

## Birthdays and Research Centres.

Feb. 12, 1872.—Prof. A. J. EWART, F.R.S., professor of botany in the University of Melbourne.

The chief investigation I have now in progress is an attempt to produce graft hybrids between species of *Eucalyptus*, which I have been working on for more than ten years. Another problem in hand is in regard to the influence upon animals of the prolonged ingestion of plants containing saponin.

Feb. 16, 1848.—Prof. HUGO DE VRIES, For.Mem.R.S., formerly professor of plant anatomy and physiology in the University of Amsterdam.

My chief investigation now in progress is on the inheritance of characters of new mutants of *Oenothera lamarckiana*.

A subject to which I think attention might usefully be given is the difference and analogy between phylogenetical and explosive mutability.

Feb. 17, 1884.—Prof. JOHN READ, professor of chemistry in the United College of St. Salvador and St. Leonard, University of St. Andrews.

The endowed chemical research laboratories at St. Andrews have accommodation for about sixteen research workers, apart from members of the staff, and as a rule this is fully utilised. Most of the numerous publications which have appeared from this organic chemical school during the last twenty-five years have been concerned with the chemistry of sugars and the more complex carbohydrates; stereochemical problems also have been studied.

My students have continued the stereochemical tradition, in publications upon such subjects as the optical resolution of simple asymmetric compounds and stereochemical relationships in the hydrobenzoin series. A second series of investigations deals with the formation of halogenohydrins from unsaturated compounds. Our chief field of work, which maintains the traditional interest of the school in natural organic products, is the systematic chemical and stereochemical study of menthols, menthones, piperitones, phellandrenes, carvone, and related substances derived directly or indirectly from essential oils of plants. We are interested also in the biochemical origin and ancestry of these substances. In my opinion, results of great biochemical value would attend systematic collaborative work between organic chemists and botanists in tracing the chemical effect of hybridisation, as evidenced, for example, in the composition of essential oils in a suitable genus such as *Eucalyptus*.

Feb. 17, 1890.—Dr. R. A. FISHER, F.R.S., head of the Statistical Department, Rothamsted Experimental Station, Harpenden, Herts.

The great event of our generation for the progress of the human mind is, I believe, the development of a comprehensive and rational theory of inheritance. If this 'mystery of mysteries' is capable of a simple and definite formulation, need any biological problem, however complex, be regarded as incapable of exact treatment?

The new knowledge has so far had no appreciable effect on the means whereby practically important improvements are made in domesticated animals and plants. The characters which confer value are always quantitative and depend upon the cumulative effects of numerous separable factors. Selection of favourable combinations as practised from time immemorial by breeders, such as Chevalier or Burbank, is still the only effective method. What is needed, and seems now practicable, is the quantitative evaluation by

extensive measurements, combined with systematic mating, of the selective possibilities of the populations available for selection. This is an almost untouched field and will remain so so long as genetics and biometry are mutually exclusive studies.

Feb. 26, 1864.—Mr. JOHN EVERSHED, F.R.S., lately director of the Kodaikanal and Madras Observatories.

The main objects of my present research are to determine the solar rotation at high levels, and the general shift towards red of the calcium, hydrogen, and iron lines. Previous work here has shown that prominences give a daily angular speed of rotation about 3° in excess of that given by the reversing layer. I shall attempt to determine whether this excess holds throughout the sunspot cycle, or is connected with sunspot frequency.

My measures show that the shift of the lines *H* and *K* towards red exceeds the Einstein effect, both in prominences and chromosphere, by 0.007 Å., and iron lines at the limb in the same spectral region give nearly the same excess. The cause of this 'limb effect' is a mystery, and measures of solar spectra will be continued in the hope of throwing new light on the problem.

## Societies and Academies.

## LONDON

Royal Society, Feb. 5.—C. F. Jenkin: The pressure exerted by granular material. A model consisting of a rectangular frame holding a single layer of steel discs was made which reproduces the leading phenomena observed in sand, particularly the effects of 'arching'. The solutions are found for the forces exerted by the discs under a number of different conditions, including three typical examples of arching. In the light of these results, an apparatus was designed for measuring the pressure of sand on a retaining wall in which *end arching* was eliminated. The most important new result obtained is that the centre of pressure may be very much higher than was supposed, and that the pressure distribution on the wall is quite different from the triangular distribution commonly assumed.—F. L. Arnot: The diffraction of electrons in mercury vapour. An investigation of the angular scattering of electrons in mercury vapour over an angular range of from 18° to 126° is described. Results are shown for fifteen different velocities of the primary beam between 8 and 800 volts. All the scattering curves show distinct maxima and minima, maxima of four different orders being obtained. The absolute scattering of 82-volt electrons between 15° and 60° has been redetermined.—S. Rama Swamy: On the transmission of light by thin films of metal. Quantitative observations on the transmission coefficient of metal films for different wave-lengths of light in the visible range and its changes on heating the films are described and discussed. Thin films of gold and silver, obtained by cathodic sputtering, were heated in a furnace and their absorption spectra photographed at different temperatures, a pointilite lamp being the source of light. The transmission coefficient was deduced from the photometric measurements of the spectrograms.—D. C. Colbourne: The diurnal tide in an ocean bounded by two meridians. The diurnal tide is considered in an ocean on a rotating globe bounded by two meridians 60° apart and of uniform depth 12,700 ft. The solution of the general dynamical equations of the tides satisfying the required conditions is obtained by the introduction of a null function according to the method developed by

Goldsbrough. By means of this solution the tidal amplitudes and phase angles at numerous points have been calculated. Amplitudes of the diurnal tide are considerably smaller than those of the semi-diurnal tide, and the range of values obtained for the phase is unusually limited.

Linnean Society, Feb. 5.—Miss S. Finnegan: *Brachyura* collected by Dr. Crossland on the *St. George* Expedition to the Pacific, 1924–25. Sixty-five species of crabs were collected, of which eight are new, and one new variety is described. In addition, the opportunity has been taken to analyse all the existing records of *Brachyura* from the region in question, and to attempt to identify the various geographical elements in the fauna. The chief conclusions are that certain genera may be regarded as typically American. So far as the scanty geological evidence goes, these genera do not date further back than the Pliocene. There is evidence that the similarity between the Indo-Pacific and Panamic faunas was greater in the past than it is to-day.

#### DUBLIN.

Royal Irish Academy, Jan. 26.—G. H. Nall: Irish sea trout. This paper deals with the results obtained from the examination of some 2200 samples of scales taken from sea trout from ten river systems in the west of Ireland. The average age, rate of growth, age at migration and at first return from the sea to spawn, the number of spawning marks, etc., are determined and comparisons made with similar results obtained from the examination of sea trout scales in various rivers in Scotland. The chief characteristic of the sea trout from the west of Ireland rivers which emerges from this study is the relatively small size attained. The average duration of life is comparatively short. The proportion of sea trout which returns to the river, after only a short stay of a few months in the sea, is high. It is suggested that some of the rivers are deficient in food for the large numbers of fry which are present. The low growth-rate during sea life is possibly due to the absence of rich feeding-grounds adjacent to the mouths of the various rivers.

#### CRACOW.

Polish Academy of Science and Letters, Nov. 10.—W. Kapuschinski: The fluorescence of zinc vapour. The saturated vapour of zinc, excited by ultra-violet light, gives a fluorescence spectrum containing lines and bands. Details of the study of this spectrum are given.—L. Orkisz: The final orbit of the comet 1925, I (Orkisz). The elements given are based on observations made between April 5, 1925, and May 12, 1926.—K. Dzewonski, B. Grünberg, and Mlle. J. Schoenowna: Researches on the acenaphthene sulphonic acids.—S. Kozik: Two chlorites in veins from Haute Tatra. These chlorites occur in veins about 2 cm. thick in granite; their composition is quite different from that of the granite.—F. Bieda: Remarks on the nomenclature and classification of certain species of Nummulina (1).—J. Zerndt: *Tritelites giganteus*, a huge megaspore found in coal. This spore has been found in coal from nearly all levels of Polish coal strata. It measures 6.4 mm. in diameter and is the largest megaspore known.—M. Kostowiecki: The relation between Hassal's corpuscles and the neighbouring blood-vessels in the thymus of the human foetus.

#### SYDNEY.

Linnean Society of New South Wales, Nov. 26.—O. H. Sargent: Xerophytes and xerophily, with special reference to protead distribution. The author records observations on the distribution of Proteads

in Western Australia, particularly in its relation to soil conditions and rainfall. He details experiments in estimating the water needs of a few species, and also in estimating the degree of transpiration by the two types of leaf (broad leaves and needles) found on *Hakea trifurcata*.—W. L. Waterhouse: Australian rust studies (3). Initial results of breeding for rust resistance. Following upon specialisation studies of *Puccinia graminis tritici* in which it was shown that prior to 1926 two groups of forms, namely, (1), 43, 44, and 54, and (2), 45, 46, and 55, were present in Australia, breeding for complete resistance was undertaken. Many commercial varieties behave reciprocally to these two groups. The inheritance of resistance was traced in the cross between these, as well as between other varieties. Resistance is dependent upon a single dominant factor in these varieties.—I. A. Brown: The geology of the south coast of New South Wales (3). The Monzonitic Complex of the Mount Dromedary district. The main intrusion probably assumes a laccolithic form. A number of rare rock-types are included. Detailed petrographic descriptions of the various types are given, and these are compared with rocks in other parts of the world. The mineralogical and chemical evidence of consanguinity of a number of types supports the field evidence of the comagmatic origin of the monzonitic types. The possible origin of the nepheline-bearing and garnet-bearing rocks is considered, and is compared with that of similar occurrences at Magnet Cove, Arkansas; the Fen District, Norway; and elsewhere.—G. Carey: The leaf-buds of some woody perennials in the New South Wales flora. Leaf-buds in New South Wales are divided into three classes: (a) scaly, (b) intermediate, and (c) naked. A great variability of bud types is shown among genera of any one family, and among the species of a single genus. The evidence points to the fact that bud structure and development are influenced by the physiology of the shoot.—H. L. Jensen: Notes on a cellulose-decomposing soil-fungus of an unusual character. A fungus, probably belonging to the genus *Botryosporium*, was isolated from an English field soil with addition of manure. This organism proved very sensitive to acid reaction, pH 4.5 being very near the limit of acidity at which growth could be induced; a good growth would only take place at pH values above 6.0, and an optimum zone seemed to stretch from pH 6.6 to pH 7.4 and possibly higher. In neutral or alkaline solution the fungus exerted a very strong cellulose-decomposing activity, in unbuffered physiologically acid solution almost none. Its sensitiveness to acidity is greater than that of any fungus hitherto studied in this respect.

#### VIENNA.

Academy of Sciences, Oct. 16.—E. Beutel and A. Kutzelnigg: (1) Analysis by luminescence.—(2) Luminescence of painter's white colours and application of analysis by luminescence to the investigation of paintings.—(3) Observations in the alkaline earth group and numerical criteria of luminescence.—A. Haas: A relation between the radial velocity of spiral nebulae and the disintegration velocity of matter.—K. Lehnhofer: Deformities in species of *Sapphirina*.—F. Halla: Röntgenographic distinction between magnesite and dolomite.—A. Deseyve: Secondary corpuscular radiation released from light elements by  $\alpha$ -rays. The disintegration of silicon and phosphorus with  $\alpha$ -particles from polonium seems new. (See Radium Institute Circular No. 267).—E. Tschermak: (1) New observations on the fertile hybrid *Triticum turgido-villosum*.—(2) Xenia in Leguminosae. Several cases of apparent direct action of foreign pollen on colour and form of seeds.—

E. Dittler and H. Lasch: Synthetic researches on the formation of mixed crystals of barium and strontium feldspar with orthoclase.—F. Raaz: The structure of synthetic gehlenite,  $2\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{SiO}_2$ .

Oct. 23.—R. Scheu: Relations between tensile strength in oscillation by bending and by twisting.—M. Beier: Zoological expedition to the Ionian Islands and the Peloponnesus. (14) The slugs treated by H. Wagner.—K. Gödel: Some mathematical results on definiteness of decision and freedom from contradiction.

## Official Publications Received.

### BRITISH.

Borough of Cheltenham Public Library, Art Gallery and Museum. Forty-sixth Annual Report of the Public Library Committee and the Thirty-first Annual Report of the Art Gallery and Museum Committee, 1st April 1929 to 31st March 1930. Pp. 24. (Cheltenham.)

Union of South Africa. Department of Mines and Industries: Geological Survey. Memoir No. 12: Asbestos in the Union of South Africa. By Dr. A. L. Hall. Pp. 324+37 plates. (Pretoria: Government Printer.) 7s. 6d.

South Australia: Department of Mines. Mining Review for the Half-year ended June 30th, 1930. (No. 52.) Pp. 87+6 plates. (Adelaide: Harrison Weir.)

Air Ministry: Aeronautical Research Committee. Reports and Memoranda. No. 1314 (Ae. 457): Some Approximate Solutions of the Boundary Layer Equations. By V. M. Falkner and Sylvia W. Skan. (T. 2937: T. 2758.) Pp. 35+21 plates. (London: H.M. Stationery Office.) 2s. net.

Report of the Meeting of the Ross Institute Industrial Anti-Malarial Advisory Committee, held in the Council Chamber of the Rubber Growers' Association, 2 Idol Lane, E.C.3., on Tuesday, December 16th, 1930, at 2.15 p.m. Pp. 16. (London: The R S S Institute.)

Torquay Natural History Society. Transactions and Proceedings for the Year 1929-30. Vol. 5, Part 4. Pp. 259-358. (Torquay.)

The Proceedings of the Physical Society. Vol. 43, Part 1, No. 236, January 1. Pp. viii+118. (London.) 7s. net.

Indian Central Cotton Committee: Technological Laboratory. Technological Bulletin, Series B, No. 10: Studies in the Sampling of Cotton for the Determination of Fibre-Properties. Part 3: The Size and Reliability of a Satisfactory Sample. By Ram Saran Koshal and Dr. A. James Turner. Pp. ii+39. (Bombay.) 1 rupee.

Transactions of the Mining and Geological Institute of India. Vol. 25, Part 2, November. Pp. 81-182. (Calcutta.) 4 rupees.

### FOREIGN.

Conseil International de Recherches. Union Gèodésique et Géophysique Internationale: Section d'Hydrologie scientifique. Bulletin N. 5: Réunion du Comité exécutif de la Section (Genève, 14 avril 1927). Notes et communications. Pp. 31. Bulletin N. 13: Réunions du Comité exécutif de la Section (Paris, 4 avril 1928—Séville, 4 mai 1929). Notes et communications (1 mars 1930). Pp. 40. Bulletin N. 14: Rapport de la Commission des glaciers, 1930. Pp. 53. Bulletin N. 15: Note e comunicazioni della Sezione nazionale italiana. Pp. 148. (Venezia: Carlo Ferrari.)

Ministry of Agriculture, Egypt: Technical and Scientific Service (Plant Protection Section). Bulletin No. 101: Growth Fluctuations during the Development of Seed-Cotton. By Dr. W. Lawrence Balls. Pp. ii+15+2 plates. (Cairo: Government Press.) 5 P.T.

Journal of the Faculty of Science, Imperial University of Tokyo. Section 1: Mathematics, Astronomy, Physics, Chemistry. Vol. 2, Part 3. Pp. 51-72. 0.40 yen. Vol. 2, Part 4. Pp. 73-131. 0.90 yen. Section 3: Botany. Vol. 3, Part 1. Pp. 484. 7.00 yen. (Tokyo: Maruzen Co., Ltd.)

Collection des travaux chimiques de Tchecoslovaquie. Rédigée et publiée par E. Votoček et J. Heyrovský. Année 2, No. 12, Décembre. Pp. 699-724+xxiv. (Prague: Regia Societas Scientiarum Bohemica.)

National Research Council of Japan. Report No. 4-5, April 1924-March 1926. Pp. ii+65-118. Report No. 6-7, April 1926-March 1928. Pp. iii+119-228. (Tokyo.)

U.S. Department of Commerce: Bureau of Standards. Bureau of Standards Journal of Research. Vol. 5, No. 6, December. Pp. ii+1189-1318. (Washington, D.C.: Government Printing Office.) 40 cents.

### CATALOGUES.

Radiostol. Pp. 4. (London: The British Drug Houses, Ltd.)  
Watson's Microscope Record. No. 22, January. Pp. 28. (London: W. Watson and Sons, Ltd.)

Eastman Organic Chemicals. List No. 22, January. Pp. 99. (Rochester, N.Y.: Eastman Kodak Co.)

## Diary of Societies.

### FRIDAY, FEBRUARY 13.

ROYAL ASTRONOMICAL SOCIETY (Annual General Meeting), at 5.—Presidential Addresses by Dr. A. C. D. Crommelin on the award of the Gold Medal to Prof. W. de Sitter, and the Jackson-Gwilt Medal and Gift to C. W. Tombaugh.

BIOCHEMICAL SOCIETY (at Lister Institute), at 5.—W. T. J. Morgan: A Specific Precipitating Polysaccharide from *B. dysenteriae* (Shiga).—

L. F. Hewitt: Oxidation-Reduction Potentials of Pneumococcus Cultures.—B. C. Guha: Investigations on Vitamin B<sub>2</sub>.—E. Boyland and O. Meyerhof: Glycogen Synthesis in Muscle Poisoned with Mono-iodoacetic Acid.—Glady's Bird and P. Haas: The Cell Wall Constituents of *Laminaria*. Mannuronic Acid.—M. G. Macfarlane: The Influence of Potassium Mono-iodoacetate on Fermentation by Yeast Preparations.—R. Robison and E. J. King: Hexosemonophosphoric Esters.—W. Robson and J. Lamb: The Erlennmeyer Synthesis of Amino-acids.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, at 5.—Dr. D. K. Henderson: Social Psychiatry (Morison Lectures) (3).

ROYAL SOCIETY OF MEDICINE (Clinical Section), at 5.30.

BRITISH PSYCHOLOGICAL SOCIETY (Aesthetics Section) (at Bedford College), at 5.30.—R. Ellis Roberts: Reality in Life and Literature.

MALACOLOGICAL SOCIETY OF LONDON (Annual General Meeting) (at Linnean Society), at 6.—G. C. Robson: Some Problems of Molluscan Evolution (Presidential Address).

NORTH-EAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS (at Mining Institute, Newcastle-upon-Tyne), at 6.—W. C. S. Wigley: Ship Wave Resistance—an Examination and Comparison of the Speeds of Maximum and Minimum Resistance in Practice and in Theory.

SOCIETY OF CHEMICAL INDUSTRY (Chemical Engineering Group) (at Institution of Civil Engineers), at 6.30.—D. MacDonald: Silver, and its Application to Chemical Plant.

INSTITUTION OF LOCOMOTIVE ENGINEERS (LONDON) (at 36 George Street, Manchester), at 7.—D. W. Sanford: The Development of the Piston Valve to improve Steam Distribution.

INSTITUTION OF MECHANICAL ENGINEERS (Informal Meeting), at 7.  
INSTITUTION OF STRUCTURAL ENGINEERS (Informal Meeting) (at Chamber of Commerce, Birmingham), at 7.—S. L. Horolle and others: Discussion on Foundations.

MANCHESTER ASSOCIATION OF ENGINEERS (at Engineers' Club, Manchester), at 7.15.—C. H. Faris: The Applications of Electro-deposited Metal to Engineering.

SOCIETY OF CHEMICAL INDUSTRY (Glasgow Section, jointly with other Chemical Societies) (at Ca'doro Restaurant, Glasgow), at 7.30.—Prof. G. Barger: Ergot and Ergotism.

SOCIETY OF CHEMICAL INDUSTRY (South Wales Section, jointly with Microscopical Society of Wales) (at Cardiff Technical College), at 7.30.—C. A. Seyler: The Microscopy of Coal.

BLACKBURN TEXTILE SOCIETY (at Blackburn Technical College), at 7.30.—S. N. Duguid: Smoke Abatement and Fuel Economy.

JUNIOR INSTITUTION OF ENGINEERS, at 7.30.—H. C. Reid: Monolith Foundations.

INSTITUTE OF METALS (Sheffield Section) (at Sheffield University), at 7.30.—N. C. Marples: The Applications of High-Nickel Nickel-Copper Alloys and Pure Nickel in Industry.

ROYAL SOCIETY OF MEDICINE (Ophthalmology Section), at 8.30.—J. H. Duggart: Recurrent Vascular Keratitis of Unknown Origin.—Dr. Rosa Ford: A Case of Retrobulbar Neuritis masked by Chloroiditis, and due to Latent Sinusitis.

ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—Prof. F. Ll. Hopwood: Ultrasonics: Some Properties of Inaudible Sound.

SOCIETY OF DYERS AND COLOURISTS (London Section).—A. J. Hall: Bleaching, Dyeing, and Finishing Processes and their Effect on Finished Goods.

### SATURDAY, FEBRUARY 14.

BRITISH PSYCHOLOGICAL SOCIETY (jointly with Cambridge Psychological Society) (in Psychological Laboratory, Cambridge), at 2.45.—Papers by Prof. W. S. Hunter and Dr. R. S. Creed.—At 6.—Papers by Prof. E. D. Adrian and Dr. J. T. MacCurdy.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—J. Stephens: On the Reading and Speaking of Verse (1): On Speaking Verse.

LEICESTER LITERARY AND PHILOSOPHICAL SOCIETY (Chemistry Section) (at Leicester Museum), at 8.—J. A. Christian: Modern Methods of Sewage Disposal.

### MONDAY, FEBRUARY 16.

VICTORIA INSTITUTE (at Central Buildings, Westminster), at 4.30.—Dr. J. Knight: Demon Possession in the Light of Modern Research (Dr. Schofield Memorial Paper).

ROYAL GEOGRAPHICAL SOCIETY, at 5.—Dr. L. Dudley Stamp: Land Utilisation Survey.

INSTITUTION OF ELECTRICAL ENGINEERS (Mersey and North Wales (Liverpool) Centre) (in Arts Theatre, Liverpool University), at 7.30.—Prof. W. Cramp: The Birth of Electrical Engineering (Faraday Lecture).

INSTITUTE OF METALS (Sheffield Section) (at Sheffield University), at 7.30.—Conjoint Discussion on Refractories for Heating and Melting Furnaces.

ROYAL INSTITUTE OF BRITISH ARCHITECTS, at 8.—F. W. Deas: The Work of Sir Robert Lorimer.

EUGENICS SOCIETY (at Rembrandt Hotel, Thurloe Place, S.W.).—Sir J. Arthur Thomson: Warnings from Nature (Galton Lecture).

### TUESDAY, FEBRUARY 17.

ROYAL INSTITUTION OF GREAT BRITAIN, at 5.15.—Sir William Bragg: Recent Experimental Physics (2): The Sizes of Atoms.

ROYAL STATISTICAL SOCIETY (at Royal Society of Arts), at 5.15.—D. Caradog Jones: The Social Survey of Merseyside.

ROYAL SOCIETY OF MEDICINE, at 5.30.—General Meeting.

ZOOLOGICAL SOCIETY OF LONDON, at 5.30.—H. C. Wilkie: The Middle Ear of the Horse (*Equus caballus*).—M. K. Serebrennikov: On the Polychromatism and Albinism of the Siberian Squirrels.—W. S. Bristowe: (a) A Contribution to the Knowledge of the Spider Fauna of South-West Ireland, and in particular the Islands off the Coast; (b) The Spiders of the Island of Grassholm, and some Additions to the Skomer Island List.—Dr. A. D. Mitra: On the Internal Anatomy of the Female Lac Insect, *Lacifer lacca* Kll. (Homoptera: Coccidae).