and a new computing room have been completed. The School of Electrical Engineering has also added modern equipment for demonstration and research, especially in the field of high-voltage transmission.

## THE ANNUAL REPORT OF THE BROOKLYN BOTANIC GARDEN

THE twenty-eighth annual report of the Brooklyn Botanic Garden for the year 1938, just published, calls attention to the fact that during the past year citizens of Brooklyn contributed to the garden for current expenses and permanent improvements more than $54,000. This amount is 57 per cent. of the tax budget appropriation of the city for the support of the garden, and is in addition to private funds, income from endowment and other funds. The private funds budget of the garden was more than 56 per cent. of the total operating budget, the tax budget appropriation being approximately 44 per cent. The City of New York, therefore, derived more than two dollars' worth of return for every dollar appropriated to the Botanic Garden. The attendance at the garden was more than 1,628,000. The record attendance on May 1 of 56,145 was equivalent to 155 visitors every two minutes.

The report records 265 gifts of funds, plants, publications and other objects. The need of additional endowment is stressed by the director. This has become especially urgent since the income from permanent funds and contributions of private funds have fallen off so greatly since 1930, necessitating drastic reduction in the services which the garden renders to the public and to the advancement of science and education. Eighteen pages of the report are devoted to recording the results of scientific research on plant life done at the garden during 1938. These include studies in disease resistance in plants, on the iris and its diseases, on the classification of various groups of flowering plants, on variation in the ferns and studies of economic plants.

The extent to which the garden cooperates with the schools of New York City may be realized in part from the statement that during 1938 more than 150,000 pupils were assisted in their studies through material supplied by the garden, more than 925,000 packets of seed were supplied to school children and more than 24,000 pupils enjoyed plants raised in the garden and placed in schoolrooms.

Under the heading "Free Education," attention is called to the failure of the public to realize that all the so-called "free" educational and recreational privileges which they enjoy through the "free" museums, botanic gardens and other semi-public institutions of the city must be paid for by some one, and there is really no such thing as "free" education. Part of the cost is met by the taxpayers through the tax budget, and a substantial portion of it is met by private citizens who "in addition to their taxes make generous contributions for the support of our public educational institutions." It is pointed out that "it would be salutary if some way could be devised to make every one conscious of this fact who visits our museums, zoological parks and botanic gardens that are open 'free' every day in the year, and who attends their lectures and classes without payment of any fee. Such an opportunity costs money."

## SYMPOSIUM ON THE CELL AND PROTOPLASM

DIRECTLY following the meeting of the Pacific Division of the American Association for the Advancement of Science at Stanford University, a symposium will be held in commemoration of the centenary of the cell and protoplasm, opening on June 30 and continuing through July 5.

Papers to be presented, one each forenoon, afternoon and evening, will recognize the comparable development of particulate concepts in both the biological and physical sciences since the beginning of the nineteenth century and will discuss, in view of this development and of its converging trends, some recent investigations in the fields represented. Accordingly both biologists and physicists have been invited to participate.

It is intended that the three papers scheduled for Wednesday, July 5, will link this symposium with the National Colloid Symposium, which convenes also at Stanford University on July 6.

The program of papers on the cell and protoplasm follows:

Friday evening, June 30. "Cell and Protoplasm Concepts: Historical Account," E. G. Conklin, Princeton University.

Saturday, July 1. "The Microdissection of Living Cells" (illustrated), Robert Chambers, New York University. "The Cell Wall and Protoplasm," L. H. Bailey, Harvard University. "Chromosomes and Cytoplasm in Protozoa," H. S. Jennings, the Johns Hopkins University.

Sunday, July 2. "Genes and Chromosomes," Richard Goldschmidt, University of California. "Cellular Differentiation and External Environment," C. M. Child, University of Chicago and Stanford University. "Cellular Differentiation and Internal Environment," R. G. Harrison, Yale University.

Monday, July 3. "Cell and Organism," C. A. Kofoid, University of California. "Chemical Aspects of Microorganisms," C. B. van Niel, Hopkins Marine Station. "Viruses," W. M. Stanley, Rockefeller Institute.

Tuesday, July 4. "Enzymes," H. Theorell, University of Stockholm. "Plant Hormones," F. W. Went, California Institute of Technology. "Vitamines," A. Szent-Györgyi, University of Szeged.

Wednesday, July 5. "Molecular Structure of Protoplasm," O. L. Sponsler, University of California at Los

Angeles. "Protoplasm and Colloids," L. V. Heilbrunn, University of Pennsylvania. "Structural Units," J. D. Bernal, University of London.

## THE AMERICAN ACADEMY OF ARTS AND SCIENCES

THE annual meeting of the American Academy of Arts and Sciences was held at its house at 28 Newbury Street, Boston, on May 10. At this meeting it was voted to award the Rumford Medals to Professor George Russell Harrison, professor of physics and director of the Research Laboratory of Experimental Physics at the Massachusetts Institute of Technology, in recognition of his notable work in spectrum photometry and spectrum analysis. Professor Harrison is the thirty-ninth person to receive the Rumford Premium, which was established by a gift to the academy in 1796 from Sir Benjamin Thompson, Count Rumford. By the terms of the gift the medals are to be awarded "to the author of any important invention or useful improvement in heat or light."

The meeting was addressed by Professor August Krogh, head of the department of animal physiology of the University of Copenhagen. Dr. Krogh is a foreign honorary member of the academy and the recipient in 1920 of the Nobel prize in physiology and medicine.

Thirty-three new fellows and seven foreign honorary members were elected, the following being added to the scientific sections of the academy:

FELLOWS

*Mathematical and Physical Sciences:*

Bart Jan Bok, Harvard College Observatory.
Lyman James Briggs, the National Bureau of Standards.
Harry Edward Farnsworth, Brown University.
Clifford Burrough Purves, Massachusetts Institute of Technology.
C. Richard Soderberg, Massachusetts Institute of Technology.
Frank Clifford Whitmore, Pennsylvania State College.

*Natural and Physiological Sciences:*

Gregory Pincus, Clark University.
Arturo Rosenblueth, Harvard Medical School.
Frederick Fuller Russell, Brookline.
William Thomas Salter, Harvard Medical School.

FOREIGN HONORARY MEMBERS

Sir Aldo Castellani, London School of Tropical Medicine.
Arnaud Denjoy, professor of mathematics, University of Paris.

The officers elected for the year 1939–1940 were:

*President,* Harlow Shapley.
*Vice-president for Class I,* James Flack Norris.
*Vice-president for Class II,* Walter Bradford Cannon.
*Vice-president for Class III,* George Grafton Wilson.
*Vice-president for Class IV,* Arthur Stanley Pease.
*Corresponding Secretary,* Leigh Hoadley.
*Recording Secretary,* Hudson Hoagland.
*Treasurer,* Horace Sayford Ford.
*Librarian,* Hervey Woodburn Shimer.
*Editor,* Charles Henry Blake.

## RECENT DEATHS AND MEMORIALS

DR. ALEXANDER LAMBERT, professor of clinical medicine at the Cornell University Medical College, from 1898 to 1932, died on May 9 at the age of seventy-seven years. He was a brother of Dr. Samuel W. Lambert, dean emeritus of the College of Physicians and Surgeons of Columbia University, and of Adrian V. S. Lambert, professor of clinical surgery at Columbia University.

DR. W. CRAMP, professor of engineering in the University of Birmingham, England, died on April 20 at the age of sixty-three years.

RUDOLPH BLASCHKA, German artist in glass, maker for more than fifty years of the glass flowers of the Harvard University Museum, died on May 1 at the age of eighty-two years. Mr. Blaschka was compelled to cease work on account of ill health some time ago.

A FUND is being raised at the Rensselaer Polytechnic Institute to found a William Pitt Mason fellowship in chemical engineering and a William Pitt Mason annual prize for the best senior thesis in chemistry. Dr. Frederick W. Schwartz, professor of analytical chemistry at the institute, has asked all former students of Dr. Mason to aid in establishing a fund of $17,500. Dr. Mason retired as head of the department of chemical engineering and chemistry in 1925, after he had served as a member of the faculty for fifty years.

TUESDAY, April 25, 1939, marked the hundredth anniversary of the birth of Thomas Jonathan Burrill. In commemoration of this occasion, graduate students and members of the various departments at the University of Illinois which had their origin in Professor Burrill's early leadership met with the seminar of the department of botany to listen to an address by Professor J. C. Blair, dean of the College of Agriculture and head of the department of horticulture. Dr. Burrill was at one time professor of botany, horticulture and entomology. He was professor of botany and horticulture (until 1903) and remained head of the department of botany until his retirement in 1913. Our correspondent writes: "He was known for his early work in microscopy and bacteriology, and was probably the first person in this country to introduce the use of microscopes in laboratory instruction. He is generally recognized as the first to demonstrate (in 1879) that a plant disease may be due to bacteria."