

gratings, by M. A. Cornu. The verification of the theory of focal anomalies in gratings already published, by testing actual gratings showing such anomalies, was based upon the following theorem: When the observed pencils make a constant angle with the incident beam remaining fixed, half the sum of the azimuths of the grating corresponding to spectra of symmetric orders is constant, and equal to the azimuth corresponding to the reflected beam.—Remarks on the spontaneous heating and ignition of hay, by M. Berthelot. Hay dried and stacked under normal circumstances loses moisture and oxidises slowly, without being sensibly heated. The initial heating, where it takes place, is due to the action of ferments, but not the higher stages of the process. When the ferments are no longer capable of further raising the temperature without endangering their own existence, it often happens that purely chemical action steps in, and leads up to the ignition of the haystack. The temperature of ignition for these materials is far below red heat.—On the composition of winter drainage waters from bare and from cultivated soils, by M. P. P. Dehérain.—Observations of the minor planets 371 and 372 (1893) made with the great equatorial of the Bordeaux Observatory, by MM. G. Rayet and L. Picart.—The analysis of commercial butters, by M. C. Viollette.—On the approximate development of the disturbing function in the case of inequalities of higher orders, by M. M. Hamy.—Investigation of that part of the coronal atmosphere of the sun which is projected upon the disc, by M. H. Deslandres.—Is there oxygen in the sun's atmosphere? by H. Duner.—New applications of the tables of increasing latitudes to navigation, by M. E. Guyon.—On the successive radii of curvature of certain curves, by H. R. Godefroy.—Calculation of electro-magnetic forces, according to Maxwell's theory, by M. Vaschy.—On the diurnal variation of the tension of aqueous vapour, by M. Alfred Angot. The observations made at the top of the Eiffel Tower since the end of 1889 have shown that at the height of 300 m. the change of vapour tension during winter does not exceed a few hundredths of a mm. During the eight months beginning with March, a single maximum was observed during the day at 9 a.m., and a minimum at 5 p.m., while in the adjacent Parc Saint-Maur, there were two maxima, at 9 a.m. and 8 p.m., and two minima, at 4 a.m. and 4 p.m. It appears that the variation of vapour tension, as observed in ordinary meteorological stations, is a local phenomenon, limited to the lower strata of the atmosphere.—On the diurnal variation of atmospheric electricity, observed near the summit of the Eiffel Tower, by M. A. B. Chauveau. The indications of an electrometer registering photographically the potential of the air, lead to conclusions similar to those of the preceding paper. The two sets of maxima and minima observed on the ground are replaced by one set only, consisting of a maximum at about 6.30 p.m. and a minimum at 4 a.m. The potential, which sometimes exceeded 10,000 volts, was reduced to a convenient amount by the interposition of condensers in cascade.—On the weight of a litre of normal air, and the density of gases, by M. A. Leduc.—Sketch of a system of atomic weights of precision, founded upon the diamond as standard substance, by M. G. Hinrichs.—General method for the volumetric estimation of silver under any form, by M. G. Denigès.—On the stability in air of a 0.001 solution of corrosive sublimate, by M. Tanret.—Remarks on the critical pressures in the homologous series of organic chemistry, by M. E. Mathias.—On caseine and the organic phosphorus of caseine, by M. A. Béchamp.—On a new source of rhodinol, by MM. P. Monnet and Ph. Barbier.—Presence of camphene in essence of aspic, by M. G. Bouchardat.—On the volatile carbides of the essence of valerian, by M. Oliviero.—Contribution to the study of the ptomaines, by M. Echsner de Coninck.—Influence of certain causes upon receptivity; bacterian associations, by M. V. Gattier.—Toxicity of the blood of the viper (*Vipera aspis* L.).—Modifications of the emissive power of the skin under the influence of the electric brush discharge, by M. Lecerclé.—Influence of iron upon the vegetation of barley, by M. P. Petit.—Influence of bark-stripping upon the mechanical properties of wood, by M. E. Mer.—On the natural dessication of grains, by M. H. Coupin.—On the oolitic strata of the Paris Tertiary, by M. G. F. Dollfus.

BERLIN.

Physiological Society, December 8.—Prof. Munk, President, in the chair.—Prof. A. Kossel gave an account of his further researches on nucleic acid, carried on in conjunction with Dr. Neumann. The acid, as obtained from the thymus, differs from that obtained from other sources, in that during its decomposition it yields only adenin; it has hence been dis-

tinguished as adenylic acid. It occurs in two forms: one readily soluble, the other soluble with difficulty. When boiled with water, this acid yielded a paranucleic acid, which contained no adenin. By boiling with dilute hydrochloric acid a fourth acid (thyminic) was obtained, from which crystalline thymin could be obtained. All the above well-characterised substances possess, when analysed, an extremely complex constitution; thus the molecule of adenylic acid contains 75 atoms of carbon, and that of paranucleic acid 90 atoms. Dr. H. Kossel had studied the action of nucleic acid on bacteria, and found that cholera-germs and streptococci are readily killed by small quantities of the acid; whereas anthrax germs are much more resistant. He therefore considered that the bactericidal action of lymph-cells was attributable, in part at least, to this action of nucleic acid.—Dr. Rawitz spoke on spermatogenesis in Hydromedusæ. Unlike all other animals, the spermatozoa in this animal are developed in the outer layer of the bell, and are discharged direct into the surrounding fluid. The same speaker further described curious large branching villi in the jejunum of Macacus, not met with in the intestine of other species of monkey.

BOOKS PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—The Canadian Ice Age: Sir J. W. Dawson (Montreal).—The Genus Salpa, 2 Vols., Text and Plates: Prof. W. K. Brooks (Baltimore).—The Butterflies and Moths of Teneriffe: A. E. H. White (L. Reeve).—Journal of Microscopy and Natural Science, Vol. 3, Third Series (Baillière).—Linnean Society of New South Wales, the Macleay Memorial Volume: edited by J. J. Fletcher (Dulau).

PAMPHLETS.—Origin of the Pennsylvania Anthracite: J. J. Stevenson (Rochester).—On the Use of the Name "Catskill": J. J. Stevenson (Rochester).—The Marsh Warbler, &c.: W. W. Fowler (Oxford, Blackwell).—On Technical Education in Glasgow and the West of Scotland: H. Dyer (Glasgow).—Imperial Institute Series, Handbooks of Commercial Products, Indian Section, Nos. 1-22, 24-25, 27-29 (Calcutta).—Guides to Commercial Collections, Indian Section, No. 1 (Calcutta).—Agricultural Ledger Series, Nos. 1-13 (Simla).

SERIALS.—Bulletin de l'Académie Royale des Sciences de Belgique, 63 Année, No. 11 (Bruxelles).—Journal de Physique, December (Paris).—Zeitschrift für Physikalische Chemie, xii. Band, 6 Heft (Leipzig).—Zeitschrift für Wissenschaftliche Zoologie, lvii. Band, 1 Heft (Leipzig).—Bulletins de la Société d'Anthropologie de Paris, December 15 (Paris).—Verhandlungen des Gesellschaft für Erdkunde zu Berlin, Band xx. Nos. 8 and 9 (Berlin).—Verhandlungen der Gesellschaft für Erdkunde zu Berlin, Band xxviii. No. 4 (Berlin).—American Naturalist, December (Philadelphia).—Journal of the Royal Agricultural Society of England, Third Series, vol. iv. part 4 (Murray).—L'Astronomie, January (Paris).—The Asclepiad, No. 39, vol. x. (Longmans).—Geological Magazine, January (K. Paul).—Séances de la Société Française de Physique, April-July, 1893 (Paris).

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