

its exact value and state of preservation is obvious. As the same standard was used for the measurement of an arc of the meridian in Peru, it forms the connecting link between the older and more recent geodetic operations. It thus becomes an object of the highest interest, not only for France, but for the whole scientific world, and the author here replies in detail to the doubts and objections that have been raised by Peters and others in Germany against its authenticity and state of preservation. At his request the whole question will be submitted to a Commission appointed for the purpose by the Academy, consisting of MM. Faye, Mouchez, Janssen, F. Perrier, and Wolf.—Memoir on the order in which the first vessels in the leaves of the Cruciferae make their appearance: mixed formation, and morphogeny, by M. A. Trécul. The leaves of all the plants here treated belong to one of the two types of mixed formation described by the author in 1853, that in which the lobes or teeth of the lower part of the leaf are formed from above downwards, while those of the upper part are developed in the contrary direction from below upwards.—Theoretical considerations on the principles affecting the roll of vessels at sea, in connection with M. de Burry's recent communication (*Comptes rendus* of January 4, 1886), by M. A. Ledieu. It is shown that M. de Burry's conclusions cannot be accepted because based on de Benazé and Risbec's formulas, which are applicable only to ships in smooth water, account being taken of the resistance of the keel.—Remarks in connection with the *Bulletin* of the Society for the Encouragement of National Industry, presented to the Academy by M. Haton de la Goupillière.—Note on the hurricane that swept the Gulf of Aden in June 1885, by Vice-Admiral Cloué. The cyclone, in which five large vessels foundered, including the German corvette *Augusta*, and the French aviso *Le Renard*, both with all hands, and in which probably over 800 lives were lost, was especially remarkable for its sudden appearance. As it penetrated up the Gulf, it contracted from a diameter of 150 miles 250 miles east of Socotra to 50 miles at Obock, increasing in velocity from 8 to 15 miles an hour. The diameter appears to have continued to contract towards the interior of the continent, where it overtook a caravan proceeding from Sangallo in the direction of Shoa.—Remarks on the first botanical collections that have reached the Paris Natural History Museum from Tonquin (continued), by M. Ed. Bureau. Although collected exclusively in the delta of the Red River and surrounding hills, this flora includes no less than 407 species, distributed over 95 families. It comprises probably not a fourth of the whole flora of Tonquin, which thus appears to be one of the richest in the world.—Note on the ephemeris of Fabry's comet, by M. Lebeuf.—Complementary note on the barometric depressions observed by M. Perrin on board the *Galissonnière* in the Red Sea, by M. Mouchez.—Simplifications which may be effected in the numerical calculation of perturbations of planets, by M. O. Callandreaux.—On the latitudinal distribution of the solar phenomena observed during the year 1885, by M. P. Tacchini. The general conclusions arrived at are—(1) In 1885 the solar phenomena were more frequent in the southern hemisphere; (2) while the protuberances appear in each zone, the spots, faculae, and eruptions are confined almost entirely to the regions between the equator and $\pm 40^\circ$, one eruption and one facula alone being recorded in higher latitudes; (3) the maximum of eruptions, spots, and faculae occurs in the same zone of the southern hemisphere; (4) eruptions were less frequent in 1885 than in 1884, which was also true of the solar spots, showing the connection between these two phenomena; (5) the protuberances, on the contrary, were more frequent in the zones where no spots occurred.—On the theory of diversities in mathematical analysis, by M. Lipschitz.—Note on the construction of the tangents to plane curves, and determination of the point at which a movable straight line touches its envelope, by M. René Godefroy.—On the determination of the coefficient of self-induction; application of the Deprez d'Arsonval aperiodic galvanometer, by M. Ledebœr.—Application of the colour-diagram to experiments made on a colour-blind person, by M. Feret.—Description of a new apparatus for the quantitative analysis of oxygenated waters (one illustration), by M. Maurice de Thierry.—On selenides of sodium and of potassium, by M. Charles Fabre.—On the formation and dissociation of manganates of baryta and strontian, by M. G. Rousseau. The author had already shown that, under temperatures increasing from dark red upwards, the manganates of baryta and strontian become dissociated at a maximum of 1000° to 1100° , the limit being marked by the formation

of a diamanganate, which at a still higher temperature returns to the state of a monomanganite. He now finds that, by raising the temperature to a white heat, this manganite disappears in its turn, passing to a maximum of oxidation and becoming integrally transformed to manganate.—On the various degrees of solubility possessed by certain chlorides in the presence of hydrochloric acid, by M. R. Engel.—Description of various processes for the separation and quantitative analysis of copper, cadmium, zinc, nickel, &c., by M. Ad. Carnot.—On the existence of the elements of sugar of milk in plants, by M. A. Müntz. Although hitherto rarely detected, it is shown that these elements are found in great abundance in plants, and that the vegetable products yielding galactose are very numerous.—On the decomposition of the sodico-ammoniacal and sodico-potassic racemates, by M. G. Wyruboff.—On the seat of the organ of taste in the coleopterous insects, by M. J. Gazagnaire.—On the labrum of the Hymenoptera, by M. Joannes Chatin.—On the processes of fructification in the fossil calamodendrons, by M. B. Renault.—Complementary observations on the origin of the diamantiferous sands of South Africa, by M. Stanislas Meunier.—On the eruptive rocks and stratified formations of the Serrania de Ronda system, south of Spain, by MM. Michel Lévy and J. Bergeron.—On the optical properties of grünerite, withamite, and some other minerals destitute of determinable crystalline forms, by M. A. Lacroix.—On the spectrum of the *Ya* earth, by M. W. Crookes.—On the mosandrine earth of Lawrence Smith, by M. Lecoq de Boisbaudran.

BOOKS RECEIVED

"Turkestan," by J. Mochketon (St. Petersburg).—"The Statesman's Year-Book, 1886," edited by J. S. Keltie (Macmillan and Co.).—"Scientific Memoirs by Medical Officers of the Army of India," part I., 1884 (Calcutta).—"Minutes of the Sixth Annual Convention of the Provincial Educational Association of Nova Scotia, July 15 and 16, 1885" (Macnab, Halifax).—"Existing Glaciers in the United States," by J. C. Russell (Washington).—"L'Evolution et la Vie," by D. Cochin (G. Masson, Paris).—"Hourly Meteorological Readings, 1883," part iii., July to September).—"Christy's Guide to Poultry Rearing," new edition, by T. Christy.—"Annales del Museo Nacional de Buenos Aires, Entrega Décimacuarta," Segunda del toma iii., by German Burmeister (Buenos Aires).

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