

in the past? It is the shameful truth that the man of science, with few exceptions, has received little or no recognition by the mass of the people of this country, who, unknowing and uncaring, have been perfectly content to allow him the status, both social and financial, which he himself has modestly sought for his everyday life and wants. But the country, in its hour of need, has turned to its scientific sons for help in its war problems, and has not turned in vain. The war is bringing home to the nation the dependence of its very existence on science, and a little good may come out of a very great evil if public opinion can be brought to realise that the statement is as true in peace as in war, and that a nation's administrators should always include among them suitable men of the highest technical and scientific standing, not merely to advise, but also to initiate and direct.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

BIRMINGHAM.—At a special Degree Congregation held on Thursday, January 24, the Vice-Chancellor (Col. Gilbert Barling, C.B.) conferred the honorary degree of Doctor of Laws on Lord Morris, late Premier of Newfoundland.

LONDON.—The following doctorate has been conferred by the Senate:—*D.Sc. in Statistics*: Miss Kirstine Smith, an internal student, of University College, for a thesis entitled "On the standard deviations of adjusted and interpolated values of an observed polynomial function and its constants, and the guidance they give towards a proper choice of the distribution of observations."

WE learn from the *Times* that in reply to an inquiry as to whether Mr. Andrew Carnegie would make good the damage to the science building at Dalhousie University, Halifax, N.S., which was originally his gift, the reply received from the trustees of the Carnegie Corporation, New York, was that they would "consider it a privilege to pay for repairing the damage."

New scales of salaries, necessitated partly by the increase in the cost of living, have been, or are being, drawn up for teachers in primary and secondary schools, but so far nothing has been done in London towards improving the salaries of technical teachers, salaries which even before the war were already too low. Failure to do this is, in part, due to the fact that no "Fisher grants" similar to those given for elementary and secondary education have been available for technical education. A meeting to consider the matter has been arranged by the Association of Teachers in Technical Institutions to be held at the Polytechnic, Regent Street, W.1, on Saturday, February 2, at 3 p.m. All teachers in technical institutions, junior technical schools, and trade schools (whether members of the association or not) are invited to attend.

WE have received the annual report of the committee of the Aberdeen Public Library for the year 1916-17. The committee realises that public libraries should prepare for the coming period of reconstruction by providing their readers with the most authoritative books in pure and applied science. It is felt that people in all departments of industry are beginning to see more clearly the value of a thorough scientific knowledge of their craft, and that they will therefore ask for books which contain the most recent information instead of being content with books which are now out of date. Acting upon the advice of a special sub-committee, under the convenership of Prof. J. Arthur Thomson, the com-

mittee has discarded a large number of obsolete scientific books in order to make room for up-to-date works, including technical books on every handicraft known to be followed in Aberdeen. In the Reference Department of the Aberdeen Library the trade and technical periodicals, dictionaries and encyclopædias, business directories, gazetteers and atlases form a "commercial library" similar to those which have been established in Glasgow and Liverpool. The purpose of such commercial libraries is to make immediately available the best and most recent information as to all matters affecting trade and commerce. We congratulate the Aberdeen Library Committee upon the steps it is taking to increase the efficiency of the library and to make it a centre for the spread of accurate knowledge in all branches of industry and commerce.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Microscopical Society, January 16.—Mr. E. Heron-Allen, president, in the chair.—Presidential address: The Royal Microscopical Society during the great war and after. The president gave a review of the war conditions under which the society has met since August, 1914, and of such part of the work of the society as is ripe for publication in connection with the war. He gave an analysis of the work of the society's abstractors during the periods 1901-13 and 1914-17, and adumbrated a contraction and specialisation of the activities of the society in the future, in the direction of the technical optics of the microscope and its application to all branches of industry and research.

Linnean Society, January 17.—Sir David Prain, president, in the chair.—E. S. Goodrich: The restoration of the superficial bones of the head of the fossil fish *Osteolepis*. Having shown the restorations of Pander, Gregory, and Watson, which differ considerably from each other, Mr. Goodrich described his own restoration of the bones and lateral-line canal system, and directed attention to the importance of an accurate knowledge of the structure of such an early and primitive form as *Osteolepis*, from the Lower Devonian strata, for a correct interpretation of the homologies of the cranial bones in the higher fishes and in the land vertebrates.—J. Britten: Some early Cape botanists.—C. E. Salmon: A hybrid *Stachys*. The plant originated in the author's garden, where previously only *Stachys germanica* and *S. alpina* were cultivated; it was identical with *S. intermedia* [Solander in] Ait. Hort. Kew, ii., 301 (1789).

MANCHESTER.

Literary and Philosophical Society, December 11, 1917.—Mr. T. A. Coward, vice-president, in the chair.—W. Thomson: Somatose. Somatose is a substance prepared by dissolving the refuse from meat which has been extracted with water with the view of producing meat extract. In South America this refuse material was thrown into the sea. A German chemist found that he could dissolve part of this refuse fibrin by heating it with water under a pressure of 90 lb. to the square inch—that is, at a temperature of 320° F. By filtering and evaporating this solution to dryness he obtained a horny grey mass, which, on being powdered, constituted somatose. It was held by some that the value of somatose as a food could be determined by the amount of nitrogen it contained, and that the nitrogen equivalent in somatose was equal to the nitrogen equivalent in lean beef. With the view of determining this, the author considered that it could be done only by feeding animals with food containing lean beef on one hand and somatose on the other.

He made these experiments by feeding tame mice, and found that, whilst the mice thrive upon a mixture of oats and lean beef, they did not thrive upon a mixture of oats and somatose, and whilst the one set increased in weight the other fluctuated more or less largely below their original weight, and he came to the conclusion that somatose should be classed more appropriately as a poison than as a food.

PARIS.

Academy of Sciences, January 7.—M. Paul Painlevé in the chair.—P. Appell: Oblique aerial movements of light spheres possessing weight.—G. Giraud: Hyperabelian functions.—S. Lattès: The iteration of rational substitutions and the functions of Poincaré.—J. Chokhate: Some properties of the polynomials of Tchebicheff.—A. Denjoy: A general property of analytical functions.—A. Guillet: The experimental determination of a moment of the form, $X \frac{db}{dt}$, and of an apparent

inertia arising from the viscosity of a fluid.—A. Mailhe: A new method of preparation of the nitriles by catalysis. Ammonia and methyl benzoate vapour are passed together over thoria at 450°–470° C.; benzonitrile, C_6H_5CN , is the main product. The reaction is similar when ethyl benzoate is employed. Ortho- and para-toluenitriles and phenylacetoneitrile can be made by the same method.—A. Pictet and J. Sarasin: The distillation of cellulose and starch in a vacuum. Under a pressure of 12 mm. to 15 mm. cellulose gives a little water, and then, between 200° and 300°, a heavy yellow oil, which sets to a semi-crystalline mass. About 10 per cent. of charcoal remains in the retort. The pasty mass is about 45 per cent. of the cellulose taken, and, after purification, forms white, tabular crystals, identical in all respects with Tanret's lævoglucosane. Starch on distillation gives the same product with the same yield.—S. Menticath: The defile of Navarre. The tectonic of this defile is a continuation across the Pyrenees of the structure of the layers of Dax, Bastennes, and Salies-de-Béarn; it cannot be taken as typical of the structure of the Pyrenees chain.—L. Gentil and L. Joleaud: Geology of the region of Tunis.—L. Dunoyer: Diurnal variations of the wind in altitude. A theory is developed which affords an explanation of the results of observations described in an earlier paper (*C.R.*, 1917, p. 1068).—J. Peyriguey: Two water-spouts observed at Rabat, December 18, 1917.—R. Souèges: Embryogeny of the Alismaceæ. Differentiation of the radicular extremity in *Sagittaria sagittifolia*.—J. Silhol: The use of kapok for dressings. A description of the properties of kapok compared with those of cottonwool, especially from the point of view of materials for dressing wounds. Kapok exerts selective absorptive properties, removing micro-organisms from pus.—M. Adrian: The use of certain marine algæ as food for horses. An account of feeding experiments in which a treated seaweed was used in place of oats for feeding horses, with marked success. The seaweed was accepted, digested, and assimilated by the animals. The laminaria utilised are abundant on the Breton coast.

WASHINGTON, D.C.

National Academy of Sciences, September, 1917 (Proceedings, vol. iii., No. 9).—J. Loeb: Heliotropic animals as photometers on the basis of the validity of the Bunsen-Roscoe law for heliotropic reactions. New quantitative experiments proving that the "instinctive" motions of animals to light are phenomena of automatic orientation and a function of the light intensity, the function being the Bunsen-Roscoe law of photochemical action.—H. G. May: The appear-

ance of reverse mutations in the bar-eyed race of *Drosophila* under experimental control. Such a phenomenon is not difficult of explanation on the theory that it is produced by a chemical change in the constitution of some substance.—L. R. Cary: The part played by Alcyonaria in the formation of some Pacific coral reefs. On certain of the Pacific reefs the Alcyonaria are important coral-forming agents; their relative importance can be determined only after borings have been made through some reefs to determine the history of the reefs.—A. G. Mayer: Observations upon the alkalinity of the surface water of the tropical Pacific.—H. H. Plough: The effect of temperature on linkage in the second chromosome of *Drosophila*. Both high and low temperatures produce an increase in the percentage of crossing over. The crossing over appears to take place in the stage when the chromosomes are known to be finely drawn-out threads, not in the early oögonial divisions or in the late thick thread stage.—A. H. Sturtevant: Genetic factors affecting the strength of linkage in *Drosophila*.—H. Seares: Further evidence on the concentration of the stars towards the galaxy.—C. Barus: Theoretical relations in the interferometry of small angles.—J. A. Harris: Interperiodic correlation in the egg production of the domestic fowl. The results make possible the selection of groups of birds of high annual egg production from the trap-nest records of individual months.—E. W. Washburn: Two laws governing the ionisation of strong electrolytes in dilute solutions and a new rule for determining equivalent conductance at infinite dilution derived from conductivity measurements with extremely diluted solutions of potassium chloride. In sufficiently dilute solution all uni-univalent salts of strong acids and bases obey the mass-action law, and all have the same ionisation constant; the values of the mass-action expression for all such salts are identical, the identity persisting up to higher concentrations the more nearly the salts resemble each other.—E. C. MacDowell and E. M. Vicari: The growth and fecundity of alcoholised rats. Both growth and the fecundity of the alcoholised are subnormal as compared with non-alcoholics.

October, 1917 (Proceedings, vol. iii., No. 10).—G. M. Green: The general theory of curved surfaces and rectilinear congruences. Preliminary announcement of the number of theorems in a field which seems to be promising.—J. P. Iddings and E. W. Morley: A contribution to the petrography of southern Celebes. Twelve analyses of lavas from Celebes.—A. G. Mayer: The non-existence of nervous shell-shock in fishes and marine invertebrates. Corroboration of the conclusion that war-shock is predominantly a psychic phenomenon and, being hysteria, can be cured by hypnotic suggestion.—A. R. Moore: Chemical differentiation of the central nervous system in invertebrates. In the cephalopod, caffeine brings about hyper-irritability of the cerebral ganglia, while camphor affects the stellar ganglia in the same sense. Atropin causes spasms in the squid, but inhibits the activity of the chromatophores. Camphor shows a selective action in the shrimp, paralysing the elements, controlling backward swimming, and exciting those controlling forward motion.—W. E. Garrey: Proof of the muscle-tension theory of heliotropism. Experiments show that the motion of animals to or from a source of light are due to an influence of the light on the tension of muscles of different sides of the body.—W. H. Longley: Changeable coloration in *Brachyura*. The colours of crabs and their capacity to change them vary from species to species, according to the same general rule that appears to prevail among fishes.—J. F. McClendon: The equilibrium of Tortugas seawater with calcite and aragonite. The surface water

of the sea is the supersaturated solution of CaCO_3 , and it is only necessary to introduce calcite crystals in order to cause precipitation of this substance.—H. J. Muller: An *Cnothera*-like case in *Drosophila*. Report of an extended series of experiments showing that it will not do to accept evidence apparently in favour of factor inconstancy without the support of highly rigorous factorial analysis.—A. G. Mayer: Is death from high temperature due to the accumulation of acid in the tissues? Death is probably due to the formation of acid rather than to coagulation of proteid substances.

VICTORIA.

Royal Society, November 8, 1917.—Prof. W. A. Osborne, president, in the chair.—R. S. Rogers: *Chiloglottis pescottiana*, sp. nov. The species was found at Tallangatta, and is distinguished from others of the genus in the distribution of the calli and the form of the labellum.—Miss N. C. B. Allen: Magnetic deflection of rays; tabulation of v against RH, assuming Laurentz theory.—F. Chapman: The occurrence of Acrotreta in Lower Palaeozoic (Lancefieldian and Heathcotian) shales. The discovery of this genus in Victoria further supports the conclusion as to the Upper Cambrian age of the Heathcotian and associated beds. The new species is related to *A. belti* from the Lower Tremadoc of North Wales and to *A. transversalis* of the St. John Group, New Brunswick.—F. Chapman: An apparently new type of Cetecean tooth from the Tertiary of Tasmania. *Scaptodon lodderi* is represented by a flattened conical tooth with a small bevelled crown, which is otherwise allied to teeth of the Physeter type.

BOOKS RECEIVED.

Solectrics: A Theory explaining the Causes of Tempests, Seismic and Volcanic Disturbances, and other Natural Phenomena: How to Calculate their Time and Place. By A. J. Cooper. Pp. 213. (London: J. D. Potter.) 6s.

Ambulance de l'Océan. La Panne la Prothèse du Membre Inférieur. By Dr. F. Martin. Pp. viii+107. (Paris: Masson et Cie.) 5 francs.

The Philosophy of Benedetto Croce. The Problem of Art and History. By Dr. H. Wildon Carr. Pp. x+213. (London: Macmillan and Co., Ltd.) 7s. 6d. net.

Notions d'Acoustique. Instruments de Musique; le Telharmonium. By J. Rodet. Pp. 96. (Paris: Gauthier Villars et Cie.) 3.50 francs.

The Scientist's Reference Book and Diary, 1918. (Manchester: J. Woolley, Sons, and Co., Ltd.) 2s. 6d.

Carnegie United Kingdom Trust. Report on the Physical Welfare of Mothers and Children. Scotland. Vol. iii. Pp. xxviii+625+illustrations. (Dunfermline: Carnegie U.K. Trust.)

Third Melbourne General Catalogue of 3068 Stars for the Equinox 1890, from Observations made at Melbourne Observatory during the Period 1884-87 to 1894-1900. Pp. viii+77. (Melbourne: A. J. Mullett.)

DIARY OF SOCIETIES.

THURSDAY, JANUARY 31.

ROYAL SOCIETY, at 4.30.—The Growth of Trees: A. Mallock.—Action of Light Rays on Organic Compounds, and the Photosynthesis of Organic from Inorganic Compounds in Presence of Inorganic Colloids: Prof. B. Moore and T. A. Webster.—The Isolation and Serological Differentiation of *Bacillus tetani*: Capt. W. J. Tulloch.—An Investigation into the Periodicity of Measles Epidemics in the Different Districts of London for the years 1890-1912: Dr. J. Brownlee.

ROYAL INSTITUTION, at 3.—Revolving Fluid and the Weather Map: Sir Napier Shaw.

FRIDAY, FEBRUARY 1.

ROYAL INSTITUTION, at 5.30.—Gravitation and the Principle of Relativity: Prof. A. S. Eddington.

SATURDAY, FEBRUARY 2.

ROYAL INSTITUTION, at 3.—The Ethics of the War: P. H. Loyson.

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MONDAY, FEBRUARY 4.

ROYAL SOCIETY OF ARTS, at 4.30.—High-temperature Processes and Products: C. R. Darling.
ARISTOTELIAN SOCIETY, at 8.—The Theory of a Limited Deity: Bishop of Down.

TUESDAY, FEBRUARY 5.

ROYAL INSTITUTION, at 3.—The Problems of British Anthropology: Prof. A. Keith.
ROYAL SOCIETY OF ARTS, at 4.30.—The Industrial Resources of South Africa: C. du P. Chiappini.
INSTITUTION OF CIVIL ENGINEERS, at 5.30.—The West Quay of Madras Harbour: The Hon. Sir Francis J. E. Spring and Hugh H. G. Mitchell.
RÖNTGEN SOCIETY, at 8.15.—A Simple Means of Obtaining "Static Currents" from an Induction Coil: Dr. G. B. Batten.—A Mobile Snook Apparatus: E. E. Burnside.
ZOOLOGICAL SOCIETY, at 5.30.—Notes on the Dingo in Australia: T. E. Whitehead.—Notes on the Skull of *Rana tigrina*: Prof. B. L. Bhatia and Bhai Prasad.—Description of a New Snake of the Genus *Oligodon*, from Upper Burma: G. A. Boulenger.—A New and a Rare Species of the Golden Mole (*Bematacus*): Dr. B. Broom.

WEDNESDAY, FEBRUARY 6.

ROYAL SOCIETY OF ARTS, at 4.30.—The Development of the Mineral Resources of the Empire: Prof. W. Frecheville.
SOCIETY OF PUBLIC ANALYSTS, at 5.—Annual General Meeting.—A Modified Acetic Acid Reagent for Valenta Tests: A. E. Parkes.—Oiticica Oil—a New Drying Oil: E. Richards Bolton and Cecil Revis.
GEOLOGICAL SOCIETY, at 5.30.
ENTOMOLOGICAL SOCIETY, at 8.

THURSDAY, FEBRUARY 7.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: The Photo-Electric Action of X-rays: Prof. O. W. Richardson.—The Parent of Actinium: F. Soddy and J. A. Cranston.—The Absorption of the Radiation Emitted by a Palladium Anticathode in Rhodium, Palladium, and Silver: E. A. Owen.
ROYAL INSTITUTION, at 3.—Illusions of the Atmosphere: The Travelling Vortex and the Cyclonic Depression: Sir Napier Shaw.
INSTITUTION OF ELECTRICAL ENGINEERS, at 6.—Ninth Kelvin Lecture: Kelvin as a Teacher: Prof. M. Maclean.
LINNEAN SOCIETY, at 5.—Two Bibliographical Rarities of the Society's Library: (a) Cupani, F., "Panphyton siculum," 1713; (b) Du Gort, J. and P., "L'Histoire et Pourtrait des Plantes," Lyon, 1561: The General Secretary.—Plant Distribution from the Standpoint of an Idealist: H. P. Guppy.

FRIDAY, FEBRUARY 8.

ROYAL INSTITUTION, at 5.30.—Science and Ethics: Principal E. H. Griffiths.
ROYAL ASTRONOMICAL SOCIETY, at 5.—Anniversary Meeting.

SATURDAY, FEBRUARY 9.

ROYAL INSTITUTION, at 3.—The Ethics of the War: P. H. Loyson.

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