for the purchase of this equipment for re-erection in the USSR and the council of the senate at the University of Cambridge has now reported to the university on the proposed sale of apparatus from the Royal Society Mond Laboratory.

In its report, after describing the apparatus, the committee stated that some of the apparatus in the laboratory is of little use to the present program of work and could be transferred immediately to Russia; the remainder of the apparatus is required for the general development of low temperature work, which is now actively progressing. It would, however, be possible to supply duplicates of most of this apparatus within a year without serious interference with the work of the laboratory. One of the requests made by Dr. Kapitza was that he should obtain the services of two of the laboratory assistants for a period of about three years. These assistants have been consulted, and while they may be willing to go to Russia if the committee consents and for a limited period, to assist Dr. Kapitza in re-erecting his apparatus, they are not willing to settle there permanently.

The committee points out that while it is anxious to help Dr. Kapitza to continue in Russia the work which he was undertaking so successfully in England, the work of the laboratory must be carried on and developed, and the wishes of Dr. Kapitza could only be met in so far as they did not interfere with the program of work now being undertaken at Cambridge.

The committee, on the understanding that Dr. Kapitza will have the use of the apparatus so long as he wishes, accordingly submitted for the consideration of the council of the senate the following recommendation:

(1) The university should offer to buy from the government the apparatus in the laboratory which was supplied prior to April, 1926.

(2) The university should transfer to the Government of the USSR the generator and all auxiliary apparatus required for the production of intense magnetic fields and for the study of their effects.

(3) The university should supply duplicates of the remainder of the apparatus in the laboratory, including the helium and hydrogen liquefaction plants, to the Government of the USSR.

(4) That the Government of the USSR should pay to the university a sum to be agreed upon by the Financial Board.

These were later approved by the council, by the Royal Society, by the Department of Scientific and Industrial Research and by the government of the USSR. Members of the committee signing the report were: Rutherford, F. W. Aston, T. Knox-Shaw, C. T. R. Wilson, H. Thirkill, Rayleigh, F. S. Smith.

BUDGET OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

THE Massachusetts Institute of Technology ended its fiscal year with a balanced operating budget, according to the annual report of its treasurer, Horace S. Ford.

Although the past year's budget appropriations called for an expenditure of $65,000 in excess of income estimates and student income was reduced by $48,000, increased income from investments to the amount of $61,000 with other available resources made it possible to balance the budget of $2,695,000 with a modest margin.

The academic expenses of the year increased $60,000, administration expenses rose $6,000, while plant expenses, due to building operations, were up $4,000. Miscellaneous expenses, however, decreased $22,000, with a resulting total net increase of $48,000. The cumulative deficit on account of operations since 1865 now stands at $24,951, a reduction of $4,927 from the previous year.

The treasurer's balance sheet shows that the endowment funds now amount to $31,767,649, a decrease of approximately $81,000 over the previous year—this, in spite of capital gifts and additions of $484,558—a marked upward turn over the past few years. Of this, $257,000 was received by the institute in the distribution under the Edwin A. Wyeth Trust.

The market value of all securities held on June 29, 1935, was 102.5 per cent. of their book value with corresponding figures of 93 per cent. in 1934, 82 per cent. in 1933 and 66 per cent. in 1932. The net yield of all funds for the year was 4.65 per cent. This compares with 4.53 per cent. a year ago, 4.47 per cent. in 1933 and 4.54 per cent. in 1932.

Charles Hayden, in his report as chairman of the Technology Loan Fund Committee, shows total subscriptions for five years, $1,161,720; income for period, $115,751; profit on securities sold, $22,874; total $1,300,345. The amount remitted to the institute for loans to students over the five-year period is $675,700, leaving a balance in the hands of the committee of $624,645.

On the loan account, the notes receivable now stand at $719,600 as compared with $629,150 a year ago. That the loan fund has really begun to revolve is evidenced by repayments on principal made by students during the year, $69,476, as contrasted with $43,264 the year before. Interest payments amounted to $14,651 against $9,688 in 1934.

The report of the trustee of the Pension Association shows continued growth. Funds in the hands of the trustees now amount to $928,194 against $821,513 a year ago. The market value of the securities

showed a market value of $932,760 on a book value of $898,433. There are now twenty-three former members of the staff who are receiving pensions under the various plans offered.

REPORT OF THE RETIRING DIRECTOR OF THE U. S. BIOLOGICAL SURVEY

THE report of J. N. Darling, retiring chief of the U. S. Biological Survey, recently made public, gives a full account of the work of the survey.

Research work during the year included an intensified investigation of waterfowl conditions, studies of elk, mountain sheep and of caribou in Minnesota; and research in forest wildlife relationships. Statistics showed that 249,829 birds were banded by cooperators during the year; 113 mammal specimens were added to the survey collection, and 662 bird specimens were acquired, chiefly from North Carolina, Georgia and Virginia.

Mr. Darling points out that the survey has developed and published the facts regarding the economic, recreational and esthetic values and the requirements of wildlife and has built up a public sentiment that has made possible the necessary but heretofore unheard-of restrictions on hunting.

The report cites the acquisition and administration of a rapidly increasing number of bird refuges and big-game preserves. The survey has also furnished to agriculture, horticulture, stock raising and forestry a service worth millions of dollars annually, by demonstrating and cooperating in the control of predatory animals and destructive rodents. The numbers of injurious rodents were reduced on 11,166,935 acres for the protection of crops.

Plans for a program of wildlife research, demonstration and education, through cooperation with selected land-grant colleges and state game commissions, were completed and cooperative studies on national forests were extended; the Wichita National Forest and Game Preserve (Okla.) was transferred to the Biological Survey for administration as a wildlife refuge and research station; the importance of the country's fur resource was emphasized in land-management policies and research on suitable species was broadened; all outstanding scientific collecting permits for migratory birds were revoked and new ones issued only on an annual basis to insure against misuse.

Allotments from emergency funds during the year provided "the most noteworthy contribution the federal government has ever made to wild-life." The larger part of a million-dollar fund for acquiring refuge lands was obligated; about $2,100,000 of a two and one half million dollar fund for rehabilitation of new and old refuge areas was either expended or obligated, and in addition nearly all of a fund of $5,000,000 earmarked by the Federal Emergency Relief Administration for the purchase of migratory-waterfowl refuge areas. The Biological Survey thus obtained a group of the most outstanding waterfowl-refuge areas in the country.

BROADCASTS FROM THE CALIFORNIA INSTITUTE OF TECHNOLOGY

BROADCASTS by the Columbia Broadcasting Company on "Recent Scientific Progress" have been arranged at the Athenaeum in Pasadena under the auspices of the California Institute Associates. The series opened on December 14, and will be continued during the months of January, February, March and April, 1936. The second lecture will be given on January 4, and the remaining lectures will follow at intervals. The program follows:

Physics—Dr. Robert A. Millikan, Nobel Laureate, director of the Norman Bridge Laboratory of Physics.
Geology—Dr. John P. Buwalda, professor of geology.
Astronomy—Dr. Walter S. Adams, director, Mount Wilson Observatory of the Carnegie Institution of Washington.
Mathematics—Dr. Eric T. Bell, professor of mathematics.
Biology—Dr. Thomas Hunt Morgan, Nobel Laureate, chairman of the Division of Biology, William G. Kerckhoff Laboratories of the Biological Sciences.
Engineering and Aeronautics—Dr. Theodor von Kármán, director of the Daniel Guggenheim Aeronautical Laboratory, and Dr. Clark B. Millikan, associate professor of aeronautics.
Cosmology—Dr. Richard Chace Tolman, professor of physical chemistry and mathematical physics and dean of the Graduate School.

SCIENTIFIC NOTES AND NEWS

DR. W. C. MENDENHALL, director of the United States Geological Survey, was elected president of the Geological Society of America at the annual meeting held in New York City on November 26, 27 and 28. He succeeds Dr. Nevin M. Fenneman, professor of geology and geography at the University of Cincinnati.

DR. THOMAS M. RIVERS, member of the Rockefeller Institute for Medical Research, was elected president of the American Society of Bacteriologists, at the recent New York City meeting. He succeeds Dr. Karl F. Meyer, director of the Hooper Foundation, who is now ill as the result of an infection incurred during his work on psittacosis.

THE Warren Triennial Prize of $500 has been awarded by the general executive committee of the