

with terrestrial and celestial globes, the latter in a simplified form and showing the position of the sun in the ecliptic on, say, the first day of each month. He suggests also that an orrery should be used to make clear the transference from the geocentric to the heliocentric point of view, and that a 4-in. telescope should be provided wherever possible to observe sun-spots, the lunar surface, Jupiter's satellites, and the phases of Venus. Such observations, together with simple lessons on the applications of spectroscopy to elucidate the composition of the sun, stars, nebulae, etc., illustrated by some of the excellent astronomical photographs now available, should do much to remove the reproach that nothing is done in schools to encourage pupils to lift their eyes to the heavens and learn something of the universe around them.

THE endowment fund now being raised for the establishment of a University College in Swansea has been augmented by donations of 25,000*l.* from Mr. F. Cory Yeo and 10,000*l.* from Mr. W. T. Farr, retiring directors of the Graigola Merthyr Co., Ltd., 5,000*l.* of the former donation to be devoted to scholarships "in the first place for Graigola boys, and, if any after, for open competition." The University College scheme originated in a movement to secure for the Swansea Technical College recognition in the faculties of science and technology as a constituent college of the University of Wales. The governors and staff were of opinion that for a full development of the higher work of the college University recognition and association were essential. To this end the governors approached the recent Royal Commission on University Education in Wales, asking for a direct recommendation that the college should find a place in at least the above-mentioned faculties in the reorganised University. A proof that the application was backed by the community was the establishment in the course of a few weeks before the end of 1916 of an endowment fund exceeding 65,000*l.*, in addition to which the Swansea Town Council undertook to provide all necessary land and buildings. The Royal Commission reported very favourably, but laid down that the new University College must make provision for work in the faculty of arts. To assist in fulfilling this condition, the Swansea Council has agreed, subject to the consent of the Board of Education, to bring in its Training College for Teachers as part of the scheme. This will enable full provision to be made in the faculty of arts, science, and technology, but necessitated an appeal for a much larger endowment fund, a minimum of 150,000*l.* being the present aim. Messrs. Cory Yeo's and W. T. Farr's donations are the first-fruits of this appeal, and brings the gifts or promises well above 100,000*l.* The college has also received notice of a bequest of the residue of the estate of the late Mr. T. P. Sims, assayer, of Swansea, the bequest being subject to a life-interest. The value of the residue is estimated at more than 10,000*l.*, and the income is to be devoted to scholarships in chemistry, metallurgy, and modern languages.

### SOCIETIES AND ACADEMIES.

#### LONDON.

**Royal Society**, November 7.—Sir J. J. Thomson, president, in the chair.—Prof. G. E. Hale: The nature of sun-spots.—E. O. Hercus and T. H. Laby: The thermal conductivity of air.—T. K. Chinmayanandam: Haidinger's rings in mica.

**Aristotelian Society**, November 4.—Dr. G. E. Moore, president, in the chair.—Dr. G. E. Moore: Some judgments of perception. The question of the real nature of material things is approached by asking

what we are judging when we make such judgments as, "This is a coin. Two things seem to be certain, viz. (1) that we are always making some assertion about an immediately given object—an object which has sometimes been described as "the sensation which mediates our perception of the coin in question," and which will be called the sense-datum which is the subject of our judgment—and (2) that what we are asserting about the sense-datum is not, in general, that it is itself a coin. What is doubtful is whether we may not be judging that the sense-datum is itself a part of the surface of a coin, in a sense in which this can only be so if it is identical with "this part of the surface of this coin." This is only possible if, when we seem to perceive that a sense-datum is of a certain size, shape, etc., we really only perceive that it seems to be so, in a sense in which it may seem to be so without being either judged or perceived to be so. Failing this, either (1) there must be some relation such that we are judging "The thing to which this sense-datum has this relation is part of the surface of a coin," and it seems doubtful whether there is any such relation, or (2) we must take some view of the type of Mill's.

#### CAMBRIDGE.

**Philosophical Society**, October 28.—Prof. Marr, president, in the chair.—Prof. L. J. Rogers and S. Ramanujan: Proof of certain identities in combinatory analysis.—S. Ramanujan: Some properties of  $p(n)$ , the number of partitions of  $n$ .—Miss D. M. Wrinch: The exponentiation of well-ordered series.—A. E. Jolliffe: Certain trigonometrical series which have a necessary and sufficient condition for uniform convergence.—H. W. Turnbull: Some geometrical interpenetrations of the concomitants of two quadrics.—H. B. C. Darling: Mr. Ramanujan's congruence properties of  $p(n)$ .—B. Sahni: The correct generic position of *Dacrydium bidwillii*, Hook. f. This species, and by inference probably also *D. kirkii* and *D. bifforme*, hitherto regarded as forming an interesting transition to the genus *Podocarpus*, are really species of the latter genus. At least in *D. bidwillii* the epimatium is not entirely free from the integument, nor the integument from the nucellus. The integument, moreover, contains two vascular strands exactly in the same position as in *Podocarpus ferrugineus*, but not quite reaching the level of the equator. In view of the dry epimatium and other features, it is proposed provisionally to place all these New Zealand species of *Dacrydium* in a new and distinct section of the genus *Podocarpus*, allied to section *Stachycarpus*.

#### PARIS.

**Academy of Sciences**, October 21.—M. Léon Guignard in the chair.—E. Picard and A. Lacroix: The Inter-Allied Conference of Scientific Academies in London.—H. Sebert: Notice on M. Marcel Deprez.—C. Richet, P. Brodin, and Fr. Saint-Girons: Temporary and definite survival after serious bleeding. In previous papers it has been proved that in the case of dogs, after grave loss of blood, injection into the veins of suitable fluids would prolong life, but after three or four hours the improvement in the condition of the animal disappears and death ensues. The survival is only temporary. Summarising the results communicated in this and previous papers, the authors conclude that the only efficacious treatment after heavy loss of blood appears to be transfusion.—P. Appell: Addition to the note on an ordinary differential equation connected with certain systems of linear and homogeneous partial differential equations.—H. Douvillé: The geology of the neighbourhood of Argeles and the Pic de Gez.—P. Termier and W.

**Kilian**: The composition of the Miocene conglomerates of the French sub-alpine chains.—**L. Jouane**: The elasticity of pure cement. Measurements were made of the flexion of small test pieces of cement when submitted to small forces, no permanent deformation resulting. The strains were proved to be proportional to the stresses applied, and the modulus calculated from various test pieces was constant within 1 per cent.—**H. Guilleminot**, **H. Cheron**, and **R. Biquard**: An X-fluorometer with radio-luminescent standard.—**P. Georgevitch**: Study of the sexual generation of a brown alga.—**H. Agulhon** and **R. Legroux**: Contribution to the study of the vitamins utilisable in the culture of micro-organisms. Application to the influenza bacillus (*B. Pfeiffer*).—**Sir Almroth E. Wright**: The production of non-specific bactericidal substances by means of anti-staphylococcal and anti-streptococcal vaccines *in vivo* and *in vitro*.—**R. D. de la Rivière**: Is the poison of influenza capable of passing through a filter? Blood from influenza patients was defibrinated and filtered through a Chamberland filter (L.). A portion of the filtrate injected under the skin produced influenza symptoms in the author, which are described in detail. A second injection ten days after the first gave rise to no morbid symptom.—**C. Nicolle** and **C. Lebailly**: Some experimental ideas on the virus of influenza. The bronchial expectoration in cases of influenza collected during the acute period is virulent. The ape is sensible to the infection.—**J. Nageotte** and **L. Sencert**: The utilisation of dead grafts for the surgical repair of tissues of a conjunctive nature.

### BOOKS RECEIVED.

The Illinois and Michigan Canal: A Study in Economic History. By Prof. J. W. Putnam. Pp. xiii+213. (Chicago: University of Chicago Press.) 2 dollars.

The Student's Handbook to the University and Colleges of Cambridge. Seventeenth edition, revised to June 30, 1918. Pp. vi+717. (Cambridge: At the University Press.) 6s. net.

The Iron and Steel Institute. Carnegie Scholarship Memoirs. Vol. ix. Pp. iv+169. (London: E. and F. N. Spon, Ltd.)

State of Connecticut. Public Document No. 24:—Forty-first Annual Report of the Connecticut Agricultural Experiment Station. Pp. xvi+510. (New Haven, Conn.)

University of London. University College. Abridged Calendar. Session 1918-19. Pp. cxxx+250. (London: Taylor and Francis.)

### DIARY OF SOCIETIES.

#### THURSDAY, NOVEMBER 14.

ROYAL SOCIETY, at 4.30.—A. Mallock: Sounds produced by Drops falling on Water.—G. H. Hardy and S. Ramanujan: The Coefficients in the Expansions of certain Modular Functions.—Hon. R. J. Strutt: The Light Scattered by Gases; Its Polarisation and Intensity.—Dr. F. Horton and Ann C. Davies.—An Investigation of the Ionising Power of the Positive Ions from a glowing Tantalum Filament in Helium.

OPTICAL SOCIETY, at 8.—T. Smith: Some Generalised Forms of an Optical Equation.—H. S. Ryland: The Manufacture of Binoculars.

MATHEMATICAL SOCIETY, at 5.—Annual General Meeting.—Prof. H. M. Macdonald (Retiring President): Presidential Address.—Prof. M. J. M. Hill: The Use of a Property of Jacobians to Determine the Character of any Solution of an Ordinary Differential Equation of the First Order, or of a Linear Partial Differential Equation of the First Order.—Prof. H. J. Priestley: The Roots of a Certain Equation in Spherical Harmonics.—J. Hodgkinson: A Detail in Conformal Representation.—T. A. Broderick: The Product of Semi-convergent Series.—Dr. W. P. Milne: A Simple Condition for Co-apolar Triangles.

#### FRIDAY, NOVEMBER 15.

INSTITUTION OF MECHANICAL ENGINEERS, at 6.—*Adjourned Discussion*: Prof. C. A. Edwards and F. W. Willis: A Law Concerning the Resistance to Penetration of Metals which are Capable of Plastic Deformation, and a New Hardness Scale in Fundamental Units.—R. G. C. Batson: The Value of the Indentation Method in the Determination of Hardness; and Dr. W. C. Unwin: The Ludwik Hardness Test.—T. T. Heaton: Electric Welding.

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#### MONDAY, NOVEMBER 18.

ROYAL GEOGRAPHICAL SOCIETY, at 5.—Exhibition of Captured War Maps.

#### TUESDAY, NOVEMBER 19.

BRITISH ASSOCIATION GEOPHYSICAL COMMITTEE (Royal Astronomical Society), at 5.—R. D. Oldham: The Constitution of the Earth's Interior.

INSTITUTION OF PETROLEUM TECHNOLOGISTS, at 5.30.—W. R. Ormandy: The Motor Fuel Problem.

INSTITUTION OF CIVIL ENGINEERS, at 5.30.—R. B. Joyner: The Tata Hydro-electric Power-supply Works, Bombay.

ZOOLOGICAL SOCIETY, at 5.30.—The Secretary: Report on the Additions to the Society's Menagerie in the Month of October, 1918.—Miss K. Lander: Exhibition of Skeletons, prepared by the "Trypsin" Method.—E. Hatschek: Notes on Investigations into the Forms of Drops and Vortices of Gelatin in Various Coagulants.—Dr. D. M. S. Watson: Seymouria, the most primitive known Reptile.

#### WEDNESDAY, NOVEMBER 20.

GEOLOGICAL SOCIETY, at 5.30.—R. Hansford Worth: The Geology of the Meldon Valleys, near Okehampton, on the Northern Verge of Dartmoor.

ROYAL SOCIETY OF ARTS, at 4.30.—A. A. Campbell Swinton: Science and the Future.

ENTOMOLOGICAL SOCIETY, at 8.

ROYAL METEOROLOGICAL SOCIETY, at 5.—R. DeC. Ward: The Larger Relations of Climate and Crops in the United States.—Capt. C. J. P. Cave and J. S. Dines: Soundings with Pilot Balloons in the Isles of Scilly, November and December, 1911.

#### THURSDAY, NOVEMBER 21.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: W. Stiles and Dr. F. Kidd: (1) The Influence of External Concentration on the Position of the Equilibrium attained in the Intake of Salts by Plant Cells; (2) The Comparative Rate of Absorption of various Salts by Plant Tissue.—G. Marinisco: Recherches Anatomiques sur les Névromes d'Amputations douloureuses: Nouvelles Contributions à l'Étude de la Régénération nerveuse et du Neurotrophisme.

LINNEAN SOCIETY, at 5.—E. S. Goodrich: A Fatherless Frog, with remarks on Artificial Parthenogenesis.—Miss Muriel Bristol: A Review of the Genus Chlorochytrium, Cohn.—A. S. Kennard and B. B. Woodward: The Linnean Species of Non-marine Mollusca that are represented in the British Fauna, with Notes on the Specimens of these and other British Forms in the Linnean Collection.

ROYAL SOCIETY OF ARTS, at 4.30.—Sir Everard im Thurn: The Present State of the Pacific Islands.

INSTITUTION OF MINING AND METALLURGY, at 5.30.—R. R. Kahan: Refining Gold Bullion with Chlorine Gas and Air.—A. Yates: Effect of Heating and Heating and Quenching Cornish Tin Ores before Crushing.—R. J. Harvey: The Development of Galena Flotation at the Central Mine, Broken Hill.

INSTITUTION OF ELECTRICAL ENGINEERS, at 6.—J. H. Shaw: The Use of High Pressure and High Temperature Steam in Large Power Stations.

INSTITUTION OF MINING AND METALLURGY, at 5.30.

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