ing agricultural subjects. Instruction will be given in eight main lines, agronomy, plant pathology and physiology, animal husbandry, poultry, horticulture, dairying, rural engineering, rural economics and sociology. The work of extension departments, such as organization and function, agricultural journalism and conservation of our natural resources will be discussed at sessions particularly arranged for such. At the opening exercises to be held on July 6 addresses will be given by Hon. James Wilson, secretary of Agriculture; Dr. A. B. Storms, president of Iowa State College; Dr. W. O. Thompson, president of Ohio State University; Dr. C. F. Curtiss, dean of agriculture, Iowa State College; Dr. H. P. Armsby, chairman of the committee on graduate study, Association of American Agricultural Colleges and Experiment Stations, and Dr. A. C. True, director of Office of Experiment Stations and dean of the Graduate School of Agriculture. Attendance at the sessions of this school is limited to persons who have completed a college course and have taken a bachelor's degree, except to non-graduates who are recommended by the faculty of the college with which they are associated as properly qualified to take advanced work in agriculture.

UNIVERSITY AND EDUCATIONAL NEWS

The New York legislature has passed a bill appropriating $357,000 for new buildings for the State College of Agriculture at Cornell University. Of the sum appropriated, $200,000 will be available this year. Three new buildings are provided for—an auditorium to cost $113,000, a poultry building, for which $90,000 is set aside, and a home economics building, whose cost will be $154,000.

The new engineering building of Union College built by Mr. Andrew Carnegie at a cost of $100,000 and endowed by the alumni with an equal sum, was dedicated on April 28.

Mr. James R. Steers has given the College of the City of New York, from the first class of which he graduated in 1853, $10,000 for the purchase of books on natural history, physics and chemistry and has purchased the library of the late Professor Wolf, of Delaware College, Newark, Delaware, and presented it to the Wolcott Gibbs Library of Chemistry in the college.

By the will of Edward A. Bowser, emeritus professor of mathematics and engineering, in Rutgers College, who died at Honolulu about two months ago, the college has received a bequest of his library, also the rights to the plates of the printed copies of his various text-books, together with the royalties on them.

It is announced that a National College of Agriculture is to be established in Pretoria. General Botha has promised to set aside £100,000 as a first installment for the execution of the project, and the Town Council has decided to give the government the whole of the town lands of Groenkloof as a site. The area comprises 3,681 acres.

Harvard University has established the new degree of associate in arts, to be abbreviated as A.A. It is understood that Radcliffe College will offer this degree to women. The degree is designed for those who have taken courses provided by the Department of University Extension, whether in the summer school or in the winter courses now being arranged by the intercollegiate "Commission on Extension Courses." It will require the same number of courses as the A.B., but no entrance examinations and no residence at the university.

The commission appointed by the general assembly of the presbyterian church to confer with the trustees of Queen's University, at Kingston, Ont., in regard to certain changes in the university constitution decided, on a vote of ten to nine, to recommend to the Montreal assembly next June that the report of the joint committee, which met at Ottawa last January, be accepted. This would make Queen's University undenominational in form and enable it to receive the pensions of the Carnegie Foundation.

Dr. Charles E. Pellew, adjunct professor of chemistry, and Dr. Ira H. Woolson, adjunct professor of civil engineering, have resigned their chairs in Columbia University.

DR. ARTHUR O. LOVEJOY, of the University of Missouri, has been appointed professor of philosophy at the Johns Hopkins University.

THE J. PIERPONT MORGAN professorship in biology at Trinity College, made vacant by the resignation of Dr. Charles Lincoln Edwards, has been filled by the appointment of Max Withrow Morse, Ph.D. (Columbia), of the College of the City of New York. Dr. Morse will take charge of the work in September. The second professorship in the department, held by Karl Wilhelm Genthe, Ph.D. (Leipzig), who returns to Prussia, will not be filled at present.

IN the Harvard Medical School, Dr. W. R. Brinckerhoff, who for the past four years has been a member of the U. S. Government Leprosy Investigation Commission at Molokai Island, has been appointed assistant professor of pathology, and Dr. S. B. Wolbach, at present director of the pathological laboratory of the Montreal general hospital, has been appointed assistant professor of bacteriology.

DR. H. W. MORSE has been appointed to an assistant professorship of physics, and Dr. L. J. Henderson to an assistant professorship of biological chemistry at Harvard University.

DR. K. T. FISCHER, of the Munich School of Technology, has been called to a chair of physics in the University of La Plata.

DISCUSSION AND CORRESPONDENCE

THE STUDY OF ROCKS WITHOUT THE USE OF THE MICROSCOPE

THE phrase "without the use of the microscope" appears on the title page of two well-known text-books of petrography.[1] In a number of colleges and universities there are petrography or lithology courses given in which rocks are treated entirely from the megascopic standpoint. The writer has no fault to find with the two excellent text-books mentioned, for they may be used in connection with microscopic work; but he does take issue with the method of studying rocks without the microscope.

[1] Kemp, "Handbook of Rocks"; Pirsson, "Rocks and Rock Minerals."

In order to anticipate our critics, let us assume at the outset that the average student has neither the time nor inclination to become an expert petrographer and also that in after life he will not have a polarizing microscope available. In view of these facts why then should the microscope be used in the study of rocks?

In the writer's opinion no one can have an adequate knowledge of rocks until he has studied them in thin sections. What conception of the gradations between rocks, the variations in texture, intergrowths, inclusions and alterations has the student who has never made a microscopic study of rocks? Yet some idea of these things is essential to an understanding of rocks. What does he know about fine-grained rocks such as basalts or the fine groundmass of such rocks as rhyolites? After the student has studied a type collection of rocks, together with the corresponding thin-sections, he is in a position to determine the commonly occurring rocks in hand-specimens because he has worked out thin-sections of similar rocks. In studying the slides he looks for minerals in the hand-specimen that would otherwise escape his notice, and learns to identify them. He has also developed his imagination and can in some measure predict what minerals the rock contains. He will be pretty certain, for example, if the phenocrysts in a porphyritic rock are quartz, that the fine groundmass is a mixture of quartz and orthoclase. A heavy, black, fine-grained rock, he knows, is almost sure to consist of plagioclase, augite, magnetite and more or less glassy base. Black prismatic phenocrysts are either augite or hornblende or possibly a rare pyroxene or amphibole. Of course the student will make mistakes; even experienced petrographers are not infallible. One advantage of the microscopic study is that the student realizes the limitations of sight determination. The added interest and knowledge of rocks gained more than compensates for the time taken up with a short study of optical mineralogy. The lack of time will be the objection raised against my plan, but whatever the time avail-