

Societies and Academies

PARIS

Academy of Sciences, March 9 (*C.R.*, 202, 785-884). LOUIS LAPICQUE: Notice on the late Ivan Petrovitch Pavlov. ALFRED LACROIX: The volcanic rocks of Pitcairn Island (Southern Pacific Ocean). JOSEPH MONTGOLFIER: An internal combustion motor. A sealed letter deposited in 1784. EDOUARD LE ROY: The formulæ of Lorentz. EMILE JOUGUET: Waves of shock and continuous waves of certain gases. RICHARD FOSSE and PAUL DE GRAEVE: The synthesis of cyanamide by the oxidation of formaldehyde and ammonia. By the oxidation of a solution of formaldehyde and ammonia with calcium permanganate, cyanamide was produced, in quantity about 2 per cent of the aldehyde oxidised. HYACINTHE VINCENT and FRANCOIS MOREL: The neutralising action *in vitro* of certain chemical bodies on the toxic power of curare. The substances found previously to exert a neutralising effect on certain toxins and alkaloids were found to exert a similar action on curare. CHARLES POISSON and ANDRÉ SAVORNIN: The magnetic anomalies at the summit of Rantoandro. Certain basalt peaks in Madagascar show intense magnetic anomalies, possibly sufficient to be dangerous to aeroplanes flying by compass. EDM. SERGENT, A. DONATIEN, L. PARROT and F. LESTOQUARD: The evolutive cycle of the sporozoan *Theileria dispar*, the agent of the bovine theileriosis of Mediterranean countries, in the ox and in a tick. JACQUES DE LAPPARENT was elected *Correspondant* for the Section of Mineralogy in succession to the late Georges Friedel. PAUL LÉVY: Observations on a note of M. Denjoy. LEONIDAS KANTOROVITCH: The properties of linear semi-ordinate spaces. F. LEJA: Certain functions of ensemble in any metric space. ARMAND RAUCH: The integral algebroids of ρ order admitting angles of divergence π/ρ . MICHEL LUNTZ and ANDRÉ JAPY: The dispersion of heat by turbulent convection and the measurement of the turbulence. PAUL SCHWARZ: The permanence of alternate eddies in a rectilinear canal. JEAN DELSARTE: A problem of diffraction. ALEXANDRE MARCEL MONNIER and JOSEPH BAZIN: A generator producing sinusoidal oscillations of constant amplitude over a very extended range of frequencies. ROMOLO DEAGLIO: The thermo-electric and voltaic properties of normal and abnormal metallic films. The normal film can be distinguished by opposing it to the massive metal in a cell, when no E.M.F. should develop. It is shown that two gold conductors, one thick and the other of green film thickness, are voltaically equivalent but thermo-electrically different. G. WATAGHIN: The interaction between protons and neutrons. MAURICE ROULLEAU: The influence of temperature on the sensibility of rapid photographic emulsions. The results of experiments on a dozen different emulsions are shown graphically, with density and temperature of the plate as variables. The sensibility was reduced as the temperature was lower. RENÉ DE MALLEMANN, PIERRE GABIANO and F. SUHNER: A new absolute determination of the magnetic rotatory power of water. With the apparatus used the rotations observed were of the order of 55° . For the green mercury line the Verdet constant at 11.5°C . was found to be $1.543 \times 10^{-2} \pm 0.001$ minutes of arc. MARCEL LECOIN: The deviation of the β -rays on nitrogen nuclei. PIERRE PREISWERK and HANS VON HALBAN,

JR.: The relative positions of the resonance levels for the capture of neutrons by silver and by iodine. MAURICE ENGELDINGER: Study of the formation, in dilute solution, of the colloidal resins obtained by the action of formaldehyde on resorcinol. CLÉMENT DUVAL: Ferric oxalate. From a study of the ion transport in absolute alcoholic solution the author concludes that this substance is not ferric oxalate, $\text{Fe}_2(\text{C}_2\text{O}_4)_3 + 4\text{H}_2\text{O}$, but behaves as ferritetrahydrin ferrioxalate, $\text{Fe}(\text{C}_2\text{O}_4)_3 \cdot \text{Fe}(\text{H}_2\text{O})_4$. LIU OUI TAO and WANG SHIH MO: The equilibria between III chloropentamine cobalt sulphates and their sulphuric solutions. ARMAND MARIE DE FICQUELMONT: The physicochemical study of the neutralisation of aqueous solutions of the metaphosphoric and diimidotriphosphoric acids. PIERRE DONZELOT and MAURICE CHAIX: The Raman effect in organic sulphides. JEAN ETTORI: The colour reaction of titanium with ascorbic acid and other molecules containing the group $-\text{C}(\text{OH})=\text{C}(\text{OH})$. The formation of an orange yellow complex with titanium salts is a general property of the above group, named the orthodiol-ene group. RAYMOND PAUL: The synthesis of the Carlina oxide. This substance, extracted from the roots of *Carlina acaulis*, appears to be the only acetylene derivative occurring in Nature. A compound of the same composition has been prepared synthetically, resembling the natural product, but not quite identical, possibly on account of incomplete purification. JACQUES BOURCART: The marine Quaternary on the coast of Cap Saint-Vincent in the estuary of the Sado. ANDRÉ SAVORNIN: The possibilities of magnetic prospecting in Madagascar. An account of the difficulties encountered and suggestions for reducing errors. LOUIS EBLÉ: The values of the magnetic elements at the Val-Joyeux station (Seine-et-Oise) on January 1, 1936. FRANCIS ROGER SPENCER HENSON: The large Foraminifera of the Oligocene of Palestine. Mlle. FERNANDE FLOUS: The natural classification of the Pinaceæ. EMILE MICHEL-DURAND: The metabolism of the phosphorus compounds of the acorn in the course of germination in the light. HENRI MARCELET: The presence of hydrocarbons in the product removed by the deodorisation of olive oil. The examination of the substances removed by treatment of olive oil with superheated steam proved the presence of seven hydrocarbons. The original olive oil contained only 0.007 per cent of these hydrocarbons. G. and M. ARNAUD: Virus diseases of the Prunus group of Rosaceæ. PIERRE FEYEL: The influence of the renal secretion of urea on the working of the resorption apparatus of chlorides in mice. J. LEGENDRE: The continental penetration of the maritime mosquito. The mosquito *Aedes punctatus*, which normally breeds in salt water pools, can penetrate several kilometres inland, depending on the distance the sea-water reaches from the coast. PAUL BONNEVILLE: The ectodermic origin of certain parts of the royal adipose tissue of termites. MME. VÉRA DANTCHAKOFF: The capacity of an induced ovary of a bird to condition secondary sexual characters. GEORGES TANRET: The comparative velocities of hydrolysis of some glucosides under the influence of ultra-violet rays, acids and diastases.

Moscow

Academy of Sciences (*C.R.*, 4, No. 6-7; 1935). A. MINJATOV: The interpolation problem with functions of several complex variables. A. A. ARTJUHOV: A

new evaluation of $g(n)$ in Waring's problem. A. PLESSNER: Conjugated trigonometric series. A. S. BAKALAJEV: The principle of radiation generalised in a stationary problem in the space of the elasticity theory. A. A. GRÜNBERG and D. I. RJABCHIKOV: Contribution to the problem of the strength of isomeric bases of the type $[\text{Pt}(\text{NH}_3)_2(\text{OH})_2]$. K. S. TOPCHJEV: (1) Nitration method of 6-methoxy-8-nitroquinoline. (2) Cases of mobility of the nitro-group. Mobility of the nitro-group in 6-methoxy-5-8-dinitroquinoline. A. P. TERENTIEV, E. V. VINOGRADOVA and G. D. GALPERN: Diazometric determination method for carbohydrates. G. C. MOOR and B. N. ROZHKOVA: Finding of bituminous rocks in the Cambrian deposits of north-west Yakutia (Anabar River). I. SEDLECKIJ and B. BRUNOWSKIJ: Structure of humic acid and its relation to lignin and to coals. N. N. MEDVEDEV: The contributive effect of cold to irradiation in the production of mutations. N. S. BUTARIN: The chromosome complex of the arkhar (*Ovis polii karelini*, Sev.), the kurdiuchny ram (*O. steatopyga*) and their F_1 -hybrid. D. A. HENKEL and A. A. KUBYLIN: The drought-hardening of the potato before sowing. J. V. RAKITIN and N. N. SUVOROV: The effect of temporary anærobiosis on the sprouting of young potato tubers. A. J. IVANOV: Notes on some birds of Tadzhikistan. A. M. POPOV: A new genus and species, *Lycozoarces hubbsi* (Pisces, Zoarcidæ), of the Okhotsk Sea.

ROME

Royal National Academy of the Lincei (*Atti*, 22, 93-180; 1935). A. BEMPORAD: Increased precision in recent reductions of the Astrographic Catalogue. N. SPAMPINATO: Extension to the bicomplex field of two theorems of Levi-Civita and of Severi, through the homologous functions of two complex variables (2). G. PALOZZI: Projective applicability of plane lattices. U. BROGGI: Series development of Laguerre polynomials. G. SCORZA DRAGONI: Some theorems of means encountered in dynamics. U. BROGGI: System of infinite linear equations. A. TERRACINI: Projective lines of a surface. L. SONA: Transloculatory current which invests a bilateral lamina. M. PASTORI: Problem of Clebsch (1). C. M. MALDURA: Chemical researches on the Orbetello lagoon with regard to the biology (2). V. CAGLIOTI: Structure of ferric phosphate. FePO_4 prepared by the action of Na_2HPO_4 on FeCl_3 in presence of CH_3COONa crystallises in one phase isomorphous with quartz. C. NEUBERG and W. CAHILL: Total enzymatic hydrolysis of chondroitin-sulphuric and mucic acid-sulphuric acids into their components. G. SCAGLIARINI: Colour reaction between nitroprusside and sulphites (Bödeker's reaction). The formation of the complex ion $[\text{Fe}(\text{CN})_5\text{NOSO}_3]^{4-}$ is demonstrated. P. PRATESI and A. ZANETTA: Reaction between pyrrole and isatin (pyrrole-blues) (3). Pyrrole blue A has been obtained in the pure crystalline state, but the structure is not yet certain. H. BREUIL and C. A. BLANC: Discovery *in situ* of a new skull of *Homo neanderthalensis* in the deposits of Saccopastore (Rome). E. SANERO: Presence of prehnite at Monte Loreto in Liguria. A mineral from this source is shown to be prehnite, $\text{H}_2\text{Ca}_2\text{Al}_2(\text{SiO}_4)_3$. G. AMANTEA: Method of estimating the antineuritic vitamin B_1 using the conception of the beriberi quotient Q_b . G. AMANTEA: Action of some chemical substances on clonus due to atropinisation of the cortical sensory-motor centres.

WASHINGTON, D.C.

National Academy of Sciences (*Proc.*, 22, 81-149, Feb. 15). JOHN M. IDE: Comparison of statically and dynamically determined Young's modulus of rocks. The specimen, in the form of a cylinder 20 cm. or 25 cm. long and 1.59 cm. or 5.08 cm. in diameter respectively, is placed upright on a thick steel disk, its lower end, to which is cemented a metal foil, being separated from the steel by a sheet of mica. Alternating voltage of variable frequency is applied to the foil and steel disk, and when its frequency resonates with the longitudinal frequency of the specimen, the latter vibrates with increased amplitude and radiates sound. From this frequency Young's modulus is computed. The values obtained agree well with those obtained by the seismic wave method. Generally, the dynamic values are 4-20 per cent higher than those determined statically for the same specimens, due probably to the presence of minute cracks and cavities. Variations in the same rock appear to be due to variations of density and of elastic properties. J. v. NEUMANN: (1) Continuous geometry. A continuation of recent work tending towards the elimination of the notions of points, lines and planes from geometry. (2) Examples of continuous geometries. JOSEPH MILLER THOMAS: Complete differential systems. EDUARD ČECH: On general manifolds. G. A. MILLER: General theorems applying to all the groups of order 32. M. R. HESTENES: Minimax principle for functions. E. B. WILSON and M. M. HILFERTY: On the explosiveness and destructiveness of the 1918 epidemic [of influenza in the United States]. A statistical discussion. CHESTER STOCK: Sespe Eocene Didelphids. The first record of these marsupials in the North American upper Eocene. JOHN H. LAWRENCE and ERNEST O. LAWRENCE: The biological action of neutron rays. Making certain assumptions about the amount of ionisation likely to be produced in the tissues of rats, a procedure was devised whereby two similar batches of rats were exposed for different periods to neutrons and X-rays estimated to produce equal amounts of ionisation. The blood picture and general health of the animals were observed. Per unit of ionisation in the rat, neutrons are possibly five times as effective biologically as X-rays. The results suggest that workers using neutron generators should have adequate protective screening, presumably by substances containing a high proportion of hydrogen and therefore good absorbers of neutrons. RAYMOND E. ZIRKLE and PAUL C. AEBERSOLD: Relative effectiveness of X-rays and fast neutrons in retarding growth. Wheat seedlings just showing the primary root were submitted to equivalent doses of neutron and X-ray radiation. Plotting retardation of growth against dosage, the experimental points cluster about the same smooth curve if the scale of X-ray dosage is twenty times that of the neutron dosage. Consideration of the mode of ionisation suggests that a unit of neutron irradiation produces twice as much ionisation in tissue as a unit of X-rays; hence one ion produced in tissue by neutrons is as effective as ten ions produced by X-rays. If this ratio (10 to 1), compared with that of the previous paper (5 to 1), indicates a real difference for different tissues, the therapeutic use of neutrons instead of X-rays, for example, in treating tumours, is indicated; but more detailed determinations on the rat or other biological object are required to support this suggestion. EDISON PETTIT: On the colour of Crater Lake water. This

lake in southern Oregon is in the crater of an extinct volcano, the walls of which mostly rise abruptly to 500–2,000 ft. The only known source of water supply is the precipitation within the crater; the average depth is 1,500 ft. The water of the lake is remarkably blue in appearance. It is comparatively pure and free from suspended sediment and dissolved matter. Laboratory tests of specimens suggest that the blue colour is due to scattering of light by water molecules. A. E. MIRSKY: The visual cycle and protein denaturation. Recent work on conjugated proteins suggests that visual purple is such a compound, a carotenoid-protein. Light denatures visual purple, forming a compound, visual yellow, in which the carotenoid group is loosely bound to the protein; in the dark, denaturation reverses. The function of retinene is to provide an increased absorption coefficient in the visible spectrum, to sensitise the protein.

Forthcoming Events

Monday, April 20

VICTORIA INSTITUTE, at 4.30 (at the Central Hall, Westminster).—G. R. Gair: "The Races and Peoples of the Early Hebrew World: a Study in Ethnology".

ROYAL SOCIETY OF ARTS, at 8.—Dr. R. E. Stradling: "Problems of Road Research" (Peter le Neve Foster Lectures. Succeeding lectures on April 27 and May 4).

Tuesday, April 21

SOCIETY FOR STUDY OF INEBRIETY AND DRUG ADDICTION, at 4 (at 11 Chandos Street, London, W.1).—Dr. J. D. Rolleston: "On Snuff Taking".

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, W.2, at 5.—Pathological Research in its Relation to Medicine. Sir Almoth Wright, F.R.S.: "Some Results of Recent Research".

Thursday, April 23

INSTITUTION OF ELECTRICAL ENGINEERS, at 6.—Dr. J. D. Cockcroft: "The Transmutations of Matter by High-Energy Particles and Radiations" (Twenty-seventh Kelvin Lecture).

FARADAY SOCIETY, April 20–22. General Discussion on "Disperse Systems in Gases: Dust, Smoke and Fog" to be held at the University of Leeds.

Official Publications Received

Great Britain and Ireland

Technical Publications of the International Tin Research and Development Council. Series A, No. 31: The Constitution of the Tin-Rich Antimony-Tin Alloys. By Prof. D. Hanson and W. T. Pell-Walpole. Pp. 12. Free. Series A, No. 32: Influence of Surface Cuprous Oxide Inclusions on the Porosity of Hot-Tinned Coatings on Copper. By Dr. W. D. Jones. Pp. 8. Free. Series A, No. 33: The Hot-Tinning of Copper; the Attack on the Basis Metal and its Effects. By E. J. Daniels. Pp. 10. Free. (London: International Tin Research and Development Council.) [233]

Engineers' Study Group on Economics. Interim Report on the Design of a Family Budget with Special Reference to Food. Pp. 20 (London: Engineers' Study Group on Economics.) 6d. [243]

Proceedings of the Royal Society of Edinburgh, Session 1935–1936. Vol. 56, Part 1, No. 1: The Lunar Atmospheric Tide at Glasgow. By Prof. S. Chapman. Pp. 5. 6d. Vol. 56, Part 1, No. 2: The Effect of Present Trends in Fertility and Mortality upon the Future Population of Scotland and upon its Age Composition. By Dr. Enid Charles. Pp. 6–12. 6d. (Edinburgh: Robert Grant and Son, Ltd.; London: Williams and Norgate, Ltd.) [243]

Other Countries

Reprint and Circular Series of the National Research Council. No. 107: Industrial Prospecting. By C. F. Kettering. Pp. 3. (Washington, D.C.: National Research Council.) 25 cents. [233]

U.S. Department of the Interior: Geological Survey. Bulletin 853: Zinc and Lead Deposits of Northern Arkansas. By Edwin T. McKnight. Pp. vi+311+11 plates. 1 dollar. Bulletin 868-A: Mineral Industry of Alaska in 1934. By Philip S. Smith. Pp. ii+91+13a. 10 cents. Water-Supply Paper 759: Surface Water Supply of the United States, 1934. Part 4: St. Lawrence River Basin. Pp. vi+159. 20 cents. Water-Supply Paper 762: Surface Water Supply of the United States, 1934. Part 7: Lower Mississippi River Basin. Pp. v+129. 20 cents. Water-Supply Paper 769: Surface Water Supply of the United States, 1934. Part 12: North Pacific Slope Basins. C: Pacific Slope Basins in Oregon and Lower Columbia River Basin. Pp. vi+165. 20 cents. Water-Supply Paper 771: Floods in the United States: Magnitude and Frequency. By Clarence S. Jarvis and others. Pp. 497+3 plates. 1 dollar. Water-Supply Paper 772: Studies of Relations of Rainfall and Run-Off in the United States. By W. G. Hoyt and others. Pp. 301. 25 cents. (Washington, D.C.: Government Printing Office.) [273]

U.S. Department of Agriculture. Circular No. 376: New Equipment for obtaining Host Material for the Mass Production of *Trichogramma minutum*, an Egg Parasite of various Insect Pests. By Herbert Spencer, Luther Brown, Arthur M. Phillips. Pp. 18. (Washington, D.C.: Government Printing Office.) 5 cents. [303]

Bulletin of the Vanderbilt Marine Museum. Vol. 6: Scientific Results of the World Cruise of the Yacht *Alca*, 1931, William K. Vanderbilt Commanding. Crustacea: Anomura, Macrura, Euphausiacea, Isopoda, Amphipoda and Echinodermata: Asteroidea and Echinoidea. By Lee Boone. Pp. 264+96 plates. (Huntington, L.I., N.Y.: Vanderbilt Marine Museum.) [303]

Records of the Botanical Survey of India. Vol. 8, No. 6: Flora Arabica. By the Rev. E. Blatter. Part 5: Gnetaceae—Gramineae. Pp. ii+451-519+lix. (Delhi: Manager of Publications.) 2 rupees; 3s. 6d. [303]

British Honduras. Report of the Forest Trust for the Period 1st April 1933 to 31st December 1934. Pp. 21. (Belize: Forest Department.) [303]

Koninklijk Nederlandsch Meteorologisch Instituut. No. 106a: Ergebnisse Aerologischer Beobachtungen. 23, 1934. Pp. iv+42. 1.50 fl. No. 108: Seismische Registrierungen in De Bilt. 21, 1933. Pp. viii+49. 0.70 fl. (S-Gravenhage: Rijksuitgeverij.) [303]

Canada: Department of Mines: National Museum of Canada. Bulletin No. 77 (Geological Series, No. 52): Hooded Hadrosaurs of the Belly River Series of the Upper Cretaceous, by C. M. Sternberg; Musculature and Functions in the Cretaceous, by L. S. Russell. Pp. ii+48+7 plates. 25 cents. Bulletin No. 78 (Anthropological Series, No. 17): The Ojibwa Indians of Parry Island, their Social and Religious Life. By Diamond Jenness. Pp. vi+115. 25 cents. (Ottawa: King's Printer.) [303]

Canada: Department of Mines: Bureau of Economic Geology: Geological Survey. Memoir 82: A Preliminary Contribution to the Floras of the Whitemud and Ravenscrag Formations. By E. W. Berry. (No. 2397.) Pp. ii+107 (20 plates). 25 cents. Memoir 184: Descriptions of Properties, Slooan Mining Camp, British Columbia. By C. E. Cairnes. (No. 2399.) Pp. v+274+2 plates. 75 cents. Memoir 185: Chibougamau Lake Map-area, Quebec. By J. B. Mawdsley and G. W. H. Norman. (No. 2409.) Pp. iv+95+5 plates. 25 cents. Memoir 186: Gold Deposits of Elbow—Morton Area, Manitoba. By C. H. Stockwell. (No. 2407.) Pp. ii+74. 25 cents. (Ottawa: King's Printer.) [303]

Dominion of Canada. Report of the Department of Mines for the Fiscal Year ending March 31, 1935. (No. 2402.) Pp. iii+48. (Ottawa: King's Printer.) 25 cents. [303]

Canada: Department of Mines: Mines Branch. Investigations in Ore Dressing and Metallurgy (Testing and Research Laboratories), July to December 1934. (No. 748.) Pp. ii+202. (Ottawa: King's Printer.) [303]

Indian Forest Records (New Series). Vol. 1, No. 1: Shrinkage Studies on Indian Woods. 1: Effect of High Temperatures on the Shrinkage and Moisture Equilibrium of Wood. By Dr. S. N. Kapur and Azizul Rehman. Pp. iv+41. 1.8 rupees; 2s. 6d. Vol. 1, No. 12: Entomological Investigations on the Spike Disease of Sandal. (26) Coccidae (Homopt.). By N. C. Chatterjee and Dr. Rao Saheb T. V. Ramakrishna Ayyar. Pp. ii+233-242. 7 annas; 9d. (Delhi: Manager of Publications.) [303]

Carnegie Institution of Washington. Annual Report of the Director of the Department of Terrestrial Magnetism. (Reprinted from Year Book No. 34.) Pp. 223-267. (Washington, D.C.: Smithsonian Institution.) [14]

National Geographic Society. Contributed Technical Papers, Pueblo Bonito Series, No. 1: Dating Pueblo Bonito and other Ruins of the Southwest. By A. E. Douglass. Pp. 74. (Washington, D.C.: National Geographic Society.) [14]

Catalogues

Anahaemin B.D.H.: the Active Haematopoietic Principle of Ltd.) of Dakin and West. Pp. 14. (London: The British Drug Houses, Liver A Catalogue of Books published by the Syndics of the Cambridge University Press. Pp. xiv+337. (London: Cambridge University Press.)

A Catalogue of Books on Systematic Botany, Plant Biology, Cryptogamic Botany, including the Library of the late Prof. Otto Vernon Darbishire. (No. 518.) Pp. 40. (London: Bernard Quaritch, Ltd.)

Colloidal Graphite: a Unique Material of Particular Interest to Research Workers. Pp. 23. (London: E. G. Acheson, Ltd.)

Druggists, Surgical and Sundries List. Pp. 12. (Manchester 12: David Moseley and Sons, Ltd.)

British Industries House. Medical Section Annual, 1936. Pp. 104. (London: British Industries House.)

The Hilger Trichromatic Colorimeter. (Publication No. 240.) Pp. 6. (London: Adam Hilger, Ltd.)