

## Societies and Academies.

## LONDON.

**Royal Society**, November 18.—W. S. Patton and E. Hindle: Reports from the Royal Society's Kala Azar Commission in China.—R. Hill: The chemical nature of hæmochromogen and its carbon monoxide compound. The hæmochromogen type of spectrum shown by compounds of hæmatoporphyrin with metals other than iron is not due to the presence of nitrogen compounds. It is suggested that the property of forming hæmochromogens is limited to the iron-porphyrin compounds. Two molecules of pyridin are necessary to convert reduced hæmatin into the corresponding hæmochromogen. Carbon monoxide hæmochromogen has one molecule of pyridin in combination when produced in the presence of the latter. The carbon monoxide compounds of reduced hæmatin and pyridin hæmochromogen both contain one molecule of carbon monoxide.—H. Gremels and R. Bodo: The excretion of uric acid by the kidney.—C. H. Browning, J. B. Cohen, S. Ellingworth, and R. Gulbransen: The antiseptic properties of the amino-derivatives of styryl and anil quinoline.—T. S. P. Strangeways and F. L. Hopwood: The effects of X-rays upon mitotic cell division in tissue cultures *in vitro*.—Sir Charles Sherrington and R. S. Creed: Observations on concurrent contraction of flexor muscles in the flexion reflex.—S. B. Schryver and H. W. Buston: The isolation of some hitherto undescribed products of hydrolysis of proteins (Part iii.).—J. A. Crowther: The action of X-rays on *Colpidium colpoda*.

**Linnean Society**, November 4.—G. Tandy: Abnormal fruiting branches of sweet chestnut (*Castanea vulgaris*), found by Mr. W. P. J. Le Brocq near Brecon. The catkins were wholly female, whereas usually only a few female flowers are found at the base of an androgynous catkin. Certain trees have been found consistently to produce such catkins.—T. A. Sprague: Visits to Wistman's Wood, Dartmoor, in May 1926.—C. M. Yonge: The ciliary-feeding mechanisms in the thecosomatous pteropods.

## CAMBRIDGE.

**Philosophical Society**, October 25.—H. Jeffreys: On compressional waves in two superposed layers. The assumption that the compressional waves of earthquakes follow the ordinary laws of refraction, the energy within any pencil of rays remaining permanently within that pencil, leads to amplitudes too small for the indirect waves from near earthquakes. An analogous problem in the theory of sound is here considered. It is found that a large diffracted wave appears at the outer surface, having travelled with the velocity of sound in the lower medium; but it differs somewhat in character from the direct wave.—S. Pollard: (1) On the descriptive form of Taylor's theorem. The relation is obtained between the descriptive form of Taylor's theorem and the ordinary (Lagrange) form, and hence a precise statement of the descriptive form is found. This is employed to give a concise proof of the two-dimensional case of the descriptive form. (2) The summation of a Fourier integral of finite type. A Fourier integral is of finite type if the generative function vanishes outside a certain interval. The paper deals with the Cesaro summation of such integrals, it being assumed only that the generating function is integrable in Denjoy's sense. A necessary and sufficient condition is obtained for summability ( $C, k$ ), where  $k$  is a positive integer, and this

yields a special criterion which generalises the well-known criterion of Lebesgue for summability ( $C, 1$ ).—G. C. Steward: Note on the Petzval optical condition. The 'Petzval' optical condition for flatness of field, produced by a symmetrical optical system, stands apart from the other aberration coefficients of the first order; it is independent of the positions of the conjugate planes considered and also of the pupil-planes of the system. An expression is obtained for the reduced focal eikonal for a single spherical surface.—E. A. Milne: Maxwell's law, and the absorption and emission of radiation.—T. L. Wren: The correspondence between lines in threefold space and points of a quadric fourfold in fivefold space, established by a geometrical construction.—F. J. W. Roughton and H. Hartridge: Improvements in the apparatus for measuring the velocity of very rapid chemical reactions (ii). For very fast reactions an apparatus has been constructed which enables the first observation to be made on the reacting liquids in  $\frac{1}{100000}$ th sec. from the commencement of mixing. The fastest chemical reaction that can be investigated is one half completed in  $\frac{1}{100000}$ th sec. It seems improbable that these times can be reduced appreciably without either making some radical change in design or using driving pressures higher than one atmosphere. Very slow reactions of from 2 minutes to 1 second have been investigated by simply increasing the length of the observation tube. Reactions in very dilute solution have been studied by examining spectroscopically a beam of light that has been passed through the observation tube parallel with its long axis. Observations on hæmoglobin solutions of concentration so low as  $M/6 \times 10^6$  have been made possible. For work on small quantities of fluid a special spectro-camera has been devised.—F. H. Constable: On the stability of copper catalysts produced by thermal decomposition. The thermal decomposition of salts of copper leads to the production of active catalysts. The spacing of the copper atoms in the original compound is a secondary consideration, the real factor governing the nature of the final surface being the mixed crystallisation and freezing in the amorphous state of a mass of suddenly liberated copper atoms. The results agree with the hypothesis that the centres of activity of the surface are frozen groups of atoms with strong specific external fields. At moderate temperatures the stability of these preparations is very marked.—J. A. Christiansen: Note on the velocity of gas-reactions.—W. T. Richards: Note on the effect of  $\alpha$ -particles on paraffin.—C. V. Hanumanta Rao: On the figure of Pappus' theorem.

## PARIS.

**Academy of Sciences**, October 26.—Charles Moureu, Charles Dufraisse and Marius Badoche: Autoxidation and antioxygen action (xix.). The catalytic action of hydrocyanic acid and of various cyanogen compounds. Cyanogen compounds as a class are not exceptional in their behaviour when compared with other catalysts. The effects on the oxidation of acrolein and styrolene are shown graphically.—A. Desgrez and J. Meunier: The detection and determination of strontium in sea water. Common salt is separated from the calcium and strontium sulphates by 30 per cent. alcohol, and the insoluble portion submitted to quantitative spectrum analysis. The ratio found was strontium to calcium = 1/47.—S. Winogradsky: The decomposition of cellulose in the soil. A description of a micro-organism obtained from soil capable of rapidly breaking down cellulose, probably to an oxycellulose.—Riquier: The integration of the partial differential equation of the second

order with two independent variables.—Jacques Chokhatte: The asymptotic expressions of the Tchebycheff polynomials and of their derivatives.—Véronnet: Extension of Stokes's theorem. Each term of the development of the potential of a star on an external point is a constant independent of the internal constitution.—L. d'Azambuja and H. Grenat: The great activity of a group of sunspots followed by a magnetic storm and an aurora borealis. An exceptional eruption of hydrogen was observed in the Meudon spectro-heliograph on October 13 at  $13^h 15^m$ ; magnetic disturbances set in 31 hours later and continued for 36 hours, and the aurora borealis was also observed. Similar correlation of solar activity and magnetic disturbances was proved by G. E. Hale and by T. Royds early in 1926.—René Lutembacher and Léon Gaumont: The application to teaching purposes of the optical recording of sound, combined with the kinematograph. An account of a method for studying the heart and the voice suitable for medical instruction.—A. Paillet: Rôle of the spore-bearing micro-organisms in silk-worm disease.—V. Omeliansky: The resistance of cultures of *azotobacter chroococcum* to desiccation.

## WASHINGTON, D.C.

National Academy of Sciences (Proc., vol. 12, No. 10, October).—Fabio Frassetto: Relations between stature and chest-girth formula of normality and normal values. A linear relationship between height and weight has been demonstrated. Using measurements of more than a quarter of a million subjects, it is shown graphically and analytically that for Italians 20-21 years old, 154 cm. height, 84.6 cm. chest-girth, the chest-girth increases 0.24 cm. for every centimetre increase of stature.—Melville J. Herskovits: Social selection in a mixed population. From particulars obtained at Howard University, and some 400 families in the Harlem district of New York City, it appears that there is a marked tendency for negroes to marry negroes of lighter colour than themselves. Thus generally the daughters of the unions will be darker than their mothers and the American negro population will tend to approach negroid type more and more.—G. W. Hammar: (1) A preliminary report on the magnetic susceptibilities of some gases. (2) A possible explanation of the 'Glaser effect' (see NATURE, November 13, p. 712).—R. C. Gibbs and H. E. White: Stripped atoms of the first long period. The 'd' electron seems to be the most tightly bound electron through this group of elements.—Enos E. Witmer: The rotational energy of the polyatomic molecule as an explicit function of the quantum numbers.—R. de L. Kronig: The dielectric constant of symmetrical polyatomic dipole-gases on the new quantum mechanics. As for diatomic molecules, the permanent electric moment and the part of the dielectric constant due to it are related by Debye's equation derived on the classical theory, if the temperature be sufficiently high.—W. J. Crozier and G. Pincus: Tropisms of mammals. Rats creeping in contact with the surface of a block follow the vertical surface on reaching a corner; if touching blocks on each side, they creep ahead on emerging from the zone of contacts, showing definite stereotropism. As regards phototropism, the path of a very young rat illuminated from two sources can be calculated from the intensities of the light sources. Creeping up a fine-meshed wire grid, orientation is upward, depending on the angle of inclination of the grid, and, between limits, is related directly to the inclination. Thus it is possible, as in many invertebrates, to obtain a quantitative analysis of behaviour.

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## Official Publications Received.

## BRITISH AND COLONIAL.

Aeronautical Research Committee: Reports and Memoranda. No. 1017 (M. 37): Experiments relating to the Electrification of Balloon Fabrics. By Dr. Guy Barr. (B. I. d. Fabrics-Airships, 58.—T. 2212.) Pp. 10. 9d. net. No. 1037 (M. 46): Mechanical Properties of Pure Magnesium and certain Magnesium Alloys in the Wrought Condition. By S. L. Archbutt and Dr. J. W. Jenkin. Work performed at the National Physical Laboratory for the Engineering Research Board of the Department of Scientific and Industrial Research. (B. I. a. Materials, Strength and Properties, 52.—T. 2206.) Pp. 13+2 plates. 9d. net. (London: H.M. Stationery Office.)  
Government of Madras: Law (Education) Department. Administration Report of the Madras Government Museum and Connemara Public Library for 1925-26. Pp. 8. (Madras: Government Press.)  
Union of South Africa: Department of Agriculture. Bulletin No. 9: The Codling Moth; Measures necessary more effectively to Control the Pest. By Dr. F. W. Pettey. Pp. 15+7 plates. Division of Chemistry Series No. 63: Soil Formation and Classification. By Dr. B. de C. Marchand. Pp. 8. Division of Chemistry Series No. 64: On the Composition of the Fractions separated by Mechanical Analysis from some Transvaal Soils. By Dr. B. de C. Marchand and C. R. van der Merwe. Pp. 16. (Pretoria: Government Printing and Stationery Office.)  
University of Cambridge: Solar Physics Observatory. Thirteenth Annual Report of the Director of the Solar Physics Observatory to the Solar Physics Committee, 1925 April 1—1926 March 31. Pp. 8. (Cambridge.)  
Proceedings of the Royal Irish Academy. Vol. 37, Section A, Nos. 4, 5: Two-Electron Orbits, by Dr. A. W. Conway and G. Keating; The Dynamics of the Spinning Electron, by Dr. A. W. Conway. Pp. 40-57. 1s. Vol. 37, Section A, No. 6: Atmospheric Dust and Condensation Nuclei. By R. K. Boylan. Pp. 58-70. 1s. Vol. 37, Section B, No. 14: The Influence of the Thyroid Gland on the Plumage of the Fowl. By Dr. F. W. Rogers Brambell. Pp. 117-124+1 plate. 1s. Vol. 37, Section B, No. 15: A List of the Harvest Spiders of Ireland. By D. R. Pack-Beresford. Pp. 125-140. 1s. Vol. 37, Section B, Nos. 16, 17: Some Derivatives of  $\gamma$ -Piperonylidene-Methylethylketone, by Brendan O'Donoghue, Dr. Hugh Ryan and Dr. John Keane; Some Derivatives of  $\alpha$ -Piperonylidene-Methylethylketone, by Brendan O'Donoghue, Dr. Hugh Ryan and Dr. John Keane. Pp. 141-153. 1s. Vol. 37, Section B, Nos. 18, 19: Notes on the Staminate Cone of *Larix leptolepis*, by Prof. Joseph Boyle; The Ovule of *Larix* and *Pseudotsuga*, by Prof. Joseph Boyle. Pp. 154-180+4 plates. 1s. 6d. (Dublin: Hodges, Figgis and Co.; London: Williams and Norgate, Ltd.)

## FOREIGN.

The University of Chicago. Publications of the Yerkes Observatory, Vol. 4, Part 5: A Comparison of the Photometric Fields of the 6-inch Doubtlet, 24-inch Reflector, and 40-inch Reflector of the Yerkes Observatory, with some investigation of the Astrometric Field of the Reflector. By Alice Hall Farnsworth. Pp. v+37. (Chicago, Ill.: University of Chicago Press; London: Cambridge University Press.)  
Las estrellas variables cefeidas. Por Victoriano F. Ascarzo. (Publicado en el Anuario del Observatorio de Madrid para 1927.) Pp. 112. (Madrid.)  
Arkiv för Matematik, Astronomi och Fysik utgivet av K. Svenska Vetenskapsakademien. Band 19A, No. 16, Meddelande från Lunds Astronomiska Observatorium, No. 109: On Star Streams. By C. V. L. Charlier. Pp. 23. Band 19A, No. 19, Meddelande från Lunds Observatorium Astronomiska, No. 110: The Relation between Absolute Magnitude and Proper Motion. By K. G. Malmquist. Pp. 32. Band 19B, No. 18, Meddelande från Lunds Astronomiska Observatorium, No. 111: Über die Entfernung des offenen Haufens NGC 752. Von K. G. Malmquist. Pp. 4. (Stockholm: Almqvist and Wiksells Boktryckeri A.-B.; London: Wheldon and Wesley, Ltd.)  
Department of Commerce: Bureau of Standards. Scientific Papers of the Bureau of Standards, No. 535: A Fundamental Basis for Measurements of Length. By H. W. Bearce. Pp. 393-408. (Washington, D.C.: Government Printing Office.) 5 c. nts.  
Journal of the College of Agriculture, Hokkaido Imperial University, Sapporo, Japan. Vol. 16, Part 2: Physico-Chemical Studies on the Specificity of Proteins of different Rice Varieties and Subvarieties, by Tetsutarô Tadokoro, Yukihiko Nakemura and Shukichi Watanabe; On the Differences between some Colloidal and Chemical Properties of Common and Glutinous Rice Starch, II, by Tetsutarô Tadokoro. Pp. 73-123. (Sapporo.)  
Bulletin of the American Museum of Natural History. Vol. 55, 1926: The Distribution of Bird-Life in Ecuador; a Contribution to a Study of the Origin of Andean Bird-Life. By Frank M. Chapman. Pp. xiv+784+39 plates. (New York City.)  
Annuaire de l'Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique, 1926. 92<sup>e</sup> année. Pp. 214+6 planches. (Bruxelles: Maurice Lamertin.)

## CATALOGUES.

Optical Glass. Pp. 10. (Little Chester, Derby: Parsons Optical Glass Co.)  
Apparatus for Radiology: a Supplementary Abridged List. Pp. 14. (London: Newton and Wright, Ltd.)  
The Cambridge Bulletin. No. 55, October. Pp. 32+8 plates. (Cambridge: At the University Press.)  
A Catalogue of Books relating to the Sea; also Atlases, Log Books, and Books on the South Seas. No. 457. Pp. 66+6 plates. (London: Francis Edwards.)  
Lager-Katalog Nr. 190: Allgemeine Geologie, Geophysik. Pp. ii+420. (Leipzig: Max Weg.)  
Catalogue of Important Books and Papers on Zoology, Botany and Gardening, Agriculture, Geology, Palaeontology, and Mineralogy. No. 146, November. Pp. 56. (London: Dulau and Co., Ltd.)