

## Societies and Academies.

LONDON.

Royal Society, June 30.—A. Fage and F. C. Johansen: On the flow of air behind an inclined flat plate of infinite span. The airflow behind a flat plate has been explored with a heated wire, used in conjunction with an Einthoven galvanometer. As the inclination of the plate is decreased from  $90^\circ$ , both the frequency and velocity with which individual vortices behind the plate pass downstream become greater; and the longitudinal spacing between successive vortices becomes smaller. Vorticity is shed at the same rate from the two edges of the plate; this rate slowly decreases with the inclination of the plate. Only a part of the vorticity generated at the edges passes downstream in the form of well-defined vortices.

L. G. Brazier: On the flexure of thin cylindrical shells and other 'thin' sections. St. Venant's solution of the flexure problem shows that hollow beams are more efficient than solid beams in economy of material. His theory suggests that this advantage increases without limit as the cylinder is made of thinner material. Actually a limit is reached when the section fails under flexure by distortion of the cross-section. The distortion of the cross-section of 'thin' section beams subjected to pure flexure is examined and a modification to St. Venant's result is obtained. The analysis suggests the existence of a form of elastic instability, characterised by the absence of a 'point of bifurcation,' for beams of such sections subjected to pure flexure.

W. H. George and H. E. Beckett: The energy of the struck string (Part ii.). The initial velocity of the hammer does not determine the character of the impact, and the fraction of its initial energy lost by the hammer is independent of the initial velocity of the hammer. The results obtained with an actual felt-covered pianoforte hammer are remarkably like those for a pointed or a broad unyielding metal hammer. A specially designed yielding metal hammer gave less energy to the string than did any of the other types of hammer. The partition of the energy among the various partial tones of the vibrating string shows that it would be possible to obtain almost any kind of tone quality from a pianoforte merely by altering the mass of the hammer.

G. A. Tomlinson: Rusting of steel surfaces in contact. Hardened steel surfaces in contact and subject to relative motion are liable to become stained with a deposit of oxide, which may cause trouble in high-precision apparatus. This effect occurs with quite small contact stresses and with various different materials in contact with steel. It is necessary that relative tangential motion shall occur. An oscillatory tangential motion of  $8 \times 10^{-8}$  inches, repeated sufficiently often, will produce oxidation debris, but smaller motions do not. This suggests that actual molecules are detached by cohesion forces and combine with oxygen molecules from the air. The effect of a film of castor oil between the surfaces has been examined. A sphere and a plane can be completely separated by a film of great mechanical strength, when the mean intensity of pressure over the area of contact is less than a critical value of about 65,000 lb. per square inch. For pressures above this, the film may rupture and solid cohesion occur, accompanied by the same oxidation effect.

F. I. G. Rawlins and E. K. Rideal: The absorption spectra of aragonite and strontianite in the near infra-red. Definite displacements of the three

fundamental frequencies of the  $\text{CO}_3$  ion occur in the two crystal forms. From the overtones of the fundamental at  $7\mu$ , it is shown that the frequencies do not follow the order  $3\nu_1$ ,  $2\nu_1$ ,  $3\nu_1$ ; a correction must be introduced analogous to the Kratzer correction for an harmonic coupling in gases. In  $\text{CaCO}_3$  this correction is greatest for the less symmetrical form. In bi-axial crystals of the carbonates of calcium, strontium, and barium, the absorption wave-length at  $\nu_1$  ( $7\mu$ ) and its overtones increase with the molecular volume, but the reverse is the case for the bands at  $\nu_2$  ( $14\mu$ ) and  $\nu_3$  ( $11\mu$ ). This dependence upon the molecular volumes is likewise observed in calcite and aragonite.

C. N. Hinshelwood and P. I. Askey: The influence of hydrogen on two homogeneous reactions. The decomposition of propionic aldehyde is unimolecular at low pressures if sufficient hydrogen is present. Increasing pressure of hydrogen soon brings the propionic aldehyde reaction to a limiting rate, which is the same as the limiting rate reached when the partial pressure of the aldehyde itself is increased. Similar pressures of hydrogen have no tendency to make the acetaldehyde decomposition appear unimolecular, and no saturation value is reached for the comparatively small effect which the hydrogen exerts. These phenomena indicate that activation of acetaldehyde involves a few degrees of freedom only, while that of propionic aldehyde is a more complex process, and that in the propionic aldehyde reaction there is a time-lag between activation and transformation.

H. Stanley Allen and Ian Sandeman: Bands in the secondary spectrum of hydrogen (ii.). A system of bands of a distinctive type occurs in groups throughout a wide range of the visible and infra-red spectrum of hydrogen. The bands in a group have been spaced out at intervals of very nearly 92 wave-numbers, and various reasons have been given for attributing the system to triatomic hydrogen,  $\text{H}_3$ . A considerable number of new bands has now been added. The structure of some of the better defined bands suggests that the spacing depends on a new quantum number.

G. D. Bengough, J. M. Stuart, and A. R. Lee: The theory of metallic corrosion in the light of quantitative measurements. A new version of the electrochemical theory of metallic corrosion has recently been widely accepted as fitting satisfactorily experimental facts, from a qualitative point of view; but the theory has not been subjected to exact quantitative examination. A method of measuring corrosion has been worked out, based on the determination of the amount of oxygen absorbed during corrosion, and has been applied to the metal zinc. The nature of the surface of the metal is an important factor in determining corrosion. Reasonable agreement between duplicate experiments has only been obtained with specimens annealed in argon at temperatures in the neighbourhood of  $250^\circ \text{C}$ . 'Spectroscopically' pure zinc is readily attacked by  $N/10,000$  KCl solution; in solutions between  $N/20,000$  and  $N/5000$  KCl the time-corrosion curves are of exponential form during their earlier course, and the controlling factor appears to be the number of chlorine ions initially present in, and their rate of withdrawal from, solution. The later course of the curves appears to be controlled largely by the behaviour of films of corrosion products. With stronger solutions the amount of available oxygen becomes an important factor.

H. A. Wilson: Chemical equilibrium in a mixture of paraffins. The compositions of the gaseous and liquid phases of a mixture of paraffins,  $\text{C}_n\text{H}_{2n+2}$ , when in a state of chemical equilibrium, are worked out approximately as functions of the temperature and pressure. A chart is drawn on which the equilibrium

<sup>1</sup> Continued from p. 103.

composition of the phases can be read off. The results obtained enable the temperatures and pressures at which the maximum amount of any particular paraffin is present in the vapour to be determined. The amount of the gaseous phase which condenses when the temperature and pressure are changed can also be obtained.

**Physical Society, June 10.**—J. H. Awbery: The latent heat of evaporation of sulphur. The latent heat of evaporation of sulphur was determined by finding the loss of weight of a vessel full of sulphur when energy was dissipated in it at a known rate. Heat losses were prevented by immersing the vessel in the vapour of sulphur. The value found for the latent heat was 79, the accuracy being estimated at 2 per cent.—H. Lowery: The refraction and dispersion of gaseous carbon tetrachloride. The refractive index has been found for the green mercury line ( $\lambda 5461$ ), the result being expressed in connexion with the density of the gas, that is, so as to show the refractivity of the gas by the same number of molecules as 1 c.c. of hydrogen contains at N.T.P. Adopting the value 1.001799 for the refractive index under these conditions, the dispersion of the gas over the range  $\lambda 4800$  to  $\lambda 6700$  is represented by the expression  $\mu - 1 = 13.543 \times 10^{27} / (7831.7 \times 10^{27} - \nu^2)$ ,  $\nu$  being the frequency of the light.—P. K. Kichlu: Regularities in the spectrum of ionised neon. A number of lines lying between  $\lambda 7282$  and  $\lambda 3142$  occurs in the condensed discharge spectrum of the more volatile gases of the air. These have been attributed to singly ionised neon, and the present work confirms this view.

**Royal Anthropological Institute, June 28.**—V. G. Childe: The *Ægean* and the Danube valley in the second millennium B.C. The Central European bronze age was the child of the *Ægean* but eventually turned upon its parents and devoured them. Recent excavations in Hungary and Macedonia have thrown light on this double process. In the lowest strata at Toszeg near Szolnok on the Tisza, the connexion with Troy is clearly revealed in the pottery, and at the same time a link is found with the early bronze age civilisation that arose round the tin deposits of Bohemia. In the fourth layer at Toszeg, an intrusive pottery appears that is identical with a foreign ware found by Mr. Heurtley in a sub-Mycenæan context in Macedonia. This fabric was native neither to Macedonia nor to Hungary, but originated round the headwaters of the Adir and March. Its authors could be traced as far as Thessaly and central Greece. Were they the Dorians of Greek tradition?

PARIS

**Academy of Sciences, June 13.**—Marcel Brillouin: The earth's magnetic field and the internal electromagnetic properties of the globe.—J. Costantin: The economic and agricultural importance of cultivation in tropical mountain regions. An account of the fight against the sugar-cane disease (Sereh) in Java. The simplest treatment, and the one in general use, is to raise the cuttings of the plants in the mountains, first at an altitude of 1500 m. to 1800 m., then removal to nurseries at a height of 600 m. to 700 m., and finally removal to the plain. The regenerated plant remains free from disease for about five years. A modified treatment is to cross the Java cane with a mountain variety from the lower slopes of the Himalayas and to give this the mountain cure as above, about every six years.—Gabriel Bertrand and L. Silberstein: The amount of total sulphur in arable soil. Analyses of soil from various parts of

France showed the total sulphur to vary between wide limits—0.202 gm. to 5.175 gm. of sulphur per kilogram of dried soil. It was noticed that the regions richest in sulphur were also the most fertile.—A. Desgrez and H. Bierry: The variations with the diet in the elimination of the urinary carbon in diabetics. Two ratios have been experimentally studied,  $A = (C_t - C_g) / N_t$ , where  $C_t$  is the total carbon in the urine,  $C_g$  the glucose carbon, and  $N_t$  the total nitrogen and the ratio  $B = \{C_t - (C_g + C_u)\} / (N_t - N_u)$ , where  $C_u$  is carbon as urea and  $N_u$  the nitrogen as urea. Both these ratios are at a minimum during the period of an equilibrium diet, and the measurements of these ratios establish with precision the value of a particular diet for diabetics.—Beniamino Segre: The transformation of *R* networks.—A. Buhl: The symmetries of the theory of continued groups.—Léon Pomey: The normal integro-differential equations of infinite order.—V. A. Kostitzin: The singular solutions of the integral equations of Volterra.—René Lagrange: an algorithm of series.—M. Lavrentieff: Conformal representation.—Spyridion Sarantopoulos: The meromorph functions represented by a Taylor's series with rational coefficients.—Martin Ålander: A property of meromorph functions at the interior of a line of constant modulus.—G. H. van den Dungen: The calculation *a priori* of the vibrations of bending and other vibrations.—Andre Défour: The utilisation of the tides.—André Charrueau: The figures of equilibrium relative to a liquid mass in rotation, to the Newtonian attraction between its particles and to the surface tension.—J. Ubach: Observations of the eclipse of the sun of Jan. 3, 1927, at Buenos Ayres (Argentine Republic). 94 photographs, 81 of which could be utilised for measurements, were taken under very favourable conditions.—Robert Esnault-Pelterie and Osée Marcus: The theoretical electrical resistance at the contact of two elastic conducting spheres, disregarding the passage layer.—Emmanuel Dubois: The Volta effect. If a metal is heated in a vacuum, it is found after cooling that the heating has rendered it electro-negative, provided that the heating has been sufficiently prolonged and carried out at a sufficiently high temperature. From the experiments given it would appear that the variations in the electromotive force obtained after heating an electrode in a vacuum arise from the disappearance of impurities common to all metals.—Rouelle: Certain peculiarities of ferro-resonance when the resistance is not negligible.—E. Pierret: The Barkhausen oscillations obtained with French valves.—Nicolas Perrakis: The magnetic properties of vanadyl chloride and sulphate and the atomic moment of tetravalent vanadium. The experiments cited prove that  $V^{IV}$  possesses at least two atomic moments, one of 8 and the other of 9 magnetons.—Jacob: An experimental method permitting the comparison, at a given moment, of the velocity of light in one sense and in the opposite sense.—Duffieux: The production of the continuous spectrum of mercury by rotation in a vacuum. A detailed account of the phenomena observed when a drop of mercury is placed in a spherical evacuated glass globe, maintained in rotation (120 to 180 turns per minute), and the temperature slowly raised to a maximum of about 200° C.—G. Reboul: The production of X-rays without a focus tube.—E. Darmois: The rotatory power of tartaric acid in solution in calcium chloride.—René Audubert: The application of the radiochemical theory to solutions of sodium iodide.—W. Kopaczewski and W. Szukiewicz: The rôle of some physical factors in the electrocapillary penetration of coloured colloids.—A. Boutaric and G. Corbet: The critical temperatures of solution of

mixtures of alcohol and some hydrocarbons. The method given, specially designed to deal with mixtures possessing a low critical temperature of solution, was used to show that although benzene and pure alcohol are miscible in all proportions, contrary to the view generally held, petrol and absolute alcohol are not miscible in all proportions.—Eugène Cornec and Paul Klug: The boiling of saturated solutions, a method of physico-chemical analysis.—F. Bourion and E. Rouyer: The boiling-point study of the affinity relating to the complex compounds formed from mercuric chloride and alkaline chlorides.—Svend Aage Schou: The transformation of acetaldehyde into its enolic form. The change has been followed by the quantitative study of the ultra-violet absorption of neutral, basic, and acid solutions of acetaldehyde.—A. Job and G. Dusollier: Organo-magnesium compounds containing phosphorus. Study of the reaction between ethyl-magnesium bromide and mono- and diphenylphosphine. The magnesium compounds obtained react with ethylchloroformate.—M. Wilmet: The sensibility of some test papers towards gaseous phosphoretted hydrogen. Papers containing silver nitrate or mercuric chloride are capable of showing the presence of I part in 1,000,000 of gaseous phosphine.—C. Dosios and G. Leucaditis: The mechanism of the formation of ketones during the dry distillation of the salts of organic acids. It is well known that asymmetrical ketones are produced by the dry distillation of mixtures of salts of two different acids, but the mechanism of the reaction has not been made out. The hypothesis of an intermediate phase, the anhydride of the organic acid, is put forward. The exchange of alkyl and aryl groups between a mixture of ketones at a high temperature does not appear to take place, but the acid anhydrides can, under the conditions of these reactions, exchange their characteristic groups.—Charles Prévost: The tautomerism of two dibromides of an erythrene hydrocarbon. The preparation of the hydrocarbon diisocrotyl in a state of purity is described. Bromine gives two dibrom derivatives, only one of which can be isolated. Attempts to prepare the fully saturated tetra-brom derivative failed.—Albert Kirmann: The  $\alpha$ -bromaldehydes. The  $\alpha$ -halogen aldehydes react as though they contained acid halides, even after a bisulphite purification.—M. Tiffeneau and Mlle Jean Lévy: The affinity capacity of the  $p$ -tolyl radical.—P. Fallot and R. Bataller: The north-east edge of the Cretaceous massif of Bas-Aragon.—E. Tabesse: Magnetic measurements in the centre and west of France. A table of the measurements is given, reduced to Jan. 1, 1922. The distribution of the magnetic elements is generally normal, except in the Civray region, where there appears to exist a strong anomaly, principally for the declination.—P. Idrac: A self-recording apparatus for the oceanographic study of deep currents. The apparatus described has been used experimentally on the coasts of Cotentin. It is specially intended for use on the *Pourquoi-Pas?* for studying the fluctuations of the currents in the English Channel and on the banks of Rockall and Porcupine.—Pierre Gavaudan: The origin and characters of the oil-bearing elements of *Madotheca platyphylla*.—A. Ch. Hollande: The renovation of the epithelium of the middle intestine of the Egyptian cricket, *Orthacanthacris (Acridium) aegyptia*.—Alphonse Labbé: The existence of specialised branchia in some copepods.—M. and Mme Lapique: The electrical reaction of plant cells and its relations with the excitability. A repetition of Waller's experiments that the blaze current is a sign of lesion; it is only a sign of life in so far as it marks the passage to death.—Mlle M. L. Verrier: The

determination of the anatomical visual field in fishes and batrachians.—H. Labbé and A. Kotzareff: The action of mesothorium bromide on glycæmia in normal and cancerous mice.—Philippe Fabre: Neuro-muscular excitation by cuneiform waves.—Raymond-Hamet: The cardiac action of adrenaline during the stimulation of the vagus.—E. Roubaud: The eclosion of the egg and the stimulants of eclosion in the *Stegomyia* of yellow fever.—L. Lutz: The soluble ferments secreted by the hymenomycete fungi. Tannin as an antioxygen.—X. Chahovitch, V. Arnovljévitch, and Mlle M. Vichnjitch: The proteid sugar in various pathological states. Proteid hyperglycæmia is not a disorder specific to a disease, but is met with whenever there is some lack of nutrition and is the expression of the general metabolism changed by the influence of a non-specific agent.—A. T. Salimbeni and R. Sazerac: The action of bismuth on the spirochæte of Sodoku in the experimental infection of the guinea-pig.

## ROME.

Royal National Academy of the Lincei, Mar. 20.—G. Fubini: The geometry of a surface in the projective group and in the conform group.—O. M. Corbino: Electrolysis without electrodes. In cases when electrolysis of a liquid is induced by an arc or an ionic discharge between an external electrode and the liquid, the lack of a metallic electrode not only changes the form of the cathodic deposit, which may assume the colloidal state, but also the chemical character of the electrolytic process may undergo modification. This is shown by the liberation of hydrogen rather than the deposition of metallic gold from a gilding bath.—A. L. Herrera: Growth and multiplication of artificial amœbæ. These structures, formed by drops of sodium hydroxide solution in a mixture of light petroleum and olive oil, are able to exhibit, although only to a limited degree, the phenomena of growth and multiplication, owing to increase of the osmotic pressure by absorption of fresh quantities of oil dissolved in petroleum through the soap membrane surrounding the alkaline drops.—E. Bompiani: Some general ideas for the differential study of [geometrical] varieties.—E. Bortolotti: Axial systems and connexions in  $V_m$ .—W. Blaschke: The linear element of Liouville.—G. Andreoli: Curvature and parallelism in a surface.—S. Cherubino: The integration of linear differential forms.—J. Dubourdiou: The holonomy groups of Riemann spaces of four dimensions. Case of an Einsteinian  $ds^2$ .—V. Hlavaty: Contact of two curves in a  $V_m$ .—L. Labocetta: The analytical representation in finite form of the magnitudes expressed by different functions in arbitrarily assigned regions of the plane and of space.—N. Spampinato: Further contributions to the general theory of Riemann's matrices.—M. Pascal: Curves for the maximum (or minimum) thrust [aerial].—G. Todesco: Investigations on the accidental thermo-electricity of bismuth. Majorana's experiment with an amplifier and a thermionic valve demonstrated the possibility of obtaining a sound in a telephone connected with the amplifier if the latter is joined to a flat coil of high resistance having as nucleus a bismuth disc or ring, one of the faces of which is exposed to luminous radiation, periodically interrupted. The dissymmetries which cause this accidental thermo-electricity of bismuth are due merely to the fact that, in the crystallisation following fusion of the metal, the elementary crystals are disposed in the mass of the metal with varying orientation, contact of differently inclined crystals resulting in the formation of thermo-electric couples.—G. Piccardi:

Isotopy, excess weight, and atomic structure. According to a hypothesis previously advanced, an atomic species of number  $N$  and atomic weight  $P$  should possess  $(P-2N)$  positive electrons and  $(P-2N)$  negative electrons external to the atomic nucleus and arranged to form an electrically neutral whole. This hypothesis is now supported by the relations, manifested but as yet incompletely studied, between the atomic weight and (1) the difference between the weights of the lowest and highest isotopes, or the field of variability of the isotopes, for each element, and (2) the maximum excess weight exhibited by any group of isotopes.—D. Bigiavi: Relations between aromatic nitro-derivatives and azoxy-compounds. Evidence is adduced which confirms the reluctance to undergo substitution exhibited by the aromatic nucleus contiguous to the pentavalent nitrogen of the azoxy-compounds, and moreover shows that, in general, the presence in the aromatic nucleus of an azo-derivative of nitro-groups in the para- or ortho-position to the azo-grouping renders difficult the addition of oxygen to a nitrogen atom of the azo-group by means of peracetic acid.—G. Malquori: The system  $Al(NO_3)_3 : KNO_3 : H_2O$  at  $25^\circ$ . The isotherm of this system for the temperature  $25^\circ$  fails to indicate the formation of an additive compound between the two nitrates.—P. Pasquini: Homeoplastic grafting of the ocular rudiments in embryos of *Pleurodeles Waltli*.—R. Savelli: Lack of confirmation of the Giglio-Tos 'rational laws' on hybridism.

### Official Publications Received.

#### BRITISH.

The British Institute of Philosophical Studies. Annual Report and Statement of Accounts for the Year ended 31st March 1927. Pp. 19. (London.)

Report of the Director of the Royal Observatory, Hong Kong, for the Year 1926. Pp. 19. (Hong Kong.)

Journal of the Chemical Society: containing Papers communicated to the Society. June. Pp. x+iv+1221-1400. (London: Gurney and Jackson.)

The Plan of the Educational Colonies Association (of Great Britain and India): the Substance of a Series of Lectures on the Plan delivered in the Universities of Calcutta, Madras and Dacca. By J. A. Petavel. Pp. xi+288. (Calcutta: Educational Colonies Association.)

Biological Reviews and Biological Proceedings of the Cambridge Philosophical Society. Edited by H. Munro Fox. Vol. 2, No. 3, June. Pp. 199-288. (Cambridge: At the University Press.) 12s. 6d. net.

Board of Education. Report of H.M. Inspectors on the Provision of Instruction in Pure Chemistry in Technical Colleges and Schools in England. Pp. 11. (London: H.M. Stationery Office.) 3d. net.

The Tea Research Institute of Ceylon. Bulletin No. 1: Annual Report for the Year 1926. Pp. 29. (Kandy, Ceylon.)

Report of His Majesty's Astronomer at the Cape of Good Hope to the Secretary of the Admiralty, for the Year 1926. Pp. 10. (Cape of Good Hope.)

Forestry Commission. Seventh Annual Report of the Forestry Commissioners, Year ending September 30th, 1926. Pp. 45. (London: H.M. Stationery Office.) 1s. net.

The Physical Society. Proceedings, Vol. 39, Part 4, June 15. Pp. 251-374. (London: Fleetway Press, Ltd.) 6s. net.

South Australia: Department of Mines. Mining Review for the Half-Year ended December 31st, 1926. (No. 45.) Pp. 105+7 plates. (Adelaide: R. E. E. Rogers.)

#### FOREIGN.

Proceedings of the Academy of Natural Sciences of Philadelphia. A Revision of the Nematodes of the Leidy Collections. By Arthur C. Walton. Pp. 49-163+plates 4-10. The Structure and Affinities of Humboldtiana and related Helicid Genera of Mexico and Texas. By Henry A. Pilsbry. Pp. 165-192+plates 11-14. (Philadelphia, Pa.)

The Carnegie Foundation for the Advancement of Teaching. Bulletin No. 19: Dental Education in the United States and Canada. A Report to the Carnegie Foundation for the Advancement of Teaching. By William J. Fies. Pp. xxi+692. Bulletin No. 20: The Quality of the Educational Process in the United States and Europe. By William S. Learned. Pp. x+133. (New York.)

The Rockefeller Institute for Medical Research: Organization and Equipment. Pp. 24. (New York.)

Proceedings of the United States National Museum. Vol. 71, Art. 12: Megachilid Bees from Bolivia collected by the Mulford Biological Expedition, 1921-1922. By T. D. A. Cockerell. (No. 2684.) Pp. 22. (Washington, D.C.: Government Printing Office.)

Index to Bulletin of the Geological Institution of the University of Upsala. Edited by H. Sjögren. Vols. 11-20 (1912-1927), with an Appendix containing List of Exchanges, etc. Pp. 43. (Uppsala: Almqvist and Wiksell's Boktryckeri A.-B.)

#### CATALOGUES.

The Cambridge Bulletin. No. 57, June. Pp. 32+8 plates. (Cambridge: At the University Press.)

Mr. Murray's Quarterly List. July. Pp. 32. (London: John Murray.)

Microscopical Preparations: Zoological and Botanical Material. Catalogue 'A.' Seventh edition. Pp. 96. (Manchester: Flatters and Garnett, Ltd.)

Catalogue of B.D.H. Fine Chemical Products. July. Pp. 108. (London: The British Drug Houses, Ltd.)

Laboratory Apparatus and Equipment. Fourteenth edition. Pp. 151. (London: Brown and Son (Alembic Works), Ltd.)

A Catalogue of Important and Rare Books on Botany, Agriculture, Forestry, Fruit-Culture, Gardens and Gardening, Herbals, Early and Modern Medicine and Surgery, Tobacco. (No. 409.) Pp. 144. (London: Bernard Quaritch, Ltd.) 1s.

### Diary of Societies.

#### SATURDAY, JULY 23.

PHYSIOLOGICAL SOCIETY (in Physiological Laboratory, Edinburgh), at 10 A.M.—Communication from 10 to 1:—Dr. B. A. McSwiney: Structure and Movements of the Cardia.—C. W. Greene: Unique Characteristics of the Electrogram of the Isolated and Automatically Contracting Uterus of the Rat.—G. H. Greene, Martha Aldrich, and L. G. Rowntree: Studies in the Metabolism of the Bile Acids.—H. W. Gerard: The Metabolism of Peripheral Nerve.—A. J. Clark and A. C. White: The Action of Acetyl Choline on the Cardiac Frequency and the Blood Pressure of the Cat.—H. Dryerre: (a) The Effect of the Intermittent Injection of Adrenaline on Perfusion Rate; (b) The Effect of Ingestion of Calcium Chloride on the pH of Urine.—W. P. Kennedy: The Deflection of the Arterial Count by Radiation.—J. D. S. Cameron: The Effect of Ingestion of Creatinine on Blood and Urine-Creatinine.—Sir E. Sharpey-Schafer: Further Observations on the Effect of Section of Cutaneous Nerves.—E. Ponder: Haematocrite Method of Determining the Volume of the Red Cell.—O. Meyerhof: A Communication.—H. E. Magee and A. E. Glennie: Effect of Ether Anesthesia on some Blood Constituents. (Preliminary Communication.)—R. Brinkman: Registration of pH of Circulating Blood by Means of the Antimony Electrode.—Demonstrations from 2 to 4:—(a) A Method for Showing Continuous Tracings on the Screen; (b) A Simple Adjustment to deliver Make Induction Shocks, by N. E. Condon.—The Measurement of the Red Cells of Man before and after Exercise, by H. Dryerre, W. G. Miller, and E. Ponder.—The Estimation of pH of Faeces, by H. Dryerre.—Precipitation and Protection of Silver Sols, by W. W. Taylor.—The Estimation of Percentage Haemolysis by the Selenium Cell, by E. Ponder.—Haemolysis by Ultra-violet Light, by W. P. Kennedy.—Autolytic Changes in Lymph and Blood, by J. Lorrain Smith and T. Rettie.—Apparent Cilia on the Epithelium of the Intestine and Ovary, by May L. Walker.—A New Cytological Method, by May L. Walker and W. A. Bain.—A Simple Slide Rule for the Rapid Determination of Respiratory Quotients using the Formula:

$$R.Q. = \frac{x-0.03}{20.95 \left( \frac{10x-x-y}{79.04} \right) - y}$$

where  $x$  is the %  $CO_2$  and  $y$  that of  $O_2$  in the expired Air, by W. A. M. Smart.

#### MONDAY, JULY 25.

CAMBRIDGE PHILOSOPHICAL SOCIETY (in Cavendish Laboratory), at 4.30.—E. G. Dymond: Excitation by High Velocity Electrons.—Dr. L. H. Thomas: The Production of Characteristic X-rays by Electronic Impact.—Dr. W. L. Webster: The Hall Effect in Single Crystals of Iron.—C. E. Wynn-Williams: A Valve Amplifier for Ionisation Currents.—To be communicated by title only:—J. B. S. Haldane: (a) A Mathematical Theory of Natural and Artificial Selection. Part V: Selection and Mutation; (b) The Comparative Genetics of Colour in Rodents and Carnivora.—S. Pollard: On the Generalisations of the Theorems of Parseval and Riesz-Fischer.—F. W. Carter: Eddy Currents in Thin Circular Cylinders of Uniform Conductivity due to Periodically Changing Magnetic Fields, in Two Dimensions.—J. H. Grace: (a) A Theorem of Dr. P. Zeeman; (b) The Pedal Planes of a Tetrahedron; (c) An Illustration of the Space Representation of Circles.—Miss M. E. Grimshaw: Summation of the Integral Conjugate to the Fourier Integral of Finite Type.—F. S. Russell: The Vertical Distribution of Plankton in the Sea.—A. Lipschütz: On Some Fundamental Laws of Ovarian Dynamics.

#### CONGRESS.

##### JULY 26 to 28.

BRITISH-AMERICAN NEUROLOGICAL MEETING.—Combined Meeting of the Neurological Section of the Royal Society of Medicine and of the American Neurological Association (at Royal Society of Medicine, 1 Wimpole Street, W.1).

Tuesday, July 26, at 9.30 A.M.—Short Papers.  
At 2 P.M.—Short Papers.

Wednesday, July 27, at 9.30 A.M.—Drs. F. Tilney, H. A. Riley, L. J. Pollock, L. E. Davis, A. J. Mussen, T. H. Weisenburg, and Harvey Cushing: Discussion on the Cerebellum.

At 2.30 P.M.—Special Clinical Meeting.

Thursday, July 28, at 9.30 A.M.—Drs. J. S. B. Stopford, W. Harris, S. A. K. Wilson, and Gordon Holmes: Discussion on Sensory Disorders in Organic Disease of the Nervous System.

At 2 P.M.—Papers and Demonstrations on Pathological Subjects.

At 5 P.M.—Dr. C. L. Dana: The Hughlings Jackson Lecture.