

## Societies and Academies

## LONDON

Royal Society, November 15. A. R. MEETHAM and G. M. B. DOBSON: The vertical distribution of atmospheric ozone in high latitudes. Observations to determine the vertical distribution of the ozone in the atmosphere—similar to those recently made at Arosa—were carried out at Tromsø in May and June, 1934. They show that the average height of the ozone is very slightly lower at the higher latitude and indicate that at Tromsø the ozone is more concentrated in a region centred at a height of 21 km. above sea-level, whereas in Switzerland it is more uniformly distributed through the lower 30 km. of atmosphere. G. G. SHERRATT and E. GRIFFITHS: The determination of the specific heat of gases at high temperatures by the sound velocity method. The experiments recorded carry the determination of the specific heat of carbon monoxide by this method up to a temperature of 1800° C. By working with more than one frequency and correcting the data for the effect of frequency on the velocity of sound in the gas, the specific heat in the temperature range 1000°–1800° C. is found to be in good agreement with that deduced from spectroscopic data. Specific heats based on sound velocity measurements in various gases have not hitherto been found to be in accord, even at moderately high temperatures, with those obtained from spectroscopic data. The discrepancy is probably due to the use of a single frequency, for it is now known from practical and theoretical considerations that the velocity of sound in a gas is not necessarily independent of the frequency.

## PARIS

Academy of Sciences, October 22 (*C.R.*, 199, 745–811). The president announced the deaths of Francis Gonnésiat, *Correspondant* for the Section of Astronomy, and of Santiago Ramon y Cajal, *Correspondant* for the Section of Anatomy and Zoology. ERNEST ESCLANGON: Notice on the work of F. Gonnésiat. MAURICE CAULLERY: Notice on the work of Santiago Ramon y Cajal. JULES DRACH: The logical integration of the equations of dynamics: central forces. JEAN TILHO: The possibility of the capture of the Logone, a tributary of Lake Tchad, by the Niger. The dangerous consequences to Tchad and the neighbouring regions of such a change of course of the River Logone are pointed out, and a comparison is made with the change of course of the River Mahajamba, in Madagascar, which occurred in February 1903. Possible precautionary measures are discussed. ANDRÉ BLONDEL: The utilisation of yellow glasses in the technique of lighthouses or aviation beacons. In spite of a reduction in the range, the use of yellow glasses has certain advantages for lighthouses, especially those in use at the entrances to ports. PAUL MONTEL: Some new limitations of the moduli of zeros of polynomials. H. EYRAUD: Some laws of errors analogous with systematic errors. SERGE FINIKOFF: The transformation of surfaces with the aid of  $\infty^2$  quadrics having a contact of the second order with the surface and its transform. G. PÓLYA: The application of linear differential operations to series. GH. TH. GHEORGHIU: Metaspherical functions. CHARLES PLATRIER: The ballistic problem of Lagrange: the first median zone. JEAN MASCART: The grouping of the planetary perihelia.

BERNARD LYOT: The polarisation of the minor planets. A new photographic method is described, giving results of much higher accuracy than is usual in photographic photometry. MILES. RENÉE CANAVAGGIA and MARIE LOUISE FRIBOURG: The differential rotation of the currents of Ursa Major, Taurus and Scorpio. JEAN LOUIS DESTOUCHES: The axiomatic in the theory of photons of Louis de Broglie and superquantification. GASTON DUPOUY and CHARLES HAENNY: A new method of absolute measurement of the magnetisation coefficients and the magnetic susceptibilities of liquids. A modification of the Gouy cylinder method. A quartz rod is suspended in the liquid the magnetic properties of which are to be measured. The apparent susceptibility of the rod with respect to the liquid is determined, utilising the change of weight of the suspended rod; the susceptibility of the rod is determined separately and that of the liquid calculated. With a magnetic field of about 30,000 gauss and for solutions with a coefficient of magnetisation of the order of  $10^{-5}$ , the force to be measured is more than 1 gm. and coefficients of magnetisation of the order of  $10^{-2}$  can be determined. JEAN GENARD: The magnetic extinction of the fluorescence of the diatomic molecules of selenium. PIERRE AUGER and LOUIS LEPRINCE-RINGUET: The analysis of the cosmic radiation at high altitudes. Research carried out at the International Laboratory on the Jungfrauoch. JEAN AMIEL: Moist mixtures of chlorates and sulphur and some other reactions of moist chlorates. ALBERT PORTEVIN and E. HERZOG: Some conditions to be realised in tests on the corrosion of steels in a moist medium. Discussion of the causes of the difficulty in obtaining concordant measurements of corrosion. PIERRE CARRÉ and DAVID LIBERMANN: The preparation of veratryl chloride and the formation of the 9, 10-dihydroanthracene nucleus. OCTAVE BAILLY and JACQUES GAUMÉ: The migration of the phosphoric acid radical in the course of the hydrolysis of  $\beta$ -methylglycerophosphoric ester. The passage from the  $\beta$ - to the  $\alpha$ -glycerophosphates. HENRY GAULT and JEAN BURKHARD: Ketolic condensations of acetoacetic ester with formaldehyde. GEORGES DEFLANDRE: The presence of conifer pollen (*Abietinæ*) in a flint from the chalk. Showers of pollen in the Cretaceous period. MAURICE QUENDIAC: A condition of the accumulation of tannin-bearing cells in chestnut wood. GUSTAVE GUITTONNEAU and RENÉ CHEVALIER: The calchosphoric equilibria realised in cheeses. ADOLPHE LÉPAPE and RENÉ TRANNOY: The fixation by plants of radium available to them in the soil. LUCIEN CHOPARD: The presence of a spermatophore in certain Orthoptera of the family of Phasmids. RAOUL M. MAY: The subcutaneous brephoplastic graft of the thyroid in the rat. MME. MARIE PHISALIX: The natural immunity of the hedgehog towards bee venom.

## CRACOW

Polish Academy of Science and Letters, October 8. S. ZAREMBA: A general theorem relating to partial differential equations of the second order, linear and of the hyperbolic type. S. PIOTROWSKI: The variable stars 355, 1933 Herculis and 354, 1933 Ophiuchi. The elements of these stars have been determined from 67 observations of 355 and 59 of 354. W. JACZYNA: Theorem of the preliminary choice of the arbitrary functions in the equation of state in thermodynamics. W. JACZYNA, J. DEREWJAKIN, A. OBNORSKY

and T. PARFENTJEW: The equation of state of helium in the medium region of temperature. N. N. MALOV: The influence of the wave-length of high-frequency electric fields on their mortal action. Remarks on a recent communication of W. Szymanowski on the same subject. K. DZIEWONSKI: A simplified method of mercurisation and degradation of the polycarboxylic aromatic acids. When the acids or their anhydrides are heated with mercuric oxide and water at 150°–180° C. under a pressure of 10–15 atmospheres, one carboxyl group is removed; at higher temperatures (200° C.) all the carboxyl groups are removed. K. DZIEWONSKI and Cz. DRAGAN: A new method of synthesis of compounds of the type of the 1-alkyl-2-hydroxynaphthalenes. K. WODZICKI: The presence of the right oviduct in the domestic duck. The author proves that a Müllerian duct appears in 90 per cent of the domestic ducks examined. J. ZACWILICHOWSKI: Researches on the innervation and the sensorial organs of the wing of *Tipula paludosa*. R. J. WOJCIUSIAK: The faculty in the tortoise of distinguishing form, direction and dimensions of an object.

## LENINGRAD

Academy of Sciences (C.R., 3, No. 3). A. MARKOV: Isotopy of compact entities in Euclidian spaces. N. MUSCHELISHVILI: New problem in the theory of elasticity. P. NOVIKOV: The separability of analytic entities. B. GERASIMOVITCH: The absolute magnitude of Be-stars. G. KRUTKOV: A special case of Brownian rotation movement. D. PANOŮ: The approximate determination of the centre of flexure for a symmetrical section. A. BELIAJEV and J. CHARITON: Transmission of detonations in a vacuum. N. ZELINSKIŮ: Transformation of pentamethylene cycles with broken ring into the carbohydrates of the paraffin series by contact with platinum in the presence of hydrogen. P. LAZAREV and A. GAMBURCEVA: Variations in the peripheral visual adaptation during eight months. P. LAZAREV and A. DUBINSKAJA: Changes in the visual adaptation caused by cerebral disturbance. S. GAMBURCEVA: A graphical method for studying the curves of adaptation in peripheral vision. M. LOBASHOV and F. SMIRNOV: The nature of the action of chemical agents on mutational process in *Drosophila melanogaster*. (2) The effect of ammonia on the occurrence of lethal translocations of genes. H. FRIESEN: Further investigations on the artificial production of crossing-over in the males of *Drosophila*. D. SCHWARTZ: Hypertetraploid tobacco resulting from interspecific hybridisation. K. MIRIMANIAN: Congelation in Armenia. A. EBERZIN: Age of the conglomerates of Cape Pitzunda (Caucasus). A. FORMOZOV: Competition between species. Mutual relations between the squirrel (*Sciurus vulgaris*, L.), the crossbill (*Loxia curvirostra*, L.) and the great spotted woodpecker (*Dryobates major*, L.). N. NASONOV: The formation of cartilage *in vitro* in the axolotl.

## ROME

Royal National Academy of the Lincei, June 17. F. SEVERI: The rational involutions on a surface as equivalence series: their virtual Jacobian groups (2). G. ABETTI: The variability of the period of rotation of the sun. The relatively high values obtained prior to 1912 by the spectroscopic method for the velocity of rotation of the sun are probably subject to

systematic error. Since then, the variations in the results have been small (1.93–1.97 kilometres per second for the linear velocity at the equator) and might easily be caused by accidental or systematic error in the observations. L. LOMBARDI and E. BOTTANI: Investigations on the distribution of the continuous current in a homogeneous conductor subjected to the influence of a permanent magnetic field (2). The experiments described were made with the object of testing Weber's discovery of the non-uniform distribution of continuous current in a homogeneous conductor in a magnetic field. The results obtained support the theoretical considerations advanced in the authors' earlier note, and indicate that, apart from small deformations which the internal equipotential surfaces and the lines of current may undergo as a result of the Hall effect, Weber's phenomenon is non-existent. C. SEVERINI: Double series of orthogonal and normal functions (1). L. TOSCANO: The integration of recurrent linear and homogeneous successions of the second order (1). E. BORTOLOTTI: General views on Vitali's calculus and its extensions (2). L. CAMPEDELLI: Further considerations on the calculation of the Zeuthen-Segre invariant for an algebraic surface. P. LIBOIS: A class of quadruple planes. M. RENATA FABBRI: Poincot's cones in a particular rotation of heavy solids. G. GARGIA: Laws of Einsteinian planetary movement. GIULIO BEMPORAD: Variations of the eccentricity in the orbits of binary systems. D. FAGGIANI: The time of circonsurance (acoustic reverberation) in chambers with apertures. D. GIGANTE: The limit of resistance of the pigeon to insulin. Under normal conditions the pigeon is endowed with an insulin resistance higher than that of any other bird yet examined.

## WASHINGTON, D.C.

National Academy of Sciences (*Proc.*, 20, 461–494, Aug. 15, 1934). A. M. SKELLETT: Proposal of a method of observing the solar corona without an eclipse. The scanning disc technique of television is suggested. The image of the sky around the sun's disc might be scanned in a spiral path round the sun starting from a limb, and the resultant current from a photoelectric cell passed through electrical filters to eliminate the direct current component (due to skylight and telescope glare) and the low frequency components (due to radial progression), leaving high frequency components due to corona and 'poor seeing'. The image re-constructed from the filtered current would show the corona without skylight glare and could be observed directly or photographically. The method has been tested in the laboratory. CLYDE E. KEELER and W. E. CASTLE: The influence of pregnancy upon the titre of immune (blood-group) antibodies in the rabbit. The titre falls during pregnancy and rises sharply after parturition. It is possibly caused by absorption by the embryo of some substance in the maternal blood necessary for the production of antibodies. M. STANLEY LIVINGSTON, MALCOLM C. HENDERSON and ERNEST O. LAWRENCE: Radioactivity artificially induced by neutron bombardment. Following up Fermi's results, various elements were submitted to a stream of neutrons produced by exposing them to beryllium bombarded by deuterons. The induced activity of calcium fluoride has a half-life of about 10 sec. Silver seems to show two decay periods of half-life  $154 \pm 10$  sec. and  $26 \pm 4$  sec. respectively, possibly connected with the

presence of two silver isotopes. For aluminium the decay period is  $9.5 \pm 0.5$  min. and for copper about 7 min. The observed radiations in each case are of electronic mass and for silver and aluminium are electrons. Estimates have been made of the activity induced by a given number of neutrons and of the energy of the radiation emitted. CHARLES HAIG: The spectral sensibility of *Avena*. The bases and tips of young oat shoots respectively were exposed to monochromatic light. The tip responses show a maximum at  $\lambda$  4800; base responses show no maximum in the visible spectrum but possibly one in the ultra-violet. This confirms the earlier suggestion of separate photo-receptor systems. FOLKE SKOOG and KENNETH V. THIMANN: Further experiments on the inhibition of the development of lateral buds by growth hormone. The view that this inhibition is due to high concentration of growth hormone preventing its production by a given tissue is re-stated. Inhibition is complete without increase in stem length or thickness. Further, crystalline preparations of growth substance are as effective for decapitated pea plants as natural preparations of the same concentration of growth substance, showing that impurities are not involved. ALFRED J. MARIA: The potential of a positive mass and the weight function of Wiener. NATHAN KAPLAN:  $V_3$  in  $R_6$ .

### Forthcoming Events

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

#### Sunday, November 25

BRITISH MUSEUM (NATURAL HISTORY), at 3 and 4.30.—M. A. C. Hinton: "Some Fossil and Living Mammals".\*

#### Monday, November 26

BRITISH MUSEUM (NATURAL HISTORY), at 5.30—(at Imperial College of Science, Exhibition Road, South Kensington, London, S.W.7).—Dr. R. M. Craig: "The Geology and Scenery of the Hebrides" (Swiney Lectures on Geology. Succeeding lectures on November 28, 30, December 3, 5, 7, 10, 12, 14, 17, 19 and 21).

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Ivan T. Sanderson: "The Mamfe Basin, Cameroons".

#### Wednesday, November 28

BRITISH SCIENCE GUILD, at 4.30—(at the Goldsmith's Hall, Foster Lane, London, E.C.2).—Prof. J. B. S. Haldane: "Human Biology and its Applications" (Norman Lockyer Lecture).

#### Friday, November 30

INSTITUTION OF PROFESSIONAL CIVIL SERVANTS, at 5.30—(at the Royal Society of Arts, John Street, Adelphi, W.C.2).—A. Keiller: "Excavations (1934) on the Course of the Megalithic Avenue leading from Overton Hill to Avebury, Wilts., commonly known as the West Kennet Avenue".\*

INSTITUTION OF MECHANICAL ENGINEERS, at 6.—L. St. L. Pendred: "A Survey of Ships and Engines" (Thomas Lowe Gray Lecture).

ARMOURERS AND BRASIERS' COMPANY, at 8—(at the Royal School of Mines, South Kensington, S.W.7).—Prof. F. C. Thompson: "The Deformation of Metals" (succeeding lectures on December 7 and 14).\*

ROYAL INSTITUTION, at 9.—Sir Josiah Stamp: "The Roosevelt Plan".

### Official Publications Received

#### GREAT BRITAIN AND IRELAND

Technical Publications of the International Tin Research and Development Council. Series A, No. 2: Tin-Iron Alloy in Tinplate, with Notes on some Imperfections. By W. E. Hoare. Pp. 253-264. (London: International Tin Research and Development Council.)

Medical Research Council. Special Report Series, No. 197: Medical Uses of Radium—Summary of Reports from Research Centres for 1933. Pp. 40. (London: H.M. Stationery Office.) 9d. net.

Economic Advisory Council: Committee on Locust Control. The Locust Outbreak in Africa and Western Asia in 1933. Survey prepared by B. P. Uvarov. Pp. 66. (London: H.M. Stationery Office.) 2s. net.

Air Ministry: Aeronautical Research Committee: Reports and Memoranda. No. 1454 (Ae. Tech. 606): Interferometer for Recording Turbulent Flow. By L. F. G. Simmons and C. Salter. Pp. 3+4 plates. 9d. net. No. 1597 (T. 3451e, part): Pressure Exploration over an Aerofoil that completely spans a Wind Tunnel. By W. L. Cowley and G. A. McMillan. Pp. 13+3 plates. 9d. net. (London: H.M. Stationery Office.)

The Zoological Society of Scotland. Popular Official Guide to the Scottish Zoological Park. By T. H. Gillespie. Tenth edition. Pp. 116. (Edinburgh.) 1s.

The Coventry Libraries. Report of the Committee on the Year's Work, together with the Fourth Annual Report of the Museum for the Year ended 31st March 1934. Pp. ii+30. (Coventry: Gulsion (Central) Library.)

The Imperial Forestry Institute: University of Oxford. Tenth Annual Report, 1933-1934, and Prospectus. Pp. 36. (Oxford.)

County Council of the West Riding of Yorkshire: Education Committee. Report on the Examination for County Minor Scholarships, 1934. Pp. 38. (Wakefield: County Hall.)

Board of Education: Science Museum. Rubber Exhibition (November 1934-April 1935): a Brief Account of the History of Rubber from its Source to the Finished Product, and a Descriptive Catalogue of the Exhibits. Compiled by the Rubber Growers' Association. Pp. 44+4 plates. (London: H.M. Stationery Office.) 6d. net.

Committee of the Privy Council for the Organisation and Development of Agricultural Research. Report of the Agricultural Research Council for the period July 1931-30th September 1933. (Cmd. 4718.) Pp. v+205. (London: H.M. Stationery Office.) 3s. net.

The Association of Special Libraries and Information Bureaux. Report of Proceedings of the Eleventh Conference held at Somerville College, Oxford, September 21st to 24th, 1934. Pp. 109. (London: Association of Special Libraries and Information Bureaux.) 5s.

East African Agricultural Research Station, Amani. Sixth Annual Report, 1933-34. Pp. 48. (London: H.M. Stationery Office.) 1s. net.

Hastings Natural History Society. Report and Balance Sheet for the Session 1933-34, Council, Rules and New Members. Pp. 8. (St. Leonards: Hon. Secretary, 23 Charles Road.)

#### OTHER COUNTRIES

U.S. Department of Agriculture. Miscellaneous Publication No. 192: A Review of the Patents and Literature on the Manufacture of Potassium Nitrate with Notes on its Occurrence and Uses. By Colin W. Whittaker and Frank O. Lundstrom. Pp. 54. 5 cents. Circular No. 320: Report on a Preliminary Field Survey of the so-called "Alkali Disease" of Livestock. By Kurt W. Franke, T. D. Rice, A. G. Johnson and H. W. Schoening. Pp. 10. 5 cents. (Washington, D.C.: Government Printing Office.)

Ministero dei Lavori pubblici, Consiglio Superiore: Servizio Idrografico. Le precipitazioni atmosferiche in Italia, nel decennio 1921-1930. Per Prof. Filippo Eredia. (Pubblicazione N. 16.) Pp. xiv+320+31 plates. (Roma: Istituto Poligrafico della Stato.) 50 lire.

International Institute of Agriculture. Coffee in 1931 and 1932: Economic and Technical Aspects. Pp. 231. (Rome: International Institute of Agriculture.) 20 lire.

Ministry of Agriculture, Egypt: Technical and Scientific Service. Bulletin No. 131: Citrus Gummosis in Egypt. By Dr. Ahmed Stragel-Din. Pp. ii+44+14 plates. 5 P.T. Bulletin No. 136: Latent Haemprotozoal Infections Intercurrent and Recidivous Diseases; Observations and Researches on the Comparative Pathology. By Prof. Dr. M. Carpano. Translated from the Italian by E. Talarewitch. Pp. 17+9 plates. 3 P.T. Bulletin No. 137: Sur les pirosplasmoses des canassiers et sur un nouveau pirosplasme des félins (*Babesiella felis* chez le Puma). Par Prof. Dr. M. Carpano. Traduit de l'italien par Elliot J. Moreno. Pp. 20+6 plates. 3 P.T. Bulletin No. 139: Contributions to a Knowledge of the White Flies (Aleurodidae) of Egypt. 2. By Prof. Dr. H. Priesner and Mahmoud Hosny. Pp. 21. 3 P.T. Supplement to Bulletin No. 140: A Supplement containing illustrations relating to Bulletin on Fowl-Plague in Egypt, written by Dr. Ahmad Mohammed Rachad. 8 plates. 15 mills. Bulletin No. 141: Water-Table Effects. 1: The Gumming and Death of Plum Trees. By Dr. A. Fikry. Pp. ii+35+12 plates. 5 P.T. Bulletin No. 142: Control of Barley Diseases. 1: Closed Smut. By G. Howard Jones. Pp. ii+19+8 plates. 3 P.T. Bulletin No. 147: Pasteurella in Animals and their Inter-Classification. By I. Abu Bakr Khalifa. Pp. 36. 5 P.T. (Cairo: Government Press.)

#### CATALOGUES

The Gaede Series of High Vacuum Pumps. (Special List No. 21.) Pp. 26. (London: W. Edwards and Co.)

A Catalogue of Books and Periodicals on Natural History, including Zoology, Geology and Palaeontology. (No. 495.) Pp. 160. (London: Bernard Quaritch, Ltd.)

Anthropology and Folklore, Archaeology and Ethnography: a Catalogue of New and Secondhand Books. (Catalogue No. 574.) Pp. 42. Selected List of Publishers' Reminders. (Catalogue No. 579.) Pp. 24. (London: Francis Edwards, Ltd.)

Catalogue of Books on Chemistry (Organic, Inorganic, Physical). Pp. 20. Catalogue of Books on Applied Chemistry. Pp. 26. (London: H. K. Lewis and Co., Ltd.)