

Productive of Diseases or Conducive to Health", Dr. J. Conolly, late professor of the practice of medicine in the University of London, after pointing out the advantages which the country practitioner possessed over those living in towns, especially as regards the intimate acquaintance he gradually acquired concerning every circumstance in the locality, suggested the formation in every county in England of a society consisting of scientific men of every class and description and comprising the following sections: (a) statistics, (b) geology and mineralogy, (c) geography, (d) meteorology, (e) agriculture, (f) botany, (g) archaeology, (h) chemistry and (i) medical topography and statistics. The business of this last section would be "to apply all the exact knowledge furnished by the other sections to the subject of health and disease; to note, with extreme care, the relation of phenomena developed in the human body to the natural or statistical or historical and political and moral circumstances in which the subjects of such phenomena were placed". (*Trans. Prov. Med. and Surg. Assoc.*, 1, 180; 1836.)

## Societies and Academies

### Paris

Academy of Sciences, June 29 (*C.R.*, 202, 2109-2220).

JEAN TILHO: The present condition of the zone of capture of the Logone by the Bénoué. Further measurements and observations confirming the possible danger of the capture of the Logone (Tchad basin) by the Bénoué (Niger basin).

VITO VOLTERRA: The integration of the equations of biological fluctuations.

CLAUDE CHABAUTY: Certain ternary diophantic equations.

FARID BOULAD BEY: The general forms of equations of nomographic order 6 and 5 representable by conical nomograms.

S. BUCHEGUENNE: The deformation of Bianchi surfaces.

GEORGES GIRAUD: A general class of equations with principal integrals.

ALEXANDRE GHKA: The interpolation of analytical functions.

EMILE MERLIN: The nature of the trajectories of certain perfect heterogeneous fluids.

HENRI MINEUR: The galactic rotation of globular clusters.

JEAN JACQUES TRILLAT and M<sup>lle</sup>. RENÉE VAILLÉ: A method of measuring the adsorption of oils by metallic surfaces.

PIERRE CIBIÉ: A method of laboratory control of the light projectors of motor-cars.

A. HAUTOT: The *K*-radiation of crystallized boron. It is concluded that the remarkable variation of the electrical conductivity of boron with temperature is due to a variation of the energy distribution of the conductivity electrons.

JACQUES ERRERA POL MOLLET and MARY L. SHERRILL: The infra-red absorptions of liquid hydrocarbons. The influence of the double linkage.

HENRI BIZETTE and BELLING TSAÏ: The thermal variation of the magnetic double refraction of nitric oxide (NO) and of compressed oxygen.

M<sup>lle</sup>. MADELEINE GEX: Variations in the ultra-violet spectrum of phenol as a function of the pH. Over a range of pH from 1 to 12, the changes in the ultra-violet spectrum suggest four changes in the structure of the phenol molecule.

F. HAMMEL: The analogy of the monohydrated sulphates of the magnesium series. Results of X-ray studies of the monohydrated sulphates of magnesium, manganese, iron, cobalt, nickel, copper and zinc.

FRANÇOIS BOURION and M<sup>lle</sup>. ODILE HUN: The cryoscopic determination of the total hydration of the ions of hydrochloric acid.

M<sup>lle</sup>. CÉCILE STORA: The mechanism of the Becquerel effect of organic molecules.

Tr. NÉGRESO and W. J. CROOK: The equilibrium relations of the oxides of iron in the slag of refinery furnaces.

M<sup>lle</sup>. JEANNE BOULANGER: The systems zirconyl oxalate, alkaline oxalates and water.

PIERRE CARRÉ and LOUIS PEIGNÉ: The relative mobilities of the normal alkyl radicals in their chlorothioformates.

HENRI WAHL: The chlorination of *p*-chlorotoluene. The chlorination of *p*-chlorotoluene gives a mixture containing 58 per cent of the 2,4-dichlorotoluene and 42 per cent of the 3,4-compound. This proportion is not affected by the nature of the catalyst, or by variations of temperature between 20° and 40° C.

PIERRE LEGOUX: The origin of the gold of the Guinea-Sudan borders.

LOUIS DONCIEUX, LOUIS DUBERTRET and HENRI VAUTRIN: The Oligocene and Burdigalian of the Syrian desert.

MAURICE PARAT: The Oxfordian and Kimmeridgean of Milne Land (Eastern Greenland).

ANDRÉ AURIC: The suitability of a cycle of 334 years for meteorological predictions.

HENRI COLIN and MARCEL SIMON: The proportion of ash and its alkalinity in the beetroot.

ETIENNE FOEX and MAURICE LANSADE: A bacteriosis of the banana tree.

M. and M<sup>me</sup>. FERNAND MOREAU: The toxicity of some cations for the *Saprolegnia*.

LÉO ESPIL and GABRIEL MANDILLON: The action of bromacetates on various alkaloids. Sodium bromacetate reacts with strychnine sulphate, giving a non-toxic product. The toxicity of this alkaloid would appear to be connected with the existence of a free amino group.

M<sup>me</sup>. VÉRA DANTCHAKOFF: Sex hormones and the role of the placenta in the ontogenesis of mammals.

ISRAEL and MICHEL MAGAT: The ultra-violet spectrum of normal and leucæmic blood.

FRED VLÈS: The conditions of stimulation of fluorescence of proteins.

ERNEST KAHANE and M<sup>lle</sup>. JEANNE LÉVY: The origin of the choline of sperm. The existence in sperm of free choline is a secondary phenomenon due to the action of a diastase on a precursor of choline.

ALI MUSTAPHA: The action of the cholera vibriion on milk and choleraigen power.

GEORGES BLANC and MARCEL BALTAZARD: The influence of privation on the development of the virus of murin typhus in the flea (*Xenopsylla Cheopis*).

ALEXANDRE BESREDKA and MICHEL BARDACH: The intra-cutaneous immunization of rabbits against epithelioma inoculated in the eye. Intra-cutaneous epithelioma, a benign tumour, acts as a true vaccine against epithelioma of the eye, a malignant tumour.



## Amsterdam

Royal Academy (*Proc.*, 39, No. 6, June 1936).

W. H. KEESOM and G. SCHMIDT: Researches on heat conduction by rarified gases. (1) The thermal accommodation coefficient of helium, hydrogen, neon and nitrogen on glass at 0° C.

J. BOESEKEN: The oxidation products of thio-urea. The dioxide as derivative of sulphylic acid (H<sub>2</sub>SO<sub>2</sub>).

E. D. WIERSMA: Physical resemblance in connexion with mental similarity (1). Researches on the inheritance of temperament and resemblance of offspring and parents.

K. MAHLER: An analogue to a theorem of Schneider (2).

H. FREUDENTHAL: (1) A class of rings in Hilbertian space. (2) The abstraction of the concept of an integral.

W. BLEEKER: Meteorological data from the three Dutch expeditions to the Karakorum (1). Observations of pressure, temperature, humidity, etc., at various stations in the Karakorum range.

T. WEEVERS: A consideration of some phytochemical problems. The phytochemical characteristic of a species, genus or family of plants is not a single compound, but a particular combination of several compounds.

T. E. DE JONGE-COHEN: Radix pramolarica unilateralis.

N. SUZUKI: The diencephalic and some other systems in *Xantharpyia amplexicaudata* (1).

B. VAN DER EYKEN: Dentition and teeth development in the irisforelle (*Salmo irideus*) (6). Teeth development.

A. CHARLOTTE RUYSS: The isolation of typhoid bacilli from water. Wilson and Blair's medium readily permits of the isolation of the typhoid bacilli from infected water.

D. VAN DANTZIG: Ricci calculus and functional analysis.

## Geneva

Society of Physics and Natural History, May 7.

KURT H. MEYER and W. LOTMAR: Note on the elementary lattice of crystallized caoutchouc. From a study of the interferences, the dimensions of the elementary lattice of crystallized caoutchouc can be calculated. It is monoclinic ( $a = 8.54 \text{ \AA}$ ;  $b = 8.20 \text{ \AA}$ ;  $c = 12.65 \text{ \AA}$ ;  $\beta = 83^\circ$ ). The arrangement of the atoms in this lattice, which includes eight isoprene radicals, can be established. Thus, caoutchouc should be classed in the  $C_{2h}^2$  spatial group.

A. WEINSTEIN: The equations of vibration of a plate. Calculation of close upper and lower limits for the frequency of the overtone of a square clamped plate.

ERNEST C. G. STUECKELBERG: Continuous  $\gamma$ -radioactivity and unitary field theory. The Fermi explanation of continuous  $\beta^+$  radioactivity allows for a recombination between the created positive electron and an orbital electron. The annihilation radiation can escape from the atomic system even if there is not enough energy available to produce a positive electron. Thus there is a pure and continuous  $\gamma$ -ray emission. Considering electron, neutrino, proton and neutron as different quantum states of one elementary particle, only four different transitions are possible if conservation of charge and Dirac's equation are postulated. They explain the Fermi

formula of  $\beta$ -decay and the nuclear exchange forces of Heisenberg and Majorana. If a neutrino theory of light is developed, the electric field and the material field (particles) can be described by the 16 components of a unitary spinor field (see also NATURE, June 20, p. 1032, and June 27, p. 1070).

B. SUSZ and S. FRIED: The Raman spectrum of gallic acid, of some of its derivatives and of tannin. The authors give the Raman spectrum of gallic acid, of methyl gallate, methyl trimethylgallate, triacetylgallic acid and Chinese gallotannin with some interpretations of the frequencies found.

## Moscow

Academy of Sciences (*C.R.*, 1, No. 7, 1936).

S. SOBOLEV: Evaluations concerning the families of functions having derivatives with integrable squares.

L. KANTOROVICH: The general theory of operations in semi-ordinated spaces.

A. I. ALICHANIAN, A. I. ALICHANOV and L. A. ARZIMOVICH: The law of the retention of impulses at the annihilation of positrons.

V. ARKADIEV and A. MOROSOVA: Photographic representation of a Hertzian dipole.

N. SELJAKOV: To what class of symmetry does ordinary ice belong? There are two modifications of ice;  $\alpha$ -ice is hexagonal and  $\beta$ -ice is rhombohedral.

M. ELIASHEVICH: The rotation-vibration wave equation for a polyatomic molecule.

D. RAUZER-CHERNOUSOVA: The Fusulinidae and the stratigraphic subdivision of the oil-bearing limestones in the Sterlitamak district.

J. M. URANOVSKIJ: The role of the nervous system in the regeneration of the extremities in axolotl.

## Sydney

Royal Society of New South Wales, June 3.

A. H. VOISEY: The Upper Palaeozoic rocks around Yessabah near Kempsey, N.S.W. The various rock types in an area of about thirty square miles are described, classified and mapped, these rocks being mainly of sedimentary origin. This work reveals a very interesting story of bygone ages. More than three hundred million years ago there existed a shallow sea abounding in life; but many organisms were killed by showers of ash from violently explosive volcanoes. Later came uplift, and then another subsidence again ushered in marine conditions. The climate then was cold, and icebergs floated about on this sea fringed with active volcanoes. Further uplift and depression followed, with a gradual dying out of volcanic activity. After a final uplift, came extraordinary changes—pressure folded the rocks into great arches and troughs, and huge rock masses were displaced along cracks. Then for perhaps two hundred million years the land surface was gradually but effectively worn down, until it was but little above sea-level: uplift followed, and out of the highlands so formed the present Macleay River cut its valley.

GERMAINE A. JOPLIN: The Ben Bullen Plutonic Complex, N.S.W. The Ben Bullen complex consists of two intrusions of partial magma. The earlier mass is of noritic composition, and has differentiated *in situ*. The later intrusion is a quartz-mica-diorite, and this has reacted with the solid norites and given rise



to a series of cognate hybrids. Five chemical analyses show that the complex is closely related to the Hartley series, and possibly represents a northerly extension of the Hartley-Bathurst bathylith.

H. G. RAGGATT: Geology of the north-west basin of Western Australia, with particular reference to the stratigraphy of the Permo-Carboniferous. The stratigraphy and lithology of the Permo-Carboniferous system in the north-west basin of Western Australia are described in detail, and a subdivision into series and stages suggested. Correlation of these rocks with the Permo-Carboniferous of the Irwin River is discussed. An outline of the stratigraphy of the Cretaceous and the geological history and structure of the region are given.

WINIFRED MANKIN: An attempt at quantitative analysis of silver-gold alloys. Arc spectra were obtained from alloys of silver and gold in various proportions in the attempt to find a definite relation between the ratio of the intensities of corresponding lines in the spectra of the two metals and their proportions in the alloy. The alloy formed a bead in the crater of a carbon arc. Three pairs of corresponding lines were examined. No regular relations were obtained, and this is due mainly to the relative rates of volatilization varying considerably with slight changes in the arc conditions. Chemical analysis showed that the relative proportions of the metals were changed considerably, and in an erratic manner, by the passage of the arc. Suggestions are made for modifications of method.

H. FINNEMORE and JOYCE M. COOPER: Cyanogenic glucosides in Australian plants (4). *Zieria laevigata*. The leaves of this rutaceous plant yield by the action of its own enzyme 0.2 per cent of hydrocyanic acid, and approximately twice this amount with additional enzyme. It is shown that this is due to the decomposition of zierin, the glucoside of meta-hydroxybenzaldehyde cyanhydrin.

### Other Countries

Uganda Protectorate. Annual Report of the Geological Survey Department for the Year ended 31st December 1935. Pp. 19. (Entebbe: Government Printer.) 2s.

Memoirs of the Kyancutta Museum. No. 2: Further Notes on Archaeocyath (Cyathospongia) and other Organisms from the Lower Cambrian of Beltane, South Australia. By R. and W. R. Bedford. Pp. 9-20+plates 7-20. (Kyancutta: Kyancutta Museum.)

Survey of India. General Report 1935, from 1st October 1934 to 30th September 1935. Pp. xi+74+14 plates. 1.8 rupees; 2s. 6d. Index to Annual Reports of the Survey of India, 1904-5 to 1926-7. Compiled by Lieut.-Colonel A. H. Gwyn. Pp. 21. (Calcutta: Survey of India.)

Meddelelser fra Kommissionen for Danmarks Fiskeri- og Havundersøgelser. Serie Fiskeri, Bind 10, Nr. 3: Young Herring and Sprat in Faroese Waters. By A. Vedel Tåning. Pp. 28. 1.20 kr. Serie Fiskeri, Bind 10, Nr. 4: On the Eggs and Young Stages of the Halibut. Pp. 23. 1.00 kr. (København: C. A. Reitzels Forlag.)

Madras Fisheries Department. Administration Report for the Year 1934-35. By Dr. B. Sundara Raj. Pp. iii+74. (Madras: Government Press.) 10 annas.

Imperial College of Tropical Agriculture. Fifth Annual Report on Cacao Research, 1935. Pp. 55+4 plates. (Trinidad: Government Printing Office.) 5s.

Indian Central Cotton Committee: Technological Laboratory. Technological Bulletin, Series A, No. 31: Quality of Lint in relation to Ginning Factors. Part 1: The Effect of (i) Moving Knife Setting; and (ii) Saw Speed. By Dr. Nazir Ahmad and R. P. Richardson. Pp. ii+30. 1 rupee. Technological Bulletin, Series A, No. 32: The Effect of employing Different Roller Settings and Twists on the Spinning Performance of Three Indian Cottons. By R. P. Richardson and Dr. Nazir Ahmad. Pp. 16. 8 annas. (Bombay: Indian Central Cotton Committee.)

State of Connecticut: State Geological and Natural History Survey. Bulletin No. 56: Marbles and Limestones of Connecticut. By Fred Holmsley Moore. Pp. 56+14 plates. (Hartford, Conn.: State Geological and Natural History Survey.) 60 cents.

Proceedings of the California Academy of Sciences, Fourth Series. Vol. 23, No. 2: A List of the Birds of the Atlin Region, British Columbia. By Harry S. Swarth. Pp. 35-58. Vol. 23, No. 3: Origins of the Fauna of the Sitkan District, Alaska. By Harry S. Swarth. Pp. 59-78. (San Francisco: California Academy of Sciences.)

A Compendium of Minerals and Stones used in Chinese Medicine from the Pen Ts'ao Kang Mu. Compiled by B. E. Read and C. Pak. (Published by the Peking Natural History Bulletin.) Second edition. Pp. vii+98. (Peiping: The Franch Bookstore.) 1.75 dollars.

Ministry of Commerce and Industry, Egypt: Fisheries Research Directorate. Notes and Memoirs, No. 13: Les fonds de pêche près d'Alexandrie. 6: Hydroidea. Par Armand Billard. Pp. 12. Notes and Memoirs, No. 15: The Fishery Grounds near Alexandria. 7: Decapoda. By Heinrich Balss; with an Appendix: Schizopoda, by C. Zimmer. Pp. 68. Notes and Memoirs, No. 16: The Fishery Grounds near Alexandria. 8: Pantopoda. By Dr. H. Helfer. Pp. 6. Notes and Memoirs, No. 17: The Fishery Grounds near Alexandria. 9: Sponges. By Maurice Burton. Pp. 28. (Cairo: Government Press.)

Ministry of Finance: Coastguards and Fisheries Administration: Fisheries Research Directorate. Rapport sur les pêcheries d'Égypte en 1933. Par Hussein Faouzi. Pp. vi+135. (Cairo: Government Press.)

Punjab Irrigation Research Institute. Research Publication, Vol. 2, No. 11: Pressures under a Model of Panjnad Weir and under the Prototype. By Harbans Lal Uppal. Pp. 6. 4 annas; 5d. Research Publication, Vol. 2, No. 12: Design of Khanki Weir Bay S. By J. P. Gunn and Harbans Lal Uppal. Pp. 2+4 plates. 4 annas; 5d. Research Publication, Vol. 5, No. 4: On the Electrical Method of Investigating the Uplift Pressures under Dams and Weirs. By Dr. V. I. Vaidhianathan and Gurdas Ram. Pp. 5+8 plates. 5 annas; 7d. Research Publication, Vol. 5, No. 5: Floation Gradient for the Flow of Water through Porous Strata and its Bearing on the Stability of Foundations. By Dr. V. I. Vaidhianathan and Hans Raj Luthra. Pp. 13+8 plates. 6 annas; 8d. (Lahore: Punjab Irrigation Research Institute.)

Brooklyn Botanic Garden Record. Vol. 25, No. 3: The Early Vegetation of Long Island (A Long Island Tertiary Publication). By Henry K. Svenson. Pp. 207-228. (Brooklyn, N.Y.: Brooklyn Institute of Arts and Sciences.)

Tanganyika Territory: Department of Lands and Mines: Geological Division. Short Paper No. 13: Geology of the South and South-Eastern Regions of the Musoma District; being a Preliminary Geological Survey of the Ikoma and Kilimafza Regions and the Serengeti (Complete) Game Reserve. By G. M. Stockley. Pp. 48. (Dar es Salaam: Government Printer.) 4s.

Ceylon. Part 4: Education, Science and Art (G). Administration Report of the Marine Biologist for the Year 1935. By A. H. Malpas. Pp. 69. (Colombo: Government Record Office.) 10 cents.

Osriris. Vol. 2, Part 5: Historical Introduction to the Study of Teleostean Development. By Jane M. Oppenheimer. Pp. 124-148. (Bruges: Saint Catherine Press, Ltd.)

## Official Publications Received

### Great Britain and Ireland

Rubber Growers' Association. Rubber and Agriculture Series, Bulletin No. 2: Pneumatic Equipment for Horse Drawn Vehicles. By Alexander Hay. Pp. 20. (London: Rubber Growers' Association.)

Air Ministry: Aeronautical Research Committee: Reports and Memoranda. No. 1675 (T. 3602): Graphical Method of Calculating Performance of Aircraft. By C. N. H. Lock. Pp. 30+8 plates. 2s. net. No. 1677 (S. and C. 453): Flight Tests on an Atlas fitted with Auto-slots having various Link Arrangements. By W. G. Jennings. Pp. 7+5 plates. 9d. net. No. 1695 (2076): Effect of Static Pressure along the Axis of an Open Jet Tunnel of (a) Nozzle Flare, and (b) a Ring in the Collector. By F. B. Bradfield and G. F. Midwood. Pp. 3+4 plates. 6d. net. (London: H.M. Stationery Office.)

The Scientific Proceedings of the Royal Dublin Society. Vol. 21 (N.S.), No. 33: Method of Infection of Oat Grain with *Ustilago avenae* and the Influence of External Factors on the Incidence of the Disease. By Robert McKay. Pp. 297-307+plate 7. 1s. 6d. Vol. 21 (N.S.), No. 34: The Inhibition of Chemical Reactions. Part 6: The Influence of Ether and Nitrobenzene on the Absorption of Ethylene by Sulphuric Acid. By Dr. Kenneth Claude Bailey and William Edwin Calcutt. Pp. 309-315. 6d. (Dublin: Hodges, Figgis and Co.; London: Williams and Norgate, Ltd.)

Harper Adams Agricultural College. Farm Guide, Season 1936, with Notes on the Crop Variety Trials. Pp. 24. Advisory Report No. 11: Report of the Harper Adams College Advisory Department, April 1935-March 1936. Pp. 29. (Newport, Shropshire: Harper Adams Agricultural College.)

The National Central Library. 20th Annual Report of the Executive Committee, 1935-36. Pp. 60. (London: National Central Library.)

Proceedings of the Royal Society of Edinburgh, Session 1935-1936. Vol. 56, Part 1, No. 4: Some Experiments having Particular Reference to the Flow of Water along Short Capillary Tubes connecting Two Vessels with Free Surfaces. By J. Allen. Pp. 26-37. 1s. Vol. 56, Part 1, No. 5: The Revised Prepared System of the Quadratic Complex. By Prof. H. W. Turnbull. Pp. 38-49. 1s. Vol. 56, Part 1, No. 6: On Singular Pencils of Zehfuss, Compound and Schläflian Matrices. By W. Ledermann. Pp. 50-59. 3s. 6d. (Edinburgh: Robert Grant and Son, Ltd.; London: Williams and Norgate, Ltd.)

### Catalogues

Catalogue of Scientific Instruments for measuring Atmospheric Pressure: Altimeters, Levelling Aneroids, Aviation Instruments and Barometers. (Catalogue E.6.) Pp. 24. (Stockholm: System Paulin Aktiebolag; Coventry: C. E. Johansson, Ltd.)

Africana: Books, Pictures, Manuscripts. (Catalogue No. 602.) Pp. 72+4 plates. (London: Francis Edwards, Ltd.)

Wild-Barfield and Gibbons-Wild-Barfield Electric Furnaces with "Heavy-Hairpin" Elements. Pp. 12. (London: Wild-Barfield Electric Furnaces, Ltd.)

Dr. Ashworth's Ultra-Violet Ray Meter. Pp. 2. (London: Negretti and Zambra.)