is Professor John Miller Turpin Finney, head of the surgical clinic of Johns Hopkins Hospital, Baltimore. It is modelled after the Royal College of Surgeons of England and has the support, it is said, of nearly all the leading surgeons in this country and Canada. "The college, which is not a teaching institution, but rather a society or a college in the original sense," Dr. Bowman says, "now lists about 3,400 fellows in Canada and in the United States."

DR. CHARLES P. STEINMETZ writes in the *Electrical World* that the Illuminating Engineering Society in 1916 celebrates the decennial of its existence. This will be an occasion to review and record what has been accomplished in the art and to initiate plans for future advance, and the society therefore expects a year of greater activity than ever before in all the field covered by it. The illuminating engineer has to deal not only with engineering, like other engineers—that is, with applied physics—but his work includes the problems and the knowledge of physiology and of psychology, is of importance to the ophthalmologist and to the sanitarian, and is closely related to that of the architect, the decorator and the constructor. It is one of the broadest fields of human activity, and it is hoped that the coming year will enable the society to produce a compendium of the entire field of the science and art of illumination and make it available to the practising engineer or architect as well as to the ophthalmologist, the college professor and the student. In celebration of the decennial of the society, a mid-winter convention will be held in February, with numerous technical papers, and the feature of this convention will be the acceptance of honorary membership in the society by the man who has made modern illuminating engineering possible, Thomas A. Edison.

IN addition to the collection of 20,000 vertebrate and 140,000 invertebrate specimens brought from Africa by the Lang-Chapin expedition, the evidence in the shape of photographs by Mr. Lang and colored drawings by Mr. Chapin is unusually varied and complete. Seven thousand photographs help to set forth the animal life of the Congo, as well as the industries, customs, art, ceremonies, amusements and mode of life of the natives; while the ethnological value of the work is supplemented by some seventy casts of heads which Mr. Lang was able to make through the consent of a tribe of Pygmies.

UNIVERSITY AND EDUCATIONAL NEWS

MR. GEORGE T. BAKER has made a further gift of $50,000 to Cornell University.

BARNARD COLLEGE, Columbia University, has received $100,000 from Mr. James Talcott for religious instruction.

A NEW chair at the University of Pennsylvania to be known as the Dr. Isaac Ott chair in physiology, has been endowed through the legacy received from the estate of Dr. Isaac Ott, M.D., '69, of Easton, Pa. The legacy is subject to a life interest of Katherine K. Ott. Dr. Ott, who was a member of the American Physiological Society and a fellow of the American Association for the Advancement of Science, had made important contributions to our knowledge of the physiology and pathology of the nervous system.

ANNOUNCEMENT has been made of a fund established by Samuel Mather, of Cleveland, to found a school for the graduate study of tuberculosis as a memorial to the late Dr. Edward L. Trudeau. The school will probably be located at Saranac Lake, N. Y., and courses will be offered to physicians who wish to become proficient in the diagnosis of tuberculosis. Cooperating agencies for special study will also be established in New York City.

ON the thirteen acres of land lying adjacent to the campus which Western Reserve University has purchased, the erection of a complete new medical institution is contemplated. The present downtown school and hospital sites it is said will eventually be abandoned. Upon the same campus will be housed the dental and possibly the pharmacy schools, which

are at present affiliated with the university and located downtown. A new dental school building is about to be constructed.

THE sum of a quarter of a million dollars has been given by Mrs. Russell Sage to the Emma Willard School in Troy to found a department of domestic and industrial art to be known as the Russell Sage School of Practical Art. The new department will occupy the buildings recently vacated by the school on the completion of new buildings made possible by a gift of $1,000,000 from Mrs. Sage in 1907.

WE learn from *Nature* that Mr. Patrick Alexander, known by his pioneer work in aeronautics, has made over to the headmaster of the Imperial Service College, Windsor, the sum of £10,000 "for the furtherance of the education of boys of the Imperial Service College, *i. e.*, for the training of character and the development of knowledge." Mr. Alexander had given to the college an aero-laboratory and equipment about five years ago.

DR. IRVING E. MELHUS, formerly pathologist, office of cotton and truck diseases of the Bureau of Plant Industry, has assumed charge of the work in plant pathology in the Iowa State College.

DISCUSSION AND CORRESPONDENCE

GENETIC FACTORS AND ENZYME REACTION

IN spite of the great progress in the knowledge of facts in genetics the nature of genetic factors may well be regarded as unknown. Various theories have been proposed but only a few steps have been made to attack the problem experimentally. Those who approached it from the physiological-chemical side all seem to agree that the unit-factors are to be compared in some way to enzymes (Loeb, Robertson, Moore, Bateson, Riddle, etc.) or expressed more generally "that the hereditary factor . . . is a determiner for a given mass of certain ferments" (Loeb and Chamberlain, 1915).[1] At first sight there are not many ways visible of an experimental attack on this problem. One is described by Loeb and Chamberlain in the following words:

> If we wish to carry this view (with which we sympathize) beyond the limit of a vague statement, we must either try to establish the nature of these compounds by the methods of the organic chemist, or we must use the methods of general or physical chemistry and try to find numerical relations by which we can identify the quantities of the reacting masses or the ratio in which they combine.

Some steps in this direction have been made by Loeb, Robertson and Ostwald, who tried to prove that the phenomena of growth may be understood as autocatalytic reactions; by Moore, who compared the velocity of development of a dominant character in homozygotes and heterozygotes; by Loeb and Chamberlain, who followed the more indirect way of proving the enzyme-reaction-like basis of a certain kind of fluctuating variability. It is further known that Miss Wheldale and Keeble are approaching the question by a direct study of the chemistry of plant pigments in hybrids of known constitution and quite recently a very interesting paper on hair-pigments in rodents has been published by Onslow.[2]

For some time I have had similar ideas in regard to these questions in connection with genetical experiments, approaching the subject from quite an unexpected side. It was not the intention to publish them before the entire work was finished. But as this will take some years longer and the subject is becoming meanwhile more popular, it might be advisable briefly to point out the ways in which I reached conclusions very similar to those of Loeb, etc.

The genetical reaction which is concerned primarily in my experiments is the pigmentation of the wings of moth. Its dependence upon genetic factors is well known and its chemical character—the amino-acid-oxydase reaction—is comparatively clear. In one set of experiments it could be shown how the quantity of pigment formation depends upon the quantitative combination of the hereditary factors.[3] The experiments were started in 1909 with the purpose of working out the genetics of melanism in moths. The experi-

[1] *Jour. Exp. Zool.*, Vol. 19, 1915.

[2] *Proc. R. Soc. S. B.*, Vol. 89, 1915.

[3] Onslow's results are in the same line.