

conditions the quality inherent in some varieties to resist disease may be utilised to great advantage. The national importance of such work is impressed upon us by the enormous losses sustained every year by rust in wheat, mould in hops, and the widespread disease of potatoes. One of the most striking instances in recent times was the destruction of the valuable coffee plantations in Ceylon. The industry, an exceptionally valuable one, was wiped out in a comparatively few years by the coffee-leaf disease (*Hemileia vastatrix*). In the light of our present knowledge it is not improbable that this disease may have been checked by seed selection or by raising an immune race of plants; or, more probably, as suggested by Armstrong, by regulating the use of essentially nitrogenous manures, which are known in some cases to intensify the attacks of fungoid pests, and substituting the use of phosphates. As illustrating the occurrence of an incidental result arising from a purely scientific investigation, mention may be made of the discovery of a remarkably tall strain of flax at the John Innes Institution. This, if capable of being established on pure lines, may prove of economic value. It is a hopeful sign that the appreciation of the work done at this institution, under the stimulating energy of Bateson, is increasing day by day. We may mention the great success which is attending the establishment of a school of technical education and research by the Royal Horticultural Society at Wisley. This is maintained by liberal funds, and by means of its well-equipped laboratories and extensive trial grounds it offers unique facilities for solving problems of great value as affecting the future of British horticulture. In sympathy with the work at Wisley, private firms are also setting up laboratories of their own and employing men of high standing so that a just balance may be maintained between science and practice. The progress made in the elucidation of problems in tropical plant pathology shows the necessity not only for well-trained and experienced mycologists and entomologists, but also for the correlation and combination of knowledge gained in their several lines of study. It is suggested that research work should be organised on the broadest possible lines, and combine the biological services of the whole Empire. We have a first step in this direction in the Imperial Bureau of Entomology, with its headquarters at the British Museum. Those acquainted with the efficient work done by this bureau and the excellent publications issued by it will very heartily welcome the establishment of the proposed Imperial Bureau of Mycology to carry on work on similar lines.

In this brief review I have endeavoured, however imperfectly, to place on record some of the activities that have taken place in the domain of botany in recent years. It has only been possible to select a few of the most striking incidents where progress has been made. This has been done in the hope of arousing wider interest in work of prime importance as affecting the interests of the home country and the Empire. Botany in its widest aspects affects so largely the welfare of the human race that it is impossible to slacken our efforts. Advance has necessarily been slow, but the creative impulse of science cannot fail to bring in a large harvest of results. This may be possible by encouraging individual efforts, by organising active co-operation, and by associating with us men who are practically grappling with difficulties that seem almost impossible to solve. I have attempted to show in what vast fields of enterprise botanical science has already rendered signal service. As regards the future, if we enlist the best intellects, imbued with the true spirit of progressive research, we shall ensure a continuance of discoveries that have proved so effectual. We must also call to our assist-

ance some of that wonderful energy developed during the war and divert it to the great work before us.

Certainly one of the outstanding features that emerge from a record of botanical research during the last decade or two is the prominent position now occupied by plant-breeding on Mendelian lines. In proof of this we have the numerous well-equipped plant-breeding institutes established and maintained by Government and private funds. Plant-breeding is now in the forefront in relation to the improvement of crops, and the value of it is officially acknowledged as "a vital element in the national policy." According to the Secretary of the Board of Agriculture, what we want "are new races of plants adapted to intensive cultivation," and he adds: "It is my deliberate opinion that an increase in the production of our land is much more easily attainable in that direction than in any other."

#### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—On Tuesday, December 2, in the hall of Trinity College, a lecture open to the University was given by Prof. Eddington on the theory of relativity. Apart from the interest of the lecture, which attempted sometimes lightly and sometimes almost dramatically—to present a popular account of the subject, the most striking thing about it was the enormous attendance. Fifteen minutes before the lecture began there was a queue half-way across the Great Court of men anxious to obtain admittance, and during the lecture the hall was entirely filled with dons and students listening breathlessly to hear an intelligible account, if one could be given, of the new theory. The keen interest was due, no doubt, largely to curiosity stimulated by the newspaper accounts of the subject, but also partly to the feeling, to which at last some hope of satisfaction can be given, that a further great unifying principle is needed in natural philosophy. Whatever be the reason, however, the size and appreciation of the audience were no less extraordinary than the subject of the lecture and the brilliance of its exposition.

Mrs. Osborn, the wife of the president of the American Museum of Natural History, has presented a striking portrait of her husband to the Sedgwick Museum. It is proposed to hang this portrait of an old student of Cambridge and an honorary doctor of science of the University amongst the fossil mammals, which have been the subject of his life's work, near the portraits of Darwin and Huxley. The portrait, which is recognised by friends in Cambridge as a remarkably good likeness, is inscribed as follows:—"Henry Fairfield Osborn, LL.D., Sc.D. Camb., a student at Cambridge in 1879, contributor to Comparative Anatomy, Palæontology, Biology, President of the American Museum of Natural History. By Orlando Rouland, New York, 1919."

LIVERPOOL.—The council has appointed Prof. E. R. Dewsnap, professor of railway administration in the University of Illinois, to the chair of commerce, recently endowed by the trustees of the late Mrs. A. W. Chaddock.

MR. A. CONNELL has been appointed to succeed Prof. S. White in the professorship of surgery in the University of Sheffield.

CAPT. L. L. BURCHNALL, scholar of Christ Church, Oxford, has been appointed lecturer in mathematics in the University of Durham.

DR. J. CRUICKSHANK, pathologist to the Crichton Royal Institution, Dumfries, has been appointed

Georgina McRobert lecturer in pathology in the University of Aberdeen.

THE College Board of the London Hospital is offering the Little triennial prize (value 120*l.*) for an essay on "The Etiology of Epidemic Influenza." The competing essays must reach the Dean of the London Hospital Medical College on or before June 30 next.

THE New York correspondent of the *Times* announces that by the will of the late Henry Clay Frick all his estate, estimated at 29,000,000*l.*, except 5,000,000*l.*, is bequeathed to public educational and philanthropic objects. The benefactions include the following:—Princeton University, 3,000,000*l.*; Harvard University, 1,000,000*l.*; and Massachusetts Institute of Technology, 1,000,000*l.*

THE council of the Institution of Naval Architects offers for competition a scholarship (value 100*l.* per annum for three years) to be awarded on the results of the Board of Education examinations in naval architecture and other subjects. Candidates must be between eighteen and twenty-one years of age. Full particulars and application forms are obtainable from the Secretary, Institution of Naval Architects, 5 Adelphi Terrace, London, W.C.2. Entries will close on January 15, 1920.

THE annual meeting of the Mathematical Association will be held at the London Day Training College, Southampton Row, London, W.C.1, on January 7 and 8, 1920. The address of the president, Prof. E. T. Whittaker, will be on "Some Mathematical Problems Awaiting Solution"; and the papers to be presented are: "A Survey of the Numerical Methods for Solving Equations," the president; "The Use of Symmetry in the Teaching of Geometry," C. Godfrey; "Convention and Duplexity in Elementary Mathematics," Prof. E. H. Neville; "The Place of Common Logarithms in Mathematical Training," Miss H. M. Cook; and "The Teaching of Mechanics to Beginners," Mr. R. C. Fawdry.

AN interesting departure in commercial scientific education has been inaugurated by the directors of the Anglo-Mexican Petroleum Co., who have invited Mr. C. R. Darling, lecturer in physics at Finsbury Technical College, to deliver a course of ten lectures to the senior staff on the commercial applications of physics. These lectures are intended to form a broad basis of information which will lead to a fuller appreciation of the specialised lectures to be given by experts connected with the firm. A lecture-room has been provided on the company's premises at 16 Finsbury Circus, and has been equipped with facilities for experimental illustrations. This recognition of the value of science in commerce is a hopeful sign of the times, and an educational scheme of this character cannot fail to lead to increased efficiency in the staff of an industrial firm.

A SPECIAL committee of the Anglo-American Society suggested in the programme for the tercentenary celebration of the *Mayflower* and the Pilgrim Fathers (1620-1920) the foundation and endowment of a chair in American history, literature, and institutions. The sum of 20,000*l.* was required for the endowment of this chair, and this has now been provided by Sir George Watson. It is not proposed that the chair should be exclusively attached to one university, but that it shall be used for the general purpose of stimulating interest and study of America in all the British universities. Neither will the chair be held permanently by one scholar of a single nationality. The scheme provides that it shall be held, for a period of one or two years, alternately by an American and a British scholar or public man, thus drawing upon the

best intellectual resources of the two countries, and securing a variety of treatment of the subjects dealt with. The committee points out that as a permanent memorial of America's loyal partnership with Great Britain in the war, as well as of the historic ties of kinship which unite the two peoples and of which the *Mayflower* celebration is a reminder, nothing could be more fitting than the establishment of this educational foundation.

## SOCIETIES AND ACADEMIES.

### LONDON.

**Royal Anthropological Institute**, October 14.—Sir Everard im Thurn, president, in the chair.—Lieut. E. W. P. Chinnery: "Dengora baiari" is the ceremony of initiation of young men and women of the Binandere tribe, Memba River, British New Guinea. Pigs are killed, and each candidate stands on the pig contributed by his parents and receives a loin-cloth, *gonga*, various ornaments, and instruction in social conduct. Dramatic plays of a special instructional character, *iaveto*, are performed by the village people and visitors. Ancestral ghosts are said to reside during these ceremonies in the posts, *gusi*, of the men's house, *oro*, and in the *jijima*, properties of the *iaveto*. The *gusi* during such time are said to be *kotembo-kotembo*, but their connection with the dead ends with the completion of the ceremony. Some time afterwards the *jijima* are smeared with pig-grease, decorated with feathers, cast into the river, and implored in the names of deceased ancestors to change into crocodiles and devour the enemies of the tribe. After "dengora baiari" follows a period of seclusion in a house known as *wawa*; this condition, *iawa da vitari*, is removed after some months by a purification ceremony known as *tuna*. The candidates then bathe in the river and enter the normal life of the tribe.

**Zoological Society**, November 18.—Prof. E. W. MacBride, vice-president, in the chair.—Major J. S. Hamilton: Field-notes on some mammals in the Bahr el Gebel, Southern Sudan.—Prof. J. F. Gemmill: (1) The development of the mesenteries in *Urticina crassicornis* (Actinozoa), and (2) the Leptomedusan *Melicertidium octocostatum*.—Rev. A. H. Cooke: The radula of the Mitridæ.—Dr. C. F. Sonntag: The variations in the digastric muscle of the Rhesus macaque and the common macaque.—E. S. Russell: The righting reaction in *Asterina gibbosa*, Penn.—Lt.-Col. S. M. Copeman: Experiments on sex determination.—M. Turner: The Nematode parasites of a Chapman's zebra.

**Geological Society**, November 19.—Mr. G. W. Lamplugh, president, in the chair.—Prof. J. E. Marr: The Pleistocene deposits around Cambridge. This paper deals with the deposits in the immediate vicinity of Cambridge, and contains new records of sections, fossils, and implements. It is pointed out that, owing to alternating periods of erosion and aggradation, relative height above sea-level is not a trustworthy index of antiquity, and modifications of the classification proposed by W. Penning and A. J. Jukes-Browne are indicated.

### CAMBRIDGE.

**Philosophical Society**, November 24.—Prof. Eddington and E. T. Cottingham: (1) Photographs of a solar prominence taken during the eclipse of 1919 May 29. (2) The theory of relativity and recent eclipse observations.—W. J. Harrison: (1) The hydrodynamical theory of the lubrication of a cylindrical bearing under vari-