

these bodies on diluting or heating their solutions.—A botanical note, by M. Léon Guignard, on the formation and differentiation of the sexual elements which take part in fertilization.—Another botanical paper, by M. A. Prunet, on the comparative structure of the nodes and internodes in the trunk of the Dicotyledones.—Under geology, M. de Folin has a paper on the formation of nummulitic rocks. He concludes that these rocks are formed by the work of an organism of the same order as the Rhipidopodes.—Also under geology, M. Stanislas Meunier contributes some chemical researches on the fossil shells of Foraminifera, Mollusks, and Crustacea. He has investigated the composition of the flocculent organic residue formed when these fossil shells are dissolved in acid.—On Pyrenean kersanton, its age and affinities with ophite, by M. J. Caralp.

## BERLIN.

**Physiological Society, February 28.**—Dr. Rosenstein exhibited a patient with distension of the lymphatics in the leg, and fistulous openings which discharged an albuminous fluid sometimes amounting to 1100 c.c. in a day. Dr. J. Munk has made observations on this fluid. It is sometimes transparent, but is always milky after a meal containing fat. It thus resembles chyle rather than lymph, and probably really is chyle. At least two-thirds of the fat given at any one meal reappeared in the fluid from the fistula. On giving olive oil, fat appeared in the fluid in two hours, increased steadily till its maximum after five hours, then diminished, and in ten or twelve hours disappeared. With a harder fat, e.g. mutton fat, the phenomena were the same, but were longer in appearing. Erucic acid given to the patient appeared as a neutral fat, and not as free acid, synthesis having been effected in the body. No appreciable absorption of fat occurs from the rectum. Large doses of starch or sugar scarcely increased the percentage of sugar, nor did large meals of albumen increase that of proteids in the fluid. Thus the only food-stuff which leaves the intestine by the lacteals is fat.

**Meteorological Society, March 4.**—Dr. Vettin, President, in the chair.—Dr. Wagner spoke on fire-damp explosions in mines in their relationship to cosmic and meteorological conditions. He discussed the collection of the gas, the conditions necessary for its explosion, the part played by coal-dust, and the several chance circumstances which may lead to the non-discovery of the gas in the workings. He next discussed the various means available for avoiding and removing accumulations of fire-damp, and gave an account of researches on the relationship of its explosion to varying barometric pressures. His own work had consisted in working up the statistics of the Dortmund mining district in which explosions are more frequent than in any other state of Prussia. The reports cover a period of 21 years and give a record of 7000 explosions. He first compared the numerical relationship of the explosions with the phases of the moon, and concluded that there is no connection between the two. He then made a similar comparison of their frequency with the rotational period of the sun, taking the latter as 25.5 days: the result was again negative. He finally compared their frequency with periods of 27.9 days, this being, according to Buys-Ballot, the cycle of temperature variations resulting from the sun's rotation. In this case the curves he obtained were quite uniform and regular, showing a maximum on the third day and a second maximum on the twentieth. He refrained from drawing any definite conclusions from this last observation in view of the numberless chance circumstances which may lead to explosions.

**Physical Society, March 7.**—Prof. Kundt, President, in the chair.—Dr. Rubens spoke on the employment of the bolometer for observing the electrical radiations of Hertz as carried out by himself and Dr. Ritter. Up to the present it had not been found possible to measure the intensity of the radiation owing to the extraordinarily minute amplitude of the oscillations; but the speaker had been able to carry out the determination by means of a bolometer whose construction and working he fully described. It consists essentially of an accurately balanced primary Wheatstone bridge, two of whose arms are again converted into secondary Wheatstone bridges. If a current passes through one of them its resistance is altered by the rise of temperature, and the galvanometer gives a proportionate throw. A similar effect is produced by a wave of electrical radiation, and hence its amplitude can be measured by this bolometer when once it has been calibrated. When experi-

menting with the polarizing wire-grating it was found that there is a constant relationship between the intensity of the rays which pass the grating and the angle of inclination of the wires to the plane of oscillation of the rays. It was further observed that the energy which does not pass the grating is reflected, and to the extent of 98 per cent., when the wires are at right-angles to the plane of oscillation. Experiments in illustration of the above were shown at the end of the communication.

## BOOKS, PAMPHLETS, AND SERIALS RECEIVED.

Report of the Meteorological Service of Canada, 1886: C. Carpmæl (Ottawa).—The Mammalia of the Uinta Formation: W. B. Scott and H. F. Osborn (Philadelphia).—A Monograph of Oriental Cicadidae, Part 2: W. L. Distant (West, Newman).—Il Monismo: E. dal Pozzo di Mombello (Castello, Lapi).—British Fossils and where to seek them: J. W. Williams (Sonnenschein).—Poems, complete edition: W. Leighton (Stock).—Classification of Birds: H. Seebohm (Porter).—Personal and Social Evolution (Unwin).—Proceedings of the Physical Society of London, Vol. x. Part 3 (Taylor and Francis).—The Asclepiad, vol. vii. No. 25 (Longmans).—Travaux de la Société des Naturalistes de St. Pétersbourg, Section de Zoologie et de Physiologie, Tome xx. Livr. 2.—Supplément aux Travaux de la Société des Naturalistes de St. Pétersbourg.—An International Idiom; A Manual of the Oregon Trade Language: H. Hale (Whittaker).—Second Melbourne General Catalogue of 1211 Stars for the Epoch 1880 (Melbourne, Brain).—Essays of an Americanist: Dr. D. G. Brinton (Philadelphia, Porter and Coates).—Days and Hours in a Garden, 7th edition: E. and B. (Stock).—Weather and Tidal Forecasts, 1890: D. Dewar (Glasgow, Brown).—Royal University of Ireland Calendar for 1890 (Dublin, Thom).—Report of the Rugby School Natural History Society, 1889 (Rugby, Lawrence).—The Signing of the Treaty of Waitangi: W. Colenso (Wellington, Didsbury).—Mekrolog auf Theodor Kirsch (Berlin, Friedländer).—Journal of the Chemical Society, March (Gurney and Jackson).—Journal of Physiology, vol. xi., No. 3 (Cambridge).

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