liberty to choose the institutions or universities in which they will work. The fellowships in medicine are similar to the fellowships in physics and chemistry established under the same auspices.

THE triennial competition for the prize known as the George Montefiore Foundation, which was won last year by Dr. J. B. Whitehead of the Johns Hopkins University, is again announced by the Association des Ingénieurs Electriciens sortis de l'Institut Electrotechnique Montefiore, of which L. Calmeau, rue Saint-Gilles, 51, Liège, Belgium, is general secretary. This prize, amounting to 21,000 francs, is awarded for the best original work in French or English, upon the scientific advance of electricity and its technical applications. Though known as the competition of 1920, the next award will be made in 1923, and works may be submitted up to April 30 of next year.

THE annual conversazione of the British Institution of Electrical Engineers will be held at the Natural History Museum, London, on June 29.

THE British Iron and Steel Institute will hold its annual meeting on May 4 and 5 at the house of the Institution of Civil Engineers, Great George Street, S. W. 1, London.

THE twentieth International Congress of Americanists is to meet definitely at Rio de Janeiro on August 20-30, 1922, under the Presidency of Dr. Lauro Muller.

THE second meeting of the informal group known as the "Boston Psychologists" was held at Wellesley College on Saturday, March 18. At the afternoon session questions of laboratory policy and the place of mental tests in systematic psychology were discussed. The dinner was followed by a toast to Professor Sanford, of Clark University, in recognition of his return to an active part in psychology. The subject for special discussion at the evening session was the status of the practicing and consulting psychologist. Twenty-five psychologists from many of the New England colleges and universities attended the meetings. The first gathering of the group took place at Harvard University last November. The invitation to hold the next meeting at Clark University next fall was accepted.

THE Council of the Optical Society of America has decided to hold an optical instrument exhibit during the annual meeting of the society at the Bureau of Standards, Washington, D. C., the latter part of October next. The director of the bureau has offered the necessary space for this exhibit. To enable the exhibit committee to plan the space adequately and assign it equitably, it requests those interested to submit the following information: (1) What instruments are offered for exhibition? (2) How much floor space would be necessary? (3) What additional facilities other than space will be needed? When this information is at hand the exhibit committee will notify the prospective exhibitors of the amount of space allotted to them. It will also see that the general laboratory facilities necessary are provided. The exhibitors will install their own exhibits and meet the expenses incident thereto.

A SMALL party of scientific men from the University of Iowa will visit islands in the Polynesian group next summer in order to obtain material for the university's laboratories and museums of natural history. Included in the group will be Professor C. C. Nutting, head of the department of zoology; Professor R. B. Wylie, head of the department of botany; Professor A. O. Thomas, geologist; Professor Dayton Stoner, entomologist and ornithologist, and Waldo S. Glock, meteorologist and photographer. In the interest of economy as well as for the sake of securing better specimens for student use, the University of Iowa for many years has maintained the policy of granting leave of absence to its men in search of such material instead of buying from dealers.

UNIVERSITY AND EDUCATIONAL NOTES

A CONTRACT has been let for a new medical building at the University of Alabama, Tuscaloosa, at a cost of $82,000. Construction work will be started immediately.

THE University of Strasbourg has recently made a report in which it is stated that in the

university year 1920 there were 1,505 students; in the year 1921 there were 2,415, and at present there are over 2,600, and there is every prospect that the increase will continue. Provision for further development has been made there by 175 professorships in the place of 90 chairs before the war.

CLAUDE BURTON HUTCHISON, professor of plant breeding of Cornell University, has been selected by the regents of the University of California to head the activities of the branch of the College of Agriculture at Davis and to become professor of plant breeding.

DR. D. H. DOLLEY, professor of pathology at the University of Missouri, has been appointed director and professor of pathology in the St. Louis University School of Medicine. Dr. R. L. Thompson has resigned as director but will continue in the department.

DR. H. R. DEAN, professor of pathology and pathological anatomy in the University of Manchester, has been appointed to the university chair of bacteriology at the University of London, tenable at University College Hospital Medical School.

DISCUSSION AND CORRESPONDENCE

SELECTIVE FERTILIZATION AS AN INDICATOR OF GERMINAL DIFFERENCES

IT has been argued from time to time that the qualities which separate species are essentially different in kind from the visible variations which the geneticists are now busily describing in terms of genes. The position of those who take the affirmative side is fairly stated, I believe, in the following quotation from Bateson's recent address before the American Association for the Advancement of Science:

> Analysis [of the hereditary traits of animals and plants] has revealed hosts of transferable characters. Their combinations suffice to supply in abundance series of types which might pass for new species, and certainly would be so classed if they were met with in nature. Yet critically tested we find that they are not distinct species and we have no reason to suppose that any accumulations of characters of the same order would culminate in the production of distinct species. Specific differences therefore must be regarded as probably attaching to the base upon which these transferables are implanted of which we know absolutely nothing at all. Nothing that we have witnessed in the contemporary world can colorably be interpreted as providing the sort of evidence required.[1]

At this time lack of knowledge concerning the primary factors of evolution makes the stand of the agnostic undoubtedly a safe one and the one which may be the most conducive to real progress in the end. At the same time there is some evidence which should be considered in connection with the statements made in the quotation.

It has been shown conclusively in one species that fertilization takes place less readily when the gametes come from unlike forms than when homogeneous unions are made. The discrimination becomes more pronounced as the germinal differences of the uniting individuals are greater.[2] Maize is better material than most plants to show this because of the large number of seeds it produces with one application of pollen, and because the source of the pollen is soon apparent in the characters of the immediately resulting seeds. Mixed pollinations carried out with this organism have shown that the individual's own pollen, when acting in competition with pollen from other individuals of different constitution, is more effective in accomplishing fertilization.

When two different plants of similar type are compared the selective action is small. For example, when two varieties of maize having the same size and form of plant, equal length of growing season, similar seed shape and texture of endosperm and differing only in minor details are tested, the inequality in fertilizing power of the two kinds of pollen is slight although significant. The small difference in genetic make-up of these plants is also shown by the fact that there is very little heterosis exhibited in the increased weight of the crossed seed compared to the self-fertilized seed. But when a small-growing variety having non-starchy endosperm is paired with a larger variety which differs markedly from it in habit of growth, has starchy corneous seeds of very

[1] SCIENCE, 1922, N. S. Vol. 55, pp. 59 and 60.

[2] *Biological Bulletin*, 1920, Vol. 38, pp. 251-289.