

Science is no longer to be merely permitted, tolerated, apologised for; she must preside at the council board because she already rules the lives of the people.

The academic precedence of the faculties, in which theology, arts, and law come before medicine and science, may still be tolerated at the old universities as an interesting and significant relic of earlier times; but in all modern universities (as in the University of Birmingham from its foundation) science is the premier faculty and takes the first place. The world advances, not because of Church history or Homer or Virgil, but because of James Watt and Stephenson and Dalton and Faraday and Harvey and Jenner and Darwin and Kelvin and Lister. Better fifty days of Faraday than a cycle of Aristotle.

Why is a knowledge of science so useful to the modern community? Apart altogether from the way in which science makes for technical efficiency, it is a means second to none in the training of the intellectual powers. It trains us in accuracy of observation, in the power of drawing trustworthy conclusions, in habits of precise thinking generally; and these are not small things.

Science, the true, is the patient, loving interpretation of the world we live in; it is a striving to attain not merely to an understanding of the laws whereby the world is governed, but to the enjoyment of the beauty and order which are everywhere revealed. And the minds of men capable of attaining to such heights of appreciation, and the evidences around us of an all-pervading personality, are only so many additional phenomena to be apprehended as constituent elements of that vast, sublime, age-enduring cosmos which we call the universe.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

LIVERPOOL.—The council has appointed Dr. P. G. H. Boswell as first holder of the George Herdman chair of geology. Prof. Boswell graduated with first-class honours in geology in the University of London, and obtained the degree of D.Sc. in 1915. He has for some years past been lecturer in geology at the Imperial College of Science and Technology, London, and has published many original contributions to geological science. The establishment of a chair of geology in the University has been long delayed, and is now possible owing to the generosity of Prof. and Mrs. Herdman, who have endowed the chair as a memorial to their son, the late Lieut. George Herdman. Prof. Boswell will enter upon his duties in October next.

PROF. C. R. RICHARDS, since 1911 professor of mechanical engineering in the University of Illinois, and head of the department, has been appointed dean of the College of Engineering and director of the Engineering Experiment Station of the University, to succeed Dr. W. F. M. Goss, who has resigned to become president of the Railway Car Manufacturers' Association of New York.

UNDER the will of the late Mrs. Denning, of South Norwood, property of considerable value has been left to form a "Frank Denning Memorial," with the object of promoting the application of modern scientific knowledge to the business life of the community. Mrs. Denning survived her husband only twelve months. The late Alderman Frank Denning was Mayor of Croydon at the time of his sudden decease, and was one of the leading directors of Welford's (Surrey) Dairies, Ltd. He was also a director of colliery companies in Gloucestershire. For some time before his death he was a governor of the Stanley Technical

Trade Schools at South Norwood, and his interest had been aroused in the good work being done at these schools. It is not known at present how the terms of the trust will be carried out, but in view of the success of these schools, it is possible that some developments along the lines already laid down may be looked for. Mr. Denning was a business man before anything else, and the terms of the bequest seem to show that technical education is aimed at, and that pure science as a study had no large place in his mind.

THE report of the Vice-Chancellor on the work of the University of London during the year 1916-17 shows that the total number of commissions granted from the outbreak of the war to December 31, 1916, to cadets and ex-cadets of the University contingent of the Officers Training Corps, and to other graduates and students of the University recommended for commissions, was not fewer than 3111; and the honours and distinctions conferred upon officers and cadets during the same period included one Companionship of the Bath, two awards of the Victoria Cross, six of the Distinguished Service Order, 157 of the Military Cross, one of the Distinguished Service Cross, and 199 mentions in despatches, besides from the French Government three awards of the Croix de Guerre and one of the Médaille Militaire. It is recorded that 284 former officers and cadets of the contingent, and thirty-three other officers recommended for commissions by the University, have made the supreme sacrifice for their country. About 21,000 members of the University are, or have been, serving with H.M. Forces. The research work normally conducted in the laboratories attached to the University has been to an increasing degree directed to the assistance of Government departments or other agencies concerned with the requirements of the war. In addition to the response made by teachers and qualified students at the medical schools of our hospitals to the demands of the War Office for physicians and surgeons, considerable services have been rendered to the Government in the departments of physics, chemistry, physiology, pharmacology, bacteriology, metallurgy, and civil, mechanical, and electrical engineering.

SOCIETIES AND ACADEMIES.

LONDON.

Geological Society, May 2.—Dr. Alfred Harker, president, in the chair.—Jane Longstaff (*née* Donald): Supplementary notes on *Aclisina*, De Koninck, and *Aclisoides*, Donald, with descriptions of new species. Since the publication of a paper by the Geological Society on *Aclisina* in 1898, knowledge has been gained of the species there described, and six others new to science have been discovered. The diagnoses of these are given. The total number of species of *Aclisina* is brought up to twenty-two. The genus is best represented in Scotland, where the specimens are generally well preserved. A table is appended giving the range and localities in the British Isles and Belgium. A small variety of *Aclisina pulchra*, De Koninck, appears to have continued for the greatest length of time. Additional observations are also made on *Aclisoides striatula*, De Koninck.—T. H. Burton: The microscopic material of the Bunter pebble-beds of Nottinghamshire and its probable source of origin. As shown by the distribution of the heavy minerals, combined with (a) the direction of the dip in the cross-bedding, (b) the evidence adduced by boreholes and shaft-sinkings, a main current from the west is indicated. A large quantity of the material is derived from metamorphic areas. The source of the bulk of the material is probably Scotland, and the westward

adjoining vanished land, from rocks similar in the main to those of the metamorphic and Torridonian areas known in that country. The material was transmitted by means of a north-western river and its tributaries, flowing into the Northern Bunter basin. During certain flood-periods this river overflowed across Derbyshire, carrying its load of sediment, much of which was deposited in the pebble-beds of Nottinghamshire.

Linnean Society, May 3.—Sir David Prain, president, in the chair.—H. W. Pugsley: An enumeration of the species of *Fumaria*, section *Sphærocappos*. The author alluded to Shakespeare's mention of "rank fumiter" in "King Lear." The earliest known references date back to Dioscorides in the first century, under the name of *καπνος*, smoke; the elder Pliny spoke of two species, one apparently our *Fumaria officinalis*. The modern generic name first appears in Bock (Tragus), Fuchs and Mattioli. Gerard, in his "Herball," includes the common fumitory as "*Fumaria purpurea*," but Gerard's description was altered and not improved by his later editor, Dr. Thomas Johnson. The enumeration in Ray's "Historia" was confined to the three species given by Gerard, but all the specimens in the Sloane Herbarium, and the Dubois herbarium at Oxford, prove to be a rampant form of *F. officinalis*. The true *F. capreolata*, an uncommon British plant, was added to our flora in 1859, when Prof. C. C. Babington read his paper on the genus before the Linnean Society. The *F. capreolata* of "English Botany" and Curtis's "Flora Londinensis" is Jordan's *F. Boraei*. With Vaillant's species, *F. Vaillantii*, there were six species distinguished before the time of Linnæus. In his "Species Plantarum" of 1753 the latter author has but two species of *Fumaria*; the remainder are now reckoned in *Corydalis* and other genera. The author then referred to works on the genus by Hand-schuch (1832) and Parlatore (1844), and especially the masterly monograph by Olof Hammar in 1857, the basis of recent work; a later monographer, Hauss-knecht, in "Flora," 1873, relied upon leaf-characters rather than the sounder characters afforded by the flower and fruit.—G. M. Ryan: The flowers of the Mahua, *Bassia latifolia*, Roxb. The tree and its products were described.—Dr. W. E. Collinge: (1) *Paracubaris*, a new genus and species of terrestrial Isopoda from British Guiana. (2) The oral appendages of certain species of marine Isopoda.—C. C. Lacaita: Two critical plants of the Greek flora.

EDINBURGH.

Royal Society, March 10.—Dr. John Horne, president, in the chair.—Dr. J. Aitken: Some nuclei of cloudy condensation. By means of an improved apparatus for producing a series of definite expansions of a given volume of saturated air, the author studied the cloud-producing qualities of dust particles of different sizes obtained in various ways. After the air was cleared of the largest particles by one or more applications of a 2 per cent. expansion, cloud-producing particles of smaller sizes were removed in succession by expansions 4 per cent., 6 per cent., 8 per cent., and so on up to 20 per cent. if necessary. The particles were produced by such means as flames, electric sparks, chemical action, and heating of solid substances; and the general conclusion was that in no expansion lower than 25 per cent. was there any evidence of electric ions being by themselves efficient nuclei for cloudy condensation. The view that the nuclei of cloudy condensation produced by heat are ions discharged at high temperatures is not supported, since such nuclei are produced at much lower temperatures than that at which ionic discharge from heated bodies occurs; and even at this higher temperature spectroscopic examina-

tion shows that some chemical or disintegrating action takes place along with the discharge of the ions.—W. L. Calderwood: Note on the salmon of the River Lochy as shown by a collection of scales made in 1916. The purpose of the paper was to compare the scales and weights of two groups of fish, distinguished as groups A and B. The members of group A had spent two years in the sea and one in the river, while the members of group B had spent two years in the river and two in the sea. The average weight of the former was the greater. Thus the actual number of lines of growth as determined by the examination of the scales cannot be taken as a true index of the weight of the salmon. The condition in which the smolt leaves the river after only one year and commences a period of rich feeding in the sea may lead to a greater increment of weight than in the case of fish which are a year older but have spent the more normal period of two years' early life in the river.

PARIS.

Academy of Sciences, April 30.—M. A. d'Arsonval in the chair.—J. Boussinesq: Fundamental hypotheses of the mechanics of pulverent masses.—General Sebert: Can violent cannonades produce rain? Comments on a recent note by M. Deslandres on this subject. There is some evidence that the rainfall produced may not be all local, but that effects may be observed at considerable distances from the front. Sudden changes of weather have occurred without previous barometric changes, heavy rainfall suddenly following on fine weather without any previous indication of the change.—C. Richet, H. Cardot, and P. Le Rolland: Regular and irregular antiseptics. Studies in lactic fermentation in presence of various antiseptics show that when large numbers of trials are made under conditions apparently identical, the resulting acidities are not constant, but deviate considerably from the mean. This deviation varies with the nature of the antiseptic present. Thus sodium fluoride is very regular in its action, and the average deviation is smaller than that given by the control tubes. Mercuric chloride, on the other hand, added in equal quantities to each tube, gave surprisingly variable results, the average deviation being ten times that of the controls.—Ch. Depéret and L. Joleaud: The marine Quaternary deposits of the region of Bône and of La Calle (Algeria)—C. Guichard: The O networks of Monge in space of any order.—M. de Sparre: Hammering in a conduit formed of three sections of different diameters, for which the duration of propagation is the same.—R. Ledoux-Lebard and A. Dauvillier: Contribution to the study of the L series of elements of high atomic weight.—M. Menard: The treatment of hæmorrhoids by high-frequency currents. High-frequency currents (d'Arsonvalisation) are of high value in the treatment of hæmorrhoids, and in many cases have avoided a surgical operation which would otherwise have been necessary. The results of the application of the method in six cases are given in detail; the cure was complete and permanent.—M. Marage: The duration of cases of deafness due to sheil-shock.

CALCUTTA.

Asiatic Society of Bengal, March 7.—Dr. G. A. Boulenger: A revision of the lizards of the genus *Tachydromus*. *Tachydromus* is a genus of *Lacertidæ* characteristic of the Far East, and the only one of the family that extends eastward of the Bay of Bengal. Owing to insufficient material, the relations of the various species have hitherto been very imperfectly understood, and the revision which Dr. Boulenger has now prepared was in consequence badly needed. Eleven species are recognised in the genus

and a key provided for their ready determination. Two forms hitherto placed in *Tachydromus* have been transferred to the new genera *Platyplacopus* and *Apeltonotus*.—Dr. J. Stephenson: Zoological results of a tour in the Far East: Aquatic Oligochaeta from Japan and China. In this paper Dr. Stephenson gives an account of certain Oligochaete worms obtained by Dr. Annandale in Japan and China. The specimens were all found in fresh water and comprise five species, three species and one genus being described as new. *Criodrilus bathybatas* was found in Lake Biwa at the remarkable depth of 180 ft.—Dr. N. Annandale: Zoological results of a tour in the Far East: Hydrozoa and Ctenophora. The Hydrozoa dealt with in this paper are mostly from the Tale Sap, in Lower Siam, where they were found living in brackish water. A single fresh-water form, *Cordylophora lacustris*, was obtained in the Tai Hu Lake in China. The paper includes an account of the habitat, adaptations, and distribution of all the Hydrozoa inhabiting brackish water connected with the Indian Ocean. *Asenathia piscatoris*, a new genus and species of Medusa from the Matla River, is also described, and it is suggested that the form may possibly represent the medusoid generation of a peculiar little hydroid recently described by Ritchie from Port Canning under the name *Annulella gemmata*.

BOOKS RECEIVED.

- Steel and its Heat Treatment. By D. K. Bullens. Second impression. Pp. vii+441. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 17s. 6d. net.
- Seeding and Planting. By Prof. J. W. Toumey. Pp. xxxvi+455. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 16s. 6d. net.
- The Elementary Principles of Wireless Telegraphy. By R. D. Bangay. Part ii. Second edition. Pp. 241. (London: The Wireless Press, Ltd.) 2s.
- Some Compounds of Boron, Oxygen, and Hydrogen. By M. W. Travers, N. M. Gupta, and R. C. Ray. (London: H. K. Lewis and Co., Ltd.) 1s. net.
- The Glastonbury Lake Village. By A. Bulleid and H. St. G. Gray, and others. Vol. ii. Pp. xxxiii+xl+353-724. (Glastonbury: Antiquarian Society.) Two vols., 3 guineas net.
- Optical Theories. By Prof. D. N. Mallik. Pp. 181. (Cambridge: At the University Press.) 7s. 6d. net.
- The Cancer Problem: A Statistical Study. By C. E. Green. New edition. Pp. ix+140. (Edinburgh and London: W. Green and Son, Ltd.)
- Royal Botanic Gardens, Kew. Bulletin of Miscellaneous Information, 1916. (London: H.M.S.O.)
- Microscopical Determination of the Opaque Minerals. By Dr. J. Murdoch. Pp. vii+165. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 9s. 6d. net.
- Handbook for Rangers and Woodmen. By J. L. B. Taylor. Pp. ix+420. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 11s. 6d. net.

DIARY OF SOCIETIES.

THURSDAY, MAY 17.

- ROYAL SOCIETY, at 4.30.—Bakerian Lecture: The Configuration of Astronomical Masses and the Figure of the Earth.—J. H. Jeans.
- ROYAL INSTITUTION, at 3.—The Chromosome Theory of Heredity and the Alternatives: Prof. W. Bateson.
- ROYAL SOCIETY OF ARTS, at 4.30.—The Future of Indian Trade with Russia: D. T. Chadwick.
- INSTITUTION OF ELECTRICAL ENGINEERS, at 6.—Annual general meeting.

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- FRIDAY, MAY 18.
- ROYAL INSTITUTION, at 5.30.—The Complexity of the Chemical Elements: Prof. F. Soddy.
- INSTITUTION OF MECHANICAL ENGINEERS, at 6.—The Construction of Turbine-Pumps: A. E. L. Chorlton.
- SATURDAY, MAY 19
- ROYAL INSTITUTION, at 3.—The Electrical Properties of Gases: Sir J. J. Thomson.
- MONDAY, MAY 21.
- ROYAL GEOGRAPHICAL SOCIETY, at 5.30.—Anniversary Meeting. President's Address.
- ARISTOTELIAN SOCIETY, at 8.—Some Aspects of the Philosophy of Plotinus: Dean W. R. Inge.
- TUESDAY, MAY 22.
- ROYAL INSTITUTION, at 3.—Architectural Design in Organisms: Prof. D. Arcey Thompson.
- ROYAL ANTHROPOLOGICAL INSTITUTE, at 5.—Tattooing in South-Eastern New Guinea: Capt. F. R. Barton.
- THURSDAY, MAY 24.
- ROYAL INSTITUTION, at 3.—The Chromosome Theory of Heredity and the Alternatives: Prof. W. Bateson.
- ROYAL GEOGRAPHICAL SOCIETY, at 5.30.—The Resources and Future of British Columbia: Dr. J. F. Unstead.
- LINNEAN SOCIETY, at 3.—Anniversary Meeting.
- AERONAUTICAL INSTITUTE, at 8.—The Testing of Materials for Aeronautical Construction: Edgar A. Allcut.
- INSTITUTION OF MINING AND METALLURGY, at 5.30.—Shall Great Britain and America Adopt the Metric System?: W. R. Ingalls.
- FRIDAY, MAY 25.
- ROYAL INSTITUTION, at 5.30.—Breathlessness: J. Barcroft.
- PHYSICAL SOCIETY, at 5.—An Investigation of Radium Luminous Compound: C. C. Paterson, J. W. T. Walsh, and W. F. Higgins.—The Resistance to the Motion of a Lamina, Cylinder, or Sphere in a Rarefied Gas: F. J. W. Whipple.—The Effect of Stretching on the Thermal and Electrical Conductivities of Wires: Dr. C. H. Lees.
- SATURDAY, MAY 26.
- ROYAL INSTITUTION, at 3.—The Electrical Properties of Gases: Sir J. J. Thomson.

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