

directly may cause movements in both the other sets of organs. We have here as a matter of fact a number of reflexes which mutually reinforce one another. Suppose that in the chick the sight-pecking response and the taste-swallowing response are related as the feeding reflexes demonstrably are in the crayfish; the second response would thus tend to reinforce the first, and if this tendency persisted we would have a case of learning by experience.

Animals in the course of their instinctive responses encounter stimuli which bring about other responses. These become associated. According to the nature of the nervous pathways involved, there may be reinforcement of or interference with the original reaction. Experience brings about an extension of the range of adaptations by the assimilation of congruent reactions and the elimination of acts whose secondary consequences are in the nature of antagonistic and thereby inhibitory responses. Such we may say, by way of expressing a tentative view-point, is the nature of primitive intelligence.

But it will be seen that the capacity to form new adaptations rests upon the primary adaptiveness of the instinctive reactions. The power of formation of associations alone would never lead to improvement. The adaptiveness of intelligence is based upon the adaptiveness of instinct; it may be said that intelligence is a means of enabling an animal to live its life more completely and successfully, but instinct furnishes the fundamental springs of action. Even complex creatures like ourselves form no exception to this rule.

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THE GALTON CHAIR OF EUGENICS

WE have noted that Sir Francis Galton, F.R.S., who died on January 17, aged 88, had

left his residuary estate to the University of London for work in eugenics. This residuary estate will amount to about £45,000. In his will Sir Francis Galton describes the scope of his new foundation as follows:

I devise and bequeath all the residue of my estate and effects, both real and personal, unto the University of London for the establishment and endowment of a professorship at the said university to be known as "The Galton Professorship of Eugenics," with a laboratory or office and library attached thereto. And I declare that the duty of the professor shall be to pursue the study and further the knowledge of national eugenics—that is, of the agencies under social control that may improve or impair the racial faculties of future generations physically and mentally. And for this purpose I desire that the university shall, out of the income of the above endowment, provide the salaries of the professor and of such assistants as the senate may think necessary, and that the professor shall do the following acts and things, namely:

1. Collect materials bearing on eugenics.
2. Discuss such materials and draw conclusions.
3. Form a central office to provide information, under appropriate restrictions, to private individuals and to public authorities concerning the laws of inheritance in man, and to urge the conclusions as to social conduct which follow from such laws.
4. Extend the knowledge of eugenics by all or any of the following means, namely: (a) professorial instruction; (b) occasional publications; (c) occasional public lectures; (d) experimental or observational work which may throw light on eugenic problems.

He shall also submit from time to time reports of the work done to the authorities of the said university.

I also declare that the said university shall be at liberty to apply either the capital or income of the said moneys for any of the purposes aforesaid, but it is my hope that the university will see fit to preserve the capital thereof wholly or almost wholly intact, not encroaching materially upon it for cost of building, fittings or library. Also that the university will supply the laboratory or office at such place as its senate shall from time to time determine, but preferably in the first instance in proximity to the Biometric Laboratory. I state these hopes on the chance of their having a moral effect upon the future decisions of the senate of the university, but they are not intended to have

any legally binding effect whatever upon the freedom of their action. And I declare that it shall be lawful for the senate of the said university, if they shall think fit so to do, to postpone the election of the first or any subsequent professor of eugenics for a period of not exceeding four years from the date of my death, or from the date of the occurrence of any vacancy in the office as the case may be. . . .

I declare it to be my wish, but I do not impose it as an obligation, that on the appointment of the first professor the post shall be offered to Professor Karl Pearson, and on such conditions as will give him liberty to continue his Biometric Laboratory now established at University College.

SCIENTIFIC NOTES AND NEWS

THE National Academy of Sciences will hold its annual meeting in Washington, beginning on Tuesday, April 18.

THE American Philosophical Society will hold its general meeting in the hall of the society at Philadelphia on April 20, 21 and 22. On the evening of April 21, Professor Svante Arrhenius, of Stockholm, will give an illustrated lecture on the physical condition of the planet Mars, which will be followed by a reception in the hall of the College of Physicians. On the evening of the twenty-third the annual dinner of the society will take place at the Bellevue-Stratford.

DR. WILLIAM H. WELCH, professor of pathology in the Johns Hopkins University, has received from the emperor of Germany the decoration of the royal crown of Prussia, second class.

DR. LEWIS BOSS, director of the Dudley Observatory and of the department of meridian astronomy of the Carnegie Institution, has been elected a corresponding member of the Academy of Sciences of St. Petersburg.

DR. S. W. STRATTON, director of the Bureau of Standards, represents the United States government at the International Convention on Weights and Measures at Paris, beginning on March 29.

PROFESSOR ALBERT A. MICHELSON, head of the department of physics in the University of Chicago, will give a course at the University

of Göttingen in the coming summer semester.

At the invitation of the Department of Education of the Philippine government, Professor J. Paul Goode, representing the University of Chicago, will deliver a series of lectures to the Teachers' Assembly at Baguio in May.

THE expedition that was sent to Argentina two years and a half ago under the auspices of the Carnegie Institution for the purpose of making meridian measurements of position of stars down to the seventh magnitude that are south of -20° of declination, and generally inaccessible for exact measurement at observatories of the northern hemisphere, has completed its meridian-work. In 1909 and 1910 about 87,000 meridian-determinations of positions were made with precision. The observations were conducted on a fundamental basis, and correspond to others to be secured at the Dudley Observatory at Albany as an integral part of the entire enterprise. The instruments were shipped to Albany from Buenos Aires early in March and the members of the staff, of which Professor Richard H. Tucker is director, are arriving at various times.

THE magnetic survey yacht the *Carnegie* arrived at Capetown on March 20, having completed successfully a voyage of about 14,000 miles in the Atlantic Ocean since last June. Dr. Bauer left Vancouver on March 24 to make magnetic observations in the Samoan Islands during the total solar eclipse of April 28 and to meet the *Carnegie* at Colombo, Ceylon.

It is stated in *Nature* that at the recent meeting of the Australasian Association for the Advancement of Science in Sydney, the Mueller memorial medal was awarded to Mr. Robert Etheridge, curator of the Australian Museum, in recognition of the value of his numerous contributions to the paleontology and ethnology of Australasia.

THE trustees of Dartmouth College have voted that Charles Henry Hitchcock be made Hall professor of geology, emeritus, and that Gabriel Campbell be made Stone professor of