fixation of nitrogen by certain vegetable soils, by M. Berthelot. Some remarks are made in connection with the author's previous communications and M. Schloësing's recent notes on this subject. It is pointed out that M. Schloësing has not taken sufficient account of the experimental conditions which M. Berthelot has shown to be necessary in dealing with the question of nitrification.—On a new gas-thermometer, by M. L. Cailletet. This instrument, which has been for some time employed by the author, especially in connection with his researches, jointly made with M. Bouty, on the measurement of electric resistances at low temperatures, is described as of an extremely sensitive character, indicating differences of height of 2.36 millimetres for 1° of temperature. Being intended for measuring extremely low temperatures, it is charged with hydrogen as the expanding body.—Report on M. Delauney's astronomical communications, by the Commissioners, MM. Daubrée, Tisserand, and Faye. These communications, which were addressed to the Academy during M. Delauney's residence in Cochinchina, are now resumed in one volume, and are of an extremely varied character. They deal with the distances of the planets from the sun; the distances of the satellites from their respective planets; the distances of certain stellar groups from the central orbs of their systems; the distance of aërolites from the sun, their action on the solar spots, on our volcanoes, on the meteorological phenomena of our atmosphere, and on terrestrial magnetism; formation of the stellar systems, and especially that of Sirius, of which the sun itself, with Procyon, α Centauri, Vega, Arcturus, and others, would appear to be members. These, and other even bolder speculations, seem based on the three laws of distances here formulated by the author.—Observations of Sawerthal's Comet 1888 *a* made at the Paris Observatory (equatorial of the West Tower), by M. G. Bigourdan, and at the Bordeaux Observatory (0.38 m. equatorial), by MM. G. Rayet and Courty. The Paris observations cover the period from March 25 to April 6; those of Bordeaux from April 4–6.—Observations of Palisa's new planet, discovered April 3, 1888, made at the Observatory of Algiers with the 0.50 m. telescope, by MM. Trépiéd and Sy. These observations, made on April 4, give an estimated magnitude of 12.5 for this planet.—On M. Bertrand's geometrical curves, by M. G. Demartres. These curves are here considered as geodetic lines of ringed surfaces, and the following problem is proposed and discussed: To find the surfaces whose circular generator is inclined at the same angle, i , on the same family of geodetic lines, this angle, however, being capable of varying from one generator to the next.—Action of the tetrachloride of carbon on oxygenated mineral compounds free of hydrogen, by M. H. Quantin. It was long ago shown by Geuther that potassa and baryta raised to a red heat in the vapour of the tetrachloride of carbon are transformed to chlorides and carbonates. More recently the experiments of Demarçay and Quantin, since confirmed by Lothar Meyer, have shown that oxides which cannot be attacked by chlorine alone are under the same conditions also transformed to chlorides. In the present paper the author deals more fully with these phenomena, and generalizes the results already obtained.—On the sesquichloride of rhodium, by M. E. Leidié. After examining the processes hitherto employed in the preparation of the anhydrous sesquichloride, the author describes a new method in which the chlorine acts on the alloy of rhodium and tin, RhSn₃, described by Debray. He then gives the processes of preparation of some double chlorides formed by the hydrated sesquichloride.—On the passive property of nickel, by M. Ernest Saint-Edme.

Having already described the results of his researches on the passivity of steel and iron, the author here deals with some of the conclusions he has obtained from the analogous study of nickel.—Action of the cyanide of zinc on some chlorides, by M. Raoul Varet. The results are described of experiments with the chlorides of mercury and copper, as well as with the alkaline chlorides. The general conclusion is arrived at that the cyanide of zinc does not enter into molecular combination with the chlorides.—Syntheses by means of cyanacetic ether (continued), by M. Alb. Haller. In the present paper the author deals with the higher homologues of acetylcyanacetic ether.—Heat of formation of aniline, by M. P. Petit. The heat of formation of aniline is here determined, both by the wet and dry processes, with fairly uniform results.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

A Key to the Mysteries of Water, Electricity, and Heat: W. Boggett (Trübner).—Die Catastrophe von Zug, 5 Juli, 1887 (Hofer and Burger, Zürich).—Zrání Oplození a Rýchování Vajiča: Fr. Vejvodský (Prag).—Zeitschrift für wissenschaftliche Zoologie, 46 Band, 2 Heft (Leipzig).—Proceedings of the Academy of Natural Sciences of Philadelphia, Part 3, 1887 (Philadelphia).—Journal of Physiology, vol. ix. No. 1 (Cambridge).—Bulletin de la Société Impériale des Naturalistes de Moscou, 1888, No. 1 (Moscou).—Proceedings of the Geologists' Association, No. 87 (Stanford).—Botanische Jahrbücher für Systematik, Pflanzengeschichte, und Pflanzengeographie, Neunter Band, 4 Heft (Williams and Norgate).—Annalen des k. k. Naturhistorischen Hofmuseums, 1887 (Wien).—Journal of Comparative Pathology and Therapeutics, Part 1 (Johnston).—Journal of the Society of Telegraph-Engineers and Electricians, No. 71 (Spon).—Journal of the Asiatic Society of Bengal, vol. xvi. Part 2, Nos. 2 and 3 (Calcutta).—Journal of Anatomy and Physiology, April (Williams and Norgate).—Sitzungsberichte der k. b. Gesellschaft der Wissenschaften. Math. Naturw. Classe, 1886 (Prag).—Bericht über die Math. und Naturw. Pubn. ii. Heft (Prag).—Geschichte der k. b. Gesellschaft der Wissenschaften, Zweites Heft (Prag).—A Higher Arithmetic and Elementary Mensuration: P. Goyen (Macmillan).—Next of Kin Marriages in Old Iran: D. P. Sunjana (Trübner).—Mechanics and Experimental Science: Chemistry, C. Aveling (Chapman and Hall).—The Minerals of New South Wales, &c.: A. Liversidge (Trübner).—Dissolution and Evolution and the Science of Medicine: C. P. Mitchell (Longmans).—Notes from the Leyden Museum, vol. 9, Nos. 1 and 2 (Leyden).—Journal of the Royal Statistical Society, March (Stanford).—Journal of the Chemical Society, April (Gurney and Jackson).—Bulletin de l'Académie Royale des Sciences de Belgique, No. 2 (Bruxelles).—Journal of the Royal Microscopical Society, April (Williams and Norgate).—The Auk, April (New York).—Mittheilungen der Naturforschenden Gesellschaft in Bern, 1887 (Bern).—Verhandlungen der Schweizerischen Naturforschenden Gesellschaft in Frauenfeld, 1886–87 (Frauenfeld).—Quarterly Journal of the Royal Meteorological Society, January (Stanford).

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