The courses in music and art show heavy gains, as does the registration under "other courses" (belles lettres, school of library, economy, etc.). The fall enrollment exhibits an increase of 54 students.

E. J. Mathews, secretary to the president, has submitted the following report for the *University of Texas:*

The total attendance is larger this session than ever before in the face of advanced entrance requirements in every department. The attendance on the law department is lower than heretofore on account of the going into effect this session of the requirement of five college courses. It is very probable that by another year the registration figures will be as large as ever. The attendance on the department of engineering is less than formerly, probably due to the fact that the only other school of engineering in the state has lowered its admission requirements.

The 47 students mentioned under "other courses" at *Tulane University* are taking work in domestic science.

Howard Winston, registrar, reports as follows for the *University of Virginia:*

The enrollment this fall slightly exceeds that of 1908. The increase has been in the college and engineering departments, notwithstanding the fact that two more units are required for entrance. Three years' residence are now required for graduation from the law school, instead of the two previously demanded, while a year of college work is now required for admission to the medical school, these changes causing a falling off in attendance on both faculties.

Western Reserve University shows a gain of 67 students over last year, an increase in undergraduate women, in the graduate school, the library school (other courses) and in dentistry more than offsetting slight losses in the undergraduate men, law, medicine and pharmacy. Leaving the graduate and library schools out of consideration, there is a gain of 35 new students over 1908.

The *University of Wisconsin* shows an increase in the fall total of 258 and in the summer session of 106. The students of commerce are for the first time listed separately, as are the students of home economics included under "other courses." There is a gain of 99 students of agriculture and of 85 undergraduate women. Medicine has experienced a gain of 18 and the graduate school one of 43 students. Mr. W. D. Hiestand, registrar, submitted the following comment:

Our total number of graduate students is 259. The 54 apportioned to professional schools includes graduate students taking work in engineering and agriculture. The number indicated as double registration are students taking work in two colleges; it is, therefore, impossible to eliminate this number and still do justice to the colleges concerned. The students represented in the school of music (108) are catalogued on a somewhat different basis from those of last year (216). In the reorganization of the school, the academic department has been discontinued and all candidates are now required to offer full college entrance requirements for admission, irrespective of their musical abilities. The figures will show a falling off in the college of engineering as compared with last year and also a slight decrease in the school of law.

Yale University exhibits a loss of 184 students in its fall enrollment, a considerable number of whom are law students. The academic department and medicine and music show smaller losses. The chief gains are in the graduate school and in forestry. To the scientific school registration should be added 170 graduate students included in the graduate school figures.

RUDOLF TOMBO, JR.
COLUMBIA UNIVERSITY

THE PHYSICAL LABORATORY OF THE NATIONAL ELECTRIC LAMP ASSOCIATION

A RESEARCH laboratory is now usually considered as a necessary adjunct to a large progressive, manufacturing organization. There are to-day many such research laboratories in operation in this country, employing men of scientific training and offering every facility for scientific investigation. The majority of these laboratories are engaged in chemical research, although in quite recent years the

importance and value of physical research have also been recognized, and some few physical laboratories have been established.

But although the establishment of a research laboratory by a large manufacturing organization is no longer novel, the inception, by such an organization, of a laboratory which has for its object the development of science rather than the improvement of some industrial commodity is probably without precedent. It, therefore, seemed to the writer that perhaps a brief description of the new physical laboratory of the National Electric Lamp Association, even though it is still only in the formative stage, might be of interest to the readers of SCIENCE. The object of this laboratory is scientific, the specific purpose being the development of those branches of science with which the art of lighting is closely associated. The fundamental idea which has prevailed in the organization of the work is the proper coordination of physics and physiology, the proper cooperation of the physicist, the physiologist and perhaps the psychologist.

The organization of the laboratory is proceeding with this idea as the foundation. The development contemplates no sharp distinctions among the different divisions of the work. The problems to be investigated, however, group themselves roughly into three classes, and therefore require, in order to insure the proper attention to each, a threefold division in the organization. The three groups of problems to be investigated may be classified as: (1) those that have to do with the production of luminous energy; (2) those that have to do with the utilization of luminous energy, and (3) those that have to do with the effects of luminous and attendant radiation.

Under the first class will come the investigation of the laws of radiation, and of the radiating properties of matter. The problems in this class are purely physical and the corresponding division will be entrusted to a competent physicist.

Under the third class will come the investigation of the effects of light and the attendant radiations on the eye, on the skin and on microscopic organisms. The problems in this class are physiological, and the corresponding division is under the charge of a trained experimental physiologist.

Intermediate between these two classes of problems (the first and the third) which are distinctly different, there is another (the second) which forms the connecting link. Touching on one side the physical production of light, and on the other the physiological effects of light, this intermediate division of the work will embrace most of the scientific problems peculiar to illuminating engineering. Investigations of the absorbing, reflecting and diffusing properties of matter, the measurement of light, *i. e.*, photometry, and the study of the complex phenomena of color and color sensation, properly come within the scope of this department of the work.

The present personnel of the laboratory, in addition to the director and the necessary auxiliary mechanical and clerical assistants, is as follows:

Mr. F. E. Cady, B.S., Massachusetts Institute of Technology, 1901; scientific assistant to the director. Mr. Cady was formerly assistant physicist in the Bureau of Standards, Washington.

Dr. Herbert E. Ives, B.S., University of Pennsylvania, 1905; Ph.D., Johns Hopkins University, 1908; physicist in charge of division II. of the work as outlined above. Dr. Ives was formerly assistant physicist in the Bureau of Standards, Washington.

Dr. Percy W. Cobb, B.S., Case School of Applied Science, 1894; M.D., Western Reserve University, 1902; physiologist in charge of division III. of the work. Dr. Cobb was formerly assistant in the physiological research laboratory and lecturer on the special senses at the Western Reserve University.

It is the intention to secure another physicist to assume charge of division I., and in addition several assistants, as soon as the development of the work justifies it.

The laboratory at present is established in a small one-story and basement brick building originally occupied as office and laboratory by Mr. Charles F. Brush. Adequate equipment

is being provided, and there are already available a complete instrument shop and a good working library, the two necessary adjuncts to scientific research.

EDWARD P. HYDE,
Director

CLEVELAND, OHIO

THE AMERICAN BREEDERS' ASSOCIATION

THE American Breeders' Association was organized in response to a long-felt need and to satisfy a desire among breeders of animals and plants for a central agency through which these interests might mork effectively in furthering their common welfare.

The objects of this organization are chiefly three: (1) to determine the laws of inheritance in animals and plants; (2) to learn the application of these laws to increasing the intrinsic, commercial and artistic values of living things; (3) to aid in bringing about this desired improvement through associated effort.

Much has already been achieved by breeders. The magnificent herds and studs scattered over North America are sufficient evidence that our animal breeders have not been idle and that they have builded wisely. The achievements of the breeders of field crops and horticultural plants have provided our modern journals and the daily press with material eagerly sought by a public which appreciates the wizard-like creations of these workers in plastic living forms. The productions of our florists and nurserymen brought forth in response to a popular demand for the artistic and novel, to the student of heredity, are monuments to the skill of the breeder and indicate the stupendous possibilities of similar work with our great economic animals and crops.

Great as have been the achievements of breeders, no definite science of breeding has been built up. Much investigation into the theory of heredity has been made and volumes of theoretical and experimental data have been accumulated through the efforts of the scientific workers. The plant breeders as a whole have their work in more scientific form than have the animal breeders. They are only on the threshold, however, of the science of breeding. Those who have attained success in breeding have often happened upon a valuable strain or method and exploited it with good results. Many who have met with success have only a very imperfect system. Some use artistic sense, or intuition, and judgment only. Others use statistical methods almost entirely. Whatever the practise of any successful animal or plant breeder may be, he can rarely advise his neighbor as to how to proceed and assure him of success. Each has been compelled to learn by costly experience and work in the hope that he may by chance hit upon a profitable method.

It was to bring order out of this chaos of theory and practise that the American Breeders' Association was created. The first step was to organize a large central association with a low membership fee which would place it within the reach of all of these thousands of modest unheard of workers in plants and animals whose collective experience must furnish much of the data upon which to build a practical science of breeding. By means of its annual and other meetings, this association is designed to become a great school and clearing house to which will be brought the latest and best thought in breeding from these many sources, and from which a balance will finally be struck upon which to base intelligent and practical work.

The need of a national association was first felt by those who were closely in touch with breeding work and had broadly observed the field. It has been found that the methods necessary to success in breeding make it expensive. Its pursuit is often beyond the means of the average producer, because large numbers of individuals must be available with which to work and great amounts of time and care are required in handling and recording each breeding unit. The breeding of many of the commercial field crops is beyond the means of private enterprise. The breeding of animals is many times more expensive than the breeding of plants. To be most effective, large plans and cooperative effort is necessary.

The field occupied by the American Breed-