

—F. E. Myard: A closed chain with five rotoid couples, deformable at the first degree of freedom.—E. Crausse and J. Baubiach: The application of a recording method to the study of the vortices produced in liquids.—H. Mineur, Varchon, Barbier, and Mlles. Canavaglia, Chevallier, and Roumens: The movements of the stars as a whole.—J. Renaux: A new contribution to the study of the reduction of photographic negatives.—G. Fayet: The proximities of cometary orbits and the orbit of Pluto. From a study of 241 orbits of comets it was found that one parabolic comet and seven elliptical comets might come within the range of action of Pluto.—Paolo Straneo: The unitary theory of gravitation and of electricity.—E. Estanave: The projection in relief in space of the composite image recorded by the auto-stereoscopic plate.—V. Dolejšek and J. Kubiček: The complexity of the *L* series of barium.—E. Huguenard and A. Magnan: An ultra-rapid cinematograph giving from 2000 to 3000 images per second. The method employed consists in separating the film into a certain number of bands, each acted upon by a special objective, the various objectives working in turn at equal intervals of time. The apparatus has been applied to the study of the flight of a large fly, the wings of which were found to beat 100 times per second.—S. Takvorian: The search for element 61 by means of optical spectrography. These results confirm those given in a recent communication; neither the X-ray spectrum nor the optical spectrum shows any trace of element 61.—La. Goldstein: Atoms of recoil in the rare gases.—Mlle. L. S. Levy: Adsorption equilibria on previously precipitated manganese dioxide.—E. Rinck: Diagram of solidification of the calcium-sodium alloys. An account of a general method for determining, with satisfactory accuracy, the temperature-solubility curve of two partially miscible metals.—M. Lemarchands and H. L. Roman: The action of anhydrides upon metals. A study of the reaction between carbon dioxide and the metals sodium and potassium, and of the conditions giving the highest yield of oxalate. With potassium, at temperatures between 230° C. and 240° C., the maximum yield was 17 per cent of oxalic acid.—Charles Baron, Charles Boulanger, and René Le Grain: Contribution to the study of petrol-alcohol-benzene mixtures. A mixture of 70 per cent aviation petrol, 20 per cent benzene, and 10 per cent alcohol avoids the formation of hoar frost, possesses great stability at low temperatures, and retains the valuable properties of the alcohol-benzol mixture.—André Chrétien: The dielectric constant and chemical constitution. Method of measurement. As a source of current, the induction coil is replaced by a triode valve, and a galvanometer with a rectifying valve replaces the telephone as a detector. Data are given for benzene, chloroform, hexane, and acetal.—Deluchat: Ortho- and meta-divinylbenzenes. Ortho- and meta-diacetylenbenzenes.—Charles Dufraisse and Raymond Buret: Researches on the dissociable organic oxides: a dimethoxyrubrene. The introduction of two methoxy groups into the molecule of rubrene does not modify the essential properties of this hydrocarbon, except that the proportion of oxygen set free by the dissociation of the oxide (52 per cent of theoretical) is less.—R. Quelet: The monomethyl and monoethyl ether oxides of para-xylylene glycol.—P. Carré and P. Maucière: The preparation of hydrobenzoin. The benzoin-hydrobenzoin system.—Lespieau and Reginald L. Wakeman: 1-methyl-2-ethyl-cyclopropane.—Georges Lévy: β -ethylnaphthaline and its hydrogenation products. Starting with carefully purified β -ethylnaphthaline, reduction with sodium and amyl alcohol gives only a dihydride: catalytic reduction

with nickel gives a tetrahydride and finally a decahydride.—St. Pavlovitch: The transformations of braunite under the action of heat.—F. Diéner: Contribution to the study of the origin of subterranean waters.—Montagne: The yields of springs under uninflected régime.—Mlle. Germaine Py: The evolution of the cytoplasmic constituents of the pollen cells of *Vincetoxicum officinale*.—Labergerie: The action of oscillating circuits on the degeneration of the potato.—F. Maignon and J. Guilhon: The influence of the seasons on respiratory metabolism in the dog.—A. Machebœuf: Researches on the function of lipoids and proteins of the blood in the exchanges of water in the organism.—Léon Binet and J. Magrou: Glutathione, growth and cancer of plants.

LENINGRAD.

Academy of Sciences (*Comptes rendus*, No. 24, 1930).—A. Archangelskii and D. Perkin: A note on the origin of the ferrous deposits in the Lipetsk area. The deposits found in the Moscow region contain remains of *Lepidodendron* and should have been formed during the Carboniferous period as sedimentary rocks.—N. Demjanov: The isomerisation of the cyclic amines with the lateral chain CH_2NH_2 . A brief outline of the history of the problem.—D. Prianschnikov and V. V. Butkevitch: A contribution to the physiological characteristics of potassium salts. The physiological acidity of potassium chloride is not the same for different plants; while Gramineæ, like oats and barley, absorb both potassium and chlorine at the same rate, in the case of sugar beet there is a marked excess in the absorption of potassium as compared with chlorine. Similar results were obtained for potassium sulphate.—L. Mysovskii and R. Eichelberg: The radioactivity of rubidium by observations in Wilson's camera. No definite proofs of the radioactivity of rubidium have been obtained by the method used.—A. A. Birula: A note on the metacarpalia and metatarsalia of *Ursus spelæus* Rosenm. In the cave bear these bones always have a shallow pit at the verticillum of the apical end. This character is absent in all recent bears, except *Melursus ursinus* Shaw.—E. Cheisin: Some new marine infusoria, symbiotic in molluscs of Lake Baikal. Three new genera of infusoria, *Tiarella*, *Ancistrina*, and *Ancistrella* found in the mantle cavity of various molluscs are described. The infusoria belong to the families Ancistridae and Boveridae, both known only from marine molluscs.

Comptes rendus, No. 25.—G. Gause: Logistic curves of the growth of the population of Leningrad and of the U.S.S.R.—K. Nikolskii: The geometry of the Dirac matrices.—J. Medvedev: The kinetics of the alcoholic fermentation. An equation is discussed which expresses the relation of the rate of fermentation to the initial concentration of the sugar and to the time.—D. Eroptkin: The problem of studies of the solar spectrum at different altitudes above the horizon.—N. Putochin: α -Pyrrolidine-methylamine and the action of nitric acid on it and on α -pyrrol-methylamine. Experiments on the isomerisation of a pyrrole ring under the action of nitric acid into a pyridine ring.—P. I. Tolmathev: The equilibrium in solutions of barium nitrate in nitric acid at the temperatures of 0° and 25°. The investigations proved that the solubility of barium nitrate becomes less with the increase in the concentration of the nitric acid.

WASHINGTON.

National Academy of Sciences (*Proc.*, Vol. 17, No. 3, Mar. 15).—Elsie H. Field: Reactions of dermal melanophores in *Necturus* to heat and to cold. As in

Birthdays and Research Centres.

July 26, 1872.—Prof. J. BARCROFT, C.B.E., F.R.S., professor of physiology in the University of Cambridge.

Until recently it was scarcely realised that an appreciable proportion of the blood in the body is not being used, except as occasion requires. Either it is side-tracked in such places as the spleen, the skin when congested, and possibly the large uterine veins of some pregnant animals, or it is 'held up' as in the liver (Maunter and Pick, Rein, Dale). Where are these depots? How long does blood remain in them? By what mechanisms is it held? For what purpose is it released?

July 28, 1864.—Prof. C. H. LEES, F.R.S., emeritus professor of physics in the University of London (East London College).

My objects of chief investigation now in progress are: The laws of plastic flow in overstressed materials; improvements in the methods of determining heat conductivities, with special reference to geothermal problems; the solubilities of gases in liquids at very high pressures, and the equilibrium of such solutions in gravitational fields; tests of theories of magnetisation with special reference to the effect of temperature on dia- and paramagnetic materials; and the solution of physical problems which arise in the study of flame propagation.

July 30, 1889.—Prof. J. KENDALL, F.R.S., professor of chemistry in the University of Edinburgh.

I am at present much concerned to find time for research in the short intervals between performance of administrative duties and attendance on committee meetings. An examination of the atomic weight of calcium contained in very old potassium-rich minerals from Portsoy and Rhiconich is, however, now being initiated. If a significant fraction of the small percentage of calcium present has resulted from the slow radioactive disintegration of the potassium, results of considerable interest in several directions may be anticipated.

Societies and Academies.

DUBLIN.

Royal Dublin Society, June 16.—M. J. Gorman and H. A. Lafferty: On a method of distinguishing the seedlings of Swedish turnip (*Brassica napus* L. var. *napobrassica* (L.) Reichb.) from those of broad-leaved rape (*Brassica napus* L. var. *biennis* (Schubl et Mart) Reichb.). Characteristic differences in the shape of the first foliage ('rough') leaf and the relative length of first internode are recognisable in the seedlings of these two plants in fourteen to twenty days from the time of sowing the seeds.—T. Dillon and Annie McGuinness: On alginic acid: its mode of occurrence and its constitution. Alginic acid cannot occur in the free state in seaweeds, since no carbon dioxide is evolved during the solution of the fronds of *Laminaria* in sodium carbonate. Dialysis of alginic acid prepared from fresh fronds gives rise to an increase in the ash-content. This suggests that in the plant the acid is combined with non-polar colloidal compounds of calcium and iron. Dry alginic acid has the formula ($C_6H_5O_6$); but this is a lactone. The polymerising unit is not an anhydride as in the case of starch and cellulose but the complete acid $C_6H_{10}O_7$. The units are therefore not pyranose or furanose rays; but open chains.—M. Grimes and A. J. Hennerty: A study of

bacteria belonging to the sub-genus *Aerobacter*. The paper describes two species of bacteria previously unknown. These have been named *Aerobacter hibernicum* and *Aerobacter liquefaciens* respectively.

Royal Irish Academy, June 22.—J. Reilly, B. Daly, and P. J. Drumm: Studies in the pyrazole series—Diazotisation of aminophenylpyrazoles. The condensation of *p*-nitro phenylhydrazine and benzoyl acetone gives *p*-nitro phenyl 3 methyl 5 phenyl pyrazole, and the corresponding amino compound on reduction. This compound on diazotisation gives comparatively stable diazonium salts, and these as well as related azo compounds have been prepared and compared.—J. Reilly, M. Hayes, P. J. Drumm: Lichenin. Purified lichenin has been nitrated and a compound of the type $C_{12}H_{15}O_5(NO_3)_5$ prepared. It is closely related to the corresponding cellulose nitrate.—P. J. Drumm: The constitution of Fischer and Bülow's pyrazole. The pyrazole obtained by Fischer and Bülow by the condensation of benzoyl acetone with phenyl hydrazine has been re-examined and found to be 1:5 diphenyl 3 methyl pyrazole. Evidence of the formation of the isometric 1:3 diphenyl 5 methyl pyrazole has not been obtained.

EDINBURGH.

Royal Society, July 6.—Clerk Maxwell Centenary: Prof. E. T. Whittaker delivered an address on James Clerk Maxwell and mechanical descriptions of the universe.—J. Phillip, J. D. Scott, and J. Y. Moggridge: Photochemical measurements of light intensity in two common vegetation types in tropical Africa, by means of the improved Eder-Hecht photometer. The paper records the high photochemical values registered under the light canopy of that very widely distributed woodland type, the *Berlinia Brachystegia*—other spp. community or 'Miombo'—and shows how the Bunsen-Roscoe values are correlated with duration of sunshine and with the readings of the Livingston radio-atmometer, and directs the attention of biologists to the usefulness of the Eder-Hecht photometer in the study of habitats in Nature.

PARIS.

Academy of Sciences, June 1.—The president announced the death of Eugène Cosserat, non-resident member.—A. Lacroix: The ægryne nepheline syenite minerals of the north of the island of Kassa. The various pneumatolytic phases of the nepheline syenites of the Los Archipelago.—Jules Drach: Partial mean values and their application to the problems of mathematical physics.—P. Villard: The titration of phosphoric acid. Discussion of the results of Sanfourche, Cavalier, and Joly.—M. d'Ocagne: Remarks on interpolation with reference to a recent note by Wolkowitsch.—Jean Baptiste Senderens: The catalytic dehydrogenation, in the gas phase, of the fatty alcohols in the presence of pumice carrying sulphuric and phosphoric acids. Phosphoric acid has a less active dehydrating action upon alcohols in the gas phase than in a liquid system. Sulphuric acid, on the contrary, acts more readily in the gas phase.—Georges Giraud: The determination of tensors by partial differential equations connected with conditions at the boundary.—G. Pólya and G. Szegő: Some qualitative properties of the propagation of heat.—S. Stoilow: The inversion of the continued transformations of two variables.—Gr. C. Moisil: A system of functional equations.—N. Aronszajn: A remark on the singularities of Dirichlet's series.—R. Gosse: The integration of an equation of the first class.—Florent Bureau: Some properties of uniform functions in the neighbourhood of an isolated essential singular point.

other amphibians, the melanophores expand at very low temperatures and contract at moderately high ones; unlike those of other amphibians, they expand at relatively high temperatures.—Stanley G. Warner: Histological polarisation of lateral giant-fibres in the crayfish. Demonstrated by treating sections with Vom Rath fluid containing some 5 per cent acetic acid instead of the usual 1 per cent solution and afterwards with a 5 per cent solution of pyrogallie acid.—Tsai-Han Kiang: On the groups of orientable two-manifolds.—G. A. Miller: Inverse commutator subgroups.—Arthur E. Kennelly: The convention of equidimensional electric and magnetic units. A set of electromagnetic unit dimensions is derived, based on the hypothesis that the dimensions of permittivity ϵ_0 and permeability μ_0 for free space are the same. The dimensions obtained are in every case arithmetical means of the Maxwellian electrostatic and electromagnetic dimensions.—Richard C. Tolman: On thermodynamic equilibrium in a static Einstein universe. A discussion of the thermodynamic equilibrium between matter and radiation. It is concluded that the equilibrium concentration of matter would be exceedingly small even for masses as small as the electron and temperatures as high as 40,000,000°.—Paul S. Epstein: Answer to Prof. Størmer's remark. Comment on the fact that whereas Prof. Størmer's method of dealing with the motion of electrons in the magnetic field of the earth is based on classical mechanics, the author's method takes relativity into account.

Official Publications Received.

BRITISH.

- Journal of the Royal Microscopical Society. Series 3, Vol. 51, Part 2, June. Pp. xvi+109-220. (London.) 10s. net.
- Department of Scientific and Industrial Research. Index to the Literature of Food Investigation. Vol. 3, No. 1, March. Compiled by Agnes Elisabeth Glennie. Pp. iv+167. (London: H.M. Stationery Office.) 2s. net.
- India: Meteorological Department. Meteorology of the Persian Gulf and Mekran. By Dr. B. N. Banerji. Pp. iii+65+9 plates. 3 rupees; 5s. 3d. Scientific Notes, Vol. 3, No. 24: On the Utility of Observations of Barometric Characteristics and Tendencies for Local Forecasting in North-West India. By Flight-Lieut. R. P. Batty. Pp. 61-76. 8 annas; 10d. (Calcutta: Government of India Central Publication Branch.)
- Committee on Bird Sanctuaries in Royal Parks (England). Report for 1930. Pp. 22. (London: H.M. Stationery Office.) 6d. net.
- Royal Dublin Society. Bi-Centenary Celebrations, 1931: Official Handbook and Catalogue of Museum. Pp. xxxii+116. (Dublin.)
- Abstracts of Dissertations approved for the Ph.D., M.Sc. and M.Litt. Degrees in the University of Cambridge for the Academic Year 1929-1930. Published by Authority. Pp. 128. (Cambridge: Printed at the University Press.)
- The Welsh Journal of Agriculture: the Journal of the Welsh Agricultural Education Conference. Vol. 7. Pp. 431. (Cardiff: University of Wales Press Board.) 2s. 6d.; cloth, 4s.
- Proceedings of the Royal Society. Series A, Vol. 132, No. A819, July 2. Pp. 352. (London: Harrison and Sons, Ltd.) 18s.
- South Australia: Department of Mines: Geological Survey of South Australia. Bulletin No. 15: Report on the Geology of the Region to the North and North-West of Tarcoola. By Dr. R. Lockhart Jack. Pp. 81+map. (Adelaide: Harrison Weir.)
- Quarterly Journal of the Royal Meteorological Society. Vol. 57, No. 240, July. Pp. 243-344. (London: Edward Stanford, Ltd.) 7s. 6d.
- Report on the Phenological Observations in the British Isles from December 1929 to November 1930. No. 40. (From the Quarterly Journal of the Royal Meteorological Society, Vol. 57, No. 241.) By J. Edmund Clark, Ivan D. Margary, Richard Marshall, C. J. P. Cave and I. C. W. Bonacina. Pp. 345-404. (London: Edward Stanford, Ltd.) 3s.
- The Royal Society for the Protection of Birds. Fortieth Annual Report, January 1st to December 31st, 1930; with Proceedings of Annual Meeting 1931. Pp. 54. (London.)
- Chemistry and Industry. Special Jubilee Number, July 1931. Pp. 52+272+53-110. (London: Society of Chemical Industry.) 10s.
- Annals of the (Mededelingen van het) Transvaal Museum. Vol. 14, Part 2, July 3. Pp. 49-220. (Pretoria.)
- Journal of the Indian Institute of Science. Vol. 14A, Part 1: Studies on the Chemical Composition and Physical Properties of Plant Tissue Fluids. Part 1: Effects of Age and Environment on the Tissue Fluids of French Beans (*Phaseolus vulgaris*). By C. Narasimha Acharya and B. N. Sastri. Pp. 9. (Bangalore.) 12 annas.
- Medical Research Council. Eleventh Annual Report of the Industrial Health Research Board (formerly the Industrial Fatigue Research Board) to 30th June 1931; including an Analysis of Work published during the Years 1926-30. Pp. ii+85. (London: H.M. Stationery Office.) 1s. 6d. net.

- Southern Rhodesia Geological Survey. Short Report No. 25: The Geology of the Country around the Norah, Molly and Umboe Copper Claims, Lomagundi District. By A. M. Macgregor. Pp. 10+1 map. Short Report No. 26: A Geological Traverse down the Lower Inyanthe Valley, Wankie District. By H. B. Maufe. Pp. 10+1 map. (Salisbury.)
- Department of Health for Scotland. Second Report of the Scottish Advisory Committee on Rivers Pollution Prevention. River Esk (Midlothian). Pp. 44. (Edinburgh and London: H.M. Stationery Office.) 9d. net.
- Biological Reviews and Biological Proceedings of the Cambridge Philosophical Society. Edited by H. Munro Fox. Vol. 6, No. 3, July. Pp. 221-344. (Cambridge: At the University Press.) 12s. 6d. net.
- Empire Marketing Board, May 1930 to May 1931. (E.M.B. 41.) Pp. 75. (London: H.M. Stationery Office.) 1s. net.

FOREIGN.

- Publikationer og mindre Meddelelser fra Københavns Observatorium. Nr. 76: The Possible Solutions of the "Equations of Fit" on the Standard Model. By Bengt Strömberg. Pp. 8. Nr. 77: The Point-Source Model with Coefficient of Opacity $k=k_1T^{-3.5}$. By Bengt Strömberg. Pp. 28. (København.)
- Publications de l'Observatoire Astronomique de l'Université de Poznan. Tome 1. Pp. xi+75+5 planches. (Poznan.)
- Smithsonian Institution: Bureau of American Ethnology. Bulletin 100: The Ruins at Kiatuthlanna, Eastern Arizona. By Frank H. H. Roberts, Jr. Pp. viii+195+47 plates. (Washington, D.C.: Government Printing Office.) 65 cents.
- Statens Meteorologisk-Hydrografiska Anstalt. Årsbok, 10, 1928. iv. Meteorologiska iakttagelser i Sverige, Band 70. Pp. x+179. 7.00 kr. Årsbok, 12, 1930. i. Månadsöversikt över väderlekoch vattentillgång jämte anstaltens årsberättelse. Pp. 98. 2.50 kr. Årsbok, 12, 1930. ii. Nederbörden i Sverige. Pp. 160. 5.00 kr. (Stockholm.)
- Journal of the Faculty of Science, Imperial University of Tokyo. Section 2: Geology, Mineralogy, Geography, 8 ismology. Vol. 3, Part 3. Pp. 181-193+10 plates. (Tokyo: Maruzen Co., Ltd.) 1.20 yen.
- Collection des travaux chimiques de Tchécoslovaquie. Rédigée et publiée par E. Votoček et J. Heyrovský. Année 3, No. 6, Juin. Pp. 285-392. (Prague: Regia Societas Scientiarum Bohemica.)
- Ministry of Finance, Egypt: Coastguards and Fisheries Service. Report on the Fisheries of Egypt for the Year 1929. By R. S. Wimpenny. Pp. iii+92. (Cairo: Government Press.) 5 P.T.
- Report of the National Research Council for the Year July 1, 1929-June 30, 1930. Pp. iv+119. (Washington, D.C.: Government Printing Office.) 15 cents.
- U.S. Department of Agriculture. Farmers' Bulletin No. 1642: Chalcid Control in Alfalfa-Seed Production. By V. L. Wildermuth. Pp. ii+14. (Washington, D.C.: Government Printing Office.) 5 cents.
- Proceedings of the United States National Museum. Vol. 79, Art. 9: A new Species of Troodont Dinosaur from the Lance Formation of Wyoming. By Charles W. Gilmore. (No. 2875.) Pp. 6+5 plates. Vol. 79, Art. 12: A new Pearl Oyster from the Hawaiian Islands. By Paul Bartsch. (No. 2878.) Pp. 2+2 plates. (Washington, D.C.: Government Printing Office.)
- The Science Reports of the Tôhoku Imperial University, Sendai, Japan. First Series (Mathematics, Physics, Chemistry), Vol. 20, No. 2, May. Pp. 197-322. (Tokyo and Sendai: Maruzen Co., Ltd.)
- Report on the Cloud Observations made at the Mera Meteorological Observatory, Mera, near Tokyo, April 1927 to March 1929. By M. Watanabe, Y. Isimaru and K. Yosinari. Pp. iii+50+72+187 plates. (Tokyo: Central Meteorological Observatory.)
- Kungl. Sjökartverket, Stockholm. Resultatet af de Beobachtungen des magnetischen Observatoriums zu Lovö (Stockholm) im Jahre 1929. Bearbeitet von Sven Aslund. Pp. 29. (Stockholm.)

CATALOGUES.

- Bulletin No. 3: Spectrum Analysis. Pp. 19. (London: Adam Hilger, Ltd.)
- Verlag: Publications: Livres de Fonds. Pp. 141. (Berlin: W. Junk.)

Diary of Societies.

SATURDAY, JULY 25.

- INSTITUTION OF MUNICIPAL AND COUNTY ENGINEERS (South-Eastern District) (at Hastings Town Hall), at 11.30 A.M.

TUESDAY, JULY 28.

- QUEKETT MICROSCOPICAL CLUB (at 11 Chandos Street, W.1), at 7.

CONGRESSES.

JULY 17 to 25.

- BRITISH MEDICAL ASSOCIATION (at Eastbourne).

JULY 24 to 30.

- BRITISH COMMONWEALTH EDUCATION CONFERENCE (at Bedford College).—Subject: EDUCATION IN A CHANGING EMPIRE:—
Education in India.
Individual Education.
Modern Psychology in Education.
Examinations and Tests.

JULY 26 to 31.

- INTERNATIONAL CONGRESS ON RADIOLOGY (at Paris).