

## Societies and Academies

## LONDON

Physical Society, November 3. MARY D. WALLER: Vibrating properties of metals at different temperatures. Since the damping of the vibrations is mainly due to internal friction or solid viscosity, it is greatly altered either by previous heat or mechanical treatment and by impurities. On account of the large variations of the vibrating properties with temperature, it will be possible to obtain, by observation of irregularities in these variations, much interesting information regarding the state of metals and alloys at different temperatures. MARY D. WALLER: Production of sounds from heated metals by contact with ice and other substances. The conditions are described under which soft notes may be produced from heated metal bars brought into contact with ice and a number of other substances. These substances must either sublime or boil or decompose with the evolution of gas, at temperatures for which the metal to be excited still retains adequate vibrating properties. P. C. MAHANTI: The band spectrum of barium oxide. New measurements of the bands of barium oxide have been made from moderate-dispersion and high-dispersion spectrograms. The band-head data of the early investigations have been extended in the red region as far as  $\lambda$  8000. The bands lying between  $\lambda$  8000 and  $\lambda$  4300 have been assigned to a single system. F. W. G. WHITE: Diurnal variation of the intensity of wireless waves reflected from the ionosphere. An account is given of the diurnal variation of the relative intensity of waves returned from the ionised regions of the upper atmosphere as observed over the early morning period from about 2 a.m. until about 9 a.m. The relative intensity is taken as the ratio of the intensity of the downcoming wave to that of the ground wave. The influence on the intensity of electron-limitation and of absorption limitation is discussed, in the light of theoretical ionisation curves given by Chapman. The experimental observations described show that the magneto-ionic doubling of the echo, which has been observed by Appleton and Builder for the *F* region, occurs also for the *E* region. J. A. RATCLIFFE and E. L. C. WHITE: Automatic records of wireless waves reflected from the ionosphere. The records extend over a period of fourteen months. They indicate that the region below the *F* region may be triply stratified and consist of the intermediate region (effective height approximately 120–180 km.), the *E* region (effective height approximately 100–120 km.), and the *e* region with an effective height which is always nearly 105 km., within  $\pm$  5 km. The *e* region is intermittent in its occurrence, and is identified with the 'nocturnal *E* region' mentioned in previous papers. The temporal variations of the ionisation in these three regions is discussed.

## PARIS

Academy of Sciences, October 30 (*C.R.*, 197, 953–1008). The president announced the deaths of Paul Painlevé and Albert Calmette. E. MATHIAS: The reality of the remains of spherical lightning. Proofs that spherical lightning leaves behind a material body, possessing form, volume and mass. E. J. GUMBEL: The smallest value amongst the greatest and the greatest value amongst the smallest. J. SCHREIER and S. ULAM: The continued transformations of Euclidian spheres. LUIGI FANTAPPÉ: The

integration by quadrature of the general parabolic equation with constant coefficients on the characteristics. J. LE ROUX: The characteristics of partial differential equations of the first order. J. REY PASTOR: The application of Borel's method to series which have zero terms. PIERRE COPEL: The propagation of a plane wave associated with the movement of a corpuscle. MME. G. CAMILLE FLAMMARION and F. QUÉNISSET: The observation and photography of the meteors of October 9, 1933. This fall was characterised by the large number of meteorites observed and by the persistence of the trails, one lasting at least twenty minutes. On one photographic plate, in spite of unfavourable atmospheric conditions, twenty-seven trails were recorded. EMILE SEVIN: The nature of waves and corpuscles. H. SPINDLER and R. COUSTAL: The prediction of the photoelectric power of certain bodies starting with a structural number related to the formulæ of these bodies. One of the authors has constructed a table of the elements in which the elements have an integral atomic index (not the atomic number). On this as a basis, it was predicted that cuprous chloride, bromide and iodide would not possess the same photoelectric properties, but that the bromide could be used in photoelectric cells. This conclusion was verified experimentally, the cuprous bromide cell giving a sensibility of the order of three-fifths of a good cuprous oxide cell. JEAN AMIEL: The slow combustion of benzene. The reaction velocity. The results of experiments on the slow combustion of benzene at temperatures between 420° C. and 500° C. are shown graphically, and a formula is given for the velocity as a function of the temperature. R. ETIENNE: The displacement of equilibrium at constant volume. Mlle. M. L. JOSIEN: The action of aqueous iodine solutions on silver nitrate; a kinetic study. As in the case of the reaction between silver nitrate and chlorine water previously described, there is an immediate precipitation of half the iodine as silver iodide, with a second reaction in which the hypoiodous acid is converted into hydriodic and iodic acids. The latter reaction is much more rapid than the corresponding change of hypochlorous acid. The effects of temperature and dilution were studied. E. AUBERT DE LA RUE: Contribution to the geological study of the western Cordillera of the Colombian Andes. MAURICE COLIGNON: The lower marine Trias of the north of Madagascar and its cephalopod fauna. The Barabanja strata constitute, in the southern hemisphere, a striking replica of the deposits of the Himalaya, of Salt Range and of Idaho, characterised by the genera *Flemingites*, *Hedenstræmia* and *Pseudosageceras*. J. P. AREND: The composition and structure of the sedimentary layers as a function of the orogenic equilibria. A. DAUVILLIER: Observation of the polar aurora at Scoresby Sound during the polar year. The results of observations carried out by twelve members of the French expedition every three hours throughout the day. Visual, photographic and spectrographic observations were made and the results are discussed statistically. The results are not in accord with theories attributing the auroral and magnetic phenomena to the emission of ultra-violet rays by the sun. AD. DAVY DE VIRVILLE: The flora and physical conditions of the seashore pools of the Atlantic Ocean and the English Channel. Studies of the changes in the pH of these pools and the effects of these changes on the plant growth. J. MILLOT and R. JONNART: On the presence of a substance with a free phenolic function in the blood of spiders.

POLACK: Colour vision and its anomalies. The author concludes that the Young-Helmholtz trichromatic theory does not accord with the facts. Normal colour vision cannot be reduced to three fundamental colours. Colour vision is characterised by two physiological factors, the position of the luminous maximum in the spectrum and the extent of the unital regions. R. GRAIN: The electrical treatment of chronic catarrhal laryngitis. Details of a method of fixing iodine ions on the tissues by faradisation.

## CRACOW

Academy of Sciences and Letters, October 2. R. MALACHOWSKI and T. WANCZURA: The catalytic hydrogenation of dehydracetic acid. By the action of hydrogen upon dehydracetic acid in the presence of platinum oxide, the principal product was 6-methyl-3-ethylpyronone. MLE. T. GRADOWSKA, A. KRYNICKI and R. MALACHOWSKI: The unsaturated polybasic acids. Derivatives of ethylene-tricarboxylic acid. The methyl and ethyl esters of this acid were prepared, but, owing to reactions occurring on saponification, the free acid could not be obtained. K. DZIEWONSKI, ST. PIZON and MLE. M. MAZURKIEWICZOWNA: Symmetrical  $\alpha\beta$ -dinaphthopyrone. K. DZIEWONSKI and ST. PIZON: Two isomers, compounds of the type of symmetrical  $\alpha\beta$ -dinaphthopyrane. W. SZYMANOWSKI: The lethal time for animals submitted to the action of short electric waves of different wave-lengths. Contrary to the results obtained by other workers on the same subject, the author finds no maximum lethal effect for a given frequency. The lethal time follows fairly closely the laws of heating of electrolytes produced by the action of high-frequency electric fields. The conclusion is drawn that the death of the animals is due to the heat effects produced. B. PAWLOWSKI: Studies on the delphiniums of Central Europe belonging to the *Elatopsis* section. J. WISZNEWSKI: The males of the psammic rotifers. MLE. I. TUROWSKA: Studies on the sulphur bacteria (2). The Cyanophyceæ accompanying the sulphur bacteria (3). The intimate structure of the cell of the sulphur bacteria. Attempt at the establishment of their phylogenesis. Discussion of the relations between the white sulphur bacteria and the Cyanophyceæ. J. JAROCKI: Two new ciliates of the family Hypocomidæ. *Heterocinetia janickii* and *H. lwoffi*, ctoparasites of *Physa fontinalis* and of *Viviparus fasciatus*. MLE. M. WIERZBICKA: The results of crossing certain forms of *Cyclops strenuus*. Z. GRODZINSKI: The development and the comparative anatomy of the axial vessels of the anterior extremities of the vertebrates. J. STACH: Two new species of the genus *Onychiurus* in Poland.

## Forthcoming Events

[Meetings marked with an asterisk are open to the public.]

Monday, December 18

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—J. R. Rymill: "The Tugtilit (Lake Fjord) Country, East Greenland".

Tuesday, December 19

EUGENICS SOCIETY, at 5.30—(in the rooms of the Linnean Society, Burlington House, London, W.1).—Discussion on "Family Allowances".\*

Wednesday, December 20

ROYAL METEOROLOGICAL SOCIETY, at 5.—Dr. J. Glasspool and W. L. Andrew: "The Exceptional Summer of 1933".

## Official Publications Received

## GREAT BRITAIN AND IRELAND

Proceedings of the Royal Irish Academy. Vol. 41, Section B, No. 15: Contributions to the Life-History of *Fitzroya*. By J. Doyle and W. T. Saxton. Pp. 191-217+plates 11-12. (Dublin: Hodges, Figgis and Co.; London: Williams and Norgate, Ltd.) 1s.

Imperial Bureaux of Plant Genetics: Herbage Plants. Bulletin No. 12: Lucerne, its Ecological Position and Distribution in the World. By Dr. M. Klinkowski. Translated by G. M. Roseveare. Pp. 62. 3s. 6d. Bulletin No. 13: Plant Breeding in the Soviet Union: Achievements, Organization and Future Programme of the Institute of Plant Industry. Pp. 58. 3s. 6d. (Aberystwyth: Agricultural Buildings.)

Report of the Departmental Committee on Thames Flood Prevention. (Cmd. 4452.) Pp. 24. (London: H.M. Stationery Office.) 6d. net.

Transactions and Proceedings of the Botanical Society of Edinburgh. Vol. 31, Part 2, Session 1932-33. Pp. ix-xv+245-322+plates 3-8. (Edinburgh.)

Proceedings of the Linnean Society of London, Session 1932-33. Part 4: Hooker Lecture—Some Aspects of the Bearing of Cytology on Taxonomy. By Sir William Wright Smith. Pp. 151-182. (London: Linnean Society.) 1s.

Department of Scientific and Industrial Research. Building Science Abstracts. Vol. 6 (New Series), No. 10, October. Abstracts Nos. 1654-1844. Pp. 325-360. (London: H.M. Stationery Office.) 1s. 6d. net.

Agreements concluded at the International Conference for the Protection of the Fauna and Flora of Africa, London, November 8, 1933. (Cmd. 4453.) Pp. 61. (London: H.M. Stationery Office.) 1s. net.

Proceedings of the Royal Irish Academy. Vol. 41, Section A, Nos. 13, 14: The Resolving Power with a Microphotometer, by R. W. Ditchburn and E. J. Power-Steele; The Method of Focal Isolation, by R. W. Ditchburn. Pp. 137-155. (Dublin: Hodges, Figgis and Co.; London: Williams and Norgate, Ltd.) 1s.

The Scottish Forestry Journal: being the Transactions of the Royal Scottish Forestry Society. Vol. 47, Part 2, October. Pp. xviii+93-214+23-30. (Edinburgh: Douglas and Foulis.) 7s. 6d.

Board of Education. Report of the Consultative Committee on Infant and Nursery Schools. Pp. xxvi+282+6 plates. (London: H.M. Stationery Office.) 2s. 6d. net.

## OTHER COUNTRIES

Commonwealth of Australia: Council for Scientific and Industrial Research. Pamphlet No. 44: The Chemistry of Australian Timbers. Part 3: The Chemical Composition of Four Pale-Coloured Woods of the Genus *Eucalyptus*:—*E. rigida*, *E. obliqua*, *E. remana*, *E. sieberiana*. By W. E. Cohen, A. G. Charles and A. B. Jamieson. (Division of Forest Products, Technical Paper No. 9.) Pp. 22. Bulletin No. 76: A Soil Survey of the Hundreds of Laffer and Willalokka, South Australia. Edited by J. K. Taylor. (Report of the Division of Soils.) Pp. 41. (Melbourne: Government Printer.)

The Indian Forest Records. Vol. 19, Part 1: New Thysanoptera from India. By Dudley Moulton. Pp. iii+6. 6 annas; 81. Vol. 18, Part 12: A Stand Table for *Sal* (*Shorea robusta*), Evenaged High Forest. By I. D. Mahendru. Pp. iii+9. 5 annas; 6d. (Delhi: Manager of Publications.)

Journal of the Indian Institute of Science. Vol. 16A, Part 9: Physiological Products of the Lac Insect. Part 2: Investigation of the Water Soluble Nitrogenous Constituents. By N. K. Ranga Rao. Pp. 97-102. (Bangalore.) 8 annas.

Ministry of Public Works, Egypt: Physical Department. Meteorological Report for the Years 1927-1930. Pp. iv+285. (Cairo: Government Press.) 65 P.T.

Studies in West Indian Soils. 7: The Cacao Soils of Trinidad. (A) Montserrat District. By J. A. McDonald, F. Hardy and G. Rodriguez. Pp. 50. (Trinidad: Government Printing Office.) 2s.

Tide Tables for the Atlantic Coast of Canada for the Year 1934: including the River and Gulf of St. Lawrence, the Bay of Fundy, Northumberland and Cabot Straits, Hudson Bay, and Information on Currents; in addition Tide Tables for New York and Boston, U.S.A. (Thirty-eighth Year of Issue.) Pp. 95. (Ottawa: King's Printer.)

Tide Tables for the Pacific Coast of Canada for the Year 1934: including Juan de Fuca Strait, the Strait of Georgia, and the Northern Coast, with Data for Slack Water in the Navigable Passes and Narrows, and Information on Currents; also Tide Tables for the U.S. Ports of Seattle and Port Townsend. (Thirty-fourth Year of Issue.) Pp. 80. (Ottawa: King's Printer.)

Proceedings of the American Philosophical Society. Vol. 73, No. 1: The Rates of Growth, Larval Development and Seasonal Distribution of Dragonflies of the Genus *Anax* (Odonata: Aeshnidae). By Philip P. Calvert. Pp. 70+4 plates. (Philadelphia.)

U.S. Department of the Interior: Geological Survey. Circular 3: The Bleaching Clays. By P. G. Nutting. Pp. 51. Circular 4: Some Deposits of Ornamental Stone in Montana. By G. R. Mansfield. Pp. iii+22. (Washington, D.C.: Government Printing Office.)

Transactions of the Academy of Science of St. Louis. Vol. 28, Nos. 1 and 2: A Preliminary Check List of the Lizards of South America, by Charles E. Burt and May Danheim Burt; An Aurora observed in Missouri and its Connection with Solar Activity, by Stuart L. O'Byrne. Pp. v+117. (St. Louis, Mo.)

Public Library, Museum and Art Gallery of South Australia. Records of the South Australian Museum. Vol. 5, No. 1. Pp. 116. (Adelaide.) 10s. 6d.

Carnegie Institution of Washington. Publication No. 438: The Book of Chilam Balam of Chumayel. By Ralph L. Roys. Pp. viii+229+2 plates. (Washington, D.C.: Carnegie Institution.)

Proceedings of the United States National Museum. Vol. 82, Art. 26: Review of the Wasps of the Subfamily Pseninae of North America (Hymenoptera: Aculeata.) By J. R. Malloch. (No. 2967.) Pp. 60+2 plates. (Washington, D.C.: Government Printing Office.)