

education, and during that time it has developed beyond the recognition of many of those who imagined themselves to be its guardians.

Mr. Paley Yorke protested against the charge of soullessness that is sometimes levelled at scientific education, and argued that it gives an extended vision and develops both imagination and that too rare gift of being able to marvel at the wonders of nature and to appreciate the beauties of life. It cannot be admitted that a good general education can be obtained only by the study of certain subjects in certain ways or that education and culture must be associated necessarily with bygone civilisations.

Reference was made to the fact that opportunity for contact with industry and for research is scant, and it was urged that directors of industry might submit some of their research problems to local Education Authorities and through them to the scientific and technical staffs of the various technical institutions in the area. It is realised, of course, that all problems would not arrive that way because of the publicity involved, but some useful work may be done.

Attention was also directed to the proposed reduction of grants for scientific research and to the reduction in the number of national scholarships for higher education. It was pointed out that not only do these reductions gravely imperil scientific and industrial development, but also that the percentage reduction in the estimates for these items is much greater than that for corresponding items in other branches of educational work.

Lord Burnham said that technical education is slowly gaining its right place in the assessment of national values. This country, with its superiority in industrial matters during the greater part of the nineteenth century, looked with supreme self-confidence upon the efforts of other nations to compete with us in industrial production. When the advance of scientific discovery showed that mere manual dexterity was not sufficient the necessity for technical education was admitted. Lord Burnham doubted whether there is any other class of teacher upon which the future prosperity of the nation depended so much. Technical teachers are striving to shape education for the public good and for the welfare of the generations which are coming to manhood.

Resolutions asking for the appointment of a committee of inquiry to investigate the whole field of technical education in relation to education generally and to industry, and expressing alarm at the reduction in the number and value of scholarships available for higher education, were carried unanimously.

University and Educational Intelligence.

BRISTOL.—The J. S. Fry and Sons, Ltd., Colston Research Fellowship, which provides for payment of fees and a maintenance allowance of 150*l.* a year, has been awarded to Mr. F. B. Wrightson, a student in the Faculty of Engineering.

CAMBRIDGE.—Mr. W. B. R. King, fellow of Jesus College, has been elected to be fellow and lecturer in natural sciences at Magdalene College; Mr. P. M. S. Blackett to be Charles Kingsley Bye fellow of Magdalene College; Mr. L. E. Bayliss, Trinity College, to be Michael Foster student in physiology; Mr. F. Lavington and Mr. J. Line, to be fellows of Emmanuel College; and Mr. J. A. Carroll to be fellow of Sidney Sussex College.

GLASGOW.—Mr. A. D. Lindsay has been appointed to the chair of moral philosophy in succession to the

late Sir Henry Jones. Mr. Lindsay was formerly Shaw Fellow of the University of Edinburgh, and lecturer in philosophy at the old Victoria University. In 1906 he was elected Fellow of Balliol College, Oxford, and was appointed classical tutor and Jowett lecturer in philosophy.

LEEDS.—The Council has appointed Dr. W. T. David to be professor of civil and mechanical engineering in succession to Prof. J. Goodman, who retires in October next. Dr. David, who is at present professor of engineering at the University College of South Wales, was educated at Cardiff and Cambridge. He served as demonstrator in engineering under Prof. Bertram Hopkinson at Cambridge for two years, and later was appointed H.M. Inspector of Technical Colleges under the Board of Education. His research work has been concerned mostly with internal combustion engines.

The handsome gift received some little time ago from Col. Sir Edward Brotherton of 20,000*l.* has enabled the University to make an important development in the work of the department of pathology and bacteriology. Sir Edward's intention was that his gift should be devoted to the furtherance of the study of bacteriology with special reference to public health, and as a step in this direction the Council has instituted a new professorship to be called "The Sir Edward Brotherton Chair of Bacteriology." Dr. J. W. McLeod has been elected as the first holder of this chair. Dr. McLeod graduated with commendation at Glasgow University in the summer of 1908, and after acting as house physician at the Glasgow Royal Infirmary and house surgeon at the Glasgow Western Infirmary, gained the Coats research scholarship and worked for a year under Prof. R. Muir. Later he was appointed assistant lecturer and demonstrator in pathology at the Medical School of the Charing Cross Hospital, and afterwards lecturer in bacteriology at the University of Leeds. Dr. McLeod has carried out important research work in the field of bacteriology, and has published numerous papers dealing more especially with the bacteriology of influenza, dysentery, pneumonia, and the streptococcal infections.

LONDON.—At a meeting of the Senate on June 21, Mr. H. J. Waring, Dean of the Faculty of Medicine and vice-president of St. Bartholomew's Hospital Medical College, was elected Vice-Chancellor for 1922-23, in succession to Sir Sydney Russell-Wells. A cordial vote of thanks was passed to Sir Sydney Russell-Wells for the services which he had rendered to the University as Vice-Chancellor since December 1919.

Mr. J. H. Woodger was appointed to the University readership in biology tenable at Middlesex Hospital Medical School. Mr. Woodger was educated at University College, whence he graduated in zoology, and was awarded the Derby Research Scholarship. In 1917 he was appointed protozoologist to the Central Clinical Laboratory in Amarah, and in 1919 assistant in zoology at University College.

Sir Charles W. C. Oman, Chichele professor of modern history in the University of Oxford, was appointed Creighton lecturer for the year 1922-23. The subject of his lecture will be "Historical Perspective."

The Lindley studentship for 1922, of the value of 120*l.* and tenable in the Physiological Laboratory, has been awarded to Miss M. J. Wilson-Smith of Royal Holloway College; and the University studentship in physiology for 1922-23, of the value of 50*l.* and tenable in the Physiological Laboratory of the University or of one of its Schools, to Miss M. M. A. Murray of Bedford College.

MANCHESTER.—Mr. E. D. Telford, lecturer in practical surgery in the University, and a member of the Honorary Staff of the Manchester Royal Infirmary, has been appointed professor of systematic surgery.

By the will of the late Sir William Lorimer, who died on April 9 last, the Court of the University of Glasgow will receive the sum of 10,000*l.*

It is announced in *Science* that, by the will of the late Amos F. Eno, Columbia University, New York, will receive a bequest of about four million dollars.

THE Beaney Scholarship in *Materia Medica* at Guy's Hospital Medical School is vacant. It is of the yearly value of about 50*l.* and tenable for three years. It is open to candidates who have received at least part of their medical education at Guy's Hospital. The latest date for receiving applications is July 7. They should be sent to the Dean of the School, S.E.1.

THE Gull studentship in pathology and allied subjects, of the annual value of about 250*l.* and tenable for three years, is being offered by Guy's Hospital Medical School. The studentship is open to candidates under 35 years of age who have studied in the school. Applications must reach the Secretary to the Board of Electors, Guy's Hospital Medical School, S.E.1, by, at latest, July 7.

THE summer meeting of the Association of Technical Institutions will be held at Oxford on Friday and Saturday, July 7 and 8. The sessions on Friday and Saturday mornings will commence at 10.30 o'clock, when the president, The Right Hon. Walter Runciman, will occupy the chair. The Rev. L. R. Phelps, Provost of Oriel College and Pro-Vice-Chancellor, will welcome, on behalf of the University, the members of the association at the opening of the conference. Papers will be read by Rev. W. Hardy Harwood (Chairman of the Council) and Principal J. F. Hudson (Huddersfield) on "The Relation of Technical Education to the Question of General Education." Principal J. Quick, on "Central Schools and their part in the Preparation of Scholars for Higher Technical and Junior Technical Schools," and by Mr. E. C. Kyte, Secretary of the Library Association, on "Technical Libraries—How to Start and Develop them."

THE annual report of the Livesey Professor, Prof. John W. Cobb, at the University of Leeds, gives an account of the work done in the department of coal gas and fuel industries (with metallurgy) for the session 1920-21. The number of students (41) reached the highest figure in the history of the department; one third (14) taking the fuel and metallurgy course, the remainder (27) the course in fuel and gas engineering. The special evening classes included courses on the distribution of gas (Mr. Walter Hole), coke oven practice (Mr. W. Greaves), steaming in vertical retorts (Dr. A. Parker), and metallurgy (Mr. P. F. Summers). These courses were attended by 49 external students in addition to the full-time registered students. Researches were carried out on the liberation of nitrogen from coal and coke as ammonia, the structures of cokes prepared at different temperatures, the losses of ammonia in coke oven practice, a laboratory apparatus for coal distillation, the expansion of refractory materials, the trustworthiness of recording gas calorimeters, and the efficiency of production of blue water gas. The endowment funds of the department have benefited by substantial donations from the South Metropolitan Gas Company, the South Suburban Gas Company, and from Mr. A. G. Glasgow.

Societies and Academies.

LONDON.

Royal Society, June 15.—Sir Charles Sherrington, president, in the chair.—H. M. Evans: The defensive spines of fishes, living and fossil, and the glandular construction in connexion therewith, and observations on the nature of fish venoms. The gland in the groove of the spine of the sting-ray (*Trygon pastinaca*) consists of two portions—the deepest part of the groove contains an alveolar-connective tissue structure, which is separated from the true glandular epithelium by a pigmented capillary layer. The dorsal fin-spines of the spiny dog-fish *Acanthias* are grooved, and the groove is occupied by a gland with definite follicles. Cestracion also has a well-developed gland at the base of the dorsal fin spines. The spines of *Chimæra* and of the *Pleuracanthidæ* show structures which suggest a specialised function. The nature and properties of Weever venom are described; the filtration of venom profoundly affects its hæmolytic properties. Experiments are described on the native use of abrin as an antidote to fish venoms.—D. W. Cutler, L. M. Crump, and H. Sandon: A quantitative investigation of the bacterial and protozoan population of the soil: with an account of the protozoan fauna. The results of 365 consecutive daily counts of the numbers of bacteria and of six species of protozoa in a natural field soil are given. Large fluctuations occur which cannot be correlated with meteorological conditions. Fourteen-day averages of the daily numbers show marked seasonal changes superimposed on the daily variations in numbers. In general, both bacteria and protozoa are most abundant at the end of November, and fewest during February. The changes are not directly influenced by temperature or rainfall. An inverse relationship is found between the numbers of bacteria and certain amœbæ, and a two-day periodicity obtains for the numbers of the flagellate *Oicomonas termo* which are active.—D. W. Devanesen: The development of the calcareous parts of the lantern of Aristotle in *Echinus miliaris*. All the calcareous elements of the lantern of Aristotle, with the exception of the teeth, are deposited as triradiate spicules. A "compass" arises from two rudimentary spicules. It is the only element of the lantern absent in the "echinus-rudiment." A tooth is a paired structure in consequence of its composition of a double row of lamellæ. A pair of lamellæ is its ultimate unit. A remarkable stage in the consolidation of these lamellæ is the cone-in-cone arrangement. The carina is formed by the beaks of the serially fitting cones. The ossicles of the lantern are compared with those of the mouth-frame of star-fish.—A. Lipschütz, C. Wagner, R. Tamm, and F. Bormann: Further experimental investigations on the hypertrophy of the sexual glands.

Zoological Society, June 13.—Prof. E. W. MacBride, vice-president, in the chair.—Miss J. B. Procter: A study of the remarkable tortoise *Testudo loveridgii* Blgr., and the morphogeny of the Chelonian carapace.—J. T. Carter: A microscopical examination of the teeth of the primates.—H. G. Jackson: A revision of the isopod genus *Ligia*, Fabricius.—W. R. B. Oliver: A review of the Cetacea of the New Zealand seas.—F. Wood Jones: On the dental characters of certain Australian rats.

Linnean Society, June 15.—Dr. A. Smith Woodward, president, in the chair.—A. B. Rendle: Seedlings of horse-chestnut from which the terminal bud had been removed by cutting through the epicotyledonary stem. Minute buds appeared on the cut surface corresponding in position with the cambium-