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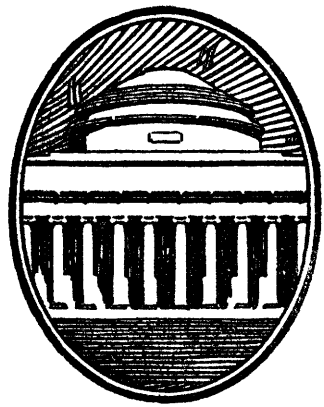

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President's Report Issue

1936–1937

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REPORT OF THE PRESIDENT

To the Members of the Corporation:

It is my duty at this time to submit to you a report on the affairs of the Massachusetts Institute of Technology. This is a very pleasant duty because the entire personnel of the Institute, students, staff, alumni and Corporation, are going about their work in a healthy state of enthusiasm and vigor which augurs well for the future. While caution and economy still remain matters of considerable administrative concern, nevertheless the year has marked a transition into a time when increasing thought can be given to improvement of our educational processes and extension of our sphere of influence. There is more thrill in training a budding champion than in nursing a sick patient, even though the latter has its values and rewards. So my report today bears a note of optimism even though I realize full well the existence of serious unsolved problems.

My report consists of three parts: an account of the year's operations; a report on the status of the various objectives which were approved by the Corporation a year ago; a review of the recent reports of our Visiting Committees and actions taken thereon.

THE YEAR'S OPERATIONS

Personnel. The most important item in any organization is its personnel. Here alone in my report must enter sadness and regret, for we have suffered the loss of colleagues of such distinction, who have served the Institute so loyally, and whose personal qualities have so won our affection that, though they will be succeeded, they can never be replaced.

Mr. Charles Hayden, member of the Corporation since 1913, died on January 8, 1937; Professor Elihu Thomson, member since 1898 and acting president 1920–23, died on March 13; Mr. Frank A. Vanderlip, member since 1916, died on June 29; Mr. Francis W. Fabyan, member since 1920, died on September 4; and Mr. Charles Neave, member since 1933, died on September 10. Mr. Hayden had served as President of the M. I. T. Alumni Association and as Chairman of the Tech-

nology Loan Fund Committee; Professor Thomson served many years on the Executive Committee and as a non-resident Professor in the Department of Electrical Engineering; Mr. Vanderlip, at the time of his death, was actively assisting in the procurement of funds for the new wind tunnel; Mr. Fabyan has been most helpful to the Department of Business and Engineering Administration and in establishing the Post-Industrial Fellowship program; Mr. Neave, in his short service on the Corporation, was especially helpful in the establishment of the Institute's present policy of handling patentable inventions by staff members.

The Corporation also lost, through expiration of term memberships, Messrs. M. Herbert Eisenhart and Donald G. Robbins.

On the constructive side, Mr. Bradley Dewey joined the Corporation as life member; Colonel William E. R. Covell and Messrs. Albert E. Sulzer and George E. Whitwell as alumni term members; and Messrs. Edmund C. Mayo, Gordon S. Rentschler, Ralph E. Flanders, Frank D. Comerford and Halfdan Lee as special term members.

The following are new appointments in the Faculty: Professor Edwin S. Burdell, Dean of Humanities, Professor Henry H. W. Keith, Head of the Department of Naval Architecture and Marine Engineering, and Professor Robert S. Williams, Head of the newly created Department of Metallurgy.

Promotions are as follows: To the rank of Professor: Ralph D. Bennett, Edward L. Bowles, Alfred V. deForest; to the rank of Associate Professor: Nathan H. Frank, Richard H. Frazier, Murray F. Gardner, Parry Moon, Wayne B. Nottingham, Bernard E. Proctor, Kenneth C. Reynolds, Edward S. Taylor, Arthur L. Townsend, John B. Wilbur and John J. C. Wulff; to the rank of Assistant Professor: Robert H. Cameron, Morris Cohen, Paul C. Eaton, Edmund L. Gamble, Ernest N. Gelotte, William M. Hall, Robert S. Harris, Joergen Holmboe, Charles W. MacGregor, George G. Marvin, Herbert C. Moore, Robert H. Robnett, Arthur C. Ruge.

The following are new appointments to the Faculty: Lt. Col. Charles Thomas-Stahle, Professor of Military Science and Tactics and Head of the Department; Dr. John Chipman, Professor of Process Metallurgy; Lt. Col. Elroy S. J. Irvine,

Associate Professor of Military Science and Tactics, in charge of the Engineer Unit; Dr. Ross M. Cunningham, Assistant Professor of Marketing in the Department of Business and Engineering Administration; Dr. Harold W. Fairbairn, Assistant Professor of Petrography; Dr. Robert R. Shrock, Assistant Professor of Geology; Mr. John T. Rule, Assistant Professor of Drawing.

The Faculty lost through resignation: Professor Samuel C. Vestal; Associate Professors James F. C. Hyde, Otto G. C. Dahl, and Robert F. Elder; Assistant Professors William V. Cash and John F. G. Gunther.

Finances. The accompanying table shows the status and the trend of operating income and gifts.

Financial Trends

	Operating Income Budget	Total Gifts
1930–31	$2,880,131	$1,339,280
1931–32	3,029,881	1,781,473
1932–33	2,779,815	306,295
1933–34	2,646,648	208,635
1934–35	2,694,799	580,695
1935–36	2,714,301	429,533
1936–37	2,977,573	812,421

It is probable that the generous bequest of $1,000,000 from Charles Hayden will become available during the current academic year. There is also reason to expect a considerable addition to the endowment for scholarships and fellowships in the near future, although there are certain legal difficulties to be overcome before this may be available.

The Treasurer's report shows an encouraging increase both in market value and investment income of our endowment funds, which reached the total of $34,329,778 book value, and $37,268,640 market value on June 30, 1937. The yield for the fiscal year was 5 per cent on book and 4.63 per cent on market value, compared with 4.73 per cent and 3.94 per cent in the preceding year.

Since the increased yield was in large part due to extra dividends stimulated largely by the undistributed profits tax,

and since the future shows many uncertainties regarding both regular yield and extra dividends, a sum of $85,000 was put aside from income as an Income Equalization Fund to be drawn on as a reservoir for stabilizing income in case the trend of increasing yield should be reversed.

Physical Plant. The past year has shown the greatest activity in many years in improving and extending the physical plant of the Institute. The major item has been the start of construction of the new building on Massachusetts Avenue, designed primarily as a home for the School of Architecture and secondarily as an adequate Massachusetts Avenue entrance to the Institute and as space for expansion to relieve the congested parts of the present buildings. Exclusive of the impressive entrance and corridors, this building will provide about 70,000 square feet of usable floor space, of which the immediate assignments will be about half to the School of Architecture and remainder to other departments. This building is made possible by the sale of the Boylston Street property, supplemented by an appropriation from the George Eastman Building Fund.

A schedule of changes within the present buildings has been worked out after a careful analysis of requirements, congested spots and places where future expansion must be provided for. These changes range all the way from the conversion of two large and relatively useless rooms into splendidly equipped large lecture halls and the conversion of one unsatisfactory large lecture hall into a well equipped branch library serving five adjacent departments, down to transfer of professors' offices from one location to another. Eighty such space changes were made during the past summer and fifty more are on the schedule for next summer, so that the entire program will be completed coincidently with the occupation of the new building. These changes comprise a comprehensive plan for the Institute's future development and will add much to the convenience and effectiveness of its work.

Contract has been let for erection of the Wright Brothers Memorial Wind Tunnel, to be located immediately east of the Daniel Guggenheim Aeronautical Laboratory. This wind tunnel will incorporate several radically new features of wind tunnel design which will give it unequalled flexibility and power for meeting the present and coming requirements of aerody-

namical research, aircraft testing and design. A substantial portion of the cost of this building is provided by contributions from individuals and companies interested in aviation development, and there is some hope that practically the entire cost may be thus defrayed by the time the wind tunnel is dedicated at the meeting of the International Congress for Applied Mechanics in Cambridge next September.

The high voltage developments which have been under way on the estate of the late Col. E. H. R. Green, for the past six years, have proceeded to the point of demonstrated successful operation. Curtailment in the facilities available on the Round Hill estate, following Colonel Green's death, combined with the desire to locate this high voltage program where it can be more conveniently and efficiently available for the work of staff and advanced students, have led to the decision to construct a high voltage laboratory on the Institute grounds, into which the Round Hill and other equipment will be transferred. This laboratory is now under construction and will provide splendid opportunities for continuation and further development of this very important line of physical and engineering research.

The successful conclusion of test experiments, made with the generous assistance of the Boston Edison Company, has proved the scientific and engineering possibilities of a new type of magnet for producing much larger continuous magnetic fields than have ever before been obtained. Since the applications of these magnetic fields are immediately important in physical chemistry, spectroscopy and metallurgy and since their production requires very large direct current power, a 1700-kilowatt motor generator substation is being installed in the interior court of Buildings 4, 6 and 8 for convenient service to the three activities above mentioned. This will give opportunity for important lines of research for which no facilities exist elsewhere.

After long study and negotiation, a contract has been entered into with the Cambridge Electric Light Company whereby after January 1 the Institute will purchase its electric power from this company. This contract provides payment to the Institute sufficient for maintaining its own power plant in operating condition for use in emergency, either to supply Insti-

tute needs or assist the Cambridge Electric Light Company. The advantages to the Institute in this arrangement are, first, a rate which will effect a small saving in our present power costs; second, avoidance of the necessity for an expensive increase in our present heating and power facilities arising from the addition of new buildings and the large additional power requirements in connection with the new wind tunnel and magnet.

The dormitory situation is very satisfactory in that all rooms are rented, but is unsatisfactory from the standpoint of the students, because the demand for dormitory rooms so greatly exceeds the supply. When the Institute opened this fall there were 375 students applying for dormitory rooms who could not be accommodated. It is quite evident that additional dormitory space for 200, or even more, would be immediately useful. If a substantial gift toward the cost of a dormitory could be secured the Institute would probably be justified in investing some of its existing funds in the project, on the basis of a small profit in operations which is common practice generally.

Enrollment. The trend of enrollment is shown in the following table.

Enrollment at M. I. T.

(As of November 1)

	Total Undergraduate	Freshmen	Total Graduate	Total Enrollment
1930–31	2,670	734	539	3,209
1931–32	2,610	628	578	3,188
1932–33	2,308	562	523	2,831
1933–34	2,106	485	500	2,606
1934–35	2,009	542	498	2,507
1935–36	2,018	561	522	2,540
1936–37	2,174	650	619	2,793
1937–38*	2,297	612	651	2,948

* Figures as of September 29, 1937.

By our stabilization plan, adopted two years ago, the freshman class is supposed to be stabilized at a figure between 575 and 600, which represents the estimated maximum number of freshmen who can be handled with our present facilities without

such overcrowding as to detract from quality of work. The excess over 600, noted in the table for the past two years, shows the increasing skill of the Admissions Office in arriving at this figure, a procedure rendered difficult by uncertainty as to the number of students admitted during spring and summer who failed to enroll in the fall. In several departments of the Institute an experiment is under way to test the value of the stabilization plan for graduate students, based again on maximum effective use of the facilities available together with some consideration of trends of employment.

A notable improvement in our admissions procedure has been made through introduction of a scheme for interviewing prospective students and including the impressions gained in these interviews among the considerations determining admission. To this end our 166 Honorary Secretaries, widely distributed and supplemented by officers of Technology Alumni Clubs, have proven of the greatest assistance. The only section of the country in which these interviews have not been extensively adopted is in the immediate neighborhood of Boston, where geographical considerations are easy but our admissions organization has not yet been adequate to handle the large number of cases involved. The value of these interviews, however, has proven so great that steps are under way to put the plan in practically universal use.

The distribution of students is always of interest and is one criterion of the national and even international scope of the Institute's influence. Of the 2,948 students, 432 were transfers for graduate or undergraduate work coming from 177 American colleges and 46 foreign colleges, so that products of 223 other colleges are represented in the student body. The geographical distribution of students shows 1,092, or a little over one-third, from Massachusetts; 887 from other North Atlantic states; 139 from the South Atlantic states; 70 from the South Central states; 293 from the North Central states; 111 from the Western states; 12 from the United States Territories and Dependencies; and 181 foreign students coming from 50 countries.

Student Aid. The statistics for student aid show a small increase in funds available for scholarships and fellowships, a small decrease in the demand for loans and an increase in student earnings from employment. The facts are shown in

the accompanying table, and it is interesting to note that the total amount of student aid is the sizable sum of nearly $363,000 and that this is more than one-fourth of the sum which the students pay to the Institute for tuition.

Repayment of loans continues on an increasingly satisfactory basis. Only 5 per cent of maturities are unpaid and considered as of doubtful collectability. The total interest payments which have been received are more than three times this possible loss, so that the Loan Fund is on an even better than revolving basis.

About 40 per cent of undergraduate scholarship funds are now being used for freshman competitive awards, leaving 60 per cent for upper-class awards on the basis of scholarship, and leaving the Loan Fund to care for the financial needs of deserving students who have made good in their freshman year.

Student Aid at M. I. T.

	1935–36		1936–37	
	Number	Amount	Number	Amount
Undergraduate Scholarships	459	$72,226	463	$74,692
Graduate Scholarships and Fellowships	280	89,150	279	100,385
Loans	329	124,567	275	109,844
Student Employment Services	633	71,012	676	77,882
Total student aid		$356,955		$362,803

PROGRAM OF OBJECTIVES

In my report a year ago I submitted a program of objectives which included those items of most pressing need or special opportunity for increasing the effectiveness with which the Institute can fulfill its charter obligations of "aiding generally by suitable means the advancement, development and practical application of science in connection with arts, agriculture, manufactures and commerce." The Corporation was pleased at that time to approve these objectives as a program on whose realization we might concentrate our efforts.

Since that time nothing has occurred to modify my judgment of the desirability of this program. Two new projects of importance have been undertaken, both the result of unexpected

opportunities. One of these is the new Architectural Building to which I have already referred, and the other is an Industrial Relations Section of the Department of Economics and Social Science.

Industrial Relations Section. This Section owes its origin to Mr. William J. Barrett '16, Manager of the Policyholders Service Bureau of the Metropolitan Life Insurance Company, and Mr. C. J. Hicks, Chairman of Industrial Relations Counselors, Inc., New York City, through the interest of Mr. Hicks in placing the teaching of industrial relations in our universities on a more practical and accurate plane through intimate contact with actual industrial relations problems and policies of Industry and of Labor. An Industrial Relations Bureau was established several years ago at Princeton University, and more recently somewhat similar bureaus have been established at the University of Michigan, Stanford University, and Queen's University in Canada. These bureaus have proven of great value for teaching and research in the institutions and have been performing a service to industrial, labor and research organizations which appears to have met the distinct approval of all groups. Mr. Hicks was therefore very desirous to have such a bureau established in the important industrial region of New England and particularly in the Massachusetts Institute of Technology because of the peculiarly intimate relationship of this engineering school to industry.

After receiving the suggestion and having ascertained the favorable reaction to the established work of the Princeton Bureau from industrialists in whose judgment I had great confidence, I secured approval of the project from the Executive Committee and set out during the summer to raise, from organizations and individuals who were keenly interested in finding a better solution of labor relations problems, the estimated budget of $125,000 to cover a five-year period of operation. Assisting in this effort were Dean Burdell, Professor Freeman, and Professor Maclaurin who has been selected as the head of this Bureau (which we are calling the Industrial Relations Section). Mr. Hicks himself has been very active and helpful in assisting us to secure the funds and to map out the program of operations.

I am glad to report that contributions up to October 8

have been paid or pledged by forty contributors to the amount of $118,700, with several good prospects still to be heard from and with the offer of several of the contributors to be approached for further contributions on a year by year basis. It can thus be fairly said that the financial support of the five-year project is assured, and I can also report that Professor Maclaurin and his colleagues have made excellent progress in developing plans and making the necessary contacts.

Turning now to the items in the program of objectives approved last year, let me give briefly the present status of each.

Naval Towing Tank. Largely through the activities of the Chairman of our Visiting Committee on the Department of Naval Architecture and Marine Engineering, Mr. J. W. Powell, pledges have been secured for a major portion of the funds necessary to build a propeller testing tank which is perhaps the most immediately urgent aspect of the Naval Tank program. Plans and estimates for the Naval Towing Tank are at hand. Some unsuccessful individual efforts have been made to secure the necessary funds, and these efforts will be continued during the coming year with hope of success. One definitely interested group are the New England yachtsmen who have been much impressed by the performance of the *Ranger* in the recent cup races, since the *Ranger* is the only cup racer which has been designed on the basis of modern towing tank model measurements. The argument is a powerful one when it is realized that the tank will cost no more than a set of sails for a yacht and yet its use may make the difference between successful or unsatisfactory design not only of yachts but of all types of ships.

Wind Tunnel. I have already mentioned the fact that the contract has been awarded for construction of the wind tunnel, which was recommended after careful study by the Visiting Committee on Aeronautical Engineering two years ago and in which last year's Visiting Committee has taken helpful interest. The funds contributed or reasonably in sight amount to about $125,000 which was estimated cost submitted last year. In the meantime, however, increasing prices of steel and the practical necessity of using union labor for welding operations, added to some improvements in the plans, have raised the cost by $84,000. Efforts are being made to provide as much

as possible of this deficiency by solicitation of additional subscriptions from individuals and companies interested in aviation, using the combined appeal of educational and research facilities and an appropriate memorial to the Wright Brothers.

High Voltage Program. I have already mentioned the erection of a high voltage laboratory on the Institute grounds and the transfer thereto of the equipment and activities in this field from Round Hill. My estimate last year called for $340,000 for laboratory and equipment, and $50,000 annually for operations. In the judgment of the Visiting Committee on the Department of Physics, a move from Round Hill to Cambridge was imperative if the inherent value of the program was to be realized, and consequently this move was authorized by the Executive Committee. The new laboratory is not as elaborate as the one contemplated in my previous report, but it should be thoroughly satisfactory for the present stage of the high voltage work, and will continue to be useful even though later developments should lead to further additions to the equipment.

Biological Engineering. The program contemplated in biological engineering called for endowment and capital expenditure of $2,750,000 to carry through an outstanding and effective program whose details have been tested. A start on this program has been made by the Faculty in the adoption of a five-year curriculum in biological engineering based on a suitable choice of studies in the physical, biological and engineering sciences. A prospectus of the biological engineering project has been submitted to outstanding authorities in the field, who have without exception expressed enthusiastic endorsement of it. The project is under consideration for support by one of the great foundations.

Fellowships. No specific effort has been made to secure endowment for fellowships on account of the feeling that the student welfare project mentioned below should have prior consideration. Nevertheless, notable progress has been made in the contribution of funds for special graduate fellowships in Business and Engineering Administration by the Alfred P. Sloan Foundation, and through notice of a sizable bequest in support of scholarships and fellowships at the Institute which, however, is at the moment involved in litigation.

Fluid Research Fund. This item in my judgment is

the most important in our whole program of objectives when viewed on a long-range basis, even though it be not as immediately pressing as several others. For this reason no special effort has been made to secure the desired permanent endowment for research, but significant temporary support in this program was given during the past year through the contributions, totalling $48,520, from 34 Research Associates.

Dormitories. The need for additional dormitory space is even more evident and urgent than when the Corporation approved this item of the program last year. Several unsuccessful attempts have been made to secure funds for a dormitory on the basis that approximately half the cost of the dormitory could legitimately be provided from existing income-bearing funds on the basis of expected net income from dormitory operations. It is to be hoped that some benefactor will see here an important opportunity for a charitable contribution to student welfare and education, providing at the same time a notable monument.

Gymnasium or Extension to Walker Memorial. The Corporation has already received, through President Dalton of the Alumni Association, the report of the Association's committee to investigate student welfare needs. This excellent and constructive analysis of the existing situation and the needs for improvement has not only led to the development of a comprehensive plan for providing facilities to enrich student life at the Institute, but has also inspired the Alumni Association to undertake a campaign for raising the $1,650,000 required to carry the committee's recommendations into effect.

In brief, the program contemplates the building of a new gymnasium, the transfer of the present track to the west side of Massachusetts Avenue, and the erection of a field house adjacent thereto, and the conversion of the small gymnasium room on the third floor of Walker Memorial into a small theater-auditorium to seat 400 and provided with the necessary facilities for the staging of dramatic performances, concerts, forensic activities, meetings of the Technology Forum and other gatherings.

The gymnasium is not only designed to provide for recreational and athletic sports in a manner which is moderate and commensurate with the better practice in other educational

institutions, but is also designed to serve on occasion as a large auditorium suitable for commencement exercises, meetings of the entire student body and the frequent conventions and conferences of scientific, professional and business organizations whose meeting at the Institute would be desirable from all points of view. The gymnasium will further operate as headquarters for the large alumni gatherings on Alumni Day, with facilities for serving luncheons and handling Class Day exercises

The Alumni Association has organized a Committee of One Hundred by geographical distribution, and has also organized to operate through the class organizations under the directorship of an executive committee headed by Senator Thomas C. Desmond, as General Chairman, and Mr. E. G. Allen, as Executive Secretary. The campaign is to be started by a letter from me to all alumni, followed immediately by an attractively prepared prospectus and this in turn followed by a succession of contacts by the geographical and class representatives. The campaign seems to be very well organized and proceeding with great enthusiasm, at least on the part of the large staff enrolled in the project. It is confidently expected that the loyalty of the alumni and the strength of the appeal will insure the success of the campaign.

I personally believe that this student welfare objective is not only the most pressing and at the same time strategic item of the whole program for immediate attention, but that the Institute is under a real obligation to provide these facilities as a portion of its return to students for their increase in tuition, even though it is recognized that this extracurricular return is only incidental to the Institute's chief purpose. It is, however, not merely incidental but also definitely contributory to this purpose.

From this summary of the status of objectives approved a year ago, it will be seen that significant progress is being made toward their attainment. It is also seen that there are some very important opportunities whose realization is still dependent on substantial financial support not yet in sight.

DIRECT PARTICIPATION OF THE CORPORATION IN THE ADMINISTRATION OF THE INSTITUTE

In the last analysis, it is of course the Corporation which as a body and through its Executive Committee, administers the affairs of the Institute. Under it, with successively *less* responsibility and with more specialized activity, function the President, the Vice-President, the Deans, the Heads of Departments, and special officers. Practically speaking, the administration of the curriculum is in the hands of the Faculty, although the Corporation authorizes new degrees, appoints professors, and could take a more active part in controlling the educational activities if it felt this to be wise and necessary. Not only as a formal body, but as individuals interested in the welfare of the Institution, do the members of the Corporation administer the Institute through formal votes and informal advice and suggestion.

The particular type of participation in the administration of the Institute which I would discuss at this time, however, is the work of the Corporation Visiting Committees. This committee organization appears to be almost if not entirely characteristic of the northeastern universities. An extensive though not exhaustive study of other educational institutions discloses a visiting committee system in operation at Harvard, Yale, Brown and Amherst, and that a similar activity was discontinued at Purdue University about sixteen years ago. The origin of this visiting committee plan at the Massachusetts Institute of Technology is given from the following abstract from records of the Corporation meeting of November 10, 1875.

"VISITS TO THE SCHOOL: On motion of Mr. Atkinson, it was voted that the Secretary notify members of the Corporation of a vote by which they are requested to visit certain specific departments of the school with which they are familiar and in which they take specific interest. He thought that the management of the school would be greatly facilitated by such visits."

In the next meeting of the Corporation on December 8, 1875, appears the entry:

"COMMITTEES OF VISITATION: Mr. Atkinson presented a scheme for the apportionment of the members of the Corporation as Visiting Committees of the school which, after some

explanation and a few modifications, was finally adopted as follows," and there then follows a list of membership of the first visiting committees at the Institute, eighteen in number, with five Corporation members on each committee.

This plan continued unchanged until three years ago when the membership of the visiting committees was extended to include some non-Corporation members, not more than two nominated by the Alumni Association and not more than two nominated by the President, on each committee.

Several members of the Corporation have recently suggested that it would be of general interest for the President to report back to the Corporation as a body some of the more significant results of the visiting committee operations. This I am most happy to do, and at the same time to pay a tribute to the very great stimulation and assistance in many ways which these visiting committees have given to the administrative officers of the Institution. At the same time I would point out that the values of visiting committees are of various types. The very fact of these periodical inspections is undoubtedly a stimulus and a spur on each department to operate effectively and to think clearly through its program and its problems. The direct discussion between visiting committee and departmental staff develops many criticisms and constructive suggestions which may not appear on the record. Frequently visiting committees can place the weight of their recommendations behind some project which has originated in the Faculty and this always has weight with the President and Executive Committee, because of confidence that this backing would not have been given without careful scrutiny and consideration. Occasionally there are very difficult problems confronting the organization of programs of a department, in whose solution the administration is urgently in need of suggestion and advice, and it is probably in these cases that visiting committees have performed their most striking services. Fortunately these extreme cases are rather rare. In addition to all these types of service, there is the important background of maintaining a well-informed contact with the personnel program and equipment of the Institute in order that the Corporation as a whole may feel confident that the Institution for which it is respon-

sible is in a healthy state. Or, if this be not the case, that the Corporation may be aware of the fact.

It is also recognized that it is generally unnecessary for the visiting committee on any given department to do an exhaustive job every year. If a very careful study has been made in one year for example, and the serious problems have for the time being found solution, the committees on this department for the next year or two may quite possibly make a rather superficial study of the situation simply to be sure that affairs are running as scheduled. I believe, however, that at least every three years or so there should be a careful and thorough investigation into the affairs and problems of each department.

A list of the specific recommendations or judgments which have been made by visiting committees during the past two years quickly convinced me that it would be impossible even to mention all of the interesting points which have been brought out in these reports. I will, however, comment on at least the major recommendations which have been made.

Civil and Sanitary Engineering. The committee emphasized the need for a room properly fitted out for instruction in hydraulics. During the past summer this room has been supplied through the conversion of a large drafting room under the pylon on the third floor of Building 1 into an excellently equipped lecture hall with ramped seats and attractively finished. Authorization has been given for the construction of the special lecture table equipment to be placed in this room for hydraulic demonstration.

In general the committee expressed the opinion that the department could do more and better work if it had more and better equipment. Along the line of this very pertinent remark, it has been possible to add some equipment and to detect some improvement in the conditions under which work has been carried on.

Mechanical Engineering. No formal report has been submitted during the past two years, but there has been much discussion between visiting committee members and the department and some informal reports have been submitted. One important problem which is still under investigation is the proper role of the machine tool laboratory in the curriculum of the mechanical engineering students. Through the influence of

the chairman of the committee, though he perhaps would not wish me to say so, gifts have come to the support of the important new research program in the fatigue strength of metals as well as to research work in another department closely related to mechanical engineering interest.

Mining and Metallurgy. This committee has put in an enormous amount of time and expert effort in the endeavor to find just what should be done to make the Institute's work in mining and metallurgy meet the opportunities in these rapidly developing fields in the best possible manner. In addition to many matters of detail the committee made major recommendations on the following points: (1) The training of metallurgical engineers involves such great emphasis upon a knowledge of fundamental sciences that one cannot expect a mining engineer to be so trained that he is justified in considering his knowledge of metallurgy as a second string to his professional bow (an attitude which has been very common in the past). The committee therefore recommended that the work in mining engineering and in metallurgy should be separated into two departments. (2) The committee recommended the development of a new approach to the teaching of process metallurgy from the side of and founded upon a knowledge of physical chemistry. (3) Recommendations were made regarding the needs of space and equipment and of additional staff to handle the subject of metallurgy really effectively. (4) The committee emphasized the importance of approaching the mining curriculum as much as possible from the standpoint of fundamental science, engineering, and economic principles rather than from a descriptive point of view with respect to current practice.

Following these recommendations action has been taken to separate the previous department into two distinct departments, one of mining engineering and the other of metallurgy, to continue Professor Hutchinson as head of the Department of Mining Engineering and to appoint Professor Williams head of the Department of Metallurgy.

With great aid from the visiting committee the entire country was searched for metallurgical engineers who might be competent to develop the field of process metallurgy from the fundamental viewpoint of physical chemistry. The search was narrowed down to two men who appeared by all odds the

best men to be found in the country, both of them connected with large steel companies. One of these men, Dr. John Chipman, has been appointed Professor of Process Metallurgy and his first duties in collaboration with Professor Williams are to outline the equipment and program which are necessary to carry out the recommendations of the visiting committee. During the next few weeks the most important initial equipment for this work will have been ordered. During the summer also a portion of the space facilities which were recommended have been provided and further progress in this line is scheduled for the following summer.

School of Architecture. The committee expressed the following opinions in regard to questions which had been raised for discussion.

(1) Rather than to introduce a new course in landscape design, it is preferable to place more emphasis upon the landscape aspects in the teaching of architectural design.

(2) It was believed not wise at the present time to offer a master's degree in either the field of landscape design or industrial design.

(3) In the three major fields of architecture, architectural engineering and city planning, it was recommended that some time be allowed in the curriculum of the senior year for elective courses.

(4) Endorsement was given to the idea that research as an integral part of the problem of design in the last two years might be a valuable addition to the teaching in this field as it is in city planning. It was recommended that subjects for research in city planning be sought in directions that might enlist the financial support of business and industry.

(5) Attention was called to the desirability of assisting foreign scholarship holders to find professional opportunities in this country on their return from study abroad.

The Faculty of the School of Architecture are making efforts to follow the suggestions here made.

Chemistry. This committee has concerned itself principally with the standing and effectiveness of the department, and particularly the future of the department. This has involved an examination of the current work and capabilities and future promise of the staff, particularly of the younger men who form

the "second line of defense." In this study the committee has not only made its own examination of the situation, but has consulted the opinion of outside experts as well. The committee has been especially interested in the situation in organic chemistry because of the fact that this branch of chemistry is rapidly expanding in industrial importance and there is serious question whether the departments of organic chemistry throughout the country are training a sufficient number of high grade men to meet the industrial demand. This field of chemistry is one in which the whole range of study from undergraduate through the doctorate degree and as much research as possible, is considered a practical prerequisite to industrial or academic employment in the better positions.

While this committee has not yet submitted its report, the study has already proved stimulating and I have no doubt that its report will be very constructive.

Electrical Engineering. This committee has not submitted a formal report, but the committee and individual members have been in close touch with the affairs and plans of the department and have coöperated with its new head, Professor Moreland. Among the important activities under discussion have been the development of the new series of electrical engineering textbooks, plans for a mechanical-electrical computing center, plans for high voltage electrical engineering research, and the conduct of the coöperative work in electrical engineering.

Biology and Public Health. This committee has made two specific recommendations. First, that funds be appropriated to provide a research assistant and technician to continue the important biochemical research which has been conducted during the year under direction of Professor Bunker with aid of a grant from the Rockefeller Foundation. I am glad to report that this work is being continued on a slightly expanded field by another grant from the Rockefeller Foundation supplemented by a special appropriation from our own funds.

The second specific recommendation of the committee is not to attempt expansion of space to relieve the present crowded condition of laboratories and offices, and not to expand the number of undergraduate and graduate courses, until funds may be secured to erect a new building with suitable quarters

for the work of this department and with an expansion in the work of the department. Funds are being sought to expand the facilities of the department along the line of the practical application of biology in industry and health through the program of biological engineering which I have mentioned earlier in this report.

The committee further expressed certain views in regard to the cultural content of the curriculum in this department, and urged that every effort should be made to stimulate interest in cultural and social studies by indirect means and contacts rather than by further increase in the group of cultural studies now available as formal courses.

Physics. The first report of this committee dealt primarily with matters of curriculum, suggesting certain changes in the order of treatment of subjects in the freshman course, suggesting the possibility that a coöperative scheme of training in applied physics analogous to the electrical engineering coöperative course might be developed with the assistance of some interested industrial companies, and endorsing the plan of awarding the doctor's degree for graduate study and research in the field of applied physics.

The second report which is to be submitted to the Corporation today, dealt with the high voltage program in nuclear research, with reference to three principal subjects: first, the desirability of continuing and expanding the program; second, the problem involved in the closing down of facilities at Round Hill and the most advantageous alternative move which can be made; and third, recommendations of the order in which future work should be undertaken. The committee made the following specific recommendations:

The high voltage nuclear research program should be continued and pushed with vigor.

The Institute should not at the present time build a cyclotron.

The generators at Round Hill should be moved to Cambridge and installed in a specially built air-tight steel shell in such manner that the end of the vacuum tube can be placed underground so that the operators will be adequately protected. This installation should be completed at the earliest possible

date and should be devoted to nuclear research under the Physics Department.

Looking toward the future development of more compact high voltage generators, capable of reaching much higher voltages, it was recommended that a model generator should be constructed along the line of present revised ideas and used for experiments from which information can be secured to test these new ideas and secure the designs which are necessary for constructing higher voltage units if these should then appear feasible and desirable. At the same time it was suggested that this new model generator after experimental tests would be useful for research purposes.

I am glad to report that all these recommendations are being carried out. The generators have been moved from Round Hill and the new high voltage laboratory to house them is under construction. During the summer small scale experiments have been made to secure data necessary for the best design of the model generator which is recommended, and this has been designed. Applications have been made to two promising sources to secure funds for the construction of this generator (about $15,000 required), and the trustees of the Massachusetts General Hospital have expressed a desire to secure this generator for use in cancer treatment as soon as the Institute has completed its experiments conducted for the purpose of studying design characteristics. We confidently expect that the way will be clear to proceed with construction in a month or two.

Chemical Engineering. The committee was greatly concerned with dangers attendant upon the great success of this department as indicated by its reputation and rapid growth. These dangers arise from the crowding of laboratories and conference room facilities, and especially from the extremely heavy schedules of teaching which are carried by the members of the department, and which, if continued, will prevent these men from performing the outstanding work in research and development of teaching methods which have brought about the unique distinction of the present department. The committee therefore recommended that immediate steps be taken to alleviate these dangers.

Recognizing the importance of this recommendation, the

Executive Committee took immediate steps to add several additional men to the staff and to relieve the congestion of quarters by the program of space changes to which I alluded earlier in the report. Some of these changes were made during the summer, and the rest will be made next summer when congestion is further relieved by the opening of the new building.

The significance of statements made above is suggested by the figures of enrollment in the current academic year. Chemical Engineering with an enrollment of 479 is the largest in the Institute, the next in line being Electrical Engineering with 450 and Business and Engineering Administration with 268.

Geology. In a formal report, the committee made a strong recommendation that funds be made available to place the work on geological age of minerals, now being conducted by Professor Evans of the Physics Department and Dr. Urry of the Chemistry Department, on a more permanent basis and that steps be taken to expand the program along the lines of making the Institute's Department of Geology a world center of information and research on the nature of the earth's crust. In the direction of these recommendations, Dr. Urry has been transferred to the Department of Geology and arrangements have been made to continue his work and that of Professor Evans in the future. Additions have also been made to the staff which will permit an expansion of the program along the recommended lines.

While not included in a formal report, the opinions expressed by the committee induced the Executive Committee to appropriate the funds for improving the arrangements of desk and storage cupboards for minerals in the largest one of the geology laboratories. Through the generosity of the chairman also, some important spectroscopic equipment has been secured.

Naval Architecture and Marine Engineering. This committee has been very active and has through its chairman not only secured funds for the construction of a propeller model tank, but has also made nine specific recommendations of importance. One of these, to the effect that the course in marine transportation be put on a five-year basis with one of the five years devoted to actual experience at sea in the employ of a shipping company, has been put into effect by the Faculty

and the Corporation and the coöperative arrangement has been made with several shipping companies.

The committee's emphasis on the need of a first class American textbook on naval architecture has resulted in the publication of a new text by Professors Rossell and Chapman, the expense of which has been financed by the Society of Naval Architects.

Recommendations regarding a special metallurgical course and advanced courses in naval architecture with special reference to fluid mechanics and vibration are in process of being carried out. The committee's recommendation in regard to a propeller model tank and a model towing tank are under active consideration and such progress has been made that there is good promise that the propeller tank will be under construction within the year and there is hope that means can be found to provide the towing tank. It is noted, however, that the committee recommends that the provision of the small towing tank now contemplated should not lessen the desirability of a modern high speed tank when and if means may be found to provide this.

The committee's recommendation that a sharper distinction be made between Naval Architecture on the one hand and Marine Engineering on the other, with the award of two separate degrees, has not as yet met the approval of the Faculty and the administration. It is possible of course that conditions may develop in the near future which will persuade these two conservative bodies that a move in the recommended direction is advisable.

Business and Engineering Administration. The committee has been continually active and has been supplemented, like the Visiting Committee on Architecture, with an advisory committee. The committee has concerned itself with critical discussion and advice on problems and plans of the department developed through discussion at the meetings rather than in a formal report presented to the Corporation. Prominent among the subjects discussed has been the further development of the plan of sponsored graduate fellowships in Business and Engineering Administration, operated in coöperation with industrial or business concerns. Critical studies have been made to secure evidence regarding the success of this department in achieving

its stated purpose, namely, to prepare young men for executive positions, especially in industrial or business concerns, whose work involves applications of engineering.

Aeronautical Engineering. Two years ago this committee made a careful study of the facilities needed to maintain the aeronautical engineering course in a preëminent position for training men for the industry and advancing the art on which the industry depends. By all odds the most important requirement was considered to be a modern wind tunnel, and the committee recommended that a serious effort be made to provide a wind tunnel with advanced features of design along lines which were being developed by the staff. Since that time certain members of the committee have been helpful in the development of these designs and others in the raising of funds with the result as stated previously in my report.

Mathematics. The committee suggested a closer relationship between the teaching of descriptive geometry in the School of Architecture and that given by the Department of Mathematics for the rest of the Institution. It will be a particularly appropriate time to consider this suggestion when a year hence the School of Architecture takes up its quarters in close contact with the rest of the Institution.

The committee recommended the addition of ten men in the younger staff grades to reduce the size of teaching sections to about twenty men each, and to relieve members of the department from some of their heavy schedule of routine duties to permit an activity in productive mathematical work commensurate with their proven capabilities. Two such younger men have been added to the staff this year.

The committee also recommended the addition of an integraph, an ellipsograph and a homograph to the equipment of the mathematical laboratory. The first of these, and also a new calculating machine, have been provided, and the remaining items are on the list for provision as soon as funds are available.

The final recommendation of the committee is the completing of the back numbers of mathematical periodicals. This is in the hands of the Institute's Library Committee and the Friends of the Library, who have made some progress in the matter.

Modern Languages. This committee has faced a difficult

problem for several reasons. In the engineering schools all over the country the time devoted to modern languages has shrunk almost to the vanishing point. The arguments for modern languages differ widely in various departments. The scientific and a few of the engineering departments stress the importance of French and German as a tool for keeping abreast of important literature in their subjects. The Aeronautical Engineering Department is not much concerned about modern languages as a tool for study, but is interested in having its students acquire a working knowledge of Spanish because the foreign contacts in American aviation are almost exclusively with Spanish speaking countries. Some of the engineering departments feel that the value of modern languages is less than that of many other subjects which might alternatively be studied. Everyone grants the desirability of modern languages as a cultural asset, but the Faculty Committee on General Studies, which safeguards this aspect of the Institute's curriculum, does not believe that the elementary study of languages falls in this category, although it does approve general studies in more advanced modern language in which the literature of the language becomes available.

Recognizing this situation, the committee has made several recommendations, but has been particularly interested in stimulating constructive thought on the part of the staff and administrative officers of the Institution to devise ways and means for increasing the interest in modern languages and their actual use by students.

A recommendation from the committee that the staff in Modern Languages be augmented has resulted in the increase of the staff from four to five members, taking effect this fall. The committee's suggestion that the experiment be tried of providing one course, preferably Spanish, in which the emphasis is placed upon acquired competency in oral expression, has been put into effect. At the committee's suggestion the various departments of the Institute have been asked to consider the advisability of requiring certain textbooks or study assignments in a foreign language particularly adapted to the interests of the department.

The committee's recommendation that modern languages be classified as General Studies is in effect to the extent that

on recommendation by any department one-half of the time allotted to students in that department for General Studies may be utilized for the study of a modern language. Furthermore, several advanced courses in modern languages are included in the General Studies program relative to all students. The General Studies Committee has not approved of the admission of elementary courses in modern languages as suitable General Studies electives.

The committee made several stimulating suggestions as to ways in which modern language could be better integrated with the work in English and History, and also ways in which general interest in this subject on the part of the students could be stimulated. These matters are now under consideration between the head of the department and the newly appointed Dean of Humanities. In this connection it should be noted that the appointment of a Dean of Humanities followed recommendations to this effect submitted independently by the Visiting Committees on Modern Languages and on English and History.

English and History. Following the very extensive investigation of this Department, conducted by the committee three years ago, the committee has subsequently kept in close touch with the work and plans of the Department. It has made specific suggestions in regard to the content of several courses and the handling of students whose work shows defective power of expression.

The committee feels strongly that some way should be found to reinstate the course in public speaking, which was recently dropped as a General Study because the General Studies Committee felt that its objectives were rather utilitarian, and therefore not properly to be included in the small group of subjects reserved for and pertaining to the cultural interests of our students. I believe that there is general agreement that the public speaking course should be reinstated, and the Dean of Humanities with the head of the Department is considering ways in which this may be done in spite of the curriculum pressure for professional requirements and the desire to maintain the purely cultural content of General Studies.

Textiles. This committee is in process of preparing a report. It has made a careful study of the actual and potential

role of the Institute's textile engineering course which at present occupies a unique position in textile education. This course involves a thorough training in the more pertinent aspects of engineering and in an introduction to the applications of modern science to important textile problems. It is not intended to train textile operators. The enrollment in the course is not large, but its graduates have been eagerly sought by the textile industry. There is a serious administrative problem at the present time, owing to the exhaustion of the funds supplied by the Textile Alliance, which have carried a considerable portion of the cost of this Course during the past eight years. The question has been put to this committee whether it is desirable to continue the textile course if those in the textile industry are not sufficiently concerned with its continuance to contribute to its support. Thus, although admitting the fine contribution which this course and its staff have made to the textile industry, the chief problem at present involves ways and means for its continuation if there is general agreement that such education is desirable.

Library. The newly appointed Visiting Committee on the Library has made a major accomplishment in instigating the inauguration of "The Friends of the Library" movement, which has already resulted in substantial support and greatly increased interest for the library. The committee has also given some thought to the long-range problem of better technical development of library functions and services which may considerably increase the utility of the library to those who should use it. Since this is so largely a technical problem to which the Institute might well make a constructive contribution, as well as utilize improvements made elsewhere, there has been stimulated some very promising thought on the subject which is being related on the one hand to a study sponsored by the Carnegie Corporation on the subject of "Mechanical Aids to Learning," and on the other hand to the adaptation of some recent inventions by members of the Institute staff to library purposes.

Division of Industrial Coöperation. Since this committee was quite active during the period of the depression, and since the problems confronting the Division which were then so

urgent have been much alleviated, this committee has not been active during the past two years.

Military Science and Tactics. This committee has made no report but has assured itself that the work in this field is being satisfactorily conducted. That this is true is given further evidence by the fact that the War Department has given a rating "Excellent" to all phases of the Institute's work in this field.

Hygiene. The committee has made four recommendations: first, an increase in space required for the work of the infirmary; second, $1500 per year additional funds to defray the expenses of an x-ray examination of all entering students to detect incipient tuberculosis as an added part of the general physical examination; third, the establishment of a dental clinic at an estimated initial cost of $1,500 to $2,000; and fourth, providing services of a psychiatrist for two afternoons a week at a cost of about $1,500 per year.

The first two of these recommendations have been put into effect and the second two will be followed if and when funds are available, and probably a qualified psychiatrist can be engaged.

Economics and Social Science. The committee made three important recommendations. In the first place, it approved the proposal to establish an Industrial Relations Section under the Department. This as mentioned previously has now been financed for a five-year program and has started into operation. Second, there were recommended space arrangements to provide a more suitable library for the Department. This also is in course of fulfillment through the conversion of the large room 5-330 into a well-equipped departmental library with ground floor and balcony designed to serve the needs of the adjacent departments of Economics and Social Science, Civil Engineering, Mechanical Engineering, Business and Engineering Administration and Naval Architecture. The third recommendation for the appointment of a full time staff member in Psychology to replace the previous temporary part time arrangement in this field has been carried out with the appointment of Dr. Douglas M. McGregor after a very careful search for a properly qualified man.

SUMMARY

With this summary of the activities of our visiting committees and the positive accomplishment which has followed their recommendations, I believe that we should all be convinced that the visiting committee plan is operating effectively. Close as I have been to these activities, I will confess that I was distinctly surprised when all of these facts were assembled and I realized how important and how effective the work of these committees has been. I know that individual members of the Corporation have sometimes wondered whether the time and effort which they expended was justified by the results or, on the other hand, may have felt that the committees were not active enough and were of but nominal significance. The above record speaks for itself and I wish personally and officially to express appreciation of the great help which you have given the Institute through these visiting committee activities. The work has been done by many members and each individual may have wondered about the significance of his efforts. When the aggregate picture is considered, however, I believe that there is justification for a considerable degree of satisfaction and enthusiasm on the part of the Corporation of this aspect of its responsibilities.

Respectfully submitted,

KARL T. COMPTON, *President.*

REPORTS OF ADMINISTRATIVE OFFICERS

Dean of Students. Selective procedures for the control of student personnel, recommended during 1935–36 in two progress reports of the Committee on Stabilization of Enrollment which were unanimously approved by the Faculty, became operative during 1936–37: first, a restriction in the number of students admitted to the first-year class; and second, the application of prescribed stabilization ranges for the number of second-year students allowed to continue in each Course after midyears. The development of these plans was treated in last year's Report and need not be repeated.

In the opinion of the Faculty the results of the first year of operation justified approval, again by a unanimous vote, of a further progress report of the Committee recommending a continuance of these selective processes without change save for a minor readjustment of the sophomore stabilization ranges in some Courses due to the increased size of the second-year class during 1937–38 compared with 1936–37.

In practice it was found difficult to keep the number of first-year students actually matriculating within the specified limits of 575 to 600. Candidates complete their academic requirements at various times during the spring and summer months, and their cases are acted upon without delay by the Director of Admissions. Some who are informed that they are "accepted" are later obliged to alter their plans and do not come. Thus it is necessary to "accept" more than 600 and estimate the probable "shrinkage" in order that the size of the first-year class will fall within the limits.

Although no applicant with an academic condition was admitted to the Class of 1940, its actual registration at the opening of the Institute last autumn was 650, but withdrawals on account of finances, health, or other cause prior to the midyears reduced this number to 624. Moreover, since 16 of this latter figure were students in the School of Architecture, the very desirable objective of uncrowded first-year sections was attained.

No special difficulty was experienced in the application of

the post-midyear ranges for sophomores since the staff in each of the Courses had ample opportunity to scrutinize their candidates between September and February. Parenthetically, being obliged to make such a study proved to be a decidedly worth-while corollary to the stabilization of the size of the group allowed to continue in each Course. In prior years the Faculty of a Course not infrequently failed to know the potentialities of their students other than superficially before they acquired third-year status.

It should be noted in passing that the creation of an additional lecture hall suitable for experimental lectures in chemistry, during the summer of 1937, will permit considerably greater flexibility in arranging the first-year class schedules for 1937–38 and thereafter. Up to now it has been impossible to conduct first-year physics and chemistry lectures at the same hour. As a desirable byproduct of this change it will no longer be necessary to schedule some of the required freshman Physical Training classes in the forenoon. Instead they may be arranged for hours in the afternoon, thus making them a part of the sport and recreational program.

As a further means of strengthening our relationships with the secondary schools sending superior candidates to the Institute a series of annual Technology Awards were established this year, and for 1936–37 these prizes, in the form of volumes appropriate to the first-year subject in which the student attained distinction, went to fifteen secondary schools in various parts of the United States.

One current trend of our registration distribution apparently is that more of our students are coming from distant points. This year the homes of over half our entering class, 51.8 per cent, are outside New England and of 59.2 per cent are outside Massachusetts. During 1935–36 the corresponding percentages were 48.6 and 57. Therefore, it would seem that our selective admission procedure in an increasing measure must depend upon continuing to strengthen our existing close relationships with secondary school officials, honorary secretaries, and alumni club officers. The reason for this is not merely because these individuals may influence the highest types of qualified candidates to seek admission to the Institute, but that they may implement our *selection* of material through recom-

mendations based upon their reports of interviews with candidates. For, as the Director of Admissions points out in his report, distance often precludes arranging an interview between an officer of the Institute and one of the large group of candidates who reside outside New England.

As in the matter of admission to the first-year class, reports of interviews with candidates by honorary secretaries and alumni club officers play an increasing part in the award of freshman scholarship aid. For 1936–37, 193 entering freshmen received awards amounting to $37,740, the corresponding figures for 1935–36 being 188 and $40,825.

These awards to freshmen, as has been true during the past few years, represent about 40 per cent of the undergraduate scholarship awards which, this year, numbered 463 and amounted to $74,692, compared with 459 amounting to $72,226 in 1935–36. The percentage of the undergraduate body receiving scholarship aid during 1936–37 was 21.3, compared with 23.8 in 1935–36, 20.2 in 1934–35, 17.0 in 1933–34, 15.9 in 1932–33, and 14.95 in 1931–32.

The Technology Loan Fund Board received 427 applications during 1936–37 as compared with 436 in 1935–36, 520 in 1934–35, and 712 in 1933–34. Of this year's requests 315, or 73.8 per cent, were approved, $118,804 being loaned. The decline in the annual sums borrowed is illustrated by the figures for the three previous years: $124,567 in 1935–36, $152,656 in 1934–35, and $202,905 in 1933–34.

It is to be anticipated that, with the rise of the tuition rate to $600 beginning in 1938–39, the trend of the demand for loans will also be upward. The Fund, however, should be amply able to cope with the situation for, during 1936–37, repayments of $95,172 on principal account and $15,971 for interest, or a total of $111,143, came within $7,658 of providing the $118,804 loaned.

Up to June 30, 1937, 1,611 individuals had borrowed $1,035,387 from the Fund, the average amount loaned per capita being $643. Also, up to that date, $295,755 had been repaid on principal account, representing 80.7 per cent of the amount due, and $62,931 had been paid on interest account. Of the unpaid 19.3 per cent due on principal account, interest had been received and extension of principal repayment per-

mitted on all but $19,987 of notes. Thus, as stated in last year's Report, "it is by no means unreasonable to expect eventual repayment of 94 per cent of the loans made." It is also of some significance that the interest received ($62,931) was equal to 89 per cent of the matured principal in arrears ($70,704).

For a second successive year student employment conditions improved and 729 students were placed by the Undergraduate Employment Bureau of the Technology Christian Association: 317 under the National Youth Administration of the federal government, 304 on other employment, and 108 under both classifications. Their earnings were $72,861, of which $35,643 was under the N.Y.A. and $37,218 through private employment.

The dormitories, for a third successive year, were operated with a substantial waiting list. Summer occupancy during 1937 was larger than usual, the Graduate House being filled to capacity. Facilities for recreation, particularly through the Nautical Association, and the policy of encouraging research and thesis work during the summer, have contributed to this improved showing. As of mid-July all dormitory space was leased for 1937–38 with a waiting list divided as follows: entering freshmen 71, other undergraduates 125, and Graduate House 175.

The average scholastic record of 569 men in 20 activity groups was 3.48 in June 1937. The corresponding figures for 25 groups were 674 and 3.44 in June 1936, and for 24 groups 604 and 3.35 in June 1935. Fraternity averages declined slightly, for the average of 629 men stood at 3.23 in June 1937, while 566 averaged 3.25 in June 1936, and 582 averaged 3.13 in June 1935.

Freshman Camp was conducted for the eleventh year by the Technology Christian Association; and the All-Technology Smoker for entering students, arranged by the Institute Committee, was held for a second year on the evening of registration day of the first term. Open House was omitted during 1936–37 for a variety of reasons which need not be particularized, but it is expected that the event will be resumed for 1937–38 under a revised plan of administration formulated by the Institute Committee.

All four student publications completed their fiscal years with slight balances, and the coöperation between them in the several aspects where their interests overlap continued to be fostered harmoniously through the Gridiron Society. This organization, among its other activities, is meeting with success in promoting cordial relations between student editors and those of their alumni predecessors who are now engaged in professional journalism. As has been true of undergraduate publications for a number of years, all members of the management and staffs serve without financial remuneration.

One major change occurred during the year in the athletic program: the discontinuance of boxing on a varsity basis. Instruction in the sport will be available as an experiment during the fall term. Intercollegiate competition during 1937–38 will be maintained in the following: basketball, crew, cross country, fencing, golf, gymnastics, hockey, lacrosse, soccer, swimming, squash, tennis, rifle, track and wrestling.

During the spring the President created an Undergraduate Budget Board to advise him in regard to all matters concerned with appropriations from the Institute's Treasury for undergraduate purposes, *viz.*, supervision of the budgeting and expenditure of Undergraduate Dues, funds for athletic or other coaching, advertising in undergraduate publications, and changes and improvements in athletic and recreational facilities, including field and boathouses, sailing pavilion, and Walker Memorial. This Board, initially composed of the Secretary of the Advisory Council on Athletics, the Deans of Students and Humanities, the Bursar, Mr. Henry E. Worcester of the Class of 1897, and the Treasurer of the Institute as chairman, places in one group functions hitherto performed by several committees and individuals.

H. E. LOBDELL.

Dean of the Graduate School. The year has been one of growth and successful accomplishment for the Graduate School. As anticipated a year ago the upward trend in registration which started in 1935 was continued, the number of students reaching 619 — an increase of 83 over the preceding year. This is indicative of the better economic conditions prevailing,

since the number of students financed from scholarship funds remained essentially the same. With the greater opportunities for employment open to members of the senior class it would not have been surprising if fewer students had returned for the Master's degree than during the depression. This was not the case, however, the value of the fifth or graduate year being so well recognized.

The following tables show the variation of registration in recent years and the distribution of students working for higher degrees among the several departments during the past year:

Registration for the past five years:

	1932	*1933*	*1934*	*1935*	*1936*
Doctor of Philosophy	84	94	101	90	109
Doctor of Science	65	77	88	106	115
Doctor of Public Health	...	...	...	1	4
Master in Architecture	9	11	16	7	13
Master of Science	332	297	266	295	345
Master in City Planning	...	...	...	6	9
Special Graduate Students	33	24	29	31	24
Total	523	503	500	536	619

Registration by Departments 1936–37:

School of Architecture	*Degree*	
Architecture	M. Arch	13
City Planning	M.C.P.	9
Total		22

School of Science	*S.M.*	*Sc.D.*	*Ph.D.*	*Dr.P.H.*	*Total*
Biology and Public Health	12	..	8	4	24
Chemistry	17	1	59	..	77
Geology	6	..	9	..	15
Mathematics	5	1	4	..	10
Physics	5	15	29	..	49
Total	45	17	109	4	175

School of Engineering	*S.M.*	*Sc.D.*	*Total*
Aeronautical Engineering	31	2	33
Meteorology	10	4	14
Business and Engineering Administration	18	..	18
Chemical Engineering	21	38	59

School of Engineering (continued)	*S.M.*	*Sc.D.*	*Total*
Chemical Engineering Practice	60	..	60
Civil Engineering	30	6	36
Sanitary Engineering	2	..	2
Electrical Engineering	37	28	65
Electrical Engineering (Cooperative Course)	31	..	31
Mechanical Engineering	53	8	61
Mining and Metallurgy:			
Mining Engineering	3	..	3
Metallurgy	8	7	15
Petroleum Engineering	1	1	2
Ceramics	4	4	8
Naval Construction	8	..	8
Economics and Engineering	7	..	7
	324	98	422

Of the 619 graduates in the school, 426 or approximately 69 per cent (2 per cent less than in 1935) had taken their first degree in other colleges than the Massachusetts Institute of Technology. The national and international character of this group of students is indicated from the fact that 153 colleges in the United States and 36 foreign colleges were represented, located in 44 States, the District of Columbia, and the following 19 foreign countries:

Australia	Germany	Panama
Belgium	India	Philippine Islands
Brazil	Ireland	Scotland
Canada	Japan	Siam
China	Mexico	South Africa
England	New Zealand	Switzerland
France		

Over 50 per cent of the students were registered for courses leading to the doctorate, the largest numbers being in the Departments of Chemistry and Physics in the School of Science, and the Departments of Chemical Engineering and Electrical Engineering in the School of Engineering. The total number of graduate students in any one department, that of Chemical Engineering, was 119, followed by 96 students in the Department of Electrical Engineering. The Course in Chemical Engineering Practice and the various coöperative courses in Electrical Engineering, all leading to the Master's degree, account for approximately one-half the graduate registration

in the former department and one-third of the registration in the latter. The unique opportunities offered by the Practice School is attracting to the Graduate School chemical engineers from all over the country. Last year for the first time graduate students were registered in the Department of Economics under the new five-year curriculum leading to the Master's degree in Economics and Engineering or Economics and Science.

As pointed out in last year's report the time seemed near when the number of graduate students who could be admitted to certain departments would have to be restricted. With the mounting registration indicated above and the probability of a still larger number of applications this coming year, the Committee on Stabilization of Enrollment after a conference with departmental heads on available staff and laboratory facilities for research, recommended to the Faculty limits to the admission of graduate students in the Departments of Physics, Chemistry, Chemical Engineering, Electrical Engineering, and Aeronautical Engineering. This recommendation was adopted and became effective for the year 1937–38. A further limitation will be made in other departments as soon as it appears that the facilities for adequately carrying on research have been reached. It is not intended to allow the Graduate School to expand beyond that point at which efficient instruction and adequate space and equipment for research can be provided for all students. The selection of students for admission under a limitation of enrollment is difficult. We desire to admit the ablest and most promising applicants but when desirable students have to be informed that their names have been placed on a waiting list they usually make arrangements to attend another institution. If later on it becomes possible to admit them their applications have been withdrawn. The problem of limitation is further complicated by the all too frequent relinquishment of accepted scholarships by students who accept positions during the summer and cancel their previously declared intention of registering in the Graduate School.

Closely related to the admission problem of regular graduate students is that of college graduates desirous ultimately of obtaining a higher degree but whose preparation is such that they have one and sometimes two years of undergraduate

prerequisites to make up before being admitted to advanced work in the Graduate School. Students in this class very often prove to be among our best graduate material. How many students in this category should be admitted each year is a problem requiring consideration in connection with that of limitation of numbers. These questions are being studied by a Special Committee of the Graduate School.

The need of fellowships carrying substantial stipends to assist students who are working towards the doctorate has been recognized this past year by the establishment of a number of new fellowships by the Corporation, individuals, and directors of various companies. In appreciation of the life-long active interest of Arthur D. Little in the development of research in the Departments of Chemistry and Chemical Engineering, the Corporation established from the bequest which he left to the Institute four fellowships as follows: Two Arthur D. Little Post-Doctorate Fellowships in Chemistry and Chemical Engineering respectively, carrying stipends of $1,500 each and with all laboratory facilities for research provided by the Institute; and two Arthur D. Little Fellowships of $1,000 each open to students working towards the doctorate in the Departments of Chemistry and Chemical Engineering respectively. The former fellowships are the first and at present the only post-doctorate fellowships offered by the Institute. They were awarded this year to two outstanding candidates for the doctorate in the above Departments. As the Fellowships are not restricted to Institute graduates, it is hoped that there will be active competition for them from graduates of other institutions.

In addition, the following annual fellowships have been made available for students carrying on research in special fields through the generosity of individuals or companies:

Redfield Proctor Traveling Fellowship for study at an English-speaking University.

Alfred P. Sloan, Jr., Fellowship for study in Automotive Engineering.

Alfred P. Sloan, Jr., Fellowships for Post-Industrial Study in Business and Engineering Administration and in Economics and Social Science.

duPont Fellowship for research in Chemistry or Chemical Engineering.

Phelps-Dodge Fellowship for research in the Metallurgy of Copper.

Silver Research Committee Fellowship for research in the field of Metallurgy.
Genradco Trust Scholarship for study in the Field of Electronics.

These fellowships are highly prized as the donors usually keep in touch with the recipients and the progress of their research and not infrequently this leads to desirable positions for holders of the fellowships after they have received their degrees. It is hoped that one or more fellowships of this type may be established in every department engaged in graduate work.

During the year it is gratifying to note that an increasing number of students have entered the Graduate School under grants from other institutions or foundations. Thirty students were carrying on graduate work under the following Fellowships:

John Simon Guggenheim Memorial Foundation
Coffin Fellowships
National Tau Beta Pi Fellowships
Society of Sigma XI Fellowships
Commonwealth Fellowships
Salters Institute of Industrial Chemistry Fellowships of London
Royal Society of Canada Fellowship
Walter and Elisa Hall Engineering Fellowship of the University of Queensland
C.R.B. Educational Foundation Fellowship
American Field Service Fellowships for French Universities
National Tsing Hua Fellowships
China Foundation for the Promotion of Engineering and Culture

The procedure adopted this year for dealing with tuition scholarships to assistants and teaching fellows on the staff who are working for higher degrees is a great improvement over that followed in the past. The head of each department when making out his annual budget now submits an estimate of the amount of scholarship funds which will be needed during the year to meet the tuition of appointees on his staff who are working for higher degrees. This appropriation when approved by the Executive Committee is placed in charge of the Committee on the Graduate School to allocate in the usual manner to applicants recommended by the various departments. Staff tuition is thus provided for by an annual appropriation from Institute funds, and not from the income from endowed scholar-

ship funds which is reserved for full-time students. Total funds appropriated for assisting all students in the Graduate School this year, 1937–38, were $100,385 of which $27,535 was for tuition of members of the staff.

It is pleasant to report that more and more students each year are availing themselves of the coöperative plan for the exchange of graduate students between Harvard University and the Institute. During the past year Harvard students registered for twenty-six courses at the Institute and Institute students for fourteen courses at Harvard. The Institute has also been glad to extend this privilege to a number of Harvard undergraduates who are desirous of including Professor Willett's Course in Meteorology in their program, an arrangement approved by their Dean. This seems the logical thing to do in all such cases as they may arise, rather than attempt to duplicate in the two institutions courses on special subjects, registration for which is not large. The unusual opportunities of taking courses in both institutions are also being recognized and appreciated by some of our foreign students.

The demand for rooms in Graduate House has been so great during the past year that Dr. Ashdown has had over a hundred applications on his waiting list. As many students working for the doctorate retain their rooms during their whole period of residence, often three or more years, and rooms which are vacated are at once taken by those on the waiting list, new students entering the Graduate School are often greatly disappointed at being unable to join the Graduate House group. One student last year actually postponed entering the Graduate School a year until he could live in Graduate House. An endeavor is made to reserve rooms for exchange students and Fellows coming to the Institute from abroad. Students who are obliged to room outside often speak regretfully of the social atmosphere which the House provides, this being one of the things they had anticipated on coming to the Institute. Enlarged facilities for housing our graduate students are urgently needed.

H. M. Goodwin.

The Registrar. The first substantial rise in registration since 1930 occurred last year when the total number of students increased from 2,540 to 2,793, a gain of 253 or 10 per cent. This growth was distributed as follows: the School of Engineering increased 159, or 8 per cent; the School of Science increased 85, or 22 per cent, and the total of 467 students in the School of Science was the largest in its history. The School of Architecture again had a slight loss.

Under the first year of operation of stabilized enrollment the number of new undergraduates was 760, of which 561 entered directly from secondary schools. Table 1 shows the fluctuations in the number of new undergraduates during the last ten years.

TABLE 1

NEW STUDENTS ENTERING THE UNDERGRADUATE SCHOOL
1927–36

Year	New Students from Secondary Schools	College Transfers Entering Undergrad. Years	Total New Undergraduate Students	Total Undergraduate Registration
1927–28	465	250	715	2,338
1928–29	483	297	780	2,456
1929–30	549	280	829	2,621
1930–31	609	230	839	2,670
1931–32	526	208	734	2,610
1932–33	491	146	637	2,308
1933–34	428	132	560	2,106
1934–35	467	150	617	2,009
1935–36	481	165	646	2,018
1936–37	561	199	760	2,174

The graduate student body was the largest in the history of the Institute, and Table 2 shows the changes during the past decade. The fluctuations in the graduate registration have not been unusually large.

TABLE 2

NEW STUDENTS ENTERING THE GRADUATE SCHOOL

1927–36

Year	M. I. T. S.B. Returning Following Sept. for Grad. Study	M. I. T. S.B. Returning a Year or More Later for Grad. Study	College Transfers Entering Grad. Year	Total New Graduate Students	Total Graduates
1927–28.....	*	*	131	*	374
1928–29.....	52	12	120	184	412
1929–30.....	87	10	154	251	445
1930–31.....	89	23	191	313	539
1931–32.....	107	26	187	320	578
1932–33.....	89	22	143	254	523
1933–34.....	92	16	134	242	500
1934–35.....	76	16	152	244	498
1935–36.....	58	8	196	262	522
1936–37.....	67	8	233	308	619

*Data not available for this year.

Each term more of the superior students are taking advantage of the opportunity for self-development by passing examinations on subjects which they have mastered by independent study instead of by class instruction. Seventy-three students are scheduled to take such advanced standing examinations in one hundred and ten subjects this fall.

The statistics for the year 1936–37 follow:

J. C. MACKINNON.

All statistics on registration are as of November 2, 1936
All statistics on degrees are through June, 1937

TABLE 1

THE CORPS OF INSTRUCTORS

	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35	'36
Faculty Members of the Staff	174	179	185	199	215	220	240	253	242	235	245	245	244
Professors	64	63	68	73	82	81	86	98	93	88	83	87	78
Associate Professors	42	49	55	58	61	59	63	68	60	57	69	81	87
Assistant Professors	51	53	51	58	64	71	80	79	81	80	82	68	70
Ex-Officio	—	—	—	—	—	2	4	3	3	5	6	6	6
Instructors	17	14	11	10	8	7	7	5	5	5	5	3	3
Other Members of the Staff	220	236	264	268	272	295	323	335	283	263	272	284	291
Instructors	98	112	116	115	119	116	123	133	105	90	86	90	97
Teaching Fellows	—	—	—	—	—	—	—	—	21	22	20	24	51
Assistants	59	53	63	55	53	68	70	96	45	43	70	76	64
Technical Assistants	—	—	—	—	—	—	—	—	28	31	28	—	—
Lecturers	16	21	23	30	29	32	32	34	28	25	25	24	19
Research Associates	26	21	24	29	22	21	31	31	32	25	22	27	31
Research Assistants	21	29	38	39	49	58	65	36	20	21	18	30	24
Research Fellows (D.I.C.)	—	—	—	—	—	—	2	5	3	3	2	1	—
Research Fellows	—	—	—	—	—	—	—	—	—	3	1	12	5
Special Investigator	—	—	—	—	—	—	—	—	1	—	—	—	—
Total	394	415	449	467	487	515	563	588	525	498	517	529	535
Other Members of the Faculty	15	17	14	13	11	14	15	15	17	25	26	27	31
Professors: Emeriti	7	7	6	6	4	4	6	7	13	21	23	24	29
Retired	5	7	5	4	3	4	3	3	—	—	—	—	—
Non-Resident	3	3	3	3	4	6	6	5	4	4	3	3	2

TABLE 2

REGISTRATION SINCE THE FOUNDATION OF THE INSTITUTE

Year	Number of Students	Year	Number of Students	Year	Number of Students
1865–66	72	1889–90	909	1913–14	1,685
1866–67	137	1890–91	937	1914–15	1,816
1867–68	167	1891–92	1,011	1915–16	1,900
1868–69	172	1892–93	1,060	1916–17	1,957
1869–70	206	1893–94	1,157	1917–18	1,698
1870–71	224	1894–95	1,183	1918–19	1,819
1871–72	261	1895–96	1,187	1919–20	3,078
1872–73	348	1896–97	1,198	1920–21	3,436
1873–74	276	1897–98	1,198	1921–22	3,505
1874–75	248	1898–99	1,171	1922–23	3,180
1875–76	255	1899–00	1,178	1923–24	2,949
1876–77	215	1900–01	1,277	1924–25	2,938
1877–78	194	1901–02	1,415	1925–26	2,813
1878–79	188	1902–03	1,608	1926–27	2,671
1879–80	203	1903–04	1,528	1927–28	2,712
1880–81	253	1904–05	1,561	1928–29	2,868
1881–82	302	1905–06	1,466	1929–30	3,066
1882–83	368	1906–07	1,397	1930–31	3,209
1883–84	443	1907–08	1,415	1931–32	3,188
1884–85	579	1908–09	1,461	1932–33	2,831
1885–86	609	1909–10	1,479	1933–34	2,606
1886–87	637	1910–11	1,506	1934–35	2,507
1887–88	720	1911–12	1,559	1935–36	2,540
1888–89	827	1912–13	1,611	1936–37	2,793

TABLE 3

Classification of Students by Courses and Years

Course Name and Number	1934–35						1935–36						1936–37					
	YEAR						YEAR						YEAR					
	1	2	3	4	G	Total	1	2	3	4	G	Total	1	2	3	4	G	Total
Aeronautical Engineering XVI	65	28	30	28	32	183	76	27	28	29	40	200	86	28	28	32	30	204
Architectural Engineering IV-A	4	4	4	8	3	23	5	3	3	4	2	17	5	1	3	3	—	12
Architecture IV, IV-B	14	16	22	25	16	93	13	19	17	17	13	79	16	15	16	13	22	82
Architecture (IV, IV-B) Fifth Year	—	—	—	27	—	27	—	—	—	21	—	21	—	—	—	15	—	15
Army Engineer	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11	11
Army Ordnance	—	—	—	—	9	9	—	—	—	—	10	10	—	—	—	—	10	10
Biology and Public Health VII	10	11	20	19	21	81	13	14	9	16	13	65	16	15	17	19	24	91
Building Engineering and Construction XVII	5	6	12	8	—	31	8	6	4	14	—	32	4	11	4	4	—	23
Business and Engineering Administration XV	50	79	70	90	16	305	58	69	63	71	19	280	65	67	60	64	18	274
Ceramics	—	—	—	—	2	2	—	—	—	—	8	8	—	—	—	—	8	8
Chemical Engineering X	98	58	69	42	57	324	112	78	56	46	56	348	133	80	73	45	59	390
Chemical Engineering Practice X-A, X-B	—	—	—	6	26	32	—	—	—	8	58	66	—	—	—	2	60	62
Chemistry V	28	16	20	16	57	137	30	22	14	19	55	140	37	31	19	12	77	176
Civil Engineering I	35	28	22	21	23	129	36	23	25	24	34	142	26	29	27	15	25	122
Economics and Engineering or Science	—	—	—	—	—	—	—	—	—	—	2	2	—	—	—	—	7	7
Electrical Engineering VI, VI-B, VI-C	62	28	48	49	55	242	55	45	42	49	57	248	65	39	55	41	65	265
Electrical Engineering (Coöperative) VI-A	32	37	24	23	22	138	28	35	32	20	18	133	42	49	24	33	31	179
Electrochemical Engineering XIV	11	8	7	8	4	38	8	7	6	6	—	27	5	7	6	5	—	23
General Engineering IX-B	6	11	21	14	—	52	7	11	14	29	—	61	5	9	13	20	—	47
General Science IX-A	2	2	1	5	—	10	3	2	3	4	—	12	5	4	6	5	—	20
Geology XII	—	3	2	3	8	16	3	—	1	2	9	15	3	6	1	1	15	26
Marine Transportation XIII-C	2	1	6	6	—	15	3	4	4	7	—	18	5	7	2	5	—	19
Mathematics XVIII	7	5	10	3	10	35	3	5	3	9	6	26	4	1	3	2	10	20
Mechanical Engineering II	59	62	44	50	40	255	62	72	41	49	40	264	70	78	55	41	46	290
Mechanical Engineering (Coöperative) II-A	—	—	—	—	—	—	—	—	10	—	—	10	—	—	9	9	3	21
Metallurgy III$_{3,4}$	6	15	4	7	16	48	8	9	15	6	14	52	8	22	11	17	15	73
Meteorology	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Mining Engineering III$_{1,2}$	8	6	4	8	6	32	6	6	6	4	6	28	5	10	5	7	5	32
Naval Architecture and Marine Engineering XIII	18	18	23	13	3	75	6	22	16	16	2	62	21	12	22	19	—	74
Naval Construction XIII-A	—	—	8	7	10	25	—	—	8	8	7	23	—	—	8	7	8	23
Physics VIII	16	13	18	20	59	126	17	22	18	15	52	124	23	19	22	21	49	134
Sanitary Engineering XI	4	1	2	2	3	12	—	4	2	2	1	9	—	—	3	1	2	6
Torpedo Engineering	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2
Unclassified	—	7	5	—	—	12	1	8	8	1	—	18	1	13	13	8	—	35
Totals	542	463	496	*508	498	2,507	561	513	448	*496	522	2,540	650	553	505	*466	619	2,793

* These totals include fifth year in Architecture and City Planning

TABLE 4-A

Classification of Students by Courses, Options, and Years

COURSE NO.	NAME	OPTION	Option	YEAR 1 Opt.	1 Tot.	2 Opt.	2 Tot.	3 Opt.	3 Tot.	4 Opt.	4 Tot.	GRAD. Opt.	GRAD. Tot.	TOTAL Opt.	TOTAL Tot.	COURSE NUMBER
I	Civil Engineering	1. General	1	20		22		16		9				—		
		2. Transportation	2	4	26	3	29	7	27	5	15	25	36	—	133	I
		3. Hydroelectric	3	2		4		4		1				—		
		Army Engineer		—		—		—		—		11		—		
II	Mechanical Eng.	1. General	1	—		—		—		7				—		
		2. Automotive	2	—		—		—		10				—		
		3. Refrig. and Air Condition.	3	—	70	—	78	—	55	10	41	46	58	—	302	II
		4. Production	4	—		—		—		14				—		
		5. Textile	5	—		—		—		—				—		
		Army Ordnance		—		—		—		—		10		—		
		Torpedo Engineering		—		—		—		—		2		—		
II-A	Mechanical Engineering — Coöperative			—	—	—	—	—	9	—	9	—	3	—	21	II-A
III	Mining Eng. and Metallurgy	1. Mining	1	3		8		5		5		3		24		
		2. Petroleum Production	2	2		2		—		2		2		8		
		3. Metallurgy	3	7	13	10	32	4	16	7	24	15	28	43	113	III
		4. Physical Metallurgy	4	1		12		7		10		—		30		
		Ceramics		—		—		—		—		8		8		
IV	Architecture			—	16	—	15	—	16	—	12	—	13	—	85	IV
	Fifth Year			—		—		—		—	13	—		—		
IV-A	Architectural Engineering			—	5	—	1	—	3	—	3	—	—	—	12	IV-A
IV-B	City Planning			—		—		—		—	1	—	9	—	12	IV-B
	Fifth Year			—		—		—		—	2	—		—		
V	Chemistry			—	37	—	31	—	19	—	12	—	77	—	176	V
VI	Electrical Engineering			—	64	—	34	—	23	—	21	—	65	—	207	VI
VI-B	Electrical Engineering — Illuminating			—	1	—	5	—	6	—	1	—	—	—	13	VI-B
VI-C	Electrical Engineering — Communications			—		—		—	26	—	19	—	—	—	45	VI-C
VI-A	Electrical Engineering — Coöperative			—	42	—	49	—	24	—	33	—	31	—	179	VI-A
VII	Biology and Public Health	1a. Biology & Public Health	1a	11		8		6		12		—		—		
		1b. Biology	1b	3		2		1		2		—		—		
		2. Industrial Biology	2	1	16	4	15	8	17	3	19	—	24	—	91	VII
		3. Public Health Eng.	3	1		1		2		2		—		—		
VIII	Physics	1. General	1	13		11		10		13		—		—		
		2. Applied	2	10	23	8	19	12	22	8	21	—	49	—	134	VIII
IX-A	General Science			—	5	—	4	—	6	—	5	—	—	—	20	IX-A
IX-B	General Engineering			—	5	—	9	—	13	—	20	—	—	—	47	IX-B
X	Chemical Engineering			—	133	—	80	—	73	—	45	—	59	—	390	X
X-A	Chemical Engineering Practice — Graduate			—	—	—	—	—	—	—	—	—	60	—	60	X-A
X-B	Chemical Engineering Practice — Undergraduate			—	—	—	—	—	—	—	2	—	—	—	2	X-B
XI	Sanitary Engineering			—	—	—	—	—	3	—	1	—	2	—	6	XI

(*Continued on page 54*)

TABLE 4-A (*Continued*)

Classification of Students by Courses, Options, and Years

COURSE NO.	NAME	OPTION	Option	YEAR 1 Opt.	1 Tot.	2 Opt.	2 Tot.	3 Opt.	3 Tot.	4 Opt.	4 Tot.	GRAD. Opt.	GRAD. Tot.	TOTAL Opt.	TOTAL Tot.	COURSE NUMBER
XII	Geology	1. General Geology Strat.	1	1		4		1		1		—		—		
		2. Physical & Econ. Geology	2	1		2		—		—		—		—		
		3. Mineralogy	3	—	3	—	6	—	1	—	1	—	15	—	26	XII
		4. Geophysics	4	1		—		•		—		—		—		
XIII	Naval Architecture and Marine Engineering			—	21	—	12	—	22	—	19	—	—	—	74	XIII
XIII-A	Naval Construction			—	—	—	—	—	8	—	7	—	8	—	23	XIII-A
XIII-C	Marine Transportation			—	5	—	7	—	2	—	5	—	—	—	19	XIII-C
XIV	Electrochemical Engineering			—	5	—	7	—	6	—	5	—	—	—	23	XIV
XV	Business and Engineering Administration	1a. Civil	1a	2		4		—		2		—		—		
		1b. Mechanical	1b	25	65	23	67	22	60	30	64	—	18	—	274	XV
		1c. Industrial Practice	1c	21		18		21		14		—		—		
		2. Chemical	2	17		22		17		18		—		—		
XVI	Aeronautical Engineering	— Aeronautics	Aer.	—	86	—	28	—	28	—	32	30	47	—	221	XVI
		— Meteorology	Met.	—		—		—		—		17		—		
XVII	Building Engineering and Construction			—	4	—	11	—	4	—	4	—	—	—	23	XVII
XVIII	Mathematics			—	4	—	1	—	3	—	2	—	10	—	20	XVIII
	Economics & Eng. or Sci.	— Engineering	Eng.	—	—	—	—	—	—	—	—	7	7	—	7	Ec.&Eng. or Sc.
		— Science	Sci.	—		—		—		—		—		—		
	Unclassified			—	1	—	13	—	13	—	8	—	—	—	35	Unc.
Total					650		553		505		466*		619		2,793	Total

* This total includes fifth year in Architecture and City Planning.

TABLE 4-B

Classification of Special Students by Courses and Years
(Included in Table 4-A)

COURSE	OPT.	YEAR 1	2	3	4	G	TOTAL	COURSE
I Civil Engineering		—	—	1	—	3	4	I
II Mechanical Engineering		—	—	—	—	9	9	II
III Mining Engineering and Metallurgy	1, 2	1	—	—	2	1	4	$III_{1, 2}$
	3, 4	—	—	—	2	—	2	$III_{3, 4}$
	Cer.	—	—	—	—	1	1	III Cer.
IV Architecture		3	3	2	1	—	11	IV
Fifth Year		—	—	—	2	—		
V Chemistry		—	—	—	—	4	4	V
VI Electrical Engineering		—	—	—	1	8	9	VI
VI-C Electrical Engineering (Communications)		—	—	—	2	—	2	VI-C
VII Biology and Public Health		—	—	6	12	1	19	VII
VIII Physics		1	—	—	—	5	6	VIII
X Chemical Engineering		—	—	—	—	2	2	X
X-A Chemical Engineering Practice		—	—	—	—	1	1	X-A
XII Geology		—	1	—	—	3	4	XII
XIII Naval Architecture & Marine Engineering		—	—	1	—	—	1	XIII
XV Business and Engineering Administration		—	—	2	1	1	4	XV
XVI Aeronautical Engineering	Aero.	—	—	—	1	3	4	XVI Aero.
	Meteor.	—	—	—	—	3	3	XVI Meteor.
XVII Building Engineering and Construction		—	2	—	—	—	2	XVII
XVIII Mathematics		—	—	—	—	1	1	XVIII
Unclassified		1	1	—	—	—	2	Unc.
Total		6	7	12	*24	46	95	

* This total includes Fifth Year in Architecture.

TABLE 4-C

Classification of Former Students Who Returned This Year†
(Included in Table 4-A)

COURSE	OPT.	YEAR 1	2	3	4	G	TOTAL	COURSE
I Civil Engineering		1	2	1	—	2	6	I
II Mechanical Engineering		2	2	1	3	3	11	II
III Mining Engineering and Metallurgy	3, 4	—	—	1	—	—	1	$III_{3, 4}$
IV Architecture		—	—	1	—	1	2	IV
IV-B City Planning		—	—	—	—	2	2	IV-B
V Chemistry		1	1	3	—	4	9	V
VI Electrical Engineering		—	2	3	4	1	10	VI
VI-A Electrical Engineering (Coöperative)		—	2	—	2	1	5	VI-A
VI-C Electrical Engineering (Communications)		—	—	1	—	—	1	VI-C
VII Biology and Public Health		2	—	—	—	1	3	VII
VIII Physics		—	—	—	1	3	4	VIII
IX-A General Science		—	—	1	—	—	1	IX-A
IX-B General Engineering		—	—	—	1	—	1	IX-B
X Chemical Engineering		1	4	3	2	2	12	X
X-A Chemical Engineering Practice		—	—	—	—	1	1	X-A
XI Sanitary Engineering		—	—	—	—	1	1	XI
XII Geology		—	—	—	—	1	1	XII
XIII Naval Architecture & Marine Engineering		—	—	1	1	—	2	XIII
XV Business and Engineering Administration		4	3	4	4	3	18	XV
XVIII Mathematics		—	—	—	—	1	1	XVIII
Unclassified		—	—	5	—	—	5	Unc.
Total		11	16	25	18	27	97	

† Excluding thirteen special students.

TABLE 5

Classification of Students by Courses since 1929

	1929–30	1930–31	1931–32	1932–33	1933–34	1934–35	1935–36	1936–37
Engineering Courses . . . *Total*	2,405	2,564	2,495	2,197	2,008	1,961	2,028	2,187
Aeronautical Engineering XVI	278	233	193	193	162	183	200	221
Architectural Engineering IV-A	73	72	53	34	31	23	17	12
Building Engineering and Construction XVII	102	82	67	45	43	31	32	23
Business and Engineering Administration XV	299	347	378	371	343	305	280	274
Chemical Engineering X, X-A, X-B	384	404	402	315	323	356	414	452
Civil Engineering I, I-A	240	236	224	175	142	129	142	122
Army Engineer (In Civil Engineering Department)	—	—	—	—	—	—	—	11
Electrical Engineering VI, VI-A, VI-B, VI-C	484	523	502	443	395	380	381	444
Electrochemical Engineering XIV	47	37	45	42	35	38	27	23
Fuel and Gas Engineering	7	11	9	—	—	—	—	—
General Engineering IX-B	37	46	43	32	35	52	61	47
Mechanical Engineering II, II-A	303	369	344	315	270	255	274	313
Army Ordnance (In Mechanical Engineering Department)	11	11	10	11	9	9	10	10
Mining Engineering and Metallurgy III	67	105	114	94	100	82	88	113
Naval Architecture and Marine Eng. XIII, XIII-C	56	71	89	93	90	90	80	93
Naval Construction XIII-A	14	15	20	34	26	25	23	23
Sanitary Engineering XI	14	13	12	11	13	12	9	6
Science Courses . . . *Total*	341	378	439	439	439	405	382	467
Biology and Public Health VII	93	99	100	94	92	81	65	91
Chemistry V	118	146	158	146	145	137	140	176
General Science IX-A	13	9	4	10	12	10	12	20
Geology XII	24	17	20	20	21	16	15	26
Mathematics XVIII	24	29	32	31	28	35	26	20
Physics VIII	69	78	125	138	141	126	124	134
Architecture IV, IV-B . . . *Total*	228	200	190	159	135	120	100	97
Economics and Engineering or Science . . . *Total*	—	—	—	—	—	—	2	7
Unclassified . . . *Total*	81	56	54	25	15	12	18	35
Grand Total	3,066	3,209	3,188	2,831	2,606	2,507	2,540	2,793

TABLE 6
GEOGRAPHICAL CLASSIFICATION OF STUDENTS SINCE 1932

UNITED STATES	1932	1933	1934	1935	1936
North Atlantic . . . . . Total	2,178	2,050	1,919	1,877	1,979
Connecticut	72	69	76	92	109
Maine	45	38	37	28	33
Massachusetts	1,373	1,264	1,148	1,088	1,092
New Hampshire	41	37	33	23	21
New Jersey	118	122	136	143	154
New York	347	337	326	361	400
Pennsylvania	111	119	110	104	127
Rhode Island	55	49	36	29	30
Vermont	16	15	17	9	13
South Atlantic . . . . . Total	130	94	82	106	139
Delaware	8	4	4	7	12
District of Columbia	53	35	32	36	34
Florida	6	3	3	7	10
Georgia	2	1	2	7	10
Maryland	19	14	19	20	23
North Carolina	8	7	5	7	11
South Carolina	3	3	2	3	3
Virginia	27	24	12	12	26
West Virginia	4	3	3	7	10
South Central . . . . . Total	52	45	51	51	70
Alabama	7	4	2	3	6
Arkansas	2	2	2	1	3
Kentucky	10	7	9	14	13
Louisiana	8	7	9	8	13
Mississippi	4	2	2	2	5
Tennessee	5	8	7	7	7
Texas	16	15	20	16	23
North Central . . . . . Total	250	226	238	262	293
Illinois	58	54	66	76	91
Indiana	13	10	12	16	12
Iowa	7	6	7	8	6
Kansas	11	7	6	6	7
Michigan	28	19	21	18	26
Minnesota	14	18	17	15	19
Missouri	37	34	33	39	35
Nebraska	7	5	4	4	3
North Dakota	2	4	1	5	4
Ohio	58	55	52	58	73
South Dakota	2	—	1	3	1
Wisconsin	13	14	18	14	16
Western . . . . . Total	78	74	90	101	119
Arizona	1	2	2	2	2
California	31	24	32	38	44
Colorado	11	11	15	23	25
Idaho	2	2	1	—	2
Montana	4	3	3	—	8
Nevada	—	—	—	—	1
New Mexico	—	4	4	6	4
Oklahoma	7	7	6	5	6
Oregon	4	6	8	6	5
Utah	4	4	1	4	4
Washington	13	11	18	16	16
Wyoming	1	—	—	1	2
Territories and Dependencies . Total	8	8	5	4	12
Alaska	1	—	—	—	—
Canal Zone	1	1	—	—	2
Hawaii	4	4	3	1	4
Puerto Rico	2	2	2	3	6
Total for United States	2,696	2,497	2,385	2,401	2,612

TABLE 6 (*Continued*)

Foreign Countries	1932	1933	1934	1935	1936
Total	135	109	122	139	181
Argentina	1	1	3	5	7
Australia	2	1	—	2	2
Austria	1	1	3	2	1
Belgium	3	1	2	2	1
Bermuda	—	1	1	—	—
Brazil	—	—	2	1	2
British West Indies	1	1	2	—	—
Canada	26	31	24	29	30
Chile	1	1	1	—	—
China	16	12	28	35	50
Colombia	5	5	3	1	2
Cuba	9	8	7	12	11
Denmark	1	—	—	1	—
Ecuador	1	—	1	—	—
England	1	3	3	6	11
France	4	2	2	1	4
Germany	2	2	2	1	3
Guatemala	—	—	—	1	1
Honduras	—	—	—	2	2
Hungary	1	—	—	—	1
India	6	3	6	6	11
Iraq	3	1	2	2	—
Ireland	1	1	1	1	1
Italy	—	—	1	—	—
Japan	4	3	7	5	4
Java	—	1	—	—	—
Manchukuo	—	2	—	—	—
Mexico	6	5	5	4	5
Netherland Indies	1	—	1	1	1
Netherlands	—	—	1	1	2
Newfoundland	—	—	1	—	—
New Zealand	—	—	—	—	1
Norway	2	3	1	1	2
Palestine	3	1	—	—	—
Panama	3	1	2	1	1
Persia	—	—	—	1	—
Peru	2	—	—	—	1
Philippine Islands	—	1	—	—	8
Poland	1	1	—	1	—
Salvador	1	1	—	—	—
Scotland	—	—	—	1	1
Siam	1	1	1	1	4
Soviet Union	20	8	1	1	—
Spain	—	1	—	—	—
Sweden	—	2	—	1	—
Switzerland	—	1	3	1	3
Syria	2	—	1	1	1
Turkey	—	—	1	2	4
Union of South Africa	4	2	2	4	3
Venezuela	—	1	1	2	—
Grand Total, United States and Foreign	2,831	2,606	2,507	2,540	2,793

TABLE 7

Women Students Classified by Courses and Years

COURSE	YEAR					Total
	1	2	3	4	G	
I Civil Engineering	1	—	—	—	—	1
IV Architecture	4	2	2	1	1	10
IV-B City Planning	—	—	—	1	—	1
IV-A Architectural Engineering	2	—	—	—	—	2
V Chemistry	1	—	3	1	5	10
VII Biology and Public Health	5	1	1	1	7	15
VIII Physics	—	1	1	—	1	3
IX-A General Science	1	—	—	—	—	1
X Chemical Engineering	—	—	—	—	1	1
XII Geology	—	—	—	—	1	1
XV Business and Engineering Administration	2	—	—	—	—	2
XVI Aeronautical Engineering	1	—	—	2	—	3
XVIII Mathematics	2	—	—	—	1	3
Unclassified	1	1	1	—	—	3
Total	20	5	8	6	17	56

TABLE 8

Old and New Students

Year	1931–32	1932–33	1933–34	1934–35	1935–36	1936–37
Students registered at end of last academic year (including specials)	1,949	1,866	1,748	1,568	1,558	1,634
Students who have previously attended the Institute, but were not registered at end of last academic year (including specials)	231	126	120	124	91	110
New students who entered by examination	526	403	241	214	194	190
New students who entered without examination	——	89	187	253	287	371
New students who entered from other colleges as candidates for degrees	395	289	266	302	361	432
New students (specials, not candidates for degrees)	87	58	44	46	49	56
Total	3,188	2,831	2,606	2,507	2,540	2,793

TABLE 9

LIST OF AMERICAN COLLEGES AND UNIVERSITIES, WITH NUMBER OF GRADUATES ATTENDING THE INSTITUTE

College		College		College	
Adrian College	1	Middlesex Medical School	1	University of Chicago	3
Alabama Polytechnic Inst.	2	Millsaps College	2	University of Cincinnati	2
Allegheny College	1	Missouri School of Mines	1	University of Colorado	4
Amherst College	6	Missouri Valley College	1	University of Delaware	3
Armour Institute of Tech.	1	Montana School of Mines	1	University of Denver	3
Bates College	4	Montana State College	2	University of Detroit	1
Boston College	5	Montana State University	1	University of Florida	1
Boston University	5	Mt. Holyoke College	1	University of Georgia	1
Bowdoin College	5	Newark College of Eng.	1	University of Illinois	11
Brooklyn College	1	New York University	3	University of Iowa	1
Brooklyn Coll.of Pharmacy	1	N. C. State College of Agriculture and Eng.	1	University of Kansas	3
Brown University	3	N. Dakota Agric. Coll.	1	University of Kentucky	4
California Inst. of Tech.	4	Northeastern University	8	University of Louisville	1
Carleton College	2	Northwestern University	2	University of Maine	7
Carnegie Inst. of Tech.	2	Oberlin College	2	University of Maryland	1
Case School of App. Sci.	4	Ohio State University	3	University of Michigan	7
Catholic Univ. of America	1	Ohio Wesleyan University	1	University of Minnesota	2
Central College (Mo.)	1	Oregon State Agric. Coll.	1	University of Missouri	1
Clarkson Mem.Sch.of Tech.	1	Parsons College	1	University of Nebraska	2
Colby College	2	Pennsylvania State Coll.	8	Univ. of New Hampshire	1
College of City of N. Y.	8	Poly. Inst. of Brooklyn	4	University of New Mexico	1
College of Puget Sound	1	Pomona College	5	Univ. of North Carolina	5
College of Wooster	2	Pratt Institute	2	Univ. of North Dakota	1
Colorado College	1	Princeton University	4	University of Notre Dame	5
Colorado School of Mines	1	Purdue University	4	University of Oklahoma	2
Columbia Univ. (N. Y.)	3	Radcliffe College	1	University of Oregon	1
Connecticut State College	1	Randolph-Macon College for Men	1	Univ. of Pennsylvania	2
Cornell University	10	Regis College	1	University of Richmond	2
Dartmouth College	13	Rensselaer Poly. Inst.	2	University of Rochester	3
Davidson College	1	Rhode Island State Coll.	3	Univ. of Santo Tomas	1
Drexel Institute	4	Rice Institute	3	Univ. of South Carolina	1
Duke University	1	Roanoke College	3	University of Tennessee	4
Franklin & Marshall Coll.	1	Rockhurst College	1	University of Texas	3
George Washington Univ.	2	Rutgers University	2	University of Toledo	1
Georgetown University	1	St. Lawrence University	1	University of Vermont	1
Georgia School of Tech.	4	St. Louis University	1	University of Virginia	4
Hamilton College	1	St. Mary's College (Calif.)	1	University of Washington	6
Hampden-Sidney College	1	St. Michael's College	1	University of Wisconsin	3
Harvard University	20	St. Olaf College	2	Utah State Agric. Coll.	1
Haverford College	4	Simmons College	1	Vanderbilt University	1
Hobart College	1	Smith College	1	Virginia Military Inst.	3
Holy Cross College(Mass.)	1	Stanford University	15	Wake Forest College	1
Hunter College	1	State Coll. of Washington	1	Washington & Lee Univ.	1
Illinois College	1	Stevens Inst. of Tech.	2	Washington University	3
International Y.M.C.A.Coll.	1	Swarthmore College	2	Wellesley College	3
Iowa State Coll.of A.&M.A.	1	Syracuse University	1	Wesleyan University	3
Johns Hopkins University	3	Temple University	4	West Virginia University	2
Kansas State Agri. Coll.	3	Texas Agri. & Mech. Coll.	2	Wheaton College	1
Kent State University	2	Texas Tech. College	2	Whitman College	2
Kenyon College	2	The Principia	1	Williamette University	2
Lafayette College	2	Tufts College	12	Williams College	6
Lehigh University	3	Tulane University of La.	3	Wittenberg College	1
Lincoln University	1	Union College	2	Woodstock College	1
Long Island University	1	U. S. Military Academy	29	Worcester Poly. Inst.	5
Louisiana State Univ.	1	U. S. Naval Academy	36	Yale University	9
Lowell Textile Institute	2	University of Alabama	2	Total	667
Loyola University	1	University of Arizona	1	Number of American Colleges Represented	177
Lynchburg College	1	University of Arkansas	1	Number of Foreign Colleges Represented (Not listed)	46
Marshall College	2	University of Buffalo	1	Total	223
Mass. Inst. of Tech.	140	University of California	8		
Mass. State College	2				
Mich. Coll. of Min.& Tech.	2				

TABLE 10. NEW STUDENTS ENTERING FROM OTHER COLLEGES AS CANDIDATES FOR DEGREES

Class Joined at the Institute	Years Spent at College				Total
	One	Two	Three	Four or more	
First year	40	20	4	6	70
Second year	12	28	8	11	59
Third year	—	11	18	33	62
Fourth year	—	—	3	5	8
Graduate year	—	—	3	230	233
Total	52	59	36	285	432

TABLE 11

Regular Students from Colleges Classified by Courses

COURSE	No Previous Degree			Graduates of Other Colleges					Graduates of M. I. T. Taking Graduate Work		
	Entered		Total	Entered				Total	S. B. Degree June 1936	Other Graduates	Total
				Sept. 1936		Previous Years					
	Sept. 1936	Previous Years		Undergrad.	Grad.	Undergrad.	Grad.				
Aeronautical Engineering XVI	8	12	20	3	22	2	13	40	1	5	6
Architectural Engineering IV-A	3	1	4	—	—	—	—	—	—	—	—
Architecture IV, IV-B	1	12	13	3	13	4	2	22	4	3	7
Army Engineer	—	—	—	—	11	—	—	11	—	—	—
Army Ordnance	—	—	—	—	10	—	—	10	—	—	—
Biology and Public Health VII	1	4	5	1	8	—	10	19	1	4	5
Building Engineering and Construction XVII	1	1	2	—	—	—	—	—	—	—	—
Business and Engineering Administration XV	12	28	40	3	9	—	5	17	—	3	3
Chemical Engineering X, X-A, X-B	28	29	57	1	44	1	55	101	12	5	17
Chemistry V	3	3	6	—	28	—	25	53	10	10	20
Civil Engineering I	6	9	15	4	10	—	8	22	1	3	4
Economics and Engineering or Science	—	—	—	—	—	—	—	—	7	—	7
Electrical Engineering VI, VI-A, VI-B, VI-C	30	41	71	9	32	11	26	78	24	6	30
Electrochemical Engineering XIV	3	—	3	—	—	—	—	—	—	—	—
General Engineering IX-B	2	3	5	—	—	2	—	2	—	—	—
General Science IX-A	1	1	2	—	—	1	—	1	—	—	—
Geology XII	—	3	3	1	4	1	7	13	—	1	1
Mathematics XVIII	1	—	1	—	3	—	3	6	3	—	3
Mechanical Engineering II, II-A	20	29	49	2	19	6	11	38	3	9	12
Mining Engineering and Metallurgy III	5	9	14	2	8	—	15	25	1	2	3
Naval Architecture XIII, XIII-C	9	6	15	4	—	3	—	7	—	—	—
Naval Construction XIII-A	—	—	—	8	—	7	8	23	—	—	—
Physics VIII	5	5	10	2	11	—	23	36	—	10	10
Sanitary Engineering XI	—	—	—	—	1	—	—	1	—	1	1
Unclassified	14	7	21	3	—	—	—	3	—	—	—
Total	153	203	356	46	233	38	211	528	67	62	129

TABLE 12

NUMBER OF DEGREES AWARDED IN DECEMBER, 1936 AND JUNE, 1937

Name of Course	S.B.		B.Arch.		S.M.		M.Arch. and M.C.P.		Ph.D.		Sc.D.		Totals	
	Dec. '36	June '37	Dec. '36	June '37	Dec. '36	June '37	Dec. '36	June '37	Dec. '36	June '37	Dec. '36	June '37	Dec. '36	June '37
Aeronautical Engineering	3	30	—	—	1	8	—	—	—	—	1	1	5	39
Architectural Engineering	—	3	—	—	—	—	—	—	—	—	—	—	—	3
Architecture	—	—	2	7	—	—	2	5	—	—	—	—	4	12
Biology	—	1	—	—	—	—	—	—	—	—	—	—	—	1
Biology and Public Health	—	3	—	—	—	1	—	—	—	2	—	—	—	6
Building Engineering and Construction	—	4	—	—	—	—	—	—	—	—	—	—	—	4
Business and Engineering Administration	1	54	—	—	2	2	—	—	—	—	—	—	3	56
Ceramics	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Chemical Engineering	4	34	—	—	5	6	—	—	—	—	3	7	12	47
Chemical Engineering Practice	—	9	—	—	2	25	—	—	—	—	—	—	2	34
Chemistry	1	12	—	—	2	3	—	—	2	9	—	1	5	25
City Planning	—	—	—	2	—	—	1	—	—	—	—	—	1	2
Civil Engineering	1	14	—	—	9	16	—	—	—	—	—	1	10	31
Economics and Engineering	—	—	—	—	—	6	—	—	—	—	—	—	—	6
Electrical Engineering (Inc. VI-A)	10	51	—	—	10	31	—	—	—	—	—	6	20	88
Electrochemical Engineering	—	5	—	—	—	—	—	—	—	—	—	—	—	5
General Engineering	1	16	—	—	—	—	—	—	—	—	—	—	1	16
General Science	1	4	—	—	—	—	—	—	—	—	—	—	1	4
Geology	—	—	—	—	—	—	—	—	—	3	—	—	—	3
Industrial Biology	—	1	—	—	—	—	—	—	—	—	—	—	—	1
Marine Transportation	—	2	—	—	—	—	—	—	—	—	—	—	—	2
Mathematics	—	4	—	—	—	1	—	—	1	1	—	—	1	6
Mechanical Engineering	5	34	—	—	7	10	—	—	—	—	2	1	14	45
Metallurgy	—	15	—	—	—	3	—	—	—	—	—	—	—	18
Meteorology	—	—	—	—	—	4	—	—	—	—	—	—	—	4
Mining Engineering	2	4	—	—	—	1	—	—	—	—	—	—	2	5
Naval Architecture and Marine Engineering	3	14	—	—	1	—	—	—	—	—	—	—	4	14
Naval Construction	—	—	—	—	—	8	—	—	—	—	—	—	—	8
Petroleum Engineering	—	—	—	—	—	1	—	—	—	—	—	—	—	1
Physics	—	16	—	—	1	2	—	—	3	8	1	—	5	26
Public Health Engineering	—	2	—	—	—	—	—	—	—	—	—	—	—	2
Sanitary Engineering	—	1	—	—	—	—	—	—	—	—	—	—	—	1
Without Course Classification	—	—	—	—	7	18	—	—	—	—	—	—	7	18
Totals	32	333	2	9	47	146	3	5	6	23	7	18	97	534

TABLE 13

DEGREES OF BACHELOR OF SCIENCE ACCORDING TO CLASS IN WHICH THEY WERE AWARDED

Class	Aeronautical Eng.	Architectural Eng.‡	Architecture	Biology or Natural History	Bldg. Eng. & Constr.	Business and Eng. Admin.	Chemical Eng.	Chemical Eng. Practice X-B	Chemistry	Civil Engineering	Electrical Eng. (Inc. VI-A)	Electrochemical Engineering*	General Eng.	General Science or General Course	Geology	Mathematics	Mechanical Eng.	Military Eng.	Mining Eng. and Metallurgy	Naval Arch.	Physics	Sanitary Eng.	Total	Total by Decades
1868	—	—	—	—	—	—	—	—	—	6	—	—	—	1	—	—	1	—	6	—	—	—	14	
1869	—	—	—	—	—	—	—	—	1	2	—	—	—	—	—	—	2	—	—	—	—	—	5	
1870	—	—	—	—	—	—	—	—	1	4	—	—	—	1	—	—	2	—	2	—	—	—	10	29
1871	—	—	—	—	—	—	—	—	2	8	—	—	—	—	—	—	2	—	5	—	—	—	17	
1872	—	—	—	—	—	—	—	—	3	3	—	—	—	—	—	—	1	—	5	—	—	—	12	
1873	—	—	1	—	—	—	—	—	7	12	—	—	—	1	—	—	2	—	3	—	—	—	26	
1874	—	—	1	—	—	—	—	—	—	10	—	—	—	2	—	—	4	—	1	—	—	—	18	
1875	—	—	1	—	—	—	—	—	1	10	—	—	—	2	—	—	7	—	6	—	1	—	28	
1876	—	—	1	2	—	—	—	—	5	12	—	—	—	4	—	—	8	—	8	—	3	—	43	
1877	—	—	4	—	—	—	—	—	2	12	—	—	—	—	—	—	6	—	8	—	—	—	32	
1878	—	—	3	—	—	—	—	—	3	8	—	—	—	1	—	—	2	—	2	—	—	—	19	
1879	—	—	1	1	—	—	—	—	3	6	—	—	—	—	—	—	8	—	3	—	1	—	23	
1880	—	—	—	—	—	—	—	—	1	3	—	—	—	1	—	—	—	—	3	—	—	—	8	226
1881	—	—	3	1	—	—	—	—	8	3	—	—	—	2	—	—	5	—	6	—	—	—	28	
1882	—	—	3	1	—	—	—	—	6	2	—	—	—	1	—	—	5	—	5	—	1	—	24	
1883	—	—	1	—	—	—	—	—	3	3	—	—	—	—	—	—	7	—	5	—	—	—	19	
1884	—	—	—	—	—	—	—	—	12	5	—	—	—	—	—	—	6	—	13	—	—	—	36	
1885	—	—	2	—	—	—	—	—	4	4	2	—	—	1	—	—	7	—	8	—	—	—	28	
1886	—	—	1	1	—	—	—	—	7	9	10	—	—	1	—	—	23	—	7	—	—	—	59	
1887	—	—	1	1	—	—	—	—	9	10	8	—	—	3	—	—	17	—	8	—	1	—	58	
1888	—	—	5	3	—	—	—	—	10	11	17	—	—	1	—	—	25	—	4	—	1	—	77	
1889	—	—	3	1	—	—	—	—	8	14	17	—	—	2	—	—	24	—	5	—	1	—	75	
1890	—	—	5	3	—	—	—	—	13	25	18	—	—	6	—	—	28	—	3	—	2	—	103	507
1891	—	—	6	3	—	—	7	—	11	18	23	—	—	1	1	—	26	—	4	—	3	—	103	
1892	—	—	13	6	—	—	4	—	7	22	36	—	—	7	1	—	26	—	4	—	1	6	133	
1893	—	—	2	2	—	—	8	—	8	25	41	—	—	6	2	—	30	—	5	—	—	—	129	
1894	—	—	14	1	—	—	12	—	11	21	33	—	—	5	—	—	31	—	4	—	3	3	138	
1895	—	—	15	—	—	—	11	—	14	25	33	—	—	4	—	—	30	—	3	5	2	4	146	
1896	—	—	24	3	—	—	7	—	17	26	48	—	—	7	3	—	34	—	10	5	3	4	191	
1897	—	—	16	2	—	—	12	—	20	25	33	—	—	7	1	—	40	—	7	9	3	4	179	
1898	—	—	29	3	—	—	9	—	25	32	33	—	—	6	—	—	41	—	7	7	4	3	199	
1899	—	—	22	2	—	—	10	—	22	30	32	—	—	1	—	—	37	—	9	8	2	1	176	
1900	—	—	21	3	—	—	11	—	19	32	23	—	—	5	—	—	34	—	21	9	3	4	185	1,579
1901	—	—	21	1	—	—	14	—	17	37	25	—	—	6	1	—	39	—	18	16	1	4	200	
1902	—	—	18	5	—	—	9	—	14	24	35	—	—	3	—	—	46	—	14	14	3	7	192	
1903	—	—	15	1	—	—	10	—	13	26	39	1	—	1	1	—	37	—	27	12	3	4	190	
1904	—	—	24	3	—	—	7	—	15	34	34	8	—	5	1	—	45	—	32	17	5	2	232	
1905	—	—	12	3	—	—	13	—	23	46	31	3	—	3	1	—	54	—	26	24	—	5	244	
1906	—	—	22	2	—	—	10	—	21	47	37	3	—	—	—	—	69	—	38	19	4	6	278	
1907	—	—	21	—	—	—	14	—	10	37	32	5	—	—	2	—	52	—	22	10	—	3	208	
1908	—	—	19	4	—	—	15	—	16	48	38	2	—	—	—	—	62	—	19	5	—	2	230	
1909	—	—	18	5	—	—	13	—	12	51	42	3	—	—	—	—	41	—	30	5	3	9	232	
1910	—	—	18	3	—	—	18	—	10	57	36	3	—	2	—	—	57	—	24	11	—	12	251	2,257
1911	—	—	10	1	—	—	19	—	12	46	49	5	—	2	—	—	49	—	17	6	1	15	232	
1912	—	—	21	4	—	—	31	—	7	55	52	3	—	1	—	—	47	—	21	3	2	14	261	
1913	—	—	26	2	—	—	30	—	12	58	43	8	—	—	—	—	50	—	20	4	1	15	269	
1914	—	—	19	6	—	—	37	—	9	60	51	8	—	4	—	—	65	—	17	8	1	19	304	
1915	—	—	30	3	—	—	33	—	23	49	42	10	—	3	—	—	69	—	5	7	3	12	289	
1916	—	—	37	5	—	—	32	—	11	45	56	14	—	2	—	—	84	—	5	9†	3	18	321	
1917	—	—	27	10	—	37	43	—	13	49	45	10	—	5	2	—	63	—	14	9†	1	17	345	
1918	—	—	28	7	—	29	40	—	10	45	50	11	2	4	1	—	75	—	10	4	3	5	324	
1919	—	—	16	9	—	28	44	—	8	45	50	6	3	1	—	—	66	—	7	7	4	6	299	
1920	—	—	19	2	—	48	63	—	6	52	30	9	1	4	—	—	55	—	13	12	2	2	319	2,963
1921	—	—	11	3	—	70	92	—	9	98	75	15	15	—	3	—	128	—	24	18	1	3	565	
1922	—	—	32	8	—	126	98	15	11	65	109	25	25	1	8	—	56	—	27	16	8	7	637	
1923	—	13	18	6	—	115	73	19	16	64	78	16	23	2	8	3	106	—	23	13	9	3	608	
1924	—	6	15	6	—	82	57	8	13	69	125	17	36	4	2	1	82	—	19	11	3	1	557	
1925	—	6	18	2	—	94	53	8	18	57	110	9	37	2	3	2	98	—	23	10	5	—	555	
1926	—	9	24	5	—	95	45	13	19	76	108	14	33	2	4	1	76	—	20	14	1	2	561	
1927	2	15	19	6	—	89	39	6	13	73	121	8	22	2	3	3	72	1	9	4	4	3	514	
1928	8	19	16	5	—	73	38	7	13	59	114	11	12	2	1	3	67	—	12	3	3	5	471	
1929	29	25	26	7	9	69	37	11	18	46	84	10	14	1	2	5	64	—	11	5	4	6	483	
1930	29	15	44	9	23	59	39	12	11	46	76	8	9	1	2	1	48	—	6	6	11	4	459	5,410
1931	39	10	18	16	15	68	32	10	12	49	83	6	22	5	3	4	70	—	12	13	7	2	496	
1932	27	16	5	15	18	70	45	7	15	38	74	4	29	3	2	3	68	4	21	16	21	4	505	
1933	27	9	—	13	9	56	38	3	18	47	86	8	16	3	2	7	86	—	14	13	14	2	471	
1934	26	10	—	16	13	78	48	6	15	35	82	7	8	9	1	8	50	—	26	25	28	5	496	
1935	27	8	—	18	8	74	43	5	15	18	57	8	19	4	1	3	45	—	14	14	19	1	401	
1936	26	3	—	13	12	63	31	20	16	23	68	5	25	6	2	8	47	—	10	18	11	2	409	
§1937	28	3	—	7	4	54	31	8	12	14	38	5	16	4	—	4	34	—	19	16	16	1	314	
Total	268	167	865	270	111	1,477	1,425	158	769	2,226	2,712	288	367	176	64	56	2,843	5	859	460	240	257	16,063	

*Prior to 1909 this Course was designated as Option 3 (Electrochemistry) of Course VIII.
†Two received the degree in Naval Architecture, Course XIII-B, in 1916 and three in 1917.
‡Prior to 1923 degrees were awarded in Architecture.
§Includes only June degrees awarded in Class 1937.

TABLE 14

Degrees of Master of Science Awarded

	Aeronautical Engineering	Architectural Engineering	Architecture	Biology and Pub. Health	Business and Eng. Admin.	Ceramics	Chemical Engineering	Chem. Eng. Practice	Chemistry	Civil Engineering	Economics & Engineering	Electrical Eng. (Inc. VI-A)	Electrochemical Eng.	Fuel and Gas Eng.	General Science	Geology	Mathematics	Mechanical Engineering	Metallurgy	Meteorology	Mining Engineering	Naval Architecture	Naval Con., (U. S. N.)	Naval Con., (For. Stud.)	Petroleum Engineering	Physics	Railroad Operation	Sanitary Engineering	Without Course Classification	Total
1886	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
1887	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
1888	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1889	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1890	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
1891	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1892	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1893	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
1894	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
1895	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	3
1896	—	—	2	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
1897	—	—	2	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	4
1898	—	—	1	—	—	—	2	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	5
1899	—	—	1	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
1900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1901	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	4
1902	—	—	3	—	—	—	—	—	3	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	8
1903	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—	7
1904	—	—	4	—	—	—	—	—	1	—	—	2	—	—	—	—	—	1	—	—	—	3	—	—	1	—	—	—	—	12
1905	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	—	—	—	—	—	1	—	18
1906	—	—	3	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	9
1907	—	—	6	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	—	—	—	—	—	—	—	15
1908	—	—	1	—	—	—	—	—	1	—	—	3	—	—	—	—	—	—	—	—	—	7	—	—	—	—	—	—	—	12
1909	—	—	6	—	—	—	1	—	1	2	—	1	—	—	—	1	—	1	—	—	2	3	—	—	1	—	—	—	—	19
1910	—	—	6	1	—	—	—	—	1	2	—	1	—	—	—	—	—	1	—	—	—	7	—	—	—	—	—	—	—	19
1911	—	—	5	2	—	—	—	—	2	2	—	4	—	—	—	—	—	2	—	—	—	3	—	—	—	—	—	—	—	20
1912	—	—	4	2	—	—	—	—	3	3	—	2	—	—	—	—	—	—	—	—	2	4	—	—	—	—	—	2	—	22
1913	—	—	4	1	—	—	7	—	—	1	—	1	—	—	—	1	—	2	—	—	1	2	—	—	—	—	—	—	—	20
1914	—	—	3	2	—	—	3	—	5	3	—	2	—	—	—	1	—	1	—	—	—	2	—	—	—	—	—	3	—	25
1915	1	—	4	—	—	—	2	—	2	1	—	10	1	—	—	—	—	4	—	—	1	2	—	—	—	—	—	—	—	29
1916	5	—	7	1	—	—	1	—	3	5	—	6	1	—	—	—	—	4	—	—	—	2	5	—	—	—	—	1	—	41
1917	4	—	3	—	—	—	1	—	1	3	—	5	—	—	—	—	—	1	—	—	1	9	—	—	—	1	—	2	—	31
1918	5	—	1	1	—	—	1	—	1	1	—	2	—	—	—	—	—	2	—	—	1	—	—	—	—	—	—	—	1	16
1919	2	—	—	—	—	—	—	—	3	4	—	4	1	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	16
1920	—	—	—	1	—	—	3	—	2	4	—	7	1	—	—	3	1	5	—	—	1	19	—	—	—	1	—	—	4	52
1921	3	1	—	—	—	—	29	—	6	2	—	4	—	—	—	2	—	10	—	—	—	20	—	—	—	—	—	—	17	94
1922	5	1	—	—	—	—	6	32	4	5	—	37	1	—	—	2	2	4	—	—	3	10	—	—	—	1	—	—	18	131
1923	10	—	—	—	—	—	3	34	1	5	—	45	—	—	—	2	—	15	1	—	—	21	—	—	—	3	—	—	26	170
1924	4	—	—	—	—	—	6	41	1	5	—	34	1	—	—	1	—	8	1	—	1	12	—	—	—	5	—	—	28	148
1925	5	1	—	—	1	—	3	35	3	5	—	35	1	—	—	—	—	10	2	—	1	—	—	—	—	2	—	1	21	126
1926	6	1	—	—	—	—	5	20	2	2	—	60	1	—	—	3	—	6	1	—	—	12	—	—	—	—	—	—	25	144
1927	9	—	—	1	—	—	2	26	4	6	—	54	2	2	—	6	1	13	—	—	2	6	—	—	—	1	—	—	32	167
1928	9	—	—	—	—	—	5	14	2	8	—	63	3	7	—	—	2	13	—	—	—	9	—	—	—	1	—	—	43	179
1929	5	1	—	—	2	—	3	21	4	6	—	79	2	6	—	4	2	16	—	—	—	6	—	—	—	2	—	1	45	205
1930	3	4	—	—	1	—	7	22	5	9	—	51	5	2	—	1	2	5	3	—	1	5	—	—	—	1	—	1	53	182
1931	4	3	—	2	5	—	15	34	5	12	—	57	2	4	—	2	5	10	4	4	2	8	—	—	—	2	3	—	20	203
1932	5	—	—	5	9	—	25	33	8	17	—	56	2	5	—	2	3	16	1	4	1	7	—	—	—	6	6	—	40	251
1933	10	2	—	1	5	—	14	26	7	12	—	46	2	—	—	—	1	18	2	—	1	13	—	—	—	4	3	2	20	190
1934	7	—	—	5	5	—	16	19	11	9	—	46	—	—	—	3	3	20	5	1	2	11	—	—	—	3	2	1	21	190
1935	3	2	—	1	2	—	16	14	4	13	—	55	1	—	—	—	3	16	6	—	1	10	—	—	—	7	—	2	21	177
1936	5	3	—	—	4	2	7	30	3	19	—	22	—	—	—	2	2	14	—	4	1	7	—	1	—	5	—	—	23	155
*1937	8	—	—	1	2	—	6	25	3	16	6	31	—	—	—	—	1	10	3	4	1	8	—	1	2	—	—	—	18	146
Total	118	19	84	28	36	2	191	426	108	183	6	825	27	26	1	36	29	235	29	17	26	10	247	5	2	52	14	18	476	3,276

*Includes only June degrees.

TABLE 15
DEGREES AWARDED IN ARCHITECTURE AND CITY PLANNING

Year	Bachelor in Architecture	Bachelor of Architecture in City Planning	Master in Architecture	Master in City Planning
1921	—	—	3	—
1922	—	—	2	—
1923	—	—	7	—
1924	—	—	8	—
1925	—	—	5	—
1926	—	—	9	—
1927	—	—	7	—
1928	—	—	6	—
1929	—	—	9	—
1930	—	—	7	—
1931	—	—	9	—
1932	11	—	5	—
1933	24	—	7	—
1934	27	—	—	—
1935	17	4	11	—
1936	14	4	4	2
*1937	7	2	5	—
Total	100	10	104	2

TABLE 16
DEGREES OF DOCTOR OF PHILOSOPHY AWARDED

Year	Biology	Chemistry	Geology	Mathematics	Physics	Total
1907	—	3	—	—	—	3
1908	—	3	—	—	—	3
1909	—	—	—	—	—	—
1910	—	1	1	—	—	2
1911	1	—	—	—	—	1
1912	—	3	3	—	—	6
1913	—	1	—	—	—	1
1914	—	2	—	—	—	2
1915	—	2	—	—	—	2
1916	—	1	1	—	1	3
1917	—	3	1	—	—	4
1918	—	3	1	—	—	4
1919	—	—	—	—	1	1
1920	—	4	1	—	—	5
1921	1	3	—	—	3	7
1922	—	4	1	—	—	5
1923	—	5	1	—	—	6
1924	2	10	—	—	2	14
1925	—	11	—	—	—	11
1926	—	2	2	—	—	4
1927	2	6	1	1	1	11
1928	1	5	1	1	—	8
1929	4	8	2	1	—	15
1930	—	5	2	3	—	10
1931	—	9	—	1	—	10
1932	1	12	—	1	2	16
1933	2	10	3	3	—	18
1934	2	10	2	2	1	17
1935	4	15	2	3	7	31
1936	—	15	—	3	12	30
*1937	2	9	3	1	8	23
Total	22	165	28	20	38	273

*Includes only June degrees.

TABLE 17

Degrees of Doctor of Science Awarded

Year	Aero. Eng.	Ceramics	Chem. Eng.	Chemistry	Civil Eng.	Elec. Eng.	Electrochem. Eng.	Geology	Mathematics	Mech. Eng.	Metallurgy	Meteorology	Min. Eng.	Naval Arch.	Physics	San. Eng.	Total
1911. . .	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
1912. . .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1913. . .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1914. . .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1915. . .	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
1916. . .	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
1917. . .	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
1918. . .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1919. . .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1920. . .	1	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	3
1921. . .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1922. . .	1	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	3
1923. . .	1	—	—	—	—	—	—	1	—	—	1	—	—	—	2	—	5
1924. . .	—	—	2	—	—	1	—	1	—	—	1	—	—	—	1	—	6
1925. . .	1	—	3	—	—	—	—	—	—	—	3	—	—	—	—	—	7
1926. . .	—	—	1	1	1	1	1	—	—	—	4	—	—	—	—	—	9
1927. . .	—	—	—	—	—	1	—	—	1	1	2	—	—	—	1	—	6
1928. . .	1	—	5	—	1	2	—	—	—	—	1	—	—	—	—	—	10
1929. . .	—	—	3	—	—	—	—	—	—	—	1	—	—	1	1	—	6
1930. . .	—	—	9	—	—	6	—	—	1	3	1	—	—	—	—	—	20
1931. . .	—	—	3	2	—	3	—	—	—	—	1	—	—	—	—	—	9
1932. . .	—	—	5	—	1	2	—	1	—	2	1	—	—	—	2	—	14
1933. . .	—	—	10	1	2	3	—	—	1	—	6	—	1	—	—	—	24
1934. . .	—	—	3	—	—	2	1	1	—	3	2	1	—	—	—	—	13
1935. . .	—	1	2	1	—	4	—	—	2	—	1	1	—	—	1	1	14
1936. . .	2	1	12	1	—	—	—	—	—	2	3	—	1	—	2	—	24
*1937. . .	1	1	7	1	1	6	—	—	—	1	—	—	—	—	—	—	18
Total .	9	3	65	8	6	35	2	5	5	12	28	2	3	1	10	1	195

* Includes only June degrees.

TABLE 18

DEGREES OF DOCTOR OF PUBLIC HEALTH AWARDED

Year	Number
1924	1
1927	1
1928	1
1930	1
Total	4

TABLE 19

DEGREES OF DOCTOR OF ENGINEERING AWARDED (*Discontinued after 1918*)

Year	Electrical Engineering	Electrochemical Engineering	Total
1910	1	—	1
1914	1	—	1
1916	1	—	1
1917	—	1	1
Total	3	1	4

TABLE 20

SUMMARY OF DEGREES AWARDED (1868–1937)

Bachelor of Science	16,063
Bachelor in Architecture	100
Bachelor of Architecture in City Planning	10
Master of Science	3,276
Master in Architecture	104
Master in City Planning	2
Doctor of Philosophy	273
Doctor of Science	195
Doctor of Public Health	4
Doctor of Engineering (Discontinued after 1918)	4
Grand Total	20,031

Director of Admissions. The work of the year has centered upon the policy of selective admission and the development of machinery for putting it into effect. The changes in subject-matter requirements for admission outlined in last year's Report have introduced greater flexibility and increased the number of secondary school students potentially eligible. This, together with improved economic conditions, caused a marked increase in the number of applications, making possible a considerable degree of selection.

A total of 1,485 applications was received for admission to the First Year Class. Of these 1,091 were complete with all necessary papers and were therefore reviewed for selection. Notices of admission were sent to 689 of these applicants, of whom 618 were registered on the opening day of the term.

Two interdependent problems are involved in selection: first, evaluation of the evidence on each candidate; and secondly, progressive elimination of rejected applicants over a period of five months preceding the opening of the academic year at a rate which will yield an entering class of pre-determined size. This latter problem is complicated by the fact that much time is required to review applications. Review must therefore start in the late winter before final school and examination records become available. A tentative verdict is reached, subject to confirmation when these later data are received.

The evidence on each candidate is of two kinds: first, documentary records; and secondly, impressions gained from personal interview. Neither alone is necessarily conclusive. Documentary evidence comprises data supplied by the candidate himself, and by his acquaintances and teachers, including a detailed record of his school work and examinations, if any. Personal interviews give added opportunity to appraise the candidate's probable human worth and professional promise.

Systematic memoranda following the interview are essential. During the past year records were made of 950 such interviews held in the Admissions Office. Applicants living at a distance were encouraged to arrange an interview with one of the Honorary Secretaries. In replying to inquiries from prospective applicants the Admissions Office refers the student to the nearest Honorary Secretary, sending a carbon copy to the latter so that he will have the student's name and address. Over 3,500 such letters have been sent out in the past year. Reports received from the Honorary Secretaries on the resulting interviews have proved so valuable as to indicate that the interview should be made a required part of the admission procedure. New Honorary Secretaries have been appointed in the New York area and in a number of smaller cities throughout the United States so as to make possible adequate coverage of all inquiries except a few from remote regions.

During the year the Director of Admissions maintained personal contact with alumni clubs, Honorary Secretaries, schools and colleges in twenty-five cities.

The announcement of the Coöperative Plan with certain

liberal arts colleges (among which Bowdoin is now included) has brought into prominence the general problem of college transfer students. Progress has been made in codifying the equivalents (at over eighty other institutions) of the basic subjects of our first two years. The generous coöperation of the examiners for the several departments has made this possible. As a result, many students, both in the coöperating colleges and other institutions, have been advised how to plan their program of study with a view to later transfer to the Institute.

B. A. THRESHER.

Chairman of Committee on Summer Session. The registration of students for the regular subjects of the Summer Session increased about 12 per cent over 1936, with a total of 1,321. Candidates taking entrance subjects dropped from 150 to 136 subject registrations. Figures for the 1936 session, which became available too late for last year's Report, are none the less significant in that they correct a somewhat popular and mistaken impression that the Summer Session is patronized largely by students who have failed subjects or by transfer students catching up on requirements. Actually only 414 student subjects were taken as repetitions to make up failures or deficiencies, and only 697 student subjects were taken by students not previously connected with the Institute. This is a total of 1,111 student subjects as against 2,043 student subjects taken by our regular students for the first time. This would indicate that the Summer Session is utilized in a manner which resembles a regular academic third term. The possibility of concentration on a few subjects (the average was 2.06 subjects per student) and a daily recitation would be among the more obvious educational advantages of the summer term.

In addition to the regular Summer Session subjects, the entrance subjects, and the engineering summer camps in Maine and New Jersey, the activities of the Summer Session include several special programs and conferences lasting from a few days to several weeks. These programs are designed primarily for graduate engineers who want to be brought up to date in the scientific and technical background in their particular field of specialization. While the programs are given subject

numbers in the catalogue and academic credit may be received for taking them, the principal appeal is to men active in the industrial life of the nation. In view of the success of the special programs sponsored by the Committee in 1936, department heads were invited early in 1937 to explore the possibilities of repeating or adding to their offerings. Seven attractive programs were arranged by the following departments in collaboration with the Committee, as follows: The Department of Mechanical Engineering organized a four weeks' program in strength of materials with a two day conference on fatigue and creep of metals, and repeated a successful program of six weeks in textile analysis. Chemical Engineering offered again, for the third time, the noteworthy five weeks' program in colloid chemistry. Mining and Metallurgy offered for the first time a six-day program in the nature of clay and plasticity. Physics, for the fifth year, offered an extensive program in the field of spectroscopy which in its various phases lasted from June to September. A very well attended three-day conference provided the materials for a publication of some fifty thousand words on the subject of spectroscopy which will be brought out this year for the first time. The Department of Architecture successfully collaborated with the Graduate School of Design at Harvard University in a four weeks' program in city and regional planning. The Division of Industrial Biology of the Department of Biology and Public Health offered for the first time this year a very successful four-day conference on phases of food technology, dealing particularly with applications of high and low temperature to food conservation and with the advances of dairy product manufacture.

According to detailed reports filed with the Committee Chairman immediately upon conclusion of each program, it would appear that several of them will be repeated next year. On the other hand, there seems to be reason to believe that in other cases alternate years may be tried by reason of the highly specialized appeal.

The lectures and instruction in these programs were carried on in the main by regular members of the Institute faculty. In some instances well known authorities were brought in from other institutions. Dr. Wilber Stout, State Geologist of Ohio, and Dr. C. S. Ross of the United States Geological Survey made

important contributions to the program in Ceramics. Dr. A. Nadie and Dr. C. R. Soderberg, both from Westinghouse, with the distinguished British expert, H. J. Gough of the National Physical Laboratory, added much to the Conference on Fatigue and Creep of Metals. The presence of the following distinguished American authorities on the extensive list of thirty speakers no doubt accounted in part for the large attendance at the Conference on Spectroscopy which exceeded that of any previous year: Dr. W. F. Meggers, National Bureau of Standards and President of the Wave Length Commission of the International Astronomical Union, Professors R. A. Sawyer and O. S. Duffendack of the University of Michigan, and Professor Henry Norris Russell of Princeton. Several celebrated scientists from Europe made significant contributions to the Conference on Food Technology, notably, Dr. R. Plank, Dr. A. Perlick and Dr. M. Volodkevich of the Kaltetechnisches Institut, Karlsruhe, Dr. M. Piettre, director of the Institut International du Froid at Paris, and Dr. T. Moran and Dr. J. Pace of the Low Temperature Research Station of Cambridge, England.

Attractive advance announcements with photographs and cuts were produced by the Committee for each program. Conference programs were also made available. When program directors requested it, some attention was given to the social entertainment and reception of participants. In all publicity, mention was made of the attractiveness of Boston and vicinity with its many places of historical interest and nearby beaches, mountains and lakes for recreation. Undoubtedly more note might be made of these features and more assistance along these lines might be offered by the Committee, as most of the participants are married men, many of whom bring their families along with them.

In the origination and promotion of this expanding group of special programs, the Committee pursued a policy of encouragement and support. It was always clearly understood that the responsibility rested entirely upon the program director of the sponsoring department. Approval of the plans both by the Committee and the Corporation was based on estimated cost and revenues set up by him. He was relied on to contact the professional journals and trade associations and to write such

promotional letters as might be advisable. The regular news bureau facilities were utilized for press releases and announcements. The registration and payment of fees were handled by the regular Summer Session facilities. Whether or not these programs should be further developed rests largely with the department heads. It is up to them to decide whether they can offer something unique and valuable in their field of specialization, either by members of their own staff or by invited experts, to make the effort significant from the standpoint of engineering education or research and from the standpoint of financial costs commensurate with its importance. The Committee will probably continue to explore these possibilities during the coming year.

Attendance at the summer camps is still much below capacity. While the summer camps have been regarded almost exclusively as departmental matters, the Committee may reasonably offer some assistance in the matter of increasing and sustaining enrollment at these off-campus points where heavy fixed investment and upkeep are combined with usage only during limited periods in the summer months.

EDWIN S. BURDELL.

The Librarian. The past year was by common observation the most active in the history of the Library. Reading-rooms were more fully occupied and requests for reference help were more numerous. Freshman use of the Central Library, resulting from assignments by the Department of English and History, was noticeably greater. Of much of this activity no statistics were kept.

The records of the home use of books, however, show an increase in loans for one or two weeks' use: from the Central Library, 6 per cent, from the branch libraries, 7.6 per cent, from Walker Memorial Library, 9.8 per cent; from the Institute Library as a whole, 6.8 per cent. The number of volumes borrowed in each of the past five years is as follows:

	1932–33	*1933–34*	*1934–35*	*1935–36*	*1936–37*
Central Library	36,246	37,709	37,340	41,457	43,983
Branch libraries	39,033	39,854	39,066	38,793	41,745
Total	75,279	77,563	76,406	80,250	85,728

For the first time an endeavor was made to learn in what proportions the Library is used by different groups of readers. The only figures offering a ready basis for such an attempt were those of the one- and two-week circulation. A daily analysis was kept in all the libraries, with the following interesting result:

Of all volumes borrowed for one- or two-week use, the Instructing Staff took 23 per cent, graduate students 17 per cent, undergraduates 48 per cent, alumni 5 per cent, Institute employees, etc., 4 per cent, the public .6 per cent, other libraries 2 per cent.

The circulation from Walker Memorial Library constituted 39 per cent of the total branch circulation, and 19 per cent of the total Library circulation.

Three hundred and eight alumni were registered borrowers during the year.

Volumes, pamphlets and maps added during the year totalled for the Central Library 5,496; for the branches, 3,882; together, 9,378. Allowing for volumes discarded, the estimated contents of the entire Library on June 30, 1937, stood at 324,546.

Most remarkable perhaps was the increase in the borrowing of reserved books for overnight or week-end use. At the Central Library 10,672 volumes were so lent, or an increase of 30 per cent over last year; in the branches, 9,880, an increase of 18 per cent; for the Library as a whole, 20,552 volumes, an increase of 24.5 per cent. The growing use of reserved book collections by the teaching staff, directly responsible for this increase, was probably stimulated to some extent by the activity of the Library's Reference Department and the branch librarians, who at the beginning of each term made special effort to obtain complete lists of textbooks and recommended reading from the teaching members of the staff and offered full coöperation in establishing reserve collections. This undertaking was valuable in turn to the Library staff in bringing closer contact with the work and methods of a larger number of the teaching staff.

The Reference Department reports interlibrary loan transactions with 179 libraries and business firms; 392 volumes were borrowed and 954 lent. Photostats were supplied to outside

patrons on 91 orders. Telephone messages handled, 2,039. Miss Smith spoke on the resources of the Library to a Department of Biology seminar and also before the Special Libraries Association Biological Group.

The Vail Librarian circulated from her desk to the staff of the Electrical Engineering Department and to students in general, 12,565 books and periodicals, including reading-room, overnight, and office use. Mrs. Lane gave library lectures to Electrical Engineering Sophomores, Junior and Senior honors groups, and the Graduate seminar group. She prepared, for the S. P. E. E. convention, held here in June, a paper on "The Place of the Reference Librarian in Engineering Teaching," which was presented in abstract before the Electrical Engineering Section on June 29.

In the Eastman Library there was an increase of 13 per cent both in circulation and in the number of borrowers. A count of the library in February 1937 showed a collection of 4,534 books and 6,008 volumes of journals, total 10,542, a growth of 43 per cent since March 1933. More important than gain in size is the fact that gaps in important sets have been filled and several needed sets acquired. Analysis of registration figures shows this branch to be used not alone by research workers in Physics, Chemistry and Mathematics, for whom the branch was originally established, but to some extent also by men from all other departments, especially Electrical Engineering and Chemical Engineering. However, an attendance record of 29,487 for the year, roughly three times the circulation, shows that the library is used primarily for a reference and work room, as originally intended. Men who have used the library in their graduate research return from other universities to work at Eastman in their vacations and freely express their satisfaction with its resources and service. A finding list of physics periodicals, showing in what library in Greater Boston each can be found, was prepared in the fall of 1936 by the Eastman Library staff, with the coöperation of Harvard departmental libraries, and distributed freely to all who could make use of it.

In the Civil Engineering–Economics Library Mr. McNay issued three lists for general distribution: "Periodicals in the Fields of Economics and Business," "Guide to Periodical

Literature in Economics and Business," and "Guide to Business and Economic Books."

At Walker Memorial Library, Sunday opening was discontinued, the previous year's attendance not having justified the expense; instead, the library was kept open Saturday afternoons until six o'clock, with an average attendance of 38. The new phonograph and record collection, presented by the Carnegie Corporation through the efforts of Professor Pearson, were placed in the custody of the Walker Librarian, and were in constant use. All in all the demands upon the Librarian's time have increased to such an extent that additional assistance must soon be provided. Lack of adequate space for this library was temporarily relieved by the building of new bookcases on the balcony in the summer of 1936, but the only present solution for the overcrowding problem is drastic annual weeding out of the less desirable and out-of-date books.

Members of the Visiting Committee this year were: Dr. Harlow Shapley, chairman; Walter Humphreys, '97, F. W. Garber, '03, Milton E. Lord, Director of the Boston Public Library, and C. E. Walton, Assistant Librarian of the Harvard College Library.

The faculty Library Committee consisted of Professor R. R. Lawrence, chairman, and Professors Ingraham, R. S. Williams, Mirabelli, Roberts, Allis, and the Librarian ex officio.

Under the auspices of a committee of the Alumni Association, of which John E. Burchard, 2d, is chairman, a Friends of the Library group was organized at a dinner held March 25 at the Algonquin Club, Boston, at which about seventy guests were present. On this occasion a member of the Corporation who wished to remain anonymous presented to the Library two manuscripts: one a letter from George Washington in 1776 discussing the desirability of cutting the Cape Cod Canal, the other an estimate by an engineer of the Revolutionary army setting the probable cost at £32,000.

In the second term, experiments were begun in the treatment of leather-bound books with preservatives. The formulæ used by the British Museum, the Library of Congress, and the New York Public Library were all tried and a record kept by which future results can be compared. The volumes treated

were principally sheep-bound Patent Office Gazettes and Specifications, in deplorable condition.

Through the efforts of members of the English Department, the Library received as a loan from Mr. Kenneth Roberts the manuscript of his novel "Arundel" and a collection of books and other matter used by him as source material, most of it bearing pungent annotations in his own handwriting. This collection provided an exhibit of unusual interest, which was maintained in the Central Library from November to June. At that time it was followed by a Vail Collection exhibit in connection with the S. P. E. E. meeting.

Arrangements made by the Friends of the Library provided exhibition cases on the main floor near the elevators in time for exhibits to be shown on Alumni Day and Commencement; these exhibits, prepared with the coöperation of Professor Woodbury, illustrated respectively the Story of Air and Early Engineering.

Four book lists were contributed to the *Technology Review:* "Statistical Methods," in December 1936 and "The World of Science," in May 1937, both by Miss Hazen; "The Philosophy of Science," in January 1937 by Miss Chamberlain, Eastman Librarian; and "Housing and Community Planning," in June 1937 by Miss Stiles, Architectural Librarian.

The Staff Association held meetings monthly or oftener and completed a creditable manuscript for a library handbook, eventually to be printed. Among its speakers were Dr. Bush and Professor Sydney B. Mitchell, Director of the University of California School of Librarianship.

Mrs. Lane served as chairman of the program committee of Special Libraries Association, Boston chapter. Six members of the staff pursued outside studies or attended systematic courses helpful in their work.

Miss Chamberlain, Miss Hazen and the Librarian attended the annual meeting of the American Library Association in New York, and Miss Chamberlain attended also the meetings of the Special Libraries Association in New York and the New England College Librarians at Bowdoin College. The Librarian was present also at the Eastern Conference of College Librarians at Columbia in December.

Worthy of mention among the gifts of the year was a

collection of 450 volumes on subjects connected with mining, given by Henry A. Wentworth, '05.

Dr. Selskar M. Gunn, '04, turned over to the Library 145 books and pamphlets dealing with public health.

A number of gifts were presented through the Friends of the Library. These included a file of the Official Gazette of the United States Patent Office, in all 396 volumes, from the George Frost Company, through the good offices of George B. Glidden, '93, and collections of miscellaneous volumes from W. S. Forbes, '93, and A. C. Walworth, '00.

Careful watch has been kept of the development of microphotographic apparatus suitable for library use. Up to the present there has been no demand upon us for systematic book-film service. Most research men are not anxious to have their collected literature on film unless they have also the means for reading it, and good film projectors are still too costly for the individual scholar to own. We have felt, however, some need for a projector in the Library for the reading of films occasionally received from other libraries. Since cameras and projectors for library use have now reached a fairly satisfactory stage of development, it might be well for us to acquire apparatus and learn by experiment what film services we could offer which would justify themselves by sufficient response.

Much that has occurred during the year has afforded distinct encouragement to those who have the future of the Institute Library at heart. Foremost stands the organization of the Friends of the Library, as a result of which new interest in the Library has been awakened among the alumni and others, and gifts have been received which might not otherwise have been made. The activities of the Staff Association, in which the branch librarians have been eager to bear their part, have developed a healthy *esprit de corps* among the staff. This is but one indication of the favorable results of having a single administrative organization for the whole library system.

One need of the future stands forth preëminent: a new building, carefully planned for generations of service to faculty, students, alumni, and the great scientific and industrial communities of the State, if not of New England. If the fulfillment of this dream be far off, it is by no means too soon to recognize both the unwisdom of long constraining a great librar

of science and engineering in quarters never intended for library service, and the necessity for giving thought to the shape a suitable library building should take. The example of Dartmouth College might well be followed: there a faculty committee, long before funds were available, gave years of exhaustive study to the library needs of the college, and prepared a systematic report upon which the ultimate plan was based, resulting in one of the most satisfactory college library buildings in America. It is not too much to hope that, rightly planned, our library building might have within its walls provision for special collections which would replace some at least of our scattered branch libraries, with the advantage of specialized service in the environment of a great central collection — an advantage well demonstrated by the present situation of the Vail Library. Suitably housed and fully equipped, the Institute Library could render a vastly improved and far wider range of service than would ever be possible in its present quarters.

W. N. SEAVER.

Director of Division of Industrial Cooperation. The work of the Division of Industrial Coöperation has been carried on this year much as heretofore, and the amount of work done has increased. Our policy of confining our efforts to such investigations as can be shown to be those for which we are particularly well fitted, by reason of our equipment or personnel, has been more rigidly adhered to than heretofore, and although it has resulted in the failure to undertake a number of problems which were presented to us, it has enabled the staff to devote its time and attention to problems which are more in line with the work in connection with our educational program.

The only exception to this policy is in connection with problems concerning which our opportunities are unusual, and which seem likely not to be undertaken unless the work is done here. Work involving the use of the wind tunnel, or of the unusual facilities of the spectroscopic laboratory, are examples of the latter type of problem and are accepted when they can be done without interruption to the educational work.

Our method of intrusting each problem to a supervisory

committee of staff members of faculty grade has been definitely adopted and works well. Work under the supervision of such committees, operating through the Division of Industrial Coöperation, is going on in practically all the Departments of the Institute.

Among the problems which have been continued from year to year and are still under way are the corrosion of stainless steels, and the creep of steel at high temperatures. This latter work has been much amplified, and in addition to the work which is being carried on for some of the industrial companies, a study of the flow of metal when stressed in several directions at once, the so-called "three dimension" or "tubular creep" has been undertaken for a group of the National Engineering Societies.

In the textile laboratories work continues on the study of the warp sizing of yarn, and a joint research on the physical properties of clays is being carried on in the X-ray laboratories of the Physics Department and the Ceramic laboratories of the Department of Metallurgy.

The use by industrial companies of the Color Analyser or Spectrometer in the Department of Physics has greatly increased during the year, and is rendering valuable service to the industries concerned in the manufacture of dyes and pigments, as well as the research laboratories of other educational institutions.

A fundamental investigation of the physical properties of cotton is under way in the textile laboratories.

Several investigations relating to developments in the aeroplane industry are being carried out in the laboratories of the Department of Mechanical Engineering.

The study of the best conditions for the preservation of food in domestic refrigerating units is being continued in the Department of Biology and Public Health.

The work of the Division of Industrial Coöperation for the year makes it more than ever apparent that the maintenance of such a device for handling industrial problems is an important aid to industry, that it can be carried on with material support of and assistance to the educational program, and gives to the staff important information and contacts, as

well as some financial return, without encroachment upon the work of the commercial laboratories.

The Placement Bureau. The work of the Placement Bureau has increased materially during the year. Competition by Industry for the graduating class was so keen and opportunities for interviews so numerous that the number of interviews allowed individual undergraduates had to be regulated to prevent interference with Institute work. Many excellent firms willing and anxious to employ members of the graduating class were unable to secure them.

A week prior to graduation eighty-five per cent of the successful candidates for degrees had found openings. This shows an increase over the last three years. Candidates for advanced degrees were more sought after than during previous years. One feature of considerable interest was the increased pay offered by Industry over previous starting figures.

Graduate Employment. There has been a constant demand for engineers with from five to ten years' experience. Normal industrial demand was severely curtailed during the depression, and the subsequent recovery has created a market that we find it difficult to fill. Placement of graduates who prior to the depression held major executive positions is a serious problem, but continuance of industrial expansion will open many more opportunities than previously existed. The solution of this problem is of tremendous importance to our older alumni, and it is hoped that the alumni associations working in coöperation with the Placement Bureau may be able to make an effective attack on this situation.

A method of classifying experience, so that punch card sorting can be applied, is being developed. Its use will lead to several important improvements: First, reduce to a minimum the chances of qualified men being overlooked when searching for candidates for specific openings; Second, make it possible to speed up the handling of inquiries; Third, materially increase the number of successful placements.

C. L. NORTON.

Secretary of the Society of Arts. The program of Popular Science lectures given by the Society of Arts during the year brought before the public the results of researches

being carried on in various departments of the Institute. Professor Boyce of the Department of Physics reported upon the joint expedition undertaken in the summer of 1936 by members of the Harvard College Observatory staff and Institute staff to observe the total eclipse of the sun in Russia.

Professor Slichter of the Department of Geology discussed the work of a geophysicist in the study of earthquakes and how seismographic data are interpreted by the geologist and oil engineer.

Professor Evans of the Department of Physics showed, probably for the first time before a large audience, some remarkable experiments demonstrating the creation, transformation, and destruction of matter.

Professor Bunker of the Department of Biology explained and illustrated some of the new problems being undertaken in that Department involving the coöperation of biologists with physicists, chemists, and engineers, that is, problems in the border-line sciences of biophysics, biochemistry, and biological engineering.

Interest in all of these lectures was indicated by very large audiences and appreciative comments and letters received by the Secretary. The titles of the lectures and dates upon which they were given were as follows:

December 11, 12, 13	THE 1936 SOLAR ECLIPSE IN SOVIET CENTRAL ASIA. By Joseph C. Boyce, Ph.D.
January 15, 16, 17	EARTHQUAKES — THEIR SIGNIFICANCE TO THE ENGINEER, PROSPECTOR AND STUDENT OF THE EARTH'S INTERIOR. By Louis B. Slichter, Ph.D.
February 12, 13, 14	CREATION, TRANSFORMATION AND DESTRUCTION OF MATTER. By Robley D. Evans, Ph.D.
March 12, 13, 14	NEW ALLIES ON THE BIOLOGICAL FRONT — HOW THE SCIENCES IN JOINT ATTACK ARE WINNING BIOLOGICAL BATTLES. By John W. M. Bunker, Ph.D.

H. M. GOODWIN.

Chairman of Committee on the Technology Museum. The President's report of October 1936 called attention to the fact that the Institute's charter provides for a museum of arts, and mentioned the use of corridor space for exhibits as a movement to be encouraged. The Department of Geology and the Ceramics section of the Department of Mining and Metallurgy had already installed permanent exhibits in the corridors adjacent to their offices and laboratories and were using two cases in the main lobby for rotating exhibits.

Later a committee was appointed to study and direct museum expansion throughout the Institute, with the following members: Professor E. S. Burdell, chairman, Professors H. R. Bartlett, F. K. Morris, E. R. Schwarz, and F. W. Sears. Mr. A. C. Watson of the Department of English and History, who has the background of several years of museum experience, was appointed to serve as secretary of the Committee.

The objectives may be said to be to record the steps in the development of science and technology, to identify men of science and engineering with their particular contributions, to interpret the effect of discovery and invention on the organization of human society and on the health and well being of mankind.

The Committee has pursued a policy of departmentalization, with the expectation that eventually each department will have its own museum in the corridors, alcoves and entranceways adjoining its own offices and laboratories. An exception, of course, is the Nautical Museum, provided for in the Pratt bequest and maintained since the opening of the Pratt Building.

The Committee's accomplishments to date are as follows: remodeling the elevator alcove off the main lobby for rotating exhibits (these have up to the present included Library collections, Textiles, Ceramics, Meteorology, Colloidal Chemistry, and Mathematics); providing cases for exhibits of Chemistry; providing additional cases for exhibits of Ceramics; installation, through the Electrical Engineering Department, of exhibits showing the evolution of the telephone and the evolution of the vacuum tube; construction by the Physics Department of demonstrations of the cloud chamber, of diffraction, and of polarization phenomena; addition of a new room

with special cases to the Nautical Museum for a loan collection of whaling prints from Mr. Henry P. Kendall. In addition, the Committee's program has included labeling the machines and other equipment in the major laboratories; this work has progressed in the Testing Materials, the Steam, and the Electrical Measurements laboratories.

Other exhibits in immediate prospect are the installation of a workable model of an illuminating gas plant, a large permanent exhibit of mathematical models, an exhibit of models representing problems in Descriptive Geometry, an exhibit of historic telegraphic instruments, an exhibit showing properties of various metals and alloys, and an exhibit demonstrating flow phenomena.

A Museum Council was formed in May to which each department was invited to send a representative. This is consistent with the policy of the Committee of the Museum which is one of departmental initiative and responsibility for its own exhibition program.

EDWIN S. BURDELL.

Medical Director. It is with satisfaction that we present this review of the work of the Department for the past year, which has been one of the busiest and most satisfactory in the history of the Department.

There were 22,410 visits made to the clinic. More bed patients were treated in the Infirmary than ever before. Because of the large number of respiratory cases it was found necessary to open the Emergency Ward on the second floor and keep it open for about one month.

A comparison of the number of patients treated during the year 1928 — when the Infirmary first opened — and this year is as follows: 1928, 17,196; 1937, 22,410 (an increase of 5,214 visits).

Clinic Visits

July.....	569	January	2,153	
August.....	391	February.....	1,555	
September....	1,438	March.....	2,485	
October.....	3,527	April.....	2,090	
November....	1,751	May.....	1,795	
December.....	1,627	June.....	782	
				20,163

Infirmary

Number of Bed Patients	365	
Number treated after hours	995	
		1,360
Number of men rechecked for physical defects		887
Total		22,410
Total number of physical examinations	2,455	
Number of men with physical defects	567	

Average weight of student, 149 pounds.
Average height of student, 5 feet 10 inches.

During the past year there were ten cases of scarlet fever and three cases of measles. There were also three cases of pneumonia and two of pulmonary tuberculosis.

One death occurred during this time — that of an employee.

Our records show the number of days lost per man during the year 1936–1937 was 1¼ as compared with 2¾ days in 1935–1936 and 5 days in 1934–1935. This would indicate that either the student body is in better physical condition or that our efforts in preventing illness and injuries are showing favorable results.

GEORGE W. MORSE, M.D.

Director of News Service. The unusual number of interesting and important developments at the Institute during the past year not only resulted in an increase in the distribution of news, but in the variety of material furnished to the daily press and a large number of journals in various industrial and professional fields, as well as the important weekly news magazines and the national press associations.

Newsworthy events during the summer made it the most active in many years, the distribution of news from June to September approaching the output of the busiest months of the school year. Notable among the events which created wide public interest were the various summer conferences and meetings, including the activities of Alumni Day and the International Housing Conference, which in addition to receiving wide publicity through the press, was broadcast internationally

by shortwave. The annual meeting in June of the Society for the Promotion of Engineering Education, bringing more than fifteen hundred educators to the Institute, produced a large volume of news. Interest in the Institute was maintained at a high level during the following months by the Spectroscopy Conference and the Symposium on Metals, later by the important Food Technology Conference in September, when nearly forty papers presented at the meeting were distributed through the News Service to the professional and industrial press, as well as to the newspapers and press associations.

Among the internal news events of special interest were the announcement of the construction of the new Architectural School; plans for the Museum of the Industrial Arts and Sciences; the distinguished organization dinner of the Friends of the Library; creation of the Division of Humanities, and plans for the moving of the high voltage electrostatic generator to the Institute grounds.

In addition to the foregoing events, the News Service distributed more than twelve hundred news stories on the activities of almost every department of the Institute, as well as news of student achievements; the Dean's List of Students of High Scholastic Standing; the very interesting Technology Awards, and various scholarships. In addition, as in other years, the News Service with the valuable coöperation of Mr. J. R. Killian, Editor of the *Technology Review*, prepared the material which regularly appears in the Institute gazette section of the magazine. Through this medium more than fifty thousand words of Technology news was presented to our alumni. The News Service also has shared with Mr. Killian responsibility for publication of Research Reports.

Interest in the Institute's technical films, "Graphic Representation of Machine Operations," and three animated studies of "Traveling Waves on Transmission Lines," continued to a remarkable degree throughout the country. Except during the summer, both were in constant circulation and the estimates of those who exhibited them indicate the films were seen by approximately five thousand persons, most of whom were students in high schools and colleges.

During the summer a committee appointed by President Compton made plans for participation by the Institute in the

international shortwave radio educational program of the World Wide Broadcasting Foundation. This committee, composed of Professor George R. Harrison, Professor Ralph E. Freeman, and the Director of News Service, arranged two programs which, aside from a very real educational value, will contribute to the prestige of the Institute. The first of these, "The World of Science," is sponsored by the *Technology Review*, which under the direction of its editor will present a bi-monthly critical review of developments in science and engineering, beginning on October 6. Another program, starting on October 7, will be a series of lectures by Professor Edward R. Schwarz of the Department of Mechanical Engineering, on the development of textiles from the early ages up to the present. Other equally interesting lectures are in prospect for the coming winter.

Much pleasure is added to the task of collecting, preparing and distributing news of the Institute's various activities by the very helpful assistance of the officers and members of the staff. It is hoped that through their continuing interest, valuable suggestions and assistance the work of the News Service in interpreting the aims and activities of the Institute to the public may constantly increase in importance.

JOHN J. ROWLANDS.

SCHOOL OF ENGINEERING

Aeronautical Engineering. The most important event of the year was the authorization of construction of a high-performance wind tunnel to be known as the Wright Brothers Memorial Wind Tunnel. A substantial part of the cost has been contributed by friends. Completion is expected in time for dedication at the meeting of the Fifth International Congress for Applied Mechanics in September, 1938. This wind tunnel is of a new type in that the air, circulated through a closed circuit of welded steel, may be pumped up to four atmospheres to permit model tests at a high Reynolds number approximating full-scale conditions, or may be evacuated to represent a high altitude with a wind speed of four hundred miles per hours.

Special equipment was completed for the study of the

turbulent boundary layer as affected by the pressure gradient in the direction of motion. A research project is being financed by the National Advisory Committee for Aeronautics to whom a progress report was made this year.

A second research project for the N. A. C. A., on the theory of an acoustic altimeter, was completed by Professor Draper. This report will be published by the Government.

A small wind tunnel has been built to supply a steady air flow through a series of stages whose velocities range from a fraction of a foot per second to one hundred fifty feet per second. This is needed for the calibration of instruments used in air conditioning, meteorology and aeronautics. A hot wire anemometer with auxiliary equipment has been built for use in the study of turbulent flow.

Professor Draper and Mr. Bentley completed their two-year project for the Navy Department on vibration measurement apparatus. By the use of a novel design of electromagnetic pickup device, associated with a vacuum tube amplifier, condenser integrating circuit, and a recording oscillograph, records were taken of the vibration of the propeller, crank shaft, engine and structure of several airplanes. It is believed that this is the first time that such data have ever been obtained in flight. The new apparatus has been supplied to the Army, the Navy and the principal aviation engine and propeller builders.

The Department staff and graduate students have continued research on a number of projects financed by outside agencies, including a study of the stability of stiffened curved sheets, boundary-layer mechanics, detonation, and a comprehensive report on engine vibration. Two papers before the Institute of the Aeronautical Sciences and one paper before the Society of Automotive Engineers resulted from the vibration study. Professor Newell's research on stressed-skin structures led to two professional publications. Professor Rauscher has completed a general solution of the problem of steady oscillations in non-linear systems on which he has been engaged for three years.

Selection of the better men from the Freshmen candidates is still a difficult task. This year thirty-five have been tentatively selected out of seventy-five applications. The under-

graduate course is planned for a limited number (35 or less) of specially qualified students who can assimilate in four years the essentials of Mechanical Engineering and at the same time the fundamentals of aeronautical science with some introduction to its application. Graduate courses are also limited to a restricted number of high scholarship men, not exceeding fifty.

J. C. HUNSAKER.

Building Engineering and Construction. The registration in Building Engineering and Construction continues to reflect the depressed condition of private construction. From a total registration of thirty-two as of June 1936, the registration has declined to a total of nineteen, as of February 1937. With enrollment stabilized at seven, the total which we may reasonably expect will not exceed twenty-eight unless the quota be raised. With the abandonment of Course IV-A, such an increase would be justified in the near future.

Research in Building Materials was continued throughout the year, under the direction of Professor Voss, funds for which were again supplied almost entirely from outside sources. Mr. H. R. Staley was on a half-time assignment for this work. The subject of water penetration of brick masonry walls was practically consummated and very definite proof of the phenomena conducive to water-tightness was developed. The response of industry to this work is most gratifying and the staff is consulted very frequently on actual construction.

All of the members of our Class of 1937 found employment, and few of all of our graduates have found it necessary to be idle for any length of time.

ROSS F. TUCKER.

Business and Engineering Administration. Simplification of the basic scientific and engineering curriculum, increasing use of individualized instruction through upper class electives, enlarged opportunities for industrial contacts and experience, and closer social relationships between students and faculty members constitute the main trends of development in the department during the past year.

The introduction of the stabilization plan affecting incoming Sophomores prompted a preliminary review of the qualifications of all entering students in the Class of 1939 at the beginning of the term by a committee of the departmental staff. This study, which incorporated personal interviews and questionnaires as well as scholastic records, formed a basis for an initial rating, subject to revision and final decision at the close of the first term. A similar analysis for the Sophomore class of 1940 was conducted at the close of the second term. Students planning entrance to the department may thus know at the earliest possible time their relative standing and likelihood of ultimate admission.

The major change in the undergraduate curriculum has been the reduction of technical options from four to two; one in the chemical and one in the physical sciences. This step is in accord with the general policy of simplification of curriculum now under way and will give opportunity for stress upon technical subjects which are clearly fundamental in nature. Coördinate with this development, the introduction of a considerable number of electives in the upper years offers the student increased opportunities to pursue his work in areas best suited to his individual talents and interests. A further curricular change has now established an important sequence of study whereby Freshman and Sophomore English, Report Writing, Professional Electives and Thesis have been interrelated to the end that form and expression, as well as content in this final research activity, will receive thorough preliminary preparation.

With the transfer of the introductory course in Production into the Sophomore year, students are now being advised to undertake preliminary reading of an industrial and economic nature during the summer preceding the Sophomore year and to make written report upon inspection trips taken in several industrial plants.

During the year, further field work has been done in the establishment of the coöperative industrial contacts for plant visits, and it is now possible to make to each Sophomore student specific plant assignments which offer a well-rounded view of industrial activities. In addition, a further group of industrial coöperators composed of sales and marketing executives

has been assembled who will likewise serve to give a background and point of view to Junior students undertaking the introductory course in Marketing. Special attention has been paid to the collection of new case material and as a result several of the business subjects will be reëquipped with illustrative material for the coming year. A somewhat more arduous and comprehensive requirement in the form of summer reading was introduced for upper classmen, with accomplishment to be verified through optional written report or hour examination after the beginning of the school year.

A considerable amount of departmental time has been given during the year to the study of a program for research to be carried forward by the department in the next several years, for which preliminary recommendations have been prepared.

In the area of graduate work, an auspicious development was the granting to the department by the Alfred P. Sloan Foundation of New York of a sum of $25,000 to be expended in post-industrial fellowships for technically trained executives of promise who might thus be enabled to return for an intensive twelve-months of graduate study in business administration. Extended attention has been given to the organization of this graduate curriculum for the coming year and the approved plan incorporates opportunity for such students to attain the three-fold objectives of a broad training in business and economic fundamentals, special emphasis in elected professional areas, and the conduct of a protracted and rigorous investigation of a significant administrative problem. The graduate curriculum will continue to include the series of dinner meetings and informal discussions with those collaborating industrialists who have assisted us so generously in the past.

In order further to assure effectiveness in this program an Advisory Committee, composed of President Compton as chairman, Dr. A. Lawrence Lowell, Dr. Frank Aydelotte, Mr. E. C. Mayo, and Rev. C. Leslie Glenn, has been appointed.

During the year a report was made on the statistics relating to the progress of our departmental graduates between the years 1930 and 1935, inclusive. Among other findings of interest it was discovered that average declines in the various salary groups did not appear until the year 1931, at which

time the low point was established; that such declines were roughly proportional to the amount of income received; and that former salary levels were completely reëstablished by 1935.

With the collaboration of Professor Porter and Professor Fiske, who shouldered additional teaching loads in Accounting, Professor Robnett was enabled to carry out a detailed investigation of the status of the work of the industrial comptroller. This study involved extensive travel and resulted in the collection of more than fifty case problems which have been assembled and classified in a manuscript to be used for graduate instruction.

The relatively large undergraduate enrollment in proportion to departmental personnel throws an unusually heavy load of administrative duties upon the staff members. We are particularly indebted to Professors Armstrong, Fernstrom and Schaefer for the comprehensive analyses made of entering Sophomores and to Professor Fiske for again extending the hospitality of his home to the entire Senior class for a series of dinner meetings with business executives.

The demand of industrial employers for departmental graduates was unusually large. The 54 seniors in the department were solicited for a total of 378 interviews with 118 concerns during the spring months. At present, but two remain unemployed. In an effort to provide a broader basis for student decision in this important matter, Professor Fernstrom undertook to confer with a number of organizations relative to summer experience for Juniors. As a result of his activities 31 juniors have been given summer opportunities with companies who wish to give consideration to their further employment after graduation.

ERWIN H. SCHELL.

Chemical Engineering. This has been an exceptionally active year for the Department, due chiefly to the peak enrollment of graduate students. Under such conditions it is noteworthy that research productivity has shown a definite increase, as evidenced by publications and by projects underway — a phase of our program which had suffered during recent years. The improvement results from several factors, notably increased staff and a larger number of advanced thesis students.

Professor Sherwood's book on "Absorption and Extraction," constituting the first comprehensive treatment of these operations, appeared in the winter and has had an excellent reception. The Department is particularly gratified that Professors McAdams and Gilliland have completed a revision of the text, "Principles of Chemical Engineering," which was first presented by Professors Walker, Lewis and McAdams in 1923 and has served as the standard for the profession.

The School of Chemical Engineering Practice has for a second year operated at close to maximum student capacity. A new director has been in charge at each station, and each has brought enthusiasm and fresh ideas to his work. Significant contributions have been made to the design of reheating furnaces, improvements in control of rimmed steel manufacture by a study of gases evolved during rimming, the design and operation of soda recovery furnaces, and the drying of gases at high pressure. As a means of training the advanced student in the application of chemical engineering principles the Practice School is realizing the high hopes of its founders.

The new Institute program of stabilizing sophomore enrollment in the several courses is proving helpful to this department, which was threatened with excessive loads in the near future unless undergraduate registration were limited. Considerable time and thought have been expended to ensure intelligent selection of the sophomores who were to be retained in the course, and it appears that the action will prove advantageous to the Department, to the students who are retained and to those who left the course at this time, most of whom would probably have failed to complete the professional work of subsequent years. The necessity for careful selection during the sophomore year, by requiring an early acquaintance of staff members with the student body, should also prove highly beneficial to student relations in subsequent years.

The sequence of subjects in the undergraduate curriculum has been modified in several respects, but without significant change in subject matter. Thus the fourth term of mathematics is being moved from the senior year back to the sophomore, the work in engineering thermodynamics is advanced one term, and industrial chemistry is delayed one term. These changes are intended to secure a more logical development of

the students' program and are being first effected with the class of 1939.

Experiments on heat transmission to boiling liquids have given results of unusual interest both from the theoretical and the practical standpoint. It is common observation that a drop of water on a red hot stove lid is protected from very rapid evaporation by an insulating film of steam between liquid and metal. It has now been found that such action, known as "vapor binding," is significant even at comparatively low temperatures such as can be obtained with condensing steam. Thus, under certain conditions a liquid may be boiled much more rapidly from the surface of a tube containing steam at ten pounds pressure than if the steam were at fifty pounds pressure. This work, which is being extended to cover a wide variety of conditions, should markedly change the methods now employed in design of equipment for boiling liquids.

Small scale studies on the absorption of different gases by water has led to the conclusion that liquid film resistance, which controls the rate with less-soluble gases, is nearly independent of the type of gas which is being absorbed. Investigations on the absorption of nitrogen oxides by water, to make nitric acid, disclose that nitrogen dioxide reacts with water largely in the gas phase, depositing a mist in the gas film next to the liquid surface. This work is significant as an extension of absorption theory to a more complicated case. An extensive program of testing and comparing various types of absorption equipment on a semi-plant scale has been initiated.

The growing field of solvent extraction is the subject of several studies of the operating characteristics of extraction equipment as affected by design, flow rates, surface tension and other variables.

Some years ago the Department investigated the mechanism of combustion of solid carbon, employing small spheres under carefully controlled conditions. Very recently a method has been developed, based upon the theoretical results of that work, for interpreting extensive published data on the losses due to unburned carbon when burning pulverized coal in semi-plant scale equipment. The technique thus devised for evaluating the performance of pulverized coal furnaces has been applied to data on commercial installations with excellent

results, and should permit a marked improvement in methods of design and operation of such furnaces. In addition, a tentative correlation of data on the space-requirements for gaseous combustion in diffusion-flame furnaces is giving promising results.

Thermodynamic-property charts useful in handling internal combustion engine problems, and published by the department last year, have been adopted in graduate thermodynamic courses in several other colleges. The Department's earlier work on the properties of hydrocarbons and hydrocarbon mixtures at high pressures and temperatures, so vital to the design of modern oil refinery equipment and to the new field of synthetic materials from refinery products, is being advanced by research on the thermal properties of mixtures at high temperature and varying pressure and the mutual solubilities of hydrocarbons at pressures up to two thousand pounds.

An investigation of the laws governing the rate of burning of propellant powders and of the rate of cooling in closed chambers has been carried on in collaboration with the Ordnance Department of the United States Army.

During the year there was initiated a research program on the study of the underlying mechanisms of certain nitration reactions. Results of interest have already been achieved and arrangements made for expansion of the work, which should prove of value in many industries using this fundamental process. Studies on the use of olefines as raw material for making alcohols, ethers and other organic products have progressed along several lines such as the concentration of olefines from oil refinery gases by combination with metallic salts, and the use of various acids and acid concentrations in absorbing and polymerizing olefines.

The recovery of certain semi-precious metals, such as boron, beryllium, chromium, molybdenum and zirconium, from their ores by treatment with chlorine offers interesting possibilities which the Department has been studying for several years. Considerable progress has been made recently with boron and beryllium.

The Edgerton high-speed motion picture technique has been successfully employed in further studies of surface tension, resulting not only in refinements which improve accuracy but

also in the development of an adequate theoretical explanation of the empirical corrections which must be applied to the drop method. From the principles evolved in these studies a new static method for determining surface tensions of minute quantities of liquid is being developed. High-speed motion pictures of microscopic and ultramicroscopic phenomena are offering difficulties, principally in securing satisfactory illumination, but recent developments justify optimism that the problem can be solved.

The clay fractions obtained by sizing Bentonite in an ultracentrifuge have been subjected to careful study by several methods. This work is proving helpful in giving a clearer picture of the structure of clay gels and of the mechanism of base exchange. Relatively large amounts of sized fractions have recently been prepared by ultracentrifuging, so that a systematic study can be initiated.

Progress has been effected in studies of the reactions in vulcanizing rubber latex, and a practically virgin field of "colloid chemistry at high temperatures" has been invaded this summer in joint research with the Geology Department.

Placement of graduates continues to be quite satisfactory, and the strong demand for men with advanced training is a healthy index of the expanding opportunities in chemical and allied industries.

WALTER G. WHITMAN.

Civil and Sanitary Engineering. During the past year there have been no fundamental changes in the program for undergraduate students except those involved in the rearrangement of schedules and changes in method of presentation necessary to meet the requirements of the report of the Committee on Third and Fourth Year Curricula.

The research program of the Department has been continued, the principal problems under investigation being: the development of a photo-electric clock synchronizer for seismograph drums and shaking table studies of strong motion earthquake recorders, both in collaboration with the United States Coast and Geodetic Survey; study of short-circuiting in small settling basins; flow of clean water through sand of uniform

grain size and sand with varying porosity; study of torsion in rectangular concrete members; development of a machine of the strain type for testing the shearing strength of soil. In the Concrete Laboratory, research has been continued on drying shrinkage of concrete as affected by aggregate gradation and characteristics and by cement composition. Studies of factors affecting hydration of cement and individual compounds are in progress; approximately one thousand specimens are being used in this work. Studies of the fundamentals of heat of hydration are under way.

In addition to routine duties at the Institute, members of the staff have been active in coöperation with outside interests, notably Professor Spofford in the capacity of consultant to the City of Boston, the Highway Department of the State of Maine and the Department of Public Works of the State of Massachusetts, and Professor Barrows as Regional Consultant of the National Resources Committee for the New England District. Three series of lectures were given before groups from the professional societies, one, by Dr. Wilbur for the Portland Cement Association and dealing with stress analysis of building frames, a second, by Professor Russell for the New England Water Works Association on the Hydraulics of Waterworks Construction, and a third, by Mr. Shea, who carried on an extension course in Geodesy for engineers of the Massachusetts Geodetic Survey. One textbook has been published and three others have been prepared for publishing by members of the staff, numerous papers written by the staff have been published in periodicals of the professional societies and there has been activity on committees of the national and local professional societies.

The study of photographic surveying has been introduced in the Summer Camp program. Since photographic methods are being used for an ever increasing number of purposes, it is intended to give more attention to this branch of surveying in the future.

Members of the staffs of other institutions have made considerable use of the simultaneous equation machine.

The Department is establishing a laboratory for the mechanical analysis of structures; this is intended to supplement present classroom work by laboratory demonstration and

to provide an opportunity for research in this field. A further addition to the equipment which is much to be desired is a hydraulic demonstration unit to be used to amplify and illustrate classroom lectures. Soil Mechanics Laboratory has been added as a graduate subject, and has proved to be an excellent supplement to the classroom work.

The Department wishes to acknowledge the gift of a transit by Mr. W. G. Keuffel.

CHARLES B. BREED.

Electrical Engineering. The problem of giving instruction in electrical engineering to students majoring in other courses, referred to in my report of last year, has continued to receive serious consideration. During the course of the year helpful conferences were held with the heads or other representatives of the departments concerned. As a result of these conferences some changes in schedules have been effected which it is hoped will materially help the situation, and in one case (Course II) additional time has been made available which enables students in Mechanical Engineering to take an additional subject in Electrical Engineering entitled "Applications of Electricity in Industry." The project method of laboratory instruction for the non-electrical students has been extended and is proving helpful.

During the course of the year, the Bell System resumed the practice of taking coöperative students (VI-A — Communications Option) into their laboratory for industrial experience, and during the summer the Boston Edison Company also resumed the practice of offering industrial experience to students taking coöperative work under the Public Utilities Option. The General Electric Company had previously resumed full coöperation. The Coöperative Course, VI-A, is therefore now operating on a very satisfactory program although still further opportunities for practical experience with Public Utilities would be desirable.

The staff of the Department has shown its usual activity in research, in membership on committees of national engineering and scientific associations, and in publication of textbooks and technical articles. Several new textbooks have appeared

during the year, and in addition a book previously published (Timbie and Bush) was translated and printed in Chinese. A technical article by Professor Barrow on transmission of electromagnetic waves in hollow metal tubes was reprinted in a German technical magazine.

Research has been continued and progress made in many fields, including electrical communication by means of electromagnetic waves transmitted in hollow conducting pipes, cosmic rays, investigation of insulating oils (coöperative research with the Utilities Coördinated Research, Inc.), development of radio frequency measurements and the technique of the generation of ultra-high frequencies (supported by the General Radio Company), development and perfection of the cinemaintegraph, local dissipation of fog, and application of high-speed photographic methods of measurement in the study of surface tension, and other problems of interest to chemical engineers.

Dr. von Hippel has continued his researches on dielectrics, including studies of the mechanism of the breakdown of glass under high dielectric stress and electronic emission from metals into solid insulators. During the coming academic session he will offer instruction to undergraduate and graduate students on electric insulation. In connection with this work, he plans to keep in close contact with the major industrial laboratories interested in the subject of insulation. During the year he has given several addresses to scientific groups on the behavior of dielectrics.

The million-volt X-ray unit developed for the Huntington Memorial Hospital was formally dedicated and turned over to the Hospital on April 14. The results of the preliminary operation of this unit have been so encouraging that funds have been made available for undertaking the design of a less expensive unit to operate at the same voltage but using air or other gas under pressure as an insulating medium. It is hoped that funds may be made available for constructing such a unit during the coming year and that the cost of construction may be low enough to bring such high-voltage units within the reach of all hospitals working on cancer treatment.

The Network Analyzer has been in almost constant use during the past year. Approximately one-third of the time has been spent on commercial work for utility companies, electrical

manufacturers or consulting engineers. The demand has been so great that a full-time assistant has been constantly employed. One of the interesting problems put on to the Analyzer in recent months was brought all the way from Brazil. During the course of the year several improvements have been made which will speed up operations.

The old Differential Analyzer has also been in constant use. It has been operated not only for the benefit of the Electrical Engineering Department but also for other departments of the Institute, including Physics and Geology.

Excellent progress has been made in the development of the new Differential Analyzer and construction is now on a production basis. With the rearrangement of space made possible by the new building now being erected primarily for the Department of Architecture, a plan has been developed for relocating and coördinating the operation of the old Differential Analyzer, the Network Analyzer and the Cinema Integraph (which is now substantially complete and has demonstrated its serviceability) with the new Differential Analyzer.

The Department of Commerce has recently provided funds for research by this Department in coöperation with Professor Draper of the Aeronautics Department on "blind landing" or "instrument landing" of airplanes. This will be an extensive investigation and will occupy the time of at least three full-time assistants as well as part time of several members of the staff. It is expected that coöperation will also be secured from the manufacturers of several types of instruments used in airplane control.

During the second term Professor Struik delivered a series of lectures for graduate students and staff of the Electrical Engineering Department on the Elements of Tensor Calculus.

The Honors-Group plan for selected students of the junior and senior years, the Colloquia for seniors and graduate students and the seminars for graduate students continued to show good results. During the coming year these activities will be continued, and in addition a staff seminar is proposed so that the entire staff may be kept informed of the important researches being carried out within the Department and elsewhere.

The employment situation has improved materially and

as a result few of the men graduating in June have had difficulty in finding suitable employment.

As a result of the limit placed on the number of sophomores to be admitted to the Electrical Engineering Course at the middle of the sophomore year, as part of the program of stabilization of enrollment, a number of the weaker students desiring admission were excluded. Most of those so excluded elected to remain "unclassified," apparently with the hope that their subsequent records would justify later admission to Course VI. It is interesting to note that several of those excluded made very material improvement in their records during the second term of the sophomore year.

During the course of the year, several important additions were made to the laboratory equipment of the Department, including a three-phase steel tank power rectifier with grid control, which is used by senior and graduate students for laboratory investigation of rectification, inversion, wave forms and the design of resonant shunts and power filters; a direct-current control panel, which makes it possible for students to set up in the laboratory various types of push-button control for starting, accelerating, stopping, and reversing of direct-current motors; a special low-voltage transformer containing a large number of exploring coils located at different points throughout the transformer windings and at other points in the magnetic circuit, making it possible to illustrate many of the features of transformer theory covered in the new notes on electrical machinery, and a standard frequency generator making available at all times 1,000 cycle and 60 cycle standards.

A scale model of the revamped Connor's Creek Station of the Detroit Edison Company, which was built and used by that company in preparation of the plans for rebuilding the station, was presented to the Institute, and is now housed in the Electrical Machine Laboratory where it is available for students of the Electrical and Mechanical Engineering Departments interested in power plant design.

The General Radio Company has continued its generosity to the Electrical Engineering Department not only by continuing to support the research program already referred to but also by offering a special fellowship to be awarded for graduate work

at Technology in the field of communications to an outstanding graduate of some other educational institution.

The revision of the undergraduate curriculum and the preparation of the new note material on Principles of Electrical Engineering, which have been important activities of the Department for the past several years, have continued to receive a great deal of time and attention on the part of many members of the staff. The note material used for instruction of sophomores in the second term has now been taught three years in the revised form. That used in the junior year has been taught two years, and that used in the first term of the senior year has been used once. All of this material is thoroughly revised after each term of use as a result of experience gained in class. It is now felt that the section of the notes used by the sophomores is nearing its final form, and plans have been made for publishing this section of the material next year with the expectation that the other sections of notes will follow at intervals of approximately six months to complete the series.

At the time of his death, Professor Laws had just completed the manuscript of his book on "Electrical Measurements." The members of the staff who had been closely associated with him have undertaken to aid the publishers in completing the publication of this book. It is expected that it will appear in printed form during the coming year, and that it will become an important reference book on electrical measurements.

A meeting of the Visiting Committee was held during February. The major points discussed were the need for additional space and additional equipment for an adequate high-voltage laboratory, and the desirability of impressing upon our students the importance of cost in any engineering work whether of design or construction. A plan was discussed for accomplishing the latter objective, without taking an undue amount of time away from technical studies, by introduction of the cost element into some of the technical problems given in each class subject. A new instructor has been taken on to the staff who has had considerable practical experience, who will devote a large part of his time to the development of problems suitable for this purpose.

During the second term, Professor Karl L. Wildes

was on Sabbatical leave at Tsing Hua University, Peiping, China, where he gave instruction in power transmission and power system analysis and later gave technical advice on the design of an important transmission line to serve as a link between widely separated utilities. Professor Wildes has now returned to this country and will resume his duties at Technology in the fall.

Professor Harold L. Hazen has been put in charge of the program of graduate study and research in place of Professor Dahl, who resigned to enter engineering practice.

The major need of the Department is for additional space and facilities for high-voltage research. Additional space is needed for effective continuation and expansion of Dr. Trump's work on vacuum-insulated electrostatic equipment, vacuum insulation, etc., and for development of Dr. von Hippel's program of research on dielectrics.

EDWARD L. MORELAND.

Mechanical Engineering. During the year, curriculum changes have been limited to minor adjustments following the changes of recent years. The course in Fluid Mechanics for Juniors has been extended to two terms by absorption of material formerly treated under other subjects. It is planned to give unified treatment of the basic principles of hydraulics, aerodynamics, lubrication, heat transfer, acoustics, etc., by application of the laws of mechanics to the physical properties of fluids.

The year has seen a partial reorganization of the Department's work with metals, actuated by the belief that mechanical engineers need a more fundamental understanding of the properties and use of metals of which machines are made. A new option in "Materials and Design" has been added in the fourth year in place of the former "Production" option. In April, the Department sponsored a Foundry Conference which brought together for the first time some four hundred New England foundry men.

In July, there was held a special summer course for advanced students and teachers of Strength of Materials which was followed by a two-day Conference on Plasticity and

Fatigue. This Conference brought our staff and graduate students into contact with engineers and teachers of international reputation. Dr. H. J. Gough of the National Physical Laboratory, England, lectured on Fatigue and Dr. A. Nadai of the Westinghouse Company on Plasticity.

Investigation of the dynamic strength of metals by the group under Professor de Forest's leadership has resulted in the development of several new and possibly important types of measurement, viz.,

Strain sensitive material, made of bakelite and graphite, which when associated with suitable electrical circuits permits stresses in parts of running machinery to be measured.

An electro-magnetic vibrator in which airplane engine piston pins have been broken in fatigue.

Special fatigue testing machines for air compressor valves, for wires, and for spot welds and rivets have been developed.

An apparatus for measuring energy dissipation under alternating longitudinal stress has led to a better understanding of internal damping and the effect of cold work.

Professor Buckingham's work on the surface fatigue and wear of rollers has continued during the year with special attention to the progress of surface hardening. This has been found to start at the surface, to work deeper and finally to cause disintegration or fatigue failure of the surface layer. The results have been reported to the A. S. M. E. Committee on this subject.

A research on plastic torsion by Professor MacGregor and Mr. Hrones was reported at the Cornell Meeting of the A. S. M. E.

New equipment is being installed for research into the behavior of metals under combined stress and a program is being planned in coöperation with other laboratories at home and abroad.

The Automotive Laboratory staff was stimulated by the award to Professor E. S. Taylor of the Albert Reed Prize for his vibration damper. Research projects for the National Advisory Committee for Aeronautics and for the Chemical Foundation provided interesting problems which will be reported on in due course. In addition, as individuals, members of the staff published ten papers in the field of Automotive Engines.

The new method for testing the resistance of materials against cavitation damage has been further developed by Professor Peters. Cavitation is produced by high frequency vibration of the submerged material by a magnetrostriction apparatus. Extensive tests with eighty different materials have been carried out in fresh water and in sea water, in coöperation with the United States Engineer's office. The results published by the Government permit a comparison of the relative resistance of the materials tested.

The Machine Tool Laboratory has been presented with the latest type of turret lathe by the Warner and Swasey Company to replace an older type. There has been further rearrangement of the machine tools to conform to recent changes in policy tending to reduce hand work and repetition and to introduce metal cutting measurements and time study. A lathe dynamometer has been built by Messrs. English and Lawson.

The Refrigeration Laboratory has used the new methyl chloride and Freon machines for a comparative study of these refrigerants. Twenty-five students elected courses in refrigeration and in air conditioning.

The Air Conditioning Laboratory received as gifts from manufacturers two oil burners to replace those of an oldermodel, an oil-fired domestic winter air-conditioning unit, an oil-burning steam boiler and a surface cooler using water as the cooling medium. The moving of the Air Conditioning Laboratory from Building 46 to the basement of Building 5 will greatly improve the facilities for instruction and research.

The Heat Measurements Laboratory has had an increase of 80 per cent in the number of students using the laboratory, largely due to the fact that several courses require students to perform certain fundamental heat experiments. The laboratory has become increasingly useful since its transfer to this department. Several new experiments in natural convection have been added during the year in connection with the course in Fluid Mechanics. Preliminary investigation of the transmission of water vapor through building materials as well as condensation in insulated walls is about complete. Apparatus for the determination of heat transfer across full-sized air spaces

has been completed and results presented before the American Society of Heating and Ventilating Engineers.

"Thermodynamic Properties of Steam" by Professors Keenan and Keyes was published in October, 1936. This event marks the conclusion of a two-year project in the formulation of working tables from experimental data. The tables are based largely on experimental work done at Technology under the direction of Professor Keyes, though other experimental work was freely drawn on.

At the request of the three major steam turbine manufacturers, Professors Keenan and Keyes have prepared two enthalpy-entropy charts respectively eight and fifteen feet in length for turbine design calculations. For the same sponsors they are preparing a large-scale enthalpy-log volume chart and a table of theoretical steam rates of 50,000 entries.

The friction coefficient of steam flowing through pipes with large changes in density has been measured for velocities below and above the sound velocity. These experiments extend existing data to unusually high Reynolds numbers, namely, to 7×10^6. The results will be published in the fall.

A research program on the fundamentals of yarn structure both from static and kinetic standpoints has been carried to a point where further work becomes of considerable interest and importance. In this connection, sensitive electrical equipment to control tension in the twist testers and a new motor-driven twist tester with special magnifying units have been added. There has also been added an apparatus for determining the permeability of fabrics to fluids. This is the most complete device of the kind in the country and is now calibrated and in service. Machinery has been added to give us complete units for the production of braided, knitted, woven, and felted materials. A collection of fibre, yarn and fabric samples, indicative of the basic types of structure, is now being assembled. Such a collection is unique in this country and should prove of considerable value in connection with instruction and reference to known samples of material.

J. C. HUNSAKER.

Meteorology. During the year advanced studies in Meteorology were pursued by ten civilian students, two

Weather Bureau employees, three Army officers, and two Navy officers. Four S.M. degrees were awarded in Meteorology.

Coöperation with the Blue Hill Observatory of Harvard University has continued with the holding of joint seminars every Monday evening and through further tests of the Harvard radio meteorograph; the results of these tests are now being published in the *Monthly Weather Review*. Continued coöperation with the Woods Hole Oceanographic Institution has enabled us to carry out a series of experiments designed to illustrate the effect of the Coriolis' force on wake streams in rotating systems. This investigation, conducted by Mr. A. F. Spilhaus, has not yet been completed. A number of seminars on selected oceanographic problems were held, with Mr. R. H. Siewell as principal speaker.

In the autumn of 1936 attempts were made to collect additional data on the free air structure of West Indian hurricanes by means of Jaumotte meteorographs and radio meteorographs to be released in Cuba and from suitable points in the Southeast. These efforts failed because of the complete absence of hurricanes during the 1936 season. Another attempt will be made during the hurricane season of 1937.

During the past year we have coöperated with the Bureau of Agricultural Economics of the United States Department of Agriculture in an investigation of long range weather forecasting methods. The investigation consists in part of a critical survey of older empirical methods and in part of an attempt to create a physical basis for a rational attack on this problem through the daily study of simultaneous weather conditions over the entire Northern Hemisphere.

The survey, in which two former Institute students, Mr. R. B. Montgomery and Mr. I. I. Schell of the Department of Agriculture, have taken a prominent part, is now nearing completion. The preparation and analysis of daily synoptic charts for the Northern Hemisphere was begun on the first of October 1936 and is directed by Dr. Willett. Both the survey work and the synoptic study point to the relative insignificance of such factors as variations in Arctic ice and in sea surface temperatures in controlling weather anomalies of two or three weeks' duration. Dr. Willett's charts rather clearly indicate that any attempt to explain persistent weather anomalies must begin

with an attempt to explain the underlying anomalies in the position and intensity of the subtropical High Pressure belt. Dr. Willett's results will be published in the September 1937 issue of the *Journal of Applied Physics*.

The attempts to introduce methods and results of modern fluid mechanics into practical meteorology have continued. On the assumption that the large-scale movements of the free atmosphere are very nearly adiabatic, the aerological data are now being utilized for the construction of daily charts of the air in a given isentropic surface, the individual elements of air within this surface being traced with the aid of their moisture content. These isentropic charts have already revealed the existence of flow patterns which differ materially from the commonly accepted picture of atmospheric motion and may ultimately lead to far-reaching revisions of our present picture of the structure of cyclones and anticyclones.

The demand for graduates in Meteorology continues good.

C. G. A. ROSSBY.

Mining and Metallurgy. This is the last report of the Department known by this name. The next academic year will show two departments instead of one. Course III — Mining Engineering — will comprise the fields of metal and coal mining, and petroleum production. Other work hitherto carried on under this Department will appear as Course XIX — Metallurgy — comprising all divisions of metallurgy, including ceramics. Coöperation between the staff members of the two departments will continue a vital and real influence as it has been in the past.

With respect to new developments in the Department in the field of Mining Engineering, visits to mines and ore dressing plants in northern New York State were carried out during the April recess through the initiative of Professor Foster, accompanied by a party of seven students. Milling operations were studied at the zinc mines of the St. Joseph Lead Co. at Edwards; iron mine and magnetite mill of the Witherbee Sherman Corp. at Mineville, and the Barton Mines Corp., garnet producers, at North Creek. At the same time, a group of six students, graduate and undergraduate, under their own initiative, visited

a number of gold mines in Canada, including the Noranda Mine (gold and copper) at Rouyn, Que., and the Lake Shore Mine (gold) at Kirkland Lake, Ont.

Additional facilities and improved methods have been brought into play by the application of microscopy to ore dressing through the enterprise of Mr. Schuhmann. This includes studies of methods for microscopic identification of minerals, particle-size measurement, and quantitative mineralogical analysis of ores and metallurgical products. Particular emphasis was placed on quantitative microscopic examination of grinding and flotation products in briquetted form, a most important and useful means of approach to various problems in present-day flotation milling.

Mining Engineering is a field that suffered much during the depression, as was the case with other raw materials industries. The number of students registering in the course was diminished, and our ability to place even the smaller number was impaired. Professor Locke recently has been able to place men currently graduating and he adds that many of the older men seeking re-employment have been placed.

Professor Mann, editor of the Petroleum Section of the Annotated Bibliography of Economic Geology, recently presented a paper before the Boston Section of the A. I. M. E. on the subject of "Recent Developments in Oil Field Practice."

Professor Hutchinson made a five weeks' tour of certain western mining districts in the United States and Canada; the chief purpose was to re-establish personal contacts and to make new ones.

An important development of the year is represented by coöperation between the division of metallurgy and the Department of Physics. This was brought about by means of twenty-two joint meetings, for which the speakers were drawn as a rule from staff members and graduate students, although there were occasional lecturers from the outside. This enterprise was initiated and ably administered by Professor Bitter.

Professor Bitter reports preliminary tests made at a substation of the Edison Company proved that the scheme of installing a powerful electromagnet at M. I. T. would be practical, and that the main problem was the obtaining of sufficient electrical power. This is now assured and magnets, to be used

by the several departments of physics, chemistry and metallurgy, will shortly be in use.

Professor Bitter is offering in the coming fall term a course on theoretical metallurgy, wherein the question of atomic arrangement in alloys will be treated in considerable detail, especially in its bearing on certain physical properties.

Work in connection with the pit corrosion of stainless steel has continued under the direction of the Corrosion Committee, of which Dr. Williams is chairman. Progress Reports 3 and 4 have been issued during the last year, and much work that is interesting and important is in progress.

Professor Homerberg is continuing his work in nitriding of steel, cast iron and malleable iron with marked success. The large commercial nitriding equipment has been replaced by a small laboratory unit, a gift to Professor Homerberg, in which investigative work can be carried out much more effectively. New polishing equipment for the undergraduate laboratories is still a serious need. The division has acquired the latest type of Zeiss metallographic camera equipped with a dark-field illuminator and the necessary accessories for examination with polarized light. This new instrument will be of the greatest value in metallographic research.

Professor John T. Norton has continued his work in the study of the aging of alloys, using X-ray diffraction methods, and he has built an instrument for the study of damping capacity of metals, which is being used for the first time as an additional tool for the study of the obscure but very important question of aging. It is hoped that a more precise instrument for this purpose may be developed as it gives promise of being a powerful tool for certain kinds of metallurgical investigation.

Professor Cohen, during the year, gave a series of three evening courses sponsored by the Division of University Extension of the Massachusetts Department of Education, as follows: (1) a lecture course in physical metallurgy; (2) a laboratory course in metallography; and (3) a lecture-laboratory course in heat treatment. This is the first time these subjects have been offered by the State, and favorable comment warrants their expected repetition.

Professor Waterhouse has visited many steel plants for purposes of observation and to keep in touch with metallurgical

developments. These plants are situated in England, France, Germany, Canada and the United States, advantage being taken of a trip abroad to renew contacts and make visits. Professor Waterhouse has been recently elected president of A.S.M. and has been the recipient of the Doctor's degree from Sheffield University, England.

Professor Bugbee is chairman of the Boston Section of the A. I. M. E. He attended the meeting of the A. I. M. E. in Mexico in November 1936, and visited the oldest, and today the world's largest silver producing district situated at Pachuca in the State of Hidalgo.

Professor F. H. Norton has designed an ultracentrifuge and a long armed centrifuge for particle size study, which have proved extremely useful for instruction and research. New apparatus has also been provided for determining the heat effects in glass, with a recording device yielding a high degree of precision. Fundamental work with Professor Warren of the Department of Physics is being carried on with promising results.

The Department Shop facilities have been greatly improved by the purchase of new equipment, and the employment of a competent foreman.

Mr. Harry J. Seagrave, technical representative of the Mine Safety Appliance Co. of Pittsburgh, dealt with "Scientific Aids in the Prevention of Mine Explosions and Accidents due to Toxic Hazards." This lecture drew a large number of students and staff, of which a considerable part were from the Department of Biology and Public Health. The speaker demonstrated various instruments at present employed for detecting and measuring explosive and poisonous gases, and other equipment for use in rescue work.

Dr. F. C. Nix, of the Bell Telephone Laboratories, lectured on "Experiments on Superstructures in Alloy Systems."

Dr. Herbert Insley, of the United States Bureau of Standards, gave an interesting account of the studies now being made in the laboratories of the United States Bureau of Standards respecting "The Constitution of Portland Cement Clinker" as determined by micrographic methods.

A Symposium on Metals, highly significant with reference to fundamental problems in the physics, chemistry and metal-

lurgy of steel, was held in January at the Institute under the joint sponsorship of the American Institute of Physics and M. I. T. Eighteen papers, all of high caliber, were presented at the meetings; one of these was by an Institute alumnus and six were by staff members in Metallurgy, Physics and Mechanical Engineering.

W. SPENCER HUTCHINSON.

Naval Architecture and Marine Engineering. The revision of the undergraduate subjects of instruction has been continued in coöperation with the other departments concerned, and in accordance with the new requirements adopted by the Faculty. A course in welding engineering practice has been added to the curriculum beginning 1938–39.

As stated in last year's report, the course in Marine Transportation has been made a five-year course, the students spending the fourth year in practical work on shipboard. The first group that will be required to go to sea will be the students in the class of 1939. Two of last year's third-year students, however, requested permission to take the five-year course, and these two men were at sea during the school year 1936–37. One man has been with the Roosevelt Steamship Company, and the other with the Moore & McCormack Company. Numerous favorable comments have been received in regard to this new five-year course.

Two graduate courses have been proposed, one leading to the degree of Master of Science in Marine Engineering, and the other to the degree of Master of Science in Naval Architecture. The general proposal to undertake graduate work along these lines has the approval of the Administration, and has been referred to the Visiting Committee of this Department for further consideration. The graduate work in Marine Engineering could be undertaken in the year beginning September 1939, since only two new subjects and the thesis are to be given in this Department. The major portion of the work will be taken in the Department of Mechanical Engineering. The graduate work in Naval Architecture cannot be undertaken until the staff and equipment of this Department are sufficient for the purpose. No change in the present four-year

undergraduate course which leads to the degree of Bachelor of Science in Naval Architecture and Marine Engineering is contemplated.

In order to increase the research activities of the Department, a propeller testing tunnel has been designed by Professor Lewis, and its financing has been placed in the hands of the Chairman of the Visiting Committee of the Department, Mr. Joseph W. Powell. This tunnel would be placed in a portion of the Mechanical Engineering Laboratory. At the present time of writing, the proposal has the enthusiastic support of shipbuilders and shipowners.

The small towing tank designed by the Department is still needed for research work, and it is hoped that after the propeller testing tunnel has become a reality, the financing of the tank may be undertaken. Such a tank would be of considerable value, not only to the designers of large ships, but to yacht designers as well.

In view of the present activity in shipbuilding the graduates of Course XIII have had no difficulty in obtaining positions. Acting upon a suggestion made by the Visiting Committee, most of the important shipbuilding and ship repair yards on the Atlantic, Gulf, and Pacific Coasts have been contacted in the belief that by so doing a wider field of activity will be opened to the graduates of Course XIII. In addition to obtaining positions for the graduates, summer work in shipyards has been found for many of the undergraduates.

In connection with research work, some of the theses undertaken by the students in the Department have involved considerable original experimental investigation, and in some cases the subject matter has been proposed by the leading shipyards. In the course in Naval Construction, the theses have provided important design information for the Bureau of Construction and Repair, and will be continued along the same lines next year.

Professors Rossell and Chapman have in hand the editing of a textbook on Naval Architecture for the Society of Naval Architects and Marine Engineers. It is believed that this book will be the outstanding work of its kind when completed and will reflect considerable credit on the Institute.

In view of the Institute's new building program, the offices,

model cutting room, and the classrooms in Building 5 have been rearranged to meet the future requirements of the Department. The Nautical Museum has also been enlarged to include a former classroom.

Under the guidance of the Institute's Committee on Museums, the Nautical Museum is being rearranged and enlarged to meet the requirements for exhibits which have been added. At the present time, however, there are practically no models of modern American built merchant vessels on exhibition, and it is considered desirable that efforts should be made to obtain any that may be available.

HENRY H. W. KEITH.

SCHOOL OF SCIENCE

Biology and Public Health. The past year may be regarded as one of distinct accomplishment in carrying forward the purposes of the Institute and the Department.

The outstanding development of the year has been the formulation and acceptance by the faculty of the new program in Biophysics and Biological Engineering (Course VII-A). Preliminary reference to the increasing interest and importance of work in this very new field, which covers the borderlands between Biology and Physics, Physical Chemistry, Electrical Engineering and Chemical Engineering, was made in last year's report. Since that time a committee under the Chairmanship of Professor Bunker and representing all departments concerned, has prepared a five-year program of studies leading to the degrees of Bachelor of Science in Biophysics at the end of four years and to the Master of Science in Biological Engineering on satisfactory completion of the fifth year. The work in this field as now planned will offer opportunities for further graduate work to secure the doctorate. The fundamental training in this course is unusually broad and rigorous, as it involves not only advanced work in biology and in physics but also electrical engineering, physical chemistry, and several electives of graduate character. The course is obviously designed for the small number of exceptional students who look forward to research as a profession. Such a combination of logically arranged courses in biological subjects and biochemistry,

physical and colloid chemistry, physical measurements, optics, radiation, atomic structure and electrical engineering could hardly have been worked out successfully in an institution in which there was not unusual coöperation between departments. Furthermore, the committee arranging the course has manifested a keen perception and appreciation of the newer developments in science, and their applications in physiological, metabolic and enzymic processes in living organisms. Advancement of our knowledge of industrial fermentations, of food technology and engineering, and in public health and preventive and curative medicine should be enhanced as a result of such breadth of fundamental and specialized training. In the opinion of some deans of medical schools the new course provides a preliminary preparation for scientific medicine that has never before been approached.

The work in Food Technology is continually growing in importance. A new course, Biology of Food Supplies, will replace the former less comprehensive course in Essentials of Anatomy, and will deal with the structure, growth and development of both food animals and food plants. This course will be given jointly by Professors Blake and Jennison. That the interest in our work in Food Technology is widespread is evidenced by the demand for men and especially by a very successful Conference on this subject arranged by the Department and held at the Institute during the late summer. This meeting was attended by more than five hundred and fifty food experts, directors of research, manufacturers, and government officials. Dr. Rudolf Plank of the Kaltetechnisches Institut of Karlsruhe, Dr. Maurice Piettre of the Institut International du Froid of Paris, and Drs. Thomas Moran and James Pace of the Low Temperature Research Station at Cambridge, England, came to America especially to attend this gathering. Many papers of great interest were presented, and the Conference received wide publicity.

Two courses, Chemistry of Water and Sewage and Food Chemistry, previously given in the Department of Chemistry primarily for students in Biology and Public Health have been transferred to the Department and will be taught by Professor Jennison and Professor Harris respectively. This adds materially to our problems of teaching load and laboratory space, but

the latter difficulty is met in part by allocating the Water Analysis laboratory to the Department of Biology and Public Health until the hoped-for Sedgwick Laboratories may become a reality. That the matter of teaching load is pressing is shown by the fact that sixty-eight subjects are at present offered by our staff of thirteen instructors and professors, with the assistance of four teaching fellows. There is however a most unified, enthusiastic and coöperative spirit in the staff. During the year two new graduate courses were given, one in Advanced Biochemistry by Professor Bunker and the other in Advanced Physiology by Dr. Sizer. These, with the new courses in Biophysics, Advanced Biochemistry and Dr. Gould's new course in Quantitative Biochemistry to be given during the next academic year, render laboratory space problem still more acute.

There has been a steady development in research on the part of the whole department staff, with a gratifying output of significant publications. Professor Bunker has continued his vitamin research aided by a generous grant from the Rockefeller Foundation. Professor Turner's research work in Health Education has resulted in a very valuable quantitative determination of growth intermittency in school children and will unquestionably prove of great value to schools. A partial list of other researches is briefly given: Professor Horwood has continued his research on the mutability of bacteria of sanitary significance. Professor Proctor has pursued the classification of organisms found in the upper air. Professor Blake has made a survey of the distribution of Termites in New England. Professor Williams has added notably to his studies on pathogenic fungi causing dermatosis. Professor Jennison has been engaged on a research in statistical analysis applied to quantitative bacteriology. Professor Harris has extended his studies in metabolism. Drs. Dunn, Gould and Sizer have been prolific workers in their respective fields.

Dr. Gould was awarded a C.R.B. research fellowship for summer work and was invited to carry on research at Louvain University on the biochemistry of fungi. Three brilliant young research workers, Drs. Prindle, Ayres and Jacobson, who have been engaged on special problems in coöperation with industry, have completed their investigations and have gone to new positions in teaching or research.

The Sedgwick lecture for 1936–37 was given by Mr. Selskar M. Gunn, '05, Vice-President of the Rockefeller Foundation in charge of the work in China. The Delta Omega lecture in Public Health was given by Professor Turner, who gave an account of his observations on the present status of health education in the leading countries of the world.

The Biological Seminar for staff and graduate students has been of great value. Thanks are due especially to Dr. Reginald H. Colley of the Bell Telephone Laboratories, Mr. W. H. Heath, Chief Chemist of the United States Food and Drug Laboratory at Boston, Dr. Samuel Weisberg, Director of Research of the National Dairy Company, and to some of our own graduates and members of the Institute Staff for the presentation of problems of scientific interest in varied fields.

Members of the departmental staff have continued to give public service in various ways. Professor Horwood has during the summer prepared a Sanitary Code for the Town of Arlington, Mr. Parker has, at the request of the town officials, made a careful biological survey of a pond in Scituate. Professor Prescott has been elected co-president of Commission III of the International Institute of Refrigeration. This "Commission" deals with the biology of refrigeration, especially in relation to food spoilage and public health, and its duties are to organize the research work to be reported at the International Congress at Tokio in 1940.

Additions to teaching and research equipment have been made as far as available funds have permitted, but it will be imperative that extensive replacements of obsolete equipment and further additions of new types of apparatus must soon be provided if the Department is to meet adequately its educational aims and opportunities for service.

The deep gratitude of the Department is due to our special lecturers, whose service has been, as always, a notable one, and I wish also to acknowledge our deep obligation to Mr. Gardner Poole, Mr. Bradley Dewey, The Gorton-Pew Fisheries Co., Limited, and H. P. Hood and Sons, Inc., for the splendid coöperation given in making the Food Technology Conference such a conspicuous success.

SAMUEL C. PRESCOTT.

Chemistry. The Department's activities are essentially three-fold: coöperation with other Institute departments in providing courses, assistance to its students of chemistry, and contributions to the progress of science. A review of experience for the year appears to warrant the belief that considerable progress in improving the conduct of its duties has been achieved.

The extent to which our teaching activity has grown may be sensed from the fact that there were 2,057 registrations for chemistry courses in the first and 1,716 in the second term of the year. There were, also, 39,750 student-lecture hours, 45,060 student-recitation hours, and 71,140 student-laboratory hours in the course of the first term. In the second term the corresponding figures are 24,180, 42,300, and 53,911. The summer session attendance was also larger than usual, with 279 students. The year's total of registrations, including summer school, comes to 4,052; while the sum of all student-lectures, student-recitations, and student-laboratory periods amounts to 311,881. The figures do not include effort devoted to undergraduate thesis supervision or graduate research. We believe ours to be one of the largest chemistry teaching assignments in the country. Moreover, almost every year the Department is first among educational institutions in the number of its scientific contributions. The really important consideration is of course the quality and significance of all this effort. Indeed it is this aspect which engages our most painstaking attention, for the danger of a lapse in quality is likely to increase rapidly with increase in size.

The sharp break with traditional practice in the matter of assistance from graduate students under the uniform Teaching Fellowship plan, referred to in last year's report, has been under close observation. There is now no doubt about the success of the plan. The Administration's change of policy, whereby the department committee on teaching fellowships is able to confer scholarships from funds allotted to our budget, has made it possible to secure preferred appointees. The scholastic records of our twenty-four teaching fellows show that the appointees are our really outstanding graduate students. Our teaching fellows give no classroom instruction but collaborate with the instructors in the guidance of students' laboratory work and in perfecting laboratory procedure.

For many years the staff has regretted the lack of a lecture-room and preparation room that could be increasingly adapted to the presentation of the science. The chemistry lectures in the first year will in the future be given in a newly created lecture room, thereby making possible a far more suitably adjusted freshman schedule. In size, arrangement and coloring, the lecture room provides a setting vastly more restful and easier for the conservation of attention than the 10–250 lecture hall. A problem which it is hoped to finally solve satisfactorily is the question of unobtrusive artificial lighting adapted to the giving of scientific lectures.

A considerable reorganization has taken place in Professor Woodman's section of Food and Water Analysis through space adjustments in the general interest. The laboratory equipment was transferred to the analytical laboratories where space was prepared in advance and the work will in future be consolidated with that of the Analytical Division. Water analysis is to be transferred to the Department of Biology, and Professor Woodman will give increased attention to his course in Special Methods and Instruments.

The reports of preceding years have touched on the Department's belief in the benefits to be derived from a continued effort to improve the continuity of the chemistry course from the first year to the last graduate year. To do this it is indispensable that every staff member be fully acquainted with the material presented by his colleagues. The plan of rotation in teaching assignments has been of assistance in promoting the objective. The course synopses now available for every staff member are also very helpful. The use of mimeographed notes continuously modified has been extended during the year and tends to keep material up to date besides freshening the instructor's presentations. It is believed that ultimately the traditional text book may in many instances be dispensed with in favor of crisp, relevant notes in mimeographed form for all courses. The amount of inter-staff discussion on the selection of material and its form of presentation has increased steadily as the use of the instructor's mimeographed notes has augmented.

The greatest forward step in many years for improving the graduate school of chemistry has been the adoption of the Teaching Fellowship plan. No great measure of success in

building up and maintaining a productive graduate division is possible unless the students admitted are outstanding in character, intelligence and physique. It seems to be universally true, notwithstanding any sad commentaries the fact may suggest, that these students are rarely financially self-supporting. It is here that the significance of the fellowship plan becomes important. Moreover the fine influence of these young men on our undergraduates is valuable, to say nothing of the large amount of necessary assisting work they perform.

A further step, really considered an integral part of the fellowship plan, is to put the graduate work on a twelve-months basis. A young man in his twenties of the type we seek has no real need or desire for a full summer of vacation. To spend the summer in work to meet school expenses is moreover an intolerable waste of precious human resources. The recent announcement of the administration requiring only a nominal fee for summer work has made it possible for students to utilize the summer months for research and reading without course interruption. Even the undergraduate junior students now contemplate beginning their thesis work in the summer preceding their senior year.

One of the most desirable, perhaps even necessary, conditions for continued scientific progress is the cultivation of a spirit of coöperation between workers, particularly those working in different departments of science. It is gratifying to report that Professor Schumb's group in the Research Laboratory of Inorganic Chemistry is collaborating with members of the Aeronautical Department in unravelling some aspects of the phenomena of cavitation. A new method of study has been developed and one joint paper has appeared. Similar coöperation has enabled a good start to be made in the field of natural and artificial radioactivity. This work between the Inorganic group and Professor Evans of the Physics Department, is likely to uncover important scientific developments.

Last autumn the development of cellulose research began under the direction of Professor Purves, generously assisted by the Chemical Foundation. Professor Hockett and his group of students working in the very closely allied field of carbohydrate chemistry, have collaborated with Professor Purves. Out of the year's activity there have come a well considered program of

research, many contacts with others interested in the field, and the adaptation of space and special facilities indispensable for rapid progress. Two research associates in cellulose chemistry, Dr. D. H. Grangaard and Dr. F. B. Cramer, reported for work July 1, and many promising prospective graduate students responded to an announcement of the new Cellulose Fellowships sent to all colleges and universities in the early spring. Prospects of a highly productive future in the field of cellulose chemistry are particularly favored through contact with our active group in organic chemistry, now well established for many years by Professor Norris, his colleagues and graduate students.

The progress of the established lines of research in the applications of thermodynamics to chemical equilibria and solutions has progressed very satisfactorily. A painstaking investigation of an azeotopic binary mixture has been completed by Professor Scatchard and his collaborators using new precision equipment. Professor Beattie and his group have also about completed an investigation begun over ten years ago of the relation between the thermodynamic temperature scale and the international scale defined by means of the platinum resistance thermometer. This work has been performed with continuously improved facilities. The results obtained far exceed in precision and completeness anything hitherto accomplished, and one of the major uncertainties in thermometry from the ice point to the normal sulphur point has now been removed. The work is being extended below the ice point.

Professor Harris, among other researches, has been investigating for several years the spectra of nitrogen tetroxide-nitrogen dioxide, the classical example of convertible components. From April to September he carried on his work in collaboration with Professor Pearse at University College, London, where special facilities were placed at his disposal.

Cryogenic research has moved forward during the year and considerable quantities of liquid hydrogen have been produced for use in low temperature measurements. The temperature scale has been established on a firm foundation and considerable progress made in perfecting the new M. I. T. technique of all-metal equipment. Liquid helium temperatures by a very convenient process became available in the late summer. Con-

siderable effort continues to be expended in the further perfection of convenient and economical means for low temperature refrigeration in the belief that many important problems can be solved with greatly enlarged and more perfectly controlled low temperature space.

The cryogenic research problems under investigation at the moment relate to the heat capacity of salts, the rotation of atomic groups in molecules, coefficients of temperature dilation and the physical properties of hydrogen and helium in the three normal phases and in the adsorbed state on charcoal. In September Dr. L. J. Haworth, appointed Lalor Fellow by the Lalor Foundation,* joined the group. He will take up research on magnetic susceptibilities and related phenomena at low temperatures. Dr. Haworth's work will touch closely the field of Professor Bitter's interest, who is establishing a new laboratory for magnetic research which will contain his very high field magnets.

FREDERICK G. KEYES.

General Science and General Engineering. A study of objectives in Course IX for the past year shows a preponderant interest in schedules relating to photography and optics. Numerous other schedules relate to special aspects of aeronautics, air conditioning, business, chemistry, electrical engineering, metallurgy, and refrigeration.

Increasing interest is shown in courses relating to patent law preparation and secondary school teaching. In the latter subject arrangements have been made for the study of methods and psychology of teaching at other institutions.

More students than formerly are entering Course IX at the beginning rather than by transfer from other courses. The year closed with a higher total registration than for any previous period of operation under the restricted requirements for admission.

R. G. HUDSON.

*The Lalor Foundation has awarded a Lalor Fellowship for four years in recognition of the important service rendered to American science by Professor Arthur A. Noyes in establishing and partly maintaining for many years the Research Laboratory of Physical Chemistry.

Geology. The Department has had a gratifying increase in both undergraduate and graduate enrollment. The appointments of two new staff members of the rank of Assistant Professor for the coming year permits a desirable rounding out of teaching and research, particularly in petrography, petrofabrics and age determination of rocks by "radioactive" methods.

Both graduate and undergraduate work in the field of ore genesis will be greatly aided by the installation of spectrographic equipment made possible through the generosity of Mr. Godfrey Cabot.

The corridor museum of geology initiated last year has been expanded by the addition of fifteen cases to extend the full length of the geology corridor.

Dr. Waldemar Lindgren has continued his editorship of the Annotated Bibliography of Economic Geology, one of the most useful publications in the field of Economic Geology. From the Society of Engineers of the Liége School of Mines Dr. Lindgren received the Trasenster Medal for 1936, and in 1937 was awarded the Wallaston Medal by the Geological Society of London "for distinguished and long continued investigations into the mineral structure of the earth."

Professor Slichter has continued the development of the group of twelve special three-component seismometers and cameras. This equipment will be completed early in 1938 and will be put to work on investigations of the deeper layered structure of the earth's crust. A comprehensive catalogue of curves for the interpretation of electrical resistivity data for a layered earth was made by two of his graduate students and is now in press. The computations involved in developing these curves would have been impracticable without the aid of the M. I. T. Differential Analyzer. In January Professor Slichter gave the Society of Arts Popular Science Lectures on the subject "Earthquakes."

Professor Newhouse has had splendid coöperation from mining geologists representing mining districts in all parts of the world in a project which he initiated as Chairman of the National Research Council Committee on Processes of Ore Deposition. This project is a symposium on the Influence of Structural Features on Ore Deposition.

Professor Buerger has continued to develop the field of crystal pattern analysis. The problem of accurately determining the constants of the less symmetrical crystal has had special attention and a new instrument and a new technique have been developed. A precision of five or six significant figures is attained in linear constants and angular constants may be measured to a few seconds of arc. This technique is applicable to any crystal. The crystal structure of valentinite (Sb_2S_3) has been determined and unit cell and space group determinations made on cubanite ($CuFe_2S_3$) and tourmaline. The latter is the most complex silicate known, and it has defied structural analysis to the present because (it is now known) the older methods of X-ray analysis were inadequate. The polymorphism project has yielded notable results this year. In collaboration with Mr. M. C. Bloom, Professor Buerger has presented a general theory of polymorphism, the first general theory proposed.

During the summer of 1937 Professors Morris, Newhouse and Fairbairn have made geological studies in Europe, including attendance at the International Geological Congress in Russia. Professor Morris, who has been granted a year's leave of absence, will continue his geological studies in Asia until the fall of 1938. Professor Newhouse planned to visit the principal mining districts of Scandinavia and Russia and, incidentally, to secure collections for the Department. Professor Buerger made geological investigations in the far north as geologist for the McMillan expedition to Baffin Land. Professor Shimer spent the summer months in visiting many of the important geological locations in western United States. Professor Shrock made an extensive tour of the key locations of Paleozoic geology and paleontology in this country. Professor Mead spent the summer in a field study of the Pachuca–Real del Monte silver district of Mexico.

A new course in Applied Engineering Geology was initiated by Professor Mead, designed primarily for the officers of the Corps of Engineers of the United States of America attending the Institute as graduate students.

WARREN J. MEAD.

Mathematics. No outstanding changes occurred in the Department during the past year. Due to improvement in the quality of the entering class under the new scheme of admission, a little more work than usual was covered during the first year, and so it will be possible to make some desirable additions to later courses.

The number of students taking mathematics was unusually large. During the first term the total registration in mathematics was about fifteen hundred, including more than one hundred graduate students. To leave time later for more advanced studies, many took advantage of the arrangement under which students with high records are permitted to study alone and pass subjects by advanced standing examination. In some cases they covered almost the entire undergraduate mathematics requirement in this way.

During the year a convenient meeting and lounging room was equipped for the use of members and students of the Department, and a mathematical laboratory was provided for the permanent mounting of mathematical instruments, which in the past have been scattered in a variety of places.

For some years Professor Wiener's fundamental course in Fourier Series has been attended not only by graduate students, but by Department members interested in research along allied lines. To provide more adequately for this kind of audience Professor Wiener has announced for next year a seminar in analytic number theory, which will cover a considerable amount of material on the borders of present research, and will give those attending opportunity to prepare research papers under supervision.

Professor Struik has been invited to give a course in Differential Geometry at Harvard during the first term of next year. Professor Struik is also coöperating with Mr. Boyajian of the General Electric Company, a non-resident instructor in Electrical Engineering, in writing a book on tensors, a subject which in recent years has found extensive applications in electrical engineering.

H. B. PHILLIPS.

Physics. The new option in Applied Physics went into operation this year, making an excellent start. Something over

half the undergraduates in Course VIII have elected this option, and the total number of undergraduates in the Course has increased, indicating real interest. This year also the first Doctor's degrees in the field of applied physics have been conferred. Industrial leaders have shown lively interest in the training of students in applied physics, the American Institute of Physics is taking an active lead in developing it, and the Institute is well placed to take a leading part in the field.

Several conferences held by the Department during the year have attracted strong outside interest, particularly in industry. At the end of January, the departments of Physics and Mining and Metallurgy, together with the American Institute of Physics, held a large and successful symposium on metals, with special reference to fundamental problems in the physics, chemistry, and metallurgy of steel. A number of members of the Institute staff took part, and about three hundred and fifty persons outside the area of Metropolitan Boston attended. Professor Nottingham again arranged a small and intimate, but very successful, conference on electronics during the spring. And the Spectroscopy Conference, held during the summer, attracted more outside interest even than the previous summer conferences, establishing more firmly the Institute's leading position in this field. In addition to these conferences, the Department was host to the New England Section of the American Physical Society in February.

The teaching of the Department continues to be the object of much attention on the part of all members of the staff. The freshman and sophomore physics courses, it is felt, are being developed more and more in a way satisfactory to the rest of the Institute. The principal new development in teaching for the year has been Professor Harrison's laboratory in Experimental Physics for all seniors of Course VIII. This newly developed and equipped laboratory has given the students an excellent opportunity for developing individual projects in all branches of experimental physics, using their own initiative and following their own inclinations as far as possible.

In research, a number of significant advances have been made. The high voltage project of Professor Van de Graaff and the Doctors Van Atta at Round Hill has reached a definite stage of completion. Both generator and discharge tube have been

finished, excellently focussed beams of electrons of about 2.6 million volts being obtained. When this work was commenced, it was felt that the project should be moved to Cambridge as soon as completion of the apparatus at Round Hill showed the feasibility of the high voltage direct current method of accelerating particles. This stage has how been reached, and with the approval of the Visiting Committee of the Department the move to Cambridge will be carried out as promptly as possible during the year 1937–38, a good start already having been made. At the same time, several smaller outfits in Cambridge are already in use, and the million volt X-ray outfit, designed and built for the Huntington Memorial Hospital of Boston by Professor Trump, with the assistance of Professor Van de Graaff, has demonstrated the practical, efficient, and inexpensive nature of direct current machines for medical X-rays. It is significant that numerous other machines of the Van de Graaff type have been built or are under construction at other laboratories both in this country and abroad.

Professor Evans' research program in radioactivity is developing rapidly, and attracting much outside support. The work on the age of the earth continues of great importance to geologists, and is now being amplified to include the age of meteorites originating both within and without the solar system. The biological program has led to results of great significance and promise in the treatment of radium poisoning. In addition to the development of technique and apparatus, other problems of interest to this group in applied radioactivity include the age of art works (in collaboration with the Fogg Museum), the biological effects of high speed particles, the properties of the transuranic elements, and the use of radio-indicators for medical problems. In recognition of his distinguished research in the field of radium poisoning, Professor Evans was awarded the Theobald Smith Prize of one thousand dollars at the Denver meeting of the American Association for the Advancement of Science during the summer.

The spectroscopic program of Professor Harrison, involving the measurement of the spectra of the chemical elements, is progressing rapidly. This great work, using all the facilities of the spectroscopy laboratory, with assistance from the WPA, will mark a new stage in the development of atomic spectros-

copy. Not only will the number of available measured lines be greatly increased, but there are now definite indications that the accuracy of the wavelengths is significantly greater than in previous work.

Professor Morse's theoretical research, both in atomic structure and in acoustics, continues to progress. His new text in acoustics, published during the year, has attracted widespread favorable attention. Other theoretical research in the Department, including cosmic rays, the theory of solids, and other fields, has yielded valuable results. The other experimental fields of research have likewise continued with steady and valuable progress.

Professor Frank was absent during the first term, a guest of the Institute for Advanced Study at Princeton, N. J., and Professor Slater was a guest of this same institution for the second term.

JOHN C. SLATER.

SCHOOL OF ARCHITECTURE

Architecture. The outstanding event for the School of Architecture in the year 1936–37 was the decision to move the School to new quarters in Cambridge so that Architecture might once again be integrated with the Scientific and Engineering Departments as was the case before the move from Boston in 1916.

This change which will be consummated by the fall of 1938 should result in a saving of time for architectural students and an opportunity for closer social and academic relations with those from whom they have hitherto been separated by the Charles River Basin, an association from which it is hoped that both sides may be the gainers. That our students may thus become familiar with prevalent engineering and scientific methods is also highly desirable.

While the advantages to be gained from such a move are unmistakable, the School will certainly miss that close association with the profession in Boston which has been of such great value in juries and criticisms, the easy access to galleries and museums and those urban associations and amenities so helpful in forming the tastes and standards of growing minds.

We hope, however, to preserve in our new quarters the unity and *esprit de corps* that have distinguished the School throughout its career and that were so admirably fostered by the conditions in the Rogers Building.

A significant accomplishment of the year was the completion in May of our first Student House. As related in last year's report, this house was designed and its erection supervised by our first and second year students under the guidance of Professor Bridge and his assistants. It is generally recognized as a most successful example of good planning and sound construction. It has unquestionably stimulated student interest during the first and second years, giving them a practical realization of architecture that will make their later work of increased significance.

To further develop this sense of architecture as a practical study in three dimensions, it is hoped that, with the coöperation of our Advisory Committee, we may establish such relations with contractors, manufacturers of building materials, and architects as will enable our students on graduation to realize fully the practical aspects of their profession. Such a procedure in conjunction with the courses in Design should materially strengthen their educational equipment and increase their chances of employment.

The revised course in General Science and the new course in Building Materials, referred to in the last report, have been carefully worked over during the past year so as to make certain of the sympathetic coöperation of Professors Davis, Page, and Voss to direct these new courses in the spirit and for the purpose originally recommended by Professor Keith's Committee.

The Interschool Problems, referred to in a previous report as an alternative to the Conjunctive Problems formerly held with Harvard, have proved a definite success. In consequence, Pennsylvania State College and Rensselaer Polytechnic Institute have been included in the group with Cornell and the University of Minnesota. At least one such problem is given each term in the fourth or fifth year.

Through the generosity of Mr. Harold D. Walker, whose sudden death occurred last April, our Library has been enriched

by the addition of over three hundred slides from the collection of his father, the late Mr. C. Howard Walker.

The American Institute of Architects, which held its Sixty-Ninth Convention in Boston during the first week of June, generously opened its sessions to the students and staff of the neighboring Schools of Architecture at Harvard, Technology, and the Boston Architectural Club. It was gratifying to note how eagerly the opportunity was welcomed and what a large number of our students listened to both the discussions and the formal papers. Profiting from the large numbers of architects attracted to Boston by the A. I. A. Convention, a most enthusiastic group of more than two hundred former students of our School were gathered at luncheon in the Rogers Building on June 1 to discuss our work and policy.

Meanwhile, our students continue to win recognition in competition with those of other schools. John A. Valtz won the Rotch Traveling Scholarship, two more of our students placing second and third; while Gilbert E. Hoffman won the Boston Society of Architects Prize.

WILLIAM EMERSON.

City Planning. The most important development during the year was the inauguration of a new course in City Planning Practice (Course IV-C) made possible through the coöperation of the city planning boards of Boston and Springfield, the Division of Metropolitan Planning, the Massachusetts State Planning Board, and the New England Regional Planning Commission. Each of these five planning agencies has agreed to take one or more students for periods of twelve to sixteen weeks, providing them with a temporary place in their organization. These periods of Office Practice will permit students to undertake problems of design or research which have a definite relation to the activities of the planning commission to which they are assigned, the program of work being under the direct supervision both of the commission and of the instructing staff in City Planning. The course is based on a six-year program of undergraduate and graduate work, and leads to the degrees of Bachelor of Architecture in City Planning and Master in City Planning. The first student to register in the

new Course has already undertaken his first period of Office Practice in the office of the Boston City Planning Board.

The staff has been greatly strengthened by the appointment of Mr. Joseph T. Woodruff as Assistant Professor of Regional Planning. Professor Woodruff is consultant to the New England Regional Planning Commission and has served on the staff as lecturer for several years. The policy of including in the curriculum a series of lectures by experts in the field of city and regional planning has been continued and has proved its value in a number of ways.

The instructing staff in City Planning recently took part in the inauguration of a Summer Planning Conference, given jointly by the Graduate School of Design of Harvard University and the School of Architecture of Technology, in coöperation with the Summer Session Committee. Both staff and students assisted in the preparation of an exhibition held in conjunction with the Alumni Day Housing Conference.

FREDERICK J. ADAMS.

Drawing. Last year the Section of Drawing, after careful consideration, abandoned the idea of using the moving picture film for illustrating the course in Descriptive Geometry. At best the moving picture was too fleeting, giving an impression for the moment, but allowing no time for study. Very little could be gained by its use that could not just as well be presented on the printed page. In fact the latter has the great advantage of permanency, permitting the student to refer to it as many times and as long as he desires.

Something more was needed, however, to assist the beginner to visualize the problems in three dimensions, and during the year the Section of Drawing has been studying the possible use of the stereoscope as an adjunct to the instruction.

The results have been most encouraging. The stereoscopic view enables the student actually to see his problem as though in three dimensional space. He can study the view at his leisure and can compare its appearance in space with the orthographic projections which represent it. It is believed that the student will thus, more or less subconsciously, become accustomed to translating the projections of a view into a mental picture of the

actual view in space, and to visualize his problem as a space problem rather than as a series of manipulations on plane surfaces. The actual solution of the problem made by means of its projections will then simply become a record of what is going on in his mental picture. Such experiments as have already been made in class have had very gratifying results.

This power to visualize, to build up a mental picture of certain conditions in space and then to reason about this mental picture, is one of the most important things to be gained from the study of Descriptive Geometry, and is also one of the most difficult accomplishments for the beginner to acquire. The Stereoscope promises to be a most valuable aid to this end. The use of Steroscopy if carried too far might easily tend to make the student too dependent upon this mechanical means of space representation, to the detriment of the development of his own power to visualize. It must be used with discretion. Having had a certain amount of training the student must be encouraged to build up his own mental picture from orthographic projections without the aid of the stereoscopic view. At the moment it seems to the Section of Drawing its use should be limited to the comparatively few fundamental problems which form the basis for practically all solutions. This matter must have further study.

The expense connected with the use of the stereoscope would not be great. A few comparatively inexpensive instruments in each room together with a number of stereoscopic views illustrating the fundamental problems and processes would be required. Professor John T. Rule who joined the staff of the Section during the year, has acquired an extraordinary technique in constructing the stereoscopic pairs and a certain part of his time has been assigned to the study of the stereoscopic representation of certain problems in Descriptive Geometry.

W. H. LAWRENCE.

DIVISION OF HUMANITIES

Economics and Social Science. Some revision of our subjects of instruction has been made in coöperation with other departments. Electives have been provided for students in

Course XV to permit some specialization in the second term of the fourth year. Subjects offered to city planning students have been rearranged. Our instruction in labor relations has been revised. Mr. H. A. Freeman's pioneer work in the application of statistical methods to the control of the quality of manufactured products has resulted in much favorable attention from industrial concerns and in the offer of excellent positions to students. During the latter part of the year Mr. Freeman organized a series of lectures and discussions in which a number of business executives and army officers participated.

Last spring we graduated the first group in the combined course in Economics and Engineering. Our experience with these six students seems to demonstrate that the five-year program of study fits the needs of those who are definitely looking forward to business careers of an executive character and who at the same time desire to take a complete undergraduate course in Engineering or Science. Though we have had excellent coöperation from registration officers and others in the various departments in which these five-year students were registered, it is doubtful whether the possibilities of this program are being brought to the attention of all who might be interested.

As in previous years the members of the Department have been engaged in numerous outside activities. Professor Armstrong and Professor Burdell have been in special demand as speakers by various societies and clubs. Professor Burdell, the new Dean of Humanities, has continued to take great interest in Housing and City Planning, having been made chairman of the National Committee on Instruction and Research in Housing. Professors Thresher and Freeman contributed papers to the symposium on the economics of energy generation at the Pittsburgh meeting of the Society of Civil Engineers.

We are planning to develop the work in the field of labor by setting up an Industrial Relations Section similar to that operating at Princeton University. Progress has already been made in the financing and organization of this activity. There is also the promising statistical work to be developed. Our plans in these fields, however, will be made the subjects of special memoranda to be submitted later.

RALPH E. FREEMAN.

English and History. By the will of Robert A. Boit, who died in 1921, the sum of five thousand dollars was bequeathed to the Institute, the income from which was to be used as prizes for the encouragement of excellence in English composition. For most of this period awards have been made on the basis of regular theme work done in the second-year course in English and History. This year the experiment was tried of instituting an essay contest, held on a Saturday afternoon in May. One hundred and nineteen candidates presented themselves — fifty-seven freshmen and sixty-two sophomores— and for three hours each student wrote on a subject taken from a list based on the reading in history or literature. Six prizes of forty dollars each were awarded — three to freshmen and three to sophomores; but the most gratifying thing about the contest was the large number of candidates and the quality of their writing, which ranged all the way from adequacy to a high degree of excellence, revealing both originality of thought and literary skill. What is behind these results, of course, is the organization of the subject matter of the first two years which was effected a year ago by the curriculum committee of the Department, and also enthusiastic and skilful teaching by the members of the staff.

During the sessions of the S. P. E. E. in Cambridge last June the Department acted as host to the members of the English section, and the exchange of ideas during those days proved very valuable for us all.

HENRY G. PEARSON.

General Studies. Fifteen or more years ago there existed tenaciously held differences of opinion as to whether General Studies had any legitimate place in the curricula of professional departments at Technology.

The major problem before the Committee on General Studies was to study how President Rogers' original requirement for the inclusion of cultural studies within the technical curricula could best be carried out.

A first step to this end was obviously the definition of General Studies. The following statement which has been carried for many years in our catalogues resulted: "This section

includes those subjects of a general and essentially non-vocational character which are offered for the purpose of giving the student an opportunity to broaden his education. They are designed to introduce him to fields of thought and interests outside of his chosen professional work."

There followed a constant and continuing struggle to eliminate from the list of General Studies subjects of an essentially technical nature. That such subjects had found a place in the General Study group indicates the unceasing pressure from Heads of Departments to thus increase the hours available for professional work.

At a later date the determination of the status of language courses was considered with the result that elementary languages were ruled out as General Studies. Uniform assignment of hours among all Departments, so that each student should take an equal amount of General Studies was the next step.

Meanwhile, there was an awakening interest in the value to professional men of General Studies. It was realized that many teachers of General Studies regarded their work with indifference because it seemed merely a time consuming imposition upon their regular schedules. The indifference of the teachers inevitably resulted in indifferent work by the students. As a consequence, a thorough analysis of all subjects given in the General Study group from the point of view of purpose, method, and results was undertaken. This resulted in the elimination of a number of subjects as unsuited to General Study requirements. It resulted further in the modification of method and emphasis in certain others so as to meet the standards of General Studies. It also brought the realization that certain subjects, while unquestionably of real interest for the student, definitely failed to meet the definition of General Studies.

After full discussion in the Committee on General Studies and further discussion with the Committee on Humanities it was agreed:

(*a*) That it was undesirable to create a new and separate group for the above subjects.

(*b*) That these subjects should be handled either as electives or, if of sufficient value, as professional requirements, and

(*c*) That if they could not conform to any one of these classifications then they should be omitted.

This combing out of the list of General Studies led to a classification of all subjects under the four following headings:

History of Science and Thought
History of Civilization
Literature and Fine Arts
Social Science

with a view to aiding the student in making his selection. At the same time many new subjects were added to the General Study group.

Throughout the years of this Committee's activities it has had at different times the effective coöperation of individuals from most of the Departments and has been particularly helped by the Departments of English and of Languages. Professor Dugald Jackson, while Head of the Department of Electrical Engineering, though at no time a member of this Committee, has for many years been an eager advocate of increasing the quota of cultural subjects in engineering curricula. At an even earlier date Professor H. W. Tyler gave weight to the Committee's recommendations by his own advocacy of its purpose, and was of invaluable assistance in helping to formulate the definition of General Studies that has been carried for so many years in our catalogues.

This is but a brief outline of work that has year by year improved the quality and choice of subjects offered under the head of General Studies. During these years there has been a corresponding improvement in the attitude of professional men toward the value of cultural work in Engineering and Scientific curricula. While the status of the General Study in technical education has undoubtedly been bettered, there still remains a great opportunity for its further advancement to the end that the professional man, whether engineer, scientist, or architect, may have an ever broadening foundation, an ever richer background with which to face the increasing complexity and the wider opportunity of the life that lies before him.

Our problem at Technology is to make sure that in the effort to perfect the successive steps in our technical training we never lose sight of the need for a corresponding acquaint-

ance with the great field of the humanities. Without it the student will have been deprived of the better half of his birthright.

WILLIAM EMERSON.

Military Science and Tactics. In general the work of the Department has proceeded with very satisfactory results. One hundred four students of the class of 1937 have been awarded commissions in the Officers' Reserve Corps.

The War Department quota for the two classes, Advanced Course at the Institute, is 215. The present enrollment of juniors is 99, and applicants for enrollment from the sophomore class total 215 students, indicating a healthy condition in regard to enrollment in the Advanced R. O. T. C.

The R. O. T. C. Rifle Team again won the championship of the First Corps Area, and again was presented with the Hearst Trophy; each individual team member was presented with a gold medal. It is hoped that improved facilities for rifle practice can soon be made available.

All units of the Department were rated as excellent by the Corps Area inspectors.

C. THOMAS-STAHLE.

Modern Languages. The total number of students in foreign language courses the past year showed a slight increase over the preceding year (354 compared to 343, as of November 1), an increase mainly due to larger classes in Elementary German. Owing to the changes in the Institute Language requirements the French courses have declined in numbers. The recent modification of the policy of the Committee on General Studies eliminated from the accepted list all elementary language courses beyond Entrance requirements as well as G921, but two literary courses were added, Dante in English and The German Short Story, both of which proved successful in the number and quality of the students electing them, and in the work accomplished. Although Italian was elected by quite a large group it had to be cancelled owing to insurmountable conflicts in the schedule, but it will be offered the coming year at reasonable hours. Considerable relief in our difficult schedule

problems was afforded this year by the appointment of a part-time instructor in German.

Among the experiments made with the purpose of rendering the language work more interesting and of greater practical value we may mention the following one. In some sections part of the reading matter assigned consisted of scientific articles selected by each student from foreign journals and books in consultation with his department and the Library staff. Careful written translations were prepared from parts of these and discussed in private conferences with the instructor. This work made great demands on the instructor's time, but the results were admirable and the use of this method will be extended as far as possible in the future.

In the phonograph room the most important additions were records in the field of German lyric poetry and drama. The Central Library collection was enlarged by a number of important works of reference and of general literary interest, the emphasis this year being on German where the needs were greatest. Through the recommendation of the Department scholarships at foreign universities were awarded to three of our students.

The Visiting Committee held two meetings with the Department during the year. They expressed great concern about the diminishing place assigned to foreign language study at the Institute and made a number of valuable recommendations which are being studied by Dean Burdell and the head of the Department with every prospect of good results in the near future.

E. F. LANGLEY.

The Treasurer

To the Corporation of the
Massachusetts Institute of Technology:

The statements submitted herewith show the financial condition of the Massachusetts Institute of Technology as of June 30, 1937, as well as the financial transactions during the fiscal year ended on that date.

The following gifts and legacies have been received during the year:

Capital Gifts

Anonymous, for Wright Memorial Wind Tunnel	$5,000.00
Godfrey L. Cabot, for Wright Memorial Wind Tunnel	4,750.00
Contributions for M. I. T. Alumni Fund	885.00
N. Loring Danforth Estate, for Endowment	5,000.00
C. W. Deeds, for Wright Memorial Wind Tunnel	10,000.00
E. A. Deeds, for Wright Memorial Wind Tunnel	10,000.00
Coleman duPont Estate, for Endowment (additional)	2,469.26
Ida F. Estabrook Estate, for Endowment Fund (additional)	800.00
John W. Foster Estate, for Endowment	281,165.55
Mary Granger Estate, for Eliot Granger Fund (additional)	1,568.43
George W. Hamilton Estate (additional)	27.50
L. M. Hersom, for Educational Endowment Fund (additional)	80.00
Anonymous, for Schwarz Map Room	3,171.25
Arthur D. Little Estate, for Memorial Fund	46,600.00
George J. Mead, for Wright Memorial Wind Tunnel	10,000.00
Mrs. Henry A. Morss, for Henry A. Morss Nautical Fund	3,500.00
Harriette A. Nevins Estate (additional)	1,250.98
Redfield Proctor, for Vermont Scholarship Fund (additional)	7,000.00
Emeline Roach Estate, for John Roach Fund	3,000.00
H. N. Slater, for Wright Memorial Wind Tunnel	2,500.00
H. K. Spencer, for 1909 Scholarship Fund	500.00
Elizabeth R. Stevens Estate (additional)	56.84
Henry N. Sweet Estate (additional)	8,036.50
Mrs. Kate Thomas, for W. S. B. Thomas Fund (additional)	1,100.00
Mrs. Elihu Thomson, for Elihu Thomson Professorship	5,000.00
Mr. and Mrs. H. W. Tyler, for Alice Brown Tyler Fund	1,000.00
Marion Westcott Estate, for Endowment	237,702.00
	$652,163.31

Miscellaneous Gifts:

Contributions of Research Associates	$37,529.13
Sir Douglas Alexander, Research Associate	10,000.00
American Academy o Arts and Sciences, for Research	400.00
American Metal Co., for Silver Research	1,500.00
A. R. Anderson, for Business and Engineering Research	300.00
Anonymous, for Cosmic Terrestrial Research	6,800.00
Anonymous, for Tuition Awards	1,000.00
Anonymous, for Health Education Research	500.00
Anonymous, for Bess Bigelow Fund	10,000.00
Contributions of Friends of the Library	1,550.00
Contribution for Bursars Fund	20.00

Contributions for Glass Industry Fellowship	$2,000.00
Contributions to Professors Fund	800.00
Contributions for Sailing Pavilion	600.00
Contributions for Sailing Trophies	275.00
Drama Club for Undergraduate Scholarship	250.00
duPont de Nemours Co., for Fellowship	750.00
Lammot duPont, for Boathouse Equipment	500.00
Emergency Committee in Aid of Displaced German Scholars	1,500.00
Mr. and Mrs. William Emerson, for City Planning	1,666.67
Genradco Trust, for Research	9,460.00
Geological Society of America, for Salaries	3,585.51
J. Willard Hayden, for X-Ray Machine	2,917.00
L. J. and M. E. Horowitz, for Course in Building Construction	7,500.00
J. R. Macomber, for Business and Engineering Administration	250.00
Prof. W. J. Mead, for Geological Spectrograph	3,440.00
C. Lillian Moore Estate, for Grimmons Fund	2,624.43
Portland Cement Association, for Research	300.00
Redfield Proctor, for Travelling Fellowship	1,500.00
Rockefeller Foundation, for Research	21,674.63
Alfred P. Sloan Foundation, for Fellowships	25,000.00
Alfred P. Sloan, for Sloan Fellowship	1,000.00
Textile Alliance, Inc., for Textile Research	3,065.08
	$160,257.45
Total Capital and Miscellaneous Gifts	$812,420.76

While the year shows few changes in the plant and equipment, the stage has been set to make the coming year a notable one with regard to additions and improvements to the educational plant.

This has been made possible largely by the sale — effective in 1938 — of the land and buildings in Boston occupied by the Institute since 1865. Contracts have been entered into covering the construction of a new addition to the main buildings with an appropriate entrance and lobby on Massachusetts Avenue, this being the largest building operation since our removal to Cambridge.

This new building addition not only provides opportunity for the adequate housing of the Architectural Department but also makes possible desirable space changes and allocations in the Main Group, much of which will be accomplished during the present summer.

In addition a new Wind Tunnel of modern design will be constructed near the Guggenheim Laboratory and a new Magnetic Substation will be built in the inner court near the present Mining Building. Also new facilities for the High Voltage Project, hitherto carried on at Round Hill, Massachusetts, will be provided on the grounds near Vassar Street.

SUMMARY OF OPERATING INCOME AND EXPENSE

	1936–37	*Per Cent of Total*
Income from Students	$1,401,700	47%
Income from Investments	1,377,000	46
Income from Other Sources	198,900	7
	$2,977,600	100%
Academic Expenses	$1,871,100	63%
Administration Expenses	317,300	11
Plant Expenses	317,700	11
Miscellaneous Expenses (including a Special Appropriation of $85,000 to Income Reserve Account Schedule M)	446,300	15
	$2,952,400	100%

Income for the year exceeded expense by $25,200 and this made it possible to take up losses of previous years' operations as well as eliminate the Institute's operating deficit of $16,300, leaving an operating surplus of $713.36.

The Book Value of the Endowment Funds, $34,725,755, shows an increase of $2,400,526, of which $652,000 is from Capital Gifts, $960,438 by the receipt of the Technology Loan Fund from New York and the balance principally from investment profits, reflected in the increase of the Endowment Reserve Fund during the past year from $379,420 to $1,072,777, and from income added to certain funds.

The Investment List again shows many changes over last year with a great increase in Government Bond holdings, a marked decrease in Industrial, Public Utility and Railroad Bonds and a substantial increase in equities, principally Public Utility and New York bank stocks. The large holding of Industrial Common stocks has been maintained.

SUMMARY OF INVESTMENTS, JUNE 30, 1937

General Investments	*Book Value*	*Market Value*	*Per Cent at Market*
Bonds — U. S. Government	$7,045,286	$6,950,400	19.6
Canadian Government	811,461	866,570	2.4
Industrial	312,080	326,000	.9
Public Utility	4,128,385	4,371,210	12.4
Railroad	3,880,625	3,808,325	10.7
Other	985,032	834,500	2.3
	$17,162,869	$17,157,005	48.3

	Book Value	*Market Value*	*Per Cent at Market*
Preferred Stocks — Industrial	$752,589	$736,100	2.1
Public Utility	975,133	916,000	2.6
Railroad	158,750	167,270	.4
	$1,886,472	$1,819,370	5.1
Common Stocks — Industrial	$8,179,784	$11,920,846	33.7
Public Utility	1,247,625	1,208,408	3.3
Railroad	379,219	396,400	1.1
Bank	1,742,106	1,581,256	4.5
Other	682,042	624,075	1.8
	$12,230,776	$15,730,985	44.4
Mortgages and Real Estate	$1,070,122	$799,125	2.2
TOTAL — GENERAL INVESTMENTS	$32,350,239	$35,506,485	100%
TOTAL — SPECIAL INVESTMENTS	$1,979,539	$1,762,155	—
TOTAL — ALL INVESTMENTS	$34,329,778	$37,268,640	—

As might be expected with our considerable holding of common stocks, income, under the spur of present tax regulations regarding excess profits, soared to new levels. The total amount available and allocated to the pooled funds gave a yield to the latter of 5 per cent. The yield on all investments based on their market value was 4.63 per cent.

As a considerable part of this income was on account of preferred dividend arrearage as well as extra and year-end common dividends, a substantial sum ($85,000) was appropriated to set up a new Income Equalization Fund (Schedule M) to insure, as far as possible, a reasonably even income return during the coming year. It is expected that this policy of retaining a part of the income received during the year by way of special and extra dividends will be continued in the future.

Report of Technology Loan Fund Committee

September 1, 1937.

Executive Committee
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Sirs:

I desire to submit a report of the Technology Loan Fund Committee for the fiscal year ended June 30, 1937, with a statement of receipts and disbursements for previous years, together with statement showing how the balance of the Fund is now constituted.

On March 1, 1937, the securities in which this fund was invested

were turned over to the Institute by the office of Hayden, Stone & Co., New York, together with the report of Messrs. Loomis, Suffern & Fernald (Certified Public Accountants) covering their examination of the fund for the period concluding with that date. Transactions since March 1 have been covered by the regular Institute audit.

The present holdings are shown under Special Investments, page 171.

Respectfully submitted,

TECHNOLOGY LOAN FUND COMMITTEE

Karl T. Compton, *Chairman*

Gerard Swope Pierre S. duPont John E. Aldred
Edwin S. Webster Horace S. Ford

TECHNOLOGY LOAN FUND — RECEIPTS AND DISBURSEMENTS

	Total from Oct. 1930 to June 30, 1936	*Fiscal Year Ended June 30, 1937*	*Total June 30, 1937*
SUBSCRIPTIONS:			
Cash	$1,205,426.43	$77,000.00	$1,282,426.43
Securities	87,793.75	65,500.00	153,293.75
Total Subscriptions	$1,293,220.18	$142,500.00	$1,435,720.18
Income Received	134,793.20	24,459.41	159,252.61
Net Profit on Sales	44,546.98	[1]2,129.29	42,417.69
Total Receipts	$1,472,560.36	$164,830.12	$1,637,390.48
Remitted to M.I.T. for Loans	702,812.00	.....	702,812.00
Repayments and Interest from Students in Excess of Loans for 1936–37	.....	25,860.17	(25,860.17)
Balance of Fund	$769,748.36	$190,690.29	$960,438.65

Investments (p. 36)	$932,243.14
Cash	28,195.61
[1]Net Loss	$960,438.65

Massachusetts Institute of Technology Pension Association

To the Corporation of the
Massachusetts Institute of Technology:

Dear Sirs:

A financial statement of the Trustees of the Massachusetts Institute of Technology Pension Association follows herewith:

BALANCE SHEET, JUNE 30, 1937

Assets

Cash	$19,045.36
Investments (p. 8)	1,128,397.06
Total	$1,147,442.42

Liabilities

Teachers' Annuity Fund (5% salary deduction, plus interest)	$610,348.68
*M. I. T. Pension Fund (3% appropriation, plus interest)	387,311.25
Special Reserves for Annuity Payments	107,712.83
Total Liabilities	$1,105,372.76
Reserve Fund (surplus)	42.069.66
Total	$1,147,442.42

* The Institute appropriates annually the equivalent of the 5% salary deduction, using 2% for payment of group insurance premiums.

Investments, M. I. T. Pension Association

Par Value				*Book Value*
$45,000	U. S. Treasury	3¼s	1945–43	$49,064.06
100,000	U. S. Treasury	4s	1954–44	114,256.25
150,000	U. S. Treasury	3s	1948–46	158,154.63
25,000	Scovill Mfg.	5½s	1945	24,750.00
40,000	Shell Union Oil	3½s	1951	38,937.50
35,000	Alabama Power	5s	1946	36,220.00
30,000	Bell Tel. of Pa.	5s	1948	31,990.00
10,000	Gedars Rapids M. & P.	5s	1953	10,000.00
50,000	Detroit Edison	4s	1965	54,094.52
29,000	Miss. River Power	5s	1951	29,358.00
40,000	N. Y. Power & Light	4½s	1967	39,499.62
20,000	Western Union Tel.	5s	1938	18,597.70
50,000	Atch. Top. & S. Fe	4½s	1948	55,310.00
25,000	Atlantic Coast Line	4s	1952	24,753.15
25,000	Balt. & Ohio	4s	1948	25,216.00
25,000	Can. Pacific Eq.	5s	1944	25,332.00
30,000	Chic. Burl. & Quincy	3½s	1949	29,399.08
50,000	Chicago Union Station	3¾s	1963	52,933.47
40,000	Kansas City Term.	4s	1960	41,886.00
35,000	Penn. Co.	4s	1963	36,667.12
35,000	Southern Pacific	4s	1955	33,638.79
50,000	Virginian Rwy.	3¾s	1966	51,815.30
Shares				
600	General Electric Co.			35,530.54
300	Standard Oil, N. J.			21,090.18
200	Union Carbide & Carbon			20,015.08
200	United Fruit			15,827.56
150	Am. Tel. & Tel. Co.			26,560.51
500	First National Bank, Boston			27,500.00
				$1,128,397.06

The market value of these securities as of June 30, 1937, was $1,131,000.

CHARLES B. BREED
KARL T. COMPTON
HORACE S. FORD
RALPH E. FREEMAN
PHILIP STOCKTON
Trustees.

Respectfully submitted,

HORACE S. FORD,
Treasurer.

September 18, 1937

SCHEDULE A

FINANCIAL RESULT OF OPERATION FOR YEAR ENDED JUNE 30, 1937

	Operating— Budget	*Other— Non-Budget*	*Total*
Total Income and Receipts (Schedule B)	$2,977,572.64	$3,892,576.78	$6,870,149.42
Total Expenditures (Schedule C)	2,952,418.92	1,386,698.98	4,339,117.90
*Excess Income, Budget Operation	$25,153.72		
Excess Income and Receipts, Non-Budget Operation — Added to Funds		$2,505,877.80	
Net Excess Income and Receipts Total Operation			$2,531,031.52
Profit and Loss balance from previous years' operation (Schedule S), Loss	8,125.50		
Total Available for Reduction of Current Deficit (Schedule S)	$17,028.22		

* After appropriation to establish the Income Equalization Reserve Fund.

SCHEDULE B
INCOME AND RECEIPTS FOR YEAR 1936–1937

	Operating Income Budget	*Other Income and Receipts Non-Budget*	*Total*
INCOME FROM STUDENTS:			
(*a*) Tuition Fees	$1,372,121.25	.....	.....
Locker, Examinations and Late Registration Fees	8,248.60	.....	.....
Dormitories (Net), Schedule B-1	21,285.31	.....	.....
	$1,401,655.16	.....	$1,401,655.16
INCOME FROM INVESTMENTS:			
Total (Schedule M)	$1,377,025.49	$346,125.65	$1,723,151.14
INCOME FROM OTHER SOURCES:			
Federal Aid from Acts, 1862–90	$22,171.67	.....	.....
Division of Laboratory Supplies	6,000.00	.....	.....
Trustees H. C. Frick Estate	3,180.00	.....	.....
Contributions (Schedule B-2)	12,666.67	.....	.....
Appropriations (Schedule B-3)	138,350.76	.....	.....
General Electric Co. (Course VI-A)	3,750.00	.....	.....
Rentals and Miscellaneous	12,772.89	.....	.....
	$198,891.99	.....	$198,891.99
CURRENT FUNDS INCOME:			
Total (Schedule R)	.....	$446,978.79	$446,978.79
ENDOWMENT FUNDS ADDITIONS:			
Total (Schedule M)	.....	$3,099,472.34	$3,099,472.34
TOTALS (Schedule A)	$2,977,572.64	$3,892,576.78	$6,870,149.42

(*a*) TUITION FEES — Cash, Institute Year 1936–37	$1,003,497.98
Cash, Summer Session 1936	102,873.50
Fees Receivable	137.52
Undergraduate Scholarships	74,192.00
Graduate Scholarships and Awards	81,806.75
Technology Loan Fund, Loans	105,088.50
Emerson Fund, Awards	4,525.00
Total	$1,372,121.25

SCHEDULE C

EXPENDITURES FOR YEAR 1936-1937

	Operating Expense Budget	*Other Expenditures Non-Budget*	*Total*
ACADEMIC EXPENSES:			
Salaries of Teachers (C-1)	$1,505,284.74	.....	.....
Accessory to Teaching (C-1)	57,224.43	.....	.....
Laboratory Service (C-1)	123,308.77	.....	.....
Department Expenses (C-2)	124,804.44	.....	.....
General Library (C-3)	60,506.07	.....	.....
	$1,871,128.45	.....	$1,871,128.45
ADMINISTRATION EXPENSES:			
Salaries, Officers	$94,529.96	.....	.....
Clerical Staff (C-4)	80,458.19	.....	.....
Expenses, Offices (C-5)	35,001.20	.....	.....
Bulletins and Publicity (C-6)	12,452.96	.....	.....
General Expense (C-7)	94,811.83	.....	.....
	$317,254.14	.....	$317,254.14
PLANT EXPENSES:			
Building Service (C-8)	$112,080.63	.....	.....
Power Plant Operation (C-9)	87,542.27	.....	.....
Fire Insurance (Net)	3,448.86	.....	.....
Repairs and Alterations (C-10)	114,655.83	.....	.....
	$317,727.59	.....	$317,727.59
MISCELLANEOUS EXPENSES:			
Department of Hygiene (C-11)	$64,870.23	.....	.....
Camps 1936 (C-12 and C-13)	6,149.09	.....	.....
Field, Boat House and Sailing Activities (C-14)	22,568.53	.....	.....
*Walker Memorial (C-16)	19,744.24	.....	.....
Special Appropriations (C-17)	332,976.65	.....	.....
	$446,308.74	.....	$446,308.74
CURRENT FUNDS, EXPENDITURES:			
Total (Schedule R)	.....	$341,627.33	$341,627.33
ENDOWMENT FUNDS, EXPENDITURES:			
Total (Schedule C-18)	.....	$1,045,071.65	$1,045,071.65
TOTALS (Schedule A)	$2,952,418.92	$1,386,698.98	$4,339,117.90

* Not including Dining Service (see Schedule C-15).

SCHEDULE B-1

DORMITORY OPERATION (Net)

Income:			
Rentals		$146,815.30	
Miscellaneous		2,501.67	
			$149,316.97
Less Refunds	$5,834.60		
Dormitory Tax Allowance	2,456.00		
			8,290.60
			$141,026.37
Expense:			
Salaries		$46,744.36	
Laundry		3,183.34	
Light, Heat, Power and Water		18,063.74	
Repairs		17,406.46	
Supplies (less inventory $2,095.07)		2,559.77	
Printing Adm. Telephone, etc.		2,612.79	
New furniture and equipment (final)		22,204.86	
Interest on Mortgage Loan (M.I.T.)		6,965.74	
			119,741.06
Net Income, Schedule B			$21,285.31

SCHEDULE B-2

CONTRIBUTIONS FOR TEACHING AND RESEARCH

Mr. and Mrs. William Emerson ..Architecture	$1,666.67
L.J. & M.E. Horowitz Foundation Civil Engineering	7,500.00
Rockefeller Foundation.....Electrical Engineering	2,000.00
For Displaced German Scholars...Electrical Engineering	1,500.00
Net Income, Schedule B	$12,666.67

SCHEDULE B-3

APPROPRIATIONS FROM FUNDS FOR TEACHING AND RESEARCH BY DEPARTMENTS

Aeronautical				$480.00
Alcohol Res. Fund	$480.00			
Biology				9,000.00
Biol. Res. Fund	$800.00	Sedgwick Fund	4,000.00	
Alba Fund	1,600.00	Rockefeller Found.	1,800.00	
Res. Associates Fund	800.00			
Chemistry				18,000.00
Richards Fund	$600.00	Spec. Salary A/c	3,800.00	
Chem. Found.	6,000.00	Res. Asso. Fund	7,600.00	
Chemical Engineering				6,918.00
Richardson Fund	$1,000.00	Cabot Fund	4,600.00	
Water Cooler Res.	738.00	Appr. No. 1207	580.00	
Civil Engineering				2,400.00
Whitney Fund	$2,400.00			
Drawing				1,800.00
Teachers Fund	$1,800.00			
Electrical Engineering				28,210.10
Fog Research	$4,800.00	Genradco Trust	6,800.00	
Assoc.Ed.Co.Acct	5,160.10	Grimmons Fund	5,000.00	
Rock.Diff.Analy.	5,700.00	Network Analy.	750.00	
English and History				575.00
Museum Fund	$575.00			
Geology				10,400.00
Whitney Fund	$6,000.00	Res. Asso. Fund	4,400.00	
Humanics				5,306.70
Nickerson Fund	$5,306.70			
Library				1,800.00
Vail Fund	$1,800.00			
Mathematics				3,300.00
Teachers Fund	$3,300.00			
Mechanical Engineering				17,610.96
Industrial Fund	$7,249.96	N. A. W. No. 371	300.00	
Air Cond. Res.	1,600.00	U.S.N. Vibration	3,040.00	
Hurricane Res.	4,671.00	N. A. W. Spec.	750.00	
Mining Engineering				350.00
President's Fund	$350.00			
Physics				32,200.00
Rockefeller Found.	$1,200.00	Nuclear Res.	4,200.00	
Glass Indus.	1,000.00	Professors Fund	2,100.00	
President's Fund	500.00	Res. Asso. Fund	23,200.00	
Total, Schedule B				$138,350.76

SCHEDULE C-1

SALARIES OF TEACHERS ACCESSORY TO TEACHING AND LABORATORY SERVICE

Department	*Teachers Salaries*	*Wages Accessory to Teaching*	*Wages Laboratory Service*
Summer Session, 1936	$63,745.50	.....	.....
Aeronautical Engineering	69,791.00	$2,475.30	$5,892.17
Architecture	65,378.75	3,909.18	2,177.00
Biology and Public Health	50,330.00	1,499.34	2,395.76
Business and Eng. Administration	53,030.00	2,218.87	.....
Chemistry	161,950.00	6,248.64	13,535.09
Chemical Engineering	69,228.00	4,007.34	3,900.00
Chemical Engineering Practice School	13,220.00	.....	.....
Civil Engineering	102,273.25	4,405.00	1,213.52
Division of Laboratory Supplies	.....	.....	21,903.24
Drawing	24,469.61	312.00	.....
Economics	38,975.45	3,084.00	.....
Electrical Engineering	169,060.10	7,907.30	14,676.90
English and History	59,500.00	960.97	.....
General Eng. and General Science	1,500.00	375.00	.....
General Studies	2,250.00	.....	.....
Geology	47,482.75	2,150.97	2,142.93
Humanics	5,000.00	*.....	.....
Lantern Operation	.....	.....	1,185.16
Mathematics	60,500.00	879.00	.....
Mechanical Engineering	169,682.00	7,469.76	19,696.99
Military Science	7,228.33	1,017.00	.....
Mining and Metallurgy	83,390.00	2,520.00	7,945.11
Modern Languages	17,400.00	315.47	.....
Naval Architecture	39,000.00	1,514.67	1,561.64
Physics	130,900.00	3,954.62	25,083.26
Totals (Schedule C)	$1,505,284.74	$57,224.43	$123,308.77

* Included in appropriation for Department Expenses (Schedule C-2).

SCHEDULE C-2
DEPARTMENT EXPENSES (Net)

Department	
Aeronautics	* $4,639.26
Architecture	* 5,643.22
Biology	* 2,709.82
Business and Engineering Administration	* 4,666.01
Chemistry	* 16,600.00
Chemical Engineering	* 9,086.20
Chimical Engineering Practice School	7,766.78
Civil Engineering	* 2,688.35
Drawing	272.09
Economics	* 1,256.04
Electrical Engineering	* 20,400.00
English and History	376.48
General Engineering and General Science	40.22
General Studies	292.32
Geology	* 2,100.30
Humanics	306.70
Mathematics	* 350.00
Mechanical Engineering	* 16,102.19
Military Science	1,333.45
Mining and Metallurgy	* 6,600.00
Modern Languages	188.35
Naval Architecture	* 861.06
Physics	* 20,200.00
United States Army and Navy Officers	325.60
Total (Schedule C)	$124,804.44

SCHEDULE C-3
GENERAL LIBRARY

Salaries of Officers	$14,394.00
Wages, Office and Clerical	29,246.94
Expenses	16,865.13
Total (Schedule C)	$60,506.07

*Certain special appropriations not included (see Schedule C-17).

SCHEDULE C-4

WAGES, CLERICAL STAFF, ADMINISTRATION OFFICES

President and Vice-President	$5,927.58
Dean of Science	817.50
Dean of Students	2,040.00
Registrar	26,144.92
Director of Admissions	7,981.15
Treasurer and Bursar	22,162.93
Superintendent	7,284.00
Register of Former Students	2,144.00
News Service	1,078.50
Undergraduate Scholarship and Loan Fund Board	4,877.61
Total (Schedule C)	$80,458.19

SCHEDULE C-5

EXPENSES, ADMINISTRATION OFFICES

President and Vice-President	$3,256.03
Dean of Science	207.44
Dean of Students	840.72
Registrar	11,976.86
Director of Admissions	4,434.27
Bursar	4,467.49
Treasurer	980.15
Superintendent	1,135.16
Register of Former Students	2,078.57
News Service	1,544.83
Undergraduate Scholarship and Loan Fund Board	2,164.21
Graduate School and Scholarship Committee	306.14
New Student Publicity Account	1,609.33
Total (Schedule C)	$35,001.20

SCHEDULE C-6

BULLETINS AND PUBLICITY

Advertising — M. I. T. Publications	$718.71
Printing — President's and Treasurer's Reports	1,210.00
Directory	689.00
Summer Session 1936	3,466.28
General Catalogue	6,368.97
Total (Schedule C)	$12,452.96

SCHEDULE C-7

GENERAL EXPENSE

Allowances	$24,000.00
Pensions	12,720.00
Workmen's Compensation and General Liability Insurance, etc.	6,850.75
Taxes, Cambridge and Maine	7,695.95
Auditing	1,200.00
Dues, Fees, etc.	968.50
Receptions, Graduation	6,233.96
Trucking of Mail	1,043.21
Travel	8,714.95
Telephone Service	21,743.14
M. I. T. Service Accounts (Net)	3,641.37
Total (Schedule C)	$94,811.83

SCHEDULE C-8

BUILDING SERVICE

Shop Foremen (net)	$3,010.12
Janitors: Supervisory and Staff	41,163.50
Night Cleaners	29,190.25
Watchmen (including Cambridge Police)	12,431.61
Window Cleaning	6,727.32
Heating and Ventilation	9,632.12
Mail, Elevators, Shipper, Stock Room, Matron, Messenger	9,925.71
Total (Schedule C)	$112,080.63

SCHEDULE C-9

POWER PLANT OPERATION (Net)

Fuel Oil	$71,943.17
Edison Steam Service	4,435.61
Water	2,605.70
Supplies	2,865.33
Repairs	4,779.80
Salaries	24,746.62
Electricity, Rogers Building	2,294.32
Total	$113,670.55
Less Transfers and Credits	26,128.28
Total (Schedule C)	$87,542.27

SCHEDULE C-10

REPAIRS, ALTERATIONS AND MAINTENANCE

Buildings 1, 2, 3, 4, 5, 6, 8, 10, 11	$52,202.20
Rogers Building, Boston	4,686.91
Buildings No. 30, 31, 33, 35, 36, 38, 46 and all others	2,564.81
President's House	5,770.41
Furniture	5,162.69
Elevators	2,393.66
Mains and Conduits	6,712.80
Water	8,286.62
Gas	2,076.06
Grounds, Roads, Tennis Courts, etc.	19,148.56
Building Protection	2,488.33
Rubbish	1,334.56
Undistributed (net)	1,828.22
Total (Schedule C)	$114,655.83

SCHEDULE C-11

DEPARTMENT OF HYGIENE

Salaries, Staff		$19,650.00
Expense:		
Clinic, Salaries	$7,610.12	
Medical and Other Supplies	1,865.74	
Office Supplies	244.35	
X-Ray Operation	417.15	
Repairs	286.84	
Physical Examinations	3,214.87	
		13,639.07
Expense:		
Infirmary, Salaries	$8,442.25	
Extra Medical Services	427.00	
Extra Nursing	900.00	
Equipment	1,210.68	
Food (net)	1,431.04	
Laundry	1,039.52	
		13,450.49
Doctor at C. E. Summer Camp		468.33
Salaries of Athletic Coaches		17,380.00
Miscellaneous		282.34
Total (Schedule C)		$64,870.23

SCHEDULE C-12

CIVIL ENGINEERING SUMMER CAMP (1936)
TECHNOLOGY, MAINE

*Income from Students, Staff and miscellaneous		$2,839.82
**Expense*		7,914.13
Travel	$358.18	
Caretaker	1,440.00	
Repairs and Equipment	1,259.54	
Administration Taxes, Insurance	1,785.12	
Wages, Operating	696.00	
Provisions and Supplies	2,375.29	
Net Expense		$5,074.31

SCHEDULE C-13

MINING ENGINEERING SUMMER CAMP (1936), DOVER, N. J.

*Income from Students and Staff		$240.85
**Expense*		1,315.63
Travel	$45.71	
Repairs and Equipment	203.96	
Caretaker, Insurance, Tel., Adm., etc.	838.56	
Provisions and Supplies	227.40	
Net Expense		$1,074.78
Total Expense of Camps (Schedule C)		$6,149.09

* Tuition Receipts and Staff Salary Payments included in Summer Session, pp. 145 and 149.

SCHEDULE C-14
FIELD, BOAT HOUSE AND SAILING ACTIVITIES

Athletic Field, Maintenance	$9,655.69
Boat House, Maintenance	4,744.29
Launches, Maintenance	1,522.12
Sailing Pavilion and Activities	6,646.43
Total (Schedule C)	$22,568.53

SCHEDULE C-15
DINING SERVICE

Inventory, June 30, 1936		$9,187.16
Expenses		133,945.33
Food	$72,368.22	
Salaries	40,228.38	
Light, Heat, Power, Water	4,351.94	
Laundry	2,185.74	
Equipment	2,083.78	
Repairs	1,704.31	
Printing, Administration, Insurance	2,005.98	
Carried to Dining Service Reserve	9,016.98	
Total Expense		$143,132.49
Income		135,034.64
Sale of Coupon Books (Net)	69,555.75	
Cash	65,478.89	
Inventory, June 30, 1937		8,097.85
		$143,132.49

SCHEDULE C-16
WALKER MEMORIAL

Income: Games (net)		$2,509.52
Expenses:		22,253.76
Salaries	$8,139.64	
Light, Heat, Power, Water	5,759.42	
Repairs, Alterations, Maintenance	6,877.83	
Equipment, Supplies, Magazines, etc.	1,476.87	
Total Expenses (net) (Schedule C)		$19,744.24

SCHEDULE C-17
SPECIAL APPROPRIATIONS

Graduate Students and Staff Tuition Awards		$34,433.75
Undergraduate Dues		19,001.50
Pension and Insurance Plan — Staff		67,936.75
Insurance Plan—Employees		4,625.45
Society of Arts		2,282.06
Special Tuition Award		250.00
Maclaurin Biography		3,700.00
President's Fund		5,000.00
Income Equalization Reserve Fund		85,000.00
No. 1191 Space Changes		314.41
1202 Grounds		2,729.96
1218 Furniture		101.75
Walker Library		70.00
Musical Clubs Concerts		75.00
No. 1238 Museum Committee		5,000.00
1249 S.P.E.E. Meeting 1937		1,750.00
1264 Alumni Day 1937		1,000.00
1193 Alumni Day Booklet 1936		425.00
Publicity		14,229.34
Honoraria	1,000.00	
Tech Review to Schools and Clubs	2,066.00	
15,000 Booklets	6,300.00	
Course Folders and Prizes	700.00	
Research Reports	1,500.00	
President's Letter, etc.	1,763.34	
News Bulletin in Review	600.00	
No. 1197 — Visiting Com. Reports	300.00	
Aeronautical Engineering		4,798.20
Special Research	400.00	
No. 1203 Hurricane Research	2,500.00	
Flying Instruction	479.52	
Travel	400.00	
Space Changes	1,018.68	
Architecture		370.00
No. 1205 Secretarial Services		
Biology and Public Health		2,950.00
Food Research	2,000.00	
No. 1168 Travel	300.00	
1206 Apparatus	250.00	
1255 A/c Biological Library	400.00	
Business and Engineering Administration		300.00
No. 1214 Lecturers		
Chemical Engineering		2,875.00
No. 1201 Travel — Gardner	175.00	
1207 Research — Hauser	2,400.00	
1167 Travel — Whitman	300.00	
Chemistry		2,396.00
No. 1189 Vitamin Research	600.00	
1251 Purchase of Radium	1,684.00	
1253 Research	112.00	

SCHEDULE C-17 — (*Continued*)
SPECIAL APPROPRIATIONS

Civil Engineering		$1,000.00
No. 1169 Travel	200.00	
Soil Mechanics Lab	800.00	
Economics		1,200.00
No. 1172 Special	700.00	
1280 Industrial Relations	500.00	
Electrical Engineering		20,433.98
Nos. 1178, 1182 and Spec.	5,640.00	
Course VI-A Travel	1,000.00	
Misc. Travel	197.56	
Course Revision	9,200.00	
No. 1136 Mt. Evans Research	1,746.42	
1219, 1275 Research	800.00	
1209 Comp. Gas Insulation	500.00	
1240 Res. and Equipment	1,000.00	
1217 Space Revision	350.00	
Geology		7,474.00
No. 1228 Exhibit Cases	1,200.00	
1246 Space Changes, etc.	5,974.00	
1287 Travel	300.00	
Hygiene		400.00
No. 1188 Summer Salaries		
Mathematics		3,052.50
No. 1210 Journal of Mathematics and Physics	2,000.00	
1235 Computing Machine	552.50	
1256 Furniture, etc.	475.00	
1277 Honoraria	25.00	
Mechanical Engineering		1,250.00
No. 1254 Research — Deficit	1,000.00	
Journal of App. Mechanics	250.00	
Mining and Metallurgy		7,145.00
No. 1222 Magnetic Coil	5,000.00	
1234 Equipment	1,200.00	
1242 Space and Lighting	820.00	
1261 Special	125.00	
Naval Architecture		200.00
No. 1213 Travel		
Physics		29,207.00
No. 1113 Summer Spec. Lab.	1,500.00	
Nuclear Research	10,800.00	
Special Research	6,800.00	
No. 1220 Research	2,000.00	
1247 Research	2,000.00	
1248 Research	3,000.00	
1184 Secretarial Services	1,000.00	
1192 Eclipse Expedition	600.00	
1183 WPA Mechanic	1,000.00	
1212 Lobby Exhibit	125.00	
Special A/c WPA	268.00	
No. 1281 Blower	114.00	
TOTAL SPECIAL APPROPRIATIONS (Schedule C)		$332,976.65

SCHEDULE C-18

[1] ENDOWMENT FUNDS, EXPENDITURES

General, Restricted		$5,410.57
George Blackburn, for Expenses	$311.40	
Eben S. Draper, for Expenses	319.70	
Edwin A. Wyeth, for Annuity, Taxes, and Expenses	4,779.47	
General, Unrestricted		133,702.69
Edmund D. Barbour, for Magnetic Lab.	39,085.00	
George Wyman Hamilton, for Equipment	300.00	
Abby W. Hunt, for Building Alterations	60,000.00	
Industrial, for Research	24,142.69	
Hiram F. Mills, for Grounds	10,175.00	
Special Deposit and Agency Funds		682,148.38
[2]Endowment Reserve, for care and losses (gross) a/c sales of securities	601,336.77	
Albert, for Student House Expense	2,012.85	
Class Funds ('23–'26) for Insur. Premiums	499.82	
M. I. T. Teachers Ins. for Ins. Premiums	26,350.79	
M. I. T. Teachers Ins. Special, for Annuities	6,925.10	
H. A. Morss Nautical, for Sailing Activities	655.64	
New Building, for Expenses	33,316.67	
Professors', for Salary	2,100.00	
Technology Matrons Teas, for Teas	416.24	
Sedgwick Memorial Lecture, for Expenses	241.94	
Elihu Thomson, to Professorship Fund	7,441.27	
Undergrad. Publication Tr. for Expenses	500.00	
Undergrad. Dues Reserve, for Expenses	351.29	
Library Funds		6,702.89
Walter S. Barker, for Books	428.76	
Frank Harvey Cilley, for Walker Library	3,381.50	
Charles Lewis Flint, for Books	209.00	
Ednah Dow Cheney, for Margaret Cheney Room	301.95	
William Hall Kerr, for Books	11.40	
George A. Osborne, for Books	297.48	
Arthur Rotch Architectural, for Books	180.53	
John Hume Tod, for Books	92.27	
Theodore N. Vail, for Vail Library	1,800.00	

[1] Other than Transfer of Income for Current Purposes.
[2] Gross gains a/c sales of securities total $1,178,472.04 (p. 176).

SCHEDULE C-18—*Continued*

[1] ENDOWMENT FUNDS, EXPENDITURES

Department Funds		$28,903.77
Frank Walter Boles Memorial, for Arch.	841.59	
Crosby Honorary, for Geology	100.00	
John Lawrence Mauran, for Architecture	5,000.00	
Forris Jewett Moore, for Chemistry	3,755.69	
William E. Nickerson, for Humanics	5,306.70	
Edward D. Peters, for Mineralogy	268.65	
Pratt Naval Architectural, for Nautical Museum	2,541.31	
W. T. Sedgwick, for Biology	4,000.00	
Edmund K. Turner, for Annuity and Taxes	2,074.16	
William Lyman Underwood, for Expenses	5,015,67	
Research Funds		18,948.48
Samuel Cabot, for Chemical Engineering	4,600.00	
Crane Automotive, for Mechanical Eng.	3,310.00	
Ellen H. Richards, for Chemistry	638.48	
Charlotte B. Richardson, for Chem. Eng.	1,000.00	
Edward Whitney, for Civ. Eng. & Geology	9,400.00	
Fellowship Funds		9,896.00
Miscellaneous, for Fellowships	9,850.00	
Miscellaneous, for Expenses	46.00	
Scholarship Funds		50,997.00
For Scholarships	50,997.00	
Prize Funds		944.70
For Prizes	944.70	
Relief Funds		107,417.17
Edward Austin, for Graduate Schol.	20,000.00	
Miscellaneous Funds, for Undergr. Sch.	22,945.00	
Jonathan Whitney, for Graduate Schol.	21,893.00	
Jonathan Whitney, for T. C. A.	3,000.00	
Jonathan Whitney, for Expenses	3,757.91	
Tech Loan Fund, for Expenses	13,559.48	
Coffin Memorial, for Expenses	33.50	
W. B. Rogers, for Salaries	857.74	
J. A. Grimmons, for Elec. Eng.	5,000.00	
Frances and William Emerson — Student Aid.	4,525.00	
Deans, for Student Loans	790.54	
Bursar's, for Student Loans	915.00	
Summer Surveying Camp for Student Loans	340.00	
Teachers Fund, for Retiring Allowances	9,800.00	
Total (Schedule C)		$1,045,071.65

[1] Other than Transfer of Income for Current Purposes.

SCHEDULE D
TREASURER'S BALANCE SHEET
JUNE 30, 1937

ENDOWMENT FUNDS, ASSETS

Sceurities and Real Estate (Schedule H)	$34,329,778.64
Cash: For Investment (Schedule D-3)	395,976.45
Total	$34,725,755.09

STUDENT LOAN ASSETS

Notes Receivable (Schedule P)	$769,938.08
Total	$769,938.08

CURRENT ASSETS

Cash: For General Purposes (Schedule D-3)	$182,682.44
Accounts Receivable (Schedule D-1)	11,324.31
Students' Fees and Deposits, Receivable	328.86
Deposit on Fire Insurance Account	35,883.00
Advances and Inventories for 1936–37 (Schedule D-2)	83,782.45
Total	$314,001.06

PLANT ASSETS

Land, Buildings, and Equipment	$15,767,292.50
Total (Schedule J)	$15,767,292.50
Total Assets	$51,576,986.73

SCHEDULE D
TREASURER'S BALANCE SHEET
JUNE 30, 1937

ENDOWMENT FUNDS, CAPITAL

Endowment Funds (Schedule M)	$34,725,755.09
Total	$34,725,755.09

STUDENT LOAN CAPITAL

Total (Schedule P)	$769,938.08
Total	$769,938.08

CURRENT LIABILITIES

Current Funds (Schedule R)	$215,904.70
Accounts Payable	6,599.96
Students' Fees and Deposits (Schedule D-4)	90,783.04
Current Surplus (Schedule S)	713.36
Total	$314,001.06

EDUCATIONAL PLANT CAPITAL

Endowment for Educational Plant	$15,767,292.50
Total (Schedule K)	$15,767,292.50
Total Capital and Liabilities	$51,576,986.73

SCHEDULE D-1
DETAIL OF ACCOUNTS RECEIVABLE

Division of Industrial Coöperation Accounts	$7,632.06
Miscellaneous Accounts	3,692.25
Total (Schedule D)	$11,324.31

SCHEDULE D-2
DETAIL OF ADVANCES AND INVENTORIES FOR 1936–1937

Summer Session Salaries and Expenses Advanced	$3,862.69
Salaries Advanced, 1937–38	3,264.00
Civil Engineering Summer Camp 1937, Advanced	341.38
Mining Engineering Summer Camp 1937, Advanced	28.71
Department Overdrafts	473.84
Premiums Paid on Unexpired Insurance	4,616.00
Inventories — Notes held by Coöperative Society and M. I. T.	1,301.30
Dormitory Supplies	2,095.07
Dining Service, Food, Utensils, etc.	8,097.85
Fuel Oil	1,712.07
Liquid Soap	76.00
Walker Memorial Games, Candy, Cigars, etc.	349.66
Letter Shop Supplies	706.41
Stamps	235.98
Building and Janitors' Supplies	2,537.84
Architectural Students' Supply Room, Stock	1,017.89
Stock Room: Pipe, Fittings, Lumber, Hardware, Paint, Oil, Glass and Miscellaneous Supplies	15,073.47
Photostat Service, Supplies, Equipment, etc.	250.00
Photographic Service, Supplies and Equipment	1,270.00
Division of Laboratory Supplies: Chemicals, Glassware, Platinum, etc., also Office Supplies	36,072.29
Blue Print Service, Supplies and Equipment	400.00
Total (Schedule D)	$83,782.45

SCHEDULE D-3
TOTAL CASH RECEIPTS AND DISBURSEMENTS FOR THE YEAR

Total Cash Receipts	$16,514,272.91
Total Cash Disbursements	16,082,566.69
Excess of Receipts	$431,706.22
Cash, June 29, 1936	146,952.67
Cash, June 30, 1937 (Schedule D)	$578,658.89

CASH BALANCE

Cash for Investment — on Deposit (Schedule D)		$395,976.45
Cash for Current Purposes (Schedule D)		
On Deposit	$181,123.80	
In Office	1,558.64	
		182,682.44
Total Cash (Schedule D)		$578,658.89

SCHEDULE D-4
STUDENTS' FEES IN ADVANCE, AND DEPOSITS RETURNABLE

Tuition Fees in Advance, 1937–38	$250.00
Tuition Fees, Summer Session 1937	72,137.92
Students' Deposits Returnable	4,576.35
Students' Deposits, Summer Session 1937	5,766.68
Dormitory Rental in Advance 1937–38	197.50
Dormitory Rentals, Summer Session 1937	7,558.00
Deposits, Civil and Mining Engineering Camps 1937	296.59
Total (Schedule D)	$90,783.04

SCHEDULE H

INVESTMENTS — GENERAL

Par Value				*Book Value*	*Net Income*
	U. S. Government and Municipal Bonds				
$ 400,000	U. S. Treasury.....	1⅜s	1939	$400,875.00	*$194.29*
1,000,000	U. S. Treasury.....	3¼s	1941	1,074,000.00	24,167.36
1,000,000	U. S. Treasury.....	3¼s	1945–43	1,074,600.00	20,344.10
1,000,000	U. S. Treasury.....	3¼s	1946–44	1,093,000.00	10,548.95
500,000	U. S. Treasury.....	3⅜s	1943–40	529,115.00	3,468.75
1,000,000	U. S. Treasury.....	3⅜s	1943–41	1,072,800.00	17,742.15
500,000	U. S. Treasury.....	3⅜s	1947–43	537,422.00	4,940.78
1,000,000	U. S. Treasury.....	4s	1954–44	1,132,000.00	24,844.45
15,000	Detroit.....	4s	1944	14,289.60	600.00
5,000	Detroit.....	4s	1944	4,675.00	200.00
40,000	Detroit.....	4s	1946	37,400.00	1,600.00
10,000	Detroit.....	4½s	1945	9,877.71	450.00
5,000	Detroit.....	4½s	1948	4,837.50	225.00
10,000	Detroit.....	4½s	1951	9,832.26	450.00
10,000	Detroit.....	4½s	1956	9,798.51	450.00
40,000	Detroit.....	5s	1945	40,764.00	2,000.00
Income from bonds sold, called or matured					17,089.58
Total U. S. Government and Municipal Bonds				$7,045,286.58	$128,926.83
	Canadian Government and Municipal Bonds				
$250,000	Canada.....	2¼s	1944	$249,322.50	*$187.50*
220,000	Canada.....	5s	1952	218,740.82	11,000.00
150,000	Ontario.....	5s	1942	150,618.00	7,500.00
50,000	Ontario.....	6s	1943	51,348.00	3,000.00
35,000	Ottawa.....	5s	1940	35,075.00	1,750.00
35,000	Ottawa.....	5s	1945	35,102.00	1,750.00
1,000	Ottawa.....	6s	1938	1,000.00	60.00
8,000	Ottawa.....	6s	1939	8,050.00	480.00
8,000	Ottawa.....	6s	1940	8,097.00	480.00
24,325	Toronto.....	4s	1948	22,622.25	973.32
23,000	Toronto.....	5s	1939	22,655.00	1,150.00
9,000	Toronto.....	5s	1942	8,830.80	450.00
Income from bonds sold, called or matured					16,911.48
Total Canadian Government and Municipal Bonds				$811,461.37	$45,317.30
	Industrial Bonds				
$50,000	American Radiator ...	4½s	1947	$48,000.00	$2,250.00
50,000	Anaconda Copper	4½s	1950	49,250.00	2,250.00
100,000	Scovill Mfg.....	5½s	1945	99,000.00	5,500.00
100,000	Shell Union Oil.....	3½s	1951	99,000.00	3,500.00
17,000	Smith & Wesson	5½s	1938	16,830.00	935.00
Income from bonds sold, called or matured					32,171.51
Total Industrial Bonds				$312,080.00	$46,606.51

Items under Net Income shown in *italics* indicate accrued interest paid.

Schedule H (*Continued*)

Shares		*Book Value*	*Net Income*
	INDUSTRIAL PREFERRED STOCKS		
2,000	Curtis Publishing, Pfd.	$193,348.24	*$14,500.00
1,000	duPont de Nemours, Cum. Deb.	130,226.50	4,500.00
1,500	General Motors, Pfd.	181,251.37	4,750.00
466	A. D. Little Inc., Pfd.	46,600.00	699.00
1,000	Shell Union Oil, Pfd.	97,750.00	*31,625.00
1,000	U. S. Steel, Pfd.	103,412.85	*21,250.00
	Income from stocks sold		1,316.25
	Total Industrial Preferred Stocks	$752,588.96	$78,640.25
	INDUSTRIAL COMMON STOCKS		
5,500	Air Reduction	$235,099.17	$15,000.00
250	Algonquin Printing	67,500.00	1,250.00
1,500	Allied Chemical and Dye	273,976.17	8,250.00
1,500	American Can	179,585.97	7,500.00
1,070	Anaconda Copper	29,694.00	1,872.50
1,000	Beechnut Packing	83,851.27	6,000.00
2,000	Borden	47,638.33	3,200.00
6,000	Borg Warner	216,251.72	9,000.00
2,000	Caterpillar Tractor	92,194.13	11,000.00
4,000	Central Aguirre Associates	114,020.16	10,000.00
2,700	Continental Can	144,344.59	8,775.00
1,500	Dow Chemical	206,276.09	2,775.00
1,500	Draper Corp.	85,882.00	6,600.00
1,500	duPont de Nemours	141,292.03	11,325.00
20,000	Eastman Kodak	1,736,516.00	135,000.00
7,700	General Electric	123,209.60	12,705.00
5,176	General Motors	181,138.96	20,429.00
3,500	Humble Oil & Refining	233,090.00	4,062.50
2,500	Inland Steel	276,325.32	13,000.00
3,100	International Harvester	123,863.98	9,512.50
5,065	International Nickel, Canada	133,846.82	8,420.56
1,000	Johns Manville	127,451.87	375.00
2,000	Kennecott Copper	111,150.95	450.00
2,500	Libbey-Owens-Ford	173,413.06	6,875.00
58	Ludlow Mfg. Associates	8,932.00	116.00
1,000	Minneapolis-Honeywell	27,250.57	3,500.00
3,322	Monsanto Chemical	213,654.75	10,636.00
1,700	Montgomery Ward	106,518.64	5,950.00
5,000	National Biscuit	165,768.74	8,000.00
2,000	National Lead	65,726.17	187.50
3,000	National Steel	230,901.41	10,500.00
2,500	J. C. Penney	225,238.84	18,375.00
2,500	Pittsburgh Plate Glass	117,865.55	12,500.00
3,000	Procter & Gamble	122,127.26	8,625.00
1,999	Pullman	127,624.59	1,870.52
1,000	St. Joseph Lead	55,050.92	.....

* Including arrearage.

Schedule H (*Continued*)

Shares				*Book Value*	*Net Income*
	INDUSTRIAL COMMON STOCKS (*Continued*)				
2,200	Sears Roebuck			$169,412.95	$11,050.00
1,000	Sherwin Williams			100,988.10	5,000.00
3,500	Standard Oil, Cal.			123,724.11	4,725.00
3,000	Standard Oil, Ind.			121,125.82	2,550.00
4,500	Standard Oil, N. J.			189,542.70	11,250.00
1,000	Texas Corp.			34,164.09	1,071.00
1,500	Timken Roller Bearing			106,312.70	5,625.00
4,000	Union Carbide & Carbon			190,674.31	11,600.00
2,000	United Carbon			137,565.94	4,140.00
5,357	United Fruit			220,979.50	22,767.25
2,542	United Shoe Machinery			181,021.56	12,710.00
	Income from stocks sold				58,720.50
	Total Industrial Common Stocks			$8,179,783.41	$544,845.83
Par Value					
	PUBLIC UTILITY BONDS				
$200,000	Alabama Power	5s	1946	$191,501.25	$10,000.00
150,000	Appalachian Electric	5s	1956	152,201.00	7,500.00
100,000	Arkansas Power & Light	5s	1956	101,606.00	4,506.24
150,000	Bell Tel. of Penn.	5s	1948	162,975.00	7,500.00
49,000	Blackstone Val. G. & E.	5s	1939	49,009.00	2,450.00
290,000	Cedars Rapids Mfg. & Pr.	5s	1953	276,853.85	14,500.00
3,000	Central Ohio Lt. & Pr.	5s	1950	3,090.00	150.00
100,000	Columbia Gas & Elec.	5s	1952	95,914.50	4,414.72
38,000	Conn. Light & Power	7s	1951	35,789.75	2,660.00
100,000	Cons. Edison, N. Y.	3¼s	1946	101,446.00	3,250.00
248,000	Consumers Power	4s	1944	248,056.00	9,920.00
99,000	Dayton Pr. & Lt.	3½s	1960	101,489.00	3,465.00
100,000	Detroit Edison E.	5s	1952	104,606.00	5,000.00
100,000	Detroit Edison, D	4½s	1961	100,000.00	4,500.00
150,000	Eastern Gas & Fuel	4s	1956	142,875.00	6,000.00
50,000	Fall River Elec.	5s	1945	50,737.00	2,500.00
100,000	Jersey Central Pr. & Lt.	5s	1947	101,985.00	5,000.00
100,000	Memphis Pr. & Lt.	5s	1948	94,720.49	5,000.00
109,500	Miss. River Power	5s	1951	101,949.32	5,475.00
100,000	New York Pr. & Light	4½s	1967	95,571.01	4,500.00
200,000	New York Telephone	4½s	1939	199,843.36	9,000.00
100,000	North American	5s	1961	101,035.00	5,000.00
100,000	Ohio Power	4½s	1956	98,088.50	4,500.00
100,000	Penn. Power & Light	4½s	1981	96,250.00	4,500.00
50,000	Philadelphia Elec.	3½s	1967	49,812.50	*116.67*
75,000	Providence Gas	4s	1963	74,437.50	3,000.00
99,000	Pub. Serv. No. Ill.	4½s	1980	97,294.72	4,455.00
100,000	Shawinigan Water & Pr.	4½s	1967	97,218.75	4,500.00
50,000	Sierra Pacific Pr.	5½s	1957	44,875.00	2,750.00
100,000	Southern Bell Tel. & Tel.	5s	1941	100,177.00	5,000.00

Items under Net Income shown in *italics* indicate accrued interest paid.

Schedule H (*Continued*)

Par Value				*Book Value*	*Net Income*
	PUBLIC UTILITY BONDS (*Continued*)				
$100,000	Southern Cal. Edison ...	3¾s	1945	$99,687.50	$3,750.00
100,000	Southern Cal. Gas.....	4½s	1961	89,250.00	4,500.00
50,000	Syracuse Lighting.....	5s	1951	53,790.00	2,500.00
48,000	Syracuse Lighting.....	5½s	1954	48,394.00	2,640.00
20,000	Tenn. Electric Power ...	5s	1956	19,750.00	1,000.00
50,000	Tennessee Power.....	5s	1962	46,625.00	2,500.00
100,000	Texas Power & Light ...	5s	1956	104,870.00	5,000.00
100,000	Union Elec. Lgt. & Pr...	5s	1957	98,875.00	5,000.00
100,000	Virginia Elec. Lgt. & Pr.	4s	1955	101,140.00	4,000.00
100,000	West Penn. Power.....	5s	1963	93,482.50	5,000.00
100,000	Western Mass.....	3¼s	1946	101,113.00	3,105.57
	Income from bonds sold, called or matured				112,883.22
	Total Public Utility Bonds			$4,128,384.50	$302,758.08
Shares					
	PUBLIC UTILITY PREFERRED STOCKS				
1,000	Brooklyn-Man. Transit, Pfd.....			$104,751.03	$3,300.00
3,000	Cons. Edison N. Y., Pfd.....			302,176.46	12,875.00
1,000	Consumers Power, Pfd.....			100,500.00	912.50
2,500	Public Service N. J., 5%, Pfd.			254,816.98	11,250.00
174	Rhode Island Pub. Serv., Pfd.			5,481.00	174.00
3,000	United Corp., Pref.....			139,276.75	4,500.00
700	West Penn. Power, 6%, Pfd.....			68,130.58	4,200.00
	Income from stocks sold				2,100.00
	Total Public Utility Preferred Stocks			$975,132.80	$39,311.50
	PUBLIC UTILITY COMMON STOCKS				
3,468	American Tel. & Tel.....			$401,481.92	$31,212.00
140	Arkansas Nat. Gas.....			980.00	.....
1,000	Commonwealth Edison.....			122,900.46	2,125.00
1,500	Cons. Gas, El. Lgt. & Pr. Balt.....			132,250.73	2,700.00
2,500	Detroit Edison.....			370,140.84	12,000.00
1,044	Boston Edison Co.....			176,477.64	5,612.00
1,000	Stone & Webster.....			43,393.60	125.00
	Income from stocks sold.....				148.50
	Total Public Utility Common Stocks ..			$1,247,625.19	$53,922.50
Par Value					
	RAILROAD BONDS				
$100,000	Albany & Susquehanna..	3½s	1946	$70,000.00	$3,500.00
100,000	Atch. Top. & Santa Fe..	4½s	1948	107,653.00	4,500.00
100,000	Atch.Top.&SantaFe C&A	4½s	1962	99,956.25	4,500.00
100,000	Atch. Top. & Santa Fe..	4s	1995	96,470.00	4,000.00
10,000	Atch. Top. & Santa Fe Reg.	4s	1995	8,900.00	400.00
100,000	B. & O., P., L. E. & W. Va.	4s	1941	97,337.50	4,000.00
100,000	Boston & Maine.....	5s	1940	96,000.00	13.89

Schedule H (*Continued*)

Par Value				*Book Value*	*Net Income*
	RAILROAD BONDS (*Continued*)				
$100,000	Canadian National.....	4½s	1956	$98,000.00	$4,500.00
90,000	Canadian National	4½s	1957	88,425.00	4,050.00
26,000	Canadian Nat. Eq. Tr...	4½s	1937	21,905.00	1,170.00
25,000	Canadian Nat. Eq. Tr...	4½s	1938	24,575.00	1,125.00
59,000	Canadian Pac. Eq. Tr. ..	5s	1944	59,573.00	2,950.00
100,000	Chicago, Burl. & Quincy	4s	1958	101,136.00	4,000.00
100,000	Chic.J.Rwys.&Un.Stk.Yds.	4s	1940	94,250.00	4,000.00
75,000	Chic.J.Rwys.&Un.Stk.Yds.	5s	1940	74,143.75	3,750.00
5,000	Chicago & N. W. Eq.Tr.	5s	1938	5,000.00	250.00
85,000	Chicago & N. W.....	4¾s	1949	85,086.00	.....
100,000	Chicago & N. W.....	4s	1987	96,500.00	.....
200,000	Chicago & N. W.....	4½s	2037	189,500.00	.....
100,000	Chicago Union Sta.....	3¾s	1963	104,392.00	3,750.00
75,000	Cincinnati Un. Term....	5s	1957	76,961.00	3,750.00
100'000	Gr.Trunk & West. Eq. Tr.	5s	1942	99,495.70	5,000.00
21'000	Ill. Cent. Eq. Tr. K	4½s	1937	20,606.71	945.00
12'000	Ill. Cent. Eq. Tr. K	4½s	1938	11,762.28	540.00
5'000	Ill. Cent. Eq. Tr. K	4½s	1939	4,895.79	225.00
25,000	Indianapolis Un. Ry. ...	5s	1965	24,734.38	1,250.00
150,000	Kansas City Term.....	4s	1960	133,875.00	6,000.00
100,000	Long Island, Un.....	4s	1949	96,137.50	4,000.00
100,000	Missouri Pacific.....	5s	1977	99,750.00	.....
9,000	N. Y. Central Eq. Tr....	4½s	1937	8,536.50	405.00
100,000	N. Y. Connecting	4½s	1953	98,625.00	4,500.00
75,000	Northern Pacific.....	4s	1997	67,875.00	3,000.00
182,000	Northern Pacific	6s	2047	193,741,00	10,920.00
100,000	Oreg. R.R.& Navigation	4s	1946	99,410.83	4,000.00
100,000	Pennsylvania.....	4½s	1960	115,996.00	4,500.00
100,000	Pennsylvania.....	4½s	1965	100,625.00	4,500.00
37,500	Pere Marquette B.....	4s	1956	37,500.00	1,500.00
117,900	Pere Marquette A.....	5s	1956	104,719.59	5,895.00
51,000	Rio Grande West.....	4s	1939	49,935.00	.....
83,000	St. L., Iron Mt. & So....	4s	1933	72,542.50	3,320.00
5,000	St. L., Iron Mt. & So....	4s	1933	4,812.50	200.00
100,000	Southern Pacific.....	3¾s	1946	98,750.00	1,744.79
100,000	Southern Pacific.....	4s	1955	95,250.00	4,000.00
100,000	Southern Pacific.....	4½s	1969	90,698.13	4,500.00
100,000	Term R.R. of St. Louis..	4½s	1939	100,030.00	4,500.00
100,000	Term.R.R. of St. Louis..	4s	1953	83,860.00	4,000.00
100,000	Union Pacific.....	4s	1947	100,346.00	4,000.00
100,000	Virginian.....	3¾s	1966	102,155.00	3,750.00
75,000	Washington Term.....	3½s	1945	68,196.37	2,625.00
	Income from bonds sold, called or matured				75,777.32
	Total Railroad Bonds.....			$3,880,625.28	$219,806.00

Schedule H (*Continued*)

Shares				*Book Value*	*Net Income*
	RAILROAD PREFERRED STOCKS				
1,003	Atch. Top. & S. Fe, Pfd.			$78,725.59	$5,015.00
1,000	Pere Marquette, Pr. Pref.			80,024.40	*20,000.00
	Total Railroad Preferred Stocks			$158,749.99	$25,015.00
	RAILROAD COMMON STOCKS				
800	Atch. Top. & S. Fe			$110,175.00	$1,600.00
2,000	Chesapeake & Ohio			97,840.60	11,600.00
350	Norfolk & Western			49,892.78	4,900.00
900	Union Pacific			121,310.89	5,400.00
	Income from stocks sold				27,027.50
	Total Railroad Common Stocks			$379,219.27	$50,527.50
Par Value	OTHER BONDS				
$49,000	Adams Express	4s	1947	$49,129.07	*$108.90*
51,000	Adams Express	4s	1948	51,134.31	*666.90*
100,000	Aldred Invest. Trust	4½s	1967	109,175.00	4,500.00
200,000	Equit. Office Bldg.	5s	1952	200,000.00	10,000.00
252,000	Gen. Motors Acc. Corp.	3s	1946	257,280.00	2,482.18
170,000	Lawyers Mtge. Inv. Corp.	5½s	1940	169,500.00	9,500.00
150,000	Niagara Shares Corp.	5½s	1950	148,813.78	8,250.00
	Income from bonds sold, called or matured				10,848.65
	Total Other Bonds			$985,032.16	$44,805.03
Shares	BANK STOCKS				
2,500	Bankers Trust, N. Y.			$156,975.00	$3,000.00
1,500	Central Hanover Bk. & Tr. N. Y.			184,425.00	3,500.00
5,000	Chase National, N. Y.			261,212.50	.....
2,500	Chemical Bank & Trust, N. Y.			167,593.75	675.00
4,822	First National, Boston			293,173.21	9,644.00
80	First National, N. Y.			172,170.60	8,000.00
700	Guaranty Trust, N. Y.			232,343.04	5,700.00
5,000	National City, N. Y.			234,212.50	.....
100	New England Trust, Boston			40,000.00	3,000.00
	Income from stocks sold				906.00
	Total Bank Stocks			$1,742,105.60	$34,425.00
	INSURANCE STOCKS				
165	Boston			$113,736.00	$3,150.00
340	Firemen's Fund			36,321.35	1,360.00
1,500	Hartford			93,000.00	3,000.00
1,500	Phoenix			107,424.50	3,750.00
	Income from stocks sold				5,640.00
	Total Insurance Stocks			$350,481.85	$16,900.00

* *In arrears.*

Items under Net Income shown in *italics* indicate accrued interest paid.

Schedule H (*Continued*)

Shares		*Book Value*	*Net Income*
	OTHER STOCKS		
680	Boston R. E. Trust	$71,661.64	$1,360.00
521	First Boston Corporation	9,898.90	2,084.00
100	Christiana Securities	250,000.00	8,680.00
	Income from stocks sold		1,780.00
	Total Other Stocks	$331,560.54	$13,904.00
Par Value			
	MORTGAGE NOTES		
$4,000	Beta Nu House Corp.	$4,000.00	$270.83
4,350	Bigelow	4,350.00	220.00
17,250	Gamma Pi Corp.	17,250.00	893.76
60,000	Martin	60,000.00	600.00
3,350	McKenzie	3,350.00	173.78
150,000	M. I. T. Dormitory	150,000.00	2,136.98
2,325	Orlogski	2,325.00	117.79
4,750	Phi Beta Epsilon Corp.	4,750.00	412.50
11,000	Phi Kappa Sigma Trust	11,000.00	606.49
12,000	Theta Chi Trust	12,000.00	612.50
70,000	Walton Trust	70,000.00	3,500.00
	Income from mortgages sold		3,042.00
	Total Mortgage Notes	$339,025.00	$12,586.63
	REAL ESTATE		
	Avon Street, Boston	$205,632.55	$3,885.15
	Broad and High Streets, Boston	100,000.00	3,575.48
	Franklin Street, Boston	385,364.53	5,821.18
	Haven Avenue, Mattapan	100.00	**134.23*
	Memorial Drive, Cambridge	40,000.00	**1,397.25*
	Total Real Estate	$731,097.08	$11,750.33
	RECAPITULATION, GENERAL INVESTMENTS		
	U. S. Gov. and Mun. Bonds	$7,045,286.58	$128,926.83
	Canadian Gov. and Mun. Bonds	811,461.37	45,317.30
	Industrial Bonds	312,080.00	46,606.51
	Industrial Preferred Stocks	752,588.96	78,640.25
	Industrial Common Stocks	8,179,783.41	544,845.83
	Public Utility Bonds	4,128,384.50	302,758.08
	Public Utility Prefered Stocks	975,132.80	39,311.50
	Public Utility Common Stocks	1,247,625.19	53,922.50
	Railroad Bonds	3,880,625.28	219,806.00
	Railroad Preferred Stocks	158,749.99	25,015.00
	Railroad Common Stocks	379,219.27	50,527.50
	Other Bonds	985,032.16	44,805.03

* Expense.

Schedule H (*Continued*)

				Book Value	*Net Income*
	RECAPITULATION (*Continued*)				
	Bank Stocks			$1,742,105.60	$34,425.00
	Insurance Stocks			350,481.85	16,900.00
	Other Stocks			331,560.54	13,904.00
	Mortgage Notes			339,025.00	12,586.63
	Real Estate			731,097.08	11,750.33
	Total General Investments			$32,350,239.58	$1,670,048.29

Par Value or Shares

	INVESTMENTS MALCOLM COTTON BROWN FUND				
$25,000	Met. West Side	4s	1938	$10,850.00	.....
2,000	U. S. Treasury	3¼s	1945	2,096.00	$65.00
	Total Brown Fund			$12,946.00	$65.00
	INVESTMENTS, COFFIN MEMORIAL FUND				
350	Light & Pr. Sec. Co., Pfd.			$35,000.00	$2,100.00
10	United Gas & Imp., Pfd.			973.04	50.00
$6,000	U. S. Treasury	3s	1948	6,334.00	141.00
	Total Coffin Fund			$42,307.04	$2,291.00
	INVESTMENTS, DRAPER FUND				
$12,000	U. S. Treasury	3¼s	1945	$12,841.00	$252.60
22,000	Ontario	5s	1959	21,890.00	1,100.00
8,000	Cons. Edison N. Y.	3¼s	1946	8,339.00	176.22
5,000	Cons. Gas N. Y.	4½s	1951	5,320.00	225.00
10,000	Detroit Edison, D	4½s	1961	11,557.00	228.75
20,000	New York Tel.	4½s	1939	19,395.00	900.00
14,000	Ohio Power	4½s	1956	12,202.50	630.00
5,000	Texas Power & Light	5s	1956	5,274.00	250.00
5,000	Chic. Burl. & Quincy	3½s	1949	5,010.00	175.00
	Income from bonds sold, called or matured				600.00
	Total Draper Fund			$101,828.50	$4,537.57
	INVESTMENTS, SUSAN H. SWETT FUND				
$10,000	Mass. Hospital Life Ins. Co.			$10,000.00	$250.00
2,000	U. S. Treasury	3¼s	1941	2,104.00	65.00
	Total Swett Fund			$12,104.00	$315.00
	INVESTMENTS, WILLIAM LYMAN UNDERWOOD FUND				
	Transferred to General Investments or sold as of April 1, 1937				
	Income to April 1, 1937				$804.76
					$804.76

Schedule H (*Continued*)

Par Value or Shares				*Book Value*	*Net Income*
	INVESTMENTS, FRANCES E. WESTON FUND				
$9,750	Mortgage Note, Bartlett			$9,700.00	*$1,029.18
	INVESTMENTS, JONATHAN WHITNEY FUND				
$41,000	U. S. Treasury	3¼s	1945	$43,644.00	$1,123.78
50,000	U. S. Treasury	4s	1945–44	56,505.00	1,257.22
40,000	Canada	5s	1952	44,787.00	386.04
50,000	Anaconda Copper	4½s	1950	52,867.00	243.49
20,000	Shell Union Oil	3½s	1951	19,352.55	700.00
50,000	Appalachian Elec.	5s	1956	52,456.00	482.88
25,000	Bangor Hydro. Elec.	3¾s	1966	26,116.00	390.62
20,000	Cons. Gas Co. of N. Y.	4½s	1951	21,221.00	900.00
25,000	Detroit Edison D.	4½s	1961	28,893.00	571.87
25,000	Detroit Edison D.	5s	1952	24,825.00	1,250.00
25,000	Memphis Pr. & Lt.	5s	1948	24,333.85	1,250.00
25,000	New York Tel.	4½s	1939	24,150.39	1,125.00
25,000	Pacific Gas & Elec.	3¾s	1961	25,714.00	937.50
25,000	So. Cal. Edison	3¾s	1960	24,760.00	937.50
25,000	Atch. Top. & S. Fe	4½s	1962	24,381.25	1,125.00
26,000	Chic. Burl. & Quincy	3½s	1949	26,120.00	867.03
50,000	Kansas City Term.	4s	1960	42,750.00	2,000.00
25,000	Southern Pacific	4s	1955	24,471.99	1,000.00
25,000	Virginian	3¾s	1966	25,646.00	937.50
	Income from bonds sold, called or matured				6,998.41
	Total Whitney Fund			$612,994.03	$24,483.84
	†INVESTMENTS, TECHNOLOGY LOAN FUND				
$75,000	Am. International	5½s	1949	$79,125.00	.....
25,000	Anaconda Copper	4½s	1950	24,625.00	$562.50
50,000	Am. Power & Light	6s	2016	50,343.75	.....
200,000	Brook-Man. Tr.	4½s	1966	207,000.00	2,525.00
100,000	Eastern Gas & Fuel	4s	1955	93,625.00	.....
25,000	Interboro Rap. Tr. C–D	5s	1966	25,000.00	.....
50,000	Southern Bell Tel.	3¼s	1962	48,985.01	*273.99*
25,000	Standard Power & Light	6s	1957	20,032.50	.....
50,000	Tennessee Elec. Pr.	6s	1947	50,428.75	1,500.00
195	Cons. Gas. El. Lgt. & Pr. Balt.			25,000.00	175.50
500	International Power Securities, Pfd.			17,250.00	1,500.00
1,000	North American			36,796.89	117.00
1,250	Stone & Webster			53,968.75	.....
50,000	Baltimore & Ohio	4½s	1960	50,625.00	.....
75,000	Chicago & N. W.	4¾s	1949	74,625.00	.....
75,000	Chicago R. I. & Pac.	4½s	1960	74,812.50	.....
	Income from bonds sold				1,597.09
	Total Technology Loan Fund			$932,243.15	$7,703.10

* *Including interest in arrears.*
† From March 1, 1937.
Items under Net Income shown in *italics* indicate accrued interest paid.

Schedule H (*Continued*)

Par Value or Shares				*Book Value*	*Net Income*
	INVESTMENTS, EDWIN A. WYETH FUND				
$10,000	U. S. Treasury	1½s	1939	$10,016.00	$150.00
7,000	U. S. Treasury	3s	1948–46	7,241.38	76.67
25,000	U. S. Treasury	4s	1954–44	28,256.00	626.11
10,000	Shell Union Oil	3½s	1951	9,725.00	350.00
100	American Can			11,944.73	500.00
250	General Motors			8,500.00	1,000.00
250	Pullman			11,750.00	375.00
100	Standard Oil, N. J.			5,980.20	250.00
100	Union Carbide and Carbon			4,640.00	290.00
100	United Shoe Machine			8,941.25	500.00
125	American Tel. & Tel.			13,125.00	1,125.00
10,000	Carolina Pr. & Lt.	5s	1956	8,300.00	500.00
9,000	Columbia Gas & Elec.	5s	1952	8,310.78	402.23
10,000	Cons. Edison N. Y.	3¼s	1946	10,200.00	325.00
10,000	Cons. Gas Co. of N. Y.	4½s	1951	10,599.00	450.00
14,000	Miss. River Power	5s	1951	14,680.00	700.00
16,000	So. Cal. Edison	3¾s	1960	15,880.00	600.00
10,000	Texas Pr. & Lgt.	5s	1956	10,506.00	500.00
15,000	Balt. & Ohio	4s	1948	15,233.00	600.00
5,000	Can. Pac. Eq. Tr.	5s	1944	5,305.00	250.00
15,000	Chic. Burl. & Quincy	3½s	1949	15,238.00	525.00
10,000	Kansas City Term.	4s	1960	10,440.00	400.00
10,000	Union Pacific	4s	1947	10,605.00	400.00
	Income from bonds sold, called, matured				978.39
	Total Wyeth Fund			$255,416.34	$11,873.40
	Grand Total All Investments			$34,329,778.64	$1,723,151.14
				(Schedule D)	(Schedule B)

SCHEDULE J

EDUCATIONAL PLANT

Land, Buildings and Equipment

Land, Boylston, Clarendon and Newbury Streets, Boston	$1,500,000.00
Rogers Building, Boylston Street, Boston	204,534.76
Walker Building, Boylston Street, Boston	150,000.00
Land, east of Massachusetts Avenue, Cambridge	1,125,766.67
Land, west of Massachusetts Avenue	850,014.82
Main Educational Building Group	4,071,492.13
George Eastman Research Laboratories	1,225,098.58
Pratt School of Naval Architecture	674,971.70
Guggenheim Aeronautical Laboratory	293,637.46
Aeronautical Engine Testing Laboratory	121,101.92
Mechanic Arts Building	83,658.89
Power Plant (including Machinery and Equipment)	302,569.27
Homberg Memorial Infirmary	188,441.60
Educational Equipment	2,039,953.60
Steam and Electrical Distribution System	159,448.64
Gas Engine, Hydraulic and Compression Laboratories	68,301.88
Service Building and Garages	55,369.74
Walker Memorial and Equipment	714,587.02
Dormitories and Equipment	1,308,923.79
Boathouse	54,244.13
Field House and Squash Courts	84,042.54
Sailing Pavilion	28,849.09
Camp, East Machias, Maine	120,558.00
Camp, Dover, New Jersey	35,000.00
Miscellaneous	306,726.27
Total June 30, 1937 (see Schedule D)	$15,767,292.50

SCHEDULE K

PRINCIPAL GIFTS AND APPROPRIATIONS FOR EDUCATIONAL PLANT

George Eastman for Buildings	$4,724,098.58
T. C. and P. S. duPont, Charles Hayden, for Mining Building	215,000.00
Pratt Fund, for School of Naval Architecture	675,150.00
Guggenheim Fund, for Aeronautical Laboratory	230,000.00
A. P. Sloan, Jr., for Aero Engine Laboratory	65,000.00
Subscriptions to Homberg Memorial Infirmary	110,225.00
Maria A. Evans Fund, for Land	169,080.60
T. C. duPont, for Land	625,000.00
Miscellaneous subscriptions and appropriations for Land	382,222.89
Land in Boston, Grant of Commonwealth (estimated)	1,500,000.00
Emma Rogers Fund, for Equipment	528,077.06
F. W. Emery Fund, for Equipment	126,423.80
French Fund, for Equipment	100,843.34
Equipment from Boston, 1916 (estimated)	500,000.00
Sale of Land and Buildings, Boston, 1916	656.919.45
Maria A. Evans, for Dormitories	161,192.55
Class of '93, for Dormitories	100,000.00
T. C. duPont, for Dormitories	100,000.00
Alumni Dormitory Fund	516,945.66
Barbour Fund, for Dormitories, Field House, etc.	326,963.29
Miscellaneous Funds, for Dormitories	129,816.26
Walker Memorial Fund, for Walker Memorial	167,303.96
Alumni Fund, for Equipment, Dormitories, Walker	622,119.38
Other Funds, Donations, Appropriations	3,034,910.68
Total, June 30, 1937 (see Schedule D)	$15,767,292.50

SCHEDULE M

[1]ENDOWMENT FUNDS FOR GENERAL PURPOSES

No.	Restricted Funds	Funds, June 30, 1936	Investment Income	Other Receipts	Expended or Transferred	Funds, June 30, 1937
101	George Robert Armstrong .	$5,000.00	$250.00	.....	$250.00	$5,000.00
103	George Blackburn Mem...	906,417.32	45,350.00	$1,250.98	45,661.40	907,356.90
105	Charles Choate.....	35,858.15	1,795.00	.....	1,795.00	35,858.15
107	Eben S. Draper.....	100,847.61	4,537.57	840.00	4,537.57	101,687.61
109	Coleman du Pont.....	208,906.40	10,490.00	2,469.26	10,490.00	211,375.66
111	Eastman Contract.....	9,498,869.55	474,945.00	.....	474,945.00	9,498,869.55
113	George Eastman (Building)	1,275,901.42	63,795.00	.....	63,795.00	1,275,901.42
115	Charles W. Eaton.....	243,337.03	12,165.00	.....	12,165.00	243,337.03
117	Educational Endowment ..	7,573,704.60	378,685.00	80.00	378,685.00	7,573,784.60
119	Martha Ann Edwards.....	30,000.00	1,500.00	.....	1,500.00	30,000.00
121	William Endicott.....	25,000.00	1,250.00	.....	1,250.00	25,000.00
123	Francis Appleton Foster...	1,000,000.00	50,000.00	.....	50,000.00	1,000,000.00
125	John W. Foster.....	.....	7,300.00	291,165.55	7,300.00	291,165.55
127	Alexis H. French.....	5,000.00	250.00	.....	250.00	5,000.00
129	Jonathan French.....	25,212.48	1,260.00	.....	1,260.00	25,212.48
131	Henry C. Frick.....	1,830,333.42	91,515.00	.....	91,515.00	1,830,333.42
133	General Endowment.....	1,527,449.00	76,370.00	.....	76,370.00	1,527,449.00
135	Eliot Granger.....	20,000.00	1,075.00	1,568.43	1,075.00	21,568.43
137	James Fund.....	163,654.21	8,185.00	.....	8,185.00	163,654.21
139	Katherine B. Lowell.....	5,000.00	250.00	.....	250.00	5,000.00
141	Thomas McCammon	15,000.00	750.00	.....	750.00	15,000.00
143	M. I. T. Alumni (Fund Bal.)	1,925.80	140.00	885.00	.....	2,950.80
145	Kate M. Morse.....	25,000.00	1,250.00	.....	1,250.00	25,000.00
147	Everett Morss.....	25,000.00	1,250.00	.....	1,250.00	25,000.00
149	Richard Perkins.....	50,000.00	2,500.00	.....	2,500.00	50,000.00
150	J. W. and B. L. Randall...	83,452.36	4,175.00	.....	4,175.00	83,452.36
151	Wm. Barton Rogers Mem..	250,225.00	12,510.00	.....	12,510.00	250,225.00
152	[2]Saltonstall Fund.....	60,652.99	3,035.00	.....	2,277.00	61,410.99
153	Samuel E. Sawyer.....	4,764.40	240.00	.....	240.00	4,764.40
155	Andrew Hastings Spring...	50,000.00	2,500.00	.....	2,500.00	50,000.00
157	Seth K. Sweetser.....	25,061.62	1,255.00	.....	1,255.00	25,061.62
159	William J. Walker.....	23,613.59	1,180.00	.....	1,180.00	23,613.59
161	Horace Herbert Watson...	34,076.69	1,705.00	.....	1,705.00	34,076.69
163	Albion K. P. Welch.....	5,000.00	250.00	.....	250.00	5,000.00
165	Everett Westcott.....	169,394.00	8,470.00	.....	8,470.00	169,394.00
167	Marion Westcott.....	.....	3,000.00	237,702.00	3,000.00	237,702.00
169	[3]George Wigglesworth.....	25,530.72	1,275.00	.....	1,148.00	25,657.72
171	Edwin A. Wyeth.....	253,856.05	11,873.40	1,973.38	11,873.40	255,829.43
		$25,583,044.41	$1,288,325.97	$537,934.60	$1,287,612.37	$26,121,692.61
	Unrestricted Funds					
175	Edmund D. Barbour.....	$183,907.53	$8,745.00	.....	$47,830.00	$144,822.53
176	N. Loring Danforth	.....	25.00	$5,000.00	25.00	5,000.00
177	Arthur F. Estabrook.....	3,200.00	190.00	800.00	190.00	4,000.00
179	Henrietta G. Fitz.....	10,000.00	500.00	.....	500.00	10,000.00
181	George Wyman Hamilton .	24,454.97	1,225.00	27.50	1,525.00	24,182 47

[1] See alphabetical listing and description of Funds on pages 189–201.
[2] One-fourth of net income added to Fund.
[3] Ten per cent of gross income added to Fund.

Schedule M (*Continued*)

No.	*Unrestricted Funds* (*Continued*)	*Funds, June 30, 1936*	*Investment Income*	*Other Receipts*	*Expended or Transferred*	*Funds, June 30, 1937*
183	James W. Henry	$8,226.08	$410.00	.....	$410.00	$8,226.08
185	Abby W. Hunt	72,000.00	3,600.00	.....	63,600.00	12,000.00
187	Industrial Fund	69,561.41	3,250.00	$47.50	24,142.69	48,716.22
189	Hiram H. Logan	17,000.00	850.00	.....	850.00	17,000.00
191	Hiram F. Mills	10,175.00	.....	.....	10,175.00	.....
193	Moses W. Oliver	11,220.49	560.00	.....	560.00	11,220.49
195	Emerette O. Patch	7,500.00	375.00	.....	375.00	7,500.00
197	Preston Player	20,000.00	1,000.00	.....	1,000.00	20,000.00
199	Charles O. Prescott	30,640.78	1,530.00	.....	1,530.00	30,640.78
201	Robert E. Rogers	7,680.77	385.00	.....	385.00	7,680.77
203	Ellen V. Smith	25,000.00	1,250.00	.....	1,250.00	25,000.00
205	Frank G. Webster	25,000.00	1,250.00	.....	1,250.00	25,000.00
		$525,567.03	$25,145.00	$5,875.00	$155,597.69	$400,989.34

SCHEDULE M

[1]ENDOWMENT FUNDS FOR DESIGNATED PURPOSES

	Special Deposit and Agency Funds					
210	Endowment Reserve	$379,443.94	$116,198.29	$1,178,472.04	$601,336.77	$1,072.777.50
211	Income Equalization Reserve	.....	.....	85,000.00	.....	85,000.00
212	Albert Fund	3,812.85	140.00	.....	2,012.85	1,940.00
214	Alpha Chi Sigma House Fund	2,511.85	125.00	80.00	.....	2,716.85
216	Anonymous (1924)	1,913.71	95.00	.....	.....	2,008.71
218	New Building Fund (1937)	.....	600.00	100,000.00	33,316.67	67,283.33
220	Basket Ball Fund	2,275.68	115.00	.....	.....	2,390.68
222	Bess Bigelow Fund	.....	300.00	10,000.00	.....	10,300.00
225	Class of 1923	16,830.45	840.00	599.81	206.08	18,064.18
226	Class of 1924	17,010.36	850.00	1,077.31	116.21	18,821.46
227	Class of 1925	10,762.85	535.00	370.86	142.23	11,526.48
229	Class of 1926	13,522.33	675.00	422.80	35.30	14,584.83
230	Class of 1927	10,159.31	525.00	974.21	.....	11,658.52
231	Class of 1928	13,898.04	700.00	1,123.40	.....	15,721.44
232	Class of 1929	7,492.42	385.00	688.87	.....	8,566.29
233	Class of 1930	992.15	50.00	187.42	.....	1,229.57
237	Class of 1934	243.92	10.00	.....	.....	253.92
238	Class of 1935	314.19	15.00	.....	.....	329.19
239	Class of 1936	400.00	20.00	37.50	.....	457.50
260	M.I.T. Teachers' Insurance	3,989.19	.....	27,393.36	26,350.79	5,031.76
261	M.I.T. Teachers' Insurance (Special)	73,206.93	3,500.00	4,444.22	6,925.10	74,226.05
263	M.I.T. Alumni Association Permanent Funds	58,765.70	3,100.00	6,689.02	.....	68,554.72
264	Henry A. Morss Nautical	.....	160.00	3,500.00	655.64	3,004.36
265	Louisville Technology Foundation Fund	50.00	.....	.....	.....	50.00

See alphabetical listing and description of Funds on pages 189–201.

[1]Schedule M (*Continued*)

No.	Special Deposit and Agency Funds (*Continued*)	Funds, June 30, 1936	Investment Income	Other Receipts	Expended or Transferred	Funds, June 30, 1937
266	Class of 1917, Special	.....	.....	$100.00	.....	$100.00
268	Class of 1934, Special	$514.19	$25.00	.....	.....	539.19
270	Class of 1898 Loan	†7,704.95	390.00	108.84	.....	†8,203.79
273	Class of 1874	190.43	10.00	.....	.....	200.43
275	Professors' Fund	2,553.17	50.00	800.00	$2,100.00	1,303.17
278	Richards Portrait	642.50	30.00	.....	.....	672.50
280	Rockefeller Found. Research	*4,920.02	.....	5,000.02	.....	80.00
282	W. P. Ryan, Special	3,435.52	170.00	.....	.....	3,605.52
283	Theo. Edward Schwarz Mem.	.....	50.00	3,171.25	.....	3,221.25
283	Sedgwick Memorial Lecture Fund	8,672.17	450.00	637.56	241.94	9,517.79
284	Lillie C. Smith	.....	145.00	4,799.29	.....	4,944.29
285	Technology Matrons' Teas	9,169.86	440.00	.....	416.24	9,193.62
286	W. B. S. Thomas' Fund	971.15	85.00	1,100.00	.....	2,156.15
288	Elihu Thomson	7,086.27	355.00	.....	7,441.27	.....
290	Undergraduate Activities Trust	1,154.41	60.00	.....	.....	1,214.41
292	Undergraduate Publication Trust	16,736.96	815.00	.....	500.00	17,051.96
294	Undergraduate Dues, Res. Athletics	15,252.13	765.00	700.00	351.29	16,365.84
296	Undergraduate Dues, Res. Contingent	14,459.57	725.00	150.00	.....	15,334.57
		$701,219.13	$133,503.29	$1,437,627.78	$682,148.38	$1,590,201.82

Funds for Salaries

301	Samuel C. Cobb For General Salaries	$36,551.31	$1,830.00	.....	$1,830.00	$36,551.31
303	Sarah H. Forbes For General Salaries	500.00	25.00	.....	25.00	500.00
305	George A. Gardner For General Salaries	20,000.00	1,000.00	.....	1,000.00	20,000.00
309	James Hayward Professorship of Engineering	18,800.00	940.00	.....	940.00	18,800.00
311	William P. Mason Professorship of Geology	18,800.00	940.00	.....	940.00	18,800.00
313	Henry B. Rogers For General Salaries	25,000.00	1,250.00	.....	1,250.00	25,000.00
315	Nathaniel Thayer Professorship of Physics	25,000.00	1,250.00	.....	1,250.00	25,000.00
317	Elihu Thomson Professorship, Elec. Eng.	6,239.60	310.00	$12,441.27	310.00	18,680.87
		$150,890.91	$7,545.00	$12,441.27	$7,545.00	$163.332.18

[1] See alphabetical listing and description of Funds on pages 189–201.
* Overdraft.
† Exclusive of student notes receivable. (See Schedule P.)

[1]Schedule M (*Continued*)

No.		*Funds, June 30, 1936*	*Investment Income*	*Other Receipts*	*Expended or Transferred*	*Funds, June 30, 1937*
	FUNDS FOR LIBRARY					
321	Walter S. Barker	$10,884.10	$545.00	.....	$428.76	$11,000.34
323	Ednah Dow Cheney	14,625.27	730.00	.....	301.95	15,053.32
325	Frank Harvey Cilley	84,814.45	4,240.00	.....	3,381.50	85,672.95
327	Charles Lewis Flint	5,563.12	275.00	.....	209.00	5,629.12
329	Friends of the Library	220.00	25.00	$2,050.00	.....	2,295.00
341	William Hall Kerr	3,584.17	180.00	.....	11.40	3,752.77
343	George A. Osborne	10,108.51	505.00	10.00	297.48	10,326.03
345	Arthur Rotch, Architectural	6,741.92	335.00	.....	180.53	6,896.39
349	John Hume Tod	3,029.72	150.00	.....	92.27	3,087.45
351	Theodore N. Vail	40,466.64	2,025.00	.....	1,800.00	40,691.64
		$180,037.90	$9,010.00	$2,060.00	$6,702.89	$184,405.01
	FUNDS FOR DEPARTMENTS					
401	William Parsons Atkinson	$13,082.20	$655.00	.....	$655.00	$13,082.20
403	Frank Walter Boles Memorial	30,621.28	1,500.00	.....	841.59	31,279.69
405	William E. Chamberlain	7,309.77	365.00	.....	365.00	7,309.77
407	Chemical Engineering Practice	257,772.97	12,890.00	.....	12,890.00	257,772.97
409	Crosby Honorary Fund	1,789.26	85.00	.....	100.00	1,774.26
411	Susan E. Dorr	95,955.67	4,800.00	.....	4,800.00	95,955.67
412	George Eastman	400,000.00	20,000.00	.....	20,000.00	400,000.00
414	Arthur Dehon Little Memorial	.....	200.00	$46,600.00	.....	46,800.00
416	John Lawrence Mauran	5,354.75	125.00	.....	5,000.00	479.75
417	George Henry May	5,000.00	250.00	.....	250.00	5,000.00
419	Susan Minns	40,000.00	.....	.....	.....	40,000.00
420	Forris Jewett Moore	32,320.35	1,500.00	.....	3,755.69	30,064.66
422	William E. Nickerson	18,436.06	800.00	.....	5,306.70	13,929.36
424	Edward D. Peters	5,920.31	295.00	.....	268.65	5,946.66
425	Pratt Naval Architectural	392,399.95	19,620.00	.....	19,620.00	392,399.95
426	Frances E. Roper	2,000.00	100.00	.....	100.00	2,000.00
427	Arthur Rotch	25,000.00	1,250.00	.....	1,250.00	25,000.00
429	W. T. Sedgwick	87,009.11	4,175.00	.....	4,000.00	87,184.11
431	[1]Edmund K. Turner	254,709.35	12,735.00	.....	10,069.16	257,375.19
433	William Lyman Underwood	19,842.73	1,029.76	2,906.16	5,015.67	18,762.98
		$1,694,523.76	$82,374.76	$49,506.16	$94,287.46	$1,732.117.22
	FUNDS FOR RESEARCH					
443	Samuel Cabot	$54,062.31	$2,550.00	.....	$4,600.00	$52,012.31
444	Crane Automotive Research	6,674.82	335.00	.....	3,310.00	3,699.82
449	Ellen H. Richards	21,823.59	1,090.00	.....	638.48	22,275.11
451	Charlotte B. Richardson	44,929.58	2,220.00	.....	1,000.00	46,149.58
452	Henry N. Sweet	.....	330.00	$8,036.50	.....	8,366.50
456	Textile Research Fund	.....	125.00	3,065.08	.....	3,190.08
458	Edward Whitney	32,770.59	1,350.00	.....	9,400.00	24,720.59
459	Wright Memorial Wind Tunnel	.....	1,065.00	47,000.00	.....	48,065.00
		$160,260.89	$9,065.00	$58,101.58	$18,948.48	$208,478.99

[1] One-fourth of net income added to Fund.
See alphabetical listing and description of Funds on pages 189–201.

[1]Schedule M (*Continued*)

No.		*Funds, June 30, 1936*	*Investment Income*	*Other Receipts*	*Expended or Transferred*	*Funds, June 30, 1937*
	FUNDS FOR FELLOWSHIPS					
463	William Sumner Bolles	$27,684.15	$1,385.00	.....	$1,100.00	$27,969.15
464	Malcolm Cotton Brown	12,292.02	65.00	.....	12.00	12,345.02
466	Collamore	14,495.86	715.00	.....	600.00	14,610.86
468	Dalton Graduate Chemical	7,493.59	375.00	.....	300.00	7,568.59
469	du Pont	.....	.....	$750.00	750.00	.....
474	Rebecca R. Joslin	†8,080.53	405.00	.....	.....	†8,485.53
476	Wilfred Lewis	5,355.21	265.00	.....	200.00	5,420.21
478	Moore	30,643.82	1,530.00	.....	.....	32,173.82
480	Willard B. Perkins	6,902.26	345.00	.....	.....	7,247.26
482	Proctor	.....	.....	1,500.00	1,500.00	.....
484	Proprietors Locks and Canals	3,931.16	195.00	.....	.....	4,126.16
486	Henry Bromfield Rogers	25,214.82	1,260.00	.....	1,000.00	25,474.82
488	Richard Lee Russel	3,317.83	.....	.....	150.00	3,167.83
490	Henry Saltonstall	10,973.44	550.00	.....	500.00	11,023.44
492	James Savage	12,940.38	620.00	.....	1,000.00	12,560.38
493	Sloan	.....	.....	1,000.00	1,000.00	.....
495	Susan H. Swett	11,874.18	315.00	.....	534.00	11,655.18
496	Gerard Swope	138.75	.....	.....	.....	138.75
497	Frank Hall Thorp	10,743.29	535.00	.....	500.00	10,778.29
498	Louis Francisco Verges	10,563.20	530.00	.....	750.00	10,343.20
		$202,644.49	$9,090.00	$3,250.00	$9,896.00	$205,088.49
	FUNDS FOR SCHOLARSHIPS					
501	Elisha Atkins	$5,241.65	$260.00	.....	$250.00	$5,251.65
503	Billings Student	51,747.12	2,585.00	.....	2,200.00	52,132.12
504	Jonathan Bourne	10,943.32	545.00	.....	500.00	10,988.32
505	Albert G. Boyden	580,772.94	29,040.00	$106.84	21,882.00	588,037.78
506	Harriet L. Brown	7,659.88	385.00	.....	350.00	7,694.88
508	Nino Tesher Catlin	1,054.09	55.00	.....	50.00	1,059.09
511	Lucius Clapp	5,218.65	260.00	.....	200.00	5,278.65
513	Class of 1896	†6,161.15	310.00	110.00	250.00	†6,331.15
514	Class of 1909	1,073.65	55.00	502.86	.....	1,631.51
515	Lucretia Crocker	79,614.71	3,980.00	.....	3,475.00	80,119.71
517	Isaac W. Danforth	5,473.55	275.00	.....	200.00	5,548.55
520	Ann White Dickinson	42,661.43	2,135.00	.....	1,900.00	42,896.43
521	Thomas M. Drown	53,185.16	2,660.00	.....	2,400.00	53,445.16
524	Farnsworth	5,662.61	285.00	.....	250.00	5,697.61
526	Charles Lewis Flint	5,671.41	285.00	.....	250.00	5,706.41
527	Sarah S. Forbes	3,780.71	190.00	.....	150.00	3,820.71
529	Fuel and Gas Scholarship	350.00	.....	.....	350.00	.....
531	George Hollingsworth	5,264.41	265.00	.....	200.00	5,329.41
533	T. Sterry Hunt	3,302.14	165.00	.....	125.00	3,342.14
534	William F. Huntington	5,432.56	270.00	.....	225.00	5,477.56

[1] See alphabetical listing and description of Funds on pages 189–201.
† Exclusive of student notes receivable. (See Schedule P.)

[1]Schedule M (*Continued*)

No.		*Funds, June 30, 1936*	*Investment Income*	*Other Receipts*	*Expended or Transferred*	*Funds, June 30, 1937*
536	Joy Scholarships	$17,718.82	$885.00	.....	$750.00	$17,853.82
538	William Litchfield	5,521.55	275.00	.....	225.00	5,571.55
539	Elisha T. Loring	5,531.34	275.00	.....	225.00	5,581.34
541	Lowell Institute Scholarship	2,754.59	140.00	.....	100.00	2,794.59
542	Rupert A. Marden	2,075.12	105.00	.....	90.00	2,090.12
543	George Henry May	†8,600.95	435.00	$100.00	800.00	†8,335.95
545	James H. Mirrlees	2,747.74	135.00	.....	100.00	2,782.74
547	Nichols Scholarship	5,524.39	275.00	.....	250.00	5,549.39
548	Charles C. Nichols	5,521.84	275.00	.....	250.00	5,546.84
550	John Felt Osgood	5,391.14	270.00	.....	250.00	5,411.14
551	George L. Parmelee	19,095.46	955.00	.....	800.00	19,250.46
552	Richard Perkins	54,429.49	2,720.00	.....	2,400.00	54,749.49
553	Thomas Adelbert Read	22,160.28	1,110.00	.....	1,000.00	22,270.28
554	John Roach	.....	40.00	3,000.00	.....	3,040.00
555	William P. Ryan Memorial	3,836.78	195.00	48.45	.....	4,080.23
556	John P. Schenkl	47,296.85	2,365.00	.....	2,100.00	47,561.85
557	Thomas Sherwin	5,494.50	275.00	.....	250.00	5,519.50
558	Horace T. Smith	34,183.85	1,710.00	.....	1,500.00	34,393.85
559	Sons and Daughters New England Colony	633.52	30.00	.....	25.00	638.52
560	Samuel E. Tinkham	2,477.64	125.00	.....	100.00	2,502.64
562	F. B. Tough	†369.47	20.00	110.16	.....	†499.63
563	Susan Upham	1,193.09	60.00	.....	50.00	1,203.09
565	Vermont Scholarship	18,293.06	1,265.00	7,000.00	700.00	25,858.06
567	Ann White Vose	62,850.29	3,145.00	.....	2,800.00	63,195.29
569	Arthur M. Waitt	10,499.81	525.00	.....	450.00	10,574.81
571	Louis Weissbein	4,402.40	220.00	.....	200.00	4,422.40
573	Frances Erving Weston	6,241.37	639.18	.....	.....	6,880.55
574	Samuel Martin Weston	5,022.54	450.00	.....	.....	5,472.54
576	Amasa J. Whiting	4,844.57	240.00	.....	200.00	4,884.57
577	Elizabeth Babcock Willmann	5,302.01	265.00	.....	175.00	5,392.01
		$1,250,285.60	$63,429.18	$10,978.31	$50,997.00	$1,273,696.09

Funds for Prizes

581	Robert A. Boit	$5,187.55	$260.00	.....	$240.00	$5,207.55
583	Class of 1904	600.17	30.00	.....	15.00	615.17
585	Roger Defriez Hunneman	1,017.59	50.00	.....	50.00	1,017.59
587	James Means	3,295.49	165.00	.....	131.15	3,329.34
589	Arthur Rotch	7,040.64	350.00	.....	200.00	7,190.64
591	Arthur Rotch, Special	10,250.52	515.00	.....	200.00	10,565.52
593	Samuel W. Stratton	1,772.15	100.00	.....	108.55	1,763.60
		$29,164.11	$1,470.00	.....	$944.70	$29,689.41

[1] See alphabetical listing and description of Funds on pages 189–201.
† Exclusive of student notes receivable (See Schedule P.)

[2]Schedule M (*Continued*)

No.		*Funds, June 30, 1936*	*Investment Income*	*Other Receipts*	*Expended or Transferred*	*Funds, June 30, 1937*
	FUNDS FOR RELIEF					
601	Edward Austin	$442.230.98	$22,110.00	.....	$20,000.00	$444,340.98
603	Thomas Wendell Bailey	2,704.52	135.00	.....	100.00	2,739.52
604	[1]Charles Tidd Baker	30,641.79	1,530.00	.....	650.00	31,521.79
606	Levi Boles	11,093.22	555.00	.....	500.00	11,148.22
608	Bursar's Fund	†11,228.02	650.00	$3,791.80	915.00	†14,754.82
610	Mabel Blake Case	27,238.70	1,360.00	.....	1,200.00	27,398.70
611	Chandler	4,511.96	225.00	.....	.....	4,736.96
612	Fred L. and Florence L. Coburn	5,201.82	260.00	.....	200.00	5,261.82
614	Coffin Memorial	42,087.50	2,291.00	.....	2,133.50	42,245.00
616	Dean's Fund	†4,585.52	235.00	718.59	790.54	†4,748.57
618	Carl P. Dennett	†755.01	40.00	1.00	.....	†796.01
620	Dormitory Fund	4,028.14	200.00	.....	150.00	4,078.14
621	Frances and William Emerson	†101,117.77	5,055.00	50.00	4,525.00	†101,697.77
623	Norman H. George	95,080.06	4,755.00	.....	4,200.00	95,635.06
625	John A. Grimmons	†6,450.78	250.00	2,811.34	5,000.00	†4,512.12
62	James H. Haste	182,187.15	9,110.00	.....	8,000.00	†183,297.15
629	David L. Jewell	26,360.17	1,320.00	.....	1,100.00	26,580.17
630	Llora Culver Krueger	5,639.97	280.00	.....	500.00	5,419.97
631	William B. Rogers	†34,675.79	1,825.00	3,394.30	857.74	†39,037.35
632	Summer Surveying Camp	†1,704.53	75.00	156.05	340.00	†1,595.58
634	Teachers' Fund	122,903.85	6,025.00	.....	9,800.00	119,128.85
635	[3]Technology Loan Fund	.....	7,703.10	966,295.03	13,559.48	†960,438.65
637	Alice Brown Tyler	.....	20.00	1,000.00	.....	1,020.00
638	Samson R. Urbino	1,085.82	55.00	.....	45.00	1,095.82
639	Jonathan Whitney	611,342.28	24,483.84	3,279.53	29,650.91	609.454.74
640	Morrill Wyman	72,735.17	3,645.00	200.00	3,200.00	73,380.17
		$1,847,590.52	$94,192.94	$981,697.64	$107,417.17	$2,816,063.93

RECAPITULATION OF FUNDS

FOR GENERAL PURPOSES					
Restricted	$25,583,044.41	$1,288,325.97	$537,934.60	$1,287,612.37	$26,121,692.61
Unrestricted	525,567.03	25,145.00	5,875.00	155,597.69	400,989.34
FOR DESIGNATED PURPOSES					
Special Deposit Funds	701,219.13	133,503.29	1,437,627.78	682,148.38	1,590,201.82
Salaries	150,890.91	7,545.00	12,441.27	7,545.00	163,332.18
Libraries, etc.	180,037.90	9,010.00	2,060.00	6,702.89	184,405.01
Departments	1,694,523.76	82,374.76	49,506.16	94,287.46	1,732,117.22
Research	160,260.89	9,065.00	58,101.58	18,948.48	208,478.99
Fellowships	202,644.49	9,090.00	3,250.00	9,896.00	205,088.49
Scholarships	1,250,285.60	63,429.18	10,978.31	50,997.00	1,273,696.09
Prizes	29,164.11	1,470.00	.....	944.70	29,689.41
Relief	1,847,590.52	94,192.94	981,697.64	107,417.17	2,816.063.93
Total	$32,325,228.75	$1,723,151.14 (Schedule B)	$3,099,472.34 (Schedule B)	$2,422,097.14	$34,725,755.09 (Schedule D)

[1] One-half of the income added to the principal.
[2] See alphabetical listing and description of Funds on pages 189–201.
[3] Transferred to M. I. T. on March 1, 1937.
† Exclusive of student notes receivable. (See Schedule P.)

SCHEDULE P

STUDENT NOTES RECEIVABLE

Fund	*Notes Receivable June 30, 1936*	*Loans Made 1936–37*	*Loans Repaid 1936–37*	*Notes Receivable June 30, 1937*	*Interest Received 1936–37*
Technology Loan Fund...	$714,360.02	$119,054.50	$95,171.82	$738,242.70	$15,970.74
Bursar's Fund.....	12,586.50	915.00	*3,698.98	9,802.52	171.82
Rogers Fund.....	9,289,62	.....	2,851.19	6,438.43	600.37
Dean's Fund.....	2,673.56	790.00	705.00	2,758.56	13.05
C.E. Summer Camp Fund	250.00	340.00	150.00	440.00	6.05
Grimmons Sch. Loan Fund	1,587.00	.....	167.00	1,420.00	19.91
Dennett Fund.....	665.00	.....	.....	665.00	1.00
Dean's Special Fund	200.00	.....	50.00	150.00	.83
G. H. May Sch. Fund....	2,750.00	800.00	100.00	3,450.00	.....
F. B. Tough Fund.....	200.00	.....	100.00	100.00	10.16
Hygiene Special Fund....	3,784.58	115.00	120.75	3,778.83	11.80
Class of 1898 Fund	400.00	.....	100.00	300.00	8.84
Class of 1896 Fund	500.00	250.00	.....	750.00	.....
Emerson Fund.....	600.00	.....	50.00	550.00	.....
Chemical Engineering Fund	540.49	.....	48.45	492.04	.....
C. W. Eaton Fund.....	600.00	.....	.....	600.00	.....
Total.....	$750,986.77	$122,264.50	$103,313.19	$769,938.08	$16,814.57

(Schedule D)

* Includes $99.00 written off — deceased borrower.

SCHEDULE R
CURRENT FUNDS

Name	Balance June 30, 1936	Income	Other Increases or Transfers	Expenditures from Income or Balances	Other Expenditures or Transfers	Balance June 30, 1937
Additional Group Ins. Fund	$13.97	$4,699.03	.....	$4,948.20	.....	*$235.15
Aeronautical Engineering						
Flying Instruction.....	.....	.....	[1]$479.52	.....	$479.52	.....
Bur. of Agi. Res.	.....	1,700.00	.....	1,926.25	.....	*226.25
Summer Shop Course ..	485.99	.....	[1]400.00	226.50	.....	659.49
Wind Tunnels.....	4,091.82	3,522.50	.....	2,192.90	.....	5,421.42
Alcohol Res. No. 1175..	.....	.....	[2]2,000.00	648.63	480.00	871.37
No. 1282 New Wind Tun.	.....	.....	.....	3,123.98	.....	*3,123.98
Wind Tun.Equip.No.1158	425.07	.....	.....	292.68	.....	132.39
Aircraft Structures Res.	*1.55	293.98	[2]206.02	292.43	206.02	.....
Hurricane Res.....	5,290.30	.....	[1]2,500.00	3,393.84	4,671.00	*274.54
Alumni Day 1937.....	.....	4,108.00	[1]1,000.00	3,315.45	1,000.00	792.55
Architecture:						
Travel. Scholarship	.....	.....	[2]1,500.00	.....	1,500.00	.....
Special No. 1095.....	3,222.24	.....	[2]5,000.00	5,805.16	5,000.00	*2,582.92
Special No. 1095A.....	.....	.....	.....	1,169.72	.....	*1,169.72
No. 1205.....	.....	.....	[1]370.00	.....	370.00	.....
Biology — Food Research.	2,836.82	.....	[1]2,000.00	126.06	.....	4,710.76
Ayer Company Research	*621.33	2,598.08	.....	3,013.13	.....	*1,036.38
Biocinema Research....	1,670.57	.....	.....	83.05	.....	1,587.52
Alba Research.....	1,974.24	800.00	.....	223.25	1,600.00	950.99
Health Education.....	580.36	512.52	.....	223.10	.....	869.78
Special Research.....	4,897.58	900.00	.....	1,141.56	800.00	3,856.02
Rock. Vitamin Res.....	.....	5,000.00	.....	3,119.37	1,800.00	80.63
Rockefeller Research...	354.38	.....	[2]36.07	354.38	36.07	.....
Nat. Res. Council Grant 146.....	.....	840.00	.....	712.02	.....	127.98
Special No. 1255.....	.....	.....	[1]400.00	.....	400.00	.....
Boat House Equipment ..	1,282.85	849.25	.....	1,775.49	.....	356.61
Building Key Account....	2,986.76	1,216.00	.....	989.43	.....	3,213.33
Bus. and Eng. Administration:						
Case Research Account.	307.89	300.00	.....	358.37	.....	249.52
Graduate Fellow. Fund.	276.18	.....	.....	17.31	.....	258.87
Sloan Fellowship Fund..	.....	25,000.00	.....	.....	.....	25,000.00
J. R. Macomber Fund ..	.....	250.00	.....	245.99	.....	4.01
Special No. 1214.....	.....	.....	[1]300.00	.....	300.00	.....
Carnegie Pension Account.	*4,699.89	58,747.15	.....	58,850.46	.....	*4,803.20
Catalogue 1937.....	.....	.....	[1]6,000.00	.....	13.50	5,986.50
Chemistry:						
Special No. 1260.....	.....	.....	[2]2,000.00	.....	.....	2,000.00
Nat. Res. Council Grant	166.68	500.00	.....	500.00	.....	166.68
Special No. 1156.....	134.22	.....	[2]4.53	134.22	4.53	.....
Special Res., Gilfillan ..	25.07	.....	.....	17.90	.....	7.17
Rockefeller Research...	4,938.75	.....	.....	2,182.90	.....	2,755.85
Special, No. 1065.....	194.75	.....	.....	166.00	.....	28.75
Salary Account.....	*36.41	3,585.51	.....	214.73	3,800.00	*465.63
Chemical Cellulose Res..	.....	.....	.....	1,348.57	6,000.00	*7,348.57
Res.Lab.Phys.Chem.Royal	594.93	.....	.....	.....	.....	594.93

* Overdraft.
[1] Appropriation from Current Income.
[2] By Transfer.

Schedule R (*Continued*)

Name	Balance June 30, 1936	Income	Other Increases or Transfers	Expenditures from Income or Balances	Other Expenditures or Transfers	Balance June 30, 1937
Chem. Eng.: Spec. Equip..	$1,000.00	.....	.....	.....	.....	$1,000.00
Fuels Res.....	3,129.26	.....	.....	.....	.....	3,129.26
Special, No. 1145.....	102.63	.....	.....	$8.26	$94.37	.....
No. 1207.....	.....	.....	[1-2]$2,494.37	.....	1,615.97	878.40
Civil Engineering:						
Soil Mechanics.....	724.47	.....	[1]800.00	254.44	800.00	470.03
Spec. No.1056,Chem. Res.	2,014.30	$395.00	.....	2,244.53	.....	164.77
Carlson Spec. Res.	.....	275.49	.....	275.49	.....	.....
River Hydraulic Lab....	98.97	.....	[2]1,000.00	.....	506.66	592.31
No. 913.....	769.89	.....	[2]1,077.41	.....	895.38	951.92
No. 1068.....	1,122.41	.....	.....	785.45	.....	336.96
U.S. Cape Cod. Can. Res.	*802.54	1,617.50	.....	721.61	.....	93.35
Cosmic Terr. Res.	.....	6,800.00	.....	4,915.23	.....	1,884.77
Crafts Library Fund.....	543.99	50.00	.....	154.05	.....	439.94
Dean's Special Fund.....	210.27	50.83	.....	.....	.....	†261.10
Dining Service Reserve...	*3,757.64	9,016.98	.....	579.42	885.39	3,794.53
Div. of Indus. Co-operation	*248.18	73,659.59	[2]11,057.53	73,411.41	11,057.53	.....
Dormitory Board, Special.	100.00	.....	.....	.....	100.00	.....
Economics and Soc. Science						
No. 1172.....	.....	.....	[1]700.00	.....	700.00	.....
Electrical Engineering:						
A. E. I. C. Res.	2,923.99	8,500.00	.....	3,048.56	5,160.10	3,215.33
VI-A Fund.....	417.07	.....	[1]1,000.00	.....	916.71	500.36
Revision of Curriculum	.....	.....	[1]1,200.00	.....	1,200.00	.....
Fog Research — Navy .	*2,851.26	6,750.00	[2]196.00	5,349.37	4,996.00	*6,250.63
Network Analyzer.....	2,667.50	4,769.57	.....	1,902.87	750.00	4,784.20
Rockefeller Research...	468.13	.....	.....	144.53	.....	323.60
Spec. Res.— Timoshenko	384.77	.....	.....	196.38	.....	188.39
Round Hill.....	128.27	.....	[2]140.11	23.61	.....	244.77
Carnegie Cosmic Ray ..	91.83	324.27	.....	15.00	.....	401.10
Account 4133.....	6,242.28	.....	[2]100.00	435.36	5,600.00	306.92
Differential Analyzer...	165.56	.....	[1]2,400.00	45.36	2,400.00	120.20
Differential Anal. Spec..	.....	.....	[2]510.20	.....	510.20	.....
Blind Landing Res.....	.....	.....	.....	114.40	.....	*114.40
High Frequency Research	903.18	.....	400.00	.....	1,300.00	3.18
Res.Corp.High Volt. Res.	251.75	1,250.00	.....	1,352.42	.....	149.33
Res.Corp.Dust Pre.Acct.	*203.35	597.45	.....	394.10	.....	.....
Rock. Diff. Anal., No. 1.	29.51	.....	.....	29.51	.....	.....
Rock. Diff. Anal., No. 2.	*299.97	26,852.60	.....	15,898.13	5,700.00	4,954.50
Rock.Diff.Anal.,No. 1178	*1,974.95	.....	[1-2]2,051.53	.....	76.58	.....
Rock.Diff.Anal.,No. 1176	3,405.33	.....	.....	2,444.20	.....	961.13
Special, No. 1102.....	40.90	.....	.....	40.90	.....	.....
Special, No. 1122.....	122.61	.....	.....	.....	122.61	.....
Special, No. 1182.....	*16.36	.....	[1]1,200.00	.....	1,164.17	19.47
Special, No. 1209.....	.....	.....	[1-2] 500.61	.....	500.61	.....
Special, No. 1240.....	.....	.....	[1-2]1,009.05	.....	900.98	108.07
Special, Nos. 1219, 1275.	.....	.....	[1]800.00	.....	676.57	123.43
Special, No. 1250.....	.....	.....	[1]9,200.00	.....	1,653.56	7,546.44
Eng. Council for Prof. Dev.	*1,194.61	3,139.58	.....	2,028.11	.....	*83.14
Engineering Research	584.04	.....	[2]88.23	.....	.....	672.27

* Overdraft.
[1] Appropriation from Current Income.
[2] By Transfer.
† Exclusive of student notes receivable. (See Schedule P.)

Schedule R (*Continued*)

Name	Balance June 30, 1936	Income	Other Increases or Transfers	Expenditures from Income or Balances	Other Expenditures or Transfers	Balance June 30, 1937
Eng. Res. special—Lamar.	$88.23	.....	.....	.....	$88.23	.....
Eng. Res. special—Wulff..	126.00	.....	.....	.....	126.00	.....
Genrado Trust.....	.....	$9,460.00	.....	.....	900.00	$8,560.00
Geology, Rockefeller Res..	2,492.60	.....	.....	$1,267.36	.....	1,225.24
Special, No. 1287	.....	.....	[1]$300.00	.....	300.00	.....
No. 913.....	40.70	.....	.....	.49	.....	40.21
Special No. 1228.....	.....	.....	[1-2]1,440.48	.....	1,440.48	.....
Special No. 1134.....	173.57	.....	.....	173.57	.....	.....
Special No. 1060.....	2,402.69	.....	.....	1,917.96	.....	484.73
Special No. 1246.....	.....	.....	[1]5,974.00	.....	240.48	5,733.52
Spectrograph Account..	.....	3,440.00	.....	400.00	.....	3,040.00
Glass Industry Fellowship	.....	2,000.00	.....	.....	1,000.00	1,000.00
Graphic Arts Acct.....	14.97	.....	.....	.....	14.97	.....
Historic Memorials	334.18	.....	.....	68.17	.....	266.01
Housing Research	.....	.....	[2]1,000.00	200.00	.....	800.00
Hygiene Dept. Special....	†1,508.63	144.55	.....	130.50	.....	†1,522.68
Hygiene X-Ray Machine .	.....	2,917.00	.....	2,917.00	.....	.....
Jour.of Math. and Physics.	698.66	363.19	[1]2,000.00	.....	1,118.72	1,943.13
Keyes-Keenan Steam Table	327.55	2,300.00	.....	2,106.32	.....	521.23
A.D.Little Mem.Inc.Acct..	.....	17,689.75	.....	.....	.....	17,689.75
Library, Special No. 1....	182.23	32.50	.....	78.07	.....	136.66
No. 1123.....	.....	.....	[2]300.00	.....	300.00	.....
No. 1011.....	61.48	.....	.....	61.48	.....	.....
Magnetic Research	.....	375.00	.....	.....	.....	375.00
Maclaurin Bio., No. 1245..	.....	.....	[1]2,100.00	.....	1,050.00	1,050.00
Mathematics, No. 1256...	.....	.....	[1]475.00	.....	50.40	424.60
Mechanical Engineering No. 1274.....	.....	.....	[2]3,310.00	.....	622 84	2,687.16
Heat Engine Research..	7,449.19	.....	.....	4,379.28	.....	3,069.91
No. 1254.....	.....	.....	[1]1,000.00	.....	427.15	572.85
No. 1069.....	712.70	.....	[2]342.33	712.70	342.33	.....
No. 1177	1,000.00	.....	.....	706.91	.....	293.09
Quoddy Project	353.92	2,876.50	.....	2,264.56	.....	965.86
Torsiograph Acct.	*3,346.99	5,450.00	[2]754.78	2,344.31	754.78	*241.30
No. 1099 Air Cond.....	2,011.71	.....	.....	522.45	1,600.00	*110.74
A.S.M.E. Gear Res.....	.....	525.00	.....	175.00	.....	350.00
Applied Mech. Journal..	.....	.....	[1]250.00	.....	250.00	.....
Nat. Aero. W., No. 371.	*877.28	.....	.....	322.72	300.00	*1,500.00
Nat. Aero. W., No. 372.	*488.30	.....	.....	1,675.70	.....	*2,164.00
Nat. Aero. W., No. 373.	*366.25	1,000.00	.....	633.75	.....	.....
Nat. Aero. W., No. 378.	*4.86	.....	.....	1,214.29	.....	*1,219.15
Nat. Aero. W., No. 420.	.....	.....	.....	53.55	750.00	*803.55
Nat. Aero. W., No. 464.	.....	.....	.....	232.35	.....	*232.35
Nat. Aero. W., No. 465.	.....	.....	.....	264.12	.....	*264.12
Nat. Aero. W., No. 472.	.....	.....	.....	254.30	.....	*254.30
Navy Vibration Res.,No.2.	*7,816.84	3,000.00	[2]220.00	4,052.66	3,040.00	*11,689.50

* Overdraft.
[1] Appropriation from Current Income.
[2] By Transfer.
† Exclusive of student notes receivable. (See Schedule P.)

Schedule R (*Continued*)

Name	*Balance June 30, 1936*	*Income*	*Other Increases or Transfers*	*Expenditures from Income or Balances*	*Other Expenditures or Transfers*	*Balance June 30, 1937*
Mining Engineering:						
Special, No. 1259	.....	.....	[2]$1,057.75	.....	.....	$1,057.75
Special, No. 1129	$4,900.00	.....	[2]126.00	$3,822.95	.....	1,203.05
Ore Dressing	29.98	$90.00	[2]2.81	56.45	.....	66.34
Special, No. 1242	.....	.....	[1]820.00	.....	$820.00	.....
Special, No. 1234	.....	1,000.00	[1]1,200.00	.....	.....	2,200.00
Special, No. 1235	.....	.....	[1]552.50	.....	552.50	.....
Penrose Fund	.....	300.00	.....	398.06	.....	*98.06
Moore Lecture Fund	.....	.....	[2]400.00	.....	312.50	87.50
Motion Study Course	441.87	.....	.....	200.00	241.87	.....
Nuclear Research	*1,535.62	1,250.00	[1]17,000.00	3,104.05	15,464.38	*1,854.05
Placement Committee Fund	240.39	.....	.....	78.88	.....	161.51
Photographic Service	957.45	35,890.71	[2]1,920.00	31,378.83	6,375.45	1,013.88
Physics Department, Special	37.56	.....	.....	33.75	.....	3.81
Am. Phil. Soc. Research	*133.67	150.00	[2]26.16	16.33	26.16	.....
Roentgen Ray	932.26	.....	.....	700.00	.....	232.26
Hale Spectroscopic Fund	1,486.20	.....	.....	600.00	.....	886.20
Rockefeller Res. Fund	570.00	.....	.....	570.00	.....	.....
Perm. Science Fund	500.00	.....	.....	500.00	.....	.....
Rockefeller Special Res.	25.39	2,174.61	.....	519.45	1,200.00	480.55
Special, No. 1281	.....	.....	[1]114.00	.....	89.15	24.85
Rumford Grant, Harrison No. 1	278.62	.....	.....	278.62	.....	.....
Rumford Grant, Harrison No. 2	122.32	.....	.....	122.32	.....	.....
Rumford Grant, Harrison No. 3	.....	400.00	.....	367.78	.....	32.22
Rumford Grant, Hardy	203.32	.....	.....	82.60	.....	120.72
Rumford Grant, Stockbarger	16.37	400.00	.....	12.29	.....	404.08
Rumford Grant, Evans No. 1	300.00	.....	.....	137.70	.....	162.30
Rumford Grant, Evans No. 2	.....	500.00	.....	410.35	.....	89.65
No. 916	69.19	.....	.....	69.19	.....	.....
No. 1113	*362.27	.....	[1]1,500.00	.....	1,137.73	.....
Crystal Res.	.....	658.09	.....	498.35	.....	159.74
Nat. Res. Council Grant, No. 151	.....	1,000.00	.....	499.28	.....	500.72
Spectroscopy Special, Harrison	.....	757.75	[2]1,500.00	.....	1,379.18	878.57
Special Research—Boyce	268.60	.....	.....	50.05	.....	218.55
Special, No. 1184	.....	.....	[1]1,000.00	.....	900.00	100.00
WPA Project	.....	.....	[1]1,268.00	.....	1,268.00	.....
President's Special Fund	10.93	.....	.....	.....	10.93	.....
President's Fund	.....	.....	[1,2]5,010.93	.....	4,221.77	789.16
R.O.T.C. Uniform and Subsistence Accounts	513.43	10,050.07	.....	10,088.53	.....	474.97
Research Assoc. of M.I.T.	4,799.49	47,529.13	.....	2,931.00	48,425.00	972.62
Society of Arts	.....	.....	[2]2,282.06	.....	2,282.06	.....
Sailing Pavilion	.....	2,644.00	[1,2]7,096.43	2,644.00	7,096.43	.....

* Overdraft.
[1] Appropriation from Current Income.
[2] By Transfer.

Schedule R (*Continued*)

Name	*Balance June 30, 1936*	*Income*	*Other Increases or Transfers*	*Expenditures from Income or Balances*	*Other Expenditures or Transfers*	*Balance June 30, 1937*
Sailing Trophy Fund	.....	$275.00	.....	.....	.....	$275.00
Silver Research	.....	1,500.00	.....	$11.12	.....	1,488.88
Salaries Reserve	.....	.....	[2]$13,669.19	.....	$13,669.19	.....
Special, No. 1136	.....	.....	[1]1,746.42	.....	1,746.42	.....
Special, News Bulletin	.....	.....	[1]600.00	.....	600.00	.....
Special, Publicity	.....	.....	[1]1,763.34	.....	1,763.34	.....
Special, No. 1174	.....	.....	[2]10,175.00	.....	9,945.34	229.66
Special, No. 1191	.....	.....	[1]314.41	.....	314.41	.....
Special, No. 1197	.....	.....	[1]300.00	.....	155.42	144.58
Special, No. 1079 — Hardy	$985.00	.....	.....	985.00	.....	.....
Special, No. 1199	.....	.....	[2]475.00	457.50	17.50	.....
Special, No. 1097	225.00	.....	.....	225.00	.....	.....
Special, No. 1104 C & B	423.40	.....	.....	162.56	260.84	.....
Special, No. 1202	.....	.....	[1]2,729.96	.....	2,729.96	.....
Special, No. 1204	.....	.....	[1]10,566.00	.....	6,904.14	3,661.86
Special, No. 1212	.....	.....	[1-2]142.61	.....	142.61	.....
Special, No. 1217	.....	.....	[1]1,368.68	.....	1,368.68	.....
Special, No. 1222	.....	.....	[1]5,000.00	.....	1,595.74	3,404.26
Special, No. 1192	.....	.....	[1]600.00	.....	600.00	.....
Special, No. 1293	.....	4.00	[2]60,000.00	4.00	5,929.84	54,070.16
Special, No. 1166 High Speed Movies	498.17	411.65	.....	850.12	.....	59.70
Special, No. 1230	.....	.....	[2]1,106.95	.....	1,106.95	.....
Special, No. 1237	.....	.....	[2]39,085.00	.....	10,014.59	29,070.41
Special, No. 1147	1,085.00	.....	.....	1,026.37	58.63	.....
Special, No. 1238	.....	.....	[1]5,000.00	.....	1,866.20	3,133.80
Special, No. 1249	.....	4,798.00	[1]1,750.00	932.57	1,750.00	3,865.43
Special, No. 1263	.....	.....	.....	936.98	.....	*936.98
Special, No. 1280	.....	.....	[1]500.00	.....	52.00	448.00
Special, No. 1294	.....	.....	.....	1,520.66	.....	*1,520.66
Special Research, No. 366	.....	4,500.00	.....	5,093.87	.....	*593.87
Suspense Accounts	1,139.49	.....	[2]7,731.85	317.35	6,004.37	2,549.62
Tech Loan Fund Committee	250.00	13,966.00	[2]130,698.67	13,966.00	130,948.67	.....
Tech Loan Fund—Interest	3,282.73	.....	[2]15,970.74	.....	19,253.47	.....
Tech Loan Fund—Prin.	30,239.38	.....	[2]95,171.82	.....	125,411.20	.....
Technology Press	1,033.89	.57	.....	1,034.46	.....	.....
Textile Found., Special Res.	104.37	1,950.00	.....	2,054.37	.....	.....
Undergraduate Dues	102.14	.....	[1]19,001.50	.....	19,039.10	64.54
Visual Education Account	45.06	.....	.....	28.50	.....	16.56
Walker Memorial Library	247.03	.....	[1-2]3,451.50	.....	3,436.93	261.60
Water Cooler Research	*240.00	3,734.79	.....	2,774.79	738.00	*18.00
Totals	$109,857.25	$446,978.79	$553,383.05	$341,627.33	$552,687.06	$215,904.70
		(Schedule B)		(Schedule C)		(Schedule D)

* Overdraft.
[1] Appropriation from Current Income.
[2] By Transfer.

SCHEDULE S

Current Deficit

Deficit, June 29, 1936	$16,314.86
Net Decrease (Schedule A)	17,028.22
Surplus, June 30, 1937 (Schedule D)	$713.36

Profit and Loss Account

Losses and Charges:

Students' Accounts charged off	$516.93
Appropriation Adjustment, Foster Fund	10,000.00
Total	$10,516.93

Gains and Credits:

Premium Refund Account Vault Insurance	$368.91
Dining Service Refund	885.39
Miscellaneous Credits	1,137.13
Total	$2,391.43
Net Loss (Schedule A)	$8,125.50

THE ENDOWMENT FUNDS OF THE INSTITUTE

(Alphabetically listed — see listing by groups on pages 175–181 with corresponding reference numbers, showing transactions during the year and balances as of June 30, 1937.)

212 ALBERT FUND, 1930, 1933, 1935, $17,500. Gifts from anonymous donor to pay eight years rental of M. I. T. Student House on Bay State Road, Boston.

214 ALPHA CHI SIGMA HOUSE FUND (Alpha Zeta Chapter), 1935, $2,340.96. Deposited for investment purposes only.

216 ANONYMOUS, 1924, $1,052.50. Gift of member of Class of 1924 to accumulate until twenty-fifth reunion of Class in 1949.

101 GEORGE ROBERT ARMSTRONG FUND, 1902, $5,000. Bequest of George W. Armstrong in honor of son. Income available for general purposes of the Institute.

501 ELISHA ATKINS SCHOLARSHIP FUND, 1894, $5,000. Bequest of Mary E. Atkins.

401 WILLIAM PARSONS ATKINSON FUND, 1918, $13,000. Bequest of Charles F. Atkinson as a memorial to father — for English Department of the Institute.

601 EDWARD AUSTIN FUND, 1899, $400,000. Bequest. Interest paid to needy, meritorious students and teachers to assist in payment of studies.

603 THOMAS WENDELL BAILEY FUND, 1914, $2,200. Bequest. Income used for rendering assistance to needy students in Department of Architecture.

604 CHARLES TIDD BAKER FUND, 1922, $20,000. Bequest. One-half of net income for assistance of poor and worthy students and one-half to principal.

175 EDMUND DANA BARBOUR FUND, 1926, $847,000. Bequest. Principal and income for general purposes of Institute. Over $700,000 used for buildings and equipment.

321 WALTER S. BARKER FUND, 1927, $10,000. Bequest. Income only available for purposes of the Library.

220 BASKET BALL FUND. Excess receipts from Eastern Massachusetts basket ball competitions held for account of M. I. T. A. A. for investment purposes only.

222 BESS BIGELOW FUND, 1936, $10,000. Anonymous donation for special purposes subject to approval of President.

503 BILLINGS STUDENT FUND, 1900, $50,000. Bequest of Robert C. Billings. Students receiving benefit are expected to abstain from use of alcohol or tobacco in any form.

103 GEORGE BLACKBURN MEMORIAL FUND, 1931–1936, $907,000. Bequest of Harriette A. Nevins. Income for general purposes.

581 ROBERT A. BOIT FUND, 1921, $5,000. Bequest. Income to stimulate students' interest in best use of English Language through annual prizes or scholarships.

403 FRANK WALTER BOLES MEMORIAL FUND, 1915, $25,200. Under agreement between Harriet A. Henshaw and M. I. T., income paid to committee of Department of Architecture, to purchase fine arts material and to supplement and strengthen instruction in architectural design.

606 LEVI BOLES FUND, 1915, $10,000. Bequest of Frank W. Boles in memory of father. Income for assistance of needy and deserving students.

463 WILLIAM SUMNER BOLLES FUND, 1924, $9,400. Bequest of William P. Bolles in memory of son, to maintain either fellowship, traveling scholarship or resident scholarship. Recipient to have character, ability or promise.

504 JONATHAN BOURNE FUND, 1915, $10,000. Bequest of Hannah B. Abbe. Income to aid deserving students.

505 ALBERT G. BOYDEN FUND, 1931–37, $580,772. Bequest. Estate of Elizabeth R. Stevens. Income for scholarships. Preference to students from Fall River and Swansea, Mass.

506 HARRIET L. BROWN FUND, 1922, $6,000. Bequest. Income to needy and deserving young women students, as would otherwise be unable to attend. In case two or more applicants of equal merit, preference given to native of either Massachusetts or New Hampshire.

464 MALCOLM COTTON BROWN FUND, 1919, $11,000. Under agreement between Caroline Cotton Brown, Charles A. Brown and M. I. T., to establish memorial to son, Lieutenant Brown, R. A. F., killed in service 1918, for advanced study and research in Physics.

608 BURSAR'S FUND, 1907, $6,000. Bequest of Lyman S. Rhoads. Income and repayments used for loans to students in discretion of Bursar, subject to approval of President and Treasurer.

443 SAMUEL CABOT FUND, 1912, $50,000. Gift of Helen N. Cabot in honor of husband. Income for purchase of apparatus and supplies required in conduct of research in Industrial Chemistry.

610 MABEL BLAKE CASE FUND, 1920, $25,000. Bequest of Caroline S. Freeman. Income to aid deserving students (preferably women) who are in need of assistance.

508 NINO TESHER CATLIN FUND, 1926, $1,000. Gift of Maria T. Catlin in memory of son. Income for needy and deserving students — not a condition but if possible award to be made to member of Lambda Phi Fraternity.

405 WILLIAM E. CHAMBERLAIN FUND, 1917–19, $6,000. Bequest. Income used for Department of Architecture.

611 CHANDLER FUND, 1927–36, $4,511. Gift from Architectural Society. A loan fund to be administered by Head of Architectural Department.

407 CHEMICAL ENGINEERING PRACTICE FUND, 1915–16, $300,000. Gift of George Eastman for Chemical Engineering Stations provided Institute will carry forward this plan of education for a reasonable period.

323 EDNAH DOW CHENEY FUND, 1905–06, $13,900. Bequest. Income for maintenance and care of Margaret Cheney Room for women students.

105 CHARLES CHOATE FUND, 1906–21, $35,800. Bequest. Income for general purposes.

325 FRANK HARVEY CILLEY FUND, 1913, $57,700. Bequest. Income and such part of principal as necessary for purchase of suitable books, photographs, statuary, etc., for library and gymnasium of Walker Memorial.

511 LUCIUS CLAPP FUND, 1905, $4,900. Bequest. Income to worthy students who may not be able to complete their studies without help.

266 CLASS OF 1917. SPECIAL, 1937, $100. For deposit only.

273 CLASS OF 1874 FUND, 1934, $180. Held subject to use by Class of 1874.

513 CLASS OF '96 FUND, 1923, $2,272. Gift. Award subject to approval of Class Secretaries. Preference to descendants of members of Class Scholarships to be considered a loan to be repaid when and if able.

270 CLASS OF 1898 FUND, $5,535. By subscription of certain members of class from 1927–1931. Income only for scholarship loans, as authorized by committee of class.

583 CLASS OF 1904 FUND, 1925, $392. Contributions received by Professor Gardner for Architectural Department prizes.

514 CLASS OF 1909 SCHOLARSHIP FUND. Being accumulated through contributions and from proceeds of life insurance policies. Principal to be invested, income available for scholarship aid with preference to direct descendants of members of Class of 1909.

268 CLASS OF 1934 FUND, SPECIAL. Held for investment purposes only.

225–239 inc.

CLASS FUNDS

Note: These funds are being accumulated for the several classes whose members took out life insurance toward a gift to the Institute on their Twenty-Fifth Reunions.

From certain of these, a portion may be applied in accordance with the terms of the several plans toward keeping alive policies that might lapse on account of non-payment or as otherwise designated.

301 SAMUEL C. COBB FUND, 1916, $36,000. Bequest. Income for salaries of President and professors.

612 FRED L. AND FLORENCE L. COBURN FUND, 1932, $5,000. Bequest. Income to aid needy and worthy students, preference being given to those residing in Somerville, Mass.

614 COFFIN MEMORIAL FUND, 1929, $35,000. Gift of the Estate of Charles A. Coffin. For loans or other aid to students as determined by Executive Committee.

466 COLLAMORE FUND, 1916, $10,000. Bequest of Helen Collamore. Income primarily to aid women students in post-graduate courses, secondarily, for purchase of instruments for Chemical Laboratory.

444 CRANE AUTOMOTIVE FUND, 1928, $5,000. Gift of Henry M. Crane. Reserved for purchase of further equipment for Aeronautical Laboratory when necessary.

515 LUCRETIA CROCKER FUND, 1916, $50,000. Bequest of Matilda H. Crocker. Income for establishment of scholarships for women in memory of sister.

409 CROSBY HONORARY FUND, 1916, $1,633. Contributions in honor of William Otis Crosby (Professor Emeritus). Income for upbuilding of the Geological Department, especially its collections.

468 DALTON GRADUATE CHEMICAL FUND, 1896, $5,000. Gift of Charles H. Dalton. Income for scholarships for American male graduates of M.I.T., for advanced chemical study and research — preference given to chemical research especially applicable to textile industries.

517 ISAAC W. DANFORTH FUND, 1903, $5,000. Bequest of James H. Danforth. Income for scholarship purposes as a memorial to brother.

176 N. LORING DANFORTH FUND, 1937, $5,000. Bequest. Principal and income for general purposes.

616 DEAN'S FUND, 1924, $3,350. Contributions. To be loaned by Dean to needy students.

618 CARL P. DENNETT FUND, 1926, $500. Gift. To be loaned to students, preferably Freshmen, at discretion of President.

520 ANN WHITE DICKINSON FUND, 1898, $40,000. Bequest. Income used to establish free scholarships. Such persons enjoying benefit shall be worthy young men of American origin.

620 DORMITORY FUND, 1903, $2,700. Contributions. Income for scholarship purposes.

411 SUSAN E. DORR FUND, 1914, $95,000. Bequest. Income for use and benefit of Rogers Physical Laboratory.

107 EBEN S. DRAPER FUND, 1915, $100,000. Bequest. Income used for general purposes of the Institute.

521 THOMAS MESSINGER DROWN FUND, 1928, $50,000. Bequest of Mary Frances Drown. Income to establish scholarships for deserving undergraduate students.

109 COLEMAN DU PONT FUND, 1931–1937, $211,000. Bequest. Income for support and maintenance of the Institute.

469 DU PONT DE NEMOURS FUND. For graduate scholarship in Chemical Engineering.

111 EASTMAN CONTRACT FUND, 1924, $9,500,000. Gift of George Eastman. Income for general purposes of the Institute.

113 GEORGE EASTMAN BUILDING FUND, 1916–17, $2,500,000. Gift of George Eastman on condition that $1,500,000 be raised by alumni and others. Balance to be used as needed for new educational buildings. $1,225,000 used for George Eastman Research Laboratories in 1932.

412 GEORGE EASTMAN FUND, 1918, $400,000. Gift of George Eastman. Income for Chemistry and Physics. Principal available for addition to EASTMAN BUILDING FUND after latter is exhausted.

115 CHARLES W. EATON FUND, 1929, $243,000. Bequest. Income for advancement of general purposes of Institute.

117 EDUCATIONAL ENDOWMENT FUND, 1920–21, $7,574,000. $4,000,000 gift from George Eastman and balance contributed by alumni and others. Income for current educational expenses.

119 MARTHA ANN EDWARDS FUND, 1890, $30,000. Gift. Income for general purposes.

621 FRANCES AND WILLIAM EMERSON FUND, 1930, $100,000. Gift. Income for aid of regular and special students in Department of Architecture.

121 WILLIAM ENDICOTT FUND, 1916, $25,000. Bequest. Income for general purposes.

210 ENDOWMENT RESERVE FUND, 1924. Created and otherwise increased by gains from sales or maturities of investments and decreased by premium amortization of bonds and losses and charges from sales or maturities. Belongs to all funds sharing general investments.

177 ARTHUR F. ESTABROOK FUND, 1923–37, $99,000. Bequest. $95,000 used for purchase of land and equipment. Balance for general purposes of the Institute.

524 FARNSWORTH FUND, 1889, $5,000. Bequest of Mary E. Atkins. Income for scholarships.

179 HENRIETTA G. FITZ FUND, 1930, $10,000. Bequest. Income for general purposes.

526 CHARLES LEWIS FLINT FUND, 1889, $5,000. Bequest. Income for support of worthy student, preference given graduate of English High School, Boston.

327 CHARLES LEWIS FLINT FUND, 1889, $5,000. Bequest. Income for purchase of books and scientific publications for library.

303 SARAH H. FORBES FUND, 1901, $500. Gift of Malcolm Forbes as memorial to mother. Income for salaries.

527 SARAH S. FORBES FUND, 1913, $3,400. Gift of Sarah S. Forbes, William B. Rogers and Henry S. Russell. Income for maintenance and education of scholar in M. I. T.

123 FRANCIS APPLETON FOSTER FUND, 1922, $1,000,000. Bequest. Income for purposes of Institute.

125 JOHN W. FOSTER FUND, 1936, $291,000. Bequest. Income for purposes of the Institute.

127 ALEXIS H. FRENCH FUND, 1930, $5,000. Bequest. Income for general purposes of Institute.

129 JONATHAN FRENCH FUND, 1915–16, $25,000. Bequest of Caroline L. W. French. Income for purposes of the Institute.

131 HENRY CLAY FRICK FUND, 1925–36, $1,830,000. Bequest. Institute received ten shares of a total of one hundred shares of his residuary estate. Income for general purposes.

329 FRIENDS OF THE LIBRARY, 1936–37, $2,270. Contribution for maintenance of and additions to the Institute Library.

529 FUEL AND GAS SCHOLARSHIP FUND, 1925–26, $700. Gift Boston Consolidated Gas Company and Massachusetts Gas Companies for scholarship in Gas Engineering.

305 GEORGE A. GARDNER FUND, 1898, $20,000. Gift. Income for salaries of instructors.

133 GENERAL ENDOWMENT FUND, 1921, $1,527,000. Contributions by alumni and others to meet George Eastman's condition relative to gift of $2,500,000, his building fund (No. 108).

623 NORMAN H. GEORGE FUND, 1919–25, $93,400. Bequest. Income for assistance of worthy and needy students.

135 ELIOT GRANGER FUND, 1936, $20,000. Bequest under will of Mary Granger in memory of deceased son. Income for the general purposes of the Institute.

625 JOHN A. GRIMMONS FUND, 1930–37, $21,140. Bequest of C. Lillian Moore of Malden. Principal held by Old Colony Trust Co., Trustee. Income for loans to undergraduates in Electrical Engineering not to exceed $600 to any one student in any one year with interest at 5 per cent and to be repaid within ten years. Unused balances available for purchase of apparatus and equipment in Department of Electrical Engineering.

181 GEORGE WYMAN HAMILTON FUND, 1935, $54,414.15. Bequest. Principal and income for general purposes of the Institute.

627 JAMES H. HASTE FUND, 1930, $181,000. Bequest. Income for aid of deserving students of insufficient means.

309 JAMES HAYWARD FUND, 1866, $18,800. Bequest. Income for salaries.

183 JAMES W. HENRY FUND, 1935, $8,226. Bequest. To be used by Institute in manner deemed best.

531 GEORGE HOLLINGSWORTH FUND, 1916, $5,000. Bequest of Rose Hollingsworth. Income used for scholarship.

585 ROGER DEFRIEZ HUNNEMAN PRIZE FUND, 1927, $1,060. Gift of W. C. Hunneman in memory of Roger Defriez Hunneman, '23. Income paid as annual award to most meritorious student in Chemical Engineering who has shown most outstanding originality in his work as determined by that Department.

185 ABBY W. HUNT FUND, 1936, $72,000. Bequest. For general purposes. $60,000 used for alterations, 1937.

533 T. STERRY HUNT FUND, 1894, $3,000. Bequest. Income to a student in Chemistry.

534 WILLIAM F. HUNTINGTON FUND, 1892, $5,000. Gift of Susan E. Covell. Income to deserving students. Preference to be given to students in Civil Engineering.

211 INCOME EQUALIZATION RESERVE FUND, 1937. Created by appropriation of excess income from general investments for year 1936–37 toward maintenance of income for ensuing years.

87 INDUSTRIAL FUND, 1924–35. This fund succeeded "Tech Plan" Contracts, payments under which went to the Educational Endowment Fund. Income and part of principal now used in support of Division of Industrial Coöperation and other special projects.

137 JAMES FUND, 1898–99, $163,000. Bequest of Julia B. H. James. Income for development of M. I. T.

629 DAVID L. JEWELL FUND, 1928, $25,000. Bequest. Income for tuition of five young men who are worthy of assistance and who, were it not for such assistance, might be unable to pursue their studies at M. I. T.

474 REBECCA R. JOSLIN FUND, 1924–36, $6,540. Gift and Bequest. Income awarded as a loan to advanced student in Chemical Engineering on recommendation of that Department — restricted to native and resident of Massachusetts. Beneficiary to abstain from using tobacco in any form.

536 JOY SCHOLARSHIPS, 1886, $7,500. Gift of Nabby Joy. Income for scholarships for one or more women studying natural science at M. I. T.

341 WILLIAM HALL KERR FUND, 1896, $2,000. Gift of Alice M. Kerr. Income for the annual purchase of books and drawings in machine design.

630 LLORA CULVER KRUEGER SCHOLARSHIP FUND, 1936, $5,573.75. Bequest. Both principal and income to be available for needy and worthy students from Schenectady and vicinity.

476 WILFRED LEWIS FUND, 1930, $5,000. Gift of Emily Sargent Lewis. Income for maintenance of graduate student in Mechanical Engineering.

538 WILLIAM LITCHFIELD FUND, 1910, $5,000. Bequest. Income for scholarship on competitive examination.

414 ARTHUR DEHON LITTLE MEMORIAL FUND, 1937, $46,600. Bequest under will of Dr. A. D. Little. Income to be used in Departments of Chemistry and Chemical Engineering. (In addition, the income from 5,543 shares of common stock of A. D. Little, Inc., held by Voting Trustees for the benefit of the Institute under declaration of trust dated November 18, 1936 and in force for twenty years is available for use in these two departments.

189 HIRAM H. LOGAN FUND, 1933, $17,000. Bequest. Principal and income for general purposes of M. I. T.

539 ELISHA T. LORING FUND, 1890, $5,000. Bequest. Income for assistance of needy and deserving pupils.

265 LOUISVILLE TECHNOLOGY FOUNDATION FUND, 1935, $50. Founded by Louisville Tech Club toward scholarship aid for local student.

541 LOWELL INSTITUTE FUND, 1923, $2,300. Gift from alumni of Lowell Institute to establish scholarship for its graduates.

139 KATHARINE B. LOWELL FUND, 1895, $5,000. Gift of Augustus Lowell in honor of Mrs. Lowell. Income for purchase of books and apparatus for Department of Physics.

542 RUPERT A. MARDEN FUND, 1933, $2,000. Gift (anonymous). Income to aid worthy student — Protestant and of American origin — preference to student taking Coöperative Course in Electrical Engineering (Course VI-A).

311 WILLIAM P. MASON FUND, 1868, $18,800. Bequest. Income to support a professorship in the Institute.

143 M. I. T. ALUMNI FUND, 1907. Total subscriptions of alumni to 1924, $632,500. $632,000 appropriated for New Equipment, Walker Memorial 1916 Reunion and Dormitories. Present small balance unappropriated.

263 M. I. T. ALUMNI ASSOCIATION PERMANENT FUND, 1929–37. Deposited with M. I. T. for investment purposes only.

260 M. I. T. TEACHERS' INSURANCE FUND, 1926. Balance of 2 per cent salary deductions under M. I. T. Pension and Insurance Plan in excess of Group Insurance Premiums paid.

261 M. I. T. TEACHERS' INSURANCE FUND, SPECIAL, 1928–36. Refund of premiums paid on Group Insurance under M. I. T. Pension and Insurance Plan held at interest and accumulated. $50,000 appropriated for special pension purposes.

416 JOHN LAWRENCE MAURAN FUND, 1934, $10,000. Bequest. Principal and income may be used for benefit of Department of Architecture.

417 GEORGE HENRY MAY FUND, 1914, $4,250. Gift. Income for benefit of Chemical Department.

543 GEORGE HENRY MAY FUND, 1914, $5,000. Gift. Income to assist graduates of Newton High School recommended as eligible by superintendent and head masters of Newton High Schools. Beneficiary to issue a note payable without interest.

141 THOMAS MCCAMMON FUND, 1930, $15,000. Bequest in honor of father, James Elder McCammon. Income available for general purposes.

587 JAMES MEANS FUND, 1925, $2,700. Gift of Dr. James H. Means as a memorial to father. Income for annual prize for essay on an aeronautical subject.

191 HIRAM F. MILLS FUND, 1922, $10,175. Bequest. For general purposes. Used for grounds, 1937.

419 SUSAN MINNS FUND, 1930. Gift of Miss Susan Minns — tract of land on Memorial Drive for use in any way deemed best for benefit of plan regarding construction and maintenance of an hydraulic laboratory.

545 JAMES H. MIRRLEES FUND, 1886, $2,500. Gift of James Buchanan Mirrlees. Income to such student in third or fourth year Mechanical Engineering most deserving pecuniary assistance.

420 FORRIS JEWETT MOORE FUND, 1927–31, $32,000. Gift of Mrs. F. Jewett Moore as a memorial to husband. Income or principal expended subject to approval of Executive Committee by a committee of three members of the Department of Chemistry — to make the study of Chemistry more interesting and surroundings of such study more attractive.

478 MOORE FUND, 1914–28–29, $24,200. Gift of Mrs. F. Jewett Moore. Income to help some Institute graduate to continue studies in Europe, especially organic chemistry. Preference to student who has distinguished himself in this subject while an undergraduate.

145 KATE M. MORSE FUND, 1925, $25,000. Bequest. Income for general purposes of M. I. T.

147 EVERETT MORSS FUND, 1934, $25,000. Bequest. Income for general purposes of M. I. T.

264 HENRY A. MORSE NAUTICAL FUND, 1937, $3,500. Gift for maintenance of sailing activities and sailing pavilion.

218 NEW BUILDING FUND, 1937, $100,000. Received on account of sale of Boylston Street property. To be used for new building addition.

547 NICHOLS FUND, 1895, $5,000. Bequest of Betsy F. W. Nichols. Income for scholarship to student in Chemistry.

548 CHARLES C. NICHOLS FUND, 1904, $5,000. Bequest. Income for scholarship.

422 WILLIAM E. NICKERSON FUND, 1928, $50,000. Gift. Principal and income used to finance chair in Humanics.

193 MOSES W. OLIVER FUND, 1921, $11,000. Bequest. Principal or income for general purposes.

343 GEORGE A. OSBORNE FUND, 1928, $10,000. Bequest. Income for benefit of mathematical library.

550 JOHN FELT OSGOOD FUND, 1909, $5,000. Bequest of Elizabeth P. Osgood in memory of husband. Income for scholarship in Electricity.

551 GEORGE L. PARMELEE FUND, 1921, $17,000. Bequest. Income for tuition of either special or regular worthy students.

195 EMERETTE O. PATCH FUND, 1935, $7,500. Bequest. Principal or income for general purposes.

149 RICHARD PERKINS FUND, 1887, $50,000. Bequest. Income for general purposes.

552 RICHARD PERKINS FUND, 1887, $50,000. Bequest. Income for scholarships.

480 WILLARD B. PERKINS FUND, 1898, $6,000. Bequest. Income to be expended every fourth year for travelling scholarship in architecture.

424 EDWARD D. PETERS FUND, 1924, $5,000. Bequest of Elizabeth W. Peters. Income for the Department of Mineralogy.

197 PRESTON PLAYER FUND, 1933, $20,000. Bequest. For general purposes, unrestricted.

425 PRATT NAVAL ARCHITECTURAL FUND, 1916, $1,071,000. Bequest of Charles H. Pratt to endow the Department of Naval Architecture and Marine Engineering to be called forever Pratt School of Naval Architecture and Marine Engineering — to erect a building — remainder held in trust. Income to support said school.

199 CHARLES O. PRESCOTT, 1935, $30,640.78. Principal and income for general purposes of the Institute.

482 PROCTOR FUND, 1929–36. Gift annually from Redfield Proctor for fellowship in Physics.

275 PROFESSORS' FUND, 1931–37. Contributions of one half of outside income earned by members of staff. Plan suspended July 1, 1934. Disbursed on recommendation of committee appointed by contributors.

484 PROPRIETORS LOCKS AND CANALS FUND, 1927, $4,000. Gift to finance post-graduate scholarship in Textile Research, mechanical or chemical, to American-born graduate of Lowell Textile School, nominated by the Trustees of that School and approved by Executive Committee of Locks and Canals.

150 J. W. & B. L. RANDALL FUND, 1897, $83,000. Bequest of Belinda L Randall as a permanent fund or in erecting a building with those names.

553 THOMAS ADELBERT READ FUND, 1934–35, $21,117. Bequest of Julia A. Read to establish Scholarship in memory of her brother Thomas Adelbert, and their father William Read, and mother Amanda Snow Read. Income to be awarded to some worthy and needy student, preferably resident of Fall River, Mass.

278 RICHARDS PORTRAIT FUND, 1929. Balance of subscriptions from friends of Prof. R. H. Richards for portrait completed — available for Mining Department.

449 ELLEN H. RICHARDS FUND, 1912, $15,000. Income for promotion of research in Sanitary Chemistry, for fellowships to advanced students, for employment of research assistants and in such other ways as will best promote investigation in that field.

451 CHARLOTTE B. RICHARDSON FUND, 1891, $30,000. Bequest. Income to support of Industrial Chemical School.

554 JOHN ROACH SCHOLARSHIP FUND, 1937, $3,000. Bequest under will of Emeline Roach, income to provide annual scholarship to needy and deserving student in Naval Architecture and Marine Engineering.

280 ROCKEFELLER FOUNDATION RESEARCH FUND, 1931–36, $170,000. Contributed for Research in Science Department over period of five years.

313 HENRY B. ROGERS FUND, 1873, $25,000. Gift. Income for salaries of one or more professors or instructors.

486 HENRY BROMFIELD ROGERS FUND, 1921, $20,000. Bequest of Anna Perkins Rogers. Income to establish fellowship or scholarship for women graduates of M. I. T. or other colleges whose graduate work is carried on at M. I. T.

201 ROBERT E. ROGERS FUND, 1886, $7,600. Bequest in memory of brother, William B. Rogers. For general purposes.

631 WILLIAM BARTON ROGERS FUND. Present, $39,000. Established by subscriptions of members of Alumni Association through Prof. R. H. Richards for loans to students. By vote of Executive Committee in March 1935, approved by Alumni Council, the income, not now needed for loans, is made available for special scholarship aid in the discretion of the President and Treasurer.

151 WILLIAM BARTON ROGERS MEMORIAL FUND, 1883–84–85, $250,000. Contributions from 91 persons. Income for support of Institute.

426 FRANCES E. ROPER FUND, 1936, $2,000. Bequest. Income for use in Department of Mechanical Engineering.

345 ARTHUR ROTCH ARCHITECTURAL FUND, 1895, $5,000. Bequest. Income for Library or collection of Department of Architecture.

427 ARTHUR ROTCH FUND, 1895, $25,000. Bequest. Income for general purposes of Department of Architecture.

589 ARTHUR ROTCH FUND, 1895, $5,000. Bequest. Income for annual prize to student in regular course in Architecture graduating highest in class.

591 ARTHUR ROTCH SPECIAL FUND, 1895, $5,000. Bequest. Income for annual prize to student who shall be ranked highest at end of two years special course in Architecture.

488 RICHARD LEE RUSSEL FUND, 1904, $2,000. Gift of Theodore E. Russel. Income to assist worthy student of high standing in Department of Civil Engineering either undergraduate or post-graduate.

555 WILLIAM PATRICK RYAN MEMORIAL FUND, 1935, $3,637. Contributed by friends of Professor Ryan. Income for scholarship in Chemical Engineering.

282 WILLIAM PATRICK RYAN SPECIAL FUND, 1933, $3,000. Appropriation. Educational fund for three children of late Prof. W. P. Ryan.

152 SALTONSTALL FUND, 1901, $40,000. Bequest of Henry Saltonstall. One-fourth income each year added to principal and remaining three-fourths expended for benefit of Institute.

490 HENRY SALTONSTALL FUND, 1901, $10,000. Bequest. Income to aid one or more needy students.

492 JAMES SAVAGE FUND, 1873, $10,000. Bequest. Income for scholarships in institution "where my son-in-law, William B. Rogers, is President."

153 SAMUEL E. SAWYER FUND, 1895, $4,700. Bequest. Income to be used in such manner as will best promote interests of M. I. T.

556 JOHN P. SCHENKL FUND, 1922, $43,800. Bequest of Johanna Paulin. Schenkl in memory of father. Income for scholarships in Department of Mechanical Engineering.

283 THEODORE EDWARD SCHWARZ MEMORIAL FUND, 1937, $3,170. Gift For equipment of a suitable room for proposed map collection.

283 SEDGWICK MEMORIAL LECTURE FUND, 1930–37, $9,000. Bequest of Mary Katrine Sedgwick in memory of husband. All copyrights and interest in copyrights and benefits from contracts with publishers for Department of Biology and Public Health.

429 W. T. SEDGWICK FUND, 1928, $69,500. Received from Trustees of the Estate of W. T. Sedgwick under Agreement and Declaration of Trust following decease of Mary Katrine Sedgwick, for Department of Biology and Public Health.

557 THOMAS SHERWIN FUND, 1871, $5,000. Gift of Committee on Sherwin Memorial Fund for free scholarship to graduate of English High School.

493 SLOAN FUND, 1933–37, $1,000. Annual gift of A. P. Sloan, Jr. for Fellowship in Automotive Engineering.

203 ELLEN VOSE SMITH FUND, 1930, $25,000. Bequest. For general purposes.

558 HORACE T. SMITH FUND, 1930, $32,988.76. Bequest. Income for scholarships. Preference to graduates of East Bridgewater (Mass.) and Bridgeport (Conn.) High Schools.

284 LILLIE C. SMITH FUND, 1937, $4,800. Bequest to M. I. T. Women's Association for purposes of the Association.

559 SONS AND DAUGHTERS OF NEW ENGLAND PURITAN COLONY SCHOLARSHIP FUND, 1931, $600. Gift. Income for scholarship aid to a boy of New England ancestry.

155 ANDREW HASTINGS SPRING FUND, 1921, $50,000. Bequest of Charlotte A. Spring in memory of nephew as a permanent fund. Income for general purposes.

593 SAMUEL W. STRATTON PRIZE FUND, 1933, $1,680. Contributed by friends of the late Dr. S. W. Stratton for competition prizes in the presentation of scientific papers.

632 SUMMER SURVEYING CAMP LOAN FUND, 1927, $500. Gift of Lammot du Pont as a revolving loan fund to help students in Civil Engineering attend summer surveying camp.

452 HENRY N. SWEET, 1936, $8,036.50. Bequest. For industrial research.

157 SETH K. SWEETSER FUND, 1915, $25,000. Bequest as a permanent fund. Income for general purposes.

495 SUSAN H. SWETT FUND, 1888, $10,000. Bequest. Income to support a graduate scholarship.

496 GERARD SWOPE FUND, 1926, $2,500. Gift for fellowships in Electrical Engineering.

634 TEACHERS' FUND, 1899–1900. Gifts of $50,000 each from Augustus Lowell and A. Lawrence Lowell to establish fund for use in case of retirement, disability or death of members of instructing staff.

635 TECHNOLOGY LOAN FUND, 1930–1937, $1,435,720.18. Contributed by eighteen alumni to provide loans for students.

285 TECHNOLOGY MATRONS TEAS FUND, 1916–22–31, $8,500. Gifts of Mrs. F. Jewett Moore. Income for social activities of Technology Matrons.

456 TEXTILE RESEARCH FUND, 1937, $3,065. Gift. For research.

315 NATHANIEL THAYER FUND, 1868, $25,000. Gift. Income for professorship of Physics.

286 W. B. S. THOMAS FUND, 1935–37, $2,000. Gift of parents of W. B. S. Thomas '29, the income only to be expended for benefit of M. I. T. A. A.

317 ELIHU THOMSON FUND, 1933–37, $18,000. Contributed toward fund for Professorship in Electrical Engineering.

497 FRANK HALL THORP FUND, 1932, $10,000. Anonymous gift. Income for fellowship in Industrial Chemistry.

560 SAMUEL E. TINKHAM FUND, 1924, $2,400. Gift of Boston Society of Civil Engineers. Income to assist worthy student in Civil Engineering.

349 JOHN HUME TOD FUND, 1913, $2,500. Gift of Mrs. F. Jewett Moore. Income for purchase of books of a humanistic character for General Library.

562 F. B. TOUGH FUND, 1924, $465. Gift to extend financial assistance to worthy students in mining or oil production.

431 EDMUND K. TURNER FUND, 1915–17, $203,000. Bequest. Income for a certain annuity during the life of sister — three-quarters of balance of income for Department of Civil Engineering and one-quarter to be added annually to principal.

637 ALICE BROWN TYLER FUND, 1937, $1,000. Gift of Prof. and Mrs. H. W. Tyler. Income to be used for benefit of women students at the Institute.

290 UNDERGRADUATE ACTIVITIES TRUST FUND, 1935, $1,097.26. Established by 1916 Technique Board from which recognized student activities may borrow if deemed necessary and desirable, at a low rate.

292 UNDERGRADUATE PUBLICATIONS TRUST FUND, 1935, $16,018. Deposited by Alumni Advisory Council on Publications for investment purposes only.

294 UNDERGRADUATE DUES RESERVE FUND, ATHLETICS, 1924–37. Transferred from Undergraduate Dues (current operating account) to secure investment income.

296 UNDERGRADUATE DUES RESERVE FUND, CONTINGENT, 1924–37. Transferred from Undergraduate Dues (current operating account) to secure investment income.

433 WILLIAM LYMAN UNDERWOOD FUND, 1932, $16,252. Bequest. For benefit of Biological Department or otherwise for general purposes.

563 SUSAN UPHAM FUND, 1892, $1,000. Gift. Income to assist students deserving financial aid.

638 SAMSON R. URBINO FUND, 1927, $1,000. Bequest. Income for students who need assistance, Germans preferred.

351 THEODORE N. VAIL FUND, 1925, $24,000. Bequest. Income for benefit of Vail Library.

498 LUIS FRANCISCO VERGES FUND, 1924, $10,000. Gift from Caroline A. Verges. Income for graduate students doing research work in sugar industry or if no such candidate, undergraduate student in Civil Engineering.

565 VERMONT SCHOLARSHIP FUND, 1924–37, $25,000. Gift of Redfield Proctor, '02, in memory of Vermonters who, having received their education at the Institute, served as engineers in the armies of the Allies in the World War. Income to students preferably from Vermont. Mr. Proctor reserves right to designate recipients as long as he lives.

567 ANN WHITE VOSE FUND, 1896, $60,000. Bequest. Income for free scholarships for young men of American origin.

569 ARTHUR M. WAITT FUND, 1925, $9,700. Bequest. Income for deserving students in second, third and fourth year classes in Mechanical Engineering.

159 WILLIAM J. WALKER FUND, 1915–17, $23,000. Bequest. Income for general purposes.

161 HORACE HERBERT WATSON FUND, 1930, $34,000. Bequest of Elizabeth Watson Cutter as a permanent fund. Income for general purposes.

205 FRANK G. WEBSTER FUND, 1931, $25,000. Bequest. For general purposes.

571 LOUIS WEISBEIN FUND, 1915, $4,000. Bequest. Income for scholarship for student in Architectural Department, preference to be given to a Jewish boy.

163 ALBION B. K. WELCH FUND, 1871, $5,000. Bequest as a permanent fund. Income for general purposes.

165 EVERETT WESTCOTT FUND, 1935–36, $169,394. Bequest as a permanent fund. Income for general purposes.

167 MARION WESTCOTT FUND, 1937, $237,700. Bequest for endowment. Income for general purposes.

573 FRANCES ERVING WESTON FUND, 1912, Bequest. Received annually to aid a native-born American Protestant girl of Massachusetts. (Principal $5,000 turned over to M. I. T., 1931.)

574 SAMUEL MARTIN WESTON FUND, 1912. Bequest of Frances E. Weston in memory of husband. Two hundred dollars received annually to aid a native-born American Protestant boy; preference to be given one from Roxbury. (Principal $5,000 turned over to M. I. T., 1931.)

576 AMASA J. WHITING FUND, 1927, $4,500. Bequest of Mary W. C. Whiting. Income as scholarship to deserving students; preference to students from the Town of Hingham, Massachusetts.

458 EDWARD WHITNEY FUND, 1910, $37,171. Bequest as a memorial to him and his wife, Caroline. Principal and interest for conduct of research or teaching in geophysics — to include investigations in seismology conducted with a view to the protection of human life and property.

639 JONATHAN WHITNEY FUND, 1912, $525,000. Bequest of Mrs. Francis B. Green. Income to assist poor and deserving young men and women in obtaining an education at M. I. T.

196 GEORGE WIGGLESWORTH FUND, 1931, $25,000. Bequest. Ten (10) per cent of gross annual income to be added to principal, balance of income for general purposes of the Institute.

577 ELIZABETH BABCOCK WILLMANN FUND, 1935, $5,065. Bequest. Income to be used toward tuition of young women students taking Chemistry courses.

171 EDWIN A. WYETH FUND, 1913–35, $269,665. Balance of Trust Fund held by M. I. T. since 1913 for itself and five other beneficiary institutions subject to annuity. Distributed January 1935. Fund separately invested and still subject to annuity. Balance of net income available for general purposes of the Institute.

640 MORRILL WYMAN FUND, 1915–16, $66,000. Bequest. Income to aid deserving and promising students upon understanding that if in after life the person receiving aid shall find it possible, he shall reimburse said fund — not a legal obligation.

459 WRIGHT MEMORIAL WIND TUNNEL, 1937, $47,000. Contributed by friends for construction of new wind tunnel.

AUDITORS' CERTIFICATE

We have examined the books and accounts of the Treasurer and the Bursar of the Massachusetts Institute of Technology for the year ended June 30, 1937, and we report upon our verification of the accompanying financial statements of the Treasurer as follows:

We agreed the investment accounts in detail with certified lists of securities held by the Old Colony Trust Company of Boston, Massachusetts, at June 30, 1937, and verified the several other assets and liabilities shown in the Treasurer's Balance Sheet, Schedule D.

We satisfied ourselves by extensive tests of the recorded transactions for the year that income receivable had been duly accounted for and expenditures properly controlled and authorized.

WE HEREBY CERTIFY that, in our opinion, the accompanying Balance Sheet and Statements of Income and Expenditures correctly set forth, respectively, on the basis indicated, the financial condition of the Institute at June 30, 1937, and the financial results for the year ended at that date, and that the financial statements are in accordance with the books of the Institute.

We extended our examination to include the transactions of the Hewett Fund of which the Massachusetts Institute of Technology acts as Trustee, and satisfied ourselves that the provisions of the Trust Agreement had been fulfilled.

Our examination embraced also the accounts of the Massachusetts Institute of Technology Pension Association which we found to be correctly stated.

The investment accounts of the Hewett Fund and of the Massachusetts Institute of Technology Pension Association were checked with certified lists of securities held by the Old Colony Trust Company of Boston, Massachusetts, at June 30, 1937.

Respectfully submitted,

PATTERSON, TEELE & DENNIS,
Accountants and Auditors.

1 Federal Street, Boston, September 14, 1937.

REPORT OF THE AUDITING COMMITTEE

The Auditing Committee reports that the firm of Patterson, Teele & Dennis, Accountants and Auditors, was employed to make an audit for the fiscal year ending June 30, 1937, and we submit herewith their certificate dated September 14, 1937.

This report covers the books of the Massachusetts Institute of Technology, the Hewett Fund, of which the Massachusetts Institute of Technology acts as Trustee and also the accounts of the Massachusetts Institute of Technology Pension Association.

Respectfully submitted,

DONALD G. ROBBINS,
HOVEY T. FREEMAN,
WILLIAM R. HEDGE, *Chairman.*

Boston, Mass., September 17, 1937.

PERIODICAL PUBLICATIONS, BOOKS AND REVIEWS BY MEMBERS OF THE STAFF

AERONAUTICAL ENGINEERING

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