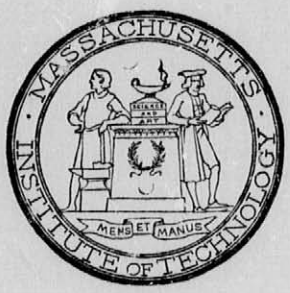
M.I.T. ANNUAL CATALOGUES AND BULLETINS
1895/96

01 OF 03

MASSACHUSETTS INSTITUTE OF TECHNOLOGY,

BOSTON.



ANNUAL CATALOGUE.

1895–1896.

PUBLICATIONS

OF

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

ANNUAL CATALOGUE, issued in December, containing lists of Officers and Students; a full statement of the Courses of Instruction, a register of the Graduates with their professional positions, and an account of the Lowell School of Design.

PROGRAMME, identical with the Catalogue, but not containing the Schedule of Topics, the Registers of Students and of Graduates.

SPECIAL DESCRIPTIVE CIRCULARS.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY: an illustrated pamphlet giving a general account of the laboratories and equipment.

Circulars on the Departments of *Civil Engineering; Mechanical Engineering; Physics and Electrical Engineering; Architecture; Chemistry and Chemical Engineering; Biology; General Studies; Naval Architecture.*

Circulars on *Opportunities for Teachers; The Lowell School of Design; Summer Courses.*

Register of Scientific Periodicals on file in the libraries of the Institute.

Any of the above publications will be sent free upon application to

H. W. TYLER, *Secretary*,
491 *Boylston Street, Boston, Mass.*

THE TECHNOLOGY QUARTERLY AND PROCEEDINGS OF THE SOCIETY OF ARTS.

PUBLISHED BY THE SOCIETY OF ARTS.

Containing the results of the scientific investigations of the different departments of the Institute, and the principal papers read before the Society of Arts. Subscription price, $3.00 per annum. Address,

TECHNOLOGY QUARTERLY,
Massachusetts Institute of Technology.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

BOSTON.

THIRTY-FIRST

ANNUAL CATALOGUE

OF THE

Officers and Students,

WITH

A STATEMENT OF THE COURSES OF INSTRUCTION AND A REGISTER OF THE ALUMNI.

1895–1896.

JOHN WILSON AND SON.
University Press, Cambridge.
1896.

CALENDAR FOR 1895-96.

School year began	Monday, Sept. 30, 1895.
Second term will begin	Tuesday, Feb. 11, 1896.
Degrees conferred	Tuesday, June 9, 1896.
First Entrance Examinations	Thursday, June 25, 1896, and Friday, June 26, 1896.
Examinations for Advanced Standing will begin	Friday, Sept. 18, 1896.
Second Entrance Examinations [1]	Tuesday, Sept. 22, 1896, and Wednesday, Sept. 23, 1896.
School year of 1896-97 will begin	Wednesday, Sept. 30, 1896.

CALENDAR FOR 1896-97.

School year will begin	Wednesday, Sept. 30, 1896.
Second term will begin	Tuesday, Feb. 9, 1897.
Degrees conferred	Tuesday, June 8, 1897.
First Entrance Examinations	Thursday, July 1, 1897, and Friday, July 2, 1897.
Examinations for Advanced Standing will begin	Friday, Sept. 17, 1897.
Second Entrance Examinations [1]	Tuesday, Sept. 21, 1897, and Wednesday, Sept. 22, 1897.
School year of 1897-98 will begin	Wednesday, Sept. 29, 1897.

Stated Meetings of the Corporation	Oct. 9 and Dec. 11, 1895. March 11 and June 5, 1896.
Stated Meetings of the Executive Committee of the Corporation	First and third Tuesdays of every month.

[1] See page 57.

TABLE OF CONTENTS.

Massachusetts Institute of Technology.

HISTORICAL SKETCH.

The foundation of the Massachusetts Institute of Technology was laid in a "Memorial" prepared in 1859 by Professor William Barton Rogers, and presented, by a Committee, to the Legislature of 1860. In this Memorial, "reference is made to the expected early establishment of a comprehensive Polytechnic College, furnishing a complete system of industrial education supplementary to the general training of other institutions, and fitted to equip its students with every scientific and technical principle applicable to the industrial pursuits of the age."

On May 28, 1860, a sub-committee, consisting of Professor Rogers and Messrs. E. B. Bigelow and J. M. Beebe, was appointed to "mature a plan for a polytechnic institution." To this sub-committee Messrs. M. D. Ross and C. H. Dalton were subsequently added, and for it Professor Rogers, during the summer of 1860, prepared an elaborate report entitled, "OBJECTS AND PLAN OF AN INSTITUTE OF TECHNOLOGY; including a Society of Arts, a Museum of Arts, and a School of Industrial Science, proposed to be established in Boston. . . . Addressed to manufacturers, merchants, mechanics, agriculturists, and other friends of enlightened industry in the Commonwealth." This report was printed and widely distributed.

On January 11, 1861, a public meeting of persons interested in the proposed Institution was held in Mercantile Hall, and a preliminary organization effected. Professor

Rogers was Chairman of this meeting, and John D. Runkle, Secretary. On April 10, 1861, the MASSACHUSETTS INSTITUTE OF TECHNOLOGY was incorporated by the Legislature, and a grant of the "new land" in the Back Bay was made, subject to certain conditions. The first meeting of the Institute for organization was held April 8, 1862. The civil war led to the postponement of the opening of the School of Industrial Science until 1865; but the Society of Arts was organized, began its meetings on December 17, 1862, and has maintained them ever since. A preliminary session of the School of Industrial Science was opened, fifteen students attending, on February 20, 1865. The regular courses of instruction began October 2, 1865.

The School of Industrial Science, developed along the lines indicated at its foundation, has become the prominent feature of the Institute; and, indeed, nearly all persons know this and this alone, as the Institute. It is devoted to the investigation and teaching of science as applied to the various engineering professions; namely, civil, mechanical, mining, electrical, chemical, sanitary engineering, and naval architecture, as well as to architecture, chemistry, metallurgy, biology, physics, and geology. A course of a less technical nature, designed as a preparation for business callings, is also provided.

A subsidiary school, known as the LOWELL SCHOOL OF PRACTICAL DESIGN, is maintained by the Corporation of the Institute. A statement of its scope and organization will be found on page 190.

The Society of Arts aims to awaken and maintain an interest in the practical applications of the sciences and to aid in their advancement. Meetings are held semi-monthly from October to May, at which, reports of inventions, discoveries, and matters of scientific and technical interest are presented. The "Technology Quarterly," including the proceedings of the Society and papers pre-

sented at its meetings, is regularly published. All communications concerning the Society should be addressed to the Secretary of the Society of Arts, Massachusetts Institute of Technology.

LOCATION AND EQUIPMENT.

THE buildings of the Institute are not only favorably located for accessibility and convenience of students and instructors, but are in close proximity to the chief collections and libraries of Boston, in particular to the Museum of Fine Arts, the new Public Library, and the Museum of the Boston Society of Natural History. The free lecture courses of the Lowell Institute are held in the main building of the school. Several railroad stations and many street-car lines afford convenient access from the southern and western suburbs. Moreover, the advantages of location in a great manufacturing district, with which the school maintains close relations, are of the greatest value to technological students. Frequent short excursions enable them to make immediate connection between what they learn in the school and what they observe in the industrial establishments. The relations between principles and their applications are much better enforced than if the latter were reserved for vacation or some subsequent period. The architectural student, for example, not only has at his hand conspicuous examples of the best design and construction, but regularly receives suggestive criticism from men eminent in professional practice. To the student in economics and political science the various state and city institutions afford ample opportunities for individual investigation.

Buildings. — The buildings now occupied are the Rogers Building, on Boylston Street, devoted to instruction in mathematics, literature, history, political science, geology, mineralogy, and biology; the Walker Building, at the corner of Boylston and Clarendon streets, mainly devoted to the departments of chemistry, physics, and electricity, and to

instruction in language; the Engineering Building, on Trinity Place, devoted to the engineering laboratories and to instruction in mechanics and hydraulics, and in mechanical and civil engineering; the architectural building, immediately adjoining the engineering building; a series of Workshops, on Garrison Street, with a room devoted to the Lowell School of Design; and a Gymnasium and Drill-hall, on Exeter Street.

Equipment. — The foundation of all sound technological education requires not only thorough theoretical training, but also prolonged, well-directed laboratory drill which shall first give the student the power of close and accurate observation, and then bring him into direct contact with the material problems of his future profession.

The laboratories of the Institute are numerous and extensive; their equipment is correspondingly ample and is kept well up to the rapid advances in technical practice. Provision is made, not only for general exact training in the problems of physics and chemistry, but also, on the one hand, for highly specialized work in these and other sciences, on the other, for engineering tests and processes on a practical scale. Descriptions of the different laboratories and some account of their equipment, as well as of the libraries of the Institute, will be found on pages 68 to 109.

Members of the Corporation.

President.
FRANCIS A. WALKER.

Secretary.[1]
FRANCIS H. WILLIAMS.

Treasurer.
GEORGE WIGGLESWORTH.

JOHN D. RUNKLE.
FREDERIC W. LINCOLN.
WILLIAM ENDICOTT, JR.
JOHN CUMMINGS.
THOMAS T. BOUVÉ.
AUGUSTUS LOWELL.
HOWARD A. CARSON.
CHARLES J. PAINE.
CHARLES FAIRCHILD.
DAVID R. WHITNEY.
LEWIS WM. TAPPAN, JR.
HENRY D. HYDE.
ALEXANDER S. WHEELER.
JAMES P. TOLMAN.
HOWARD STOCKTON.
ELIOT C. CLARKE.
NATHANIEL THAYER.
CHARLES F. CHOATE.
HENRY L. PIERCE.
HIRAM F. MILLS.
PERCIVAL LOWELL.
ARTHUR T. LYMAN.
CHARLES MERRIAM.
THORNTON K. LOTHROP.
CHARLES C. JACKSON.
SAMUEL M. FELTON.
DESMOND FITZGERALD.
SAMUEL CABOT.
FRANCIS BLAKE.
CHARLES W. HUBBARD.
JAMES M. CRAFTS.
THOMAS L. LIVERMORE.
A. LAWRENCE ROTCH.
WILLIAM H. FORBES.
JOHN R. FREEMAN.
GEORGE A. GARDNER.
WILLIAM H. LINCOLN.
J. B. SEWALL.

On the Part of the Commonwealth.

HIS EXCELLENCY GOV. FREDERICK T. GREENHALGE.
HON. WALBRIDGE A. FIELD, *Chief Justice of the Supreme Court.*
HON. FRANK A. HILL, *Secretary of the Board of Education.*

[1] Communications should be addressed to the Secretary of the Institute.
(See page 15.)

Committees of the Corporation.

Executive Committee.

FRANCIS A. WALKER, GEORGE WIGGLESWORTH. } *Ex Officiis.*

ALEXANDER S. WHEELER. FRANCIS H. WILLIAMS.
JOHN CUMMINGS. THOMAS L. LIVERMORE.
AUGUSTUS LOWELL.

Finance Committee.

WILLIAM ENDICOTT, Jr. CHARLES C. JACKSON.
DAVID R. WHITNEY. NATHANIEL THAYER.
WILLIAM H. FORBES.

Committee on the Society of Arts.

HOWARD A. CARSON. GEORGE A. GARDNER.
HIRAM F. MILLS.

Committee on the Lowell School of Industrial Design.

PERCIVAL LOWELL. JOHN D. RUNKLE.
WILLIAM H. LINCOLN.

Auditing Committee.

CHARLES C. JACKSON. JAMES P. TOLMAN.
CHARLES FAIRCHILD.

Committee on Nominations.

AUGUSTUS LOWELL. FREDERIC W. LINCOLN.
HOWARD STOCKTON. DAVID R. WHITNEY.
GEORGE A. GARDNER.

Trustees of the Museum of Fine Arts.

FREDERIC W. LINCOLN. FRANCIS A. WALKER.
A. LAWRENCE ROTCH.

Visiting Committees.

Department of Civil Engineering.

HOWARD A. CARSON.
CHARLES F. CHOATE.
ELIOT C. CLARKE.
DESMOND FITZGERALD.
JOHN R. FREEMAN.

Departments of Mechanical Engineering and Applied Mechanics.

HIRAM F. MILLS.
DESMOND FITZGERALD.
FRANCIS BLAKE.
JAMES P. TOLMAN.

Department of Mining and Metallurgy.

THOMAS T. BOUVÉ.
CHARLES FAIRCHILD.
THOMAS L. LIVERMORE.

Department of Architecture.

THORNTON K. LOTHROP.
ELIOT C. CLARKE.
JOHN R. FREEMAN.
A. LAWRENCE ROTCH.

Department of Physics and Electrical Engineering.

FRANCIS BLAKE.
CHARLES W. HUBBARD.
A. LAWRENCE ROTCH.

Departments of Literature, History, and Political Economy.

FRANK A. HILL.
JAMES P. TOLMAN.
J. B. SEWALL.

Department of Modern Languages.

J. B. SEWALL.
FRANK A. HILL.
NATHANIEL THAYER.
THORNTON K. LOTHROP.

Department of Mathematics.

PERCIVAL LOWELL.
HOWARD STOCKTON.
HOWARD A. CARSON.
DESMOND FITZGERALD.

Departments of Chemistry and Biology.

SAMUEL CABOT.
CHARLES C. JACKSON.
JAMES M. CRAFTS.

Department of Chemical Engineering.

ARTHUR T. LYMAN.
HIRAM F. MILLS.
SAMUEL CABOT.
CHARLES W. HUBBARD.

Department of Naval Architecture.

CHARLES J. PAINE.
HOWARD STOCKTON.
WILLIAM H. FORBES.
WILLIAM H. LINCOLN.

Administrative Officers.

President	FRANCIS A. WALKER.
Treasurer	GEORGE WIGGLESWORTH.
Secretary	HARRY W. TYLER.
Librarian	ROBERT P. BIGELOW.
Bursar	ALBERT M. KNIGHT.

Officers of Instruction.

FRANCIS A. WALKER, PH.D., LL.D.,
President.

JOHN D. RUNKLE, PH.D., LL.D.,
Walker Professor of Mathematics.

GEORGE A. OSBORNE, S.B.,
Professor of Mathematics.

JAMES M. CRAFTS, S.B.,
Professor of Organic Chemistry.

ROBERT H. RICHARDS, S.B.,
Professor of Mining Engineering and Metallurgy.

WILLIAM H. NILES, PH.B., A.M.,
Professor of Geology and Geography.

CHARLES R. CROSS, S.B.,
Thayer Professor of Physics; Director of the Rogers Laboratory.

GAETANO LANZA, C.E.,
Professor of Theoretical and Applied Mechanics; in charge of the Department of Mechanical Engineering.

GEORGE F. SWAIN, S.B.,
Hayward Professor of Civil Engineering.

FRANCIS W. CHANDLER,
Professor of Architecture.

ALPHONSE N. VAN DAELL, LL.D.,
Professor of Modern Languages.

WILLIAM T. SEDGWICK, PH.D.,
Professor of Biology.
DAVIS R. DEWEY, PH.D.,
Professor of Economics and Statistics.
SILAS W. HOLMAN, S.B.,
Professor of Physics.
WEBSTER WELLS, S.B.,
Professor of Mathematics.
CECIL H. PEABODY, S.B.,
Professor of Marine Engineering and Naval Architecture.
HARRY W. TYLER, PH.D.,
Professor of Mathematics.
ARLO BATES, A.M., LITT. D.,
Professor of English.
JOHN BIGELOW, JR., CAPT. U.S. ARMY,
Professor of Military Science and Tactics.
DESIRÉ DESPRADELLE,
Professor of Architectural Design.
PETER SCHWAMB, S.B.,
Associate Professor of Mechanism; Director of the Workshops.
C. FRANK ALLEN, S.B.,
Associate Professor of Railroad Engineering.
ALFRED E. BURTON, S.B.,
Associate Professor of Topographical Engineering.
DWIGHT PORTER, PH.B.,
Associate Professor of Hydraulic Engineering.
HEINRICH O. HOFMAN, E.M., PH.D.,
Associate Professor of Mining and Metallurgy.
THOMAS E. POPE, A.M.,
Associate Professor of General Chemistry.
ELEAZER B. HOMER, S.B.,
Associate Professor of Architecture.
GEORGE T. DIPPOLD, PH.D.,
Associate Professor of Modern Languages.
HENRY P. TALBOT, PH.D.,
Associate Professor of Analytical Chemistry.
CHARLES F. A. CURRIER, A.M.,
Associate Professor of History.
WILLIAM O. CROSBY, S.B.,
Assistant Professor of Structural and Economic Geology.
LINUS FAUNCE, S.B.,
Assistant Professor of Drawing.

JEROME SONDERICKER, C.E.,
Assistant Professor of Applied Mechanics.

ALLYNE L. MERRILL, S.B.,
Assistant Professor of Mechanism.

DANA P. BARTLETT, S.B.,
Assistant Professor of Mathematics.

EDWARD F. MILLER, S.B.,
Assistant Professor of Steam Engineering.

FRANK VOGEL, A.M.,
Assistant Professor of Modern Languages.

WILLIAM L. PUFFER, S.B.,
Assistant Professor of Electrical Engineering.

FREDERICK H. BAILEY, A.M.,
Assistant Professor of Mathematics.

FRED L. BARDWELL, S.B.,
Assistant Professor of General Chemistry.

AUGUSTUS H. GILL, PH.D.,
Assistant Professor of Gas Analysis.

ARTHUR A. NOYES, PH.D.,
Assistant Professor of Organic Chemistry.

S. HOMER WOODBRIDGE, A.M.,
Assistant Professor of Heating and Ventilation.

HARRY E. CLIFFORD, S.B.,
Assistant Professor of Theoretical Physics.

RICHARD W. LODGE,
Assistant Professor of Mining and Metallurgy.

FREDERICK S. WOODS, PH.D.,
Assistant Professor of Mathematics.

THEODORE HOUGH, PH.D.,
Assistant Professor of Biology.

WILLIAM Z. RIPLEY, PH.D.,
Assistant Professor of Sociology and Economics.

HENRY K. BURRISON, S.B.,
Instructor in Mechanical Drawing.

ELLEN H. RICHARDS, A.M., S.B.,
Instructor in Sanitary Chemistry.

CHARLES L. ADAMS,
Instructor in Freehand Drawing.

JOSEPH J. SKINNER, PH.D.,
Instructor in Mathematics.

GEORGE H. BARTON, S.B.,
Instructor in Geology.

PETER S. BURNS, PH. D.,
Instructor in General Chemistry.
JOHN W. SMITH,
Instructor in Industrial Chemistry and Textile Coloring.
ARTHUR G. ROBBINS, S.B.,
Instructor in Highway Engineering.
JAMES H. STANWOOD, S.B.,
Instructor in Civil Engineering.
HENRY N. DICKINSON, A.M.,
Instructor in English.
GEORGE W. HAMBLET, S.B.,
Instructor in Mechanical Engineering.
FRANK A. LAWS, S.B.,
Instructor in Electrical Measurements.
NATHAN R. GEORGE, JR., A.M.,
Instructor in Mathematics.
WILLIAM H. LAWRENCE, S.B.,
Instructor in Architecture.
WILLIAM S. DAVENPORT, S.B. (*Absent*),
Instructor in Analytical Chemistry.
HARRY M. GOODWIN, PH.D.,
Instructor in Physics.
WILLIAM LINCOLN SMITH, S.B.,
Instructor in Electrical Engineering.
LEONARD M. PASSANO, A.B.,
Instructor in Mathematics.
EDWARD ROBINSON, S.B.,
Instructor in Mechanical Drawing and Descriptive Geometry.
CHARLES H. L. N. BERNARD,
Instructor in Modern Languages.
JOSEPH BLACHSTEIN,
Instructor in Modern Languages.
WILLIS R. WHITNEY, S.B. (*Absent*),
Instructor in Analytical Chemistry.
CARLETON A. READ, S.B.,
Instructor in Mechanical Engineering.
JAMES SWAN, S.B.,
Instructor in Naval Architecture.
G. RUSSELL LINCOLN, S.B.,
Instructor in Sanitary Chemistry.
LOUIS DERR, M.A., S.B.,
Instructor in Physics.

GEORGE V. WENDELL, S.B.,
Instructor in Physics.
LÉON E. BERNARD,
Instructor in Modern Languages.
ROBERT P. BIGELOW, PH.D.,
Instructor in Biology; Librarian of the Institute.
BENJAMIN E. CARTER, JR., A.M.,
Instructor in Mathematics.
HENRY G. PEARSON, A.B.,
Instructor in English.
FRANK H. THORP, PH.D.,
Instructor in Industrial Chemistry.
CHARLES E. FULLER, S.B.,
Instructor in Mechanical Engineering.
WILLIAM A. JOHNSTON, S.B.,
Instructor in Mechanical Engineering.
JOSEPH P. LYON, S.B.,
Instructor in Civil Engineering.
CHARLES F. PARK, S.B.,
Instructor in Mechanical Engineering.
JOHN O. SUMNER, A.B.,
Instructor in History.
WILLIAM H. WALKER, PH.D.,
Instructor in Analytical Chemistry.
SAMUEL P. MULLIKEN, PH.D.,
Instructor in Organic Chemistry.
GEORGE W. ROLFE, A.M.,
Instructor in Analytical Chemistry.
L. KIMBALL RUSSELL, S.B.,
Instructor in General Chemistry.
SIMEON C. KEITH, JR., S.B.,
Instructor in Biology.
ERVIN KENISON, S.B.,
Instructor in Mechanical Drawing.
CHARLES L. NORTON, S.B.,
Instructor in Physics.
KILBURN S. SWEET, S.B.,
Instructor in Civil Engineering.
F. JEWETT MOORE, PH.D.,
Instructor in Analytical Chemistry.
W. FELTON BROWN,
Instructor in Freehand Drawing.
FREDERIC H. KEYES, S[illegible],
Instructor in Mechanical Engineering.

HENRY E. CRAMPTON, JR., A.B.,
Instructor in Biology.
JUSTUS ERHARDT,
Instructor in Modern Languages.
HENRY FAY, PH.D.,
Instructor in Analytical Chemistry.
HARRY W. GARDNER, S.B.,
Instructor in Architecture.
GEORGE B. HAVEN, S.B.,
Assistant in Mechanical Engineering.
FRANK P. McKIBBEN, S.B.,
Assistant in Civil Engineering.
JOSEPH W. PHELAN, S.B.,
Assistant in General Chemistry.
SAMUEL G. REED, S.B.,
Assistant in Mechanical Engineering.
FRANKLIN H. ROBBINS, S.B.,
Assistant in Mechanical Drawing.
ALEXANDER W. MOSELEY, S.B.,
Assistant in Mechanical Engineering.
HAROLD K. BARROWS, S.B.,
Assistant in Civil Engineering.
JESSE H. BOURNE, S.B.,
Assistant in Mechanical Engineering.
CARL H. CLARK, S.B.,
Assistant in Mechanical Engineering.
WILLIAM J. DRISKO, S.B.,
Assistant in Physics.
FRED A. HANNAH, S.B.,
Assistant in Mechanical Engineering.
HENRY A. HOLDREGE, S.B.,
Assistant in Physics.
FREDERIC W. HOWE, S.B.,
Assistant in General Chemistry.
CHARLES A. MESERVE, S.B.,
Assistant in Sanitary Chemistry.
JAMES F. NORRIS, PH.D.,
Assistant in Organic Chemistry.
SAMUEL C. PRESCOTT, S.B.,
Assistant in Biology.
CHARLES R. WALKER, S.B.,
Assistant in General Chemistry.
WALTER S. WILLIAMS, S.B.,
Assistant in Industrial Chemistry.

INSTRUCTORS AND ASSISTANTS IN THE MECHANIC ARTS.

THEODORE B. MERRICK,
Instructor in Woodwork and Foundry-work.

JAMES R. LAMBIRTH,
Instructor in Forging.

ROBERT H. SMITH,
Instructor in Machine-Tool Work.

MINOT A. BRIDGHAM,
Assistant in Woodwork.

EVERETT H. MASTERS,
Assistant in Forging.

IRA G. STUDLEY,
Assistant in Machine-Tool Work.

INSTRUCTOR IN GYMNASTICS.

HERMAN BOOS.

TEACHERS AND LECTURERS FOR THE CURRENT YEAR.

TRUMAN H. BARTLETT, *on Modelling.*

LOUIS BELL, PH.D., *on the Electrical Transmission of Power.*

GEORGE W. BLODGETT, S.B., *on the Applications of Electricity to Railway Signalling.*

WILLIAM R. COPELAND, A.B., *on Bacteriology of Water and Sewage Purification.*

J. P. B. FISKE, S.B., *on the Application of Electricity to Railway Transportation.*

HOWARD C. FORBES, S.B., *on Commercial Electrical Testing.*

JOHN R. FREEMAN, S.B., *on the Hydraulics of Fire Protection, and on Fireproof Construction.*

HOLLIS FRENCH, S.B., *on Electrical Engineering Practice and Specifications.*

DAVID A. GREGG, *on Pen and Ink Drawing.*

HAMMOND V. HAYES, PH.D., *on Telephone Engineering.*

HENRY M. HOBART, S.B., *on the Design of Dynamo Machines.*

HENRY M. HOWE, A.M., S.B., *on Metallurgy.*

DANIEL D. JACKSON, S.B., *on the Microscopical Examination of Water Supplies.*

CHARLES D. JENKINS, S.B., *on Illuminating Gas, and on Pottery and Tiles.*

ERNEST A. LE SUEUR, S.B., *on the Industrial Applications of Electro-Chemistry.*

ARTHUR D. LITTLE, *on Paper.*

JAMES W. LOVELAND, S.B., *on Chemical Analysis of Soaps.*

SAMUEL W. MEAD, *on Architectural Design.*

WALTER S. MOODY, *on Transformers.*

WEBSTER NORRIS, S.B., *on Rubber.*

ODIN B. ROBERTS, S.B, A.M., LL.D., *on the Nature and Function of Patents for Inventions.*

LOUIS J. SCHILLER, *on Sugar and Sugar Refining.*

FRANK G. STANTIAL, S.B., *on Sulphuric Acid.*

ELIHU THOMSON, *on Recent Developments in Applied Electricity.*

ROSS TURNER, *on Water Color.*

C. HOWARD WALKER, *on the History of Ornament.*

Faculty.

FRANCIS A. WALKER, *President.*

JOHN D. RUNKLE.
GEORGE A. OSBORNE.
JAMES M. CRAFTS.
ROBERT H. RICHARDS.
WILLIAM H. NILES.
CHARLES R. CROSS.
GAETANO LANZA.
GEORGE F. SWAIN.
FRANCIS W. CHANDLER.
ALPHONSE N. VAN DAELL.
WILLIAM T. SEDGWICK.
DAVIS R. DEWEY.
SILAS W. HOLMAN.
WEBSTER WELLS.
CECIL H. PEABODY.
HARRY W. TYLER, *Secretary.*
ARLO BATES.
JOHN BIGELOW, JR.
D. DESPRADELLE.
PETER SCHWAMB.
C. FRANK ALLEN.
ALFRED E. BURTON.
DWIGHT PORTER.
HEINRICH O. HOFMAN.
THOMAS E. POPE.
ELEAZER B. HOMER.
GEORGE T. DIPPOLD.
HENRY P. TALBOT.
CHARLES F. A. CURRIER.
WILLIAM O. CROSBY.
LINUS FAUNCE.
JEROME SONDERICKER.
ALLYNE L. MERRILL.
DANA P. BARTLETT.
EDWARD F. MILLER.
FRANK VOGEL.
WILLIAM L. PUFFER.
FREDERICK H. BAILEY.
FRED L. BARDWELL.
AUGUSTUS H. GILL.
ARTHUR A. NOYES.
S. HOMER WOODBRIDGE.
HARRY E. CLIFFORD.
RICHARD W. LODGE.
FREDERICK S. WOODS.
THEODORE HOUGH.
WILLIAM Z. RIPLEY.

Courses of Instruction.

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, as a scientific school, or College of Industrial Science, provides an extended series of scientific and technical studies, and of practical exercises in immediate application of the principles and technical rules acquired in the recitation and lecture room.

Central and fundamental in its curriculum are thorough introductory courses in mathematics, chemistry, and physics. The general scientific training thus acquired, on the one hand, prepares the student for more advanced scientific study of mathematics, of theoretical and organic chemistry, of heat and electricity, of physical geography, lithology, geology, and mineralogy, or of biology, botany, zoölogy, and palæontology; on the other hand, it constitutes the foundation for the technical courses in applied mechanics, in analytical, industrial, and sanitary chemistry, in electricity, in highway and railroad engineering, in engineering and architectural design and construction, in thermodynamics, locomotive, mill, and marine engineering, in mining, metallurgy, and assaying, and in sanitary, hydraulic, and bridge engineering.

These subjects have been arranged in thirteen distinct "Courses," each of four years' duration. For the satisfactory completion of any one of these, the degree of Bachelor of Science is conferred by the Institute. Of the thirteen courses, eight give their students scientific and practical training for the various engineering professions; four others, namely, those in Chemistry, Physics, Biology, and Geology, with a larger

proportion of pure science, afford preparation either for professional practice, for teaching, or for scientific investigation. The Course in General Studies combines thorough general scientific training with a wide range of philosophic studies. While the Institute of Technology is primarily and essentially a school of applied science, its curriculum has always comprised a certain, not inconsiderable, amount of literary, historical, and economic study. There has been no time since the foundation of the Institute when its degree could be attained without studies in these lines carried through at least three years. Of late years the instructing staff on this side of the school has been strengthened, and the general courses correspondingly developed.

For detailed statements in regard to the several courses, see pages 27 to 53.

Schedules and Descriptions of the Professional Courses. — The following pages 27 to 53 contain schedules showing the distribution of studies throughout each of the regular courses. Each schedule is preceded by a brief description.

Choice of Courses.[1] At the end of the first half-year, which is the same for all courses, the student selects, subject to the approval of the Faculty, the course which he will thenceforth pursue, and his work becomes more specialized thereafter as it progresses.

An idea of the nature and amount of the work to be done in any one of the regular courses may be obtained by considering, in connection with the schedule of that course (pages 27 to 53), the statements made in regard to the various branches of study (for example, Mathematics, Language, Chemistry, Physics, etc.) in the paragraphs descriptive of the "Subjects and Methods of Instruction," pages 68 to 109.

[1] A special circular in regard to the choice of courses will be sent on application.

Options. — Within most of these regular courses the student is given, by means of options, a considerable latitude in the selection of the branch of his intended profession to which he will specially devote his energies in the later years of his study. Thus in Civil Engineering, page 29, he may elect sanitary and hydraulic engineering, geodesy, or an advanced course in railroad engineering and management; in Mechanical Engineering, page 31, he may choose either marine engineering, locomotive construction, or mill engineering; and similarly for other courses. Inspection of the course descriptions and schedules, pages 27 to 53, will show the nature and effect of the options. In cases where numbers are prefixed, the selection of later options is positively determined by that of earlier ones, owing to the requirement of certain subjects as preparation for the former; in others, a wide choice is offered throughout all the years, the difference in this respect arising largely from the nature of the topics involved.

Graduate Courses of study may be pursued, either with or without reference to advanced degrees, by graduates of the Institute or by other persons of equivalent training. (See page 54.)

Five-Year Courses. — Students purposing to take the degree of the Institute, but for exceptional reasons finding it advantageous to undertake fewer studies at once than are prescribed in the schedules for the regular four-year courses, may pursue a course arranged to distribute the entire work over five instead of four years. A further statement of the five-year courses may be found on page 54.

Subjects and Methods of Instruction. — The statements on pages 68 to 109 supply a general outline of the character and methods of instruction given, and of the equipment of the laboratories, museums, and libraries, which form conspicuous features in the work of the Institute.

SCHEDULES OF FIRST-YEAR STUDIES IN THE REGULAR COURSES.

FIRST TERM.

(Common to all Courses.)

Algebra, or Solid Geometry . 20, 21
Plane Trigonometry 22
General Chemistry 240
Chemical Laboratory 240
Mechanical Drawing 70
Freehand Drawing 80
French [1] (or German [2]) . . 151–(161)
Rhetoric and English Composition 120
Military Tactics.

SECOND TERM.

COURSES I., II., III. (2), VI., X., XI., XIII.

Plane Trigonometry 22
Analytic Geometry 27
General Chemistry; Qualitative Analysis 241
Chemical Laboratory 241
Mechanical Drawing and Descriptive Geometry 71
Freehand Drawing 81
French [1] (or German [2]) . . 151–(161)
Political History since 1815 . . . 180
Military Tactics.

COURSES III. (1), V., VIII., XII.

Plane Trigonometry 22
Analytic Geometry [3] 27
General Chemistry; Qualitative Analysis 241
Chemical Laboratory 241
Mechanical Drawing 73
Freehand Drawing 81
French [1] (or German [2]) . . 151–(161)
Political History since 1815 . . . 180
Military Tactics.

COURSE IV.

Plane Trigonometry 22
Analytic Geometry 27
Mechanical Drawing and Descriptive Geometry 72
Freehand Drawing 82
French [1] (or German [2]) . . 151–(161)
French [1] sight-reading 152
Political History since 1815 . . 180
Military Tactics.

COURSE VII.

Plane Trigonometry; Elements of Plane Analytic Geometry . 22, 23
General Chemistry; Qualitative Analysis 241
Chemical Laboratory 241
Microscopy 603
Mechanical Drawing 74
Freehand Drawing 81
French [1] (or German [2]) . . 151–(161)
Political History since 1815 . . 180
Military Tactics.

COURSE IX.

Plane Trigonometry; Elements of Plane Analytic Geometry . . 22, 23
Mechanical Drawing; Chart and Map Making 74
Freehand Drawing 81
Political History since 1815 [4] . . 180
Logic and Argumentative Composition 121
French [1] (or German [2]) . . 151–(161)
French [1] sight-reading 152
Military Tactics.

For descriptions of the methods, etc., used in the above instruction, see the corresponding pages under Subjects and Methods of Instruction, pages 68 to 109. Numbers at the right refer to the first column of the Schedule of Topics (pages 110–139), where details are given as to the methods of instruction, etc.

[1] For students entering on French and taking German in their second and third years.
[2] For students entering on German and taking French in their second and third years.
[3] For Courses XII and V. (option 2) briefer course, 23.
[4] With additional work in General History.

I.—CIVIL ENGINEERING.

This course is designed to give the student sound training, both theoretical and practical, in the sciences and principles upon which the practice of civil engineering is based. Particular care is taken to enforce the practical application of the principles taught, and the student is made familiar with the use of engineering instruments and with the usual problems of practice.

To meet the rapid specialization now going on in the various departments of civil engineering, the department offers, in the fourth year, which is devoted entirely to professional work, three options or lines of study: namely, a general option in civil engineering; an option in which more than usual attention is devoted to highways, railroads, and railroad management; and an option giving special attention to geodesy and topography.

Aside from the courses in mathematics, physics, and mechanics, the more purely professional work is divided as follows: In the second year a course is given in surveying and topographical drawing, embracing the use of the more common instruments, with practice in the field and in the drawing-room. In the third year, instruction and field practice are given in railroad surveying, and in advanced surveying; also courses in railroad and highway engineering, in stereotomy, and in the elements of structures. In the fourth year the instruction includes the theory of structures, graphical statics, strength of materials, theoretical hydraulics, sanitary, hydraulic, and railroad engineering, railroad management, and geodesy. Practice is given in hydraulic measurements and in testing materials of construction in the engineering laboratory. Students in this course also receive instruction in mechanism, and in machinery and motors.

In the summer vacation following the third year, four weeks are devoted to a course of field-work in geodesy, topography, hydraulics, and geology, open to all students, and required of those taking the geodetic option. (See pages 78 to 82.)

I.—CIVIL ENGINEERING.

FIRST YEAR. SEE PAGE 27.

SECOND YEAR.

FIRST TERM.

Surveying and Plotting	360
Topographical Drawing	362
Elements of Astronomy	363
Differential Calculus; Spherical Trigonometry	29
Physics: Mechanics, Wave Motion, Electricity (lectures)	300
Descriptive Geometry	75
German (or French)	160 (150)
English Literature	125
American History	181

SECOND TERM.

Surveying and Plotting	360
Mechanism	430
Physical Geography	560
Integral Calculus	32
Physics: Electricity, Optics (lectures)	300
German (or French)	160 (150)
English Literature and Composition	125

THIRD YEAR.

FIRST TERM.

Railroad and Highway Engineering; Field-work and Drawing	372, 373
Advanced Surveying	370
Stereotomy	375
Structural Geology	565
Physics: Heat	310
Physical Laboratory	311
General Statics; Stresses in Frames; Strength of Materials	50
German (or French)	161 (151)
Political Economy	205
Business Law	235

SECOND TERM.

Railroad and Highway Engineering; Field-work and Drawing	372, 373
Advanced Surveying	370
Theory of Structures	376
Stratigraphic Geology	568
Physical Laboratory	311
Strength of Materials; Kinematics and Dynamics; Theory of Elasticity	50
German (or French)	161 (151)
Political Economy and Industrial History	205
Business Law	235

FOURTH YEAR.

FIRST TERM.

Theory of Structures[1]		394
Hydraulics		390
Strength of Materials; Theory of Elasticity[2]		56
Elements of Dynamo Machinery		340
Options.		
1.	Sanitary and Hydraulic Engineering	392
	Bridges and similar Structures	397
	Bridge Design	398
	Hydraulic Measurements	393
	Elements of Practical Astronomy	388
	Metallurgy of Iron	487
2.	Railroad and Highway Engineering	335, 385
	Railroad Design	403
	Railroad Management	386
	Bridges and similar Structures	397
	Bridge Design	398
	Metallurgy of Iron	487
3.	Bridge Design	399
	Geodesy and Astronomy	387
	Hydraulic Measurements	393
	Method of Least Squares	42
	Physical Laboratory	325

SECOND TERM.

Thesis.

Options.

1.	Theory of Structures	394
	Hydraulic Engineering	401
	Elements of Geodesy	388
	Bridges and similar Structures	397
	Bridge & Sanitary Design	398, 404
	Sanitary Science and the Public Health	629
	Machinery and Motors	60
	Engineering Laboratory	402
2.	Theory of Structures	394
	Railroad and Highway Engineering	385
	Bridges and similar Structures	397
	Bridge & Railroad Design	398, 403
	Building Construction	540
	Machinery and Motors	60
	Engineering Laboratory	402
3.	Theory of Structures	396
	Hydraulic Engineering	401
	Geodesy	387
	Differential Equations	43
	Physical Laboratory	325

[1] Options 3, 396.

[2] For classes entering before 1894.

II. — MECHANICAL ENGINEERING.

The course aims to equip the student with such training in pure and applied mathematics as shall qualify him to deal with the engineering problems of his profession from the most favorable standpoint. It attempts by instruction, both theoretical and practical, to acquaint him with engineering practice, and to give him a proper groundwork upon which to base a professional career. The more strictly professional work of the course may be classified as follows:

Mathematics, physics, and applied mechanics, given outside the department; the last including the study of, and practice in testing the strength of materials.

Recitation-room work of the department proper, beginning with the study of mechanism, the construction of gear-teeth, etc., and continued by courses on machine tools and cotton machinery. Courses are given on valve gears, thermodynamics, theory of the steam-engine, and on steam-boilers. The fourth-year instruction includes applied dynamics, further study of steam engineering, hydraulics and hydraulic motors, and in machine design a course combining study and drawing. The option is given of courses in locomotive construction, mill engineering, and marine engineering.

Drawing-room work. The students in the second year make working drawings from measurements, and the drawings necessary in connection with the course in mechanism and gear construction. In the third year they make detail and assembly drawings from machinery, and this is followed by mechanism designs and boiler drawings.

Shop-work, including carpentry, pattern-making, forging, chipping, filing, and machine-tool work.

Engineering laboratory work. This begins with drill in steam-engine tests in the second term of the third year, and is continued throughout the fourth year, including tests of boilers, pumps, power, etc., and a large amount of investigation. (See pages 82 and 89.)

II.—MECHANICAL ENGINEERING.

FIRST YEAR. SEE PAGE 27.

SECOND YEAR.

FIRST TERM.		SECOND TERM.	
Principles of Mechanism	420	Mechanism: Gear-Teeth; Machine Tools; Cotton Machinery	427
Drawing	422	Drawing	423
Carpentry and Wood-turning	98	Pattern Work	99
Differential Calculus	29	Foundry (elective)	108
Physics: Mechanics, Wave Motion, Electricity (lectures)	300	Integral Calculus	32
Descriptive Geometry	75	Physics: Electricity, Optics (lectures)	300
German (or French)	160 (150)	German (or French)	160 (150)
English Literature	125	English Literature and Composition	125
American History	181		

THIRD YEAR.

FIRST TERM.		SECOND TERM.	
Steam Engineering; Valve Gears; Thermodynamics	433	Steam Engineering; Boilers	433
Drawing	438	Drawing, Design, and use of Surveying Instruments	438, 371
Electricity	316, 317	Engineering Laboratory	443
Forging	100	Forging; Chipping and Filing	100, 102
Elements of Differential Equations	40	Physical Laboratory	311
Physics: Heat	310	Strength of Materials; Kinematics and Dynamics	52
Physical Laboratory	311	German (or French)	161 (151)
General Statics	51	Political Economy and Industrial History	205
German (or French)	161 (151)	Business Law	235
Political Economy	205		
Business Law	235		

FOURTH YEAR.

FIRST TERM.		SECOND TERM.	
Steam Engineering	450	Foundations[1]	465
Machine Design	453	Shop Management[1]	466
Hydraulics	391	Hydraulic Motors	400
Dynamics of Machines	451	Engineering Laboratory	455
Engineering Laboratory	455	Machine-Tool Work	104
Chipping and Filing; Machine-Tool Work	103, 104	Strength and Stability of Structures; Theory of Elasticity	59
Strength of Materials; Friction	57	Political Economy and Industrial History[2]	203
Heating and Ventilation	338	Thesis.	
Elements of Dynamo Machinery	340		
Metallurgy of Iron	487		
Options.		*Options.*	
1. Marine Engineering	461	1. Marine Engineering	461
2. Locomotive Construction	460	2. Locomotive Construction	460
3. Mill Engineering	462	3. Mill Engineering	462

[1] For classes entering after 1893.

[2] For classes entering before 1894.

III. — MINING ENGINEERING AND METALLURGY.

In the second year, instruction in blowpipe silver assay, in mineralogy and blowpipe analysis, introduces the student to the professional work of his course. In the fourth year, both options include courses in mining engineering, in metallurgy with particular attention to the metallurgy of iron, and in metallurgical or mining laboratory work. Memoirs on special professional topics are presented by the students. The study of mathematics and applied mechanics is continued through three and a half years.

The first option is a general course in mining engineering and metallurgy, adapted to the needs of students who prefer not to make an immediate choice between professional specialties. It thus includes, in addition to the work in mining and metallurgy, milling and smelting, courses in geology, chemistry, and surveying. In general, students who have not a serious reason for doing otherwise are advised to take this option.

The second option takes the direction of metallurgical engineering with mechanical engineering and a considerable amount of chemistry. The student may look forward to employment in metallurgical works, in particular of iron or steel works.

In each option, valuable opportunities are offered for observation and field-work in the summer schools of mining and metallurgy, and in mineralogical excursions, as well as in the ample laboratories of the Institute. (See pages 93 to 96.)

For students able to devote an additional year to the course, valuable collateral instruction in other engineering branches, or a combination of the two options may be arranged. In view of the exceedingly varied demands likely to be made upon the professional mining engineer, such an extension of the course offers particular advantages.

III.—MINING ENGINEERING AND METALLURGY.

FIRST YEAR. SEE PAGE 27.

SECOND YEAR.

FIRST TERM.

Theoretical Chemistry	245
Differential Calculus	29
Physics: Mechanics, Wave Motion, Electricity (lectures)	300
German (or French)	160 (150)
English Literature	125
American History	181

Options.

1.	Surveying and Plotting	360
	Topographical Drawing	362
	Blowpipe Silver Assay	480
2.	Descriptive Geometry	75
	Principles of Mechanism	420
	Blowpipe Silver Assay (elective)	480

SECOND TERM.

Mineralogy and Blowpipe Analysis	561, 562
Integral Calculus	32
Physics: Electricity, Optics (lectures)	300
German (or French)	160 (150)
English Literature and Composition	125

Options.

1.	Surveying and Plotting	360
	Physical Geography	560
2.	Mechanism: Gear-Teeth; Machine Tools	428
	Drawing	424

SUMMER COURSE IN PRACTICAL MINING OR METALLURGY (ELECTIVE).
FIELD-WORK IN MINERALOGY (ELECTIVE).

THIRD YEAR.

FIRST TERM.

Assaying[1]	482
Qualitative Analysis (lectures and laboratory)	251
Physics: Heat	310
Physical Laboratory	311
General Statics	51
German (or French)	161 (151)
Political Economy	205
Business Law	235

Options.

1.	Mining Engineering	481
	Structural & Chemical Geology	566
	Electricity	316, 317
2.	Steam Engineering; Thermodynamics; Valve-Gears	433
	Drawing	439

SECOND TERM.

Assaying[2]	482
Quantitative Analysis (lectures and laboratory)	260
Physical Laboratory	313
Strength of Materials; Kinematics and Dynamics	52
German (or French)	161 (151)
Political Economy and Industrial History	205
Business Law	235

Options.

1.	Mining Engineering	481
	Historical Geology	569
2.	Steam Engineering; Boilers	433
	Engineering Laboratory	443

SUMMER COURSE IN PRACTICAL METALLURGY OR MINING (ELECTIVE).

FOURTH YEAR.

FIRST TERM.

Mining Engineering	493
Metallurgy (non-ferrous)	488
Metallurgy of Iron	487
Metallurgical Laboratory	492
Quantitative Analysis (lectures and laboratory)	269, 274
Heat Measurements[1]	328
Strength of Materials; Friction	57
Elements of Dynamo Machinery[2]	340

Options.

1.	Electrical Measurements[2]	323
	Memoirs	495
	Political Economy[2]	205
	Business Law[2]	235
2.	Hydraulics	391
	Memoirs (English Criticism[2])	495

SECOND TERM.

Mining Engineering	493
Metallurgy (non-ferrous)	494
Metallurgical Laboratory	492
Quantitative Analysis (lectures and laboratory)	269, 274
Thesis.	

Options.

1.	Memoirs	495
	Political Economy and Industrial History[2]	205
	Business Law[2]	235
2.	Engineering Laboratory	456
	Memoirs (English Criticism[2])	495

[1] For classes entering after 1893.

[2] For classes entering before 1894.

IV.—ARCHITECTURE.

The professional work of the architectural course begins in the second year, with the study of the five orders and their applications. The student is made familiar with the materials and principles of construction by lectures and visits to buildings.

In the third year, architectural history is introduced, specifications are discussed, and sufficient practice in working drawings is given to enable the student to be of immediate service on entering an architect's office.

A technical course in heating and ventilation is given in the fourth year, illustrated by the study of the principal public buildings in the city. In this year, also, graphical statics is applied to general practice, and exercise is given in designing trusses and in the construction of domes, arches, and buttresses.

Practice in architectural design is continued throughout the course, also instruction in drawing from the cast and from life. Facility in rendering is gained by a course in water-color and pen and ink drawing.

Throughout this course, as well as those in engineering, extends a full course in mathematics, pure and applied, to serve as a basis for professional work. Regular students pursue also courses in German, French, English, history, physics, etc.

The architectural course aims to prepare its members not only for their years of work as subordinates, when accuracy, rapidity, and taste in drawing and design, with knowledge of detail, will be the most useful qualifications, but also for their subsequent independent career when the value of technical knowledge will become most important.

Persons applying for admission as special students in architecture must be college graduates, or twenty-one years of age with not less than two years' office experience. They will be required to pass, before entrance, examinations[1] in plane geometry, and freehand and mechanical drawing (including projections, isometric and the elements of descriptive geometry); and must include in their work at the Institute the regular courses in freehand drawing, solid geometry, and descriptive geometry, unless already proficient in these subjects. (See page 96.)

[1] See "Advanced Standing Examinations," Calendar, page 2.

IV. — ARCHITECTURE.

FIRST YEAR. SEE PAGE 27.

SECOND YEAR.

FIRST TERM.		SECOND TERM.	
Orders	510	Design	514
Materials	513	Perspective	512
Shades and Shadows	511	Stereotomy	515
Freehand Drawing	83	Freehand Drawing	83
Differential Calculus	29	Integral Calculus	32
Physics: Mechanics, Wave Motion, Electricity (lectures)	300	Physics: Electricity, Optics (lectures)	300
German (or French)	160 (150)	German (or French)	160 (150)
English Literature	125	English Literature and Composition	125
American History	181		

THIRD YEAR.

FIRST TERM.		SECOND TERM.	
Design	522	Design	522
Ancient Architecture	517	Mediæval Architecture	517
Specifications and Working Drawings	520	Specifications and Working Drawings	520
Freehand Drawing	84	Water Color	523
Building Stones	564	Freehand Drawing	84
Heating and Ventilation	309	Pen and Ink	516
General Statics	51	Strength of Materials	53
German (or French)	161 (151)	German (or French)	161 (151)
Political Economy	205	Political Economy and Industrial History	205
Business Law	235	Business Law	235

FOURTH YEAR.

FIRST TERM.		SECOND TERM.	
Design	532	Design: Thesis	532
Architecture of the Renaissance	541	Architecture of the Renaissance	541
Constructive Design	536	History of Painting and Sculpture	542
History of Construction	530	Business Relations, Contracts, etc.	537
Heating and Ventilation[1]	339	History of Ornament	531
Color and Acoustics	329	Modelling	539
History of Ornament	531	Water Color	534
Modelling	539	Pen and Ink	524
Water Color	534	Life Class	535
Pen and Ink	524	Sanitary Science and the Public Health	629
Life Class	535	History and Literature of the Renaissance and the Reformation	185
Strength of Materials	58		
History and Literature of the Renaissance and the Reformation	185		

[1] For classes entering before 1894.

V.—CHEMISTRY.

The course in Chemistry is primarily designed to prepare students for actual work in connection with manufactures based on chemical principles. It is also adapted to the needs of persons who intend to become teachers of chemistry.

The class-room work consists of courses of lectures on general chemistry, and on theoretical, analytical, industrial, and organic chemistry. The non-chemical studies, such as mathematics, physics, mineralogy, English, history, political economy, and language are selected with reference to their bearing on chemical work, or for their general educational value.

The student spends a large part of the four years in the laboratories, the work being arranged as follows: In the first year there is general laboratory practice, in which the student is taught the nature of chemical processes and the use of chemical apparatus, and is drilled in accurate habits of observation. Qualitative chemical analysis is begun in the second term of the first year, and is continued through the first term of the second year. Quantitative analysis follows in the second term of the second year, and continues throughout the course. Industrial, sanitary, and organic laboratory practice follow in the third and fourth years.

While there is a certain prescribed course of study and work in the separate departments of chemistry, which all regular students must pursue, great latitude in the choice of subjects is allowed in the third and fourth years.

Effort is made to develop self-reliance in the student, so that he may be fitted to make his way without assistance. To this end he is required to make investigations, involving original research and reference to the appropriate literature in English, French, and German.

The details of instruction in this course, both for regular and special students, and the description of the Kidder laboratories, are given on pages 70 to 74.

V. — CHEMISTRY.

FIRST YEAR. SEE PAGE 27.

SECOND YEAR.

FIRST TERM.

Qualitative Analysis (lectures and laboratory) 246
Theoretical Chemistry 245
Physics: Mechanics, Wave Motion, Electricity (lectures) . . 300
German (or French) . . . 160 (150)
English Literature 125
American History 181

Options.

1. Differential Calculus 29
2. { Elements of Differential and Integral Calculus 28

SECOND TERM.

Quantitative Analysis (lectures and laboratory) 255
Mineralogy and Blowpipe Analysis 561, 562
Physics: Electricity, Optics (lectures) 300
German (or French) . . . 160 (150)
English Literature and Composition 125

Options.

1. Integral Calculus 32
2. { Physical Geography . . . 560 Microscopy 603

THIRD YEAR.

FIRST TERM.

Quantitative Analysis (lectures and laboratory) 269, 271
Industrial Chemistry 266
Theoretical Chemistry 263
Physics: Heat 310
Physical Laboratory 311
German (or French) . . . 161 (151)
Political Economy 205
Business Law 235

Options.

Structural and Chemical Geology 566
Electricity 318
Sanitary Chemistry 277
Industrial Chemical Laboratory . 267

SECOND TERM.

Quantitative Analysis (lectures and laboratory) 269, 271
Elements of Organic Chemistry . 264
Industrial Chemistry 266
Assaying 483
Physical Laboratory 311
German (or French) . . . 161 (151)
Political Economy and Industrial History 205
Business Law 235

Options.

Electricity 319
Historical Geology 569
Sanitary Chemistry 277
Industrial Chemical Laboratory . 267

FOURTH YEAR.

FIRST TERM.

Organic Chemistry 282
Organic Analysis 279
Organic Preparations 285
Metallurgy 487, 488
Chemical and Optical Analysis of Sugars, etc. 292
Chemical and Mechanical Testing of Oils 286

Options.

Physical Laboratory 326
Language 162
Sanitary Chemistry 287
Textile Coloring 288
Bacteriology 628

SECOND TERM.

Organic Chemistry 282
Gas Analysis 290
Physico-Chemical Laboratory . . 351
Theoretical Chemistry 265
Thesis.

VI. — ELECTRICAL ENGINEERING.

This course is designed to meet the needs of young men desirous of entering upon the practice of any of the various applications of electricity in the arts. Its leading studies are physics, especially theoretical and applied electricity, mechanical engineering, and mathematics.

The work in engineering runs parallel with the electrical subjects, since in all branches of electrical engineering a sound knowledge of mechanics and motors, of measurements of power and of the means of its transmission, etc., is essential. Thus, the second year includes the studies of mechanism, shopwork, and drawing, and the third year, applied mechanics, steam engineering, and hydraulics. Certain of these subjects are also continued in the fourth year.

An extended course in physics begins with the second year, and is continued, by lectures, recitations, and laboratory work, to the end of the third year. A portion of this is devoted to electricity; and at the middle of the second year special lectures, readings, and recitations on this topic are begun, by which the study of the theory of electricity is continued until the end of the fourth year. Work in the physical laboratory begins at the middle of the second year, and leads up to electrical measurements and testing. Extended courses on the technical applications of electricity to the telegraph, telephone, electric lighting, the electrical generation, transmission, and utilization of power, etc., are given, chiefly in the fourth year. Electrical study and research occupy the principal position in this year. A series of advanced mathematical topics also forms an important part of the work. (See pages 74 and 86.)

A new course of lectures upon the industrial applications of electro-chemistry has been instituted, and also a course relating to the Economics of Corporations. Provision will be made for any who desire to pursue the subject of Chemistry to a greater extent than is provided for in the course scheme.

VI. — ELECTRICAL ENGINEERING.

FIRST YEAR. SEE PAGE 27.

SECOND YEAR.

FIRST TERM.

Physics: Mechanics, Wave Motion, Electricity (lectures)	300
Acoustics	302
Principles of Mechanism	420
Differential Calculus	29
Descriptive Geometry	75
Carpentry and Metal-turning	97, 106
German (or French)	160 (150)
English Literature	125
American History	181

SECOND TERM.

Physics: Electricity, Optics (lect.)	300
Physical Laboratory: Mechanics, Optics	303
Physical Measurements (lectures)	305
Theoretical Electricity	302
Mechanism: Gear-Teeth; Machine Tools	428
Drawing	425
Integral Calculus	32
Carpentry and Wood-turning	97
German (or French)	160 (150)
English Literature and Composition	125

THIRD YEAR.

FIRST TERM.

Physics: Heat (lectures)	310
Physical Laboratory: Optics, Heat	313
Theoretical Electricity	315
Methods of Telegraphy	314
Elements of Industrial Electricity	316
Steam Engineering: Valve-Gears; Thermodynamics	433
Drawing	440
Differential Equations	35
General Statics	51
German (or French)	161 (151)
Political Economy	205
Business Law	235

SECOND TERM.

Physical Laboratory: Heat and Electrical Measurements	313
Theoretical Electricity	315
Electrical Measuring Instruments	319
Steam Engineering: Boilers	433
Engineering Laboratory	443
Drawing	440
Strength of Materials; Kinematics and Dynamics	52
German (or French)	161 (151)
Political Economy and Industrial History	205
Business Law	235

FOURTH YEAR.

FIRST TERM.

Technical Applications of Electricity to Telephony, Electric Lighting, Electrical Generation and Transmission of Power, Railroad Signals, etc.	333, 335, 336
Physical Laboratory: General Electrical Testing; Testing of Telegraph Lines, Dynamo Machines, etc.	327
Theory of Periodic Currents	332
Photometry	337
Steam Engineering	450
Dynamics of Machines	452
Hydraulics	391
Engineering Laboratory	455
Strength of Materials; Friction	57
Method of Least Squares	42

SECOND TERM.

Technical Applications of Electricity; Telephone Engineering, Electro-Motors, Dynamo Design	333, 334, 336, 343, 344
Theory of Periodic Currents	332
Discussion of the Precision of Measurements	342
Engineering Laboratory	455
Differential Equations[2]	43
Economics of Corporations[1]	217
Thesis.	

NOTE. — Students having the requisite preparation and ability may pursue more advanced courses in the mathematical theory of electricity and other subjects. With this end in view, competent students may take Fourier's Series and allied topics, also Energetics and Electro-Chemistry, as extra studies. The student is advised to take Advanced German.

[1] For classes entering after 1893.

[2] For classes entering before 1894.

VII.—BIOLOGY.

This course, in the earlier years, gives a broad elementary education in the natural sciences, including chemistry, general biology, geology, botany, and mineralogy, with constant laboratory practice in each subject; and, in the later years, advanced or professional instruction in some of these subjects, especially in physiology, bacteriology, and microbiology. Students of biology have full access to the unusual opportunities which the Institute now affords in the various branches of sanitary science.

In general those who graduate from this department find their places as biologists, attached to boards of health, or they become teachers or physicians. It is obvious that a course of study, such as is outlined upon the opposite page, fits the student thoroughly for the scientific or professional study of medicine. For this no preparation can surpass a well-considered and liberal education in which prominent features are chemistry, physics, and biology, anatomy and embryology, comparative physiology and microscopic anatomy, bacteriology and sanitary science.

The course in Biology is also well adapted for those who wish to become teachers of natural science, a profession in which there is a steadily increasing demand in the secondary schools. Abundant opportunities for practical studies are provided in the biological, chemical, geological, and mineralogical laboratories (see page 100); while advantages somewhat unusual are offered by the library and museum of the Boston Society of Natural History. (See page 100.)

Special facilities are offered in this department for advanced students in fermentation and in micro-biology, including the study of yeasts, bacteria, and other organisms affecting water supply, sewage disposal, and the public health. The theory and practice of sanitary science and of the purification of water and sewage, the natural history of epidemics, and the sanitary applications of the germ theory of disease, form portions of these courses. (See page 98.)

VII.—BIOLOGY.

FIRST YEAR. SEE PAGE 27.

SECOND YEAR.

FIRST TERM.		SECOND TERM.	
General Biology	600	General Botany	606
Qualitative Analysis (lectures and laboratory)	246	General Zoölogy	605
Theoretical Chemistry	245	Quantitative Analysis (lectures and laboratory)	255
Physics: Mechanics, Wave Motion, Electricity (lectures)	300	Mineralogy and Blowpipe Analysis	561, 562
German (or French)	160 (150)	Physical Geography	560
English Literature	125	Physics: Electricity, Optics (lectures)	300
American History	181	German (or French)	160 (150)
		English Literature and Composition	125

THIRD YEAR.

FIRST TERM.		SECOND TERM.	
Comparative Anatomy	612	Comparative Anatomy and Embryology	612
Anthropology	615	Cryptogamic Botany	616
Quantitative Analysis (lectures and laboratory)	269, 270	Sanitary Chemistry	277
Elements of Organic Chemistry	262	Historical Geology	569
Structural and Chemical Geology	566	Physical Laboratory	311
Physics: Heat	310	German (or French)	161 (151)
Physical Laboratory	311	Political Economy and Industrial History	205
German (or French)	161 (151)	Business Law	235
Political Economy	205		
Business Law	235		

FOURTH YEAR.

FIRST TERM.		SECOND TERM.	
Comparative Physiology	620	Comparative Physiology	620
Physiological Laboratory	621	Physiological Laboratory	621
Theoretical Biology	624	Theoretical Biology	624
Microscopic Anatomy	622	Microscopic Anatomy	622
Bacteriology and Micro-organisms of Fermentation	628	Sanitary Science and the Public Health	629
History of the Inductive Sciences	627	Journals	618
Journals	618	Thesis.	
Options.		*Options.*	
1. History and Literature of the Renaissance and the Reformation	185	1. Sanitary Biology or Descriptive Sociology	630 225
1. Climatology	580	1. History and Literature of the Renaissance and the Reformation	185
2. Organic Chemistry	282	2. Sanitary Biology	630
2. Organic Analysis	279	2. Organic Chemistry	282

VIII.—PHYSICS.

As distinguished from the professional or technical courses in engineering, architecture, etc., the Institute offers certain courses of a distinctly scientific nature. The course in Physics contains a series of studies adapted to the needs of those who wish to become teachers of physics, or who desire to enter upon a course in pure science, whether with a view to its further continuance, or wholly as a matter of training. Its leading features are a thorough and continuous study of the various branches of physics and a treatment of mathematics considerably advanced beyond the requirements of any of the technical courses. General, theoretical, analytical, and organic chemistry occupy a position next in prominence to mathematics, and of hardly less importance. Options are so arranged that choice may be made between the pursuit of more advanced mathematical and chemical topics; also between shopwork instruction in the use of tools, and work in the biological laboratory.

Historical and other allied subjects and the modern languages are continued throughout the first three years; and the latter may be further prolonged, if desired. Chemistry may be continued up to the middle of the last year, and mathematics, pure and applied, is required throughout the whole four years. Physics begins with the second year and, in lectures, readings, recitations, and laboratory exercises, extends to the close of the course. A large amount of experimental work is performed, and an experimental investigation is undertaken during the fourth year in connection with the preparation of the thesis. At all times it is sought to encourage the spirit of original research, and to impart an understanding of the principles upon which scientific investigation, especially in quantitative measurement, should be conducted. (See pages 74 to 76.)

Beyond the particular alternative studies set forth in the course scheme, a certain further liberty of substitution may be allowed by the Faculty in the case of students in Course VIII. who are fitting themselves for some special line of work.

VIII. — PHYSICS.

FIRST YEAR. SEE PAGE 27.

SECOND YEAR.

FIRST TERM.

Physics: Mechanics, Wave Motion, Electricity (lectures) . . 300
Acoustics 302
Qualitative Analysis (lectures and laboratory) 247
Theoretical Chemistry 245
Descriptive Astronomy 301
Differential Calculus 29
German (or French) . . . 160 (150)
English Literature 125
American History 181

SECOND TERM.

Physics: Electricity, Optics (lect.) 300
Physical Laboratory: Mechanics, Optics 303
Physical Measurements (lectures) 305
Theoretical Electricity 302
Quantitative Analysis (lectures and laboratory) 257
Microscopy 603
Integral Calculus 32
German (or French) . . . 160 (150)
English Literature and Composition 125

Options.

Quantitative Analysis (additional) 257
Determinants 31

THIRD YEAR.

FIRST TERM.

Physics: Heat (lectures) . . . 310
Physical Laboratory: Optics, Heat 312
Theoretical Electricity 315
Methods of Telegraphy 314
Elements of Industrial Electricity 316
Elements of Organic Chemistry . 262
Theoretical Chemistry: Solutions 263
Differential Equations 35
German (or French) . . . 161 (151)
Political Economy 205
Business Law 235

Options.

{ Quantitative Analysis . . 269, 272
{ Physiology of the Senses or Shop-work 614, 98
{ Quaternions 37
{ General Theory of Equations 33

SECOND TERM.

Physical Laboratory: Heat and Electrical Measurements . . . 312
Physico-Chemical Laboratory . . 351
Theoretical Electricity 315
Electrical Measuring Instruments 319
Theoretical Chemistry 265
Analytical Mechanics 54
German (or French) . . . 161 (151)
Political Economy and Industrial History 205
Business Law 235

Options.

Quantitative Analysis . . . 269, 272
Analytic Geometry of Three Dimensions; Advanced Calculus and Definite Integrals 39

FOURTH YEAR.

FIRST TERM.

Physical Laboratory: Electrical Testing; Heat Measurements 327, 328
Theory of Periodic Currents . . 332
Optics 331
Photometry 337
Energetics 347
Memoirs 324
Analytical Mechanics 55
Method of Least Squares . . . 42
History of Science 627

Options.

Organic Chemistry . . . 279 or 282
Fourier's Series; Laplace's Coefficients 41

SECOND TERM.

Theory of Periodic Currents . . 332
or Theory of Potential . . . 352
Optics 331
Electro-Chemistry 350
Analytical Mechanics 55
Discussion of the Precision of Measurements 342
Principles of Scientific Investigation 330
Physical Research: Thesis.

Options.

Special Work; Chemistry . . . 282
or Physics 351
Fourier's Series; Laplace's Coefficients 41
Physiological Measurements . . 632

IX. — GENERAL STUDIES.

This course is designed especially for those students who wish to secure an education based upon scientific study and experiment but including a larger amount of history, economics, language, and literature than is possible in technical courses. It is adapted to the needs of those who expect to engage in trade, banking, manufacturing, or journalism, or in the teaching of social or political science. For administrative positions in business, a careful knowledge of political and social relations is essential; and it is believed that the origin, growth, and laws of political and industrial society can best be approached through the methods used in natural science. The uniform requirement of the Institute in physics and a considerable share of the general training in chemistry are preserved in this course. From the study of biology, including botany and zoölogy, as a basis, the student is prepared to proceed to the study of man in society, and to consider the history and significance of social institutions, such as the family, the state, and the church. Physical science, biology, anthropology, social science and history, political and industrial history, and international law thus present, throughout the course, a definite, progressive relationship.

The fact is, moreover, kept in view in this course, that success in practical as in intellectual life must depend largely upon breadth and flexibility of mind, such as is best cultivated by an intelligent and appreciative acquaintance with literature. The study of the history and development of the English language is made to lead the way to a careful survey of English literature, the effort being to make the work not mechanical, but sympathetic and vital.

Other special features of the department of General Studies are: More extended study of modern languages; a continuous course of historical study, directed especially toward the political and social history of England and the United States; drill in the essential principles of English composition; an orderly study of economics, including its theory and history, with courses in industrial and commercial history and geography, finance, and statistics. The student may be permitted to substitute certain subjects in other courses, as biology or mathematics, provided his individual aptitudes justify such a liberty. (See pages 104 to 108.)

IX.—GENERAL STUDIES.

FIRST YEAR. SEE PAGE 27.

SECOND YEAR.

FIRST TERM.		SECOND TERM.	
Economic Problems	201	Political History of England and the United States	182
Political History of England and the United States	182	Zoölogy and Botany	605, 606
Political Economy	200	Physical Geography	560
General Biology	602	French; German	153, 160
French; German	153, 160	English Literature and Composition	125
English Literature	125	Physics; Electricity, Optics (lectures)	300
Physics; Mechanics, Wave Motion, Electricity (lectures)	300	Physical Laboratory	304

THIRD YEAR.

FIRST TERM.		SECOND TERM.	
Statistics	206	Descriptive Sociology	225
History and Literature of the Renaissance and the Reformation	185	History and Literature of the Renaissance and the Reformation	185
Financial History of United States [1]	210	History of Commerce [1]	212
Anthropology	615	Historical Geology	569
Commercial Geography [1]	211	German (with sight-reading)	161, 164
Structural Geology	565	Business Law	235
German (with sight-reading)	161, 164		
Business Law	235		
Physics: Heat	310		
Options. [2]		*Options* [2]	
History of England in the 16th and 17th Centuries	184	History of England in the 16th and 17th Centuries	184
Theories and Methods of Social Reform	214	Theories and Methods of Social Reform	214
English Literature to 1560	129	English Literature: 1560–1660	129
		French	155

FOURTH YEAR.

FIRST TERM.		SECOND TERM.	
Comparative Politics	226	Comparative Politics	226
Taxation and Administration [1]	215	History of Industry [1]	213
English Literature: 1660–1780	130	English Literature: 1780–1860	131
International Law	227	History and Elements of Philosophy	188
Physiology	626	Sanitary Science and the Public Health	629
Climatology	580	Thesis.	
Options.		*Options.*	
History of Era of French Revolution	186	History of Era of French Revolution	186
Local United States History	187	Local United States History	187
Political Science: Statistics of Sociology	207	Language: First Term continued	165, 166
Language: Special Work in French or German, or Elements of Spanish or Italian	165, 166	English Composition (advanced course)	134
Contemporary English and American Literature	132	Banking and Finance	230
		History of Economic Theory	216
		Journalism	135

[1] Alternating studies.

[2] In this year an option in Latin Readings, with special reference to English Etymology, may be chosen by students qualified for such work.

X.—CHEMICAL ENGINEERING.

This course is arranged to meet the needs of students who desire, in addition to a general training in mechanical engineering, a good knowledge of the applications of chemistry to the arts. The instruction in the fourth year has been so arranged that the student can exercise a certain choice as to the topics to which he wishes to devote special attention. Thus he may receive instruction in textile coloring in case he expects to find employment in the textile industries; in heat measurements and metallurgy, to fit him for operations involving the use of furnaces; or in organic chemistry, if he intends to engage in the manufacture of dyes or other organic products. Graduates in this course find employment as engineers, having to deal with problems of construction and administration in connection with dye-works and bleacheries, oil refineries, gas-works, sugar refineries, paper and pulp mills, the manufacture of fertilizers, soap, heavy chemicals, and various other branches of industry where such special training is demanded.

The general engineering studies in the course in Chemical Engineering coincide for the most part with the work of the students in Mechanical Engineering. A course of instruction in the fourth year is devoted to a discussion of the appliances used in manufacturing and applied chemistry, considered from an engineering point of view.

The instruction in industrial and applied chemistry is arranged with reference to the needs of this course, and attention is directed to the methods of conducting the mechanical operations in various manufacturing processes. At the same time the chemical principles upon which operations rest are thoroughly taught. (See page 88.)

X.—CHEMICAL ENGINEERING.

FIRST YEAR. SEE PAGE 27.

SECOND YEAR.

FIRST TERM.		SECOND TERM.	
Qualitative Analysis (lectures and laboratory)	248	Quantitative Analysis (lectures and laboratory)	257
Principles of Mechanism	420	Mechanism: Cotton Machinery; Machine Tools; Gear-Teeth	427
Differential Calculus	29	Drawing	423
Physics: Mechanics, Wave Motion, Electricity (lectures)	300	Integral Calculus	32
Descriptive Geometry	75	Physics: Electricity, Optics (lectures)	300
German (or French)	160 (150)	German (or French)	160 (150)

THIRD YEAR.

FIRST TERM.		SECOND TERM.	
Industrial Chemistry	266	Industrial Chemistry	266
Elements of Organic Chemistry	262	Industrial Chemical Laboratory	268
Steam Engineering; Thermodynamics; Valve-Gears	433	Steam Engineering: Boilers	433
Drawing	441	Drawing	441
Elements of Differential Equations	40	Engineering Laboratory	443
Electricity	316, 317	Physical Laboratory	311
Physics: Heat	310	Strength of Materials; Kinematics and Dynamics	52
Physical Laboratory	311	German (or French)	161 (151)
General Statics	51	English Literature and Composition	125
German (or French)	161 (151)		
English Literature	125		
American History	181		

FOURTH YEAR.

FIRST TERM.		SECOND TERM.	
Applied Chemistry	289	Applied Chemistry: Memoirs	289
Chemical and Mechanical Testing of Oils	286	Technical Machinery	463
Gas Analysis	290	Engineering Laboratory	455
Steam Engineering	450	Strength and Stability of Structures; Theory of Elasticity	59
Engineering Laboratory	455	Shopwork	101, 107
Metallurgy	487, 488	Political Economy and Industrial History	205
Strength of Materials: Friction	57	Business Law	235
Dynamics of Machines	452	Thesis.	
Shopwork	98		
Political Economy	205		
Business Law	235		
Options.		*Options.*	
Textile Coloring	288	Metallurgy	494
Heat Measurements	328	Organic Chemistry	282
Organic Chemistry	282	Hydraulic Motors	400
Hydraulics and Hydraulic Measurements	391, 393		

XI.—SANITARY ENGINEERING.

This course is essentially one in civil engineering, but is designed for students who wish to pay particular attention to those engineering branches which are concerned with problems of the public health, and who, therefore, desire to gain a better knowledge of the subjects of chemistry and biology, and of their relations to engineering problems, than can be obtained in the course in Civil Engineering.

The line of study offered differs from the regular course in Civil Engineering, page 29, in the following particulars:

There is a reduction in the time devoted to railroads and bridges, and an entire omission of the mechanical engineering subjects of mechanism and machinery and motors, and of astronomy, metallurgy of iron, and historical geology.

The time thus gained is devoted principally to courses in chemistry and biology. In these it is designed to give the students such training as shall fit them to interpret properly the results of researches in sanitary chemistry and sanitary biology, and to co-operate with chemists and biologists in professional work. Practice is given in the chemical and biological laboratories, and the student is instructed in the methods of water and air analysis, and is taught to observe and identify the various animal and vegetable organisms present in natural waters and sewage. The course devotes particular attention to the sanitary side of questions of water supply and drainage, and discusses, among other things, the principles of filtration and the methods of purifying water and sewage, the relation between drinking waters and disease, the methods of disposing of sewage, and other questions relating to the health of communities. In the fourth year a course of instruction is also given in heating and ventilation.

The entire instruction in sanitary and hydraulic engineering now given in the course in Civil Engineering, a portion of which is there optional, is required in the course in Sanitary Engineering. (See page 79.)

XI. — SANITARY ENGINEERING.

FIRST YEAR. SEE PAGE 27.

SECOND YEAR.

FIRST TERM.		SECOND TERM.	
Surveying and Plotting	360	Surveying and Plotting	360
Topographical Drawing	362	Qualitative Analysis (lectures and laboratory)	250
Elements of Organic Chemistry	262	Physical Geography	560
Differential Calculus	29	Integral Calculus	32
Physics: Mechanics, Wave Motion, Electricity (lectures)	300	Physics: Electricity, Optics (lectures)	300
Descriptive Geometry	75	German (or French)	160 (150)
German (or French)	160 (150)	English Literature and Composition	125
English Literature	125		
American History	181		

THIRD YEAR.

FIRST TERM.		SECOND TERM.	
Railroad and Highway Engineering: Field-work and Drawing	372, 374	Railroad Engineering Field-work and Drawing	372, 374
Stereotomy	375	Advanced Surveying	370
Advanced Surveying	370	Theory of Structures	376
Quantitative Analysis (lectures and laboratory)	259	Water Analysis	277
General Biology	601	General Zoölogy and Botany	605, 606
Structural Geology	565	Physical Laboratory	311
Physics: Heat	310	Strength of Materials: Kinematics and Dynamics; Theory of Elasticity	50
Physical Laboratory	311	German (or French)	161 (151)
General Statics; Stresses in Frames; Strength of Materials	50	Political Economy and Industrial History	205
German (or French)	161 (151)	Business Law	235
Political Economy	205		
Business Law	235		

FOURTH YEAR.

FIRST TERM.		SECOND TERM.	
Theory of Structures	396	Theory of Structures	396
Hydraulics	390	Hydraulic Engineering	401
Hydraulic Measurements	393	Hydraulic Machinery	405
Sanitary and Hydraulic Engineering	392	Design	404
Bridge Design	399	Chemistry and Bacteriology of Water Purification and Sewage Disposal	631
Air Analysis	284	Sanitary Science and the Public Health	629
Bacteriology: Micro-organisms of Fermentation	628	Sanitary Biology	630
Heating and Ventilation	339	Building Construction	540
Strength of Materials: Theory of Elasticity[1]	56	Engineering Laboratory	402
		Thesis.	

[1] For classes entering before 1894.

XII. — GEOLOGY.

The course affords an opportunity to obtain a general education in natural science with special training in geological work and studies. The occupations which its students may naturally have in view include employment in responsible positions upon local, state, or national surveys, practice as professional geologists in any of the economic or technical relations of the science, or connection with collegiate or other institutions.

Modern methods of conducting government and other surveys have increased the demand for men who can represent topographically, as well as interpret geologically, the physical features of a country. With the intention of educating students for such work, a larger amount of topographic, geodetic, and hydrographic surveying is introduced than is common in geological courses. To these and to the general geologic studies there are also added the construction of geologic maps and sections, physiographic geology and hydrography with field practice.

By the study of economic geology, ore-deposits, mineralogy and lithology, chemistry and assaying, together with the mining and metallurgy which may be elected, the student is prepared to apply his knowledge in the development of regions of mineral wealth.

It is recognized that students preparing to teach, and others, may, for good reasons, desire an arrangement of studies differing somewhat from that offered, as, for example, in the substitution of natural history studies for those in civil engineering. Applications for such substitution will be entertained by the Faculty.

For details of instruction and equipment, see pages 101 to 104.

XII. — GEOLOGY.

FIRST YEAR. SEE PAGE 27.

SECOND YEAR.

FIRST TERM.		SECOND TERM.	
Physiography	555	Mineralogy and Blowpipe Analysis	561, 562
Qualitative Analysis (lectures and laboratory)	249	Physical Geography	560
General Biology	602	Quantitative Analysis (lectures and laboratory)	258
Surveying and Plotting	360, 362	Surveying and Plotting	360
Physics: Mechanics, Wave Motion, Electricity (lectures)	300	Physics: Electricity, Optics (lectures)	300
German (or French)	160 (150)	German (or French)	160 (150)
English Literature	125	English Literature and Composition	125
American History	181		

FIELD-WORK IN MINERALOGY (ELECTIVE).

THIRD YEAR.

FIRST TERM.		SECOND TERM.	
Structural and Chemical Geology	566	Historical Geology	569
Geological Field-work and Sketching	567	Geological Maps and Sections	571
Structural Palæontology	572	Mineralogy	570
Anthropology	615	Structural Palæontology	572
Quantitative Analysis (lectures and laboratory)	269, 273	Zoölogy and Botany	605, 606
Topographical Surveying	370	Quantitative Analysis (lectures and laboratory)	269, 273
Physics: Heat	310	Topographical Surveying	370
Physical Laboratory	311	Physical Laboratory	311
German (or French)	161 (151)	German (or French)	161 (151)
Political Economy	205	Political Economy and Industrial History	205
Business Law	235	Business Law	235

SUMMER COURSE IN GEOLOGY AND TOPOGRAPHY.

FOURTH YEAR.

FIRST TERM.		SECOND TERM.	
Physiographic Geology	583	Economic Geology	587
Ore Deposits	591	Micro-Lithology	589
Micro-Lithology	589	Geological Field-work and Laboratory	581
Geological Field-work and Laboratory	581	Geological Memoirs	584
Geological Memoirs	584	Hydrography	590
Climatology	580	Assaying	484
Geodetic Surveying	389	Thesis.	
Hydraulic Measurements	393		
Options.			
1. Stratigraphic Palæontology	586		
2. { Mining Engineering	481		
2. { Metallurgy	488		

XIII.—NAVAL ARCHITECTURE.

This course offers instruction in the theory and methods of designing and building ships, together with a study of the properties requisite for the safety and good behavior of a ship at sea.

While attention is given mainly to the construction of merchant steamships, the methods used are as thorough and complete as those employed in designing naval vessels, and due attention is given to problems that arise only in the design of a man-of-war, or which are more conveniently treated in connection therewith. Some attention also is given to sailing vessels.

In addition to the literary, mathematical, and general scientific studies requisite for a well-rounded education and for proper preparation for the special work of the course, thorough training is given in mechanism, thermodynamics, applied mechanics, hydraulics, steam engineering, and marine engineering. It is believed that the best co-ordination of the design of a steamship and its propelling machinery is attained by a naval constructor who is familiar with both branches of his profession.

In the third year of the course, lectures are given on the methods of building ships in iron and steel, on the general properties of floating bodies, on statical and dynamical stability of ships, and on such special problems as launching and docking. In the fourth year the lectures treat of the strength of ships, resistance and propulsion, rolling of ships, theory of oscillating waves and waves of translation, and the steering and manœuvring of ships. The lectures are accompanied by two or three exercises a week in drawing, in which the students make the calculations and constructions described in the lectures, and thus gain a proper appreciation of the principles learned and some facility in applying them.

The work in applied mechanics and steam engineering is accompanied by a full course in the laboratories of engineering and applied mechanics. Instruction is given in the shops, in forging, chipping and filing, and machine-tool work. (See also page 84).

XIII.—NAVAL ARCHITECTURE.

FIRST YEAR. SEE PAGE 27.

SECOND YEAR.

FIRST TERM.		SECOND TERM.	
Principles of Mechanism	420	Mechanism: Gear-Teeth; Machine Tools	428
Drawing	422	Drawing	426
Forging	100	Forging, Chipping and Filing	100, 102
Differential Calculus	29	Integral Calculus	32
Physics: Mechanics, Wave Motion, Electricity (lectures)	300	Physics: Electricity, Optics (lectures)	300
Descriptive Geometry	75	German (or French)	160, (150)
German (or French)	160 (150)	English Literature and Composition	125
English Literature	125		
American History	181		

THIRD YEAR.

FIRST TERM.		SECOND TERM.	
Naval Architecture	464	Naval Architecture	464
Naval Architectural Drawing	465	Naval Architectural Drawing	465
Mechanism Design	442	Steam Engineering; Boilers	433
Steam Engineering; Valve-Gears; Thermodynamics	433	Engineering Laboratory	443
Elements of Differential Equations	40	Physical Laboratory	311
Physics: Heat	310	Strength of Materials: Kinematics and Dynamics	52
Physical Laboratory	311	German (or French)	161 (151)
General Statics	51	Political Economy	205
German (or French)	161 (151)	Business Law	235
Political Economy	205		
Business Law	235		

FOURTH YEAR.

FIRST TERM.		SECOND TERM.	
Naval Architecture	466	Naval Architecture	466
Naval Architectural Drawing	467	Naval Architectural Drawing	467
Marine Engineering	461	Marine Engineering	461
Steam Engineering	450	Engineering Laboratory	455
Hydraulics	391	Strength and Stability of Structures; Theory of Elasticity	59
Dynamo Machinery	340	Machine Tool Work[1]	104
Engineering Laboratory	455	Political Economy and Industrial History[2]	203
Dynamics of Machines	451	Thesis.	
Strength of Materials; Friction	57		
Chipping and Filing; Machine-Tool Work	103, 104		
Metallurgy of Iron	487		

[1] For classes entering after 1893.

[2] For classes entering before 1894.

FIVE-YEAR REGULAR COURSES.

The foregoing schedules of the regular courses are arranged for the completion of the work in four years. A student who can devote five years to his course will, however, often find it advantageous to do so. He is thus enabled to perform it more thoroughly, and, on the other hand, to accomplish certain valuable work which has been necessarily omitted from the schedule of the four-year course. Moreover, considerations of health, lack of opportunities for thorough preparation, or other causes may render it advisable for a student to extend the work over five years. To meet such cases, the Faculty have arranged, in most departments, five-year courses which contain the same subjects as the corresponding four-year courses, and differ from them only in the time over which the work is distributed, and, to a slight extent, in the sequence of studies. They lead respectively to the same degrees as the corresponding four-year courses. The standard of scholarship required of the student is in every way the same, and he is classed as a regular student so long as he maintains his standing in the course which he is pursuing.

Further information may be had upon application to the Secretary of the Institute.

GRADUATE COURSES.

The degree, Master of Science,[1] is awarded for proficiency in complete graduate courses of study of at least one year's duration.

The degrees, Doctor of Philosophy and Doctor of Science, are awarded for proficiency in graduate courses of study of at least two years' duration.

The particular courses of study which candidates for these degrees wish to pursue must be submitted in writing to the Faculty, and must meet their approval. Occasional short absences, when the time is spent upon professional work by advice of the Faculty, will not be considered as interruptions of the student's residence.

Advanced courses in chosen lines of study, and without reference to degrees, may be pursued by graduates of the Institute without preliminary examination, or by graduates of other institutions who shall satisfy the Faculty, by examination or otherwise, that they are qualified to take with advantage the courses proposed.

[1] A special circular will be sent on application.

The continually increasing specialization of the various engineering professions and the upward tendency of the standards of professional attainment render it difficult to give, in a four-year course, much more than a thorough training in the student's chosen specialty. It is thus frequently of great advantage to the graduate from one of the engineering courses to devote an additional year to the professional work of another closely related course, with or without reference to obtaining the degree in the latter. For example, a student who has received a degree in Mechanical Engineering may, by devoting a year to the study of theoretical and practical electricity, graduate in the department of Electrical Engineering; a graduate in Chemical Engineering may do the same; or a graduate in Electrical Engineering or Chemical Engineering may, by a year of additional study, take the degree in Mechanical Engineering.

The student who completes such a double course has obtained a broader scientific and professional education; is enabled to investigate a given problem on more than a single side; and is thus more efficient and independent in engineering practice.

SPECIAL STUDENTS.

In general, no definite schedules for special courses of study are laid down; but special courses may be arranged in accordance with the Schedule of Topics of the Catalogue, subject, however, in all cases, to the approval of the Faculty.

All special students in Chemistry, who do not come under the two classes to be mentioned in the following paragraph, must pass the full entrance examinations. For exceptional requirements regarding special students in Architecture, see page 34.

Persons of mature years who are engaged in technical pursuits will be afforded opportunities for the pursuit of laboratory and lecture courses without the exaction of the usual requirements for admission. Moreover, the attention of teachers who desire to qualify themselves for a higher degree of advancement in their profession is called to the opportunities which are offered at the Institute for afternoon and Saturday laboratory work. Persons actually engaged in the work of instruction, whether in public or in private schools, will be admitted to the Institute without formal examination, and the Faculty will take every occasion, consistent with the necessary general conduct of the

school, to arrange courses for such special students which shall suit their individual needs, alike as to days and hours and as to the nature of the work to be done. Especially in the departments of Chemistry, Physics, Biology, Geology, Drawing, and Mathematics can persons having but a few hours a week at their disposal find opportunities at the Institute to extend and perfect their knowledge.

A special circular in regard to Opportunities for Teachers will be mailed on application to the Secretary.

SUMMER COURSES.

During the past two summers, after the close of the school-year, formal instruction in a considerable range of studies has, with the consent and approval of the Faculty, been given in the lecture-rooms and laboratories of the Institute. The departments represented in the summer of 1895 were those of Mathematics, Drawing, Modern Languages, Architecture, Chemistry, Physics, and Biology. The work offered is planned with particular reference to subsequent study at the Institute. Students taking these courses have an opportunity to anticipate portions of the work of the succeeding year, and thus to include a wider range of subjects, or to make greater advancement along a particular line. Again, students who, through sickness, or other cause, have failed to complete the work of the previous year at the proper time are enabled to obtain clear records before the opening of the fall term. Finally, persons desiring to enter with advanced standing — in particular, college graduates — may make up in the summer school deficiencies, professional or otherwise, which might cause serious embarrassment in their choice of studies and in the arrangement of their hours. Thus, for example, it has been possible for college graduates, during the past summer, by taking Drawing, Descriptive Geometry, and certain Architectural subjects, to enter as regular third-year students.

A special circular, giving full details in regard to dates and subjects, will be sent on application after March 1.

For information in regard to professional summer schools devoted mainly to "field work" in Mining Engineering, in Surveying, Geology, and Hydraulic Engineering, and in Architecture, which have for a long time been maintained by the Institute with valuable results to the departments concerned, see pages 81, 96, 98 and 104.

Requirements for Admission.

Time of Examinations for Admission. — An examination for admission to the first-year class is held in the Rogers Building, 491 Boylston Street, beginning at 9 A. M., on the Thursday following the last Wednesday in June, and continuing two days. A second examination for admission, and for applicants conditioned at the first examination, will begin at 9 A. M., on the first Tuesday after September 17, and will continue two days. (See Calendar, page 2.) Attendance on both days of one examination or the other, that is, either in June or in September, is required.

Entrance examinations are held *in June only*, in New York, Philadelphia, Chicago, and other principal cities. A circular, giving times and places, is issued in April, and will be mailed on application.

Candidates who intend to be examined in any other place than Boston are requested to send their names to the Secretary in time for him to receive them by June 15. A fee of five dollars is to be paid in advance by every candidate who is examined at any other place than Boston. The whole fee of a candidate who proposes to divide his examination between two years is payable in the year when he begins his examination. The fee should be sent by check, postal order, or registered letter to Albert M. Knight, Bursar, at the same time that the candidate sends his name to the Secretary.

Applicants who intend to take their entrance examinations in September are requested to notify the Secretary of such intention not later than September 10.

Applicants for *advanced standing* — that is, for admission to classes above the first year — must pass the entrance examinations, exception being made of applicants from other colleges (see page 66), and must present themselves for further examination (see page 66), at 9 A. M., on the Friday and following days preceding the second entrance examination. (See Calendar, page 2.)

Applications for admission at other times than the above will be received only when illness, or some other equally good cause, has prevented attendance on the days prescribed. A fee of five dollars, to be paid to the Bursar, will be charged for special examinations if required in such cases.

Women are admitted to any of the courses of the school.

ADMISSION TO THE REGULAR COURSES.

First Year. — To be admitted as a regular student in the first-year class, the applicant must have attained the age of seventeen years, and must pass satisfactory examinations covering the requirements detailed below. The requirements of age and scholarship specified ought to be regarded as a minimum in all ordinary cases, and only exceptional circumstances will justify any relaxation of them. Parents and guardians are advised that it is generally for the ultimate advantage of the student not to enter under the age of eighteen years, and that no general attainments secured in advance are to be regarded as superfluous.

The requirements in the various subjects are as follows:

Algebra. — Fundamental operations; use of parentheses; factoring; highest common factor; lowest common multiple; fractions, simple and complex; simple equations, with one or more unknown quantities; involution of monomials and polynomials; evolution of monomials and polynomials and the cube root of numbers; the theory of exponents, with applications; radicals, including rationalization, imaginary quantities, properties of quadratic surds,

square root of a binomial surd, and solution of equations containing radicals; quadratic equations; equations in the quadratic form; simultaneous quadratic equations; ratio and proportion; arithmetical progression; geometrical progression. A satisfactory treatment of the topics in Algebra may be found in any of the following text-books: Wells' Academic Algebra, Wentworth's School Algebra, or Bradbury and Emery's Academic Algebra.

Plane Geometry. — As much as is contained in the first five books of Wells' (revised edition), Chauvenet's, or Wentworth's Geometry. The examination will be based on the first-named work. Much importance will be attached to the applicant's ability to demonstrate original exercises.

In addition to the above, applicants are required to offer either Advanced Algebra or Solid Geometry. It is the intention of the Faculty to require both of these subjects at no distant date, and provision will be made for applicants now offering both.

The detailed requirements in these subjects are as follows:

In **Advanced Algebra**: inequalities; interpretation of $\frac{a}{\infty}$, $\frac{a}{0}$, and $\frac{0}{0}$; solution of equations by factoring; theory of quadratic equations; factoring of quadratic expressions; variation; harmonical progression; proofs of the binomial theorem for positive integral and for any exponent; expansion of negative and fractional powers of a binomial; determination of any term in the expansion of any power of a binomial; extraction of any root of a number approximately by the binomial theorem; definitions of convergent and divergent series; the theorem of undetermined coefficients, with applications to the expansion of fractions, to the expansion of radicals, and to the separation of a fraction into partial fractions when the denominator can be expressed as the product of factors of the first or second degree; permutations and combinations; in the general theory of equations, —

divisibility of equations; number of roots; formation of equations; composition of coefficients; depression of equations. (Wells' Higher Algebra, edition of 1895, includes the subjects required.)

In **Solid Geometry**: The usual theorems contained in textbooks on solid geometry, with the exception of theorems relating to similar polyedrons and regular polyedrons. The application of the above to numerical examples in mensuration as follows, — lateral areas and volumes of regular prisms; surfaces and volumes of rectangular parallelopipeds; lateral edges, lateral areas and volumes of regular pyramids, and of frustums of regular pyramids; volumes of truncated triangular prisms; areas of spherical polygons; volumes of spherical pyramids; lateral areas, total areas and volumes of cylinders, cones, and frustums of cones; areas of zones; volumes of spherical sectors; areas and volumes of spheres; volumes of spherical segments. (Wells' Solid Geometry, revised edition, represents the requirement in this subject.)

NOTE. — Applicants otherwise well prepared may, for the present, be admitted as special students without the advanced mathematical requirement, with the privilege of taking both subjects after entrance. This should be done, however, only in case the preparation stated is impracticable.

French. — 1. Proficiency in elementary grammar, to be tested by translation of easy English into French, or by direct questioning on the following topics: Inflection of nouns and adjectives for gender and number, excepting unusual cases; "pronominal adjectives;" the forms and position of pronouns, especially the personals; the partitive constructions; the inflection of the regular and of the more usual irregular verbs, such as *aller*, *dire*, *faire*, and of the classes represented by *ouvrir*, *sentir*, *venir*, *paraître*, *conduire*, and *craindre*.

2. Ability to translate simple prose at sight, to be acquired by the reading of not less than two hundred and fifty duodecimo pages from at least two dissimilar works.

German. — Candidates not prepared in French may substitute German, in which the requirements will be: —

1. Proficiency, to be tested as for French, in the following topics of elementary grammar, — declension of readily classified nouns, of adjectives and of pronouns; conjugation of the weak and of the more usual strong verbs; simple cases of word order.

2. Ability to translate simple prose, to be acquired by the reading of not less than two hundred duodecimo pages from at least two dissimilar works.

NOTE. — Although a correct pronunciation in modern languages is not, for the present, one of the requirements for admission, it is desired that teachers give this important subject all due attention. Candidates prepared to pass both French and German at the entrance examination will find it advantageous for their subsequent work at the Institute to do so. (But only one of the two can be taken in June of a single year.)

English. — The requirements in English are similar to those prescribed for entrance into the New England colleges.

1. The candidate will be required to write, in an hour, on some subject familiar to him, a short English composition, — correct in spelling, punctuation, grammar, idiom, and division into paragraphs, and plain and natural in style. He will be judged by how well he writes, rather than by how much he writes.

2. The candidate will be tested in the correction of bad English, in punctuation, and in revision of incoherent or inelegant sentences. The aim in this will be to test the student's ability to criticise and to correct his own work.

3. The candidate is required to have some acquaintance with good literature, and the following works will serve as a basis both for the examination in this and for the test in the writing of English. With these books the applicant must be familiar.[1] They are, however, divided into two classes. Those marked (*a*) are to be read, and the candidate

[1] These books may all be had in an inexpensive form. A list of publishers and net prices will be sent upon application to the Secretary of the Institute.

will be required to show a general knowledge of their subject-matter, and of the lives of the authors. Those marked (*b*) are to be thoroughly studied, so that the candidate shall be able to pass an examination upon their subject-matter and structure.

For 1896: (*a*) Shakespeare's Midsummer Night's Dream; Defoe's Journal of the Plague Year; Irving's Tales of a Traveller; Scott's Woodstock; Macaulay's Essay on Milton; Longfellow's Evangeline; George Eliot's Silas Marner.

(*b*) Shakespeare's Merchant of Venice; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Webster's First Bunker Hill Oration.

For 1897: (*a*) Shakespeare's As You Like It; Defoe's Journal of the Plague Year; Irving's Tales of a Traveller; Hawthorne's Twice Told Tales; Longfellow's Evangeline; George Eliot's Silas Marner.

(*b*) Shakespeare's Merchant of Venice; Burke's Speech on Conciliation with America; Scott's Marmion; Macaulay's Life of Samuel Johnson.

For 1898: (*a*) Milton's Paradise Lost, Books I. and II.; Pope's Iliad, Books I. and XXII.; the Sir Roger de Coverley Papers in the Spectator; Goldsmith's The Vicar of Wakefield; Coleridge's The Rime of the Ancient Mariner; Southey's Life of Nelson; Carlyle's Essay on Burns; Lowell's The Vision of Sir Launfal; Hawthorne's The House of the Seven Gables.

(*b*) Shakespeare's Macbeth; Burke's Speech on Conciliation with America; De Quincey's Flight of a Tartar Tribe; Tennyson's The Princess.

For 1899: (*a*) Dryden's Palamon and Arcite; Pope's Iliad, Books I., VI., XXII., and XXIV.; the Sir Roger de Coverley Papers in the Spectator; Goldsmith's The Vicar of Wakefield; Coleridge's The Rime of the Ancient Mariner; De Quincey's Flight of a Tartar Tribe; Cooper's The Last of the Mohicans; Lowell's The Vision of Sir Launfal; Hawthorne's The House of the Seven Gables.

(*b*) Shakespeare's Macbeth; Milton's Paradise Lost, Books

I. and II.; Burke's Speech on Conciliation with America; Carlyle's Essay on Burns.

NOTE — The standing in English will not be determined solely by the rank attained in the examination in that subject, but, in addition to this, it is expected that the paper in History and the translations from French and German will be written in correct and expressive English.

History. — Preparation in either United States History or Ancient History may be offered. In the former subject a thorough acquaintance with the history of the Thirteen Colonies and of the United States down to the present time is required. In the latter subject the requirement covers the history of the early world down to the fall of the Roman Empire in the West.

For United States History, either Johnston's History of the United States for Schools, or Fiske's History of the United States for Schools and Thomas's History of the United States, may suggest a satisfactory amount of preparation; for the study of Ancient History, Myers and Allen's Outlines of Ancient History is recommended but not prescribed.

While the former requirement in Arithmetic has been discontinued, importance will be attached to accuracy in the numerical work of the papers in Algebra and Geometry. Familiarity with the Metric System is essential.

DIVIDED ENTRANCE EXAMINATIONS.

Candidates for admission will be allowed, at their option, to divide their entrance examinations between two successive years. The first divided examination will be held *only in June;* the second, in either June or September of the *following* year, at the dates named on page 2. To be admitted to the first divided examination the candidate must be at least sixteen years of age, and must present a certificate from his teacher, stating that he is qualified in the subjects in which he applies to be examined.

For the first divided examination the candidate will be allowed the choice of any of the following five subjects, but no credit will be allowed on any of these unless at least three of the five are satisfactorily passed. At the second examination those subjects not passed at the first must

be taken, as well as the Advanced Algebra or Solid Geometry, which cannot be taken at the first examination.

I. Algebra.
II. Plane Geometry.
III. French (or German).
IV. English.
V. History.

Details of the above requirements are given on pages 58 to 63.

While the Faculty accepts no certificates of preparatory schools in place of entrance examinations, the value of the opinion of an experienced teacher is fully recognized, and much weight will be attached to certificates from teachers of approved judgment.

In general, the training given in the best high schools and academies will afford suitable preparation. To the student the importance of thorough preparation is great, since the character and amount of instruction given in the school from the outset leave little opportunity for one imperfectly fitted to make up deficiencies, and render it impossible for him to derive the full benefit from his course or perhaps even to maintain his standing. Applicants are advised to attend the June entrance examinations, if practicable, in order that any deficiencies then existing may be made up before entrance.

Students will find their progress in physics and chemistry greatly promoted by making themselves thoroughly familiar with the elements of physics, as set forth in any of the text-books ordinarily used in high schools, or, preferably, by pursuing an elementary course in physical laboratory work.

Students who have the opportunity, without interference with preparation in other subjects, will find it advantageous to take work in manual training before entrance to the engineering courses.

A knowledge of the Latin language is not required for admission; but the study of Latin is strongly recommended to persons who purpose to enter the Institute, as it gives a better understanding of the various terms used in science, and greatly facilitates the acquisition of the modern languages.

It should be borne in mind by the student purposing to enter the Institute, that the broader his intellectual training in any direction, and the more extensive his general acquirements,

the greater are the advantages he may expect to gain in his future course.

ADMISSION TO ADVANCED STANDING.

To be admitted as a regular student in the second, third, or fourth year, the applicant must have attained the corresponding age (eighteen, nineteen, or twenty years, respectively), and must in general pass satisfactorily the examination for admission to the first-year's class, and examinations on all of the subjects given in the earlier years of the course which he desires to enter. The examinations for advanced standing are held at the time stated on page 2. (See pages 57 to 63, and pages 27 to 53.)

Graduates of colleges are admitted to the Institute without the usual entrance examination, and will be permitted to enter any of the courses at such a point as their previous range of studies will allow. If prepared to enter upon most of the studies of a certain year, they will be afforded opportunity to make up any studies of the earlier years in which they are deficient; they will, in general, be credited with all subjects in earlier or later years in which they can show, by examination or otherwise, a standing satisfactory to the Faculty, and may be received provisionally as regular students. The attention of such applicants is particularly called to the schedules of courses on pages 27 to 53, and to the Schedule of Topics of the Catalogue. It is highly desirable that students contemplating professional courses after graduation from college should arrange their college electives to cover the earlier subjects of the courses chosen, in order that the number of deficiencies to be made up may be as small as possible. Such students are advised to communicate with the Secretary of the Faculty, from whom detailed information may be obtained as to the requirements for entering a particular year of any course. In order to enter any of the engineering courses in the second year, it is essential for applicants to have preparation in Analytic Geometry. For admission to third-year engineering work they must be prepared in mathematics through the calculus. It is important that students applying for

advanced standing in these courses shall have had considerable practice in Mechanical Drawing, and be familiar with the elements, at least, of Descriptive Geometry. Summer courses of appropriate scope are offered in these subjects. See page 56.

ADMISSION OF SPECIAL STUDENTS.

To be admitted to one or more selected subjects in any of the regular courses, — that is, to a partial or special course, — the applicant must have attained the age of seventeen years, and must give satisfactory evidence, by examination or otherwise, that he is qualified to pursue to advantage the subjects chosen.

By means of the Schedule of Topics of the Catalogue, the applicant may ascertain what the various subjects of study are, how, when, and by whom they are given, in what regular courses they are included, and the preparation required for each; but admission to special courses is dependent in all cases upon the approval of the Faculty. In general, no student will be allowed to take any one of these topics until he has proved his satisfactory knowledge of all topics required as preparation for it.

All special students desiring to take Chemistry of the first year must pass the full entrance examinations, except that an equivalent in some other subject may be substituted for Geometry. Communications in regard to such substitution should be addressed to the Secretary of the Faculty.

To Teachers and to Persons of mature age engaged in Technical Pursuits, wishing to devote some time to scientific study, the Institute desires to offer the amplest opportunities in its lecture-rooms and laboratories. Such persons may in general be admitted without formal examination, on satisfying the Faculty that they are qualified to undertake the work proposed. They will be expected after admission to attend the same exercises and examinations as other students. (For additional details, see circular on Courses for Teachers.)

Requirements for Graduation.

THE degree of Bachelor of Science, in the course pursued, is given for the satisfactory completion of any of the regular courses of study.

To be entitled to a degree, the student must have completed the prescribed studies and exercises of the four years, and must, in addition, pass final examinations, if required, on subjects relating particularly to his course. He must, moreover, prepare a dissertation on some subject included in his course of study; or an account of some research made by himself; or an original report upon some machine, work of engineering, industrial works, mine, or mineral survey; or an original design accompanied by an explanatory memoir. This thesis or design must be approved by the Faculty. Theses are to be written on one side only of paper of good quality, 8 x 10½ inches in size, with an inch margin on the inner edge, and a half-inch margin on the outer edges. Theses must be handed to the Secretary of the Faculty, not later than the first annual examinations.

No degree can be conferred until all dues to the Institute are discharged.

Students leaving the Institute of their own motion before graduation are entitled to receive a certificate of honorable dismissal, if their record for conduct, attention to studies, and scholarship is declared satisfactory by the Faculty.

Subjects and Methods of Instruction.

INSTRUCTION is given by lectures and recitations, and by practical exercises in the field, the laboratories, and the drawing-rooms. A high value is set upon the educational effect of the latter, and such exercises form the foundation of each of the thirteen courses. Text-books are used in most, but not in all subjects. In many branches the instruction given differs widely from available text-books; and, in such cases, notes on the lectures and laboratory work have been printed, either privately or by the Institute, and are furnished to the students at cost. Besides oral examinations in connection with the ordinary exercises, written examinations are held from time to time. Near the close of the months of January and May general examinations are held. After the examinations the standing of the student in each distinct subject is reported to his parent or guardian. Reports of standing are based to a very large extent upon the quality of daily class-work. The January and May reports form the basis of admonition or advice from the Faculty in the case of students who are not profiting sufficiently by their connection with the school.

Mathematics. — Great importance is attached to the study of Mathematics, both as a means of mental discipline and as affording a necessary basis for further instruction in the engineering and other courses.

The three topics following are taken by all regular students: solid and spherical geometry or higher algebra;[1] logarithms and plane trigonometry; plane analytic geometry, including the equations and properties of the point, right line, and circle, and of the parabola, ellipse, and hyperbola. (A shorter course in this subject is given to students in certain non-mathematical courses.)

[1] See page 61.

Students in all the engineering courses receive instruction in the differential and integral calculus.

In addition to the above, the following topics are given in some courses: differential equations, with applications to problems in geometry; the theory of probability and method of least squares, including the adjustment of observations and the computation of probable errors.

As elective work, opportunities are afforded for the study of higher algebra and trigonometry, including De Moivre's theorem and its applications; the general theory of equations, with the solution of higher equations by methods of approximation; determinants; analytic geometry of three dimensions, including the equations and properties of the point, right line, and plane, of the sphere, cylinder, and cone, and of the paraboloids, ellipsoids, and hyperboloids; an advanced course in the calculus, including the theory of definite integrals; quaternions; Fourier's series.

Drawing and Descriptive Geometry. — Instruction is given to all regular students in the principles of Geometrical, Mechanical, and Freehand Drawing; and a large amount of time is devoted to practice in the drawing-room, to enable the student to acquire the skill necessary for his future work. Drawing is also continued in connection with the professional studies. All engineering students learn the elements of Descriptive Geometry in connection with their mechanical drawing, the exercises including recitations by small sections.

The later exercises in descriptive geometry are of two kinds. In the lecture-room the instruction is given by means of models and diagrams, and also by the use of text-books. In the drawing-room the student is drilled in the solution of problems designed to illustrate the work of the class-room, and to make him thoroughly familiar with the subject.

The instruction in Freehand Drawing includes an elementary course taken by all regular students, and more advanced work in the departments of Architecture, Biology, and Geology. For students in Architecture, the course includes the study of ornament and the human figure from

the cast and from life. Studies in charcoal are usually required, and opportunity is afforded for those who have made satisfactory progress to sketch in pencil, pen and ink, and with the brush. Importance is attached to drawing from memory and to rapidity of execution. Students in Biology and Geology pay special attention to specimen drawing.

Besides the large and well-equipped freehand drawing-rooms of the Institute, the Museum of Fine Arts offers excellent opportunities for drawing from the cast, and regular exercises for advanced students are held in its galleries.

Chemistry. — All regular students attend a course of lectures on Inorganic Chemistry, illustrated by experiments, and perform actual experimental work in the laboratory of general chemistry. The lectures are intended to prepare the student for his work in the laboratory, and to emphasize and co-ordinate the facts which he there learns. In the laboratory, the student receives instruction in chemical manipulation, and performs a series of experiments designed to illustrate the properties of the more important elements and the laws of chemical action. In connection with the lectures on inorganic chemistry, the elements of qualitative analysis and of theoretical chemistry are taught, and the student has practice in the solution of chemical problems. The study of chemical theory is continued in the chemical and other related courses by more advanced lectures and recitations, in which are presented the prevailing theoretical views as to chemical action, the constitution and classification of chemical compounds, as well as certain portions of molecular physics which bear directly upon chemical theories. A laboratory course of molecular weight determinations also constitutes a part of the instruction in chemical theory.

The instruction in Analytical Chemistry extends through two or more years. Each student is given a desk in the laboratory, which is open to him at all times. He receives personal instruction, and has analytical work assigned him, with particular reference to the course he is pursuing. This work is so arranged that he obtains experience in a

great variety of methods and processes, and is thus prepared to undertake any chemical analysis. The more industrious students, and those who work extra time in the laboratory, have the privilege of supplementing their regular laboratory course with special work and instruction. Special students may select any branch of analytical work for which they are qualified.

A special laboratory is fitted for volumetric analysis, where the students are taught to graduate and calibrate the various instruments of measurement. Instruction in this branch is given by a systematic course of lectures combined with laboratory practice, covering a considerable number of quantitative processes.

The facilities for gas analysis have recently been increased by the enlargement of the rooms devoted to this work and by the addition of much new apparatus. New laboratories have also been equipped for the chemical analysis of oils, and for the optical and chemical examination of sugars, starches, etc. The carefully arranged course of instruction in each of these subjects is designed to familiarize the student with the best methods of analysis, and to enable him to interpret intelligently the results of these analyses in their technical bearings.

The instruction in the laboratories is supplemented by lectures upon methods of analysis and manipulation; and the current chemical literature in English, French, and German is reviewed by the students, and subsequently discussed in the class-room under the direction of an instructor.

The instruction in Sanitary Chemistry consists mainly of laboratory work, supplemented by occasional lectures, and special laboratories have been equipped for the purpose. Only those students are allowed to take this course who have successfully pursued, for one year, a course in general chemistry, with laboratory practice, followed by a year of qualitative and quantitative analysis. Some knowledge of general biology and bacteriology is also desirable. A minimum amount of work is laid out, consisting of practice in the methods commonly used in the chemical examination

of air and water, of milk and of butter. For those who wish to take a more extended course, opportunity is afforded for the critical study of methods of analysis, and for the investigation of a variety of sanitary problems in which chemical questions are involved.

Industrial Chemistry is taught by a course of lectures and by work in the laboratory of industrial chemistry. A full description of the most important technical applications of chemistry is given in the lectures, a part of which are delivered by persons actively employed in carrying out the processes which they describe. In the industrial laboratory, the students prepare chemical products from raw materials, and also undertake the preparation of pure chemicals. They are taught fractionation and distillation; and particular attention is paid to the preparation of dyes and mordants.

Dyeing and coloring receive special attention. The course of instruction includes the bleaching and dyeing of silk, and of cotton and wool, in the piece, and in yarn. The students are taught how to use mordants and to perform the common operations of the dyehouse. They become acquainted with the principles involved in cotton printing, and have some experience in mixing colors. The methods of detecting the nature of the dyestuffs present upon fibres are taught, together with many of the modern methods of commercial analysis. A special laboratory is used for this instruction; it contains a very complete equipment for experimental dyeing and coloring. The laboratory instruction is supplemented by frequent excursions to manufacturing establishments, where the practical working of chemical industries can be examined.

There are two courses in Organic Chemistry, — an elementary course of fifteen lectures given in the third year, preparatory to an extended course of sixty lectures in the fourth year. This later course treats of the properties, composition, and mode of formation of the more important organic compounds, and also of the modern theories of chemical composition and structure. It is very fully illustrated in the lecture-room by experiments.

The laboratory practice in organic chemistry comprises

the methods of ultimate analysis, followed by exercises in the preparation of a variety of typical organic substances and in original research. In connection with their laboratory work students are required to consult original articles bearing upon the subjects they are studying, and they thus acquire familiarity with chemical literature. Ample opportunities are afforded for the prosecution of investigations both in pure and applied chemistry.

The instruction in chemistry is designed primarily for those who are candidates for the several degrees of the Institute, and for such special students as are looking to chemistry as a profession, and are following, in the main, the courses laid out for the regular students. In order to secure the necessary command of chemical literature, these special students are required to study French and German as a part of their course.

(For further details, see the circular on Chemistry.)

The Kidder Laboratories of Chemistry afford accommodations for six hundred and twenty-five students. The chemical department occupies eighteen laboratories, four lecture-rooms, a reading-room and library, balance-room, offices, and supply-rooms, — in all, thirty rooms. Three new laboratories have been recently added for advanced work and research. The laboratory for general chemistry has places for four hundred students, and is very completely equipped for instruction in elementary chemistry. The analytical laboratory can accommodate one hundred and fifty students, and possesses every convenience for accurate and rapid analytical work. The organic laboratories have places for thirty students. The laboratories for sanitary chemistry contain places for sixteen students. They possess a very complete outfit for the analysis of air and water, and for the investigation of sanitary problems. The laboratory of industrial chemistry accommodates thirty students. It consists of a series of rooms fitted with the needful apparatus for the preparation of chemicals on a considerable scale. The students are here taught the preparation of

chemical products from raw materials, the utilization of the by-products, and the methods for the purification of chemicals. A special assignment of work is made for each student, so that he may see a varied line of work. The laboratory contains kettles of various patterns, stills, presses, tanks, centrifugal dryers, filter-press, crystal dryers, furnace, and a variety of other apparatus. The laboratory devoted to textile coloring contains numerous jacketed kettles, baths, and dye-tubs, squeeze-rolls, steamer, ager and dryer, and a two-color printing machine. Kidder Hall has a seating capacity of one hundred and eighty, and is arranged with special reference to the delivery of experimental lectures. In addition there are three smaller lecture-rooms, seating, respectively, seventy-five, thirty, and ten students. The lecture-rooms contain valuable cabinets of specimens for purposes of illustration. The balance-room is supplied with twenty-two analytical balances.

The William Ripley Nichols Chemical Library, numbering more than six thousand volumes and thirteen hundred pamphlets, is kept in the reading-room of the department. This library contains complete sets of most of the important chemical periodicals and a noteworthy collection of works upon sanitary science. The number of periodicals currently received is seventy. It is open to all persons who desire to consult it.

Physics. — The instruction in Physics begins with an extended series of lectures attended by all regular students. The various branches are treated both mathematically and experimentally. In all cases the theoretical discussion of a question is followed by an account of its practical applications.

In addition to the courses of lecture-room and laboratory exercises in physics, which are required of all regular students, various special courses of lectures, readings, and laboratory exercises in optics, acoustics, heat, and electricity are provided for those making a specialty of physics.

Students pursuing these courses gain a familiarity with standard works on the various branches of physics, both in their own and in foreign languages. In the latter part of the course, each student prepares and reads before his class an essay on some physical topic. These essays are written after a study of recently published papers and memoirs, and often embody also the results of experimental work by the student. They are intended to familiarize the class with the topics presented, and to give experience in independent study and in the preparation of original scientific papers. This work is of particular advantage to those who intend to become teachers. Instruction is provided in photography and its applications, in microscopy, and in the use of the lantern as an instrument of demonstration in the lecture-room. A course of lectures and laboratory instruction is given in heat measurements, including pyrometry and fuel tests, and the course in electrical measurements and testing is undergoing continual extension. A course has also been instituted in modern physico-chemical methods, in which particular attention is given to the application of these methods to the various novel and important scientific problems of the present day in physical and electro-chemistry. A special laboratory is devoted to this purpose. All needful facilities are provided for original investigation in these branches of physics. Opportunity will be offered for more advanced instruction in mathematical and experimental physics to students who are competent to pursue such courses.

(See also page 68 and the circular on Physics and Electrical Engineering.)

The Rogers Laboratory of Physics. — Regular students, excepting those in Architecture, enter upon a general course of experimental work in this laboratory either upon the conclusion of the lecture course in physics or earlier. The work is designed to strengthen the student's understanding of the laws of that science, and to impart to him a knowledge of the methods and instruments used in physical measurements, and

practice in the mathematical discussion of experimental results. The laboratory work consists almost exclusively of quantitative measurement. The earlier and simpler work serves chiefly to train the student in the use of methods or instruments which are employed as accessories later. This is succeeded by experiments on the mechanics of solids, liquids, and gases, each illustrating a method by which some physical law or constant is determined. Work in optics follows, and heat and electrical measurements occupy the remaining and more difficult part of the course. More advanced instruction is also provided.

Accurate work is required throughout; and in connection with the use of instruments of precision, especially in the more advanced measurements, the student's attention is particularly directed to the study of possible sources of error and to the discussion of the effects of these upon the results obtained, a short lecture course being also devoted to this subject.

The particular line of work assigned to each person is determined, to some extent, by his course in the school; and the instruments which he studies are often such as he will be called upon to use in later technical work. In some courses, such as Physics, Electrical Engineering, and Chemistry, work of a more advanced scientific or technical nature is undertaken. Original investigation is encouraged, and the result has been a considerable number of published memoirs.

The library of the department contains the standard works upon various branches of physics, numbering forty-eight hundred volumes, and new publications of value are added as they appear. It is especially full in works relating to electricity. The leading scientific and technical periodicals devoted to physics and electrical engineering are regularly received, and are accessible to students. The study of special topics is greatly facilitated by many valuable libraries, to which, by right or courtesy, the students have admission.

Theoretical and Applied Mechanics. — In applied mechanics the subjects first treated are the composition and resolution of forces, the general laws of kinematics and dynamics mathematically discussed, the principles governing the determination of the stresses in the different members of trusses, centre of gravity, moment of inertia, and the ordinary principles of the strength of materials.

The more advanced instruction in this subject aims to familiarize the students with such data on the strength of materials used in construction as have been obtained by means of experiments, especially those made on a practical scale, in different parts of the world. Pains is taken to keep this work well up to date. This is followed in particular courses by the study of friction and lubrication, of continuous girders, of stone and iron arches, and of the theory of elasticity. Besides the above, the students have made during the school year 1894–95 the following tests in the laboratory:[1] —

Tests to determine the modulus of elasticity, the limit of elasticity and tensile strength of cast-iron, wrought-iron, and steel and aluminum rods and bars.

Tests of the compressive strength of large timbers, both along and across the grain; also of timber columns resting against wooden bolsters.

Tests of the deflections, and of the transverse strength of full-size iron or steel I-beams, and of wooden beams, subjected to transverse loads.

Tests to determine the modulus of elasticity, and the tensile strength of annealed or bright iron wire.

Tests to determine the shearing modulus of elasticity, and torsional strength of Norway and refined iron and steel bars one and one-half to two and one-half inches in diameter.

Tests of the tensile strength of hydraulic cement.

Tests of the compressive strength of hydraulic cement.

Tests of the strength of hemp and manila and sisal rope.

Tests of timber headers, both with framed joints and hung by stirrup irons.

Tests of timber truss joints.

Calibration of large steel springs.

Tensile strength of bolted tension members, such as are used in iron building construction.

[1] See page 89.

The instruction in Analytical Mechanics includes an advanced mathematical treatment of analytical statics, dynamics of a particle, dynamics of rigid bodies, etc., and requires acquaintance with considerable pure mathematics beyond the general courses in the Calculus.

Civil Engineering. — The instruction is given by means of lectures and recitations, and by practice in the field and in the drawing-room.

In Surveying, besides the work in the class-room, the use of the various instruments is taught by actual work in the field, including the adjustments of the instruments and the principal operations involved in land, topographical, hydrographical, railroad, city, and underground surveying. The work in the drawing-room consists in representing upon paper the surveys made in the field, with practice in topographical and map drawing. The earlier field-work includes the use of the chain, tape, compass, transit, level, and solar compass, as well as of the various pocket instruments. This is followed by the use of the stadia, sextant, and plane table. The short course in practical astronomy includes a discussion of the methods of determining latitude, longitude, time, and azimuth, together with the theory of the usual astronomical instruments. The short course in geodesy includes a discussion of the figure of the earth and of the methods of measuring base-lines and of carrying on a geodetic survey.

Students electing the geodetic option pursue these subjects in detail, taking also the course in the method of least squares, and receiving instruction in the adjustment of observations.

The course in Railroad Engineering treats of the survey, location, construction, and equipment of railroads. In addition to the work in the class-room, an actual railroad survey and location, several miles in length, are made each year upon such ground as shall best illustrate the problems occurring in practice; and the necessary maps and profiles are

prepared by the students. Advanced courses are given, in which the economics of railroad location are discussed, also the subjects of rolling-stock, motive power, train resistance, brakes, signals, yards, stations, tunnels, and street railways of various kinds. Railroad administration and management form the subject-matter of a distinct course.

The work in Road or Highway Engineering embraces the location, construction, and maintenance of town and county roads, and of city streets and pavements. Through means furnished by Col. Albert A. Pope, of Boston, the facilities for instruction in this branch are ample, and the equipment of the department, in books, models, apparatus, and drawings, is constantly increasing.

The course in Hydraulic Engineering embraces, first, a detailed study of the principles of hydraulics, including the laws of hydrostatics and of the flow of water through orifices, over weirs, and through pipes, with numerous problems illustrating the practical application of the principles discussed; second, practice in hydrometry, in which the student is instructed in the methods of gauging the flow of streams, with practice in the field, using instruments of various kinds; third, practice in carrying out hydraulic experiments on the flow of water and on the loss of head under various conditions, with the aid of the tank and other apparatus in the hydraulic laboratory, as well as in the testing of motors, and other similar work; fourth, a course of lectures covering the subjects of hydrology, water-supply, water-power, hydraulic motors, and irrigation.

The instruction in Sanitary Engineering is given by a course of lectures, supplemented by exercises in designing. The object sought is to prepare the student to deal intelligently with certain questions relating to the health of individuals and communities, and to plan works of sewerage and drainage. The course embraces the study in detail of the house, with its apparatus, the disposal of sewage for isolated buildings by surface or sub-surface irrigation, the collection and removal of sewage in the larger towns, and the sanitary

drainage of cities. Frequent opportunities are given for the inspection of actual examples of sanitary engineering, and a study is made of the questions of the day in relation to public health. The students also attend lectures and demonstrations in sanitary science.

The course in the Strength and Stability of Structures embraces a study of the methods of proportioning beams, floors, columns, roofs, bridges, piers and abutments, arches, retaining walls, and similar structures. Both the analytical and graphical methods of investigating the strength and stability of structures are taught. The course in Bridges and Roofs involves an extended study of the different structures of this class, of wood, stone, and metal, with reference to economy of material, methods of proportioning parts, and the details of design. The subject of foundations is also included. In connection with these courses the student is required in the drawing-room to make complete designs and working drawings, with blue-prints, for several structures.

By the kindness of many active members of the profession, and especially during the past year through the courtesy of Mr. W. H. Barnes, General Manager of the Boston and Albany Railroad, and of Mr. Lucius Tuttle, President of the Boston and Maine Railroad, the classes are frequently enabled to inspect engineering works of interest, and to carry on field operations in favorable localities.

In addition to the regular lectures of the school, occasional lectures are given by prominent engineers, in active practice in their profession, upon subjects with which they are especially familiar. During the past year lectures have been given by Mr. George W. Blodgett, Electrician of the Boston and Albany Railroad, on the Application of Electricity to Railway Working; by Mr. H. G. Prout, of New York City, Editor of the Railroad Gazette, on Steel Rails; by Gen. Roy Stone, of Washington, D. C., on Highway Legislation; by Mr. I. B. Potter, of New York City, on Country Roads; by

Mr. Henry Manley, Assistant City Engineer of Boston, on Street Pavements.

The instruments and apparatus of the department may be classified as follows, — A full outfit of the instruments used in surveying and in the drawing-room ; a collection of hydraulic apparatus for work in the field, comprising single and double floats of various patterns, loaded tubes, and current meters of different kinds; and continuous-record instruments for measuring the strain in bridges and other structures of iron. The very complete hydraulic apparatus for the measurement of the flow of water through orifices and mouthpieces, over weirs, through pipes, etc., is described elsewhere, in connection with the engineering laboratories.

The department has also a collection of models illustrating bridge details, problems in stone cutting, etc., for use in connection with the work of instruction. It has also a large collection of blue-prints, drawings, and photographs.

In order to provide for the needs of students wishing to pursue graduate courses of study, leading, if desired, to the degree of Master of Science or Doctor of Philosophy, an advanced course has been laid out, which includes, besides original work in research and criticism, further instruction in bridge construction and design, theoretical hydraulics, and the theory of elasticity, with special reference to its applications to the strength of materials, together with experimental work in the engineering laboratories.

(For additional details, see the circular on Civil Engineering.)

Summer Course in Topography, Geodesy, Hydraulics, and Geology. — In the vacation following the third year, students taking the geodetic option are required to attend a course in topography, geodesy, hydraulics, and geology, during four to six weeks in the early part of the summer. This is held at some convenient and suitable point in the country, and its object is to give the students opportunity for more

extended and continuous field practice in these branches than is possible during the term. The work done consists of a topographical survey of a certain district, with field practice in geodesy and geology and in the measurement of the flow of streams. The course is open, without extra charge for tuition, to all students in the department who have completed the third year, as well as to properly qualified students in other departments. Persons not connected with the Institute may also be permitted to attend, upon giving satisfactory evidence of being properly qualified, and upon payment of the tuition fee of $25.00.

Mechanical Engineering. — The instruction is given by means of lectures and recitations, and by practice in the drawing-rooms and in the engineering laboratories. Visits are made also to machine shops and manufacturing establishments, to witness machinery in operation and manufacturing processes which cannot be seen at the Institute itself.

The course in the principles of Mechanism and in the construction of gear-teeth is followed by study of the mechanism of machine tools and of cotton machinery.

The course in Steam Engineering includes a detailed study of the principles of thermodynamics, mathematically treated; a discussion of the properties of gases and vapors, especially steam; of the flow of steam and other fluids, of the steam injector, and of the hot-air engine. All of these topics are treated in such a way as to give the student a good foundation in the principles of thermodynamics, especially as they apply to the steam-engine. This is followed by a study of the steam-engine itself, of the compound and multiple-expansion engine, of the mode of testing steam engines, and of steam-boilers. A careful study is made of such data as have been based on reliable tests made on large single, compound, and multiple-expansion engines. The gas-engine is studied, also air-compressors and refrigerating machines.

In Machine Design, each student is required to make a certain number of designs, as the design of a boiler, of a large shaft with gears and pulleys, of a set of hangers, etc., to make all the necessary calculations and drawings, and to determine the strength of every part by means of the principles already learned.

The main principles of hydraulics and of hydraulic motors are studied with particular attention to the turbine.

The course in Locomotive Engineering begins with a careful study of the details of the more usual types of locomotives, and of the strength of the more important parts. The following topics, among others, are discussed, — train resistance, brakes, heating by steam from the locomotive, compound locomotives. The course in Marine Engineering includes a detailed study of the design and construction of single, compound, and multiple-expansion marine engines, with a discussion of their form, proportions, and efficiency, as well as of the strength of the several parts. Mill Construction is studied together with the processes to be carried out in a cotton mill, so far as to enable the student to take up intelligently the laying out of machinery to best advantage, including the planning of the power plant and the distribution of power, all leading up to the designing and building of the mill itself.

The laboratory work, in its earlier portions, is devoted to giving the student a drill in such experimental work as a mechanical engineer has constantly to perform, such as boiler and engine tests, etc. The later work takes very largely the form of original research; and it is intended that the students in these laboratories shall, under suitable direction, undertake the experimental investigation of a number of important engineering problems. (See page 89.)

In connection with the course in mechanism, practice is given in making working drawings of parts of machinery from measurements, and other drawings illustrating the class-room work. In connection with thermodynamics, detail drawings are made from measurement of some ma-

chine, and from these, assembly drawings. This is followed by practice in boiler drawing and in the working out of valve gears and mechanism designs.

Lectures are also given to the students of Mechanical Engineering on Industrial Management.

Besides the teaching by the regular corps of instructors, lectures upon special subjects are given by gentlemen actively engaged in the profession. During the past school year, lectures have been given by Mr. Charles T. Main, on a Design of an Electric Lighting Plant; by Mr. Desmond Fitz Gerald, on Certain Features of the Boston Water Works; and by Mr. S. M. Vauclain, on the Compound Locomotive. The students of the department were enabled to attend also a course of lectures by Mr. Odin B. Roberts, on the Relation of Patent Law to Engineering.

(For additional details, see the circular on Mechanical Engineering.)

Naval Architecture. — The special work of the course is given by lectures, recitations, and drawing. The subjects treated in the lectures and recitations are as follows: —

Description of the methods of building ships in iron and steel, including transverse and longitudinal framing, and the fitting of ballast tanks and double bottoms; preparing the ground, laying blocks, and erecting scaffolding; the laying out, bending, and erection of the framing and the application of the shell plating; the fitting of decks, hatches, and bulkheads; launching and docking.

General discussion of the properties of floating bodies, with special application to ships. Statical and dynamical stability of ships and curves of statical and dynamical stability, with examples of such curves for special types of ships. Discussion of the effect of carrying fluids in tanks wholly or partially filled; and of the effect of filling compartments of a ship. Reserve of stability, or the effect of sudden forces, — such as gusts or squalls of wind, — or the safety of a ship when under sail.

Methods of finding statical and dynamical stability proposed by Barnes, Benjamin, Spence, Daymard, and others. Methods of finding the weight and centre of gravity of hull, equipment, and cargo. Determination of the loads, shearing forces, and bending moments acting on the hull of a ship in still water and when borne by waves. Determination of the equivalent girder and the stresses on the hull of a ship.

Rolling of ship in an unresisting medium, in water, and among waves. The trochoidal theory of waves, and the theory of waves of translation. Waves made by ships and the effect of such waves on the propulsion of ships. Resistance of ships due to friction, wave-making, eddy-making, and to the effect of the wind on hull and rigging. Experiments on the resistance of ships by towing and otherwise. Effect of the propeller on the resistance of a ship. Propulsion of ships by steam or sails. Steering and manœuvring a ship.

Methods of procedure for laying out the preliminary design of a ship for a given purpose. Methods of carrying out and completing a design.

The drawing-room work is as follows: —

Laying out and fairing the lines of a ship. Making a displacement sheet in the ordinary form. Drawing curves of displacement, tons per inch of immersion, centre of gravity, centre of buoyancy, areas of water-line, and transverse metacentre.

Calculation of statical and dynamical stability by Barnes' method and the method in use at the Bureau of Construction and Repair of the Navy Department. Calculation of the weight and centre of gravity of the hull, equipment, and cargo. Calculation of trim of a ship, with and without cargo. Calculation of the stresses on the hull in still water and when borne by waves.

Designing and laying out the lines of a ship for a given service. Drawing the midship section of a ship, the general deck plans, etc. Getting out the specifications for the scantlings.

The drawing-room work is carried on progressively, as applied to some ship or ships of good modern design, and is of a scope to give familiarity with all the methods and processes used for the complete design of a ship and the determination of her properties. Finally, the design of a ship is begun and carried far enough to exhibit the methods of designing; calculations and processes which the student has already mastered, and which must be familiar before a design can be intelligently begun, are carried only so far as is required to get the design into shape. Full advantage is taken of the use of mechanical integrators, of which the department has a good supply, to reduce the time and labor of calculations.

The department has a good collection of standard and recent works on naval architecture and marine engineering. There is, further, in the possession of the department a large number of drawings of modern ships and marine engines of various types for naval and merchant service; including complete sets of drawings of several steamships, with their propelling machinery, both naval and merchant, of large size and of the most recent and approved design and construction. Much of this material is worked up in such form that it can be used directly in the work of the classes; in fact, the work as detailed could be carried out only by aid of such material.

(For additional details, see the circular on Naval Architecture.)

Electrical Engineering. — As a foundation for subsequent work, instruction is given in the theory of electricity. An extended course of lectures is devoted to the detailed consideration of the various technical applications of electricity to land and submarine telegraphy, the telephone, electric lighting, and the electrical generation, transmission, and utilization of power. Instruction is given by lectures and laboratory exercises upon the processes of photometry, especially as applied to the measurement of electric lights.

Advanced instruction in electrical measurements, including work with dynamo-electric machinery, together with a course on the electrical testing of telegraph and telephone lines, is provided. The subjects of construction, specifications and contracts also receive attention.

Besides the work done by the regular staff of the Institute, special instruction is given by gentlemen who are professionally engaged in various departments of electrical engineering, or especially conversant with certain branches of applied electricity. During the past year such instruction has been given by the following persons: —

Mr. George W. Blodgett, Electrician of the Boston and Albany Railroad, on the Application of Electricity to Railway Signalling; Mr. Hammond V. Hayes, Electrical Engineer of the American Bell Telephone Co., on Telephone Engineering; Mr. Cyrus A. George, of the Boston Municipal Fire Alarm Telegraph Service, on Municipal Fire Alarm Systems; Mr. C. J. H. Woodbury, of the American Bell Telephone Co., on Electricity in its Relation to Fire Risks; Mr. Walter C. Fish, General Manager of the Lynn Works of the General Electric Co., on the Construction and Applications of Electro-Motors; Mr. Henry M. Hobart, of the General Electric Co., on the Designing of Dynamos; Mr. Walter S. Moody, of the General Electric Co., on Alternating Current Apparatus; Mr. E. E. Cary, of the Beacon Incandescent Lamp Co., on the Manufacture of Incandescent Lamps; Mr. Hollis French, on Electrical Engineering Practice and Specifications; Mr. Howard C. Forbes, on the Design and Testing of Electric Light and Power Plants; Prof. Elihu Thomson, on Recent Developments in Applied Electricity; and Mr. Odin B. Roberts, on the Nature and Function of Patents for Inventions.

The equipment of the laboratory includes a large number of dynamo machines of various types, which are wholly available for purposes of instruction. Among these are a 150-light Edison generator, the gift of Mr. Thomas A. Edison; a 9-kilowatt inclined coil constant potential generator, the gift of the Thomson-Houston Electric Co.; a 3-kilowatt General Electric Co.'s bipolar machine of the Edison pattern;

a 22-kilowatt Westinghouse multipolar generator; a 30-light, 10-ampère, Brush arc-lighting machine; a Westinghouse low-voltage generator for electrolytic work; a 500-light Thomson-Houston alternating current machine, with transformers of various patterns and capacities up to 15 kilowatts, and numerous smaller machines. A 500-light United States direct-current compound dynamo is used for lighting the Engineering Building, and is available for purposes of instruction, as are also several multiphase generators and motors. The laboratory also possesses a number of Thomson-Houston and Edison street railway motors, both bipolar and multipolar, the gift of the General Electric Company. (For additional details, see the special illustrated circular on the department of Physics and Electrical Engineering.)

Chemical Engineering. — The special instruction upon this subject begins with an extended descriptive course of lectures giving a general view of Industrial Chemistry. The chemical questions connected with the various chemical industries are discussed, and the mechanical appliances described. Details of construction are reserved for a subsequent course dealing with materials, methods of transportation, evaporation and distillation, refrigeration, furnace construction, and similar topics. These topics are, so far as possible, taught by persons practically connected with the industries of which they treat. Special attention is paid to the discussion of the engineering problems of combustion, fuels, evaporation, boiler corrosion, etc., from a chemical point of view. The machinery and mechanical appliances used in manufacturing chemistry are also discussed at length from a purely engineering standpoint. Heat measurements and the economic use of fuels are considered in separate courses of lectures. A laboratory course of instruction is given in technical gas analysis, including the collection and analysis of furnace and illuminating gases, another in the chemical and mechanical testing of oils. Students in this course have also practice in the preparation of chemicals on a semi-industrial scale in the laboratory of in-

dustrial chemistry. Excursions are frequently made to various manufacturing establishments in Boston and vicinity.

The Engineering Laboratories. — The objects to be accomplished by these laboratories are the following, — First, to give the students practice in such experimental work as engineers in the pursuit of their profession are called upon to perform; second, to afford some experience in carrying on original investigations in engineering subjects, with such care and accuracy as to render the results of real value to the engineering community; third, by publishing, from time to time the results of such investigations, to add gradually to the common stock of knowledge.

These laboratories are situated in the Engineering Building, where they occupy the two lower floors, 50 × 150 feet each. The laboratory for testing the strength of materials is furnished with the following apparatus, — a testing-machine of fifty thousand pounds capacity for determining tensile strength, elasticity, and compressive strength; a testing machine of one hundred thousand pounds capacity for determining the transverse strength and stiffness of beams up to twenty-five feet in length, of framing-joints used in practice, and of other structures subjected to a transverse load; a testing-machine of eighteen thousand pounds capacity for determining the transverse strength and stiffness of beams up to fourteen feet in length; a machine for testing the torsional strength and stiffness of shafting up to three inches in diameter and to twenty-one feet in length; a small torsion-machine of six thousand inch-pounds capacity, for very delicate work; machinery for the measurement of the twist of shafting; for testing the tensile strength of mortars and cements, and of ropes; for testing the effect of repeated stresses upon the elasticity and strength of iron and steel; for determining the strength and elasticity of wire; for determining the strength and elasticity of cloth; for testing the strength of pipe and pipe-fittings under hydraulic pressure; also accessory apparatus for measuring stretch, deflection, and twist. Besides the above-stated apparatus, a horizontal Emery test-

ing-machine of three hundred thousand pounds capacity has recently been added to this laboratory. It contains all the essential features of the eight hundred thousand pound testing-machine at the Watertown arsenal, built by Lieut. Albert H. Emery, and is suitable for testing a compression specimen eighteen feet long, and a tension specimen twelve feet long.

The Hydraulic Laboratory contains a closed steel tank five feet in diameter and over twenty-seven feet high, arranged for the insertion of orifices, mouthpieces, and other special pieces of apparatus, with gates for controlling the discharge, and with connections for supplying water, in experiments upon pipes and motors. This tank is connected with a ten-inch standpipe over seventy feet high, so arranged that a constant head may be maintained at any desired level. A steel tank of about two hundred and eighty cubic feet capacity gives opportunity for the accurate measurement of larger quantities of water than can be weighed directly during experiments. A system of pipes connected both with the main tank and with the pumps is fitted for the insertion of diaphragms, branches, and other apparatus for studying loss of head and the laws of discharge. An attachment has been fitted to the main tank, containing a Pitot tube for studying the laws of velocity in jets, and adjustable points for accurate measurement of the cross-section of jets.

The laboratory is further equipped with a forty-eight inch Pelton wheel, of thirty horse-power; a Venturi meter; an eight-inch, a twelve-inch, and two forty-eight-inch weirs for measuring water, also an orifice-tank for the same purpose; a weir with adjustable sides, designed for experiments on weirs of different lengths; a centrifugal pump, a gang-pump; a plunger-pump ; with a pulsometer ; with a three-inch water meter and others of smaller size, and with a variety of mercury gauges, standard orifices, mouthpieces, diaphragms, branches, nozzles, etc., for experiments with flowing water under all conditions. A six-inch turbine is arranged to be run under various conditions of head and gate opening in tests for efficiency. There is also a hydraulic

ram with a two and one-half inch drive-pipe. The laboratory also contains a steel weir-box, the weir having a standard crest adjustable as to length from zero to five feet; and a seconds pendulum, with chronograph, for exact determination of time in experimental work. Water is directly supplied for experiments by various pumps.

The Steam Laboratory contains a triple-expansion engine, with cylinders of nine inches, sixteen inches, and twenty-four inches diameter respectively, and thirty inches stroke, arranged in such a way as to be run single, compound, or triple, as desired for the purposes of experiment. This engine is of the Corliss type, and has a capacity of about one hundred and fifty horse-power when running triple, with an initial pressure of one hundred and fifty pounds in the high-pressure cylinder. It is connected with a surface condenser and the other apparatus necessary to adapt it to the purposes of accurate experiment.

This laboratory also contains a sixteen horse-power engine, and an eight horse-power engine, used for giving instruction in valve setting, etc., also a gas-engine. It is equipped with several surface condensers, steam-pumps, injectors and ejectors, calorimeters, mercurial pressure and vacuum columns; apparatus for determining the quantity of steam issuing from a given orifice or through a short tube under a given difference of pressure; apparatus for testing steam-engine indicators; apparatus for testing injectors; and with indicators, planimeters, gauges, thermometers, anemometers, and other accessory apparatus.

The engineering laboratories are provided with a number of friction brakes; with machinery for determining the tension required in a belt or rope to enable it to carry a given power, at a given speed, with no more than a given amount of slip; with four transmission dynamometers; with two machines for determining the coefficient of friction of lubricating oils; with a pendulum governor arranged for experimental purposes; with a complete set of Westinghouse air-brake apparatus, including the parts belonging to the car and to

the locomotive; with the pump and engineer's valve of the New York air-brake; with a locomotive link model; with a hot-air engine; and with cotton machinery as follows, — two cards, a drawing-frame, a speeder, a fly-frame, a ring spinning-frame, and a mule, as well as accessory apparatus. There are available for the purposes of experiment in connection with the work of these laboratories, two horizontal tubular boilers in a boiler-house near the Engineering Building, a wrought-iron stack, 3 feet in diameter and 100 feet high, fitted with the apparatus necessary to make experiments on the draught of chimneys; a horizontal tubular boiler, and two large sectional boilers situated in the Rogers Building; also another boiler, a forty horse-power engine, a number of looms, and other apparatus in the workshops on Garrison Street.

Shopwork. — Practical instruction in the nature of the materials of construction, and in the typical operations involved in the arts, is considered a very valuable adjunct to the theoretical treatment of professional subjects. Workshops have been provided with the more important hand and machine tools, so that the student may acquire a direct knowledge of the nature of metals and woods, some manual skill in the use of tools, and a thorough knowledge of what can be accomplished with them. The shops are located on Garrison Street, and are equipped as follows: —

The carpentry, wood-turning, and pattern-making departments contain forty carpenter's benches, two circular saw-benches, a swing-saw, two jig-saws, a buzz-planer, a mortising-machine, thirty-six wood-lathes, a large pattern-maker's lathe, and thirty-six pattern-maker's benches. The foundry contains a cupola furnace for melting iron, two brass furnaces, a core-oven, and thirty-two moulder's benches. The forge-shop contains thirty-two forges, seven blacksmith's vises, and one blacksmith's hand-drill. The machine-shop contains twenty-three engine-lathes and seventeen hand lathes of approved patterns, two machine-drills, three

planers, a shaping-machine, two universal milling-machines furnished with spiral and gear-cutting attachments, a universal grinding-machine, a cutter and reamer-grinder, thirty-two vise-benches arranged for instruction in vise-work, and a fully equipped tool-room.

The Engineering Library. — The libraries of the departments of Mechanical Engineering, Civil Engineering, and Naval Architecture are united into a single library under the direct charge of the Librarian. This library contains over six thousand volumes and twenty-seven hundred pamphlets. It is especially rich in journals and transactions of societies dealing with the various branches of engineering and ship bnilding. One hundred and twenty-four publications of this kind are received annually.

Mining Engineering and Metallurgy. — Professional instruction is given by lectures and recitations, by laboratory work, and in the summer school. The introductory work begins with Plattner's blow-pipe assay of silver. This is followed by a detailed treatment of technical methods of mining, including prospecting, sinking, stoping, hoisting, pumping, and ventilating, the location of mining claims, and mining surveying. Ore dressing is taught by lectures and by laboratory work illustrating the various forms of machinery, while the lectures on metallurgy are supplemented by an extended course in the use of the furnaces in the laboratory for the smelting of gold, silver, copper, and lead. By this laboratory work the student has experience in actual metallurgical work, and checks his results by assays and chemical analyses at the appropriate stages of the process. With such practical experience in immediate connection with class-room instruction, he acquires the best possible grasp of the subject-matter.

The John Cummings Laboratory of Mining Engineering and Metallurgy. — The aim of this laboratory is to furnish students the means for experimental study of the various processes of

ore dressing and smelting, and at the same time to give them an idea of what is required of a professional miner or metallurgist. To this end the apparatus has been chosen with a view to illustrating, as far as possible, the principles of the more important machines and furnaces actually used in mining and metallurgy.

The metallurgy of lead, copper, gold, and silver has been chosen as best suited for laboratory illustration. Production of iron and steel in quantity is precluded by the size of the plant requisite, and by the large amount of ores and fluxes necessary to put this into operation.

The experimental work of the laboratory is carried on by the students, under the immediate charge of an instructor. A sufficiently large quantity of ore is assigned to each student, who first examines it for its component minerals, sorts and samples it, determines its character and value by analysis and assay, and makes such other preliminary examinations as serve to indicate the proper method of treatment. He then treats the given quantity, makes a careful examination of the products of each step of the process, ascertains, wherever practicable, the amount of power, water, chemicals, fuel, and labor expended, and thus learns approximately the effectiveness and economy of the method adopted. He learns also the value of chemistry as a check upon metallurgical work. Each student is assisted in working his ore by his classmates, who have opportunity in turn to manage the machines and furnaces.

It is not claimed that the instruction given in this laboratory is in any sense a substitute for the experience gained in large works. It is believed, however, that it prepares students to enter works and to be almost immediately useful in them. The spirit of investigation which is developed by the work, as well as the experience of comparing processes actually carried out with the same processes as described in books, is of great advantage.

The laboratory consists of three parts, devoted respectively to milling, smelting, and assaying. There are also a supply-

room, a blow-pipe room, library, a private laboratory and office. Ample storage vaults for ores and fuel are provided.

The Milling-room is supplied with four suites of milling apparatus, as follows, — a three-stamp battery, with a Hendy automatic feeder, a set of amalgamating plates, a mercury-saver, a Frue vanner with smooth and corrugated belts for concentrating tailings, a centrifugal pump for reworking the tails of the vanner upon the circular slime-table, a settling tank, and a centrifugal pump; a Blake Challenge crusher, a Gates crusher, crushing rolls, with automatic sizing screens, a Richards-Coggin separator, a spitzlutte, a spitzkasten, one Harz-Mountain and two Collom jigs, a Cornish frame, a circular slime-table, a settling tank, a centrifugal pump, and a magnetic concentrator; one set of three amalgamating pans, thirty, eighteen, and twelve inches in diameter, respectively, together with a thirty-inch settler, another set of seven seven-inch pans, three of which are copper, and a small automatic kieve for separating mercury from pulp; a set of three forty-gallon leaching vessels, a set of four eight-gallon leaching vessels, and two dynamos for deposition of metals.

The laboratory contains also the following auxiliary apparatus, — a steam-engine, a Bogardus mill, a ball mill, a Root blower, a Sturtevant dust-fan and blower, drying-tables, a Hendrie and Bolthoff sample grinder, and four Morrell agate mortars.

The Furnace-room contains a water-jacket blast-furnace, a Brückner cylinder, two reverberatory roasting furnaces, a roasting kiln, a furnace with movable hearth for agglomerating, cupelling, and copper-refining, pot-furnaces, a blacksmith's forge, a melting-kettle, retorts, etc.

The Assay-room contains ten crucible furnaces, 12 × 12, all of which are jacketed with iron shells to insure good draught, stability, and durability; also two muffles, 4 × 7, and five muffles, 7 × 12. These furnaces are all provided with ample flue capacity and abundant draught. This room contains also eight pulp-balances, six flux-balances, nine button-balances, and desks for fifty students.

The Library contains over fifteen hundred volumes, and receives annually thirty-seven periodicals.

Summer Schools of Mining and Metallurgy. — To bring the mining students into closer acquaintance with their profession, summer schools are organized for the study of mines, mills, smelting works, and geological fields.

At the summer school of mines, the students with their instructors locate at a mine, and take up in succession systematic studies in methods of mining and ore dressing, of underground and surface surveying, doing actual work in all these lines.

At the summer school of metallurgy, the party visits a locality where a variety of smelting and refining operations are conducted, and makes a systematic study of the different operations, writing up the notes from day to day.

In 1892, the summer school of mining was held at the anthracite mines at Drifton, Pa.

In 1893, the summer school of metallurgy was held at Chicago. The Exposition and the smelting-works for treating iron, copper, silver, and gold were visited on alternate days.

In 1894, the summer school of mining was held in Nova Scotia and Cape Breton. In the former district, the mining and milling of gold were studied; in the latter, the mining and shipping of coal.

In 1895, the summer school of metallurgy was held in New Jersey and Pennsylvania. The leading metallurgical works of Jersey City and Newark, N. J., and those at Lebanon, Steelton, Everett, and Johnstown, Pa., were made the objects of study. Coal and iron mines were visited in Everett and Lebanon, Pa.

The mining and metallurgical summer schools take place in alternate years.

Architecture. — The instruction in this department comprises the study of construction and materials, the study of building processes and of professional practice, as well as that of composition, design, and the history of architecture.

It is arranged to meet the needs of those who are commencing their professional studies as well as of experienced draughtsmen who desire to make up deficiencies in their training, or to qualify themselves for undertaking the responsibilities of practice.

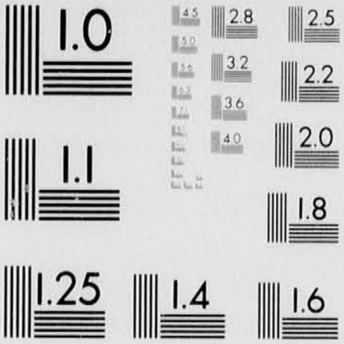
The more strictly professional work begins with the history and applications of the orders. During the entire course there is regular instruction in freehand drawing, the last year being from life. The students are familiarized with the material elements of their future work by courses in practical construction, including lectures, problems, and visits to buildings.

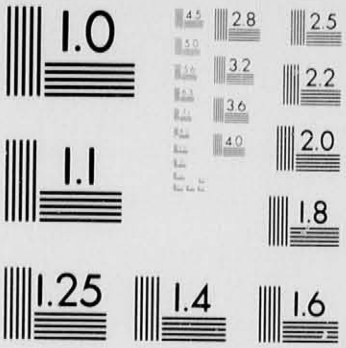
Architectural history is taught by lectures, illustrated with the stereopticon, by text-books, and by written themes.

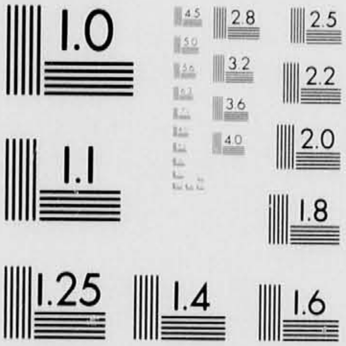
For two and one-half years the students are continually engaged upon architectural design. Each student's work is examined and criticised before the classes by a jury from the Boston Society of Architects.

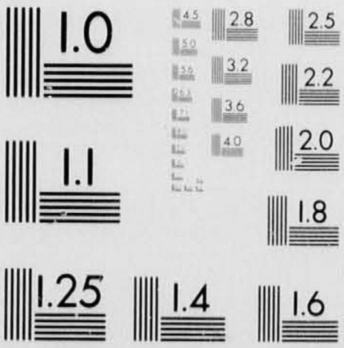
Advanced courses in design, history, and construction are offered to graduates of the regular course.

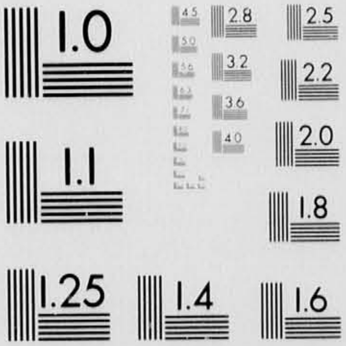
Several thousand photographs, prints, drawings, and casts were originally collected for the department, by means of a special fund raised for the purpose. To these collections large additions have been made by regular appropriations and by gifts. Models and illustrations of architectural detail and materials are arranged in the rooms of the department. The chief part of the collection of casts of architectural sculpture and detail belonging to the department has been deposited in the Museum of Fine Arts, and is arranged with the architectural collections belonging to the museum. The students of the department have free access to the museum at all times; as the building is close at hand, no inconvenience results from the change, and some of the advanced exercises in drawing are held there. The architectural library contains a carefully selected collection of seven thousand photographs, and over sixteen hundred volumes of technical works, and the leading American and foreign periodicals. The publications of the Royal Institute of British Architects and of the Société Centrale des Architectes in Paris are presented by


1.0
2.8
2.5
3.2
2.2
3.6
2.0
4.0
1.1
1.8
1.25
1.4
1.6


1.0
2.8
2.5
3.2
2.2
3.6
2.0
4.0
1.1
1.8
1.25
1.4
1.6


1.0
2.8
2.5
3.2
2.2
3.6
2.0
4.0
1.1
1.8
1.25
1.4
1.6


1.0
2.8
2.5
3.2
2.2
3.6
2.0
4.0
1.1
1.8
1.25
1.4
1.6


1.0
2.8
2.5
3.2
2.2
3.6
2.0
4.0
1.1
1.8
1.25
1.4
1.6

M.I.T. ANNUAL CATALOGUES AND BULLETINS
1895/96

02 OF 03

those institutions, and a large number of richly illustrated and costly books have been added to the library recently as gifts from friends of the Institute. The resources of the department have been much enlarged by the erection of the Architectural Building, which contains more than double the space previously available.

Summer School of Architecture. — The World's Fair offered such an exceptional opportunity for a comparative study of construction and design of different nations, that the first summer school was held in Chicago in 1893.

In 1894, the school was held in Salem and Portsmouth for the study of colonial work. The courtesy of owners of houses built at this epoch allowed the students to measure and sketch the best work of this interesting locality.

In 1895, the study of colonial architecture was continued, the class having headquarters at Plummer Hall, Salem. A large number of measured drawings were made.

Biology. — Under this head is included instruction in a series of related subjects, beginning with microscopy and general biology, and extending to comparative physiology, zoölogy, and sanitary biology.

General Biology is taught partly as an introduction to the special branches of the subject, which depend more or less upon it, and partly for its own sake, introducing the student to a new department of science. Beginning with a brief review of the familiar facts of common knowledge concerning living things and lifeless things, their likeness and their difference, and of organisms, organs, and tissues, the more recondite subjects of cells and protoplasm are considered; after which considerable time is spent upon a thorough examination and comparison, both macroscopic and microscopic, of selected plants and animals, chosen as representative forms.

Botany and Zoölogy. — General biology is succeeded or continued by brief courses in general zoölogy and general botany. These naturally introduce the student to Cryptogamic Botany, of which the outlines only are taught, and to

more advanced zoölogy, in which large opportunities are offered.

Comparative Anatomy and Embryology. — The student makes careful dissections and drawings of typical forms from most of the principal groups of the animal kingdom, the last six weeks of the course being devoted to the study of the embryology of vertebrates, with the embryo chick and frog as types. This course is indispensable to those who intend to teach zoölogy, while future medical students will find that a knowledge of the anatomy and development of vertebrates, together with the skill in dissection and embryological methods acquired in this course, will give them a great advantage during their first years in the medical school.

Theoretical Biology. — The more philosophical questions connected with biology are brought forward and are treated historically and critically. The facts and theories are examined in regard to such subjects as heredity, evolution, and natural selection.

Advanced students in biology devote most of their time to special work, in which they are allowed considerable choice, and they are expected to undertake original observations in their respective specialties. The subjects offered at present for specialization are comparative physiology (including microscopic anatomy) and micro-biology (including bacteriology).

Comparative Physiology. — For those intending to study medicine, or to become science teachers in secondary schools, the course in physiology (and microscopic anatomy) is especially useful, emphasizing as it does the broader aspects of the subject without encumbering the student with the many details which must form part of a course in human physiology given with sole reference to the medical or other special applications of the science.

Bacteriology, Fermentation, Sanitary Science, etc. — Those who are preparing themselves for work in some one of the sanitary applications of biology, give special attention to bacteriology, particularly in its latest application to sanitary

science in the examination of air, ice, and water. The organisms peculiar to or infesting water-works are particularly considered, owing to their practical importance.

The Institute now affords unusual opportunities for advanced or special work in fermentation, hygiene, and sanitary science. The departments giving the principal instruction in these sciences are the biological, chemical, physical, architectural, and that of sanitary engineering. Graduate or special students, such as physicians, inspectors of boards of health, superintendents or other attachés of water-works or sewer departments of cities or towns, if qualified to pursue their work with advantage, will be admitted to such subjects as they may elect, and will be given every opportunity to equip themselves for their work.

The Biological Laboratory is furnished with tables for microscopical work, for dissection, and for the simpler operations of physiological chemistry; it is well supplied with microscopes, paraffin baths, Thoma and Minot microtomes, incandescent gas-burners, incubators, and other apparatus for work in gross and microscopical anatomy and embryology. For work in experimental physiology, there are two long-roll kymographs, a pendulum myograph, Du Bois Reymond induction coils, muscle forceps and levers, recording drums, moist chambers, tambours, etc. For work in bacteriology and sanitary science, there are culture-rooms, sterilizers, thermostats, special microscopes, and other bacteriological apparatus. Frog-tanks and aquaria are also provided.

The biological library includes the ordinary text-books and works of reference, and many important monographs, containing in all more than sixteen hundred volumes.

A Biological Journal Club, to which the more advanced students are admitted, is made helpful as a means of keeping abreast of current progress, and of giving practice in bibliography and the public presentation of original matter or of abstracts. Students of biology have also valuable privileges in connection with the Boston Society of Natural History, of which the museum, the library, etc., are freely accessible.

(A special circular giving more detailed information concerning the biological department may be had on application.)

Mineralogy. — Crystallography is taught with the aid of models, diagrams, and a series of crystals. In descriptive mineralogy specimens are freely used, an example of each of the more important species being placed before each student, while a collection of typical specimens is always accessible. The collection in this department is supplemented by that in the Museum of the Boston Society of Natural History, as explained in the next section. In determinative mineralogy, students are taught to identify minerals by their crystallization and physical properties, as well as by blowpipe or chemical tests. The instruction in blowpipe analysis is supplemented by sufficient practice to insure familiarity with the methods.

At the close of the term an excursion of several days is made to localities of mineralogical interest in New England or the adjoining states.

Physical Geography and Geology. — The topics of these closely allied sciences are taught in the order of their logical succession, as follows: —

Physical Geography. — The course is not a repetition of what may have been taken at a good preparatory school. The position of the study as a general science is recognized, while the relations of the great terrestrial forces to engineering, commerce, manufacturing, and other branches of industry receive the special attention they should have in a technological institution.

As the forces mentioned are likewise geological agents, and it is through them alone that the student can interpret the structure of the earth, it is in this connection that Dynamical Geology is taught, as directly preparatory to the courses which follow. The instruction consists essentially of a course of lectures; but at each exercise questions are asked, to which answers are given either orally by a few, or are written

by all the members of the class. The students are required to take notes and present them for examination. The lectures are amply illustrated.

Structural Geology. — Petrology, embracing the principal structural features of large masses of rocks, such as stratification, joint-structure, faults, folds, slaty-cleavage, veins, dikes, etc., is taught as concretely as circumstances will allow. Specimens, as well as diagrams and other illustrations, are freely used in the class-room, and the unusually favorable opportunities which the local geology of Boston presents for the illustration of these topics are utilized by means of frequent field-lessons.

In the instruction in Lithology, or the systematic study of rocks, a large amount of observation or laboratory work is combined with oral instruction. At each lesson a tray containing a typical hand-specimen of every type to be studied is placed before each student, and the lessons consist largely in the examination, testing, and description of the specimens by the students themselves, the instructors directing and supplementing the work of the class. The collections in this department are specially adapted to the laboratory method of instruction, and a complete series of typical rocks is accessible to students at all times. The instruction in Chemical Geology is also introduced in this term, and embraces the formation, alteration, and decay of rocks, the origin of vein-stones and ore-deposits, of rock-salt and mineral waters, and of coal and petroleum.

Historical Geology. — It is intended in this study to give the students a general idea of the physical history of the earth, and to teach some of the technical applications of this branch of knowledge. The students in the department of Civil Engineering constitute a distinct class. With these, special attention is given to such events in the history of the earth as have largely determined those topographic and hydrographic features of its surface with which their professional labors may be more or less intimately associated.

With other students more time is devoted to the life of the

past ages, to the relations of life to physical conditions, and to the geologic events which have led to the present distribution of organic beings upon the earth.

To impart information is regarded as but one portion of the instruction; so far as practicable, the students are led to a direct acquaintance with natural features and objects, and then trained to employ correct methods of interpretation and presentation. The collections are especially adapted for use in teaching, and every available opportunity for field-practice is improved. There is a good geological library.

In addition to the working collections in the Rogers Building, the students in this department have access at all times to the extensive and valuable mineralogical and geological collections of the Boston Society of Natural History. These are very conveniently placed, and have been arranged with special reference to the needs of students, each division of mineralogy and geology being separately and fully illustrated in the same order in which it is taken up in the Institute course.

In all the courses in mineralogy and geology especial prominence is given to the practical and economic aspects of these sciences, the main object being to adapt the instruction in each case to meet the special demands of the student's profession, whether it be Mining Engineering, Civil Engineering, Architecture, Geology, Biology, or Chemistry. The architects, for example, receive a course in which the study of building stones is the prominent feature, and in which the regular exercises are supplemented by visits to quarries, stoneyards, buildings, and monuments, and by laboratory practice in physical and chemical tests of the strength and durability of stones.

The fourth-year courses in Ore Deposits and Economic Geology are based upon extensive special collections, and are designed to prepare the students in Geology for professional work in connection with mines and quarries, including the selection and testing of materials for structural purposes and for industrial processes. In addition to frequent field-

lessons during term time, students in these courses spend about ten days of the semi-annual vacation with an instructor in some mining district, making a practical study of the modes of occurrence and structural relations of the economic materials, as well as of the methods of mining, etc.

All students in the Geological Course are also expected to devote four weeks in the summer vacation following the third year to field-work in connection with the summer school of Topography and Geodesy.

Modern Languages. — While the primary object of the instruction in French and German is to impart such facility in translation that the student may avail himself of foreign works relating to his professional department, much importance is attached to the study of these languages as a means of general training. For both purposes, a thorough and systematic study of the structure of the language is deemed to be an essential basis. This is, however, accomplished by means of practical work with the language itself, including written and oral exercises, rather than by study of the abstract rules of grammar. French (see conditions of admission, page 60) is continued through one year, and German through two years, for all regular students.[1] In certain courses, especially in the General Course, there is advanced work in French and German, in part optional. Instruction in the elements of Italian and Spanish is also offered.

English. — All regular students receive instruction in English during the first two years of their course. During the first half of the first year they hear lectures on the principles of English composition, designed to help them in expressing themselves fluently and adequately, rather than to develop a theory of rhetoric. Each student, moreover, writes, frequently and regularly, themes and exercises of various sorts, which are corrected and returned by the instructors. The student has also frequent opportunities for

[1] Students entering on German continue German for one year, then take two years of French.

consulting the instructors in private about his especial needs. During the second term of the first year, and during the third year, by arrangement with other instructors, all written exercises in history and political economy are subject to examination and correction by the English Department, which is thus enabled to direct continually the progress of each student in English composition. Throughout the second year instruction is given in the history of English literature, with practice in composition under the personal supervision and criticism of the instructor. In this course the student is required to read, as a whole or in part, such representative works as shall give him the best idea of the history and general character of English literature. The aim of the department is to give students who are looking forward to professional or business life such drill as will help them to express themselves readily, accurately, and adequately, and to aid them in the understanding and appreciation of good literature.

In the General Course, instruction is offered in the following subjects, optional or required, — English literature before 1560, Elizabethan literature, English literature of the eighteenth century, English literature of the nineteenth century, contemporary English and American literature, logic, advanced English composition, and Latin reading with special reference to English etymology. The aim in view is to give the student thorough drill, according to modern methods, in the literature and literary history of the periods mentioned, and to enable him, by theory and by practice, to express his ideas in a correct and adequate form.

Students have access to a library of two thousand volumes of selected works in English literature.

History and Political Science. — The study of three comprehensive topics in history and political science is required of all regular students, as follows: —

In the first year, Modern Political History of foreign nations, illustrating the political progress of the world during

the present century, with particular reference to the growth of political institutions.

In the second year, American History, completing the foregoing survey of history and politics.

In the third year, Political Economy and Industrial History, including the discussion of current economic problems.

These three general subjects may be followed or accompanied by several series of more highly specialized historical and political studies, which are required in one or more courses, and are open to all qualified students. The history of England and the United States may be studied continuously for three years; mediæval and modern European history throughout two years, introducing the student in the following year to the study of the era of the French Revolution.

The instruction in Social Science and History has been arranged so as to connect the instruction in biology with that in history. These two departments thus present an unbroken sequence of related studies extending through three successive years of the General Course curriculum, and resting upon the fundamental knowledge of living forms and of prehistoric man that is presented in general biology, zoölogy, and anthropology. The study of social science and history is followed by that of comparative politics and constitutional history. The last link in the chain is international law.

Instruction is imparted by lectures, oral and written recitations, and assignments of reading for which students are held strictly responsible. The topical method of study is adhered to, so far as possible, and syllabuses of lectures and reference readings are placed in the hands of each student.

Economics. — In the group of economic studies extending through three years, the course upon the elements of political economy taken by all regular students is increased for those in the General Course by more detailed studies.

During succeeding years, the economic instruction is devoted to five different lines of inquiry, — Finance and taxation, commercial and industrial history, socialism, history of economic theory, and statistics.

The Financial History of the United States from 1789 until the present time is studied. Use of public documents is taught, and the student is required to go to official sources for authority as to statements of fact. A second course is directed to the theory and history of taxation in general. A third optional course on the theory of banking and finance describes the most important banking institutions of the world, and treats with more detail the question of bimetallism.

Two courses in Commercial and Industrial History are presented.

The course on Socialism considers the economic systems proposed, particularly during the present century, to change the existing distribution of wealth.

In the last term of the General Course, a return may be made by optional work to the study of Economic Theory. The previous general historical studies, as well as the more special ones in finance and industry, lead the student to the development of the different schools of economic thought from the mercantilists and physiocrats to the more modern representatives of the science.

In Statistics there are two courses. The first is elementary, and is devoted to the use of statistical data of the United States, especially in their application to the questions of population, commerce, and finance. The more advanced course treats of the general subject of statistics, its history, method, and technique. A good working library in statistics has been gathered, and the library of the American Statistical Association, kept in rooms of the department, affords special advantages.

(For a more detailed account of the courses in History and Political Science, see the circular of the General Course.)

The Reading-room of the department contains libraries

of authorities to be consulted in the required reference work, a large number of the best magazines and newspapers, both bound and unbound, which are useful in historical, political, and literary study, together with reading-tables, and work-tables for the preparation of maps, charts, diagrams, and especially for statistical work. There is a good collection of maps and diagrams particularly serviceable for the illustration of industrial and political history. The library in connection with the reading-room comprises six thousand selected volumes and several thousand pamphlets. Every student enjoys immediate and unrestricted access to the shelves.

Military Science and Tactics. — In conformity with the requirements of the Acts of Congress of July 2, 1862, and August 30, 1890, and the Acts of the General Court of Massachusetts in furtherance thereof, the Institute provides instruction in Military Science and Tactics.

All male students, except aliens, who take a majority of their studies in the first year are required to attend, for three hours per week, exercises in Military Science and Tactics.

For these exercises they are required to provide themselves with uniforms, which are made from measure and by contract, in order to secure uniformity of material and manufacture, as well as cheapness. The whole cost to each student does not exceed eighteen dollars. Any student may be excused from the prescribed course in the military department, if he is twenty-three years of age at entrance, or if he pass an examination in the subjects taught during the year. Should a student present to the Faculty satisfactory evidence of physical disability, he shall be excused from the prescribed drill exercises, and in lieu thereof shall be required to attend a course of theoretical studies in Military Science and Tactics. All medical certificates intended to show physical disability must be presented within ten days after entrance.

Gymnastics.— The drill-hall includes a gymnasium, open to all students in the Institute. Class and individual work are conducted under the guidance of an experienced instructor.

Libraries.— The libraries of the Institute contain thirty-eight thousand volumes and nearly twelve thousand pamphlets. In the General Library are to be found works on education, proceedings of learned societies that are of general character, and a complete set of the publications of the Institute and its officers; besides encyclopædias, dictionaries, catalogues of other libraries, and other books of reference. The greater part of the books belonging to the Institute are distributed to nine Department Libraries where they are easily accessible to all students. These libraries contain a careful selection of special treatises, monographs, text-books, etc., and of periodical publications germane to the work of the respective departments. They are thus working libraries, and valuable experience in the use of them is acquired before the completion of the regular courses, either incidentally to the preparation of theses, or in connection with lectures or recitations. The division of the library enables each student to consult the works needed by him with the least possible inconvenience and loss of time.

The students have full use also of the valuable library of the Boston Society of Natural History, of the extensive collections of the Boston Public Library, comprising more than five hundred thousand volumes in all departments of knowledge, and of the library of the American Statistical Association. Many libraries of scientific societies, of individuals, and of private corporations, rich in complete sets of the scientific periodicals of all countries, and of the publications of leading scientific societies throughout the world, are, through the courtesy of the owners, open to advanced students of the Institute.

Schedule of Topics.

THE following twenty-eight pages form a schedule which includes the larger part of all the distinct topics or subjects of study taught in the Institute. These subjects are classified under headings, such as "Mathematics," "Chemistry," "Physics," "Civil Engineering," "Mining Engineering," etc. In the first column of the table is given the numeral by which any given topic is designated for convenience of reference, the same numbers appearing in the course schedules, pages 27 to 53; in the second column, the name of the subject; in the third and fourth, the number of the year (1st, 2d, 3d, or 4th) and the term (1st or 2d) in which the subject occurs; in the fifth, the number of hours per week given to exercises in the subject, the number of weeks being fifteen for each term, except as indicated by subscript figures; in the sixth, the number of the preparatory subject or subjects required of those desiring to be admitted to that in question; in the seventh, the manner in which the subject is taught, whether by lectures, by recitations, or by work in the laboratory, drawing-room, or field, or by several of these in conjunction; in the eighth, the name of the professor or instructor in charge of the exercise; and in the ninth, the courses including this subject. The requirements in column six include not merely the subjects specified by number, but also those required as preparation for them. Thus, for instance, the requirements for 51 (Applied Mechanics) are 32 and 300; that for 32 is 29; that for 29 is 27; that for 27 is 22; those for 22 are 20 and 21; those for 20 and 21 are 1 and 2 (algebra and

plane geometry required for admission, page 58); the requirement for 300 is 27 (or 23), which has already been followed through. So that to take up 51, Applied Mechanics, the applicant must be prepared to pass, or must have passed examinations, in 20, 21, 22, 27, 29, 32, 300, and in 1 and 2. The sufficient reason for this is, that in topic 51 use is made of all the subjects referred to; and to carry on the work, the student must have had suitable training in all of them. In the sixth column the numbers are in some cases in italics. This denotes that the corresponding topics, if not previously completed, must be taken at the same time with the topic under consideration For instance, the student cannot take 420, Mechanism, unless he takes 29 and 75 at the same time, or has already completed them. Roman numerals in parentheses in the ninth column designate courses for which the topic in question is optional.

By a careful consideration of the schedule, in connection with the pages on the "Subjects and Methods of Instruction" (pages 68 to 109), the applicant for a special course may select for the earlier part of that course, such topics as will enable him to pursue later those more advanced subjects which he may particularly desire. He may also ascertain what preparatory training is requisite for admission to any special course at the Institute.

The topics included in the schedule are subject to change at any time by action of the Faculty; and the list of studies for which any special student applies must be submitted to the Faculty for approval.

The subjects named below are the entrance requirements, full statements of which are given on pages 57 to 63.

1. Algebra.
2. Plane Geometry.
3. French or (4) German.
5. English.
6. History.

20. Advanced Algebra or (21) Solid Geometry.

MATHEMATICS.

No.	Subject.	Year.	Term.	Hours[1] per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
20	Algebra[2]	1	1	4_8	(1) (2) . .	Rec.	Wells	All reg. students.
21	Solid Geometry[2]	1	1	4_8	(1) (2) . .	Rec.	Wells	All reg. students.
22	Logarithms and Plane Trigonometry	1	1 2	4_8 2_{12}	(20) (21) .	Rec.	Wells	All reg. students.
23	Elements of Plane Analytic Geometry	1	2	2	(22) . . .	Rec.	Bailey	(V.) VII., IX., XII.
27	Analytic Geometry[3] . . .	1	2	3	(22) . . .	Lect., Rec.	Bartlett	All courses[4] except VII., IX., and XII.
28	Differential and Integral Calculus	2	1	3	(23) . . .	Lect., Rec.	Woods	(V.)
29	Differential Calculus[3] . .	2	1	3	(27) . . .	Lect., Rec.	Osborne	All courses[4] except VII., IX., and XII.
31	Determinants	2	2	1	(22) . . .	Lect., Rec.	Woods	(VIII.)
32	Integral Calculus[5]	2	2	3	(29) . . .	Lect., Rec.	Osborne	All courses[4] except VII., IX., and XII.
33	General Theory of Equations	3	1	2	(22) . . .	Lect., Rec.	Skinner	(VIII.)

[1] The number of weeks is 15 per term, except as indicated by subscript figures.
[2] Numbers 20 and 21 are alternative, one being required for entrance.
[3] With Spherical Trigonometry for Course I.
[4] Optional in Course V.
[5] Classes entering before 1894 have this subject one term later.

MATHEMATICS.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
35	Differential Equations [1] . .	3	1	3_{10}	(32) . . .	Lect., Rec.	Osborne	VI.,[1] VIII.
37	Quaternions	3	1	2	(35) . . .	Lect., Rec.	Bailey	(VIII.)
39	Analytic Geometry of Three Dimensions; Advanced Calculus	3	2	3	(31) (32) .	Lect., Rec.	Woods	(VIII.)
40	Elements of Differential Equations	3	1	2_5	(32) . . .	Lect., Rec.	Osborne	II., X., XIII.
41	Fourier's Series; La Place's Coefficients	4	1, 2	2	(39) . . .	Lect., Rec.	Bailey	(VIII.)
42	Theory of Probability and Method of Least Squares	4	1	2	(32) . . .	Lect., Rec.	Bartlett	$I._3$, VI., VIII.
43	Differential Equations . .	4	2	3	(32) . . .	Lect., Rec.	Osborne	$I._3$, VI.[2]

[1] For classes entering after 1893, 15 weeks.

[2] For classes entering before 1894.

ANALYTICAL AND APPLIED MECHANICS.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
50	Statics; Stresses in Frames; Strength of Materials; Kinematics and Dynamics; Theory of Elasticity [1]	3	1, 2	4_{20} 3_{10}	(32) (300)	Lect., Rec., Lab.	Lanza . . Sondericker . . Miller . .	I., XI.
51	Statics and Stresses in Frames	3	1	2_{10}	(32) (300)	Lect., Rec.	Sondericker . . .	I.,[2] II.,[3] III., IV., VI., X.,[3] XI.,[2] XIII.[3]
52	Strength of Materials; Kinematics and Dynamics . .	3	2	3	(51) . . .	Lect., Rec.	Sondericker . . .	I.,[2] II., III., VI., X., XI.,[2] XIII.
53	Strength of Materials; Graphical Statics . . .	3	2	3	(51) . . .	Lect., Rec.	Sondericker . . .	IV.
54 55	Analytical Mechanics . . .	3 4	2 1, 2	3 3	(35) (300) .	Lect., Rec.	Lanza	VIII.
56	Strength of Materials; Theory of Elasticity [1] . . .	4	1	3	(52) . . .	Lect., Rec., Lab.	Lanza, Miller . .	I., XI.
57	Strength of Materials; Friction	4	1	3	(52) . . .	Lect., Rec., Lab.	Lanza, Miller . .	II., III., VI., X., XIII.
58	Strength of Materials . . .	4	1	3_7	(53) . . .	Lect., Rec.	Lanza	IV.
59	Strength of Materials; Stability of Structures; Theory of Elasticity . . .	4	2	3	(57) . . .	Lect., Rec., Lab.	Lanza, Miller . .	II., X., XIII.
60	Machinery and Motors . .	4	2	3	(56) . . .	Lect., Rec.	Lanza	$I._{1, 2}$

[1] For classes entering after 1893. [2] For classes entering before 1894. [3] 15 weeks after present year.

DRAWING.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
70	Geometrical and Mechanical Drawing	1	1	6		Lect., Draw.	Faunce	All reg. students.
71	Mechanical Drawing and	1	2	6	(21) (70) .	Lect., Rec., Draw.	Faunce	I., II., III.$_2$, VI., X., XI., XIII.
72	Descriptive Geometry .	1	2	12				IV.
73	Mechanical Drawing . . .	1	2	6	(70) . . .	Lect., Draw.	Faunce	III.$_1$, V., VIII., XII.
74	Mechanical Drawing (Chart and Map Making for IX.)	1	2	4	(70) . . .	Lect., Draw.	Faunce	VII., IX.
75	Descriptive Geometry [1] (continuation of 71) . .	2	1	5	(71) . . .	Lect., Rec., Draw.	Faunce	I., II., III.$_2$, VI., X., XI., XIII.
80	Freehand Drawing	1	1	1	. . . . .	Draw.	Adams	All reg. students.
81	Freehand Drawing	1	2	2	(80) . . .	Draw.	Adams	All courses except IV.
82		1	2	3				IV.
83	Freehand Drawing	2	1, 2	4	(82) . . .	Draw.	Adams	IV.
84	Freehand Drawing	3	1, 2	4	(83) . . .	Draw.	Adams	IV.

[1] Applicants who have no previous knowledge of the subject, but are otherwise qualified to enter the second year of any of the courses named, should address Professor Faunce as early as possible.

SHOPWORK.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge. All shopwork is under the general direction of Professor Schwamb.	Taken by
90	Carpentry and Wood Turning	1	1	9	(70) (80) . .	Shop	Merrick	Special Class.
91	Pattern Work	1	2	6	(73) (81) (90)	Shop	Merrick	Special Class.
92	Foundry Work	1	2	3	(73) (81) . .	Shop	Merrick	Special Class.
93	Forging	1	1	6	(70) (80) . .	Shop	Lambirth	Special Class.
			2	3				
95	Chipping and Filing . . .	1	1	3	(70) (80) . .	Shop	Lambirth	Special Class.
			2	3 5				
96	Machine Tool Work . . .	1	2	6 5	(73) (81) (95)	Shop	Smith	Special Class.
				9 10				
97	Carpentry and Wood Turning	2	1, 2	2	. . . . .	Shop	Merrick	VI.
98		2	1	4				II.
		3						(VIII.)
		4						X.
99	Pattern Work	2	2	2	(98) . . .	Shop	Merrick	II.
100	Forging [1]	2	1	4	. . . . .	Shop	Lambirth	XIII.
101		3	2	6 8				II.
		4	2	3				X.
102	Chipping and Filing . . .	2	2	6 7	. . . . .	Shop	Smith, Lambirth .	XIII.
103		3						II.
		4	1	6 5				II., XIII.
104	Machine Tool Work . . .	4	1	6 10	(103) . . .	Shop	Smith	II., XIII. [2]
			2	6				
106	Metal Turning	2	1	2	. . . . .	Shop	Smith	VI.
107		4	2	2				X.
108	Foundry	2	2	2	. . . . .	Shop	Merrick	(II.)

[1] Present year, 90 hours in first term, 20 in second.

[2] For classes entering after 1893, ten weeks in second term.

ENGLISH LANGUAGE AND LITERATURE.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
120	Rhetoric and English Composition	1	1	2	(5) (6)	Lect., Rec., Comp.	Bates	All reg. students.
121	Logic	1	2	3	(120)	Lect., Rec.	Pearson	IX.
125	English Literature	2 3	1, 2	1, 2	(120)	Lect., Rec., Comp.	Bates	All courses except X. X.
129	English Literature: to 1660	3	1, 2	2	(125)	Lect., Read.	Dickinson	(IX.)
130	English Literature: 1660–1780	4	1	2	(125)	Lect., Read.	Bates	IX.
131	English Literature: 1780–1860	4	2	2	(130)	Lect., Read.	Bates	IX.
132	Contemporary English and American Literature	4	1	2	(125)	Lect., Read.	Bates	(IX.)
134	English Composition (advanced course)	4	2	1	(125)	Lect., Comp.	Bates	(IX.)
135	Journalism	4	2	2	(125)	Lect., Comp.	Bates	(IX.)
140	Latin Readings	3	1, 2	2, 3		Lect., Rec.	Dickinson	(IX.)

MODERN LANGUAGES.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
150	French (elementary) [1] . .	2	1, 2	3	. . . . .	Lect., Rec.	C. Bernard, L. Bernard	All reg. students not taking 160.
151	French (grammar and translation)	1 or 3	1, 2	3	(3) or (150)	Rec.	van Daell . . .	All reg. students.
152	French (sight reading) . .	1	2	3	(*151*) . . .	Rec.	L. Bernard . . .	IV., IX.
153	French (advanced)	2	1, 2	3	(151) . . .	Lect., Rec.	C. Bernard . .	IX.
155	French Literature	3	2	2	(153) . . .	Lect., Rec.	van Daell . . .	(IX.)
160	German (elementary) [1] . .	2	1, 2	3	. . . . .	Rec.	van Daell . . .	All reg. students not taking 150.
161	German (grammar and translation)	3 or 1	1, 2	3	(4) or (160)	Rec.	Dippold	All reg. students.
162	German (advanced) . . .	4	1	3	(161) . . .	Lect., Rec.	Dippold	(V.)
164	German (sight-reading) . .	3	1, 2	2	(*161*) . . .	Rec.	Vogel	IX.
165	Spanish [2]	4	1, 2	2	(150) . . .	Lect., Rec.	Erhardt	(IX.)
166	Italian [2]	4	1, 2	2	(150) . . .	Lect., Rec.	van Daell	(IX.)

[1] Identical with entrance requirement. (See page 60)

[2] Given alternate years.

HISTORY.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
180	Political History since 1815 .	1	2	2[1]	(6) . . .	Lect., Read.	Currier	All reg. students.
181	American History	2, 3	1	2	(180) . . .	Lect., Rec.	Currier	All reg. students, except IX. and X.
182	Political History of England and the United States .	2	1, 2	3, 2	(180) . . .	Lect., Rec.	Sumner	IX.
184	History of England . . .	3	1, 2	2	(182) or (185)	Lect., Rec.	Currier	(IX.)
185	History and Literature of the Renaissance and the Reformation	4, 3	1, 2	2[2], 3	(6) . . .	Lect., Rec.	Sumner	IV., (VII.) IX.
186	History of the Era of the French Revolution . .	4	1, 2	2	(185) . . .	Lect., Rec.	Currier	(IX.)
187	Local United States History	4	1, 2	2	(181) or (182)	Rec., Read	Currier	(IX.)
188	History and Elements of Philosophy	4	2	3	. . . . .	Lect., Rec.	Dewey	IX.

(1) For Course IX., 3 hours.

(2) For Course VII., first term, 3 hours.

ECONOMICS AND STATISTICS. POLITICAL SCIENCE.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
200	Political Economy . . .	2	1	2	(180) . . .	Lect., Rec.	Dewey	IX.
201	Economic Problems . . .	2	1	1	(*200*) or (*205*)	Read.	Ripley	IX.
202	Political Economy and Industrial History[1] . . .	3	2	2	(181) . . .	Lect., Rec.	Dewey, Ripley . .	II., XIII.
203		4	2	2				
205	Political Economy and Industrial History	3 or 4	1, 2	2, 1	(181) . . .	Lect., Rec.	Dewey, Ripley . .	All Courses except IX., X., and XIII. III.$_1$,[1] X.
206	Statistics of the U. S., and Graphic Methods . . .	3	1	2	(200) . . .	Lect., Draw.	Dewey	IX.
207	Statistics of Sociology . .	4	1	3	(206) (212) or (213)	Lect., Rep.	Dewey	(IX.)
210	Financial History of the U.S.	3 or 4	1	3	(200) or (205)	Lect., Rec.	Dewey, Ripley . .	IX.
211	Commercial Geography . .	3 or 4	1	2 5	(200) . . .	Lect., Rec.	Niles	IX.
212	History of Commerce . .	3 or 4	2	3	(182) (200)	Lect., Rec.	Dewey, Ripley . .	IX.
213	History of Industry[2] . .	3 or 4	2	3	(182) (200)	Lect., Rec.	Dewey, Ripley . .	IX.
214	Theories and Methods of Social Reform	3	1, 2	2	(200) or (*205*)	Lect.	Dewey	(IX.)
215	Taxation and Administration[2]	3 or 4	1	3	(201) . . .	Lect., Rec.	Dewey, Ripley . .	IX.
216	History of Economic Theory	4	2	–	(210) (215)	Lect., Rec.	Dewey	(IX.)

[1] For classes entering before 1894.

[2] Alternating subjects not given the present year.

ECONOMICS AND STATISTICS. POLITICAL SCIENCE.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
217	Economics of Corporations [1]	4	2	2	(205) . . .	Lect., Rec.	Dewey	VI.
225	Descriptive Sociology . .	3, 4	2	3	(615) . . .	Lect., Rec.	Ripley	IX. (VII.)
226	Comparative Politics and Constitutional History.	4	1, 2	3	(225) (180) or (181)	Lect., Rec.	Currier	IX.
227	International Law	4	1	2	(226) or (181)	Lect., Rec.	Ripley	IX.
230	Banking and Finance . . .	4	2	2	(210) . . .	Lect., Rec.	Not given the present year.	(IX.)
235	Business Law	3, 4	1, 2	1	. . . . .	Lect.	Brandeis	All courses except X. III.1,[2] X.

CHEMISTRY.

240	General Chemistry	1	1	7	(1)(2)(3)(4) (5)(6) .	Lect., Lab., Rec.	Pope, Bardwell .	All reg. students.
241	General Chemistry: Qualitative Analysis . . .	1	2	6	(240) . . .	Lect., Lab.	Pope, Bardwell .	All courses except IV., IX.
245	Theoretical Chemistry: Atomic Weights and Stochiometry	2	1	2	(241) . . .	Lect., Rec.	Noyes	III., V., VII., VIII.

[1] For classes entering after 1893.

[2] For classes entering before 1894.

CHEMISTRY.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
246	Analytical Chemistry: Qualitative Analysis	2	1	10		Lect., Lab.	Talbot, Walker	V., VII.
247				6				VIII.
248				9	(*150*) or (*160*)			X.
249				8	(241)			XII.
250		2	2	4				XI.
251		3	1	6, 8				III.$_{1,2}$
255	Analytical Chemistry: Quantitative Analysis	2	2	8	(246)	Lect., Lab.	Talbot, Walker, Moore	V., VII.
257				5 [1]	(247) or (248)			VIII., X.
258				6	(249)			XII.
259		3	1	3	(250)			XI.
260		3	2	7, 8	(251)			III.$_{1,2}$
262	Organic Chemistry	2 or 3	1	1	(241)	Lect.	Noyes	XI. VII., VIII., X.
263	Theoretical Chemistry: Solutions	3	1	2	(245)	Lect., Lab.	Talbot, Fay	V., VIII.
264	Organic Chemistry	3	2	1	(263)	Lect.	Crafts	V.
265	Theoretical Chemistry: Chemical Energy	3 or 4	2	1	(245) and (263)	Lect., Rec.	Noyes	VIII. V.
266	Industrial Chemistry	3	1, 2	2	(*151*) or (*161*) and (255) or (257)	Lect.	Thorp	V., X.
267	Industrial Chemistry	3	1 or 2	6	(*266*)	Lab.	Smith	(V.)
268		3	2	5				X.
269	Analytical Methods	3	1	2	(255)	Lect., Rec.	Talbot	VII.
		3	1, 2	2, 1	(255) or (258)			V., (VIII.), XII.
		4	1, 2	2, 1	(260)			III.

(1) Three additional hours optional for VIII.

CHEMISTRY.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
270	Analytical Chemistry: Quantitative Analysis	3	1	4	(255)	Lab.	Talbot	VII.
271				10,[1] 13	(255)			V.
272			1, 2	2, 5	(255)			(VIII.)
273				6, 7	(258)			XII.
274		4	1	11, 8	(260)			III.1, 2.
			2	11, 9				
277	Sanitary Chemistry	3	1 or 2	6	(255) or (259)	Lab.	Mrs. Richards, Lincoln	(V.)
		3	2	6, 2				VII., XI.
279	Organic Analysis	4	1	6	(270) (271) or (272)	Lab.	Crafts, Noyes	V., (VII.), (VIII.)
282	Organic Chemistry	4	1, 2	3	(262) or (264)	Lect.	Crafts	V., (VII.), (VIII.), (X.)
284	Air Analysis	4	1	2	(277)	Lab.	Mrs. Richards	XI.
285	Organic Preparations	4	1	13	(264) (*282*)	Lab.	Crafts, Noyes	V.
286	Chemical and Mechanical Testing of Oils	4	1	2	(255) or (257)	Lab.	Gill	V., X.
287	Sanitary Chemistry	4	1	6	(271)	Lab.	Mrs. Richards	(V.)
288	Textile Coloring	4	1	6	(267)	Lab.	Smith	(V.), (X.)
289	Applied Chemistry	4	1, 2	4, 2	(266)	Lect., Lab.	Gill	X.
290	Gas Analysis	4	1	1	(241)	Lab.	Gill	X.
		4	2					V.
292	Optical and Chemical Analysis of Sugar	4	1	2	(*282*)	Lab.	Rolfe	V.

[1] After the present year, 12.

PHYSICS.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
300	Physics: Wave Motion, Electricity, Optics. . .	2	1, 2	5	(23) or (27)	Lect., Rec.	Cross, Wendell . . .	All reg. students.
301	Descriptive Astronomy . .	2	1	2	(23) or (27)	Read.	Clifford	VIII.
302	Acoustics, Theoretical Electricity	2	1, 2	2	(27) (*300*) .	Lect., Rec.	Clifford	VI., VIII.
303	Physical Laboratory . . .	2	2	2	(28) (241) (*302*)	Lab.	Goodwin, Derr, Norton .	VI., VIII.
304	Physical Laboratory . . .	2	2	2	(23) (*300*)	Lab.	Goodwin	IX.
305	Physical Measurements . .	2	2	1	(*303*) . . .	Lect.	Goodwin	VI., VIII.
309	Heating and Ventilation . .	3	1	1[1]	(300) . . .	Lect.	Woodbridge . .	IV.
310	Physics: Heat	3	1	$2\frac{1}{2}$	(300) . . .	Lect.	Clifford	All courses except IV.
311	Physical Laboratory . .	3	1	$2\frac{1}{2}$	(310)	Lab.	Goodwin, Derr, Norton .	I., II., V., VII., X., XI., XII., XIII.
312	Physical Laboratory . . .	3	1, 2	$2\frac{1}{2}$, 4	(303) . . .	Lab.	Goodwin	VIII.
313	Physical Laboratory . . .	3	1, 2	$2\frac{1}{2}$, 3	(303) . . .	Lab.	Goodwin, Derr, Norton .	III., VI.
314	Methods of Telegraphy . .	3	1	$2\frac{1}{2}$	(302) . . .	Lect.	Derr	VI., VIII.
315	Theoretical Electricity . .	3	1	$2\frac{1}{2}$	(302) . . .	Lect., Rec.	Clifford	VI., VIII.
			2	$2\frac{1}{2}$, 1				

(1) For classes entering after 1893, 35 hours for the term.

PHYSICS.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
316	Industrial Electricity . . .	3	1	1	(300) . . .	Lect.	Cross	II., III., VI., VIII., X.
317	Dynamo-Electric Measurements [1]	3	1	1	(300) . . .	Lect.	Puffer	II., III., X
318	Electricity	3	1	3	(300) . . .	Read.	Laws	(V.)
319	Electrical Measuring Instruments	3	2	1 8 / 2 7	(315) or (318)	Lect.	Laws	(V.), VI., VIII.
322 / 323	Electrical Measurements [2] .	3 / 4	2 / 1	2 / 4	(311) . . .	Read., Lab.	Puffer, Laws . .	III.$_1$.
324	Advanced Physics (memoirs)	4	1	2	(317) . . .	Read.	Cross, Goodwin .	VIII.
325 / 326	Physical Laboratory . . .	4	1, 2 / 1	4, 3 / 4	(311) . . .	Lab.	Cross, Holman, Laws, Norton .	I.$_3$. (V.)
327	Physical Laboratory . . .	4	1	5	(311) (319)	Lab.	Cross, Holman, Puffer, Laws .	VI., VIII.
328	Heat Measurements . . .	4	1	2 / 4	(311), (312) or (313)	Lab.	Holman, Norton	III. VIII., (X.)
329	Color and Acoustics . . .	4	1	1$_5$	(300) . . .	Lect.	Cross	IV.
330	Principles of Scientific Investigation	4	2	3	. . . . .	Read.	Cross	VIII.
331	Optics	4	1, 2	3	(32) . . .	Lect.	Clifford	VIII.
332	Theory of Periodic Currents	4	1, 2	1, 2	(315) . . .	Lect.	Clifford	VI., VIII.[3]

[1] For classes entering after 1893. [2] For classes entering before 1894. [3] Optional in second term.

PHYSICS.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
333	Electrical Engineering . .	4	1, 2	4 or 5	(313) (315) (316)	Lect.	Cross	VI.
334	Telephone Engineering . .	4	2	– [1]	(313) (315) (316)	Lect., Lab.	Hayes	VI.
335	Railroad Signals	4	1	– [1]	(300) . . .	Lect.	Blodgett	I.$_2$, VI.
336	Dynamo and Motor Testing	4	1, 2	– [1]	(313) (316) (319)	Lect.	Puffer	VI.
337	Photometry	4	1	– [1]	(311) or (313)	Lect.	Clifford	VI., VIII.
338 339	Heating and Ventilation . .	4	1	1 or 2	(310) . . .	Lect.	Woodbridge . .	II. IV.,[2] XI.
340	Elements of Dynamo Machinery	4	1	1 5	(300) . . .	Lect.	Cross	I., II., III.
342	Precision of Measurements .	4	2	1 10	(42) . . .	Lect.	Clifford	VI., VIII.
343	Electro-Motors	4	2	– [1]	(333) or (340)	Lect.	Puffer	VI.
344	Principles of Dynamo Design	4	2	– [1]	(333) . . .	Lect.	Hobart	VI.
347	Energetics	4	1	2	(32) (265) (317)	Lect.	Goodwin	VIII.
350	Electro-Chemistry	4	2	2	(347) . . .	Lect.	Goodwin	VIII.
351	Physico-chemical Laboratory	3 or 4	2	1 1[3]	(265) . . .	Lab.	Goodwin.	VIII. V., (VIII.)
352	Potential, Theory of . . .	4	2	2	(315) . . .	Lect.	Clifford	(VIII.)

[1] Time specially arranged each year. [2] For classes entering before 1894. [3] Additional work optional for Course VIII.

CIVIL ENGINEERING.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
360	Surveying and Plotting . .	2	1, 2	6, 5	(*24*) (27) (71)	Lect., Rec., Field., Draw.	Burton, Robbins .	I., III.,[1] XI., XII.
362	Topographical Drawing .	2	1	2	(71) (81) (*360*)	Draw.	Burton, Robbins .	I., III.$_1$, XI., XII.
363	Elements of Astronomy . .	2	1	1	(*360*) . . .	Lect., Rec., Field.	Burton	I.
370	Surveying	3	1, 2	2	(300) (362) .	Lect., Rec., Field., Draw.	Burton, Robbins, Lyon	I., XI., XII.
371	Surveying Instruments (six lessons)	3	2	—[2]	(*438*) . . .	Lect., Field.	Burton, Robbins .	II.
372	Railroad and Highway Engineering	3	1, 2	2[3] 3[3]	(32) (360) . (*373*) or (*374*)	Lect., Rec.	Allen, Robbins . .	I., XI.
373 374	Railroad Field-work and Drawing	3	1, 2 1, 2	4, 5 2, 5	(*372*) (362)	Field., Draw.	Allen, Robbins . .	I., XI.

[1] In second term, for Course XI., 6 hours; for Course III., 4 hours.
[2] Time included in 438.
[3] For Course XI., 10 weeks in first term, 12 in the second.

CIVIL ENGINEERING.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
375	Stereotomy	3	1	4	(75) . . .	Rec., Draw.	Porter	I., XI.
376	Theory of Structures . . .	3	2	2[1]	(52) . . .	Lect., Rec.	Swain	I., XI.
385	Railroad and Highway Engineering	4	1, 2	2, 3	(52) (373) (376)	Lect., Rec.	Allen, Robbins .	$I._2$
386	Railroad Management . .	4	1	2	(205) (372) .	Lect.	Allen	$I._2$
387	Geodesy and Practical Astronomy	4	1, 2	3	(32) (42) (370)	Lect., Rec., Field.	Burton	$I._3$
388	Geodesy and Practical Astronomy	4	1, 2	1	(32) (370) .	Lect.	Burton, Robbins .	$I._1$
389	Geodetic Surveying . . .	4	1	2	(23) (370) .	Lect., Field.	Burton	XII.
390	Theoretical Hydraulics . .	4	1	3	(52) . . .	Lect., Rec.	Porter	I., XI.
391		4	1	2_7				II., $III._2$, VI., (X.), XIII.
392	Sanitary and Hydraulic Engineering	4	1	3	(390) (393)	Lect., Rec.	Porter	$I._1$, XI.
393	Hydraulic Measurements .	4	1	2	(390) or (391) for XII. (370)	Field., Draw., Rec.	Porter	$I._{1, 3}$, (X.), XI., XII.

[1] 25 hours for the term for classes entering after 1893.

CIVIL ENGINEERING.

No.	Subject.	Year.	Term.	Hours per Week	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
394	Theory of Structures . . .	4	1, 2	2	(56) (376)	Lect., Rec.	Swain	I.$_{1, 2}$.
396	Theory of Structures . . .	4	1, 2	2, 3	(56) (376) .	Lect., Rec.	Swain	I.$_{3}$, XI.
397	Bridges and Similar Structures	4	1, 2	2	(56) (394) .	Lect., Rec.	Swain	I.$_{1, 2}$.
398	Bridge Design	4	1, 2	6	(394) (397)	Draw.	Swain, Stanwood .	I. $_{1, 2}$.
399		4	1	4	(396)			I.$_{3}$, XI.
400	Hydraulic Motors	4	2	2	(391) . . .	Lect., Rec.	Porter	II., (X.).
401	Hydraulic Engineering . .	4	2	3	(390) (393) .	Lect., Rec.	Porter	I.$_{1, 3}$, XI.
402	Engineering Laboratory .	4	2	2_8	(390) . . .	Lab.	Miller	I.$_{1, 2}$, XI.
403	Railroad and Highway Design	4	1, 2	2, 3	(385) . . .	Draw.	Allen, Robbins . .	I.$_{2}$.
404	Sanitary and Hydraulic Designing	4	2	2 6	(392) . . .	Draw.	Porter	I.$_{1}$. XI.
405	Hydraulic Machinery . . .	4	2	2	(401) . . .	Lect., Rec.	Porter	XI.

MECHANICAL ENGINEERING.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
420	Principles of Mechanism . .	2	1	2	(*29*) (*75*)	Lect., Rec.	Merrill	II., III.$_2$, VI., X., XIII.
422	Drawing	2	1	2	(*420*)	Draw.	Schwamb, Hamblet . . .	II., XIII.[1]
423, 424, 425, 426	Drawing	2	2	6, 3, 3, 7	(*427*) (*428*)	Draw.	Schwamb, Hamblet . . .	II., X.; III.$_2$; VI.; XIII.
427	Mechanism: Construction of Gear-Teeth, Machine Tools, Cotton Machinery.	2	2	3	(420) (*423*)	Lect., Rec.	Merrill	II., X.
428	Mechanism: Construction of Gear-Teeth, Machine Tools	2	2	2	(*424*) (*425*) (*426*) (420)	Lect, Rec.	Merrill	III.$_2$; VI.; XIII.
430	Principles of Mechanism .	2	2	2	(29) (75)	Lect., Rec.	Merrill	I.
433	Steam Engineering: Valve Gears, Boilers . . .	3	1, 2	3	(427) (*438*) (32); (428) (*439*) (*51*); (428) (*440*) (*52*); (427) (*441*) (*310*); (428) (*442*)	Lect, Rec.	Peabody, Miller .	II., III.$_2$, VI., X., XIII.

(1) For classes entering after 1894.

MECHANICAL ENGINEERING.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
438	Drawing, Design	3	1, 2	6, 5	(423)	Draw.	Peabody	II.
439			1	5	(424)			III.$_2$.
440			1, 2	3, 2	(425) (*433*)		Schwamb	VI.
441			1, 2	6, 2	(423)		Hamblet	X.
442			1	2	(426)			XIII.
443	Engineering Laboratory . .	3	2	2	(*433*) . . .	Lab.	Miller	II., III.$_2$, VI., X., XIII.
450	Steam Engineering	4	1	2$_8$	(433) . . .	Lect., Rec.	Peabody	II., VI., X., XIII.
451	Dynamics of Machines . .	4	1	3$_9$	(*57*) (433)	Lect., Rec.	Lanza	II., XIII.
452		4	1	3$_5$				VI., X.
453	Machine Design	4	1	9	(*57*) (433) (438) (*451*)	Lect., Rec., Draw.	Schwamb. . . .	II.
455	Engineering Laboratory . .	4	1, 2	4	(*391*) (443) (*450*) (*451*) or (*452*)	Lab.	Miller	II., VI., X., XIII.
456	Engineering Laboratory . .	4	2	4	(57) (433) (443)	Lab.	Miller	III.$_2$.

MECHANICAL ENGINEERING.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
460	Locomotive Construction	4	1, 2	3, 3	(57) (391) (450) (451)	Lect., Rec.	Lanza	II.$_2$.
461	Marine Engineering						Peabody	II.$_1$, XIII.
462	Mill Engineering						Schwamb	II.$_3$.
463	Technical Machinery	4	2	2	(450)	Lect.	Merrill	X.
465	Foundations [1]	4	2	2$_5$	(59)	Lect.	Lanza	II.
466	Shop Management [1]	4	2	2$_5$	(460) (461) or (462)	Lect.	Schwamb	II.

NAVAL ARCHITECTURE.

474	Naval Architecture	3	1, 2	2	(52) (51) (428) (433) (475)	Lect.	Peabody	XIII.
475	Naval Architectural Drawing	3	1, 2	6, 5	(474)	Draw.	Peabody, Swan	XIII.
476	Naval Architecture	4	1, 2	2	(57) (433) (450) (451) (461) (474) (477)	Lect.	Peabody	XIII.
477	Naval Architectural Drawing	4	1, 2	4, 6	(476)	Draw.	Peabody, Swan	XIII.

[1] Not given as a distinct course the present year.

MINING ENGINEERING.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
480	Blowpipe Silver Assay . .	2	1	2	(241)	Lab. .	Richards	III.$_1$, (III.$_2$)
481	Mining Engineering . . .	3 4	1, 2 1	3 3	(300) (360) (560) (561)	Lect. .	Richards, Hofman .	III.$_1$ (XII.)
482 483 484	Assaying by Fire	3 3 4	1 2 2	4 2 2	(561) (562)	Lab. .	Lodge	III.[1] V.[1] XII.
487	Metallurgy of Iron	4	1	1	(241) . . .	Lect. .	Richards	I.$_{1,2}$, II., III., V., X., XIII.
488	Metallurgy of Non-ferrous Metals	4	1	2	(241) (561)	Lect. .	Hofman, Howe . .	III., V., X., (XII.)
492	Metallurgical Laboratory .	4	1, 2	8, 14 8, 12	(*274*) (300) (482) (*495*)	Lab. .	Richards, Lodge .	III.$_1$ III.$_2$
493	Mining Engineering . . .	4	1, 2	2	(300) (561)	Lect.	Richards	III.
494	Metallurgy of Non-ferrous Metals and General Metallurgy	4	2	3	(488) . . .	Lect. .	Hofman	III., (X.)
495	Memoirs (see 137)	4	1, 2	2	(*492*) . . .	Read. .	Richards, Hofman .	III.

[1] Other term for classes entering before 1894.

ARCHITECTURE.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
510	Orders	2	1	2	(72) (*83*)	Lect., Rec., Draw.	Gardner	IV.
511	Shades and Shadows	2	1	1	(72) (82)	Lect., Draw.	Lawrence	IV.
512	Perspective	2	2	1 10	(511)	Lect., Draw.	Lawrence	IV.
513	Materials	2	1	1	(72)	Lect.	Chandler	IV.
514	Design	2	2	7	(510) (511) (*83*)	Draw.	Despradelle, Gardner	IV.
515	Stereotomy	2	2	1	(72)	Lect., Draw.	Lawrence	IV.
516	Pen and Ink	3	2	1	(*83*)	Draw.	Gregg	IV.
517	Architectural History	3	1, 2	1	(510)	Lect., Draw.	Homer	IV.
520	Specifications and Working Drawings	3	1, 2	1	(513)	Lect., Draw.	Chandler	IV.
522	Design	3	1, 2	10, 14	(*84*) (514)	Draw.	Despradelle, Mead	IV.

ARCHITECTURE.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
523	Water Color	3	2	2	(*84*) . . .	. . . .	Turner . . .	IV.
524	Pen and Ink	4	1, 2	1	(516) . . .	Draw. .	Gregg	IV.
530	History of Construction . .	4	1	1	(520) . . .	Lect. .	Chandler	IV.
531	History of Ornament . . .	4	1, 2	1_{10}	(84) (516) (522)	Lect., Draw.	Walker	IV.
532	Advanced Design	4	1, 2	12 [1] / 15 [1]	(522) (*531*) (*535*)	Draw. .	Despradelle . . .	IV.
534	Water Color	4	1, 2	18	(523) . . .	. . . .	Turner	IV.
535	Life Class	4	1, 2	4	(84) . . .	Draw. .	Adams	IV.
536	Constructive Design . . .	4	1	1	(58) (515)	Lect., Draw.	Lawrence . . .	IV.
537	Business Relations, Contracts, etc.	4	2	1	(520) . . .	Lect. .	Chandler	IV.
539	Modelling	4	1, 2	2	(84) . . .	. . . .	Bartlett	IV.
540	Building Construction . . .	4	2	1	. . . . .	Lect. .	Chandler	$I._2$, XI.
541	Architecture of the Renaissance	4	2	1, [2] 2	(517) . . .	Lect.	Homer	IV.
542	History of Painting and Sculpture [2]	4	2	1	(*541*) . . .	Lect. .	. . . . .	IV.

[1] After the present year 16, 18.

[2] For classes entering after 1893.

NATURAL SCIENCES.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
555	Physiography	2	1	2	(300) 1st term	Lect.	Niles	XII.
560	Physical Geography	2	2	3	(300) 1st term	Lect.	Niles	I., III.$_1$, (V.), VII., IX., XI., XII.
561	Mineralogy	2	2	4	(241)	Lect., Lab.	Crosby, Barton	III., V., VII., XII.
562	Determinative Mineralogy	2	2	2	(241) (*561*)	Lab.	Barton	III., V., VII., XII.
564	Building Stones	3	1	2	(240)	Lect., Lab.	Crosby	IV.
565	Structural Geology	3	1	2	(241) (560)	Lect., Lab.	Barton	I., IX., XI.
566	Structural and Chemical Geology	3	1	3	(560) (561)	Lect., Lab.	Crosby	III.$_1$, (V.), VII., XII.
567	Geological Field-work and Sketching	3	1	6	(*566*)	Field., Lab.	Crosby, Barton	XII.
568	Stratigraphic Geology	3	2	2	(565)	Lect., Rec.	Niles	I.
569	Historical Geology	3	2	3	(565) or (566)	Lect., Rec.	Niles	III.$_1$, (V.), VII., IX., XII.
570	Mineralogy	3	2	4	(561) (562)	Lect., Lab.	Crosby	XII.

NATURAL SCIENCES.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
571	Geological Maps and Sections	3	2	2	(566) (567) (569)	Field., Draw.	Niles	XII.
572	Structural Palæontology	3	1, 2	2	(605)	Lab.	Niles	XII.
580	Climatology	4	1	2	(300)	Lect., Rec.	Niles	(VII.), IX., XII.
581	Geological Field-work and Laboratory	4	1, 2	8, 10	(567)	Field., Lab.	Niles, Crosby, Barton	XII.
583	Physiographic Geology	4	1	3	(569)	Rec.	Niles	XII.
584	Geological Memoirs	4	1, 2	1	(569)	Rec.	Niles	XII.
586	Stratigraphical Palæontology	4	1	5	(569) (572)	Lab.	Niles	(XII.)
587	Economic Geology	4	2	4	(566) (569) (570)	Lect., Lab.	Crosby	XII.
589	Micro-Lithology	4	1, 2	3	(566) (569) (570)	Lect., Lab.	Barton	XII.
590	Hydrography	4	2	3	(569)	Rec.	Niles	XII.

NATURAL SCIENCES.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
591	Ore Deposits	4	1	2	(566) (569) (570)	Lect., Lab.	Crosby	XII.
600 601 602	General Biology	2 3 2	1	5 2 4	(240) . . .	Lect., Rec., Lab.	Sedgwick . . .	VII. XI. IX., XII.
603	Microscopy	1 2	2	2	(240) . . .	Lect., Rec., Lab.	Sedgwick . . .	VII. (V.), VIII.
605	General Zoölogy	2 3	2	2[1]	(600) (601) or (602)	Lect., Lab.	Crampton . . .	VII., IX. XI., XII.
606	General Botany	2 3	2	1[1]	(600) (601) or (602)	Lect., Lab.	Sedgwick . . .	VII., IX. XI., XII.
612	Comparative Anatomy and Embryology	3	1, 2	8	(600) . . .	Lect., Rec., Lab.	Crampton . . .	VII.
614	Physiology of the Senses . .	3	1	2	(603) . . .	Lect., Rec., Lab.	Hough	(VIII)

[1] Ten weeks for Course XI.

NATURAL SCIENCES.

No.	Subject.	Year.	Term.	Hours per Week.	Preparation Required.	Method of Instruction.	Instructor in Charge.	Taken by
615	Anthropology	3	1	1	(605)	Lect.	Sedgwick, Ripley	VII., IX., XII.
616	Cryptogamic Botany	3	2	4	(600)	Rec., Lab.	Keith	VII.
618	Journals	4	1, 2	1	(600)	Read.	Sedgwick, Hough	VII.
620	Comparative Physiology	4	1, 2	6, 4	(612)	Lect., Rec., Lab.	Hough	VII.
621	Physiological Laboratory	4	1, 2	3	(612)	Lab.	Hough	VII.
622	Microscopic Anatomy	4	1, 2	6	(612)	Lect. Rec., Lab.	Hough	VII.
624	Theoretical Biology	4	1, 2	1	(604) (612)	Lect.	Bigelow	VII.
626	Physiology and Hygiene	4	1	2	(600)	Rec., Lab.	Hough	IX.
627	History of Inductive Sciences	4	1	1	(600) or (603)	Lect.	Sedgwick	VII., VIII.
628	Bacteriology	4	1	4	(601) or (603)	Lect., Rec., Lab.	Sedgwick, Keith	(V.), VII., XI.
629	Sanitary Science and the Public Health	4	2	1	(240)	Lect.	Sedgwick	$I._1$, IV., VII., IX., XI.
630	Sanitary Biology	4	2	4	(628)	Lect., Rec., Lab.	Sedgwick	(VII.), XI.
631	Chemistry and Bacteriology of Water and Sewage	4	2	1	(628)	Lect.	Sedgwick	XI.
632	Physiological Measurements	4	2	6	(614)	Lab.	Hough	(VIII.)

Regulations.

Second Year. — The first term begins on the first Wednesday after September 25. There is a recess of one week after the semi-annual examinations, and the second term begins on the first Tuesday after February 4. On legal holidays, on the Friday and Saturday following Thanksgiving Day, and for three days at Christmas, and three in April, the exercises of the school are suspended.

CALENDAR FOR 1895-96.

School year began	Monday, Sept. 30, 1895.
Second term will begin	Tuesday, Feb. 11, 1896.
Degrees conferred	Tuesday, June 9, 1896.
First Entrance Examinations	Thursday, June 25, 1896, and Friday, June 26, 1896.
Examinations for Advanced Standing will begin	Friday, Sept. 18, 1896.
Second Entrance Examinations [1]	Tuesday, Sept. 22, 1896, and Wednesday, Sept. 23, 1896.
School year of 1896-97 will begin	Wednesday, Sept. 30, 1896.

CALENDAR FOR 1896-97.

School year will begin	Wednesday, Sept. 30, 1896.
Second term will begin	Tuesday, Feb. 9, 1897.
Degrees conferred	Tuesday, June 8, 1897.
First Entrance Examinations	Thursday, July 1, 1897, and Friday, July 2, 1897.
Examinations for Advanced Standing will begin	Friday, Sept. 17, 1897.
Second Entrance Examinations [1]	Tuesday, Sept. 21, 1897, and Wednesday, Sept. 22, 1897.
School year of 1897-98 will begin	Wednesday, Sept. 29, 1897.

The Status of Students in regard to scholarship and ability to continue their courses is determined in part by means of examinations; but regularity of attendance and faithfulness to daily duties are considered equally essential.

[1] See page 57.

Examinations. — A semi-annual examination is held in January, covering, in the third and fourth years, all the studies of the preceding term; and an annual examination in May, covering, in the third year, the studies of the entire year, except subjects finished during the first half-year, and in the fourth year, all the work of the year, as well as any professional work of previous years upon which it may be deemed best to hold examination. In the first and second years formal examinations are not held in all subjects.

Examinations for students conditioned in subjects of the first, second, and third years, are held on the Friday and following days previous to the September entrance examinations, and at the time of the annual examinations; but candidates for graduation, conditioned at the semi-annual examinations of the fourth year, are re-examined at such time previous to the first of March as may be appointed by the Secretary.

Intermediate examinations, the results of which are not made a matter of permanent record, but are primarily for the information of students and their parents or guardians, may be held at any time in place of regular exercises.

Students conditioned in any subject and failing to make up the condition at the time appointed for the examination, will not be allowed another examination, but will be required either to repeat the subject or to discontinue it, as well as all subjects dependent thereon, unless further time be allowed by special vote of the Faculty. A regular student failing entirely to make up any condition will cease to be regular, and his name will be transferred to the list of special students.

Students having clear records at the end of their first term are allowed to choose their courses without restriction. Students will not be admitted to professional work of the several courses without clear records in those previous subjects on which the former especially depend. Intermediate cases are specially considered by the Faculty.

Any special student attaining a proper standing in all subjects required of a regular student, up to any given period of the course, may apply to have his name transferred to the list of regular students.

Attendance Card. — At the opening of each term the student is required to fill out and present to the Secretary an attendance card, blank forms for which will be supplied. The attendance card is the direct means by which the student places before the Faculty his wishes in regard to his professional course or selection of studies. The card must be presented at the earliest possible moment, to give opportunity for the immediate determination of qualifications and status. All subjects applied for must be regularly pursued, and no others can be taken except by special permission of the Faculty, duly applied for by petition.

Bond or Deposit. — Every student is required, on entering the school, to file with the Bursar a bond in the sum of two hundred dollars, signed by two responsible sureties, one of whom must be a citizen of the United States, as security for the payment of all charges of the Institute against him. If, for any reason, such a bond cannot be obtained, a deposit of fifty dollars may, in exceptional cases, be accepted as security. No officer of instruction or student of the Institute will be received as a surety.

Fees. — The tuition fee for regular students is $200 per year, and must be paid in advance, as follows, — $125 on or before October 10, and $75 on or before February 10. For one half or any less fraction of the school year, the fee is $125. Payment is also required of the cost of chemicals used and of apparatus injured or destroyed in the laboratories, and of the cost of repair of damage by students to any other property of the Institute. Special students pay, in general, the full fee; but when a few branches only are pursued, and the time required for instruction is limited,

application for deduction may be made to the Bursar. The fee for students in graduate courses is the same as that for regular students.

It is desired that regular students, whose financial necessities are such as to prevent their continuance at the Institute, communicate, through the Secretary, with the Scholarship Committee of the Faculty.

Payments. — All payments should be made to Albert M. Knight, Bursar. If by check, remittance from points out of New England should be in New York or Boston funds.

Scholarships. — *Sherwin Scholarship.* Founded by the English High School Association in memory of the late Thomas Sherwin. The pupil, to receive the privilege of this scholarship, is to be a graduate of the English High School of Boston and a regular student of the Institute.

Milton High School Scholarship. Founded by the contributions of residents of Milton. This scholarship will be conferred upon such former pupil of the Milton High School as the master of that school and the school committee of the town may select.

Joy Scholarships. The money by which these scholarships are sustained was given by Miss Nabby Joy. They were created pursuant to a decree of the Supreme Judicial Court of Massachusetts, for the benefit of one or more women studying natural science in the Institute. At present one scholarship only is available; a second will be established when the fund has increased sufficiently to warrant such an expenditure.

James Henry Mirrlees Scholarship. Founded by James B. Mirrlees, Esq., of Glasgow, Scotland, in memory of his son, who died in May, 1886, while attending the Institute. This scholarship will be awarded to a third or fourth year student in Mechanical Engineering.

Perkins Fund. By a bequest of the late Richard Perkins, of Boston, the income of fifty thousand dollars is available

for aiding students in such amounts as shall be recommended by the Faculty.

State Scholarships. In consideration of aid received from the Commonwealth, the Institute has established thirty free scholarships, which are apportioned among the senatorial districts of the State. Information regarding the terms and conditions upon which these are to be awarded may be obtained by addressing the Secretary of the State Board of Education, State House, Boston.

Charles L. Flint Scholarship. Founded by the late Charles L. Flint, of Boston. This scholarship is to be awarded, by preference, to a graduate of the Boston High School.

Farnsworth Scholarship and Elisha Atkins Scholarship. Founded by Mrs. Mary E. Atkins, of Boston, who has the right during her life to nominate the beneficiaries.

Elisha T. Loring Scholarship. Founded by the late Elisha Thacher Loring, of Boston.

Coöperative Scholarships. The Coöperative Society of the students of the Institute applies its annual profits to the assistance of members of the Society, selected by its Board of Directors.

William Barton Rogers Scholarship Fund. The income from this fund, which was presented by the Alumni Association of the Institute as a memorial of the late President Rogers, is applied to aiding needy students.

William F. Huntington Scholarship. Founded in memory of William F. Huntington, who graduated in Civil Engineering in the Class of '75. Preference will be given to a student in that course.

T. Sterry Hunt Scholarships. Founded by bequest of the late T. Sterry Hunt, for seven years Professor of Geology at the Institute; preference will be given chemical students of the higher years.

Nichols Scholarship. Founded by bequest of Mrs. Betsey F. M. Nichols in memory of her son, William Ripley Nichols, of the Class of '69, for sixteen years Professor of General

Chemistry at the Institute. Preference will be given to students in the Chemical course.

Any profits accruing from the rental of letter-boxes, will be applied to the assistance of scholarship applicants.

Conditions governing Award of Scholarships. — Scholarships are awarded in general only to those applicants who have completed at least a year of thoroughly satisfactory work at the Institute. The facts considered in making assignments are the needs of the student and his promise as indicated by his previous work in the Institute. A student who is not greatly in need of aid cannot honorably apply for a scholarship, and none will be awarded to a student if, either from physical, mental, or moral weakness, he gives little promise of future usefulness. Awards will be made in October, and five-eighths of the amount awarded will be credited on the term bill due in October, and the remaining three-eighths on the term bill due in February. Applications for scholarships should be addressed to the Secretary of the Faculty.[1]

Graduate Scholarships and Fellowships. — Five scholarships for graduates of the Institute, carrying free tuition, have been established, and will be awarded to such applicants as are recommended by the Faculty.

In addition to these, the following fellowships carry two hundred dollars each in excess of the tuition fee: —

James Savage Fellowship Fund. Founded by the late James Savage. Four hundred dollars from the income of this fund will be annually awarded to a graduate student of the Institute, or of some similar institution of equal standing. This sum will be awarded only to a student of distinguished ability engaged in the advanced study of some branch or branches of knowledge taught in the Institute.

Susan H. Swett Fellowship Fund. Four hundred dollars from the income of this fund will be annually awarded to a

[1] Applications for Massachusetts State Scholarships should be made only to the Secretary of the State Board of Education, State House, Boston, from whom the necessary blanks may be obtained.

graduate student of the Institute, or of some similar institution of equal standing, who, by his character, capacity, training, and attainments, shall give evidence of special fitness to pursue advanced study in some branch or branches of knowledge taught in the Institute. The holder of this fellowship will be eligible to reappointment for a second year; and if in any year the sum above named cannot be advantageously used for the purpose prescribed, no appointment will be made.

For both of these fellowships the preference is given to graduate students who are candidates for advanced degrees.

Residence and Expenses. — As the exercises of the school begin at nine o'clock in the morning, and end before five o'clock in the afternoon, students may conveniently live in any of the neighboring cities or towns, on the lines of the various railroads, if they prefer to do so.

The cost of board and rooms in Boston and the neighboring cities and towns need not exceed seven or eight dollars a week. The cost of books, drawing instruments, paper, etc., exclusive of chemical breakage, is from twenty-five to thirty-five dollars a year.

Attendance. — Regular students are expected to attend all the exercises of their several courses. Special students are expected to attend all the exercises in subjects applied for on their attendance cards, unless excused by special vote of the Faculty. Students are in general expected to devote themselves to the work of the school between the hours of 9 A. M. and 4 P. M., except during the interval from 1 P. M. to 2 P. M. There are no exercises on Saturday afternoon, and the rooms are closed.

Conduct. — It is assumed that students come to the Institute for a serious purpose, and that they will cheerfully conform to such regulations as may be from time to time made by the Faculty. In case of injury to the building, or to any of

the furniture, apparatus, or other property of the Institute, the damage will be charged to the student or students known to be immediately concerned; but if the persons who caused the damage are unknown, the cost of repairing the same may be assessed equally upon all the students of the school. Conduct inconsistent with the general good order of the school, if repeated after admonition, will be followed by suspension or dismissal. It is the aim of the Faculty so to administer the discipline of the school as to maintain a high standard of integrity and a scrupulous regard for truth; and *the attempt of any student to present as his own the work of another, or to pass any examination by improper means, is regarded as a most serious offence, rendering the offender liable to immediate expulsion.*

Register of Students.

For residence addresses in suburban portions of Boston the following abbreviations are used: —

A.	Allston.	M.	Mattapan.
B.	Brighton.	N.	Neponset.
C.	Charlestown.	S. B.	South Boston.
D.	Dorchester.	R.	Roxbury.
E. B.	East Boston.	Ros.	Roslindale.
J. P.	Jamaica Plain.	W. R.	West Roxbury.

GRADUATE STUDENTS.

FELLOWS.

Savage Fellowship.

Chamberlain, Herbert William . *Hudson, Ohio* . . . . . 22 Rutland Sq.
B. Sc., Iowa State Agricultural College; S. B., Massachusetts Institute of Technology.

Swett Fellowship.

Berry, Charles William . . . . *Somerville* . . . . Studying abroad.
S. B., Massachusetts Institute of Technology.

CANDIDATES FOR ADVANCED DEGREES.

NAME.	COURSE.	HOME.	RESIDENCE.
Bourne, Frank Augustus .	IV.	*Bangor, Me.* . . .	364 Columbus Ave.
S. B., Massachusetts Institute of Technology.			
Chamberlain, Herbert Wm.	IV.	*Hudson, Ohio* . . .	22 Rutland Sq.
B. Sc., Iowa State Agricultural College; S. B., Massachusetts Institute of Technology.			
Defren, George	V.	*So. Boston*	449 Eighth St., S. B.
S. B., Massachusetts Institute of Technology.			

NAME.	HOME.	RESIDENCE
Allen, Jerome Ripley A. B., Williams College.	*Greenfield*	89 Charles St.
Ames, Butler U. S. Military Academy.	*Lowell*	Lowell.
Anderson, Robert Ph. B., Sheffield Scientific School.	*Cincinnati, Ohio*	20 W. Cedar St.
Benson, Howard Jonathan Ph. B., Colorado College.	*Akron, Ohio*	13 St. Charles St.
Boardman, Harold Sherburne B. C. E., Maine State College.	*Bangor, Me.*	57 Chandler St.
Bowie, Augustus Jesse A. B., Harvard University.	*San Francisco, Cal.*	201 Clarendon St.
Brown, Dickson Quee A. B., College of New Jersey.	*New York, N. Y.*	25 Warren Ave.
Brown, Edward Percy Royal Military College.	*Halifax, N. S.*	47 Gray St.
Brown, Warren Day A. B., Amherst College.	*New York, N. Y.*	537 Mass. Ave.
Clark, Charles Bevan A. B., Johns Hopkins University.	*Baltimore, Md.*	387 Boylston St.
Cluett, Albert Edmund A. B., Williams College.	*Troy, N. Y.*	6 Louisburg Sq.
Crane, Henry Middlebrook S. B., Massachusetts Institute of Technology.	*New York, N. Y.*	6 Louisburg Sq.
Curtis, Ida Maynard B. S., Cornell University.	*Boston*	18 St. Stephen St.
Cutler, Jane Ruth A. B., Smith College.	*Somerville*	Somerville.
Deavitt, Henry McIntyre B. S., University of Vermont.	*Montpelier, Vt.*	29 Claremont Park.
Denison, Edward Elias S. B., Massachusetts Institute of Technology.	*Portland, Me.*	531 Mass. Ave.
Diaz, José Ygnacio B. S., University of Venezula.	*Caracas, Venezula*	36 River Street.
Dodge, Edwin Sherrill A. B., Harvard University.	*Newburyport*	1 Willow St.
Dorrance, William Tully A. B., Brown University.	*Providence, R. I.*	35 St. James Ave.
*Elder, Edwin Avery U. S. Naval Academy.	*W. Newton*	W. Newton.
Elson, Arthur A. B., Harvard University.	*Roxbury*	79 Fort Ave., R.
Ewing, Mary Steele A. M., Cumberland Free College; Ph. G., Massachusetts College of Pharmacy.	*Boston*	City Hospital.
Ferguson, Finlay Forbes A. B., B. S., Hampden-Sidney College.	*Norfolk, Va.*	127 Pembroke St.
Foster, Mary Louise A. B., Smith College.	*W. Roxbury*	63 Maple St., W. R.
Furbish, Frederic B. S., Iowa State University.	*Iowa City, Iowa*	362 Columbus Ave.
Garfield, Abram A.B., Williams College.	*Mentor, Ohio*	89 Charles St.

* Died December 5.

NAME.	HOME.	RESIDENCE.
Gilman, John Edward, Jr. . . . A.B., Harvard University.	*Roxbury*	17 Holborn St., R.
Gilmore, Jonathan Monroe . . B.L., University of California.	*Pasadena, Cal.* . .	11 Rutland Sq.
Gonzalez, Rafael Secundino . . B.A., Spanish National College.	*Cienfuegos, Cuba* . .	636 Tremont St.
Green, Andrew Hugh . . . . A.B., Harvard University.	*Chicago, Ill.* . . .	15 Pinckney St.
Grover, Nathan Clifford . . . B.C.E., Maine State College.	*Orono, Me.*	57 Chandler St.
Hall, Charles Henry . . . . . B.A., Yale University.	*Brookiyn, N. Y.* . .	24 Park St., D.
Hayward, Nathan . . . . . A.B., Harvard University.	*Cambridge*	Cambridge.
Heghinian, Garabed George . . A.B., Central Turkey College.	*Marash, Turkey* . .	Auburndale.
Higbee, Florence Johnson . . . Ph.B., Wooster College.	*Wooster, Ohio* . . .	College Hill.
Howard, Arthur Fiske . . . . B.S., Amherst College.	*Portsmouth, N. H.* .	215 W. Canton St.
Hunt, Samuel Parker . . . . A.B., Dartmouth College; S.B., Massachusetts Institute of Technology.	*Manchester, N. H.* .	414 Newbury St.
Johnson, Charles . . . . . A.M., Louisiana State University.	*Baton Rouge, La.* . .	613 Tremont St.
Kirk, Robert Horner . . . . S.B., Massachusetts Institute of Technology.	*St. Paul, Minn.* . .	86 Huntington Ave.
Lamborn, Leebert Lloyd . . . B.S., Mt. Union College.	*Alliance, Ohio* . . .	373 Columbus Ave.
Lawrence, Charles Edward . . B.A., Charleston College.	*Charleston, S. C.* . .	82 Appleton St.
Lawrence, Ralph Restieaux . . S.B., Massachusetts Institute of Technology.	*Dorchester*	34 Sumner St., D.
Leach, Albert Ernest . . . . . S.B., Massachusetts Institute of Technology.	*Newtonville* . . .	Newtonville.
Lincoln, Alfred Varnum, Jr. . . S.B., Massachusetts Institute of Technology.	*Charlestown* . . .	32 Cordis St., R.
Lombard, Percival Hall . . . . A.B., Harvard University.	*Boston*	130 Newbury St.
Lyall, Amasa James . . . . . B.A., Amherst College.	*New York, N. Y.* .	215 W. Canton St.
McKell, William . . . . . Ph.B., Sheffield Scientific School.	*Chillicothe, Ohio* . .	32 W. Cedar St.
Merrick, Charles Irving . . . . A.B., Harvard University.	*Holyoke*	91 Newbury St.
Moore, John Denis Joseph . . . S.B., Massachusetts Institute of Technology.	*Springfield*	194 W. Brookline St.
Nebel Herreros, Alejandro . . B.S., University of Santiago.	*Santiago, Chile* . .	22 Appleton St.
Neidich, Samuel Abrahims . . Ph.B., Dickinson College.	*Carlisle, Pa.* . . .	91 St. Botolph St.
Nelson, Alexander Howard . . A.B., College of New Jersey.	*Chambersburgh, Pa.* .	122 Huntington Ave.
Norton, Alice Peloubet . . . . A.B., Smith College.	*Auburndale*	Auburndale.

NAME.	HOME.	RESIDENCE.
Oliver, Marchal Francis . . . . A.B., St. John's College (Annapolis).	*Annapolis, Md.* . .	Milton.
Pressey, Harry Albert . . . . B.S., Columbian University.	*Lewiston, Me.* . . .	101 Appleton St.
Purdon, James . . . . . A.B., Harvard University.	*Boston*	356 Marlborough St.
Real y Gaillard, Juan . . . . . A. B., Colegio de Carreras.	*Santiago de Cuba* . .	Webster Terrace, A.
Reed, Dorothy M. . . . . B. L., Smith College.	*Leyden, N. Y.* . . .	30 St. James Ave.
Roberts, Thomas Mayo . . . . A. B., University of Oregon.	*The Dalles, Oreg.* .	755 Tremont St.
Scudder, Heyward . . . . . B. A., Trinity College.	*New York, N. Y.* .	391 Boylston St.
Smetters, Samuel Tupper . . . Ph. B., Northwestern University.	*Waverly, Ill.* . . .	18 Greenwich Park.
Smith, George Lawrence . . . A. B., Harvard University.	*Cambridge*	Cambridge.
Smith, Harrison Willard . . . A. B., Harvard University.	*Dorchester*	40 Mill St., D.
Stouder, John Burton . . . . . B. E., Drake University.	*Gravity, Iowa* . . .	21 Dalton St.
Stoughton, Bradley . . . . . Ph. B., Sheffield Scientific School.	*New Haven, Conn.* .	107 Mt. Vernon St.
Taft, Harrison Southwick . . . B. P., Brown University.	*Providence, R. I.* . .	146 Marlborough St.
Thomas, Henry Evan . . . . . B. S., Haverford College.	*Philadelphia, Pa.* . .	21 St. James Ave.
Thompson, Abby May . . . . Ph. B., Wesleyan University.	*Boston*	78 Rutland St.
Thomson, Lucy Doolittle . . . A. B., Smith College.	*Belchertown* . . .	23 St. James Ave.
Tinkham, Edgar Luther . . . . B. P., Brown University.	*Providence, R. I.* . .	7 Follen St.
Tower, Samuel Francis . . . . A. B., Dartmouth College.	*Boston*	63 St. Botolph St.
Tucker, William Alfred . . . . S. B., Massachusetts Institute of Technology.	*Roxbury*	312 Warren St., R.
von Holst, Hermann Valentin . A. B., University of Chicago.	*Chicago, Ill.* . . .	549 Mass. Ave.
Warren, Alba Houghton . . . S. B., Worcester Polytechnic Institute.	*Worcester*	103 Appleton St.
Whitmore, John . . . . . Ph. D., Yale University.	*Lynn*	Lynn.
Willis, John Howard . . . . . A.B., Williams College.	*Waban*	Waban.

REGULAR STUDENTS.

Fourth Year.

NAME.	COURSE.	HOME.	RESIDENCE.
Allen, William Henry, Jr.	XIII.	*Boston*	293 Commonwealth Ave.
Ames, Butler	II.	*Lowell*	Lowell.
Anderson, William Pope, Jr.	III.	*Cincinnati, Ohio*	246 Newbury St.
Ashton, George Francis	II.	*Salem*	Salem.
Bailey, Thomas Ward	I.	*Kingston*	204 Huntington Ave.
Bakenhus, Reuben Edwin	I.	*Chicago, Ill.*	204 Huntington Ave.
Baldwin, Edward Arthur	VI.	*Dorchester*	308 Columbia St., D.
Batchelder, Chas. Eildermann	VI.	*So. Boston*	930 Fourth St., S. B.
Bates, Daniel Moore, Jr.	X.	*Wilmington, Del.*	4 Oxford Terrace.
Beaman, David Webster	VI.	*Cincinnati, Ohio*	Waltham
Blake, Francis Polk	III.	*New Orleans, La.*	77 Pinckney St.
Bowes, George Sidney	II.	*Rochester, N. Y.*	61 St. Botolph St.
Bowie, Augustus Jesse, A. B.	VI.	*San Francisco, Cal.*	201 Clarendon St.
Brackett, Edwin Raymond	V.	*Newton*	Newton.
Bragg, Edward Milton	XIII.	*Cambridgeport*	Cambridgeport.
Breed, Lewis Bazzoni	VI.	*Lynn*	19 St. James Ave.
Brooks, John Flavel	II.	*No. Hanover*	45 Saunders St., A.
Brown, Harry Webster	VI.	*Winchester*	Winchester.
Browne, Harry Patrick	VI.	*Houston, Tex.*	157 W. Canton St.
Bucher, Russell Samuel	IV.	*Harrisonburg, Va.*	158 Huntington Ave
Burgess, George Kimball	VIII.	*Newtonville*	Newtonville.
Callan, John Gurney	VI.	*Lynn*	Lynn.
Chamberlin, Helen	IV.	*Wrentham*	Wrentham.
Chenery, Winthrop Holt	IV.	*Belmont*	Belmont.
Clary, Joseph Ward	XIII.	*Milton*	Mattapan.
Cluett, Albert Edmund, A.B.	VI.	*Troy, N. Y.*	6 Louisburg Sq.
Coley, John Lonson	II.	*Westport, Conn.*	50 Appleton St.
Colman, Willard Henry	II.	*La Crosse, Wis.*	358 Columbus Ave.
Conant, Francis Melvin	X.	*Watertown*	Watertown.
Coolidge, William David	VI.	*Hudson*	34 Yarmouth St.
Coolidge, Winthrop	III.	*Chicago, Ill.*	563 Mass. Ave.
Cramer, Edwin Claassen	IV.	*Milwaukee, Wis.*	17 Blagden St.
Crane, Henry M., S. B.	VI.	*New York, N. Y.*	6 Louisburg Sq.
Crane, Stephen Dow	VI.	*Boston*	55 Burroughs St., J.P.
Crocker, Carl Ira	I.	*Portland, Me.*	19 Upton St.
Crosby, Ralph Worthington	XIII.	*Osterville*	190 W. Canton St.

FOURTH YEAR (*continued*).

NAME.	COURSE.	HOME.	RESIDENCE.
Cummings, Henry, Jr.	IV.	*Boston*	3 Union Park.
Daniels, Nathan Hagar, Jr.	VI.	*Boston*	13 Joy St.
Davis, Franklin Hayes	III.	*Wayne, Pa.*	55 Burroughs St., J.P.
Davis, Robert Allen	VI.	*Yarmouthport*	Somerville.
De Long, Harold Williams	XIII.	*Medford*	Medford.
Dickinson, Leonard David P.	VI.	*Manchester, N. H.*	414 Newbury St.
Dorrance, William Tully, A.B.	I.	*Providence, R. I.*	35 St. James Ave.
Driscoll, James Michael	I.	*Brookline*	Brookline.
Driscoll, Joseph	I.	*Brookline*	Brookline.
Drum, Alphonsus Ligouri	VI.	*New York, N. Y.*	507 Shawmut Ave.
Eynon, John Stuart	VI.	*Utica, N. Y.*	34 Ru... id Sq.
Field, Frederick Elbert	XI.	*Greenfield*	18 Greenwich Park.
Fisher, Elizabeth Florette	XII.	*E. Boston*	142 Trenton St., E.B.
Fisk, Harry George	IX.	*Springfield*	543 Mass. Ave.
Forster, Frederick Everard	X.	*New York, N. Y.*	Pond St., J. P.
Fresch, George, Jr.	IV.	*St. Louis, Mo.*	131 St. Bototph St.
Fuller, Frederic William	VI.	*Springfield*	531 Mass. Ave.
Fuller, Myron Leslie	XII.	*Brockton*	Brockton.
Fuller, Robert Lesure	IV.	*Worcester*	531 Mass. Ave.
Gage, Stephen De Meritte	V.	*Bradford*	190 W. Canton St.
Gardner, Henry	II.	*Salem*	34 W. Cedar St.
Garfield, Abram, A.B.	IV.	*Mentor, Ohio*	89 Charles St.
Goodhue, Leonard Harrington	V.	*Salem*	Salem.
Gordon, Edward Bertelle, Jr.	II.	*Lynn*	Lynn.
Grabau, Amadeus William	XII.	*Boston*	87 Appleton St.
Green, Andrew Hugh, A.B.	I.	*Chicago, Ill.*	15 Pinckney St.
Grush, Henry Granville	VI.	*Dorchester*	Everton St., D.
Guptill, Frank Edward	VI.	*Winter Harbor, Me.*	102 Huntington Ave.
Hall, Gaylord Crossette	VI.	*Cambridge*	Cambridge.
Hallaran, John Sanford	I.	*Toledo, Ohio*	62 Pinckney St.
Hapgood, Charles Warren	V.	*Everett*	Everett.
Hardy, Robert Samuel	VI.	*Bangor, Me.*	563 Mass. Ave.
Harkness, George Edward	I.	*Walpole*	Walpole.
Harrington, Joseph	II.	*Boston*	30 Dartmouth St.
Hartwell, Hiram Britton	II.	*Watertown*	Watertown.
Haste, James Henry	V.	*Lawrence*	Lawrence.
Hawley, Harvey F.	I.	*Baldwinsville, N. Y.*	5 Oxford Terrace.
Hedge, Henry Rogers	IX.	*Plymouth*	Hotel Kempton.
Hedge, William Russell	IX.	*Plymouth*	Hotel Kempton.
Heermann, Frederick Morse	II.	*Boston*	39 Union Park.
Henderson, James Buist	II.	*Ludlow*	113 Chandler St.
Henry, Ralph Coolidge	IV.	*Watertown*	Watertown.
Hewett, Joseph	VIII.	*Brockton*	Brockton.
Hollis, Walter Munroe	VI.	*Lynn*	Lynn.
Hopkins, James Cleveland	IV.	*Jamaica Plain*	Park Pl., J. P.

FOURTH YEAR (*continued*).

NAME.	COURSE.	HOME.	RESIDENCE.
Howard, Frank Allen	I.	*Brockton*	Brockton.
Howe, Joseph Milton	I.	*Houston, Tex.*	88 W. Newton St.
Hultman, Eugene Christian	I.	*Quincy*	Quincy.
Hurd, Benjamin	VI.	*Brookline*	Brookline.
Hyde, Charles Gilman	XI.	*Yantic, Conn.*	69 Montgomery St.
Ingalls, Charles Henry	VI.	*Danvers*	Danvers.
James, Walter Herman	II.	*Portsmouth, N. H.*	37 Rutland Sq.
Jameson, Minor Story	I.	*Clinton Cor's, N. Y.*	35 St. James Ave.
Johnson, Charles, A.M.	I.	*Baton Rouge, La.*	613 Tremont St.
Jones, Howard Kingsley.	IV.	*Erie, Pa.*	18 Holyoke St.
Jones, Theodore Inslee	VI.	*Utica, N. Y.*	34 Rutland Sq.
Keith, William Henry	VI.	*St. Augustine, Fla.*	88 W. Newton St.
Kent, William Albert	I.	*Washington, D. C.*	496 Columbus Ave.
Knight, Joseph Hyde	IX.	*Pittsfield*	107 Mt. Vernon St.
Lamborn, Leebert Lloyd, B.S.	V.	*Alliance, Ohio*	373 Columbus Ave.
Lawrence, Charles E., B.A.	VI.	*Charleston, S. C.*	82 Appleton St.
Laws, Eugene Hiram	V.	*Bedford*	Bedford.
Leighton, Marshall Ora	VII.	*Portland, Me.*	85 Pembroke St.
Leland, Walter Swift	XIII.	*Saxonville*	Saxonville.
Lewis, Marion Lincoln	IV.	*W. Roxbury*	March Ave., W. R.
Litchfield, Paul Weeks	X.	*Roxbury*	94 Howard Ave., R.
Locke, Charles E.	III.	*Portsmouth, N. H.*	16 Concord Sq.
Lonngren, John Erik	II.	*Waltham*	Waltham.
Lootz, Alf C.	I.	*Boston*	116 St. Botolph St.
Lyman, George William	VI.	*Salem*	Salem.
Lythgoe, Hermann Charles	V.	*Winthrop*	Winthrop.
Manahan, John Henry	VI.	*Boston*	14 Newbury St.
McAlpine, William Horatio	XI.	*Lawrence*	24 Dartmouth St.
McCann, Frank Goodman	II.	*Oak Park, Ill.*	22 Yarmouth St.
Melluish, James George	IX.	*Bloomington, Ill.*	5 Rollins St.
Merrell, Irving Seward	II.	*Syracuse, N. Y.*	34 Rutland Sq.
Merryweather, Geo. Edmund	II.	*Cincinnati, Ohio*	458 Mass. Ave.
Moat, Charles Perkins	V.	*Portsmouth, N. H.*	543 Mass. Ave.
Moore, John Denis J., S.B.	II.	*Springfield*	194 W. Brookline St.
Morrill, Guy Louis	VI.	*Dorchester*	35 Howard Ave., D.
Morris, Charles, Jr.	VI.	*San Francisco, Cal.*	42 Concord Sq.
Nevin, Chas. Kirkland Barker	IV.	*Allston*	71 Gardner St., A.
Newell, Herbert Damon	I.	*Hampden*	191 W. Canton St.
Newhall, Charles Saunderson	III.	*Lynn*	34 W. Cedar St.
Owen, Fred Brown	VI.	*Jewett City, Conn.*	484 Columbus Ave.
Pauly, Karl Almon	VI.	*Somerville*	Somerville.
Peirce, Vernon Marshall	I.	*Boston*	169 W. Newton St.
Pennell, Walter Otis	VI.	*Exeter, N. H.*	83 Dartmouth St.
Perley, Clarence Warner	VII.	*Lynn*	136 W. Concord St.
Pillsbury, Joel Horace	I.	*Wollaston*	Wollaston.

FOURTH YEAR (*continued*).

NAME.	COURSE.	HOME.	RESIDENCE.
Pingree, Edwin Daniel	II.	*Lawrence*	Lawrence.
Poppenhusen, Herman A.	VI.	*Evanston, Ill.*	34 Rutland Sq.
Pressey, Harry Albert, B.S.	I.	*Lewiston, Me.*	101 Appleton St.
Putnam, John Luther	VI.	*Houlton, Me.*	26 Glenarm St., D.
Rawson, Harry Dustan	IV.	*Des Moines, Iowa*	46 St. Stephen St.
Raynolds, James Wallace	III.	*Las Vegas, N. Mex.*	1 Willow St.
Richardson, Daniel Artemas	II.	*Boston*	424 Mass. Ave.
Roberts, Edwin Hughes	II.	*Denver, Colo.*	46 St. Stephen St.
Rockwell, John Arnold, Jr.	VII.	*Norwich, Conn.*	69 Montgomery St.
Root, William Lacy	X.	*Pittsfield*	134 W. Newton St.
Ruckgaber, Albert Felix	VI.	*Brooklyn, N. Y.*	106 Highland St., R.
Russell, Andrew LeBaron	IX.	*Fort McPherson, Ga.*	6 Louisburg Sq.
Rutherford, Norman Franklin	VI.	*Bathurst, N. S. W.*	48 Tennyson St.
Sager, Lawrence Kingsley	VI.	*Somerville*	Somerville.
Sanderson, Nathan Herbert	I.	*Waltham*	Waltham.
Sax, Moritz	IV.	*Cincinnati, Ohio*	20 Rutland Sq.
Schaller, Frederick Francis	VI.	*So. Natick*	So. Natick.
Scovel, John Combs, Jr.	II.	*Chicago, Ill.*	157 W. Canton St.
Sears, Mortimer Andrews	III.	*Athol*	9 Union Park.
Shepard, George Fred., Jr.	IV.	*Roxbury*	18 Waumbeck St., R.
Sherman, Henry Arthur	III.	*Boston*	89 Worcester St.
Smalley, Frank Newell	V.	*Westboro*	Westboro.
Smetters, Samuel Tupper, Ph.B.	I.	*Waverly, Ill.*	18 Greenwich Park.
Smith, Fred Haskell	X.	*Hudson, N. H.*	129 W. Newton St.
Smith, Herbert Edwards	IV.	*Gloucester*	8 St. Germain St.
Smith, Howard Everett	XI.	*Framingham*	Framingham.
Smyser, Albert Ernest	II.	*Brookline*	Brookline.
Smyser, Frederick William	II.	*Brookline*	Brookline.
Smyser, James Swett	II.	*Brookline*	Brookline.
Stearns, Walter Mulliken	VI.	*Waltham*	Waltham.
Stevens, Harold Converse	I.	*Braintree*	Braintree.
Stickney, Joseph White	VI.	*Somersworth, N. H.*	145 W. Newton St.
Stone, Charles Henry Howard	V.	*Newton*	Newton.
Stone, Esther	IV.	*Providence, R. I.*	Newton.
Stoughton, Bradley, Ph. B.	III.	*New Haven, Conn.*	107 Mt. Vernon St.
Sturm, Meyer Joseph	IV.	*Chicago, Ill.*	134 St. Botolph St.
Sumner, George William	VI.	*Omaha, Neb.*	34 Rutland Sq.
Taft, Harrison Southwick, B.P.	II.	*Providence, R. I.*	146 Marlborough St.
Tappan, Lewis Hooper	II.	*Manchester*	86 Mt. Vernon St.
Taylor, William Bellamy	II.	*Brookline*	Brookline.
Thanisch, Frank Arthur	III.	*Jamaica Plain*	3305 Washington St., J.P.
Thomas, William Harrison, Jr.	V.	*Lynn*	Lynn.
Thompson, Albert William	II.	*Lowell*	175 Mass. Ave.
Thomson, Lucy Doolittle, A.B.	IV.	*Belchertown*	23 St. James Ave.
Thomson, Samuel Forsythe	I.	*Charleston, S. C.*	12 Truro St.

FOURTH YEAR (*continued*).

NAME.	COURSE.	HOME.	RESIDENCE.
Tilley, John	VI.	*W. Troy, N. Y.*	424 Mass. Ave.
Tozier, Henry Harris	V.	*Haverhill*	Haverhill.
Trout, Charles Eliphalet	I.	*Oak Park, Ill.*	Cambridge.
Tucker, Charles William	V.	*No. Andover*	518 Columbus Ave.
Underhill, Arthur Perley	VI.	*Springfield*	543 Mass. Ave.
Van Everen, Grace Abbie	V.	*Brooklyn, N. Y.*	Cambridge.
von Holst, Hermann V., A.B.	IV.	*Chicago, Ill.*	549 Mass. Ave.
Wall, William Guy	VI.	*Buck Lodge, Md.*	488 Columbus Ave.
Waterman, Henry Arthur	II.	*Malden*	Malden.
Wayne, Jacob Lloyd	VI.	*Cincinnati, Ohio*	37 Holyoke St.
Wells, Albert Jameson	II.	*Lawrence*	117 Appleton St.
Wentworth, Charles Austin	I.	*Haverhill*	Haverhill.
Whitney, Lambert Nutt	VI.	*Newton*	Newton.
Whitten, William Henry, Jr.	VIII.	*Roxbury*	59 School St., R.
Willis, John Howard, A.B.	IV.	*Waban*	Waban.
Wood, Florence Anna	VIII.	*Roxbury*	9 Bainbridge St., R.
Wood, Willett Aubrey	VI.	*Detroit, Mich.*	518 Columbus Ave.
Woodwell, Julian Ernest	II.	*Newburyport*	7 Burlington Ave.

Third Year.

Alden, John Trott	II.	*Newton*	Newton.
Allen, Henry Walter	X.	*Hyde Park*	Hyde Park.
Anderson, Robert, Ph. B.,	VI.	*Cincinnati, Ohio*	20 W. Cedar St.
Atwood, Thomas Clark	I.	*Malden*	Malden.
Baldwin, Charles Fowler, Jr.	VI.	*Mount Vernon, Ohio*	193 W. Newton St.
Ballou, Henry Welcome	I.	*Providence, R. I.*	52 Falmouth St.
Bancroft, Wilfred	II.	*Philadelphia, Pa.*	4 Oxford Terrace.
Barkhouse, Edgar Louis	VI.	*Louisville, Ky.*	18 Berwick Park.
Barlow, William Harvey	V.	*Mahanoy City, Pa.*	543 Mass. Ave.
Barnes, Warren Hammond	I.	*Marlboro*	Marlboro.
Barrows, Bernard	X.	*Reading*	Reading.
Beers, Herbert Page	IV.	*Chicago, Ill.*	531 Mass. Ave.
Binley, William, Jr.	XIII.	*Newburyport*	218 W. Springfield St.
Borland, Hugh	I.	*St. Johnsbury, Vt.*	120 Pembroke St.
Bowen, Edgar Campbell, Jr.	II.	*Brooklyn, N. Y.*	84 Huntington Ave.
Bowen, Ralph Albert	V.	*Adams*	35 Rutland Sq.
Boyd, John	V.	*No. Adams*	35 Rutland Sq.
Bradlee, Charles Walter	IX.	*Boston*	113 Beacon St.
Brainerd, Edwin Alpheus	I.	*Dorchester*	39 Olney St., D.
Bramhall, Charles Thomas	II.	*Plymouth*	Plymouth.
Breed, Charles Blaney	I.	*Lynn*	Lynn.

THIRD YEAR (*continued*).

NAME.	COURSE.	HOME.	RESIDENCE.
Brown, Dickson Queen, A.B.	VI.	*New York, N. Y.*	25 Warren Ave.
Brown, Edward Percy	III.	*Halifax, N. S.*	47 Gray St.
Brown, James Monroe	II.	*Mansfield, Ohio*	193 W. Newton St.
Brown, Warren Day, A. B.	VI.	*New York, N. Y.*	537 Mass. Ave.
Burdick, Howard Henry	II.	*Hartford, Conn.*	19 Concord Sq.
Burnham, George	IV.	*Portland, Me.*	563 Mass. Ave.
Busby, Fred Edward	V.	*Adams*	86 Appleton St.
Bush, Walter Meiggs	II.	*Brooklyn, N. Y.*	Hotel Farwell.
Carty, John Edward	I.	*Roxbury*	6 Kensington St., R.
Clark, Charles Bevan, A. B.	I.	*Baltimore, Md.*	387 Boylston St.
Clark, Henry Archer	II.	*Pittsfield*	134 W. Newton St.
Coleman, Ezra Abbott	VI.	*Boston*	193 W. Newton St.
Collins, John Arthur, Jr.	X.	*Fall River*	37 St. Botolph St.
Cook, Joseph Cochran	VIII.	*Roxbury*	1 Codman Park, R.
Cowles, Luzerne Simeon	I.	*Hartford, Conn.*	19 Concord Sq.
Craven, George Warren	VI.	*Bozeman, Mont.*	50 Appleton St.
Crocker, Allen Swift	II.	*New Bedford*	28 E. Brookline St.
Cummings, Robert Miller	XIII.	*So. Boston*	1 Linden St., S. B.
Currier, Charles Richardson	II.	*Jamaica Plain*	282 Lamartine St., J. P.
Curtis, Arthur Vinton	XIII.	*Quincy*	Quincy.
Cutler, William Henry	IV.	*Chicago, Ill.*	Brookline.
Daniell, Jere Rogers	XIII.	*Franklin Falls, N. H.*	471 Columbus Ave.
Davis, Alvan Lamson	III.	*Hyde Park*	Hyde Park.
Deavitt, Henry McIntyre, B.S.	V.	*Montpelier, Vt.*	29 Claremont Park.
Demeritt, Leonard Morse	II.	*Natick*	Natick.
Dodge, Edwin Sherrill, A. B.	IV.	*Newburyport*	1 Willow St.
Doten, Alfred Russell	II.	*Plymouth*	70 Rutland St.
Dougherty, Proctor Lambert	VI.	*Cambridge*	Cambridge.
Driscoll, Timothy Joseph	VI.	*Boston*	7 Hamburg St.
du Pont, Irénée	X.	*Wilmington, Del.*	531 Mass. Ave.
Dwyer, John Richard	IV.	*St. Louis, Mo.*	32 Yarmouth St.
Eames, Charles Holmes	VI.	*Andover*	Andover.
Eames, Edward Ashley	VI.	*Buffalo, N. Y.*	543 Mass. Ave.
Eaton, William Wise	II.	*Bridgewater*	535 Mass. Ave.
Edmands, Frederick Lincoln	II.	*Newburyport*	Parker Hill Ave., R.
Elson, Arthur, A. B.	X.	*Roxbury*	79 Fort Ave., R.
Emerson, Louville Eugene	VI.	*Portland, Me.*	Brookline.
Everett, Frank Warren	VI.	*Highland Park, Ill.*	531 Mass. Ave.
Ewen, Malcolm Faulkner	IV.	*Boston*	194 Huntington Ave.
Ewing, William Clinton	VI.	*Danvers*	755 Tremont St.
Fairbanks, William Kendall	VI.	*Boston*	213 Newbury St.
Faxon, William Aleck	V.	*Buffalo, N. Y.*	156 Huntington Ave.
Feeley, Frank Goodrich	II.	*Pittsfield*	150 W. Newton St.
Ferris, Robert Murray, Jr.	VI.	*Poughkeepsie, N. Y.*	29 Concord Sq.
Field, David Dudley	II.	*Stockbridge*	115 Dartmouth St.

THIRD YEAR (*continued*).

NAME.	COURSE.	HOME.	RESIDENCE.
Fiske, George Isaac	VI.	*Roxbury*	50 Elmore St., R.
Frank, Mortimer	I.	*Chicago, Ill.*	128 Huntington Ave.
Franklin, Arthur Ira	V.	*Newton*	Newton.
Frazier, Charles Wellington	VI.	*Lynn*	Lynn.
Fuller, George Arthur	VI.	*Springfield*	531 Mass. Ave.
Gaillard, Lawrence Lee	VI.	*Charleston, S. C.*	82 Appleton St.
Gilbert, Frederick Chester	V.	*Cambriageport*	Cambridgeport.
Gilman, John Edward, Jr., A.B.	I.	*Roxbury*	17 Holborn St., R.
Gilmore, Jonathan M., B.L.	VI.	*Pasadena, Cal.*	11 Rutland Sq.
Gleason, Walter Austin	I.	*Malden*	Malden.
Gowen, Sumner	I.	*Wakefield*	Wakefield.
Gray, Owen Herrick	VI.	*St. Paul, Minn.*	134 W. Newton St.
Guttridge, James Addison	I.	*Roslindale*	Garden St., Ros.
Hall, Robert George	V.	*Pittsburgh, Pa.*	221 W. Canton St.
Haskins, Charles Nelson	VIII.	*New Bedford*	122 Chandler St.
Hatch, Israel, Jr.	X.	*Hanover*	Hanover.
Hawkins, Edgar Marvin	II.	*W. Roxbury*	Maple St., W. R.
Hayward, Nathan, A.B.	VI.	*Cambridge*	Cambridge.
Hayward, Royal Hobart	VI.	*Roxbury*	18 Holborn St., R.
Healey, Benjamin Francis	VI.	*Boston*	602 Tremont St.
Healy, Frederick Elliott	II.	*E. Providence, R. I.*	28 E. Brookline St.
Hemmings, Frederick John	V.	*Boston*	9 Sussex St.
Herbst, James Brown	VI.	*Kansas City, Mo.*	150 W. Newton St.
Hering, Oswald Constantin	IV.	*Boston*	70 Trinity Terrace.
Hopkins, Arthur Thomas	XI.	*Somerville*	Somerville.
Hosford, Roger Fuller	V.	*Boston*	19 Burlington Ave.
Hosmer, George Leonard	I.	*Woburn*	Woburn.
Howard, Ethan Henry	VI.	*Buffalo, N. Y.*	549 Mass. Ave.
Howes, Benjamin Alfred	VI.	*Keene, N. H.*	197 Warren Ave.
Hubbard, Chester Dimock	VI.	*Boston*	134 W. Newton St.
Humphreys, Walter	II.	*Dorchester*	Humphreys Pl., D.
Hunnewell, Frederick Allen	XIII.	*Cambridge*	Cambridge.
Hunt, Harry Burleigh	II.	*Brooklyn, N. Y.*	88 Pembroke St.
Hunt, Harry Draper	IX.	*No. Attleboro*	13 St. James Ave.
Hürter, Charles Swanberg	III.	*Hyde Park*	Hyde Park.
Ilsley, John Parker, Jr.	II.	*Philadelphia, Pa.*	6 Louisburg Sq.
Jennings, Arthur Lewis	II.	*Deep River, Conn.*	22 Dartmouth St.
Keisker, Frank Henry	IV.	*Louisville, Ky.*	138 W. Newton St.
Killam, James Warren	I.	*Reading*	7 Burlington Ave.
Kimberly, Albert Elliott	V.	*Jamaica Plain*	3 Maple Pl., J. P.
King, William Braman	VI.	*Dorchester*	11 Merlin St., D
Knight, George Horace	II.	*Hudson*	34 Yarmouth St.
Lamb, Augustus Clark	X.	*Cambridge*	Cambridge.
Lawler, George Sherriffs	VI.	*E. Boston*	259 Webster St., E.B.
Learned, Ernest Freeman	VI.	*Watertown*	Watertown.

THIRD YEAR (*continued*).

NAME.	COURSE.	HOME.	RESIDENCE.
Leary, William Gardner	VI.	*Dorchester*	17 Stanley St., D.
Le Baron, Frederic Nelson	IV.	*Middleboro*	535 Mass. Ave.
Lee, William Louis	VI.	*Evanston, Ill.*	22 Yarmouth St.
Lewis, James Edward	I.	*Somerville*	Somerville.
Loomis, Henry Meech	V.	*Yokohama, Japan*	86 Appleton St.
Loveland, Benjamin Alpheus	I.	*Chatham*	Chelsea.
Maguire, Thos. Francis James	VI.	*Dorchester*	8 Beale St., D.
Manson, Edmund Sewall, Jr.	VIII.	*Dorchester*	7 Holliday St., D.
Mason, Earl Potter	II.	*Providence, R. I.*	28 Brimmer St.
McCarthy, George Herbert	IX.	*Dorchester*	1 Willow St.
McCormick, Edmund Burke	II.	*Normal, Ill.*	15 Claremont Park.
McMillan, John Primrose	X.	*Petrolia, Ont.*	130 W. Newton St.
Moran, George Austin	V.	*So. Framingham*	So. Framingham.
Motch, Edward Ramond	II.	*Covington, Ky.*	198 W. Springfield St.
Mulhall, Harold Torey	VI.	*Dorchester*	9 Laurel St., D.
Munroe, George Sweetser	IX.	*Somerville*	Somerville.
Nickerson, Clarendon	X.	*Bridgeport, Conn.*	25 Rockville Park, R.
Noble, Howard Agnew	II.	*Pittsburgh, Pa.*	543 Mass. Ave.
Norris, Albert Perley	V.	*Cambridgeport*	Cambridgeport.
Olin, Edwin Read	X.	*Roxbury*	29 St. James St., R.
Oliver, Marshal Francis, A.B.	IV.	*Annapolis, Md.*	Milton.
Orr, Hugh	IV.	*Brockton*	Brockton.
Osgood, Edwin Putnam	XI.	*Boston*	31 E. Newton St.
Paine, Charles Bodwell	IV.	*Augusta, Me.*	18 Holyoke St.
Parker, Will Rogers	VI.	*Portsmouth, N. H.*	31 Centre St., R.
Parsons, Archibald Livingstone	I.	*Derry, N. H.*	23 St. Charles St.
Pettee, Charles Leslie Wight	V.	*Newtonville*	Newtonville.
Pike, Otto Samuel	II.	*Malden*	Malden.
Potter, William Chapman	III.	*Chicago, Ill.*	563 Mass. Ave.
Pratt, Gilbert Homer	V.	*Chelsea*	Chelsea.
Pugh, Achilles Henry	X.	*Cincinnati, Ohio*	184 W. Canton St.
Reed, William Edgar	VI.	*Pittsburgh, Pa.*	193 W. Canton St.
Richards, Louis Jerome	XI.	*Norwich, Conn.*	79 Montgomery St.
Robinson, Laforest George	VI.	*Plattsburg, N. Y.*	Cambridgeport.
Rogerson, John Russell	I.	*Mansfield*	Mansfield.
Rooke, Warren Augustus	IV.	*Meriden, Conn.*	118 Dartmouth St.
Royce, James Charles	II.	*Davenport, Ont.*	130 W. Newton St.
Russell, Walter Basford	II.	*Roxbury*	4 Paulding St., R.
Sawtelle, Harry Francis	I.	*Cambridgeport*	Cambridgeport.
Sawtelle, William Otis	VIII.	*Bangor, Me.*	563 Mass. Ave.
Schuttler, Carl	II.	*Chicago, Ill.*	543 Mass. Ave.
Schwartz, David	V.	*Boston*	10 Wall St.
Sellew, William Hamilton	II.	*Cincinnati, Ohio*	37 Holyoke St.
Shuman, Jesse Wyman	VI.	*Minneapolis, Minn.*	175 Mass. Ave.
Smith, Harrison W., A.B.	II.	*Dorchester*	40 Mill St., D.

THIRD YEAR (*continued*).

NAME.	COURSE.	HOME.	RESIDENCE.
Smith, James Wilfred	XIII.	*Lawrence*	Lawrence.
Smith, Oren Barron, Jr.	III.	*Northampton*	18 Greenwich Park.
Smith, Percy Merrihew	II.	*Rockland*	165 Huntington Ave.
Smith, William Franklin	II.	*Cambridge*	Cambridge.
Smith, William Graves	I.	*Mansfield*	Mansfield.
Spear, Walter Evans	XI.	*Lawrence*	Lawrence.
Spiess, Arthur Douglas	IV.	*New York, N. Y.*	37 St. Botolph St.
Spring, Russell Clark	IV.	*Newton Lower Falls*	Newton Lower Falls.
Stebbins, Charles Bowles	XIII.	*Somerville*	Somerville.
Steiner, Klaus Junior	III.	*Allegheny, Pa.*	5 Oxford Terrace.
Stiles, Percy Goldthwait	VII.	*Newtonville*	Newtonville.
Stouder, John Burton, B.E.	I.	*Gravity, Iowa*	21 Dalton St.
Strong, Edward Fitch	II.	*Colchester, Conn.*	64 Mt. Vernon St.
Swan, Charles Mayo	VII.	*Mattapan*	6 Sanford St., M.
Taylor, John	VI.	*Brookline*	Brookline.
Tewksbury, James Winthrop	IX.	*Lynn*	Lynn.
Tinkham, Edgar Luther, B.P.	VI.	*Providence, R. I.*	7 Follen St.
Tyler, Lucius Spaulding	VI.	*Waltham*	Waltham.
Videto, Theodore Ernest	IV.	*So. Framingham*	So. Framingham.
Vignos, Alfred Augustus	VI.	*Canton, Ohio*	658 Tremont St.
Vinal, Ralph Sumner	IV.	*Brockton*	Brockton.
Wadleigh, George Robinson	II.	*W. Newton*	W. Newton.
Walther, William John	I.	*Chicago, Ill.*	188 W. Brookline St.
Washburn, Thurlow	III.	*Cambridge*	Cambridge.
Watts, Francis Henry	I.	*Natick*	Natick.
Weymouth, Thomas Rote	VI.	*Lock Haven, Pa.*	549 Mass. Ave.
Whitney, Richard	I.	*Dorchester*	40 Wales St., D.
Whiton, David Thomas	II.	*Hingham Centre*	Hingham Centre.
Wise, Samuel Francis	I.	*So. Boston*	771 Broadway, S. B.
Wood, William Remington	XIII.	*Providence, R. I.*	52 Falmouth St.
Woodman, Alpheus Grant	V.	*Essex*	4 Union Park St.
Woodman, George Maddock	I.	*Essex*	4 Union Park St.
Woodworth, Edward Harold	V.	*Newtonville*	Newtonville.

Second Year.

Alexander, Donald Nelson	IV.	*E. Boston*	33 Falcon St., E. B.
Alland, Leon	I.	*Roxbury*	8 Gaston St., R.
Allen, Jerome Ripley, A.B.	IV.	*Greenfield*	89 Charles St.
Allyn, Robert	II.	*New London, Conn.*	22 Dartmouth St.
Ames, Joseph William	II.	*Melrose*	Melrose.
Anthony, George Rutherford	II.	*Waltham*	Waltham.
Arnold, Lyman	VI.	*W. Springfield*	103 Appleton St.
Babson, Roger Ward	I.	*Gloucester*	194 Amory St., J. P.

SECOND YEAR (*continued*).

NAME.	COURSE.	HOME.	RESIDENCE.
Bacon, Lyman Edward	I.	*Bridgewater*	Bridgewater.
Barker, Elliott Rensselaer	V.	*Greendale*	114 White St., E. B.
Barker, Harrington	II.	*No. Cambridge*	No. Cambridge.
Belcher, Henry Clifford	II.	*Easton*	Easton.
Bennink, Carroll Augustus	IV.	*Whittier, Cal.*	No. Cambridge.
Bergen, Francis Patrick	VI.	*Hartford, Conn.*	119 Warren Ave.
Bergstrom, George Edwin	IV.	*Neenah, Wis.*	389 Beacon St.
Blackmer, William Daniels	III.	*Colorado Springs, Colo.*	Newton.
Blanchard, Arthur Alphonzo	V.	*Newton Centre*	Newton Centre.
Bleecker, John Stearns	II.	*Charlestown*	Navy Yard, C.
Blood, George Whitefield	IV.	*Newburyport*	Newburyport.
Bodwell, Howard Lawrence	II.	*W. Boxford*	432 Columbus Ave.
Boyle, Martin	V.	*Newburyport*	Newburyport.
Brewer, Arthur Francis	VI.	*Fayville*	Fayville.
Brewster, William	II.	*Plymouth*	26 St. James Ave.
Brooks, Miles Elijah	I.	*Boston*	19 Milford St.
Brown, Cardella Drake	VI.	*Hartford, Conn.*	19 Concord Sq.
Butcher, William Laramy	I.	*Cambridge*	Cambridge.
Butler, Winthrop Fessenden	V.	*Chelsea*	Chelsea.
Byam, Le Roy Henry	I.	*Waltham*	Waltham.
Cade, Marion Louise	V.	*Cambridgeport*	Cambridgeport.
Chace, Ira Mason, Jr.	I.	*New Bedford*	53 Morton St., D.
Chapin, Edward Samuel	V.	*Boston*	23 Parker St.
Cleaveland, Walter Avery	II.	*W. Newton*	W. Newton.
Clifford, Paul	II.	*Boston*	507 Columbus Ave.
Coffin, Joseph George	VIII.	*Boston*	228 W. Canton St.
Colcord, Frank Forest	III.	*Roxbury*	3 Weld Ave, R.
Conklin, Herbert King	IV.	*Newark, N. J.*	314 Columbus Ave.
Coombs, Frank Eugene	IV.	*E. Boston*	26 Maverick St., E. B.
Cornell, Worthington	VI.	*Wellington*	Wellington.
Cottle, George Thurston	V.	*Roxbury*	13 Copley St., R.
Crane, Eva Hayes	IV.	*Cambridge*	Cambridge.
Crowell, Luther Alberto	VI.	*W. Dennis*	9 Berwick Park.
Cudworth, Eugene Thurston	VI.	*Montrose*	Montrose.
Currier, Harvey Leon	II.	*Swampscott*	Lynn.
Curry, William	VI.	*Pittsburgh, Pa.*	35 St. Botolph St.
Curtis, Everett Nichols	IX.	*Camden, Me.*	26 Cumberland St.
Dakin, George Waters	III.	*Roxbury*	44 Evergreen St., R.
Daly, Robert Emmett	V.	*Boston*	6 W. Newton St. Ext.
Dana, Wm. Sumner Barton	IV.	*Worcester*	11 Rutland Sq.
Danforth, Raymond Hewes	II.	*Salem*	Salem.
Davis, Arthur True	II.	*Portland, Me.*	3 Oxford Terrace.
Davison, George Rupert	VI.	*So. Boston*	33 M St., S. B.
De Golyer, Robert Seely	IV.	*Evanston, Ill.*	298 Columbus Ave
Delano, Maurice Francis	I.	*Somerville*	Somerville.
Dixon, John Brown	V.	*Washington, D. C.*	25 Buckingham St.

SECOND YEAR (*continued*).

NAME.	COURSE.	HOME.	RESIDENCE.
Dodd, John Wellington	VI.	*Roxbury*	58 Townsend St., R
Dodge, Irving Bigelow	II.	*Grafton*	Newton.
Draper, Robert May	III.	*Fayville*	Fayville.
Edgerly, Daniel Wilbert	V.	*Cambridgeport*	Cambridgeport.
Fearing, Albert Justin	I.	*So. Weymouth*	So. Weymouth.
Ferguson, Finlay F., A.B., B.S	IV.	*Norfolk, Va.*	127 Pembroke St.
Fisher, Howell	X.	*Roxbury*	105 Howland St., R.
Fleet, John Wallis	I.	*Fall River*	Somerville.
Fleisher, Simon	VI.	*Boston*	24 Norman St.
Fleming, Charles Edwin	II.	*Spartanburg, S. C.*	911 Boylston St.
Forrest, Mabel Flora	VII.	*Lowell*	56 Clarendon St.
Fownes, William Clark	X.	*Pittsburgh, Pa.*	35 St. Botolph St.
Gallison, Ernest Augustus	II.	*Chelsea*	Chelsea.
Gehring, Edwin Wagner	I.	*Bethel, Me.*	31 E. Newton St.
Godbold, Charles Henry, Jr.	XIII.	*E. Boston*	150 Trenton St., E.B.
Goddard, John Newton	V.	*Plainfield, N. J.*	Newton.
Godley, George McMurtrie	III.	*New York, N. Y.*	21 St. James Ave.
Goodrich, Arthur Lindsay	X.	*Stockbridge*	84 Appleton St.
Gray, Albert Webster	I.	*Dorchester*	38 Stanley St., D.
Grosvenor, Asa Waters	II.	*Amherst*	184 W. Canton St.
Hall, William Montague	XIII.	*Newton*	531 Mass. Ave.
Harris, Ralph	II.	*Leavenworth, Kans.*	369 Columbus Ave.
Hayden, Fred Lawrence	X.	*Fitchburg*	84 Appleton St.
Hazeltine, James Ezra	VI.	*Warren, Pa.*	22 Union Park.
Hewins, Lyman Foster	XIII.	*Dorchester*	353 Washington St., D.
High, Carl Stout	VI.	*Arlington, Kans.*	369 Columbus Ave.
Hiller, George Folsom	II.	*Hyde Park*	Hyde Park.
Hinckley, Benjamin Stearns	II.	*Woburn*	Woburn.
Hooker, Stanley Agar	II.	*Cincinnati, Ohio*	30 Holyoke St.
Hopkins, Heber Augustus	II.	*Cambridgeport*	Cambridgeport.
Horton, Ralph Tucker	I.	*Foxboro*	Foxboro.
Howard, Arthur Fiske, B.S.	VI.	*Portsmouth, N. H.*	215 W. Canton St.
Hubbard, Winfred Dean	XI.	*Concord*	Concord.
Hutchinson, George Anthony	II.	*Dorchester*	14 Wales St., D.
Ingalls, Harry Creighton	IV.	*Lynn*	Lynn.
Jacoby, Areli Hull	V.	*Wilkes Barre, Pa.*	23 Worcester Sq.
Johnson, Bertrand Haley	IV.	*Lynn*	Lynn.
Johnson, Edward, Jr.	I.	*Boston*	178 Marlborough St.
Jones, Frederic Alexander	I.	*Needham*	Needham.
Kaufman, Irvin Hayes	II.	*Brookline*	Brookline.
Keene, Arthur Samuel	IV.	*Brighton*	41 Murdock St., B.
Kellogg, Franklin Miner	VI.	*Elmwood, Conn.*	86 Myrtle St.
Kendall, Robert Everett	V.	*Hyde Park*	Hyde Park.
Kimball, Walter Everard	XIII.	*Dorchester*	1 Robin Hood St., D.
Koch, Carleton Spayth	V.	*Buffalo, N. Y.*	156 Huntington Ave.

SECOND YEAR (*continued*).

NAME.	COURSE.	HOME.	RESIDENCE.
Kuttroff, Edwin	X.	*New York, N. Y.*	106 Highland St., R.
Lane, Edward Percy	I.	*Manchester*	60½ W. Cedar St.
Larrabee, John Heber	I.	*Melrose*	Melrose.
Learned, Willis Lathrop	V.	*Watertown*	Watertown.
Lee, Walter Henry	IV.	*Home City, Ohio*	22 Yarmouth St.
Leiper, James Gerhard, Jr.	II.	*Philadelphia, Pa.*	168 W. Newton St.
Leonard, Owen Lewis	V.	*Newton Centre*	Newton Centre.
Lippincott, Jesse Treadwell	X.	*Cincinnati, Ohio*	28 St. James Ave.
Little, Edmund Cook	IV.	*Lowell*	215 W. Canton St.
Lord, Charles Edward	VI.	*Somerville*	Somerville.
Lord, Herbert Ivory	V.	*Roxbury*	75 Howard Ave., R.
Loring, Conrad	II.	*Yokohama, Japan*	8 Arlington St.
Lovejoy, Walter Livingston	III.	*Buffalo, N. Y.*	360 Columbus Ave.
Marshall, William Adamson	X.	*Brookline*	Brookline.
Mayer, Durand	VI.	*New York, N. Y.*	16 Rutland Sq.
McConnell, Walter Gardner	XIII.	*Roxbury*	516 Warren St., R.
McIntyre, James Sherwood	IV.	*New Bedford*	16 Rutland Sq.
McJunkin, Paul	VI.	*Somerville*	Somerville.
Milliken, Edward Norris	VIII.	*New Bedford*	122 Chandler St.
Milliken, Sumner Moulton	I.	*Saco, Me.*	57 Clarendon St.
Mills, Prescott Caldwell	II.	*Arlington*	Arlington.
Minnig, Frank Raymond	II.	*Reading, Pa.*	310 Columbus Ave.
Moebs, Joseph Julius	I.	*Boston*	239 Eustis St.
Morrill, Edward Francis	VI.	*Fitchburg*	106 Chandler St.
Muhlig, James Fred	II.	*Natick*	Natick.
Neidich, Samuel A., Ph.B.	X.	*Carlisle, Pa.*	91 St. Botolph St.
Nelson, Willard Bundy	VI.	*Jamaica Plain*	7 Boylston Ter., J. P.
Newhall, Henry Borden, Jr.	VI.	*Plainfield, N. J.*	18 St. James Ave.
Nolte, Julius	II.	*Jamaica Plain*	803 Centre St., J. P.
Packard, Leonard Warren	VI.	*Taunton*	Taunton.
Page, Walter	XIII.	*Boston*	253 Beacon St.
Paige, Ellwood Bryant	IV.	*Lynn*	Lynn.
Pease, Charles Henry	II.	*Marlboro, N. H.*	197 Warren Ave.
Peavey, Leroy Deering	I.	*Exeter, N. H.*	Malden.
Pendell, Charles William	VI.	*Cleburne, Tex.*	130 W. Brookline St.
Perry, Frank Bridgham	II.	*Norwich, Conn.*	136 Chandler St.
Philbrick, Shirley Seavey	II.	*Rye Beach, N. H.*	83 Dartmouth St.
Porter, Arthur Felix	V.	*Hyde Park*	Hyde Park.
Pratt, Robert Winthrop, Jr.	I.	*Jamaica Plain*	96 Rockview St, J.P.
Priest, Benson Bulkeley	I.	*Littleton*	Littleton.
Richardson, Edward Bridge	VI.	*Boston*	155 Beacon St.
Richmond, Henry Parsons	IV.	*E. Providence, R.I.*	28 E. Brookline St.
Riley, Joseph Cains, Jr.	II.	*Roslindale*	Allen St., Ros.
Robinson, John Tilden, Jr.	II.	*Hyde Park*	Hyde Park.
Robinson, Wm. Attmore, Jr.	II.	*New Bedford*	26 St. James Ave.

SECOND YEAR (*continued*).

NAME.	COURSE.	HOME.	RESIDENCE.
Russell, Benjamin F. W.	IV.	*Concord Junction*	Cambridge.
Scott, Henry Francis	II.	*Brockton*	Brockton.
Sears, Joseph Homer	V.	*E. Dennis*	22 Claremont Park.
Seidensticker, Lewis Jerome	V.	*Cambridge*	Cambridge.
Shedd, Albert Rix	II.	*Silver Creek, N. Y.*	23 Worcester Sq.
Sherman, Edward Clayton	I.	*Cambridge*	Cambridge.
Skinner, Charles Jernegan	I.	*Ottawa, Kans.*	432 Columbus Ave.
Smith, Charles Franklin	XI.	*Washington, D. C.*	25 Concord Sq.
Smith, Charles Henry	II.	*Charlestown*	107 Warren St., C.
Smith, Geo. Lawrence, A.B.	IV.	*Cambridge*	Cambridge.
Smith, Godfrey Lewis	XIII.	*Boston*	91 Mt. Vernon St.
Smith, Horace Tilden	V.	*E. Bridgewater*	E. Bridgewater.
Spaulding, Frank Alger	I.	*W. Stockbridge*	126 W. Newton St.
Staples, William Deering	VI.	*Portland, Me.*	12 Greenwich Park.
Steffens, William Frederick	I.	*Boston*	137 W. Concord St.
Stevens, Gorham Phillips	IV.	*Cambridge*	Cambridge.
Stevens, William Wentworth	IV.	*Lynn*	Lynn.
Streng, Lewis Starr	VI.	*Louisville, Ky.*	197 Warren Ave.
Strickland, William Randolph	I.	*Brookline*	Brookline.
Sullivan, Henry Howard	II.	*Brighton*	98 Foster St., B.
Swasey, Albert Loring	XIII.	*Taunton*	5 Walnut St.
Swift, Charles Williston	II.	*Provincetown*	68 Chandler St.
Tallmadge, Thomas Eddy	IV.	*Evanston, Ill.*	531 Mass. Ave.
Tappan, Frederic	VI.	*Boston*	171 Newbury St.
Taylor, Edward Molineux	II.	*Poughkeepsie, N. Y.*	125 W. Brookline St.
Taylor, Mark Elliott	XIII.	*Hyde Park*	Hyde Park.
Thayer, Horace Richmond	I.	*Blackstone*	132 Chandler St.
Thompson, Maurice de Kay	VIII.	*Covington, Ky.*	563 Mass. Ave.
Tietig, Rudolph	IV.	*Cincinnati, Ohio*	22 Yarmouth St.
Torrey, Charles Augustine, Jr.	V.	*Lynnfield*	Lynnfield.
Treat, George Winfield	I.	*Livermore Falls, Me.*	2 Columbus Sq.
Tucker, Albert William	III.	*Newburyport*	289 Columbus Ave.
Tucker, Atherton Howe	IV.	*Dorchester*	1079 Adams St., D.
Twombly, Fred Henry	IX.	*Newton Centre*	Newton Centre.
Ulmer, George Frederick	V.	*Norwich, Conn.*	543 Mass. Ave.
Underwood, Howard Coggin	II.	*Natick*	Natick.
Vining, Robert McAllaster	II.	*So. Weymouth*	So. Weymouth.
Wadsworth, George Reed	I.	*Keene, N. H.*	549 Mass. Ave.
Ward, Ward Wellington	IV.	*Wyandotte, Mich.*	549 Mass. Ave.
Warren, John Edward	II.	*Foxvale*	Foxvale.
Waterson, Karl William	VI.	*Lowell*	Lowell.
Wesson, Paul Bancroft	II.	*Tyngsboro*	78 Zeigler St., R.
White, William	V.	*Taunton*	26 Hancock St.
Whitten, Roscoe Benjamin	IV.	*E. Boston*	129 Brooks St., E.B.
Wightman, Edwin Evans	I.	*Pawtucket, R. I.*	19 Dwight St.

SECOND YEAR (*continued*).

NAME.	COURSE.	HOME.	RESIDENCE.
Wilder, Clifton White	II.	*Leominster*	289 Columbus Ave.
Wilder, Ralph Edward	I.	*Jamaica Plain*	3 Sunset Ave., J. P.
Wilder, William Alfonso	VI.	*Washington, D. C.*	15 Cortes St.
Wing, Charles Frederic, Jr.	VI.	*New Bedford*	298 Columbus Ave.
Wing, David Laforest	IX.	*Bangor, Me.*	38 St. Botolph St.
Winslow, Charles-Edward A.	VII.	*Boston*	Hotel Oxford.
Wood, Winthrop Barrett	I.	*Concord*	Concord.
Zimmermann, Walter Gustave	II.	*Chicago, Ill.*	46 St. Stephen St.

First Year.

Abbott, Lewis Benjamin		*Danvers*	Danvers.
Abeel, David Gustavus		*Catskill, N. Y.*	32 Yarmouth St.
Adams, John Howard		*Pawtucket, R. I.*	97 Appleton St.
Adams, Walter Owen		*Annisquam*	Cambridge.
Addicks, Lawrence		*Philadelphia, Pa.*	18 St. James Ave.
Albee, Edward Everett		*Melrose*	Melrose.
Allen, James Walter		*Newtonville*	Newtonville.
Anderson, Robert Peter		*Danbury, Conn.*	25 Mt. Pleasant Ave., R.
Archibald, Warren Martin		*Medford*	Medford.
Ashley, Harrison Everett		*New Bedford*	13 Concord Sq.
Atkins, George Franklin		*Indianapolis, Ind.*	19 Follen St.
Ayer, Harold Osgood		*Danville, Vt.*	Hyde Park.
Babbitt, Albert Lyman		*Somerville*	Somerville.
Babcock, Henry Kimberly		*Neenah, Wis.*	204 Dartmouth St.
Bailey, Eric Waldorf		*Cambridgeport*	Cambridgeport.
Bailey, Robert William		*New York, N. Y.*	413 Mass. Ave.
Bailey, Thomas Wendell		*Allston*	7 Ashford St., A.
Balkam, Clifford Mann		*Randolph*	9 Concord Sq.
Barron, Carlyle Norris		*Tarrytown, N. Y.*	31 E. Newton St.
Barry, Charles Gardner		*Melrose*	Melrose.
Bean, Walter Raymond		*Roxbury*	44 Woodbine St., R.
Belcher, Walter Cushing		*Holbrook*	Holbrook.
Bender, Lowry Dravo Wilkinson		*Pittsburgh, Pa.*	197 Warren Ave.
Benedict, Jules Bernard		*Chicago, Ill.*	312 Columbus Ave.
Bingham, Francis Monroe		*Newburyport*	Newburyport.
Blake, Kenneth Mallou		*Newton*	Newton.
Bonns, Walter Weidenfeld		*Milwaukee, Wis.*	127 Pembroke St.
Brown, Arthur Harrison		*Reading*	Reading.
Brown, Carroll Wilder		*Rye Beach, N. H.*	79 St. Botolph St.
Brown, Charles Hoyt		*Wellsville, N. Y.*	19 Concord Sq.
Brown, George Winslow		*Boston*	839 Boylston St.
Burch, Guy Prentiss		*Dubuque, Iowa*	Cambridge.
Burdick, Edwin Park		*Hartford, Conn.*	49 Warren Ave.

FIRST YEAR (*continued*).

NAME.	HOME.	RESIDENCE.
Burgess, Philip	*Newtonville*	Newtonville.
Burns, James Dennis, Jr.	*Salem*	Salem.
Butler, Ferdinand Almon	*Salem*	Salem.
Butler, Walter Harold	*Akron, Ohio*	10 Batavia St.
Caldwell, Frederick William	*Lawrence*	9 Joy St.
Campbell, Charles Francis Faulkner	*London, Eng.*	W. Newton.
Campbell, Harry Andrew Bach	*London, Eng.*	46 Rutland Sq.
Cannon, Sylvester Quayle	*Salt Lake City, Utah*	193 W. Canton St.
*Carleton, Max Stevens	*Wakefield*	Wakefield.
Case, Herbert Monroe	*Hartford, Conn.*	53 Warren Ave.
Chandler, Edna Matilda	*Roxbury*	59 Beach Glen St., R.
Childs, James Ernest	*Cotuit*	564 Columbus Ave.
Clausen, Rudolph Julius	*Davenport, Iowa*	350 Columbus Ave.
Cluff, Clarence Brooks	*Haverhill*	Haverhill.
Congdon, John Elliott	*Fall River*	1070 Boylston St.
Copp, George Irving	*E. Boston*	429 Chelsea St., E.B.
Corbett, Charles Walter, Jr.	*Boston*	6 Rutland Sq.
Corse, William Malcolm	*Medford*	Medford.
Crane, Charles Francis	*Taunton*	Taunton.
Cushing, Harvey Morse	*Ottumwa, Iowa*	11 Egleston St., J. P.
Damon, Harry Sumner	*Bryantville*	So. Hanson.
Davis, Melville Robert	*Portland, Me.*	3 Oxford Terrace.
Deering, Charles Harmon	*Saco, Me.*	405 Columbus Ave.
Downes, John Edward	*Peterborough, N. H.*	564 Columbus Ave.
Dozier, Henrietta Cuttins	*Boston*	834 Huntington Ave.
Dryer, James Cyrus	*Rochester, N. Y.*	128 Huntington Ave.
Dwyer, Herbert Francis	*Somerville*	Somerville.
Eaton, Henry Charles	*Waltham*	Waltham.
Ellery, James Benjamin	*Annisquam*	184 W. Canton St.
Emerson, Frank	*Lowell*	Lowell.
Emery, Lewis, 3d	*Bradford, Pa.*	30 Holyoke St.
Farnham, Horace Porter	*Peabody*	Peabody.
Farnum, Dwight	*Brookline*	Brookline.
Fay, Winthrop Lincoln	*Dexter, Me.*	Cambridgeport.
Ferguson, John Berton	*Woburn*	Woburn.
Ferguson Robert Arthur	*So. Boston*	489 Broadway, S. B.
Fifield, Frederic Alonzo	*Methuen*	111 Pembroke St.
Flemings, John Albert	*Lowell*	Lowell.
Foote, Arthur Burling	*Grass Valley, Cal.*	31 E. Newton St.
Fowle, Frank Fuller	*Boston*	557 Columbus Ave.
Frame, James Thomas	*Hyde Park*	Hyde Park.
Fraser, Matilda Alexandra	*Cleveland, Ohio*	253 Commonwealth Ave.
Frazer, Robert, Jr.	*Philadelphia, Pa.*	7 W. Cedar St.
French, Philip Roland	*Roxbury*	36 Magnolia St., R.
Gale, Gardner Manning	*Olean, N. Y.*	Newtonville.

* Died Dec. 12, 1895.

FIRST YEAR (*continued*).

NAME.	HOME.	RESIDENCE.
Gifford, Richard Tracy	*Fitchburg*	106 Chandler St.
Gill, James Seel	*Ludlow, Vt.*	Cambridge.
Gillson, Charles Burton	*Evanston, Ill.*	40 Rutland Sq.
Gilman, Walter Eastman	*Marshalltown, Iowa*	Chelsea.
Gilpin, Russell	*Wilmington, Del.*	146 Marlborough St.
Gleason, George Hathaway	*Dorchester*	54 Bowdoin St., D.
Goldthwaite, Harry Wales	*Brighton*	19 Bigelow St., B.
Graham, Henry Brown, Jr.	*Cleveland, Ohio*	46 St. Stephen St.
Gray, David Edgerton	*Highland Park, Ill.*	535 Mass. Ave.
Greenlaw, Charles Rutherford	*Roxbury*	19 Atherton St., R.
Greer, Herbert Chester	*New Castle, Pa.*	30 St. James Ave.
Grover, Frederick Warren	*Lynn*	Lynn.
Gurney, Ewing Rudolph	*Cambridge*	Cambridge.
Hall, Russell	*Bradford*	204 Dartmouth St.
Ham, Clara Eleanor	*No. Middleboro*	315 Columbus Ave.
Hamburger, Charles Meier	*Dorchester*	22 Dracut St., D.
Hamilton, Arthur Little	*Fond du Lac, Wis.*	204 Dartmouth St.
Hammond, Edward Hosmer	*Newton Centre*	Newton Centre.
Hammond, Edwin Walden	*Mount Vernon, N. Y.*	16 Ashburton Pl.
Hanna, Benjamin Sargent	*Baltimore, Md.*	114 Pembroke St.
Hapgood, Lyman Proctor	*Athol Centre*	557 Columbus Ave.
Harahan, James Thomas, Jr.	*Chicago, Ill.*	46 St. Stephen St.
Harwood, Charles Frank	*Warren*	Swampscott.
Hasbrouck, Ross	*Poughkeepsie, N. Y.*	13 Concord Sq.
Hazeltine, Benjamin Prescott, Jr.	*Belfast, Me.*	18 St. James Ave.
Hearne, William Lowder	*Wheeling, W. Va.*	198 Beacon St.
Heckle, George Rogers	*Roxbury*	97 Moreland St., R.
Heghinian, Garabed George, A.B.	*Marash, Turkey*	Auburndale.
Herbert, Edward	*Broad Run, Va.*	29 Claremont Park.
Herman, Bernard	*Washington, D. C.*	17 Berwick Park.
Hermanns, Frank Edward	*Denver, Colo.*	70 Revere St.
Hern, Joseph Louis	*Dorchester*	34 Sydney St., D.
Hinckley, Everett Hale	*Hyannis*	41 Sterling St.
Hinman, Dean	*Taunton*	Taunton.
Hinman, Walter Hibbard	*Roslindale*	29 Albano St., Ros.
Holabird, Robert Grant	*Evanston, Ill.*	46 St. Stephen St.
Holliday, Alexander Rieman	*Indianapolis, Ind.*	543 Mass. Ave.
Holmes, George Ennis	*Bradford*	221 W. Canton St.
Holmes, Merton Austin	*Newton Highlands*	Newton Highlands.
Horton, Frank Nelson	*Globe Village*	17 Bodwell St., D.
Howard, Harold Emmons	*Westfield*	102 Appleton St.
Hoxie, Arthur Edmund	*Everett*	Everett.
Hoxie, Timothy Wright	*Roxbury*	75 Moreland St., R.
Hume, George Seward	*Eastport, Me.*	128 Huntington Ave.
Johnson, Harry George	*Auburndale*	Auburndale.

FIRST YEAR (*continued*).

NAME.	HOME.	RESIDENCE.
Johnson, Lane	*Kansas City, Mo.*	85 Pinckney St.
Jones, Elijah Richardson	*Pelham, N. H.*	Pelham, N. H.
Kendall, Arthur Isaac	*Somerville*	Somerville.
Keys, Edward Allan	*Linden, Md.*	12 Coolidge Ave., D.
Keys, Harry Montifix	*Linden, Md.*	12 Coolidge Ave., D.
Kimball, Fred Lewis Holt	*Newton Lower Falls*	Newton Lower Falls.
Kingman, William Alden	*So. Framingham*	So. Framingham.
Kinney, Charles Lewis, Jr.	*Wareham*	Cambridge.
Kinsman, William Abbot	*Salem*	Salem.
Kruse, Conrad Frederick	*Davenport, Iowa*	350 Columbus Ave.
Lathrop, Fred Haskins	*Charlestown*	10 Summer St., C.
Lawrence, Herbert Everett	*Ayer*	Ayer.
Layne, Charles Howard	*Lexington*	14 Cambria St.
Leavitt, Henry Foss	*Saco, Me.*	Somerville.
Lennan, Thomas Frank	*Belmont*	Belmont.
Lewis, Clancey Montana	*Ketchum, Idaho*	1070 Boylston St.
Lewis, Joseph Elliot	*Centreville*	47 St. Stephen St.
Lincoln, Francis Church	*Boston*	226 Newbury St.
Loomis, Allen	*Jackson, Mich.*	214 Columbus Ave.
Lynch, George Edward	*Hyde Park*	Hyde Park.
MacBride, Jamie Douglass	*Arlington Heights*	Arlington Heights.
Macintire, Benjamin Gould	*Boston*	80 Worcester St.
Magee, Guy, Jr.	*Chicago, Ill.*	46 St. Stephen St.
Magee, John, 2d	*Wenham Depot*	Wenham Depot.
Mandeville, William Harry	*Olean, N. Y.*	543 Mass. Ave.
McDonald, Charles Snead	*Louisville, Ky.*	Newton.
McDonald, William Thomas	*No. Abington*	No. Abington.
McLauthlin, Parker Reed	*Malden*	Malden.
McLean, Duncan Crawford	*Newport, R. I.*	98 Dartmouth St.
Mead, Edwin Bradley	*Erie, Pa.*	39 Newbury St.
Merrill, Leslie Eaton	*Haverhill*	Haverhill.
Milliken, Carl Spencer	*Malden*	Malden.
Mills, David Collier	*Quincy, Cal.*	24 Dartmouth St.
Mitkiewicz, Eugene de, Jr.	*Washington, D. C.*	213 Huntington Ave.
Moody, Arthur Richmond	*Chelsea*	Chelsea.
Moore, Clarence Alfred	*Arlington*	Arlington.
Mork, Harry Solomon	*Roxbury*	19 Waumbeck St., R.
Morris, William Longfellow	*Washington, D. C.*	29 Claremont Park.
Morse, Benjamin Eames	*Canton*	Canton.
Morse, Harry Leonard	*Allston*	8 Ashford St., A.
Morse, Henry Grant, Jr.	*Wilmington, Del.*	146 Marlborough St.
Morton, Harry Holbrook	*Plymouth*	19 Claremont Park.
Motch, Stanley	*Covington, Ky.*	198 W. Springfield St.
Mott-Smith, Morton Churchill	*Boston*	101 Newbury St.
Mühlhäuser, Ernest	*Alexandria, Va.*	220 W. Springfield St.

FIRST YEAR (*continued*).

NAME.	HOME.	RESIDENCE.
Nathan, Albert Franklin, Jr.	*Kansas City, Mo.*	233 W. Canton St.
Newell, Lester Allan	*Globe Village*	17 Bodwell St., D.
Newell, William Stark	*Winchester*	Winchester.
Newkirk, Edward Thompson	*Jackson, Mich.*	308 Columbus Ave.
Nowell, Walter Gates	*Reading*	Reading.
Noyes, Leonard Hazen	*Haverhill*	Haverhill.
Oelrich, Edward	*Buffalo, N. Y.*	100 Charles St.
O'Hearn, Timothy Cyril	*No. Cambridge*	No. Cambridge.
Packard, Edwin Augustus	*Mansfield*	Mansfield.
Page, Charles Barnard	*Concord, N. H.*	259 Washington St., D.
Palmer, Worthington	*Albany, N. Y.*	Brookline.
Parker, William Edward	*Newtonville*	Newtonville.
Patch, James Alfred	*Stoneham*	Stoneham.
Pennock, George Alger	*Weston*	Weston.
Perkins, George Hawthorne	*Salem*	Salem.
Pettengill, Edward Dexter	*Portland, Me.*	12 Greenwich Park.
Phalen, William Clifton	*Gloucester*	3 Morley St., R.
Phelps, Earle Bernard	*Belmont*	Belmont.
Pierce, Edward Everett	*Malden*	Malden.
Pierce, Reginald Kingsbury	*Milton*	Milton.
Pinkham, Ralph Howard	*Mount Vernon, N. H.*	Newton Centre.
Pray, Dudley Malcolm	*So. Boston*	508 Broadway, S. B.
Price, Willard Atherton	*Denver, Colo.*	88 Morton St., M.
Priest, George Heywood	*Waltham*	Waltham.
Priest, Warren Albert	*Roxbury*	100 Homestead St., R.
Proctor, Alfred Waters	*Boston*	219 W. Springfield St.
Rathbun, Frank De Graff	*Southampton*	572 Mass. Ave.
Real y Gaillard, Juan, A.B.	*Santiago de Cuba*	Webster Terrace, A.
Regestein, Ernest Albrecht	*Jamaica Plain*	92 Wyman St., J. P.
Renshaw, Clarence	*Baltimore, Md.*	82 Chandler St.
Richardson, James Herbert	*Newtonville*	Newtonville.
Richardson, Maurice Frederic	*E. Providence, R. I.*	40 Rutland Sq.
Richmond, Miles Standish	*Brookline*	Brookline.
Rickards, Burt Ransom	*Melrose*	Melrose.
Riddle, Herbert Hugh	*Chicago, Ill.*	140 Huntington Ave.
Riddle, Lewis Wetmore	*Chicago, Ill.*	140 Huntington Ave.
Riker, George Hayes	*Somerville*	Somerville.
Riotte, Gerard	*San Jose, Costa Rica*	529 Mass. Ave.
Robertson, Samuel Brown	*E. Milton*	E. Milton.
Robinson, George Avery	*Louisville, Ky.*	221 N. Canton St.
Robinson, Thomas Pendleton	*Philadelphia, Pa.*	Chestnut Hill.
Robson, Edward Riggs	*Wellesley Hills*	222 Huntington Ave.
Ruppert, George	*New York, N. Y.*	19 St. James Ave.
Russell, Edward Francis	*Lowell*	Lowell.
Samuels, Edwin Francis	*Hyde Park*	Hyde Park.

FIRST YEAR (*continued*).

NAME.	HOME.	RESIDENCE.
Sanchez Batista, Pedro	*Nuevitas, Cuba*	31 E. Newton St.
Sawyer, Haven	*Bangor, Me.*	38 St. Botolph St.
Sawyer, Horace Russell	*Rye Beach, N. H.*	79 St. Botolph St.
Seavey, Norman Emery	*Dover, N. H.*	Park St., R.
Sheak, Edwin Ruthven	*Reading*	Reading.
Sherrill, Miles Standish	*Louisville, Ky.*	1521 Washington St.
Sibley, Edward Warren	*Weston*	Weston.
Sites, Frederick Robert	*Washington, D. C.*	Newton.
Skinner, Hervey Judson	*Wakefield*	Wakefield.
Slocum, William Whitaker	*Providence, R. I.*	28 W. Brookline St.
Smith, Charles Alfred	*No. Reading*	44 E. Canton St.
Smith, Charles Edward	*Somerville*	Somerville.
Smith, Herbert Lincoln	*Everett*	Everett.
Smith, Montfort Hill	*Falmouth*	Glen Road, J. P.
Smithwick, Harold	*Newcastle, Me.*	217 W. Canton St.
Snelling, Howard	*So. Lincoln*	174 Beacon St.
Snow, Frederick Willis	*Lynn*	Lynn.
Sohier, Louis Amory	*Concord*	Concord.
Soule, Horace Webster	*Somerville*	Somerville.
Soule, Lawrence Clement	*Newtonville*	Newtonville.
Starr, Herbert Harris	*New London, Conn.*	22 Dartmouth St.
Stearns, Frederic Baldwin	*Brookline*	Brookline.
Stebbins, Roland Williams	*Springfield*	21 W. Cedar St.
Stetson, James Alexander	*New Bedford*	13 Concord Sq.
Stone, Jacob, Jr.	*Newburyport*	12 St. James Ave.
Street, Gerald Basil	*Highland Park, Ill.*	535 Mass. Ave.
Stutchkoff, Samuel	*Philadelphia, Pa.*	1073 Washington St.
Sullivan, Thomas James	*Newton Upper Falls*	Newton Upper Falls.
Sutermeister, Edwin	*Readville*	Milton.
Swift, Frank Robinson	*Buffalo, N. Y.*	87 W. Rutland Sq.
Tandy, Wilbert Clifton	*Athol*	212 W. Canton St.
Taylor, Brainerd	*Newtonville*	Newtonville.
Taylor, Denzil Hollis	*Peterboro, N. H.*	Cambridge.
Terry, Henry Kingsbury, Jr.	*Richmond, Va.*	Quincy.
Todd, Thomas, Jr.	*Concord*	Concord.
Townsend, George Richards	*New York, N. Y.*	19 St. James Ave.
Trask, Edgar Pierce	*Peabody*	Peabody.
Tufts, John Lawrence	*Roxbury*	50 Woodbine St., R.
Turner, Lawrie Humphrey	*Medford*	Medford.
Ulke, Darwin	*Washington, D. C.*	529 Mass. Ave.
Vogt, Oscar George	*Washington, D. C.*	220 W. Springfield St.
Waddell, Fred Creelman	*Rockport*	14 Hamlet St., D.
Walker, Clarence Howard	*Rumford, R. I.*	Hyde Park.
Walters, Edward Philip	*Providence, R. I.*	28 Leyland St., D.
Walton, James Henry, Jr.	*Newburyport*	Newburyport.

FIRST YEAR (*continued*).

NAME.	HOME.	RESIDENCE.
Watkins, Frederick Arthur	*Chicago, Ill.*	86 Huntington Ave.
Watrous, Charles Albert	*Des Moines, Iowa*	628 Mass. Ave.
Watrous, Walter Chauncey	*Duluth, Minn*	543 Mass. Ave.
Wedlock, William Henry	*Roxbury*	4 Weldon St., R.
Wells, Walter Wiley	*Sackville, N. B.*	Waltham.
Werner, Frank Albert	*Akron, Ohio*	172 Commonwealth Ave.
West, William Eaton	*Cambridgeport*	Cambridgeport.
Whitaker, Lewis Rose	*Brighton*	Parsons St., B.
White, Harry Keith	*Brattleboro, Vt.*	Arlington.
Whitney, Walter Cummings	*Newton*	Newton.
Wightman, Fred	*Oskaloosa, Iowa*	32 St. James Ave.
Winslow, George Carlos, Jr.	*Boston*	12 Yarmouth St.
Witherell, Percy Warren	*Roxbury*	5 Devon St., R.
Wood, Willard Lyman, Jr.	*Upton*	107 Mt. Vernon St.

SPECIAL STUDENTS.

The abbreviations used in this list, which includes all students who are not in the full regular courses, are: —

App. Mech	Applied Mechanics.	Hist.	History.
Arch.	Architecture.	Lang.	Modern Languages.
Biol.	Biology.	Math.	Mathematics.
Chem.	Chemistry.	Mech. Eng.	Mechanical Engineering.
Civ. Eng.	Civil Engineering.	Min. Eng.	Mining Engineering.
Draw.	Drawing and Descriptive Geometry.	Nav. Arch.	Naval Architecture.
Elect. Eng.	Electrical Engineering.	Phys.	Physics.
Eng.	English.	Pol. Sci.	Political Science.
Geol.	Geology.	San. Eng.	Sanitary Engineering.
		Shop.	Shopwork.

NAME.	HOME.	RESIDENCE.
Abbot, Bessie Owen Biol., Chem., Draw., Lang.	*Roxbury*	56 Quincy St., R.
Adams, George Wendell Chem., Eng., Hist., Lang., Pol. Sci.	*Kingston*	141 Warren Ave.
Allen, Leslie Chapman Civ. Eng., Draw., Hist., Math., Phys.	*Acushnet*	315 Columbus Ave.
Allen, Mark Webb Civ. Eng., Geol., Lang., Math., Phys., Pol. Sci.	*Detroit, Mich.*	246 Newbury St.
Allyne, Samuel Hinckley Civ. Eng., Draw., Eng., Hist., Lang., Math., Phys.	*So. Framingham*	So. Framingham.
Andrew, William McCorkle App. Mech., Elect. Eng., Lang., Math., Mech. Eng., Phys.	*Linwood, Ohio*	37 Holyoke St.
Atkins, Ernest Carlton App. Mech., Mech. Eng., Shop.	*Providence, R. I.*	129 W. Newton St.
Bachelder, Grace Darling Biol.	*New Hampton, N.H.*	19 Pinckney St.
Baker, Philip Stone Chem., Draw., Eng., Hist., Lang., Math., Shop.	*San Francisco, Cal.*	8 Arlington St.
Bancroft, Joseph Chem., Eng., Hist., Lang., Math.	*Wilmington, Del.*	4 Oxford Terrace.
Barber, James Saxton Civ. Eng., Eng., Lang., Math.	*Canton, Ohio*	543 Mass. Ave.
Barker, Edgar Harrison App. Mech., Draw., Math., Mech. Eng., Phys.	*Lawrence*	181 Warren Ave.
Baumann, Edgar Butler Arch., Draw., Math.	*Chicago, Ill.*	34 Berwick Park.
Benson, Howard Jonathan, Ph.B. Chem., Draw., Lang., Math., Min. Eng.	*Akron, Ohio*	13 St. Charles St.

NAME.	HOME.	RESIDENCE.
Benson, Newton Davis	*Providence, R. I.* . .	129 W. Newton St.
Chem., Draw., Eng., Hist., Lang., Math., Phys.		
Bishop, Frederic Lendall . . .	*Malden*	Malden.
Chem., Draw., Eng., Hist., Math., Phys., Shop.		
Blackmer, Arthur Eliot	*Plymouth*	Beverly.
Draw., Geol., Math., Phys., Pol. Sci.		
Blake, Francis Minot	*Boston*	426 Marlborough St.
Chem., Draw., Eng., Lang., Math.		
Bliss, Edwin Packard	*Newburyport* . . .	27 Telegraph St., S.B.
App. Mech., Civ. Eng., Geol., Math., Phys., Pol. Sci.		
Bliss, George Henry	*Newburyport* . . .	8 Rutland Sq.
App. Mech., Civ. Eng., Geol., Math., Phys.		
Blood, Percy Erford	*Graniteville* . . .	120 Pembroke St.
App. Mech., Civ. Eng., Geol., Math., Phys., Pol. Sci.		
Boardman, Fred Cleveland . . .	*Natick*	Natick.
App. Mech., Lang., Math., Phys., Pol. Sci.		
Boardman, Harold S., B. C. E. .	*Bangor, Me.* . . .	57 Chandler St.
Civ. Eng., San. Eng.		
Boeck, George Henry . .	*St. Louis, Mo.* . . .	Cambridge.
Arch., Draw., Hist., Lang., Math.		
Boland, Mary A.	*Boston*	117 W. Newton St.
Biol.		
Bonnycastle, William Robinson .	*Louisville, Ky.* . .	221 W. Canton St.
App. Mech., Draw., Elect. Eng., Math., Mech. Eng., Phys.		
Booth, George Henry	*Poughkeepsie, N. Y.* .	195 W. Brookline St.
Lang., Math., Mech. Eng., Phys., Shop.		
Bradley, Francis Edwin	*So. Boston*	499 Broadway, S. B.
Chem.		
Bradley, William Dewey . . .	*Tacoma, Wash.* . .	12 St. James Ave.
Arch., Draw.		
Bragg, Ernest Atherton	*Braggville*	Braggville.
Draw., Eng., Hist., Math., Phys.		
Breed, George Horace	*Louisville, Ky.* . . .	Lynn.
Arch., Chem., Draw., Eng., Hist., Lang., Math.		
Brenneman, Jonathan Bartley . .	*Bethany, W. Va.* . .	212 W. Canton St.
Chem., Phys.		
Brickley, William Joseph . . .	*Charlestown* . . .	68 Tremont St., C.
Draw.		
Brown, Harry Elma	*Haverhill*	Haverhill.
Draw., Shop.		
Bryan, Richard Rush	*Titusville, Pa.* . .	16 Berwick Park.
Elect. Eng., Lang., Math., Mech. Eng., Phys.		
Buck, Hattie Josephine	*Woburn*	Woburn.
Biol., Chem., Draw., Hist., Lang., Phys.		
Burrill, Nathan Carter	*Newburyport* . . .	8 Rutland Sq.
App. Mech., Civ. Eng., Geol., Lang., Math., Pol. Sci.		
Butterworth, Elwell Robert . .	*Somerville*	Somerville.
App. Mech., Math., Mech. Eng., Phys., Shop.		
Camp, Walter Trumbull . . .	*Norwich, Conn.* . .	Hotel Huntington
Biol., Hist., Pol. Sci.		

NAME.	HOME.	RESIDENCE.
Campbell, Percy Alfonso . . .	*Derry, N. H.* . . .	106 Appleton St.
Civ. Eng., Draw., Eng., Hist., Math., Phys.		
Cannon, Lewis Telle	*Salt Lake City, Utah*	193 W. Canton St.
App. Mech., Arch., Draw., Lang., Hist.		
Cannon, Willard Telle	*Salt Lake City, Utah*	193 W. Canton St.
Chem., Draw., Eng., Lang., Math.		
Capen, Carroll Adams	*Randolph*	Randolph.
Chem., Eng., Lang., Math., Mech. Eng., Phys.		
Carr, Joseph Lewis	*Chelsea*	Chelsea.
Chem., Civ. Eng., Draw., Lang., Phys.		
Cary, Louis Alexander	*Medway*	Brookline.
Math., Phys.		
Cassidy, David Demorest, Jr. .	*Amsterdam, N. Y.* .	90 St. Botolph St.
Arch., Draw.		
Cheever, Marion	*Boston*	557 Boylston St.
Biol., Chem.		
Chittenden, Albert	*Boston*	38 St. Botolph St.
Arch., Chem., Draw., Eng., Lang., Math., Pol. Sci.		
Clapp, Mabel Delano	*Boston*	Hotel Vendome.
Geol.		
Clare, Elenora Rose	*Boston*	609 Mass. Ave.
Biol.		
Clark, Gertrude Rosalin . . .	*Boston*	40 Union Park.
Biol.		
Cleaves, Ezra Eames	*Rockport*	8 St. Germain St.
Biol., Eng., Geol., Lang., Pol. Sci.		
Clement, Hope	*Boston*	9 Mass. Ave.
Eng.		
Clifford, William Henry, Jr. . .	*Portland, Me.* . .	1 Willow St.
Biol., Eng., Geol., Hist., Lang., Phys., Pol. Sci.		
Cobb, Herbert Franklin	*Newton Centre* . . .	Newton Centre.
Chem., Draw., Eng., Lang., Math., Mech. Eng., Phys.		
Cobb, Herbert Luther	*Mansfield*	Mansfield.
App. Mech., Elect. Eng., Lang., Mech. Eng., Phys.		
Collins, Howard Browning . .	*Denver, Colo.* . . .	226 Huntington Ave.
Chem., Civ. Eng., Eng., Lang., Math., Min. Eng., Phys.		
Cook, Frank Remick	*Detroit, Mich.* . .	549 Mass. Ave.
App. Mech., Civ. Eng., San. Eng.		
Cotter, William Edward . . .	*Somerville*	Somerville.
Arch., Draw., Geol., Lang., Math., Phys.		
Cunningham, Margaret	*Brookline*	Brookline.
Biol.		
Curtis, Ida Maynard, B. S . . .	*Boston*	18 St. Stephen St.
Chem.		
Cushing, Adelaide Olga . . .	*Boston*	168 Newbury St.
Biol., Chem., Math.		
Cushing, Joseph	*Fitchburg*	5 Rollins St.
Biol., Eng., Hist., Pol. Sci.		
Cutler, Jane Ruth, A. B. . . .	*Somerville*	Somerville.
Biol., Chem.		

NAME.	HOME.	RESIDENCE.
Davis, Huntly Ward	*Montreal, Que.* . .	549 Mass. Ave.
Arch., Chem., Draw., Eng., Math., Phys.		
Dawes, Fred Bradley	*Hudson*	34 Yarmouth St.
Chem., Draw., Eng., Hist., Lang , Math., Phys., Shop.		
de Azevedo, Luiz Marinho . . .	*São Paulo, Brazil* .	468 Boylston St.
Eng., Hist., Lang , Math., Phys.		
Denison, Edward Elias, S. B. .	*Portland, Me.* . . .	531 Mass. Ave.
Chem., Math , Mech. Eng., Phys.		
Denison, Robert Lincoln . . .	*Portland, Me.* . . .	531 Mass. Ave.
Biol., Eng., Hist., Lang., Phys.		
De Wolf, Arthur Simon . . .	*Melrose Highlands* .	Melrose Highlands.
App. Mech., Math., Mech. Eng , Phys., Shop.		
Diaz, José Ygnacio, B. S. . . .	*Caracas, Venezuela* .	36 River St.
App. Mech., Elect. Eng., Mech. Eng., Phys., Pol. Sci., Shop.		
Dixon, Charles Sumner	*Washington, D. C.* .	25 Buckingham St.
Draw., Eng., Hist., Lang., Math., Phys., Shop.		
Dodge, Winthrop Rufus . . .	*Boston*	70 Revere St.
Chem., Eng., Hist., Lang., Math., Phys., Shop.		
Doliber, Franklin Whitney . .	*Brookline*	246 Newbury St.
Biol., Eng., Phys., Pol. Sci.		
Donovan, John Augustus . . .	*Lowell*	16 St. James Ave.
Biol., Geol., Hist., Lang., Phys.		
Dowd, Elizabeth Gertrude . . .	*Roxbury*	12 Madison St., R.
Biol., Chem., Geol., Phys.		
Downes, Alfred Kimball . . .	*Gloucester*	17 Marlborough St.
App. Mech., Civ. Eng., Phys., San. Eng.		
Drake, Charles Sumner . . .	*Chicago, Ill.* . . .	312 Columbus Ave.
Chem., Draw , Eng., Lang., Math.		
Drake, Chester Francis	*W. Medford* . . .	W. Medford.
App. Mech., Chem., Civ. Eng., Lang., Math., Phys.		
Drew, Albert Thompson . . .	*Newburyport* . . .	8 Rutland Sq.
Chem., Eng., Hist., Math., Phys.		
Dunn, Washington Charles . .	*Lock Haven, Pa.* . .	549 Mass. Ave.
App. Mech., Lang., Math., Mech. Eng., Phys., Shop.		
Dyer, Harry Wing	*Portland, Me.* . . .	471 Mass. Ave.
App. Mech., Arch , Draw., Geol., Lang., Math., Phys., Pol. Sci.		
* Elder, Edwin Avery	*W. Newton*	W. Newton.
App. Mech., Elect. Eng , Mech. Eng., Phys., Pol. Sci , Shop.		
Elliot, Richard Oliver	*Thomaston, Me.* . .	12 Wellington St.
Biol., Eng., Pol. Sci.		
Elliott, Sophronia Maria . . .	*Somerville*	Somerville.
Biol., Chem.		
Ellsworth, Julia	*Braintree*	Braintree.
Biol., Chem.		
Emery, Earle Caldwell	*Bradford, Pa.* . .	30 Holyoke St.
Chem., Eng., Hist., Lang., Math., Phys.		
Everett, Margaret Maria . . .	*Potsdam, N. Y.* . .	Brookline.
Biol.		
Ewing, Charles	*Washington, D. C.* .	89 Charles St.
Arch., Draw., Geol., Lang., Pol. Sci.		

* Died December 5.

NAME.	HOME.	RESIDENCE.
Ewing, Mary Steele, A.M., Ph. G. Biol.	*Boston*	City Hospital.
Faught, Ray Clinton Draw., Eng., Hist., Math., Mech. Eng , Phys., Shop.	*Centre Sidney, Me.*	11 Mansfield St., A.
Fessenden, Alfred Newton Chem., Draw., Eng., Math.	*Townsend*	118 Dartmouth St.
Field, Frederick Cromwell App. Mech., Elect. Eng., Lang., Math., Mech. Eng., Phys.	*Brooklyn, N. Y.*	531 Mass. Ave.
Fitts, Ada Mary Biol.	*Boston*	691 Shawmut Ave.
Fogerty, Emory Hartwell Draw., Eng., Hist., Math., Mech. Eng., Phys., Shop.	*Worcester*	57 Clarendon St.
Foster, Mary Louise, A. B. Biol.	*W. Roxbury*	63 Maple St., W. R.
Fox, William Henry App. Mech., Arch., Draw., Geol., Lang., Math., Phys., Pol. Sci.	*Lowell*	46 St. Stephen St.
French, Abram Civ. Eng., Draw., Eng., Hist, Lang., Math., Phys.	*Dedham*	Dedham.
Furbish, Frederic, B. S. App. Mech., Arch., Draw., Geol., Hist., Phys.	*Iowa City, Iowa*	362 Columbus Ave.
Fyfe, James L. App. Mech., Arch., Chem., Draw., Math.	*Oak Park, Ill.*	670 Mass. Ave.
Gage, Du Relle Chem., Draw., Eng., Lang., Math.	*New York, N. Y.*	13 St. James Ave.
Gardiner, William Howard, Jr. Chem., Phys.	*Boston*	12 Otis Pl.
Gardner, Lester Durand Chem., Eng., Hist., Lang., Math., Phys., Shop.	*Detroit, Mich.*	247 W. Newton St.
Gates, Hattie Lawrence Biol.	*Boston*	136 W. Concord St.
Gay, Harold Willis Chem., Draw., Lang.	*Norwood*	Norwood.
Gerber, Elmer Louis Arch., Draw , Eng., Lang., Math.	*Dayton, Ohio*	658 Tremont St.
Gillespie, Amos Ewing Chem.	*Colora, Md.*	86 Appleton St.
Gladding, John Thomas Fiske Chem., Draw., Eng., Hist., Lang., Math.	*Providence, R. I.*	19 Claremont Park.
Glover, George Curtis Chem., Draw., Eng., Lang., Math.	*Melrose Highlands*	Melrose Highlands.
Gonzalez, Alberto Primitivo Chem., Draw., Math.	*Monterey, Mex.*	136 Chandler St.
Gonzalez, Rafael Secundino, B.A. Chem., Draw., Eng., Math.	*Cienfuegos, Cuba*	636 Tremont St.
Goodell, Everett Edwin Draw., Shop.	*Westboro*	18 Greenwich Park.
Goodnow, Wallace Field Chem., Draw., Lang , Math.	*Cambridgeport*	Cambridgeport.
Goodspeed, George Marston Chem., Phys.	*Hyde Park*	Hyde Park.

NAME.	HOME.	RESIDENCE.
Gray, Alice Maude . . . . . Chem.	*Dorchester*	39 Barrington St., D.
Greenleaf, John Cameron . . . Math.	*Lenox*	Hotel Ludlow.
Grover, Nathan Clifford, B.C.E. . App. Mech., Civ. Eng., San. Eng.	*Orono, Me.*	57 Chandler St.
Hale, Benjamin, Jr. . . . . Elect. Eng., Math., Phys.	*Newburyport* . . .	Newburyport.
Hall, Charles Henry, B.A. . . App. Mech., Lang., Mech. Eng., Nav. Arch., Phys., Shop.	*Brooklyn, N. Y.* . .	24 Park St., D.
Hamilton, Alfred Starr . . . . Biol., Hist., Lang., Phys.	*Albany, N. Y.* . . .	175 Mass. Ave.
Hammond, Charles Lincoln . . App. Mech., Civ. Eng., Geol., Lang., Math., Phys., Pol. Sci.	*Atlantic*	Atlantic.
Harlowe, Frank Lorin . . . . App. Mech., Arch., Draw., Eng., Lang., Phys.	*Washington C.H., Ohio*	20 St. James Ave.
Haskell, George Owens . . . . Chem., Draw., Math., Phys.	*Savannah, Ga.* . . .	85 Pinckney St.
Hathaway, Harold Winthrop . . Arch., Draw., Math.	*Arlington*	Arlington.
Hawes, Alexander Gilchrist, Jr. . Eng., Hist., Lang., Phys., Shop.	*San Francisco, Cal.* .	19 Concord Sq.
Hayden, Joseph Alonzo . . . . Draw., Lang., Math., Shop.	*E. Hartford, Conn.* .	67 Mt. Vernon St.
Hayden, Lewis Andrews . . . Shop.	*Denver, Colo.* . . .	46 St. Stephen St.
Hayward, Harrison Washburn . App. Mech., Lang.	*Hyde Park*	Hyde Park.
Hazelton, Isaac Brewster . . . App. Mech., Arch., Draw., Hist., Lang.	*Wellesley Hills* . .	Wellesley Hills.
Heathman, Frank Boltin . . . Arch., Draw., Geol., Lang., Math., Phys., Pol. Sci.	*Dayton, Ohio* . . .	Seaver St., R.
Heissler, Edward Rudolph . . . Chem., Lang., Phys., Pol. Sci.	*Chicago, Ill.* . . .	46 St. Stephen St.
Higbee, Florence Johnson, Ph. B. Chem.	*Wooster, Ohio* . . .	Tufts College.
Hill, Henry Arthur . . . . . Draw., Eng., Hist., Lang., Math., Mech. Eng., Phys.	*Southbridge*	No. Cambridge.
Hill, William Gilbert, Jr. . . . Chem., Lang., Phys., Pol. Sci.	*Malden*	Malden.
Hitchcock, Albert White . . . Chem., Eng., Hist., Lang., Math., Shop.	*Amherst*	13 St. Charles St.
Hoit, Henry Ford . . . . . Arch., Draw., Lang.	*Chicago, Ill.* . . .	11 Rutland Sq.
Holmes, Edward Lowther . . . Arch., Draw., Math.	*Alameda, Cal.* . . .	557 Columbus Ave.
Horgan, John Dennis . . . . Chem., Draw., Eng., Hist., Lang., Math., Shop.	*Dorchester*	1 Leeds St., D.
Hough, Elizabeth Eleanor . . . Biol.	*Brighton*	Chestnut Hill Ave., B.

NAME.	HOME.	RESIDENCE.
House, John Henry . . . . . Arch., Chem., Draw., Hist., Lang., Math.	*Salonica, Turkey* . .	129 W. Newton St.
Howard, Sheldon Leavitt . . . Biol., Eng., Hist., Lang., Phys., Pol. Sci.	*Taunton*	Taunton.
Howell, Helen Phillips . . . . Biol.	*Southold, N. Y.* . .	Brookline.
Howland, John Hastings . . . App. Mech., Civ. Eng., Geol., Lang., Math., Phys., Pol. Sci.	*Boston*	2 Wellington St.
Howland, Richard Stanley . . . Biol., Eng., Hist., Lang., Phys., Pol. Sci.	*Providence, R. I.* . .	246 Newbury St.
Hubbard, Gardiner Greene, 2d . Draw., Lang., Math., Shop.	*Cambridge*	Cambridge.
Hubbard, Jesse Branch . . . . Arch., Draw., Geol., Lang., Math., Phys., Pol. Sci.	*Pittsfield*	18 Berwick Park.
Humphrey, Seth King . . . . Chem., Math., Phys.	*Northampton* . . .	212 W. Canton St.
Hunt, Samuel Parker, A.B., S.B. Biol., Chem., Geol., Lang., Math., Mech. Eng.	*Manchester, N. H.* .	414 Newbury St.
Huse, Arthur Wood . . . . . Civ. Eng., Draw., Eng., Hist., Lang., Math., Phys.	*Newburyport* . . .	Newburyport.
Ide, Alice Bullard . . . . . Biol.	*Roxbury*	77 Mt. Pleasant Ave., R.
Ingell, Homer Preston . . . . Elect. Eng., Eng., Mech. Eng., Phys.	*Taunton*	Taunton.
Jackson, Allen Winchester . . . Arch., Draw., Geol., Hist., Lang., Math., Phys., Pol. Sci.	*Brookline*	Brookline.
Jackson, George Otis . . . . . Chem., Draw., Eng., Lang.	*Lexington*	Lexington.
Jackson, Henry Docker . . . . Elect. Eng., Math., Mech. Eng., Shop.	*Boston*	Hotel Oxford.
Jacobs, Elbridge Churchill . . . App. Mech., Chem., Geol., Math., Min. Eng., Phys., Pol. Sci.	*Malden*	Malden.
James, Henry Philip . . . . . Chem., Draw., Eng., Lang., Math.	*Syracuse, N. Y.* . .	Kendal Green.
Johnson, Paul Franklin . . . . Eng., Hist., Lang., Math., Mech. Eng., Pol. Sci.	*Milwaukee, Wis.* . .	193 W. Newton St.
Jones, Bassett, Jr. . . . . Chem., Draw., Eng., Lang., Math.	*New York, N. Y.* .	75 Yarmouth St.
Jones, Frederick Hooper . . . Chem., Hist., Lang., Math., Phys.	*So. Lincoln*	So. Lincoln.
Jones, Harold Wellington . . . Biol., Chem., Eng., Lang.	*So. Lincoln*	So. Lincoln.
Kelley, Horace Alcinous . . . Draw., Eng., Hist., Lang., Math., Phys., Shop.	*Burlington, Iowa* .	7 Berwick Park.
Kelley, William . . . . . Chem., Eng., Hist., Lang., Phys.	*Lowell*	16 St. James Ave.
Kendall, Frederic Morris . . . Civ. Eng., Draw., Eng., Hist., Lang., Math., Phys.	*Framingham* . . .	Framingham.
Keniston, James Augustus . . . Eng., Lang., Math., Mech. Eng., Phys., Pol. Sci.	*Middletown, Conn.* .	Everett.

NAME.	HOME.	RESIDENCE.
Kimball, Elwell Fairfield . . .	*Newburyport* . . .	7 Burlington Ave.
App. Mech., Civ. Eng., Geol., Math., Phys.		
Kirk, Robert Homer, S. B. . .	*St. Paul, Minn.* . .	86 Huntington Ave.
Elect. Eng., Math., Phys.		
Kite, Rebecca	*Philadelphia, Pa.* . .	34 Falmouth St.
Biol.		
Knights, Arthur Alphronus . .	*Melrose*	Melrose.
App. Mech., Civ. Eng., Geol., Phys., Pol. Sci.		
Laighton, Paul De Blois . . .	*Portsmouth, N. H.* .	Pond St., J. P.
Lang., Math.		
Lambert, Fred De Forest . . .	*Lowell*	56 Clarendon St.
Biol., Chem., Draw., Lang., Math.		
Lambert, John Henry	*Lowell*	56 Clarendon St.
Biol., Chem., Lang.		
Langford, Grace	*Plymouth*	10 Concord Sq.
Chem., Eng., Math., Phys.		
Lawley, Arthur Crosbie	*So. Boston*	60 N St., S. B.
Draw., Hist., Lang., Math., Mech. Eng., Phys.		
Lawrence, Ralph Restieaux, S. B.	*Dorchester*	34 Sumner St., D.
Math., Phys.		
Leach, Albert Ernest, S.B. . .	*Newtonville*	Newtonville.
Chem.		
Leach, William Henry, Jr. . .	*Brooklyn, N. Y.* . .	Cambridgeport.
App. Mech., Mech. Eng., Phys., Shop.		
Leadbetter, Florence Eugénie .	*Roslindale*	867 South St., Ros.
Chem.		
Leary, James Francis	*So. Boston* . . .	193 W. Eighth St., S. B.
Draw., Shop.		
Lewis, Richard Henry	*Roxbury*	16 Gay Head St., R.
Chem., Min. Eng., Pol. Sci.		
Lincoln, Alfred Varnum, Jr., S.B.	*Charlestown* . . .	32 Cordis St., C.
Civ. Eng., Elect. Eng., Phys.		
Lockwood, Rhodes Greene . .	*Boston*	32 W. Cedar St.
Chem., Draw., Lang., Mech. Eng., Phys.		
Lombard, Alfred Waldo . . .	*Wayland*	Wayland.
Chem., Draw., Eng., Lang., Math., Phys., Shop.		
Lombard, Percival Hall, A.B. .	*Boston*	130 Newbury St.
App. Mech., Draw., Elect. Eng., Math., Mech. Eng., Phys.		
Long, Zourie H.	*Wilkes Barre, Pa.* .	360 Columbus Ave.
Draw., Eng., Hist., Lang., Math., Phys., Shop.		
Lunt, Robert Somerby	*Newburyport* . .	729 E. Fourth St., S. B
Chem., Lang., Mech. Eng., Pol. Sci., Shop.		
Lyall, Amasa James, B.A. . .	*New York, N. Y.* .	215 W. Canton St.
Arch., Draw.		
Mahoney, Joseph Michael . . .	*Dorchester*	21 Bailey St., D.
App. Mech., Elect. Eng., Math., Mech. Eng., Phys		
Manning, Alice Lee	*Milton*	Milton.
Chem.		
Mansfield, Edward Stacey . . .	*Wakefield* . . .	129 W. Newton St.
App. Mech., Elect. Eng, Math, Mech. Eng.		

NAME.	HOME.	RESIDENCE.
Mansfield, Frank Erastus . . .	*Boston*	26 Cumberland St.
Draw., Geol., Lang., Math., Phys., Pol. Sci.		
Marshall, Herman Weston . .	*Brockton*	Brockton.
Biol., Chem., Geol., Lang., Phys., Pol. Sci.		
Matheson, William Scott . . .	*Tatamagouche, N. S.*	2 Brook St., D.
Draw., Eng., Hist., Lang., Math., Mech. Eng., Phys., Shop.		
Mathews, George Eugene . . .	*Dayton, Ohio* . . .	103 Appleton St.
Arch., Draw., Eng., Geol., Lang., Math., Phys.		
McCarthy, Francis Vincent . .	*Peabody*	233 W. Canton St.
Lang., Math., Mech. Eng., Phys., Shop.		
McGann, Malcolm Hobart . . .	*Philadelphia, Pa.* .	Newton.
App. Mech., Lang., Math., Mech. Eng., Nav. Arch., Phys.		
McKay, James Albert	*Boston*	1100 Boylston St.
Chem., Min. Eng.		
McKell, William, Ph. B. . . .	*Chillicothe, Ohio* . .	32 W. Cedar St.
Chem., Civ. Eng., Min. Eng.		
Meader, Effie Marozia	*Nashua, N. H.* . .	Lynn.
Biol.		
Merrick, Charles Irving, A.B. .	*Holyoke*	91 Newbury St.
Chem., Draw., Math., Phys.		
Metcalf, Bryce	*New York, N. Y.* . .	6 Louisburg Sq.
Arch., Chem., Draw., Eng., Hist., Lang.		
Miller, Sarah Elizabeth	*Boston*	127 Pembroke St.
Biol.		
Mink, Edward	*Somerville*	Somerville.
Elect. Eng., Phys.		
Mommers, Richard	*So. Manchester, Conn.*	21 St. James Ave.
Chem., Eng., Hist., Lang., Math., Phys.		
Monteith, Arthur David . . .	*Dedham*	Dedham.
Civ. Eng., Draw., Math.		
Moore, Hugh Kelsea	*Lynn*	Lynn.
Chem., Lang., Pol. Sci.		
Morrill, Jedediah Albert. . . .	*Rochester, N. H.* . .	12 Somerset St.
Draw.		
Morse, Geneva Lillian	*Montague*	68 Warrenton St.
Chem., Geol., Phys.		
Murlless, Charles Souls	*Holyoke*	187 W. Canton St.
Civ. Eng., Draw., Math., Phys.		
Murphy, Charles Augustus . .	*Roxbury*	149 Howard Ave., R.
Chem., Draw., Eng., Hist., Lang.		
Murray, Parnell Sidway	*Roxbury*	2 Akron Pl., R.
Biol.		
Narey, Hope Wentworth . . .	*Boston*	61 W. Newton St.
Chem.		
Nebel Herreros, Alejandro, B.S.	*Santiago, Chile* . .	22 Appleton St.
Elect. Eng., Math., Mech. Eng., Phys.		
Needham, Sarah Jane Clarkson .	*Roxbury*	Hotel Eliot, R.
Biol.		
Nelson, Alexander Howard, A.B.	*Chambersburgh, Pa.* .	122 Huntington Ave.
App. Mech., Civ. Eng., Draw.		

NAME.	HOME.	RESIDENCE.
Noble, Raymond	*Granville*	60 Berkeley St.
Arch., Draw., Lang., Math.		
Norman, Lionel	*Brookline*	Brookline.
App. Mech., Elect. Eng., Lang., Math., Mech. Eng., Phys., Pol. Sci., Shop.		
Norris, Grace Adelaide	*Chelsea*	Chelsea.
Biol., Hist.		
Norton, Alice Peloubet, A.B. . .	*Auburndale* . . .	Auburndale.
Biol., Chem.		
Noyes, Joseph Cobham	*Portland, Me.* . . .	28 St. James Ave.
Chem., Draw., Eng., Hist., Lang., Math.		
O'Brien, Timothy Leo	*Cambridgeport* . . .	Cambridgeport.
Draw., Eng., Lang., Math.		
O'Hara, Anna Fannie	*Dorchester*	Norwood.
Biol.		
Owens, Joseph Edward	*Brookline*	Brookline.
Shop.		
Parker, William Thornton, Jr. .	*Springfield*	6 Louisburg Sq.
Biol., Geol., Hist., Phys., Pol. Sci.		
Parkhurst, Edith Adelaide . . .	*Somerville*	Somerville.
Biol.		
Parsons, Willis Everett	*Gloucester*	188 W. Brookline St.
App. Mech., Chem., Eng., Hist., Lang., Math., Mech. Eng., Phys.		
Pechin, John Shelley	*Cleveland, Ohio* . .	32 W. Cedar St.
Elect. Eng., Mech. Eng., Phys., Pol. Sci., Shop.		
Perley, William Marshall . . .	*Medford*	Medford.
Chem., Eng., Hist., Lang., Phys.		
Phassoularides, Constantine D. .	*Nissyros, Turkey* . .	189 Harrison Ave.
Draw., Math.		
Phillips, Frank Nelson	*Providence, R. I.* . .	Providence, R. I.
Phys.		
Pillsbury, George Bigelow . . .	*Lowell*	175 Mass. Ave.
Civ. Eng., Draw., Eng., Hist., Lang., Math., Phys.		
Plimpton, Albert	*Dorchester*	Talbot Ave., D.
Draw., Shop.		
Plummer, Laura Susanna . . .	*E. Boston* . . .	120 Princeton St., E.B.
Biol.		
Poore, Volney Leroy	*Revere*	Revere.
Draw., Lang., Math., Mech. Eng., Phys.		
Porter, Georgia	*Winchester*	Winchester.
Chem.		
Porter, Russell Williams . . .	*Springfield, Vt.* . .	Watertown.
Arch., Draw., Hist.		
Portner, Alwin Otto	*Washington, D. C.* .	220 W. Springfield St.
Biol., Eng., Hist., Lang., Math., Pol. Sci.		
Portner, Robert Francis . . .	*Washington, D. C.* .	502 Columbus Ave.
App. Mech., Elect. Eng., Math., Mech. Eng., Phys., Pol. Sci.		
Prime, Harold Augustus . . .	*Brighton* . . .	434 Washington St., B.
Chem., Math., Mech. Eng., Phys., Pol. Sci.		
Proctor, Charles Frederic . . .	*Portland, Me.* . . .	247 W. Newton St.
Chem., Draw., Lang., Math.		

NAME.	HOME.	RESIDENCE.
Prosser, Reay Cooper	*St. Louis, Mo.*	476 Columbus Ave.
Arch., Chem., Draw., Eng., Hist., Lang., Math., Phys.		
Purdon, James, A.B.	*Boston*	356 Marlborough St.
Arch., Draw., Math.		
Purinton, Charles Fessenden	*So. Easton*	So. Easton.
Draw., Math., Mech. Eng., Phys., Shop.		
Putnam, Salmon Wilder, 3d	*Fitchburg*	19 Concord Sq.
App. Mech., Lang., Math., Mech. Eng., Phys.		
Rand, Nathaniel Dwight	*Watertown*	Watertown.
Lang., Shop.		
Records, Francis Barry, Jr.	*Arlington*	Arlington.
Civ. Eng., Draw., Geol., Lang., Math., Pol. Sci.		
Reed, Dorothy M., B.L.	*Leyden, N. Y.*	30 St. James Ave.
Biol., Chem., Phys.		
Reed, Guy Carleton	*Pittsburgh, Pa.*	193 W. Canton St.
Chem., Draw., Eng., Math.		
Rhodes, William Stevens	*Jamaica Plain*	2 Knight's Court, J.P.
Geol., Min. Eng.		
Richards, Pierre Evertson	*New York, N. Y.*	Somerville.
Chem., Lang.		
Ritchie, Edward Warren	*Newton Highlands*	Newton Highlands.
App. Mech., Arch., Draw., Geol., Lang., Math., Phys., Pol. Sci.		
Roaf, Edward Walter	*Newburyport*	218 W. Springfield St.
App. Mech., Civ. Eng., Draw., Geol., Math., Phys., Pol. Sci.		
Roberts, Thomas Mayo, A.B.	*The Dalles, Oreg.*	755 Tremont St.
App. Mech., Elect. Eng., Lang., Math., Mech. Eng., Phys., Pol. Sci.		
Roberts, Walter H.	*Jamaica Plain*	38 Oakdale St., J.P.
Draw.		
Robinson, Amos George	*Vienna, Va.*	12 Truro St.
Draw., Lang., Mech. Eng., Phys., Shop.		
Robinson, Argyle Eggleston	*Chicago, Ill.*	134 St. Botolph St.
Arch., Draw., Lang.		
Robinson, Elmer Holbrook	*Reading*	Reading.
App. Mech., Elect. Eng., Math., Mech. Eng., Phys.		
Rogers, Anne Fuller	*Boston*	126 Newbury St.
Eng.		
Rolfe, Henry Pettingell	*Newburyport*	Somerville.
App. Mech., Civ. Eng., Geol., Lang., Math., Phys., Pol. Sci.		
Rolfe, Mabel Parker	*Cambridge*	Cambridge.
Chem.		
Rood, Norman Paul	*Madisonville, Ohio*	387 Boylston St.
Chem., Draw., Eng., Lang., Math.		
Rumery, Ralph Rollins	*Portland, Me.*	28 St. James Ave.
Chem., Draw., Eng., Hist., Math.		
Russ, Ernest Frank	*Boston*	193 W. Brookline St.
Biol., Chem., Eng., Hist., Lang., Phys.		
Rutherford, Eugene White	*Brooklyn, N. Y.*	88 Pembroke St.
App. Mech., Math., Mech. Eng., Phys., Shop.		
Sargent, Albert Ellwood	*Belmont*	Belmont.
Chem., Draw., Eng., Hist., Lang., Math., Mech. Eng., Phys., Shop.		

NAME.	HOME.	RESIDENCE.
Sargent, Ezekiel Colby	*Quincy*	Quincy.
App. Mech., Civ. Eng., Geol., Lang., Math., Phys., Pol. Sci.		
Savage, Ariel Dean	*Chelsea*	Chelsea.
Geol.		
Sawin, Luther Robinson	*Waltham*	Waltham.
Biol., Chem., Phys.		
Sawyer, Ralph Edmund	*Roxbury*	196 Walnut Ave., R.
Arch., Draw., Math.		
Schroeder, Ernest Herman	*Omaha, Neb.*	405 Columbus Ave.
Arch., Chem., Draw., Eng., Hist., Lang., Math., Phys.		
Scudder, Heyward, B.A.	*New York, N. Y.*	391 Boylston St.
Chem., Draw.		
Sears, Henry Kent	*Danvers*	Danvers.
Biol., Eng., Phys., Pol. Sci.		
Seaver, Henry Morse	*W. Roxbury*	Bellevue St., W. R.
Arch., Draw., Math.		
Shaw, Albion Walker	*Melrose*	Melrose.
App. Mech., Draw., Lang., Math., Mech. Eng., Phys., Pol. Sci.		
Shaw, Alfred Victor	*Newton Highlands*	Newton Highlands.
Arch., Draw., Geol., Hist., Lang., Math., Pol. Sci.		
Shepard, Benjamin Halsted	*E. Orange, N. J.*	543 Mass. Ave.
App. Mech., Arch., Draw., Geol., Lang., Math., Phys., Pol. Sci.		
Shook, James Warner	*Nashville, Tenn.*	246 Newbury St.
Chem., Eng., Lang., Math.		
Shumaker, Louis William	*Ortonville, Minn.*	110 Huntington Ave.
Chem., Draw., Math.		
Sickman, James Francis	*Holyoke*	434 Mass. Ave.
Civ. Eng., Eng., Hist., Lang., Math., Phys.		
Slavens, John Heber	*Kansas City, Mo.*	21 Yarmouth St.
Chem., Civ. Eng., Draw., Eng., Hist., Lang., Min. Eng., Phys.		
Smith, Granville	*Washington, D.C.*	549 Mass. Ave.
Chem., Draw., Eng., Hist., Lang., Mech. Eng., Shop.		
Smith, Theodore Brooks	*Cleveland, Ohio*	197 Warren Ave.
Chem., Eng., Lang., Phys., Pol. Sci., Shop.		
Southworth, George Blair	*No. Brookfield*	1 Victoria St., D.
Chem., Lang., Phys.		
Spahr, Albert Hubbard	*Harrisburg, Pa.*	527 Columbus Ave.
Arch., Draw.		
Sperry, Bertram Clarence	*Ansonia, Conn.*	18 Hancock Ave.
Draw., Shop.		
Springer, Ernest Roger	*Newton*	Newton.
Chem., Eng., Hist., Lang., Math., Shop.		
Stillings, Samuel Warren	*Boston*	205 St. Botolph St.
Chem., Draw., Eng., Hist., Lang., Math.		
Stratton, George Eber	*Shelburne Falls*	95 Appleton St.
App. Mech., Civ. Eng., San. Eng.		
Strong, Mary Baker	*Boston*	258 Beacon St.
Geol.		
Sturtevant, Edward	*Brookline*	Brookline.
Biol., Chem., Geol., Lang., Shop.		

NAME.	HOME.	RESIDENCE.
Sturtevant, Joseph Lewis . . .	*Quincy*	Quincy.
App. Mech.		
Sumner, Edward Alleyne, Jr. . .	*Detroit, Mich.* . . .	549 Mass. Ave.
App. Mech., Chem., Draw., Eng., Hist., Math., Mech. Eng., Phys.		
Sutliff, Walter Hannen	*Albany, N. Y.* . . .	502 Columbus Ave.
Chem., Draw., Eng., Lang., Math.		
Swan, Almira French	*Dorchester*	1058 Adams St., D.
Biol.		
Swan, Clifford Melville	*Brookline*	Brookline.
Hist., Pol. Sci.		
Swan, Rodolphus Ashley . . .	*New Bedford* . . .	315 Columbus Ave.
Biol., Chem., Lang., Pol. Sci.		
Sweetser, Charles Herbert . .	*Wakefield*	25 Concord Sq.
App. Mech., Civ. Eng., Geol., Lang., Math., Pol. Sci.		
Tew, William Henry	*Jamestown, N. Y.* .	563 Mass. Ave.
Eng., Hist., Lang., Math., Phys., Shop.		
Thomas, Henry Evan, B.S. . .	*Philadelphia, Pa.* .	21 St. James Ave.
Chem.		
Thompson, Abby May, Ph.B. .	*Boston*	78 Rutland St.
Chem.		
Thomson, Mary Jane	*Elizabeth, N. J.* . .	41 Union Park.
Chem., Geol., Phys., Pol. Sci.		
Tone, Jay Erwin	*Des Moines, Iowa* .	37 St. Botolph St.
App. Mech., Chem., Eng., Hist., Lang., Math., Mech. Eng., Phys.		
Torrey, Emeline Eliza	*Roxbury*	23 Winthrop St., R.
Biol.		
Tower, Clement Bates, Jr. . . .	*Hyde Park*	Hyde Park.
Chem., Phys., Pol. Sci.		
Tower, Samuel Francis, A.B. . .	*Boston*	63 St. Botolph St.
Biol.		
Towne, Lillian May	*Boston*	34 Falmouth St.
Biol.		
Trumbull, Morris Kinnard . . .	*Chicago, Ill.* . . .	660 Fifth St., S.B.
App. Mech., Civ. Eng., Geol., Math., Phys., Pol. Sci.		
Tucker, Frank Stevenson . . .	*Marblehead*	Marblehead.
App. Mech., Math., Mech. Eng., Phys., Shop.		
Tucker, William Alfred, S.B. .	*Roxbury*	312 Warren St., R.
Civ. Eng.		
Underwood, Frank Edward . .	*Auburndale*	Auburndale.
Draw.		
Underwood, John De Loss . . .	*Malden*	Malden.
Chem., Civ. Eng., Eng., Hist., Lang., Math., Shop.		
Urquiza y Bea, Pedro	*Bilbao, Spain* . . .	W. Newton.
Draw., Lang., Math., Mech. Eng., Phys.		
Usher, Susannah	*Cambridge*	Cambridge.
Biol., Chem., Phys.		
Vahlkamp, Henry Rudolph . .	*St. Louis, Mo.* . . .	98 Pembroke St.
Arch., Draw., Geol., Math., Phys., Pol. Sci.		
Vallecillo Mandry, Rafael . . .	*Yabucoa, Porto Rico* .	36 River St.
Draw., Math., Phys.		

NAME.	HOME.	RESIDENCE.
Van Horne, Richard Benedict Chem., Eng., Hist., Lang., Math.	*Montreal, Que.*	198 Beacon St.
Vose, Willard Badger Chem., Math., Mech. Eng., Phys., Shop.	*Hyde Park*	Hyde Park.
Walker, James Canfield Draw., Eng., Phys., Shop.	*St. Albans, Vt.*	13 Appleton St.
Wallace, Robert Bruce Chem., Draw., Eng., Hist., Math., Mech. Eng., Phys.	*Cleveland, Ohio*	549 Mass. Ave.
Walpole, Nathaniel Chafee Eng., Math., Mech. Eng., Phys.	*Aiken, S. C.*	31 E. Newton St.
Warren, Alba Houghton, S.B. App. Mech., Mech. Eng.	*Worcester*	103 Appleton St.
Watkins, Norman Chem., Eng., Hist., Lang., Math., Phys.	*Roslindale*	87 Poplar St., Ros.
Weeks, Merle Chem., Draw., Eng., Lang., Math.	*Washington, D. C.*	11 Claremont Park.
Weimer, Edgar Arthur Draw., Eng., Hist., Lang., Math., Mech. Eng., Phys., Shop.	*Lebanon, Pa.*	314 Columbus Ave.
Whiting, Eleanor Felton Biol.	*Charlestown*	100 Main St., C.
Whiting, Ralph Spelman Arch., Draw., Geol., Lang., Pol. Sci.	*Pittsfield*	563 Mass. Ave.
Whitmore, John, Ph. D. Phys.	*Lynn*	Lynn.
Williams, Dora Biol.	*Brookline*	Brookline.
Williams, Winifred Biol.	*Jamaica Plain*	11 Warren Sq., J.P.
Willis, Raymond Smith Draw., Eng., Hist., Lang., Math., Mech. Eng., Phys., Shop.	*Evanston, Ill.*	533 Mass. Ave.
Wing, Ida Ceola Stratton Chem.	*Jamaica Plain*	Hotel Gordon, J. P.
Winn, Mary Eleanor Biol.	*Allston*	17 Mechanic St., A.
Woodyatt, Ernest App. Mech., Arch., Draw., Hist., Math.	*Evanston, Ill.*	32 W. Cedar St.
Worcester, Henry Elwynne Draw., Lang., Math., Mech. Eng., Shop.	*Dorchester*	9 Lombard St., D.
Wright, George Henry Eng., Hist., Lang.	*Boston*	104 Dartmouth St.
Wyard, Edward Saxon App. Mech., Chem., Geol., Lang., Math., Min. Eng., Phys.	*Boston*	70 Chandler St.
Young, Conrad Henry App. Mech., Mech. Eng.	*Canton, Ohio*	134 St. Botolph St.

SUMMARY.

Graduate Students	80	Regular Students, 2nd year	197
Regular Students, 4th year	189	" " 1st "	272
" " 3rd "	189	Special Students	336
Total			1,263
Deduct names counted twice			76
			1,187

Lowell Free Courses of Instruction.

THE Trustee of the Lowell Institute has established, under the supervision of the Institute of Technology, courses of instruction, generally given in the evening, and open to students of either sex, free of charge.

These courses are more or less varied from year to year by the omission or interchange of particular subjects, but include in their entire scope, instruction in Mathematics, Mechanics, Physics, Drawing, Chemistry, Geology, Natural History, Biology, English, French, German, History, Navigation and Nautical Astronomy, Architecture, and Engineering.

The subjects and the extent of the several courses will be made known by suitable advertisement in the public journals, in October of each year.

As it is the object of these courses to provide substantial teaching rather than merely popular illustration of the subjects treated, it is expected that all persons attending will come with a serious purpose of improvement, and that they will cheerfully comply with such rules as may be prescribed in regard to attendance and to order in the class or lecture-room.

The conditions of attendance on these gratuitous courses are as follows: —

1. Candidates must have attained the age of eighteen years.

2. Their applications must be made in writing, addressed to the Secretary of the Institute, specifying the course or courses they desire to attend, mentioning their present or

prospective occupations, and, when the course is of a nature demanding preparation, stating the extent of their preliminary training.

The number of students in each class is necessarily limited.

The subjects for the current year are as follows: —

I. Graphic Statics with Applications to Roof Trusses and Arches. Twelve lectures by Assistant Professor Jerome Sondericker.

II. Plane Analytic Geometry.* Twelve lectures by Assistant Professor D. P. Bartlett.

III. Descriptive Geometry. Twelve lectures by Assistant Professor Linus Faunce.

IV. General Chemistry of the Non-metallic Elements. Twelve lectures by Associate Professor T. E. Pope.

V. Steam Boilers: Steam-Engine Indicators and Cards; Valve-Gears and Valve Setting. (Course arranged especially for engineers.) Twelve lectures by Assistant Professor E. F. Miller.

VI. The Rise and Development of Prose Fiction in France, beginning with the Amadis Romances. Twelve lectures (in French) by Professor A. N. van Daell.

VII. Electric Light and Power Measurements. Twelve lectures by Assistant Professor William L. Puffer.

VIII. Modern Geometry. Twelve lectures by Assistant Professor F. S. Woods.

IX. Metallurgy of Copper. Twelve lectures by Associate Professor H. O. Hofman.

X. The Art and Science of War. Twelve lectures (with stereopticon) by Captain John Bigelow, Jr.

XI. Critique sur L'Architecture Contemporaine en France. Twelve lectures in French (with stereopticon) by Professor Desiré Despradelle.

XII. Contemporary European History and Politics. Twelve lectures by Assistant Professor C. F. A. Currier.

XIII. Romanesque Architecture. Twelve lectures (with stereopticon) by Associate Professor E. B. Homer.

XIV. Differential Calculus.* Twelve lectures by Assistant Professor F. H. Bailey.

XV. Navigation and Nautical Astronomy. Twelve lectures by Associate Professor A. E. Burton.

XVI. The General Chemistry of the Metallic Elements. Twelve lectures by Assistant Professor F. L. Bardwell.

*These two courses are designed to form the second part of a consecutive series, including for 1896–97 Integral Calculus and Differential Equations.

XVII. THE TECHNOLOGY AND ANALYSIS OF OILS. (Illustrated by experiments and with the lantern.) Twelve lectures by Assistant Professor A. H. Gill.

XVIII. IRREGULARITY OF EMPLOYMENT. CAUSES AND RELIEF. Twelve lectures by Professor D. R. Dewey.

XIX. ORGANIC CHEMISTRY. Twelve lectures (with experiments) by Assistant Professor A. A. Noyes.

XX. ANGLO-SAXON. Twelve lectures by Associate Professor G. T. Dippold.

Lowell School of Practical Design.

The Lowell School of Practical Design was established in 1872, by the Trustee of the Lowell Institute, for the purpose of promoting industrial art in the United States. The Corporation of the Massachusetts Institute of Technology, having approved the purpose and general plan of the school as proposed by the Trustee of the Lowell Institute, assumed the responsibility of conducting it; and in the same year the first pupils were admitted.

The expenses of this school are borne by the Lowell Institute, and tuition is free to all pupils.

The school occupies a drawing-room in the building of the Institute on Garrison Street. It is constantly provided with samples of all the novelties in textile fabrics from Paris, such as brocaded silks, ribbons, alpacas, armures, and fancy woollen goods.

Course of Study. — Students are taught the art of making patterns for prints, ginghams, delaines, silks, laces, paper-hangings, carpets, oil-cloths, etc. The course is of three years' duration, and embraces: —

1. Technical manipulations; 2. Copying and variations of designs; 3. Original designs or composition of patterns; 4. The making of working drawings, and finishing of designs.

Instruction is given personally to each student over his work. Students supply their own instruments and materials, the cost of which is about $5 per year.

The class is under the personal direction of MR. CHARLES KASTNER, assisted by Miss Mabel Stevens.

Requirements for Admission. — To teach drawing is not among the objects of this school. Applicants must therefore possess a knowledge of drawing adequate to enable them advantageously to begin the work of composition and design. A considerable degree of skill in freehand drawing from nature, and in the use of the brush, will be positively required for entrance to the school.

Applicants for admission, or persons desiring further information regarding this school, may apply by letter to the Secretary of the Institute.

Regulations of the School. — The next school-year will begin on the last Monday of September. The number of students in the school, including those to be admitted, will be limited to fifty-three. Examinations for applicants for admission will be held at 9 A. M. on Tuesday, Wednesday, and Thursday of the third week in September. Students are required to be regular in their attendance, the hours being from 9.30 A. M. to 12 M., and from 1 P. M. to 3.30 P. M. Only those students can be retained in the school who, after a fair and patient trial, are found to have some aptitude for the work. At the close of each half-year, the Director will, with the approval of the President of the Institute, convey the needed information to such students as shall be found gravely deficient in qualifications for an advantageous pursuit of their studies. No publication will be made of the fact, and such students will be left to withdraw as of their own motion.

Register of Students.

LOWELL SCHOOL OF DESIGN.

NAME.	HOME.	RESIDENCE.
Adams, Lucy Mary	*Hyde Park*	Hyde Park.
Allen, Mary Edna	*Spencer*	80 Rutland Sq.
Allen, Winthrop Blakesley	*Newton*	Newton.
Barrett, Jessie Gertrude	*Malden*	Malden.
Beebe, Adelaide Sophia	*Hampden*	135 W. Concord St.
Bliss, Nellie May	*Quincy*	Quincy.
Braley, William Ernest	*Fall River*	564 Columbus Ave.
Brayton, Herbert Elmer Ellsworth	*Fall River*	94 W. Newton St.
Bucknam, Grace Winslow	*Mechanic Falls, Me.*	5 Akron St.
Carr, Eva Louise	*Dorchester*	79 Kenwood St., D.
Chamberlain, Harriette Louise	*Boston*	33 Wellington St.
Damon, Edward Lester	*Reading*	Reading.
Danforth, Homer Wallace	*No. Woburn*	No. Woburn.
Daniels, Emma Louise	*Roxbury*	Lambert St., R.
Dow, Minnie Ella	*Franklin*	Franklin.
Dwyer, Elizabeth Loretta	*Cambridgeport*	Cambridgeport.
Fischer, Eugene Nicholas	*Jamaica Plain*	Franklin Park, J.P.
Flint, Addison	*Danvers*	Reading.
Goodrich, Grace Rosetta	*Dorchester*	109 Westville St., D.
Graham, Ethel Emerson	*Roxbury*	20 Akron St., R.
Gray, Reuben Forrest	*So. Manchester, Conn.*	So. Manchester, Conn.
Guell, Alice Frances	*Boston*	22 Buckingham St.
Hagerty, Elizabeth Monica	*Boston*	39 E. Brookline St.
Haynes, Mary Emmeline	*Dorchester*	418 Seaver St., D.
Heath, Marianna Primrose	*Somerville*	Somerville.
Hill, Henry Brooks Stephen	*Roxbury*	48 Centre St., R.
Hilton, Rena Evelyn	*Hyde Park*	Hyde Park.
Hines, Edward Waldron	*Danversport*	Danversport.
Humphrey, Jennie Marion Kaulbach	*Boston*	31 E. Concord St.
Johnson, Royal Kenerson	*Melrose Highlands*	Melrose Highlands.
Klous, Rose	*Roxbury*	24 Perrin St., R.
Levy, Sara	*Boston*	[illegible] Greenwich Park.
Libby, Horatio Ayers	*Melrose*	Melrose.
Linscott, Grace Isabel	*Gloucester*	Gloucester.

NAME.	HOME.	RESIDENCE.
Miller, Annie Robertson	*St. John, N. B.*	1 Hanson St.
Mosman, Austin Reynolds	*Jamaica Plain*	5 Lamartine St., J.P.
Norris, Katherine Love	*Sauk Centre, Minn.*	40 Berkeley St.
Olive, Mabel Carrollton	*Roxbury*	23 Crawford St., R.
Orcutt, Leon Forest	*Hyde Park*	Hyde Park.
Palmer, Ernest Packard	*So. Boston*	660 E. Sixth St., S.B.
Parsons, Evelyn Mai	*Saugus Centre*	Saugus Centre.
Pease, Ernest Warren	*Worcester*	Worcester.
Pike, Helen Packard	*Worcester*	Worcester.
Poor, Frederick Walton	*Derry, N. H.*	23 St. Charles St.
Poore, Mabel	*Newburyport*	Newburyport.
Renaud, Marie Albertina	*Boston*	136 Chandler St.
Rijn, Charles Edward Warren	*Atlantic*	Atlantic.
Schloss Rosa	*Boston*	197 W. Newton St.
Shackford, Charles Lee	*E. Weymouth*	E. Weymouth.
Sherry, Agnes Gertrude	*So. Boston*	146 Dorchester St., S.B.
Southworth, Howard Dwight	*Deep River, Conn.*	22 Dartmouth St.
Spitz, Ernestine George	*Boston*	16 Claremont Park.
Spring, Amelia	*Boston*	21 Worcester Sq.
Taggard, Hattie Sophia	*Nashua, N. H.*	88 Chandler St.
Tobin, Louise Maria	*So. Boston*	53 M St., S.B.
Tuttle, Eliza Pinkham	*Hyde Park*	Hyde Park.
Vaughan, Clara Blanche	*Hyde Park*	Hyde Park.
Wetherbee, Mattie	*Manchester*	Manchester.
Wheeler, Bessie Baldwin	*Dorchester*	741 Dudley St., D.
Wilson, Florence Elmore	*Charlestown*	Navy Yard, C.
Wesselhoeft Ferdinanda Emilia	*Cambridge*	Cambridge.

Alumni Association.

THE Alumni Association of the Institute holds its annual meeting in Boston in December or January; and at the close of each year gives a reception to the graduating class, the Corporation, and the Faculty of the Institute. It includes in its membership all graduates of the Institute.

Its officers for the current year are: —

President: JAMES P. MUNROE, '82.

Vice-President: EDWIN C. MILLER, '79.

Secretary: H. W. TYLER, '84, Massachusetts Institute of Technology.

Executive Committee: THE PRESIDENT, VICE-PRESIDENT, AND SECRETARY, GEORGE J. FORAN, '83, FREDERICK C. BLANCHARD, '91.

THE NORTHWESTERN ASSOCIATION, MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

President: FRANK WELLS, '70.

Secretary and Treasurer: B. R. T. COLLINS, '88, Chicago Edison Co., Chicago, Ill.

Executive Committee: THE PRESIDENT, SECRETARY AND TREASURER, FRANCIS S. VIELE, '91, EDWARD M. HAGAR, '93.

Monthly dinners at "The Bismark," 180 Randolph St., on the sixteenth of each month, 6.30 P. M. All Institute men are invited.

Tenth Annual Banquet, January 18, 1896.

THE WESTERN ASSOCIATION, MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

President: EDWARD W. ROLLINS, '71.
Vice-President: BRADFORD H. LOCKE, '72.
Secretary and Treasurer: FRANK E. SHEPARD, '87, 1622 Arapahoe St., Denver, Colo.

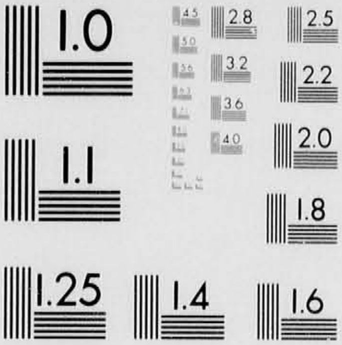
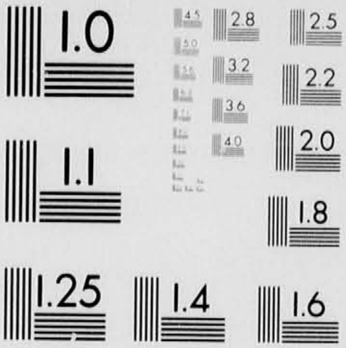
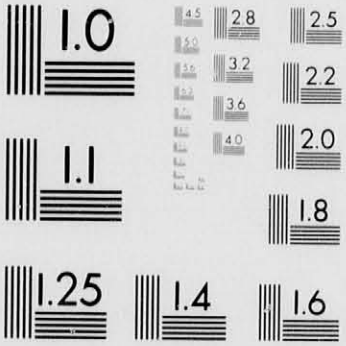
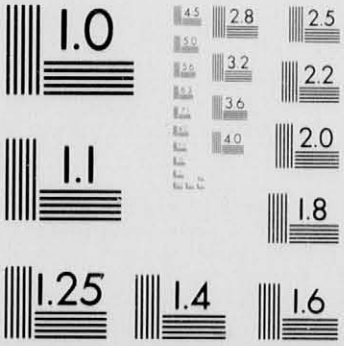
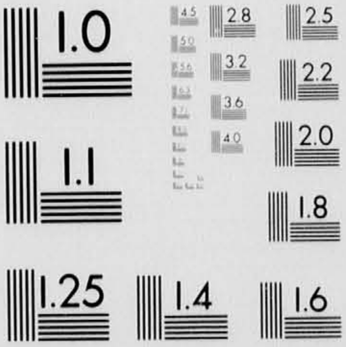
THE M. I. T. SOCIETY OF NEW YORK.

Executive Committee: GEORGE L. HEINS, '82; HARVEY S. CHASE, '83; FRANK A. PICKERNELL, '85; EDWARD D. BROWN, '90, ALEX. RICE MCKIM, *Secretary and Treasurer*, 106 East Twenty-third St., New York, N. Y.

Alumni and other former students will be welcome at the Thursday Lunches, Roof Garden, 143 Liberty St., 12 to 2.
Next Annual Meeting, February 8, 1896.

THE CONNECTICUT VALLEY ASSOCIATION, M. I. T.

Executive Committee: GILES TAINTOR, '87, *Chairman*, Springfield, Mass.; HENRY SOUTHER, '87; N. P. A. CARTER, '87; GUY KIRKHAM, '87; JAMES S. NEWTON, '88.


1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0

1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0

1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0

1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0

1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0

M.I.T. ANNUAL CATALOGUES AND BULLETINS
1895/96

03 OF 03

Register of Graduates.

For names of deceased graduates see the Alphabetical List, page 263.

The Roman numerals in the column marked "Course" denote the course in which the Graduate received the degree of S. B., as follows: —

I. Civil Engineering.	VII. Biology.
II. Mechanical Engineering.	VIII. Physics.
III. Mining Engineering and Metallurgy.	IX. General Studies.
IV. Architecture.	X. Chemical Engineering.
V. Chemistry.	XI. Sanitary Engineering.
VI. Electrical Engineering.	XII. Geology.

XIII. Naval Architecture.

Courses no longer maintained are Sci. and Lit., Science and Literature, Phil., Philosophy, and Elective.

1863.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
ELLERY C. APPLETON Westboro, Mass.	III.	Civil Engineer; Assistant Engineer, Boston Water Works.
WHITNEY CONANT Long Branch, N. J.	III.	Secretary, Long Branch Water Supply Co.
ELI FORBES Clinton, Mass.	Sci. and Lit.	Chemist, Lancaster Mills.
CHARLES C. GILMAN Marshalltown, Iowa.	III.	General Contractor.
CHAS. E. GREENE, A. M., C. E. Ann Arbor, Mich.	I.	Professor of Civil Engineering; Dean, Department of Engineering, University of Michigan.
ALBERT F. HALL 265 Third St., East Cambridge, Mass.	II.	Constructing Engineer, The George F. Blake Manufacturing Co.
WILLIAM E. HOYT Rochester, N. Y.	I.	Chief Engineer, Buffalo, Rochester, & Pittsburgh R. R.
ROBERT H. RICHARDS Boston, Mass.	III.	Professor of Mining Engineering and Metallurgy, Mass. Institute of Technology.
WALTER H. SEARS Plymouth, Mass.	I.	Civil Engineer.
JOSEPH STONE 53 State St., Boston.	I.	In Business.

1868 — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
BRYANT P. TILDEN . . . Jamestown, N. Dak.	III.	City Engineer; Chief Engineer, Duluth, Pierre, & Black Hills, R. R.
JAMES P. TOLMAN . . . . 115 Congress St., Boston.	III.	President, Samson Cordage Works.

1869.

WILLIAM H. BAKER . . . Fitchburg, Mass.	I.	Consulting Engineer.
HOWARD A. CARSON . . . 20 Beacon St., Boston.	I.	Chief Engineer, Boston Transit Commission.
J. RAYNER EDMANDS . . . Cambridge, Mass.	II.	Assistant, Harvard College Observatory.
CHANNING WHITAKER . . Tyngsboro, Mass.	II.	Patent Expert for the Lowell Machine Shop (Lowell, Mass.).

1870.

CHARLES R. CROSS Boston, Mass.	Sci. and Lit.	Thayer Professor of Physics; Director of the Rogers Laboratory, Mass. Institute of Technology.
RUSSELL H. CURTIS . . . 184 Dearborn St., Chicago, Ill.	I.	Lawyer.
CHARLES W. HINMAN . . 153 Franklin St., Boston.	III.	Manager of the N. Tufts Gas Meter Establishment.
SAMPSON D. MASON . . . Tacoma, Wash.	I.	Assistant Purchasing Agent, Northern Pacific R. R.
N. FREDERICK MERRILL . . Burlington, Vt.	V.	Professor of Chemistry, University of Vermont.
THEODORE F. TILLINGHAST 37 Eighth St., New Bedford, Mass.	I.	
EDMUND K. TURNER . . . 53 State St, Boston.	I.	Civil Engineer.
DANIEL W. WILLARD . . Redlands, Cal.	II.	Architect.
LAURENCE F. J. WRINKLE . Keeler, Cal.	III.	Superintendent, Inyo Development Co.

1871.

FOSTER E. L. BEAL . . . 1633 Nineteenth St., N. W., Washington, D. C.	I.	Assistant Ornithologist, U. S. Department of Agriculture.
EDWARD H. FOOTE . . . 31 Commercial St., Boston.	I.	Of the Firm of Skilton, Foote & Co., Manufacturers of Pickles.
FRANK L. FULLER . . . . 12 Pearl St., Boston.	I.	Civil and Hydraulic Engineer.

1871. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
HENRY M. HOWE, A. M. 287 Marlborough St., Boston.	III.	Consulting Metallurgist; Lecturer on Metallurgy, Mass. Institute of Technology.
ALBERT H. HOWLAND, A. M. 60 Congress St., Boston.	I.	Civil Engineer.
G. RUSSELL LINCOLN . . . Boston, Mass.	III.	Instructor in Sanitary Chemistry, Mass. Institute of Technology.
GEORGE H. PRATT . . . . 313 Tenth St., Long Island City, N. Y.	V.	Superintendent for D. D. Williamson & Co., Manufacturing Chemists.
EDWARD W. ROLLINS . . 53 State St., Boston.	III.	Banker, E. H. Rollins & Sons.
WALTER W. SMITH . . . Dayton, Ohio.	II.	Builder of Steam Pumps and Hydraulic Machinery (Smith, Vaile, & Co.).
CHARLES F. STONE . . . Waltham, Mass.	III.	Treasurer, Waltham Savings Bank.
ISAIAH S. P. WEEKS . . . 1327 H St., Lincoln, Neb.	I.	Chief Engineer, Burlington & Missouri River R. R. in Nebraska.
RANDAL WHITTIER . . . Columbia Bldg., Louisville, Ky.	V.	Cashier, Kentucky Branch Office, New York Life Insurance Co.

1872.

C. FRANK ALLEN . . . . Boston, Mass.	I.	Associate Professor of Railroad Engineering, Mass. Institute of Technology.
BENJAMIN E. BREWSTER . . 39 Court St., Boston.	III.	Stock Raising.
WILLIAM B. DODGE . . . Columbus, Ohio.	I.	Scale Inspector, Pittsburgh, Cincinnati, Chicago, & St. Louis Ry.
FREDERIC A. EMMERTON . 9 Bratenahl Bldg., Cleveland, Ohio.	V.	Analytical Chemist and Metallurgist.
JAMES A. HERRICK . . . 284 Pearl St., New York, N. Y.	V.	Consulting Engineer and Contractor for Steel Plants, Furnaces, etc.
JAMES M. HODGE . . . . Big Stone Gap, Va.	III.	Geologist and Engineer.
BRADFORD H. LOCKE . . . Denver Club, Denver, Colo.	III.	Mining Engineer.
CHAS. S. MINOT, S. D. (Harv.) 688 Boylston St., Boston.	V.	Professor of Histology and Human Embryology, Harvard Medical School.
MAURICE B. PATCH . . . 1 Austin St., Buffalo, N. Y.	III.	Superintendent, Buffalo Smelting Works, Calumet & Hecla Mining Co.
WALTER SHEPARD, A. B. . 4 Arion St., Dorchester, Mass.	I.	Chief Engineer, Boston & Albany R. R.
RICHARD H. SOULE, A. B. . Roanoke, Va.	II.	Superintendent of Motive Power, Norfolk & Western R. R.
CLARENCE STUART WARD . 27 School St., Boston.	III.	Lawyer.

1873.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
AMORY AUSTIN, A. B. . .	V.	
23 Catherine St., Newport, R.	I.	
GEORGE W. BLODGETT . .	I.	Electrical Engineer, Boston & Albany R. R.; Consulting Electrician.
Central St, Auburndale, Mass.		
WILLIAM E. BROTHERTON .	V.	With Burckhardt & Co.
Cincinnati, Ohio.		
SAMUEL M. FELTON . . .	I.	President and Receiver of Cincinnati, New Orleans, & Texas Pacific Ry.; President, Alabama, Great Southern R. R.; Receiver, Kentucky & Indiana Bridge Co.
Odd Fellows Bldg., Seventh & Elm Sts., Cincinnati, Ohio.		
FREDERICK L. FISHER . .	I.	Insurance Agent and Broker (35 Kilby St., Boston).
Medway, Mass.		
FREDERICK GUILD, JR.	Sci. and Lit.	
Hingham, Mass.		
W. DALE HARRIS	I.	Managing Director and Acting Chief Engineer, Ottawa & Gatineau Ry. and Pontiac Pacific Ry.
237 MacLaren St., Ottawa, Ont.		
CLAR. L. HOWES, A. B., M. D.,	II.	Physician.
Hanover, Mass.		
FRANK B. MORSE	I.	Agent for Fraser and Chalmers.
Mexico, Mex.		
GEORGE PHILLIPPS	III.	
Green Harbor, Mass.		
HENRY A. PHILLIPS . . .	IV.	Architect.
120 Tremont St., Boston.		
ELLEN H. RICHARDS, A. M.	V.	Instructor in Sanitary Chemistry, Mass. Institute of Technology.
Boston, Mass.		
HENRY L. RIPLEY	I.	Captain, Third Cavalry, U. S. A.
Fort Ethan Allen, Vt.		
ROBERT A. SHAILER . . .	I.	President of Shailer & Schniglau Co., Engineers and Contractors.
138 Jackson St., Chicago, Ill.		
C. EDWARD STAFFORD . .	III.	Superintendent, Bessemer and Open Hearth Departments, Juniata Iron and Steel Works.
Care of Shoenberger & Co., Pittsburgh, Pa.		
SAMUEL E. TINKHAM . . .	I.	Assistant Engineer, Engineering Department, City of Boston; Secretary, Boston Society of Civil Engineers.
City Hall, Boston.		
FRANK W. VERY	V.	Astronomer, Allegheny Observatory.
Allegheny, Pa.		
WEBSTER WELLS	I.	Professor of Mathematics, Mass. Institute of Technology.
Boston, Mass.		
RANDAL WHITTIER . . .	I.	(See Class of 1871.)
FRANCIS H. WILLIAMS, M.D.	V.	Physician.
23 Marlborough St., Boston.		
LOUIS F. WOOD	V.	Chemist and Manufacturer.
112 St. Botolph St., Boston.		

1874.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
HERBERT BARROWS . . . Reading, Mass.	I.	
GEORGE H. BARRUS . . . 95 Milk St., Boston.	II.	Expert and Consulting Steam Engineer.
WILLIAM T. BLUNT . . . Cleveland, Ohio.	I.	U. S. Assistant Engineer.
GEORGE E. DOANE . . . . Middleboro, Mass.	I.	Of the Firm of J. & G. E. Doane, Hardware.
WILLIAM B. DOWSE . . . Grand St. & East River, New York, N. Y.	IV.	Of the Metropolitan Rubber Co.
JOSEPH S. EMERSON . . . Honolulu, Hawaiian Islands.	I.	Engineer and Surveyor.
ELLIOT HOLBROOK . . . . 1206 Carnegie Bldg., Pittsburgh, Pa.	I.	Railroad Contractor and Promoter; President, Pittsburgh & Mansfield R. R.
AECHIRAU HONGMA . . . Tokio Tetsudo Cho, Tokio, Japan.	I.	Civil Engineer, Imperial Government Railways.
CHARLES P. HOWARD . . Hartford, Conn.	I.	Secretary, J. L. Howard & Co., Dealers in Railway and Car Builders' Supplies.
FRANK H. JACKSON . . . Los Angeles, Cal.	III.	Mining and Hydraulic Engineer, Firm of J. P. Culver & Co.
HERBERT B. PERKINS . . . Pasadena, Cal.	I.	Professor of Higher Mathematics and Mechanical Drawing, Throop Polytechnic Institute.
FRANK H. POND . . . . 619 Wainwright Bldg., St. Louis, Mo.	II.	Consulting Engineer; President, The Pond Machinery Co.
EDWARD S. SHAW . . . . 12 Pearl St., Boston.	I.	Consulting Engineer.
FRANCIS H. SILSBEE . . . Lawrence, Mass.	II.	Superintendent, Cotton Department, Pacific Mills.
STEPHEN H. WILDER, Blymyer Bldg., Cincinnati, Ohio.	Sci. and Lit.	Attorney-at-law.

1875.

SAMUEL E. ALLEN . . . . 67 Chauncy St., Boston.	I.	Agent for the Nashawannuck Manufacturing Co.
JAMES L. ARNOTT Manchester, N. H.	Sci. and Lit.	
AMOS J. BOYDEN . . . . 413 Walnut St., Philadelphia, Pa.	IV.	Architect, of the Firm of Boyden & Taylor.
MOSES D. BURNET . . . . 813 James St., Syracuse, N. Y.	III.	Broker.

1875. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
HENRY K. BURRISON . . . Boston, Mass.	I.	Instructor in Mechanical Drawing, Mass. Institute of Technology.
CHRISTOPHER A. CHURCH . New Bedford, Mass.	I.	In Acusnet Mills.
FRANK S. DODGE . . . . Honolulu, Hawaiian Islands.	I.	Civil Engineer and Surveyor in charge of of City Work, Office of Government Survey.
EDGAR S. DORR . . . . . 28 Court Sq., Boston.	I.	Executive Engineer, Sewer Division, Street Department, City of Boston.
WILLIAM C. EDES . . . . 321 Market St., San Francisco, Cal.	I.	Principal Assistant Engineer, San Francisco & San Joaquin Valley Ry.
CHARLES W. GOODALE . . Butte City, Mont.	III.	Mine Superintendent, Colorado Smelting and Mining Co.
EDWARD A. W. HAMMATT . 29 Pemberton Sq., Boston.	I.	Civil and Hydraulic Engineer.
EDWARD A. HANDY . . . 36 Cornell St., Cleveland, Ohio.	I.	Chief Engineer, Lake Shore & Michigan Southern Ry.
THOMAS HIBBARD . . . . South Boston, Mass.	II.	Treasurer of the George Lawley & Son Corporation.
L. P. KINNICUTT, S. D. (Harv.) Worcester, Mass.	V.	Professor of Chemistry, Worcester Polytechnic Institute.
WILFRED LEWIS . . . . 5901 Drexel Road, Philadelphia, Pa.	II.	Assistant Engineer, with William Sellers & Co.
SAMUEL J. MIXTER, M. D. 180 Marlborough St., Boston.	VIII.	Physician.
BENJAMIN A. OXNARD . . Cypremont, La.	III.	Sugar Planter.
THOMAS D. PLIMPTON . . Walpole, Mass.	II.	In Business.
WILLIAM A. PRENTISS, Sci. and Lit. Holyoke, Mass.		Of the Firm of Geo. W. Prentiss & Co., Manufacturers of Wire.
FRANCIS T. SARGENT . . . Bucksport, Me.	II.	In Granite Business.
WELLAND F. SARGENT . . 5316 Jefferson Ave., Chicago, Ill.	I.	Of Firm of Sargent & Bird, Manufacturers of Check Protectors.
WILLIAM H. SHOCKLEY . . Bohemian Club, San Francisco, Cal.	III.	Travelling.
JAMES B. STANWOOD . . . Reading Road, Cincinnati, Ohio.	II.	Director, Cincinnati Technical School; of Firm of Houston, Stanwood, & Gamble, Engine Builders.
H. L. J. WARREN . . . . P. O. Box 897, Colorado Springs, Colo.	III.	Mining Journalist.

1875. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
WILLIAM R. WEBSTER . . 413 Walnut St., Philadelphia, Pa.	III.	Engineer, Pottstown Iron Co.

1876.

CHARLES F. ALLEN . . . South Duxbury, Mass.	III.	Mining Engineer and Metallurgist.
THOMAS ASPINWALL . . . 3 Hamilton Pl., Boston.	I.	Civil Engineer.
WILLIAM P. ATWOOD . . . Lowell, Mass.	V.	Chemist, Hamilton Prints Works.
THOMAS W. BALDWIN, A. B. Boothbay Harbor, Me.	I.	In Business.
WALTER B. BARROWS . . . Agricultural College, Ingham Co., Mich.	VII.	Professor of Zoölogy and Geology, Michigan Agricultural College.
AARON D. BLODGETT . . . 383 Federal St., Boston.	II.	Manufacturing Electrician.
JOSHUA B. F. BREED . . . 1348 Second St., Louisville, Ky.	I.	First Assistant Engineer, Bureau of Engineering.
HARRY T. BUTTOLPH . . . 2411 Main St., Buffalo, N. Y.	I.	Assistant City Engineer, in charge of Pavement and Accessories.
FREDERICK K. COPELAND . 54 No. Clinton St., Chicago, Ill.	I.	President, Sullivan Machinery Co.
WILLIAM O. CROSBY . . Boston, Mass.	VII.	Assistant Professor of Structural and Economic Geology, Mass. Institute of Technology.
WILLIS E. DAVIS . Mills Bldg., San Francisco, Cal.	Sci. and Lit.	Mining Engineer.
CHARLES R. FLETCHER . . 82 Equitable Bldg., Boston.	V.	Consulting Chemist and Metallurgist.
JOHN R. FREEMAN . . . . 31 Milk St., Boston.	I.	Consulting Engineer and Chief of Inspection Department, Associated Factory Mutual Insurance Cos.
FRANCIS E. GALLOUPE . . 32 Kilby St., Boston.	II.	Mechanical Engineer (Technical Writing and Real Estate).
JOHN B. HENCK, JR. . . Atlantic & Third Aves., Brooklyn, N. Y.	VIII.	Electrical Engineer, Atlantic Avenue R. R. Co.
FRANK W. HODGDON . . . Arlington, Mass.	I.	Engineer, Harbor and Land Commissioners of Massachusetts.
SUMNER HOLLINGSWORTH . 44 Federal St., Boston.	II.	President, Hollingsworth & Whitney Co.
SILAS W. HOLMAN . . . Boston, Mass.	VIII.	Professor of Physics, Mass. Institute of Technology.

1876. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
ALFRED E. HUNT . . . . Ferguson Bldg., Pittsburgh, Pa.	III.	Vice-Chairman and Treasurer, The Pittsburgh Testing Laboratory (Limited); President and General Manager, The Pittsburgh Reduction Co.
WILLIAM W. JACQUES, Ph.D. 125 Milk St., Boston.	VIII.	Electrician of the American Bell Telephone Co.
SAMUEL JAMES, JR. . . . . Sandy, Utah.	III.	Superintendent, Pennsylvania Smelting Co.
ALFRED C. KILHAM . . . North Springfield, Mo.	II.	In Motive Power Department, St. Louis & San Francisco R. R.
J. AUSTIN KNAPP . . . . Abington, Mass.	II.	Manufacturer.
THEODORE J. LEWIS . . . 212 No. Thirty-Fourth St., Philadelphia, Pa.	II.	Secretary and Assistant Treasurer, Standard Steel Works.
ALBERT H. LOW . . . . P. O. Box 1537, Denver, Colo.	V.	Chemist and Assayer.
CHARLES T. MAIN . . . . 53 State St., Boston.	II.	Of Dean & Main, Mill and Mechanical Engineers.
ARTHUR L. MILLS . . . 2278 Ashland Ave., Toledo, Ohio.	I.	General Superintendent, Toledo, St. Louis, & Kansas City R. R.
WILLIAM E. NICKERSON . . 12 Pearl St., Boston.	V.	Expert for Beacon Vacuum Pump and Electrical Co.
DAVID W. PHIPPS . . . . 716 Front St., Seattle, Wash.	Phil.	Attorney-at-Law.
CHARLES F. PRICHARD . . Lynn, Mass.	II.	General Superintendent, Lynn Gas & Electric Co.
HENRY RAEDER . . . . . 218 La Salle St., Chicago, Ill.	I.	Architect.
CHARLES L. RICH . . . . East Jaffrey, N. H.	I.	Cashier, Monadnock National Bank.
CHARLES A. SAWYER, Sci. and Lit. 125 Dearborn St., Chicago, Ill.		In Law and Real Estate Business.
THEODORE E. SCHWARZ . . 4 Bank Block, Denver, Colo.	III.	Mining Engineer.
JULIUS H. SUSMANN . . . Kansas City, Mo.	III.	Assistant to President, Consolidated Kansas City Smelting and Refining Co.
WALTER D. TOWNSEND . . Chemulpo, Korea.	III.	Of the Firm of Morse, Townsend, & Co., Merchants.
CHARLES N. WAITE . . . Rumford Falls, Me.	V.	General Manager, Electro-Chemical Co.
HENRY M. WAITT . . . . Chicago, Ill.	I.	Bridge Engineer, with Chicago, Burlington, & Quincy R. R.
HENRY B. WOOD . . . . City Hall, Boston.	I.	Secretary and Executive Engineer, Street Department, City of Boston.

1877.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
JOHN ALDEN . . . . . Lawrence, Mass.	V.	Chemist, Pacific Mills.
CHARLES S. BACHELDER . . Watsonville, Cal.	V.	Chemist, Western Beet Sugar Co.
GEORGE BARTOL . . . . . Cleveland, Ohio.	III.	Superintendent, Otis Steel Co. (Limited).
J. WILLIAMS BEAL . . . . 55 Kilby St., Boston.	IV.	Architect.
WILLIAM H. BEECHING . . 19 John St., Boston.	II.	Cork Manufacturer.
G. WALTER CAPEN . . . . 7 Water St., Boston.	IV.	Architect.
HENRY H. CARTER . . . . 95 Milk St., Boston.	I.	Consulting Engineer.
WILLIAM E. CHAMBERLIN . 27 Clinton St., Cambridgeport, Mass.	IV.	Architect.
LINUS FAUNCE . . . . . Boston, Mass.	II.	Assistant Professor of Drawing, Mass. Institute of Technology.
CHARLES H. FISHER . . . Ponkapog P. O., Canton, Mass.	II.	
MARTIN GAY . . . . . West New Brighton, Staten Island, N. Y.	I.	Assistant Engineer, Department of Public Works.
JOSEPH P. GRAY . . . . . 31 Milk St., Boston.	I.	Vice-President, Boston Manufacturers' Mutual Fire Insurance Co.
EDMUND GROVER . . . . East Walpole, Mass.	I.	Civil Engineer and Landscape Gardener.
RICHARD A. HALE . . . . Lawrence, Mass.	I.	Principal Assistant Engineer, Essex Water Power Co.
JOHN E. HARDMAN . . . . 263 Fairmount St., Lowell, Mass.	III.	Consulting Mining Engineer.
HENRY D. HIBBARD . . . High Bridge, N. J.	III.	Superintendent, Steel Department, Taylor Iron and Steel Co.
WALTER JENNEY . . . . 55 G St., South Boston.	III.	Superintendent, Petroleum Refinery, Jenney Manufacturing Co.
GEORGE W. KITTREDGE . . Cincinnati, Ohio.	I.	Chief Engineer, Cleveland, Cincinnati, Chicago, & St. Louis Ry.
CHARLES F. LAWTON . . . New Bedford, Mass.	I.	Superintendent Public Works.
BENJAMIN C. MUDGE . . . 510 Summer St., Lynn, Mass.	I.	Treasurer of the Superior Fast Black and Chemical Co. (Boston).
CECIL H. PEABODY . . . . Boston, Mass.	II.	Professor of Marine Engineering and Naval Architecture, Mass. Institute of Technology.

1877. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
ARTHUR L. PLIMPTON . . . 81 Milk St., Boston.	I.	Chief Engineer, Civil Engineering Department, West End Street Ry. Co.
HARRY C. SOUTHWORTH . West Stoughton, Mass.	III.	Mining Engineer.
THOMAS F. STIMPSON . . Providence, R. I.	III.	Overseer, Printing Department, Silver Spring Bleaching and Dyeing Co.
GEORGE F. SWAIN . . . . Boston, Mass.	I.	Hayward Professor of Civil Engineering, Mass. Institute of Technology; Member Boston Transit Commission.
FREDERICK W. WOOD . . Sparrow's Point, Md.	III.	President, Maryland Steel Co.

1878.

WILLIAM B. ALLBRIGHT . . Union Stock Yards, Chicago, Ill.	V.	Manager, Swift & Co., Lard Refinery.
CHARLES M. BAKER . . . Ames Bldg., Boston.	IV.	With Chase & Barstow, Stock Brokers.
TAKUMA DAN . . . . . Surugacho Nihonbashi-Ku, Tokio, Japan.	III.	Managing Director, Mitsui Mining Co.
CHARLES S. EATON . . . 219 Washington St., Boston.	IV.	In Business.
ALFRED S. HIGGINS . . . 142 Atlantic Ave., Boston.	IV.	With R. R. Higgins & Co.
JULIAN A. KEBLER . . . Boston Bldg., Denver, Colo.	I.	Third Vice-President, The Colorado Fuel and Iron Co.
EVERELL J. NICHOLS . . . 125 Ferry St., Everett, Mass.	I.	Civil Engineer.
FREDERICK H. PRENTISS . Monadnock Bldg., Chicago, Ill.	II.	President, The Buckeye Electric Co.
JAMES RITCHIE . . . . . 716 Hickox Bldg., Cleveland, Ohio.	I.	Civil and Consulting Engineer; Inspector of Structural Material.
JAMES W. ROLLINS, JR. . . West Roxbury, Mass.	I.	Assistant Engineer of Construction, New York, New Haven & Hartford R. R. (Brockton, Mass.).
C. D. SAWIN, M. D., Sci. and Lit. 349 Main St., Charlestown, Mass.		Physician.
PETER SCHWAMB . . . . Boston, Mass.	II.	Associate Professor of Mechanism, Mass. Institute of Technology.
FREDERIC P. SPALDING . . 1016 Middlesex St., Lowell, Mass.	I.	Assistant Engineer, Engineering Department, City of Boston.
ISAAC M. STORY . . . . . Somerville, Mass.	I.	Assistant Engineer, New England R. R.
LINWOOD O. TOWNE . . . Haverhill, Mass.	III.	Sub-Master, Haverhill High School.

1878. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
EMILE F. WILLIAMS . . . 81 Franklin St., Boston.	I.	Of the Firm of Arthur Williams, Jr., & Co., Importers of East India and China Goods.
JAMES G. WOOLWORTH . . 298 Fountain St., Providence, R. I.	V.	Superintendent, John D. Lewis Dyewood Extract Manufactory.

1879.

WALTER S. ALLEN . . . . 24 West St., Boston.	V.	With Bay State Gas Co.
SAMUEL T. BRALEY . . . 14 Park St., Rutland, Vt.	II.	Mechanical Engineer.
JOHN W. CABOT . . . . . Capital Hotel, Johnstown, Pa.	III.	Assistant Superintendent of Blast Furnaces, Cambria Iron Co.
HARRY H. CAMPBELL. . . Steelton, Pa.	III.	Superintendent, Pennsylvania Steel Co.
FREDERICK S. COFFIN . . 152 Congress St., Boston.	III.	Of the Firm of Stoddard, Haserick, Richards, & Co., Importers and Commission Merchants.
W. OTIS DUNBAR . . . . 1218 Thirteenth St., Altoona, Pa.	II.	In charge of Test Department, Pennsylvania R. R.
GEORGE W. FABENS . . . Ottumwa, Iowa.	I.	Division Roadmaster, Chicago, Burlington, & Quincy R. R.
CHARLES S. GOODING. . . 28 School St., Boston.	II.	Mechanical Engineer and Draughtsman.
RAPHAEL M. HOSEA . . . 817 Boston Bldg., Denver, Colo.	I.	Chief Engineer, The Colorado Fuel and Iron Co.
HORACE J. HOWE . . . . 20 Beacon St., Boston.	I.	Assistant Engineer, Boston Transit Commission.
FREDERICK B. KNAPP. . . Duxbury, Mass.	I.	Principal, Powder Point School.
FREDERIC H. LANE . . . 49 Leonard St., New York, N. Y.	II.	With the Allen-Lane Co., Commission Merchants.
FREDERIC R. LOPING . . . 100 Mt. Vernon St., Boston.	VII.	Student, Harvard University.
WILLIAM W. MACFARLANE . 613 E. Fourteenth St., Chester, Pa.	V.	Superintendent, Sharpless Dyewood Extract Co.
ARTHUR H. METCALF . . . Pawtucket, R. I.	II.	Mechanical Engineer.
EDWIN C. MILLER . . . . Wakefield, Mass.	II.	Assistant Superintendent, Henry F. Miller & Sons' Piano Co. (88 Boylston St., Boston).
WILLIAM H. PICKERING . Cambridge, Mass.	VIII.	Astronomer, Harvard College Observatory.
GEORGE F. RIGGS . . . . P. O. Box 74, Gaithersburg, Md.	I.	

1879 — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
FRANK G. STANTIAL . . . Everett, Mass.	V.	Superintendent, Cochrane Chemical Co.
WILLIAM S. STEARNS . . . Cincinnati, Ohio.	I.	Superintendent, Stearns & Foster Co.'s Cotton Factory.
ARTHUR M. WAITT . . . Cleveland, Ohio.	II.	General Master Car Builder, Lake Shore & Michigan Southern Ry.

1880.

GEORGE H. BARTON . . . Boston, Mass.	III.	Instructor in Geology, Mass. Institute of Technology.
CHARLES H. BROWN . . . Willington, Conn.	I.	Clergyman.
EDWIN E. CHASE . . . . Mining Exchange Bldg., Denver, Colo.	I.	Mining Engineer and United States Deputy Mineral Surveyor.
FREDERICK W. CLARK . . 7540 Lake Ave., Chicago, Ill.	III.	President, Jonathan Clark & Sons' Co., General Contractors.
GEORGE W. HAMILTON . . 14 Beacon St., Boston.	I.	District Engineer, Sewer Division, Street Department, City of Boston.
LORING R. MILLEN . . . 70 Beaver St., New York, N. Y.	III.	Wholesale Lumber Merchant.
WILLIAM T. MILLER . 88 Boylston St., Boston.	Elective.	Salesman, with Henry F. Miller & Sons, Piano Co.

1881.

IRA ABBOTT . . . . . 150 Broadway, New York, N. Y.	I.	Civil Engineer.
JOHN H. ALLEN . . . . Perth Amboy, N. J.	III.	Superintendent, The Guggenheim Smelting Co.
AMOS BINNEY, A. B. . . . 53 State St., Boston.	V.	Real Estate Agent.
DAVID S. BISSELL . . . . Pittsburgh, Pa.	III.	President, Duquesne Forge Co., Iron and Steel Forgings.
FRANK H. BRIGGS . . . . 45 High St., Boston.	IX.	Merchandise Broker, W. L. Montgomery & Co.
FRANK E. CAME . . . . 69 Imperial Bldg., Montreal, Que.	I.	Manager Canadian Bridge and Iron Co.
FRANK D. CHASE . . . . Versailles, Pa.	III.	Chemist.
BENJAMIN G. COLLINS . . Edgartown, Mass.	II.	Surveyor.
HARRY H. CUTLER . . . . 128 So. Clinton St., Chicago, Ill.	II.	Treasurer, The Cutler Hammer Manufacturing Co.
F. GRAEF DARLINGTON . . 676 No. Delaware St., Indianapolis, Ind.	IX.	Superintendent, Indianapolis Division, Pittsburgh, Cincinnati, Chicago, & St. Louis Ry.

1881. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
JOHN DUFF, M. D. . . . . 5 Dexter Row, Charlestown, Mass.	V.	Physician.
DAVID S. GODDARD . . . 11 Lane St., Lowell, Mass.	III.	With U. S. Cartridge Co.
WALTER J. KOEHLER . . . Broken Hill, N. S. W., Australia.	V.	Assistant Metallurgist, Broken Hill Proprietary Co.
EDWIN J. LEWIS, JR. . . . 9 Park St., Boston.	IV.	Architect.
WILLIAM B. LINDSAY, A. B. Carlisle, Pa.	V.	Professor of Chemistry, Dickinson College.
JAMES LUND . . . . . Everett, Mass.	V.	Superintendent, West Department, Cochrane Chemical Co.
GEORGE A. MOWER . . . 75 Queen Victoria St., London, Eng.	II.	General Manager, Sturtevant Engineering Co.
WEBSTER NORRIS . . . . Chelsea, Mass.	III.	Chemist, Revere Rubber Co.
EVELYN W. ORDWAY . . . New Orleans, La.	V.	Professor of Chemistry, Newcomb College, Tulane University.
THEODORE PARKER . . . Atlantic, Mass.	I.	In City Engineer's Office, City of Boston.
NATHANIEL W. SHED . . . Burden, N. Y.	V.	Chemist for Hudson River Ore and Iron Co.
WILLIAM R. SNEAD . . . 318 W. Chestnut St., Louisville, Ky.	IV.	General Manager, The Snead & Co. Iron Works.
HAROLD E. STEARNS . . . Montreal, Que.	II.	Superintendent and Treasurer, Dominion Wadding Co.
EDWARD R. WARREN . . . 319 No. Webber St., Colorado Springs, Colo.	VII.	Civil Engineer.
CHARLES M. WILKES . . . 1142 The Rookery, Chicago, Ill.	IV.	Sanitary Engineer.
ARTHUR WINSLOW. . . . Roe Bldg., Pine St., St. Louis, Mo.	III.	Geologist and Mining Expert.

1882.

CLARA P. AMES . . . . . Northampton, Mass.	V.	Teacher in Mary A. Burnham Classical School.
THOMAS B. CARSON. . . . 709 Perry St., Davenport, Iowa.	II.	Secretary of the Bettendorf Metal Wheel Co. (Davenport, Iowa & Springfield, Ohio).

1882. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
CARRIE RICE CLARK . . . Windsor Hotel, Denver, Colo.	V.	
EDWARD F. ELY, A. B. . . 36 Prospect St., Providence, R.I.	IV.	Architect.
GEORGE FAUNCE, A. B. . . Carnegie, Pa.	III.	Superintendent, Pennsylvania Lead Co.
CHARLES A. FRENCH . . . 3 Winter St., Boston.	III.	In Business.
HOWARD V. FROST, Ph. D. . Arlington, Mass.	V.	Chief Chemist, Swift & Co., Union Stock Yards (Chicago, Ill.).
EDW. G. GARDINER, Ph. D. 131 Mt. Vernon St., Boston.	VII.	Travelling.
FRANCIS P. HALL . . . . Emporia, Kans.	V.	Stock-raising.
GEORGE L. HEINS . . . . Temple Court, New York, N. Y.	IV.	Architect, of Firm of Heins & La Farge.
CHARLES D. JENKINS . . . 32 Hawley St., Boston.	V.	State Inspector of Gas and Gas Meters.
JAMES W. JOHNSON . . . Riverside, Cal.	I.	City Engineer and Superintendent of Streets.
JOHN F. LOW . . . . . Chelsea, Mass.	V.	Treasurer, Low Art Tile Co.
HARRY G. MANNING . . . Watertown, N. Y.	II.	With The New York Air Brake Co.
GEORGE W. MANSFIELD . . So. Norwalk, Conn.	III.	Secretary and Treasurer, Norwalk Tramway Co.
FRANK C. MORRISON . . . 316 Montgomery St., San Francisco, Cal.	I.	With Southern Pacific and California Bridge Cos.
JAMES P. MUNROE . . . . 179 Devonshire St., Boston.	III.	Of the Firm of Jas. S. Munroe & Co. Paper Manufacturers.
HENRY F. ROSS . . . . . 178 Devonshire St., Boston.	III.	With The Boston Thread and Twine Co.
JOHN H. ROSS . . Sci. and Lit. 178 Devonshire St., Boston.		President, The Boston Thread and Twine Co.
GRENVILLE T. SNELLING . . 111 Fifth Ave., New York, N. Y.	IV.	Of Firm of Snelling & Potter, Architects; Instructor in Architectural Engineering, School of Mines, Columbia College.
WALTER B. SNOW . . . . Watertown, Mass.	II.	Chief Draughtsman, B. F. Sturtevant Co. (Jamaica Plain, Mass.).

1883.

HERBERT T. BARDWELL . . 11 Woodside Ave., Springfield, Mass.	I.	Civil Engineer.

1883. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
GEORGE H. BRYANT . . . 17 Rhode Island Ave., Newport, R. I.	II.	Principal, Townsend Industrial School.
HARVEY S. CHASE . . . . 39 Cortlandt St., New York, N. Y.	II.	Electrical and Mechanical Engineer, President Watauga R. R. Co.
FRANK E. DAVIS . . . . Worcester, Mass.	II.	With Washburn & Moen Manufacturing Co.
JOHN G. EPPENDORFF . . 627 Main St., Buffalo, N. Y.	IV.	Decorator.
GEORGE J. FORAN . . . . 356 Harvard St., Cambridge, Mass.	II.	With The Geo. F. Blake Manufacturing Co.
WILLIAM B. FULLER . . . 3 Mt. Vernon St., Boston.	I.	Assistant Engineer, Metropolitan Water Board.
HORACE B. GALE . . . . 12 W. Thirty-First St., New York, N. Y.	II.	Consulting Mechanical and Electrical Engineer.
GEORGE H. GUSTIN . . . 43 Chatham St., Boston.	III.	Manager of Factories, Bowker Fertilizer Co.
FREDERIC O. HARRIMAN . Jaltipan, Mexico.	I.	Civil Engineer and Contractor; Land Agent.
JAMES A. HUTCHINGS . . .	II.	
H. WARD LEONARD . . . Hoboken, N. J.	III.	President, Carpenter Enamel Rheostat Co.
HARVEY M. MANSFIELD . . Fairfield, Me.	III.	Superintendent, Somerset Fibre Co.
ROBERT W. SCOTT . . . . 917 Arch St., Philadelphia, Pa.	II.	Manager, Philadelphia Heliographic Co.
GEORGE A. SMITH . . . . Chelsea, Mass.	V.	Superintendent, Thos. Strahan & Co., Branch of the National Wall Paper Co.
FRANK TENNEY . . . . Steelton, Pa.	III.	Assistant Superintendent, The Pennsylvania Steel Co.
CHARLES H. TOMPKINS, JR. 26 Cortlandt St., New York, N.Y.	III.	Civil Engineer.
GEORGE R. UNDERWOOD . . Peabody, Mass.	V.	Superintendent, Peabody Factory of American Glue Co.
DAVID WESSON . . . . . Cortland, N. Y.	V.	Vice-President and Treasurer, Wesson-Nivison Manufacturing Co.

1884.

CHARLES B. APPLETON . . Aspinwall Ave., Brookline, Mass.	II.	
HENRY F. BALDWIN . . . Jersey City, N. J.	II.	Engineer, Maintenance of Way, New York, Lake Erie & Western R. R.

1884. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
FRED L. BARDWELL, B. S. Boston, Mass.	V.	Assistant Professor of General Chemistry, Mass. Institute of Technology.
T. HARRIS BARTLETT Portland, Oreg.	III.	Attorney-at-law.
HENRY A. BOARDMAN Providence, R. I.	V.	Assistant Superintendent, Silver Spring Bleaching and Dyeing Co.
CHARLES C. BOTHFELD Home Bank Bldg., Detroit, Mich.	I.	Consulting Engineer on Iron and Steel Structures; Resident Manager, Pittsburgh Testing Laboratory.
W. FRANK CARR, B. S. Roanoke, Va.	I.	General Manager, Roanoke Electric Light and Power Co.; Roanoke St. Railway Co.
CHRISTOPHER J. CARVEN 1604 Dorchester Ave., Dorchester, Mass.	I.	Assistant Engineer, City Engineer's Office, City of Boston.
ROSCOE L. CHASE 155 E. Main St., North Adams, Mass.	V.	With the Arnold Print Works.
ALFRED O. DOANE Newtonville, Mass.	III.	Assistant City Engineer, City of Newton.
ALFRED L. FITCH 96 W. Lake St., Chicago, Ill.	II.	Secretary and Treasurer, American Architecturai Iron and Brass Works.
GEORGE L. R. FRENCH Boston, Mass.	I.	Roadmaster, Eastern Division, Boston & Maine R. R.
AUGUSTUS H. GILL, Ph. D. Boston, Mass.	V.	Assistant Professor of Gas Analysis, Mass. Institute of Technology.
FRANK M. HAINES Lorain, Ohio.	III.	With the Johnson Steel Co.
GEORGE H. HEYWOOD Gardner, Mass.	III.	Of the Firm of Heywood Bros. & Co.
JAMES G. HOLDER, Ph. G. 119 Broad St., Lynn, Mass.	V.	Apothecary.
G. FREDERICK KNAPP Wade Bldg., Cleveland, Ohio.	V.	With Oglebay, Norton, & Co., Iron Ores.
D. A. LYLE, Capt., U. S. A. P. O. Box 1606, Philadelphia, Pa.	III.	Inspector of Ordnance, U. S. A.
PHILIP S. MORSE, A. B. P. O. Box 1027, Salt Lake City, Utah.	III.	Mining Engineer.
CHARLES O. PRESCOTT Milton, Mass.	V.	Teacher of Natural Science, Milton Academy.
WILLIAM L. PUFFER Boston, Mass.	III.	Assistant Professor of Electrical Engineering, Mass. Institute of Technology.
ARTHUR J. PURINTON Stamford, Conn.	II.	Superintendent, Stamford Gas and Electric Co.

1884. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
WILLIAM J. RICH . . . . 208 Eleventh St., N. E., Washington, D. C.	III.	Second Assistant Examiner, U. S. Patent Office.
FRANKLIN B. RICHARDS . . Cleveland, Ohio.	III.	With M. A. Hanna & Co.
C. SNELLING ROBINSON . . Pueblo, Colo.	III.	Manager of Blast Furnaces, Colorado Fuel and Iron Co.
THEODORE W. ROBINSON . Pueblo, Colo.	III.	General Superintendent, Colorado Fuel and Iron Co.
A. LAWRENCE ROTCH, A. M. 53 State St., Boston.	II.	Director of Blue Hill Meteorological Observatory (Readville, Mass.).
J. PETERSON RYDER . . . Philadelphia, Pa.	V.	Director of Physical Training, Drexel Institute.
ALFRED STEBBINS, JR. . . Newton Highlands, Mass.	III.	Civil Engineer.
ELLIOT T. STURGIS . . . . 125 Milk St., Boston.	III.	In Superintendent's Office, Boston Division, New England Telephone and Telegraph Co.
ALICE BROWN TYLER . . . Newton Centre, Mass.	V.	
HARRY W. TYLER, Ph. D. . Boston, Mass.	V.	Professor of Mathematics and Secretary, Mass. Institute of Technology.
NAHUM WARD . . . . . 448 Federal St., Boston.	V.	Chemist, with N. Ward Co.
WILLIAM M. WHITNEY . . Winchendon, Mass.	II.	With Baxter D. Whitney, Manufacturer of Wood-working Machinery.
FRANCIS C. WILLIAMS, JR. Sheridan, Wyo.	I.	Civil Engineer.

1885.

CHARLES R. ALLEN . . . Baltimore, Md.	V.	Student, Johns Hopkins University.
DAVID BAKER . . . . . Sparrow's Point, Md.	III.	Superintendent, Blast Furnace Department, Maryland Steel Co.
EDWARD R. BENTON, Ph. D. 27 Doane St., Boston.	IV.	Architect.
HEYWOOD COCHRAN . . . Johnstown, Pa.	II.	Of the Cochran Ice Machine Co.
EDWARD H. DEWSON, JR. . 55 Franklin St., Quincy, Mass.	II.	Mechanical Engineer, Bear Electric Co.
FREDERICK FOX, S. M. Ph. D. 77 State St., Portland, Me.	V.	Analytical Chemist.
THOMAS W. FRY . . . . Claremont, N. H.	II.	Secretary and Superintendent, Sullivan Machinery Co.
ROBERT R. GOODRICH . . Chihuahua, Mexico.	III.	Chemist with Chihuahua Mining Co.

1885. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
WALTER K. HARRINGTON . 15 Thames St., Newport, R. I.	I.	Superintendent of Construction, The New England Public Works Co. (New Haven, Conn.).
ELEAZER B. HOMER . . . Boston, Mass.	IV.	Associate Professor of Architecture, Mass. Institute of Technology.
TRACY LYON . . . . . Metropolitan Opera House Bldg., St. Paul, Minn.	II.	Master Mechanic, Chicago & Great Western Ry.
HUGH MACRAE . . . . . Wilmington, N. C.	III.	President, The Wilmington Cotton Mills.
HENRY MARTIN . . . . . South Gardiner, Me.	V.	With Richards Paper Co.
ALLYNE L. MERRILL . . . Boston, Mass.	II.	Assistant Professor of Mechanism, Mass. Institute of Technology.
EVERETT MORSS . . . . . 79 Cornhill, Boston.	III.	With Morss & Whyte; Vice-President, Eastern Expanded Metal Co.; Vice-President, Simplex Electrical Co.
FREDERICK H. NEWELL . . Washington, D. C.	III.	Chief Hydrographer, U. S. Geological Survey.
JOSEPH E. NUTE . . . . 9 Bedford St., Fall River, Mass.	I.	Superintendent, Fall River Gas Works Co.
MARCELLA I. O'GRADY . . Poughkeepsie, N. Y.	IX.	Professor of Biology, Vassar College.
FRANK A. PICKERNELL . . 18 Cortlandt St., New York, N.Y.	VI.	Chief Engineer, American Telephone and Telegraph Co.
RICHARD H. PIERCE, A. B. 1409 Manhattan Bldg., Chicago, Ill.	VI.	Of the Firm of Pierce & Richardson, Electrical and Mechanical Engineers.
NEWBERT M. RANDALL . . Sparrow's Point, Md.	III.	Chief Chemist, Maryland Steel Co.
OTIS T. STANTIAL . . . . 515 Diversey Ave., Chicago Ill.	III.	Superintendent, Illinois Malleable Iron Co.
HENRY P. TALBOT, Ph. D. . Boston, Mass.	V.	Associate Professor of Analytical Chemistry, Mass. Institute of Technology.
GEORGE P. VANIER . . . Steelton, Pa.	III.	Chemist, Pennsylvania Steel Co.
ERASTUS WORTHINGTON, JR. 53 State St., Boston.	I.	Civil Engineer, of the Firm of E. Worthington, Jr., & Co.

1886.

GEORGE P. ABORN . . . . Warren, Mass.	II.	Assistant Constructing Engineer, Knowles Steam Pump Works.
ARTHUR C. ANTHONY . . 44 Pine St., New York, N. Y.	III.	Special Agent, London Assurance Corporation.

1886. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
DANA P. BARTLETT . . . Boston, Mass.	VI.	Assistant Professor of Mathematics, Mass. Institute of Technology.
BIRNEY C. BATCHELLER . . 41 Wall St., New York, N. Y.	II.	Engineer, Pneumatic Torpedo and Construction Co.
WILLIAM L. BRAINERD . . 153 La Salle St., Chicago, Ill.	IV.	Of Firm of Brainerd & Holsman, Architects.
JOHN K. BURGESS . . . . Dedham, Mass.	II.	With the New England Sulphite Digester Co. (220 Devonshire St., Boston).
CHARLES L. BURLINGHAM . 197 So. Canal St., Chicago, Ill.	III.	With McDermid Manufacturing Co.
WM. H. CHADBOURN, JR. . Newbern, N. C.	III.	United States Assistant Engineer, River and Harbor Improvements.
WILLIAM L. CHURCH . . . 278 Ferry St., Malden, Mass.	VI.	
HARRY E. CLIFFORD . . . Boston, Mass.	VI.	Assistant Professor of Theoretical Physics, Mass. Institute of Technology.
LOUIS R. COBB . . . . . Town Hall, Brookline, Mass.	I.	Assistant in Office of Town Engineer.
LOUIS F. CUTTER . . . . 91 Church St., Winchester, Mass.	I.	Transitman, Improved Sewerage, City of Boston.
CHARLES C. DOE . . . . South Newbury, Vt.	VII.	Proprietor, Mt. Hag Stock Farm.
ORRIN S. DOOLITTLE . . . 130 No. Fifth St., Reading, Pa.	V.	Chemist and General Storekeeper, Philadelphia & Reading, R. R.
JAMES C. DUFF . . . . . Milwaukee, Wis.	V.	Superintendent Lard, Oleo, and Oil Departments, Plankinton Packing Co.
GEORGE W. FARMER . . . Purcell, Ind. T.	II.	Roundhouse Foreman, Atchison, Topeka, & Santa Fé R.R.
FRED E. FOSS, A. M. . . . State College, Pa.	I.	Professor of Civil Engineering, Pennsylvania State College.
THEODORE R. FOSTER . . Billings, Mont.	II.	With the Burlington & Missouri River R. R. in Nebraska.
ALEXANDER S. GARFIELD . 27 Rue de Londres, Paris, France.	II.	Chief Engineer, Power and Mining Department, Compagnie Française Thomson-Houston.
D. LEWIS K. HATHAWAY . Warren, Mass.	II.	With Knowles Steam Pump Works.
EDWARD E. HIGGINS . . . 26 Cortlandt St., New York, N. Y.	VI.	Street Railway Expert.
WILLIAM J. HOPKINS . . . Philadelphia, Pa.	VI.	Professor of Physics, Drexel Institute.
WALTER RENTON INGALLS . 229 Ocean St., Lynn, Mass.	III.	Mining Engineer and Metallurgist. (12 Old Slip, New York, N. Y.)
WILLIAM F. JORDAN . . . Rochester, N. Y.	I.	Assistant Engineer, Buffalo, Rochester, & Pittsburgh R. R.

1886. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
C. BELLE KENNEY . . . . West Bridgewater, Mass.	V.	Teacher of Science, Howard Seminary.
ALBERT E. LEACH . . . . State House, Boston.	II.	Assistant Analyst, Food and Drug Department, Mass. State Board of Health.
FRANK L. LOCKE . . . . Malden, Mass.	I.	Assistant Superintendent, Boston Rubber Shoe Co.
WILSON H. LOW . . . . Kenilworth, Ill.	V.	Manufacturing Chemist; Manager, Kenilworth Chemical Works.
ELGOOD C. LUFKIN. . . . 102 Anderson Pl., Buffalo, N. Y.	II.	Manager, the Snow Steam Pump Works.
JAMES P. LYNDE . . . . Palmer, Mass.	IX.	Druggist.
ALEX. RICE MCKIM . . . 106 E. Twenty-third St., New York, N. Y.	I.	Architectural Engineer.
HARRY B. MERRIAM . . . 713 Wabash Ave., Kansas City, Mo.	I.	Roadmaster, Kansas City, Fort Smith, & Memphis R. R.
HENRY P. MERRIAM . . . 35 Wall St., New York, N. Y.	VI.	Superintendent, Standard Air Brake Co.
EDWARD F. MILLER . . . Boston, Mass.	II.	Assistant Professor of Steam Engineering, Mass. Institute of Technology.
EDGAR H. MUMFORD . . . 39 Cortlandt St., New York, N. Y.	II.	New York Representation of Bement, Miles, & Co.
ARTHUR A. NOYES, S. M., Ph. D. Boston, Mass.	V.	Assistant Professor of Organic Chemistry, Mass. Institute of Technology.
EDWARD L. PIERCE, JR. . . Syracuse, N. Y.	II.	With the Solvay Process Co.
CHARLES F. RICHARDSON . 53 State St., Boston.	II.	Lawyer.
ARTHUR G. ROBBINS . . . Boston, Mass.	I.	Instructor in Highway Engineering, Mass. Institute of Technology.
L. KIMBALL RUSSELL . . . Boston, Mass.	V.	Instructor in General Chemistry, Mass. Institute of Technology.
J. FRANK SEAVEY . . . . 45 Cedar St., New York, N. Y.	II.	Inspector, New York Mutual Fire Insurance Co.
WILLIAM E. SHEPARD . . 971 Steinway Ave., Long Island City, N. Y.	VI.	Electrical Engineer.
JAMES E. SIMPSON . . . . 163 Haverhill St., Lawrence, Mass.	III.	With J. R. Simpson & Co.
THEODORE STEBBINS . . . Schenectady, N. Y.	VI.	Engineer, Committee on Local Companies, General Electric Co.

1886. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
AUGUSTUS B. STOUGHTON . 419 Chestnut St., Philadelphia, Pa.	II.	Attorney-at-Law, Patent Business.
WILLIAM M. TAYLOR . . . Indianapolis, Ind.	II.	Vice-President and Treasurer, Chandler & Taylor Co.
CHARLES D. TURNBULL . . Chauncy St., Boston.	II.	With O. H. Sampson & Co.
DAVID VAN ALSTINE . . . 710 Fourteenth St., Louisville, Ky.	II.	Superintendent, Snead & Bible Iron Works.
MAURICE A. VIELÉ, B. S. . Katonah, N. Y.	II.	Assistant Engineer, Croton Aqueduct Commission.
C. MORRIS WILDER . . . E. Auburn Ave., Cincinnati, Ohio.	VI.	Electrical Engineer.
ELWOOD J. WILSON . . . Velardeña, Estado de Durango, Mexico.	III.	Superintendent, Velardeña Mining Co.
CHARLES H. WOODBURY . . 192 Boylston St., Boston, Mass.	II.	Artist.
VERNOR F. WORCESTER . . 40 Pine St., Rutland, Vt.	II.	Draughtsman, Howe Scale Co.
FRED R. YOUNG . . . . . 157 Summer St., Boston.	III.	In Business.

1887.

GEORGE A. ARMINGTON . . Wason St., Cleveland, Ohio.	II.	Superintendent, Phœnix Iron Works Co.
SIDNEY R. BARTLETT, D. M. D., 14 Pike's Peak Ave., Colorado Springs, Colo.	VII.	Of Firm of Bartlett & Co., Mines & Mining Stocks.
CHARLES A. BARTON . . . 10 No. Church St., Schenectady, N. Y.	II.	In Engineering Department, General Electric Co.
WILLIAM B. BLAKE . . . Fourteenth & Main Sts., Louisville, Ky.	I.	Assistant Engineer, Maintenance of Way, Louisville Division, Pittsburgh, Cincinnati, Chicago, & St. Louis Ry.
WALTER C. BRACE . . . 710 Seventeenth St., Denver, Colo.	III.	Metallurgist and Mining Engineer.
DWIGHT BRAINERD . . . 103 St. François Xavier, Montreal, Que.	IX.	Treasurer, Hamilton Powder Co.
HENRY B. BRAINERD . . . 103 St. François Xavier, Montreal, Que.	IX.	Treasurer, Dominion Cartridge Co. (Limited).
HENRY F. BRYANT . . . . Brookline, Mass.	I.	Of Firm of French & Bryant, Civil Engineers.

1887. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
FRANK GELETT BURGESS, 508 Sutter St., San Francisco, Cal.	I.	Designer.
JULIAN A. CAMERON, Forge Village, Mass.	II.	With Abbot Worsted Mills.
FRANK D. CARNEY, Steelton, Pa.	III.	With Pennsylvania Steel Co.
WINTHROP COLE, 4601 Pulaski Ave., Germantown, Pa.	II.	With the Wm. Cramp & Sons Ship and Engine Building Co.
HENRY J. CONANT, 53 State St., Boston.	II.	Engineer, Westinghouse, Church, Kerr, & Co.
HELEN COOLEY, M.D., 113 W. Eighty-fourth St., New York, N. Y.	V.	Physician; Teacher of Chemistry.
RALPH E. CURTIS, 29 Cortlandt St., New York, N. Y.	II.	Head Draughtsman, The Babcock & Wilcox Co.
WILLIAM C. CUSHING, M. A., 2 Carson St., Pittsburgh, Pa.	I.	Engineer of Maintenance of Way, Pittsburgh Division, Pennsylvania Lines West of Pittsburgh.
SARAH L. DAY, A. M., 280 Newbury St., Boston.	V.	Water Analyst, State Board of Health.
WALTER C. FISH, King's Beach Terrace, Lynn, Mass.	VI.	General Manager, Lynn Works, General Electric Co.
JOHN M. FOX, 66 Union St., Portland, Me.	VI.	Electrical Engineer and Contractor.
JOSEPH B. GAY, 12 Pearl St., Boston.	IV.	Of Firm of Gay & Proctor, Architects.
WALTER H. GLEASON, 99 Haverhill St., Boston.	V.	W. H. Gleason & Co., Wines & Liquors.
WILLIAM S. HADAWAY, JR., 26 Cortlandt St., New York, N. Y.	VIII.	Electrician, Central Electric Heating Co.
WILLIAM O. HILDRETH, Lawrence, Mass.	II.	Mechanical Engineer, Stanley Manufacturing Co.
JAMES C. HOBART, 217 W. Second St., Cincinnati, Ohio.	II.	Secretary and Superintendent, Triumph Compound Engine Co.
OREN S. HUSSEY, Nashua, N. H.	II.	Of Firm of Gregg & Son, Manufacturers of Doors, Windows, Blinds, etc.
EDWARD A. JONES, Pittsfield, Mass.	II.	With E. D. Jones & Sons' Co., Architects and Manufacturers of Paper Machinery.
CHARLES B. KENDALL, Passaic, N. J.	V.	Assistant Superintendent, Passaic Print Works.
WILLIAM D. LIVERMORE, Lawrence, Mass.	V.	Chemist, Washington Mills.

1887. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
PHILIP A. MOSMAN . . . Pueblo, Colo.	III.	With Colorado Smelting Co.
SAMUEL P. MULLIKEN, Ph. D. Boston, Mass.	V.	Instructor in Organic Chemistry, Mass. Institute of Technology.
GEORGE L. NORRIS . . . 61 Summit Ave., St. Paul, Minn.	III.	Chemist, Great Northern Ry.
GEO. W. PATTERSON, JR., M. A. Ann Arbor, Mich.	VI.	Assistant Professor of Physics, University of Michigan.
HERBERT A. RICHARDSON . P. O. Box 373, Lowell, Mass.	V.	Chemist for White Bros. & Co., Leather Manufacturers.
FRANZ H. SCHWARZ . . . 157 Haverhill St., Lawrence, Mass.	II.	Mechanical Engineer, Pacific Mills.
HENRY D. SEARS . . . . 7 Arch St., Boston.	VI.	With C. S. Knowles, Electric Railway and Lighting Supplies.
FRANK E. SHEPARD . . . Thirtieth & Blake Sts., Denver, Colo.	II.	Vice-President and Mechanical Engineer, Denver Engineering Works.
CHARLES P. SMITH . . . . 5516 Graham Pl., Pittsburgh, Pa.	II.	Draughtsman, Westinghouse Electric and Manufacturing Co.
HARRY E. SMITH . . . . Milwaukee, Wis.	V.	Chemist, Chicago, Milwaukee, & St. Paul R. R.
J. WALDO SMITH . . . . 500 Bloomfield Ave., Montclair, N. J.	I.	Chief Assistant Engineer, East Jersey Water Co.
HENRY SOUTHER . . . . Hartford, Conn.	III.	Chief of Department of Tests, Pope Manufacturing Co.
HOLLON C. SPAULDING . . 93 Liberty St., New York, N. Y.	II.	Electrical and Mechanical Engineer, The Geo. F. Blake Manufacturing Co.
TIMOTHY W. SPRAGUE . . 99 Cedar St., New York, N. Y.	III.	Consulting Engineer (for Electric Mining and Power Transmission).
JAMES H. STANWOOD . . . Boston, Mass.	I.	Instructor in Civil Engineering, Mass. Institute of Technology.
HENRY F. STODDARD . . . Waterbury & Ten Eyck Sts., Brooklyn, N. Y.	II.	With United States Cordage Co.
GILES TAINTOR . . . . . Springfield, Mass.	VI.	Superintendent, Western Division, New England Telephone and Telegraph Co.
EDWARD G. THOMAS . . . 383 Federal St., Boston.	II.	Mechanical Engineer, Blodgett Bros. & Co.
FREDERICK THOMPSON . . 1322 New York Ave., Washington, D. C.	I.	Bridge Engineer, Southern Ry.
WALTER S. THOMPSON . . Cleveland, Ohio.	I.	Assistant Engineer, New York, Chicago, & St. Louis R. R.

1887. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
GREENLEAF R. TUCKER . . Boston, Mass.	V.	Professor of General and Pharmaceutical Chemistry, Mass. College of Pharmacy; Professor of Chemistry, Boston Dental College; Chemist, Boston City Hospital.
H. JUDSON TUCKER . . . Central Falls, R. I.	VI.	With the New England Electric Copper Co.
ALEXANDER H. TWOMBLY . Yarmouthville, Me.	II.	Superintendent, Forest Paper Co. (S. D. Warren & Co., Proprietors).
RALPH VOSE . . . . . Hyde Park, Mass.	VI.	Electrician.
WALTER G. WHITMORE . . 44 Broad St., New York, N. Y.	VI.	Local Engineer, New York Office, General Electric Co.
GRANGER WHITNEY . . . 67 E. Fort St., Detroit, Mich.	III.	With Detroit Safe Co.
WILLIAM A. WHITNEY . . Sunapee, N. H.	I.	Manager, Emerson Paper Co.
HERBERT A. WILCOX . . . Aspen, Colo.	III.	Mining Engineer.
SIDNEY WILLIAMS . . . . Third & Walnut Sts., Philadelphia, Pa.	I.	General Manager, Philadelphia Belt Line R. R. Co.

1888.

HENRY D. BATES . . . . 6 Beacon St., Boston.	IV.	Managing Editor of "The Architectural Review."
HENRY FORBES BIGELOW . 3 Hamilton Pl., Boston.	IV.	Architect with Winslow & Wetherell.
HERBERT S. BIRD . . . . Ninth St. & Gowanus Canal, Brooklyn, N. Y.	V.	Chemist, New York Tartar Co.
WINSLOW BLANCHARD . . 42 Roslin St., Dorchester, Mass.	II.	Treasurer, Blanchard Machine Co.
ARTHUR T. BRADLEE . . . 78 Chauncy St., Boston.	II.	With Harding, Whitman, & Co.
BENJAMIN G. BUTTOLPH . . 87 Weybosset St., Providence, R. I.	II.	Engineer, State Enterprise and American Mutual Fire Insurance Cos.
ELBRIDGE S. CARLETON . . 44 Front St., Worcester, Mass.	IV.	With A. P. Cutting, Architect.
DAVID A. CENTER, A. B. . . 417 Madison Ave., New York, N. Y.	VI.	Principal, Woodbridge School.
STEPHEN CHILDS . . . . West Newton, Mass.	I.	Assistant Engineer, City Engineer's Office, City of Newton.
GEORGE E. CLAFLIN . . . Carnegie Bldg., Pittsburgh, Pa.	VI.	Of the Franklin Electric Co. (Kansas City, Mo. and Pittsburgh, Pa.).

1888. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
SYLVANUS H. COBB . . . 105 Warren Ave., Hyde Park, Mass.	VI.	Engineer (Chicago, Ill.).
RUSSELL H. COLBY . . . 186 Fox St., Aurora, Ill.	V.	Superintendent's Assistant, Chicago & Aurora Smelting and Refining Co.
FRED B. COLE . . . . . 53 State St., Boston.	II.	With Dean & Main, Mill and Mechanical Engineers.
BERTRAND R. T. COLLINS . W. Harrison St. & the River, Chicago, Ill.	II.	Engineer of Tests, Chicago Edison Co. (Harrison St. Power House).
EDWARD COLLINS, JR. . . . 985 Adams St., Dorchester, Mass.	VI.	Graduate Student, Harvard University (Cambridge, Mass.).
ARTHUR J. CONNER . . . 24 India Sq., Boston.	V.	Dealer in Physicians' Supplies.
RICHARD DEVENS . . . . Westfield, N. J.	II.	Assistant Signal Engineer, The Hall Signal Co.
EDGAR F. DUTTON . . . . 180 Summer St., Boston.	VI.	With Construction Department, General Electric Co.
HENRY F. EASTMAN . . . 327 E. Merrimack St., Lowell, Mass.	II.	Draughtsman, Fifield Tool Co.
RICHARD EPPES, JR. . . . City Point, Va.	II.	Manager, Appomattox Plantations.
LOUIS A. FERGUSON . . . Edison Bldg., 139 Adams St., Chicago, Ill.	VI.	Electrical Engineer, Chicago Edison Co.
BERTRAM P. FLINT . . . Washington, D. C.	II.	Superintendent, Washington, Alexandria, & Mt. Vernon St. Ry.
THEODORE A. FOQUE . . . 229 Eighth Ave. S. E., Minneapolis, Minn.	II.	Assistant Mechanical Superintendent, Minneapolis, St. Paul, & Sault Ste. Marie R. R.
STEJIRO FUKUZAWA . . . 2 Second St., Mita, Tokio, Japan.	I.	With the "Jiji Shimpo."
J. EDWARD FULLER, JR. . . 93 Foster St., Worcester, Mass.	IV.	General Contractor, Vandreuil, Fuller Co.
WILLIAM H. GERRISH . . 252 Pawtucket St., Lowell, Mass.	II.	With Massachusetts Cotton Mills.
HAROLD G. GROSS . . . . 535 Fourth St., Eureka, Cal.	VII.	Physician.
GEORGE W. HAMBLET . . Boston, Mass.	II.	Instructor in Mechanical Engineering, Mass. Institute of Technology.
WILLIAM L. HARRIS . . . Towner, N. Dak.	VII.	Proprietor, Gerard Lake Ranch.
GEORGE L. HARVEY . . . 115 Monroe St., Chicago, Ill.	II.	Architect and Mechanical Engineer.

1888. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
CHARLES F. HASTINGS . . Pittsburgh, Pa.	III.	With Open Hearth Department, Black Diamond Steel Works.
SAVORY C. HATHAWAY, JR. . 33 So. Fountain Ave., Springfield, Ohio.	VI.	Manager, with Adams & Odell (Incorporated).
GEORGE L. HEATH . . . . South Lake Linden, Mich.	V.	Chemist, Calumet & Hecla Smelting Works; Associate Mineral Expert, Calumet & Hecla Stamp Mills.
EDWARD W. HERRICK . . 77 Houston St., New York, N. Y.	II.	Consulting Engineer with Baker, Smith, & Co.
EDWARD C. HOLTON . . . 100 Canal St., Cleveland, Ohio.	V.	Chemist, Sherwin-Williams Co.
HENRY J. HORN, JR. . . . Staples, Minn.	I.	Supervisor of Bridges and Buildings, Northern Pacific R. R. (Minnesota Division).
FRANK M. JAMES . . . . No. Broadway, Haverhill, Mass.	II.	
ARTHUR WINSLOW JONES . P. O. Box 3507, Boston.	VI.	Representing General Electric Co. in Australia.
EDWIN O. JORDAN, Ph. D. . Chicago, Ill.	VII.	Assistant Professor of Biology, University of Chicago.
WILLIAM T. KEOUGH . . . East Boston, Mass.	II.	Engineer of The Atlantic Works.
GEORGE S. LEE . . . . . 12 Pearl St., Boston.	I.	With F. L. Fuller, Civil Engineer.
JAMES W. LOVELAND . . . Cambridgeport, Mass.	V.	Chemist with Curtis Davis & Co., Soap Manufacturers.
ARTHUR S. MANN . . . . 51 So. Jefferson St., Chicago, Ill.	II.	With Lammert & Mann, Engineers and Machinists.
CHARLES G. MERRELL . . P. O. Box 786, Cincinnati, Ohio.	V.	Vice-President and Superintendent, The W. S. Merrell Chemical Co.
FRANK A. MOORE . . . . 123 E. Twenty-third St., New York, N. Y.	IV.	Architect.
HENRY C. MOORE . . . . 90 Spring St., Rochester, N. Y.	II.	
ADDISON D. NICKERSON . . Medford, Mass.	I.	In Office of City Engineer.
EDWIN R. PEARSON . . . Lynn, Mass.	VI.	With the Alternating Current Department, General Electric Co.
CHARLES A. PETERSON, A. B. Cambridge, Mass.	VI.	
HERBERT F. PIERCE . . . West Newton, Mass.	I.	Assistant Engineer, City Engineer's Office, City of Newton.
GEORGE B. POOL . . . . 20 So. Market St., Boston.	VI.	Book-keeper with Pool Bros.

1888. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
J. STITES RAY . . . . . P. O. Box 364, Colorado Springs, Colo.	II.	Mining Engineer (Cripple Creek).
RUSSELL ROBB . . . . . 100 Washington St., Chicago, Ill.	VI.	Electrical Engineer with Stone & Webster, Electrical Experts and Engineers.
ODIN B. ROBERTS, A. M., LL. B. 95 Milk St., Boston.	II.	Lawyer.
FREDERICK H. SAFFORD, A. M. 80 Wendell St., Cambridge, Mass.	VI.	Instructor in Mathematics and Graduate Student, Harvard University.
ALFRED H. SAWYER . . . 34 Oliver St., Boston.	II.	General Agent, B. F. Sturtevant & Co. (Jamaica Plain, Mass.).
FREDERICK L. SAYER . . . 95 Liberty St., New York, N. Y.	II.	With The Geo. F. Blake Manufacturing Co.
WALTER K. SHAW . . . . 70 Kilby St., Boston.	II.	Of Firm of E. A. Shaw & Co., Cotton Brokers.
ANNIE SABINE SIEBERT . 40 Shepard St., Cambridge, Mass.	VIII.	
IVAR L. SJÖSTRÖM . . . . Central Bldg., Lawrence, Mass.	I.	Civil Engineer.
CLARENCE W. SMITH, A. B. . 120 Milk St., Boston.	V.	Patent Boiler Setting.
EDWARD M. SMITH . . . Boston, Mass.	II.	Assistant Engineer, Boston & Maine R. R.
FRANK O. STETSON . . . . La Crosse, Wis.	V.	Observer, U. S. Weather Bureau.
CHARLES A. STONE . . . . 4 Post-Office Sq., Boston.	VI.	Electrical Expert and Engineer, of the Firm of Stone & Webster.
JOHN M. SULLY . . . . . Chickamauga, Ga.	III.	Chief Engineer in charge of Mines, Chickamauga Coal and Iron Co.
MARION TALBOT, A. M. . . Chicago, Ill.	IX.	Dean of the Graduate School and Associate Professor of Sanitary Science, University of Chicago; President of the Association of Collegiate Alumnæ.
WALTER I. TOWNE . . . . 125 Milk St., Boston.	VI.	Assistant Electrical Engineer, New England Telephone and Telegraph Co.
CLARENCE B. VORCE . . . Stamford, Conn.	I.	Assistant Engineer of Construction, New York, New Haven, & Hartford R. R. Co.
A. SYDNEY WARREN . . . Buffalo, N. Y.	III.	With Buffalo Smelting Works.
EDWIN S. WEBSTER . . . 4 Post-Office Sq., Boston.	VI.	Electrical Expert and Engineer, of the Firm of Stone & Webster.
CHARLES L. WEIL . . . . Agricultural College, Mich.	II.	Professor of Mechanical Engineering, Michigan State Agricultural College.

1888. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
ARTHUR S. WILLIAMS . . Newton Highlands, Mass.	VI.	With the American Bell Telephone Co. (42 Farnsworth St., South Boston).
JOHN E. YOUNG . . . . . 33 Sheclock Bldg., Portland, Oreg.	I.	Treasurer, The J. M. Russell Co.

1889.

GEORGE M. BASFORD . . . 818 Rookery Bldg., Chicago, Ill.	II.	Mechanical Editor, "The Railway Review."
EDWARD J. BEACH . . . . 1183 Locust St., Dubuque, Iowa.	V.	Soap Manufacturer, of the Firm of James Beach & Son.
ARTHUR B. BELLOWS . . . 116 Water St., Pittsburgh, Pa.	II.	General Manager and Member of the Firm of Pittsburgh Testing Laboratory, Limited.
WILLARD G. BIXBY . . . 194 Hester St., New York, N. Y.	II.	With S. M. Bixby & Co., Manufacturers of Shoe Blackings.
ZENAS W. BLISS . . . . . P. O. Box 1545, Providence, R. I.	II.	In Real Estate Business.
CHARLES N. BORDEN . . . 89 Rock St., Fall River, Mass.	II.	Clerk with Richard Borden Manufacturing Co.
FREDERICK W. BRADLEY . 46 Jackson St., Chicago, Ill.	VI.	Vice-President, Monarch Book Co.
FREDERICK H. BRAINERD . Union Stock Yards, Chicago, Ill.	III.	Chemist at Swift & Co.'s Lard Refinery.
LUTHER W. BRIDGES . . . 163 So. Canal St., Chicago, Ill.	II.	Representing The Geo. F. Blake Manufacturing Co. and Knowles Steam Pump Works.
J. NORMAN BULKLEY . . . Schenectady, N. Y.	VI.	With General Electric Co.
FRANK H. CILLEY . . . . Care Dresdner Bank, Berlin, Germany.	I.	Student, Technische Hochschule, Charlottenburg.
FRED CRABTREE . . . . . McKeesport, Pa.	V.	Chemist, Monongahela Furnaces.
HENRY A. CRAIGIN . . . . 120 Broadway, New York, N. Y.	II.	Engineer and Sales Agent.
CHARLES H. CROMWELL . . Baltimore, Md.	II.	Of Cromwell Bros., Brick Manufacturers.
ROLAND N. CUTTER . . Winchester, Mass.	I.	In Engineering Department, City of Boston.
FRANK L. DAME . . . . Tacoma, Wash.	VI.	Superintendent, Tacoma Railway and Motor Co.
WILLIAM S. DAVENPORT . Göttingen, Germany.	V.	Student, University of Göttingen.
ARTHUR L. DAVIS . . . St. Albans, Vt.	II.	Manager, The Vermont Construction Co.

1889. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
CHARLES B. DODGE . . . 258 Washington St., Boston.	IX.	In Real Estate Business.
NATHAN DURFEE . . . . 74 High St., Fall River, Mass.	II.	
HARRISON G. DYAR, Ph. D. 243 W. Ninety-ninth St., New York, N. Y.	V.	Assistant in Bacteriology, Columbia College.
ARTHUR V. EDWARDS . . 125 Milk St., Boston.	IV.	Draughtsman, Engineering Department, American Bell Telephone Co.
J. PARKER B. FISKE . . . Schenectady, N. Y.	VI.	Electrical Engineer, General Electric Co.
ALFRED W. FRENCH . . . Jefferson Barracks, Mo.	I.	Civil Engineer, in the Employ of the United States.
EDWARD V. FRENCH . . . 31 Milk St., Boston.	II.	Inspector, Associated Factory Mutual Insurance Cos.
HOLLIS FRENCH . . . . 3 Hamilton Pl., Boston.	VI.	Consulting Electrical Engineer.
EARL W. GANNETT . . . Brown Block, Omaha, Neb.	VI.	Treasurer, Omaha Fire Insurance Co.
JAMES P. GILBERT . . . . Warren, Ohio.	V.	General Superintendent, New York and Ohio Co., Manufacturers of Incandescent Lamps, etc.
BENJAMIN W. GUPPY . . . Union Station, Boston.	I.	Assistant Bridge Engineer, Boston & Maine R. R.
HENRY M. HOBART . . . 242 Massachusetts Ave., Boston.	VI.	With the General Electric Co.
FRANKLIN W. HOBBS . . . 78 Chauncy St., Boston.	II.	Assistant Treasurer, Arlington Mills.
GEORGE U. G. HOLMAN . . Oak Lane, Station A., Philadelphia, Pa.	VI.	Secretary, Treasurer, and Manager of the Cheltenham Electric Light, Heat, and Power Co.
RICHARD HOOKER . . . . 104 Chestnut St., Boston.	IV.	Draughtsman.
FREDERICK L. HOPKINS . . 177 Bridgham St., Providence, R. I.	V.	On Editorial Staff, Providence Journal.
HARRY H. HUNT . . . . Equitable Bldg., Boston.	VI.	Electrical Engineer and Manufacturers' Agent.
EDWARD S. HUTCHINS . . Bath, Me.	II.	With Bath Iron Works.
LEWIS E. JOHNSON . . . . Steelton, Pa.	II.	Assistant Engineer, Pennsylvania Steel Co.
WILLIAM S. JOHNSON . . State House, Boston.	I.	Assistant Engineer, Mass. State Board of Health.
WALTER H. KILHAM . . . 3 Hamilton Pl., Boston.	IV.	With Winslow & Wetherell, Architects.

1889. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
ARTHUR D. KINSMAN Ipswich, Mass.	VIII.	Farming.
LEWIS H. KUNHARDT 31 Milk St., Boston.	II.	Head Draughtsman, Associated Factory Mutual Insurance Cos.
GEORGE B. LAUDER Concord, N. H.	VI.	Inspector, New Hampshire Board of Fire Underwriters.
FRANK A. LAWS Boston, Mass.	VI.	Instructor in Electrical Measurements, Mass. Institute of Technology.
WILLIAM W. LEWIS 20 Beacon St., Boston.	II.	Assistant Engineer, Boston Transit Commission.
JOHN W. LINZEE, JR., A. B. 92 Charles St., Boston.	I.	With R. H. White & Co.
HARRISON LORING, JR. 33½ India St., Boston.	II.	Of Firm of R. S. Brine & Co.
SAMUEL H. MILDRAM 125 Milk St., Boston.	I.	With the American Bell Telephone Co.
WILLIAM E. MOTT Ithaca, N. Y.	I.	Instructor in Civil Engineering, Cornell University.
CLAYTON W. PIKE 1210 Betz Bldg., Philadelphia, Pa.	VI.	Electrical Engineer, Falkenan Engineering Co. (Limited).
CHARLES W. POWER Pittsfield, Mass.	VI.	With D. M. Collins & Co., Berkshire Knitting Mills.
FRED W. RANNO P. O. Box 609, La Porte, Ind.	I.	Resident Engineer, Lake Shore & Michigan Southern Ry.
GEORGE L. RICHARDSON San Rafael, Cal.	I.	City Engineer and County Surveyor.
GEORGE W. ROUNDS Equitable Bldg., Boston.	VI.	Electrical Engineer and Manufacturers' Agent.
FRANK E. SANBORN Tufts College, Mass.	II.	Instructor in Mechanical Engineering.
ALBERT SAUVEUR South Chicago, Ill.	III.	With the Illinois Steel Co. (South Works).
EDWARD V. SHEPARD 910 Corn Exchange Bank Bldg., New York, N. Y.	I.	Consulting Engineer.
WILLIAM G. SNOW 31 Union St., Boston.	II.	With Walker & Pratt Manufacturing Co.
DELIA STICKNEY 19 Trowbridge St., Cambridge, Mass.	V.	Instructor in Chemistry, Cambridge English High School.
RALPH SWEETLAND 55 Kilby St., Boston.	II.	Electrical Inspector, New England Insurance Exchange.
SANFORD E. THOMPSON Newton Highlands, Mass.	I.	With J. P. Frizell (60 Congress St., Boston).
FRANK H. THORP, Ph. D. Boston, Mass.	V.	Instructor in Industrial Chemistry, Mass. Institute of Technology.

1889. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
WILLIAM B. THURBER, M. S. Burlington, Vt.	IX.	Superintendent, New England Telephone and Telegraph Co.
ARTHUR E. TRUESDELL . . 95 Milk St., Boston.	VI.	Secretary, Boston and South Riverside Fruit Co.
WILLIAM W. UNDERHILL . 45 Kilby St., Boston.	II.	With The Geo. H. Underhill Warming and Ventilating Co.
CHARLES H. WARNER . . 50 Broadway, New York, N. Y.	VI.	Consulting and Supervising Engineer.
GEORGE C. WHIPPLE . . . Brighton, Mass.	I.	Biologist, Boston Water Works.
JASPER WHITING . . . . 20 Wabansia Ave., Chicago, Ill.	III.	Superintendent of Blast Furnaces, Illinois Steel Co. (North Works).
FRANK P. WHITNEY . . . 125 Milk St., Boston.	VI.	With New England Telephone and Telegraph Co.
ROBERT C. WILLIAMS . . 421 E. Ridge St., Marquette, Mich.	III.	Mining; also of Williams Brothers, Fruit Growers, Florida.
ARTHUR L. WILLISTON . . Columbus, Ohio.	II.	Director of the Industrial Department, Ohio State University.
VICTOR WINDETT . . . . South Chicago, Ill.	II.	With Illinois Steel Co.
CAROLINE A. WOODMAN, A. M. Lewiston, Me.	VII.	Librarian, Bates College.
WALTER G. WUICHET . . 418 W. First St., Dayton, Ohio.	II.	Superintendent, A. A. Simonds & Son, Manufacturers of Knives.

1890.

ARTHUR H. ADAMS . . . 46 Avenue de Breteuil, Paris, France.	II.	Superintendent, Société de Matériel Téléphonique.
CHARLES H. ALDEN, JR. . 40 E. Lexington St., Baltimore, Md.	IV.	Draughtsman with Wyatt & Nölting, Architects.
FRANK W. ATWOOD . . . 98 Commercial St., Boston.	V.	Agent for C. Bischoff & Co., Aniline Importers.
ARTHUR W. AYER . . . . Burlington, Vt.	II.	Professor of Mechanical Engineering, University of Vermont.
CYRUS C. BABB . . . . . Washington, D. C.	I.	Assistant Hydrographer, U. S. Geological Survey.
JOSEPH B. BAKER . . . . 125 Milk St., Boston.	VI.	With the American Telephone and Telegraph Co.
HIRAM E. BALDWIN . . . Cleveland, Ohio.	I.	With the Brown Hoisting and Conveying Machine Co.
SPAULDING BARTLETT . . Webster, Mass.	V.	With the Slater Woollen Co.

1890. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
JOHN L. BATCHELDER, JR. . 356 Federal St., Boston.	VII.	With Batchelder Bros.
CHARLES B. BEASOM . . . 135 Carondelet St., New Orleans, La.	II.	Of Swanitz & Beasom, Consulting and Contracting Engineers.
ELIZABETH E. BICKFORD, Ph.D. Poughkeepsie, N. Y.	VII.	Assistant in Biology, Vassar College.
JOHN B. BLOOD . . . . . 5 So. Church St., Schenectady, N. Y.	VI.	Assistant Engineer, Railway Department, General Electric Co.
AUSTIN D. BOSS . . . . . 34 Morgan St., Hartford, Conn.	II.	Manager, Hartford Department, Willimantic Linen Co.
CHARLOTTE A. BRAGG . . Wellesley, Mass.	V.	Instructor in Chemistry, Wellesley College.
EDWARD F. BRAGG . . . . 275 Devonshire St., Boston.	II.	President and General Manager, Automatic Rubber Mixer Co.
EDWARD D. BROWN . . . 18 Cortlandt St., New York, N. Y.	VI.	With the American Telephone and Telegraph Co.
ERNEST H. BROWNELL, A. B. 174 Weybosset St., Providence, R. I.	I.	With Samuel M. Gray, Consulting Engineer.
EDWARD C. BURNHAM, A. B. Providence, R. I.	II.	Instructor in Mechanical Drawing and Engineering, Brown University.
GARY N. CALKINS . . . . New York, N. Y.	IX.	Instructor in Biology, Columbia College; Instructor in Zoölogy, Barnard College.
MORTEN CARLISLE . . . . 828 W. Sixth St., Cincinnati, Ohio.	VI.	With Carlisle & Finch, Electrical Engineering, Manufacturing, and Repairing.
CHESTER V. CARLTON . . Milford, N. H.	I.	Superintendent, Cabano Shingle and Lumber Mills (Rimouski, Que.).
JAMES A. CARNEY . . . . Aurora, Ill.	V.	Engineer of Tests, Chicago, Burlington, & Quincy R. R.
GEORGE D. CHAPMAN . . . Fitchburg, Mass.	II.	Mechanical Engineer.
FRANK L. CHASE . . . . Central Union Station, Cincinnati, Ohio.	I.	Bridge Engineer, Baltimore & Ohio Southwestern Ry.
JAMES CLARK, JR. . . . . 313 W. Main St., Louisville, Ky.	VI.	Of the Firm of James Clark, Jr., & Co., Electrical Supplies.
WILLIAM H. COLLINS . . Providence, R. I.	V.	With Silver Spring Bleaching and Dyeing Co.
WALTER F. COOK . . . . 23 Avon St., Boston.	IX.	With T. D. Cook & Co.
JOHN G. CRANE . . . . . 818 Prudential Bldg., Newark, N. J.	I.	With the Barber Asphalt Paving Co.

1890. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
DARRAGH DE LANCEY . . Rochester, N. Y.	II.	Manager, Kodak Park Works, the Eastman Kodak Co.
ALEXANDER J. DELANO . . 125 Milk St., Boston.	I.	Draughtsman, Engineering Department, American Bell Telephone Co.
JOHN O. DEWOLF . . . . 33 Hampshire St., Cambridgeport, Mass.	II.	With Boston Woven Hose and Rubber Co.
FREDERICK H. DODGE . . 10 Produce Exchange Bldg., Toledo, Ohio.	II.	Treasurer, of Bissell, Dodge, & Erner Co., Electrical Supplies and Machinery, and of F. H. Dodge & Co., Insurance.
FRANCIS W. DUNBAR . . . 417 W. Twenty-third St., New York, N. Y.	VI.	Electrical Engineer.
PIERRE S. DU PONT . . . Wilmington, Del.	V.	With E. du Pont, De Nemours, & Co.
EDWIN F. DWELLEY . . . 25 Baltimore St., Lynn, Mass.	I.	With Isaac K. Harris, Civil Engineer and Surveyor.
ELWOOD A. EMERY, B. L. . Grinnell, Iowa.	IV.	Director of Vocal Culture, Iowa Conservatory.
WILLIAM H FENN . . . . 222 Whiton St., Jersey City, N. J.	I.	With Hay Foundry and Iron Co. (Newark, N. J.).
WILLIAM P. FLINT . . . . East Pittsburgh, Pa.	II.	With Pittsburgh Meter Co.
SAMUEL D. FLOOD . . . . 311 Trust Bldg., Dallas, Tex.	II.	Texas Manager, Cotton Ginners' Compress Co. (New York, N. Y.).
GEORGE W. FULLER . . . 549 Third St., Louisville, Ky.	V.	Chief Chemist and Bacteriologist, Louisville Water Co.
GEORGE L. GILMORE . . . Somerville, Mass.	II.	With Gilmore & Haigh, Middlesex Bleach, Dye, and Print Works.
JOHN W. GLIDDEN . . . . De Kalb, Ill.	II.	Superintendent, De Kalb Electric Co.
HARRY M. GOODWIN, Ph.D. Boston, Mass.	VIII.	Instructor in Physics, Mass. Institute of Technology.
FRANK M. GREENLAW . . South Berwick, Me.	VI.	Teaching.
GEORGE E. HALE . . . Chicago, Ill.	VIII.	Associate Professor of Astro-Physics and Director of the Observatory, University of Chicago.
JOHN R. HALL . . . . . Los Angeles, Cal.	VI.	With Sunset Telephone Co.
PHILIP M. HAMMETT, A. B. Wilmington, Del.	II.	General Foreman, Locomotive Department, Philadelphia, Wilmington, & Baltimore R.R.
CHARLES HAYDEN . . . . 87 Milk St., Boston.	IX.	Of the Firm of Hayden, Stone, & Co., Bankers.
SOPHIA G. HAYDEN . . . Forest Hills, Jamaica Plain, Mass.	IV.	Architect.

1890. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
FRANK HAYES . . . . . 314 Burrows Bldg., Duluth, Minn.	II.	Mechanical Engineer.
HARRY E. HAYES, A. B. . . 153 Cedar St., New York, N. Y.	VI.	With the American Telephone and Telegraph Co.
SCHUYLER HAZARD . . . . Third & Smith Sts., Cincinnati, Ohio.	I.	Assistant Engineer, Cleveland, Cincinnati, Chicago, & St. Louis Ry.
FREDERICK S. HOLLIS . . Baltimore, Md.	V.	Student, Johns Hopkins University.
S. ELLSWORTH HORTON . . Windsor Locks, Conn.	II.	Superintendent, The E. Horton & Son Co., Manufacturers of Horton Chucks.
FRANCIS H. KENDALL . . Court House, East Cambridge, Mass.	I.	Engineer for Middlesex County Commissioners.
HARRY A. KENNICOTT . . Milwaukee, Wis.	I.	With Wisconsin Bridge and Iron Co.
FRANKLIN KNIGHT . . . 704 No. Tejon St., Colorado Springs, Colo.	I.	Student.
BERTRAM A. LENFEST . . Broadway & York Sq., New Haven, Conn.	II.	Instructor in Drawing and Machine Design, Boardman Manual Training High School.
ERNEST A. LE SUEUR . . . 85 James St., Ottawa, Ont.	VI.	Consulting Electrical Engineer.
BERTRAM H. MANN . . . Somerset, Ky.	VI.	Superintendent of Signals, Chattanooga Division, Chicago, New Orleans, and Texas Pacific Ry.
GEORGE B. MCCONNELL . . 516 Warren St., Roxbury, Mass.	I.	With Board of Street Commissioners, City of Boston.
FREDERICK METCALF . . . Providence, R. I.	II.	Superintendent, American Ship Windlass Co.
BURDETT MOODY . . . . Lead, S. Dak.	I.	Engineer for Homestake and Associate Mining Companies.
STEPHEN W. MOORE . . . 726 No. Weber St., Colorado Springs, Colo.	II.	
CHARLES NEAVE, A. M. . . 80 Broadway, New York, N. Y.	VI.	Lawyer, of Firm of Fish, Richardson, & Storrow.
ALLAN H. NEWELL . . . 18 E. Flora St., Stockton, Cal.	II.	Of the Firm of Tretheway, Dasher, & Newell, Stockton Iron Works.
NORMAN G. NIMS . . . . 8 Beacon St., Boston.	IV.	Draughtsman with Andrews, Jaques, & Rantoul, Architects.
ALMON E. NORRIS . . . . 29 Main St., Cambridgeport, Mass.	II.	Mechanical Engineer and Draughtsman.

1890. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
CLARENCE G. NORRIS . . . 45 Water St., Hyde Park, Mass.	I.	With E. A. W. Hammatt, Civil and Hydraulic Engineer.
HARRY L. NOYES . . . . 20 Fargo Ave., Buffalo, N. Y.	I.	Draughtsman, Buffalo Bridge and Iron Works.
JOSEPH K. NOYES . . . . 13 Ferry St., Binghamton, N. Y.	I.	Of the Firm of Joseph P. Noyes & Co., Manufacturers of Combs and Buttons.
GEORGE A. PACKARD . . . Cooke City, Mont.	III.	Mining Engineer.
WILLIAM R. PEYTON . . . Superior, Wis.	II.	Treasurer, William Listman Milling Co.
WILLIAM B. POLAND . . . 26 Fort Wayne Ave., Indianapolis, Ind.	I.	Assistant Engineer, Chicago Division, Cleveland, Cincinnati, Chicago, & St. Louis Ry.
EDWARD B. RAYMOND . . . 168 Lafayette St., Schenectady, N. Y.	VI.	Electrical Engineer, General Electric Co.
CALVIN W. RICE . . . . Silverton, Colo.	VI.	Engineer, Silver Lake Mines.
KNIGHT C. RICHMOND, B. P. Crompton, R. I.	II.	Mechanical Engineer with the Crompton Co.
WILLIAM Z. RIPLEY, Ph. D. . Boston, Mass.	I.	Assistant Professor of Sociology and Economics, Mass. Institute of Technology; Lecturer on Anthropology, Columbia College.
HAROLD B. ROBERTS . . . 125 Milk St., Boston, Mass.	II.	Foreman, Construction Department, New England Telephone and Telegraph Co.
EDWARD ROBINSON . . . Boston, Mass.	II.	Instructor in Mechanical Drawing, Mass. Institute of Technology.
ALLEN H. ROGERS . . . . Aguas calientes, Mexico.	III.	With La Gran Fondicion Central Mexicana.
MINNIE H. ROGERS . . . . Forest Hills St., Jamaica Plain, Mass.	IX.	Principal of Private School.
LOUIS SCHMIDT . . . . . 215 E. Fourth St., Cincinnati, Ohio.	V.	City Chemist, Cincinnati, Ohio, and Newport, Ky.
ADELAIDE SHERMAN . . . 4 Crawford St., Roxbury, Mass.	V.	Teacher of Chemistry (High School, Lynn, Mass.).
CHARLES W. SHERMAN . . 1 Berkeley St., Cambridge, Mass.	I.	Assistant Engineer, Boston Water Works.
EDMUND T. SIMPSON . . . 84 Middle St., Lowell, Mass.	V.	With Simpson & Rowland.
HOWARD C. SLATER . . . Eddystone, Delaware Co., Pa.	II.	Assistant Engineer, The Eddystone Manufacturing Co.

1890. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
WILLIAM LINCOLN SMITH . Boston, Mass.	VI.	Instructor in Electrical Engineering, Mass. Institute of Technology.
GEORGE A. SONNEMANN . . Kellogg, Idaho.	III.	Superintendent, The Bunker Hill & Sullivan Mining and Concentrating Co. (Wardner, Idaho).
MARTIN O. SOUTHWORTH . 117 So. Capital Ave., Indianapolis, Ind.	VI.	Manager, Commercial Electric Co.
SAMUEL STORROW, A. B. . North Yakima, Wash.	I.	Hydraulic Engineer.
BENTON STURGES . . . . 108 Dearborn St., Chicago, Ill.	IX.	In Real Estate and Mortgage Business.
THOMAS J. STURTEVANT . . Harrison Sq., Mass.	VI.	With the Sturtevant Mill Co.
FREDERICK W. SWANTON . Bath, Me.	VI.	With Eastern Steamboat Co.
JOHN HENRY TOWNE . . . 280 Broadway, New York, N. Y.	IX.	With The Yale & Towne Manufacturing Co.
ELTON D. WALKER . . . . 605 Union St., Schenectady, N. Y.	I.	Civil Engineer and Instructor in Engineering, Union College.
ROBERT T. WALKER . . . 6 Beacon St., Boston.	IV.	Draughtsman, with Longfellow, Alden, & Harlow, Architects.
FRANKLIN W. WHITE . . . Boston, Mass.	VII.	House Physician, Mass. General Hospital.
WILLIS R. WHITNEY . . . Haydnstr. 4-I., Leipsic, Germany.	V.	Student in the University.
ARTHUR R. WILSON . . . 29 Macdonough Bldg., Oakland, Cal.	I.	City Engineer and Commissioner of Public Works.
ANDREW W. WOODMAN . . 84 Bellingham St., Chelsea, Mass.	I.	With Boston Bridge Works (Boston, Mass.).

1891.

CHARLES W. AIKEN . . . Cambridgeport, Mass.	II.	With Curtis Davis & Co., Soap Manufacturers.
ROBERT S. BALL . . . . . Louisville, Ky.	II.	Chief Draughtsman, Machine Department, Louisville & Nashville R. R.
JOEL G. BARRI . . . . . 27 State St., Boston.	I.	Civil Engineer.
WILLIAM H. BASSETT . . . 236 Maxfield St., New Bedford, Mass.	V.	Teacher of Chemistry, Swain Free School.

1891. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
ADELAIDE BIRD . . . . . Chambersburgh, Pa.	VII.	Teacher of Biology, Wilson College.
JOHN H. BIRKS . . . . . Phillips Sq., Montreal, Que.	II.	Of the Firm of Henry Birks & Sons.
ETHEL B. BLACKWELL, M.D. Elizabeth, N. J.	VII.	Graduate Student, Johns Hopkins Medical College.
FREDERICK C. BLANCHARD . 303 Congress St., Boston.	II.	Secretary, Blanchard Machine Co.
THOMAS V. BOLAN, A. B. . Providence, R. I.	VI.	With Union R. R. Co.
HENRY G. BRADLEE . . . 4 Post-Office Sq., Boston.	VI.	With Stone & Webster, Electrical Experts and Engineers.
HARRY C. BRADLEY . . . 142 Post-Office Building, Boston.	I.	Assistant Light-house Surveyor.
WALLACE H. BRAINERD . . 1407 W. Eighty-seventh St., Chicago, Ill.	VI.	
HORACE L. BRAND . . . . 32 Cedar St., Chicago, Ill.	II.	Vice-President, J. P. Wolf Manufacturing Co.
DIXIE LEE BRYANT . . . . Greensboro, N. C.	XII.	Teacher of Geology and Biology, State Normal School.
WILLIAM P. BRYANT . . . 55 Kilby St., Boston.	X.	With Inspection Department, Boston Board of Fire Underwriters.
GEORGE W. BRYDEN . . . 47 No. Market St., Boston.	II.	With Bryden & Estabrook, Commission Merchants.
FRANK H. BURTON . . . . 40 Bassett St., Providence, R. I.	II.	Chief Draughtsman, Armington & Sims Engine Co.
GEORGE A. CAMPBELL, A. M. Derry, N. H.	I.	Studying abroad (Paris, France).
BARNARD CAPEN, JR. . . . 125 Milk St., Boston.	VI.	With New England Telephone and Telegraph Co.
HUGH B. CLEMENT, Ph. B. . 31 E. Seventeenth St., New York, N. Y.	IV.	Draughtsman with Cady, Berg, & See, Architects.
ALBERT L. CLOUGH . . . . 181 Walnut St., Manchester, N. H.	VI.	General Manager, Brodie Electric Co.
FRED A. COLE . . . . . Cambridgeport, Mass.	II.	With Curtis Davis, & Co., Soap Manufacturers.
HARRISON I. COLE . . . . East Boston, Mass.	II.	Draughtsman, The Atlantic Works.
REUBEN B. COLLINS . . . High St., Dedham, Mass.	I.	Assistant Engineer, New York, New Haven, & Hartford R. R.
ROGER W. CONANT . . . . 439 Albany St., Boston.	VI.	In Electrical Department, West End Street Ry. Co.

1891. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
EDWARD CUNNINGHAM . . 70 Kilby St., Boston.	X.	With Samuel Cabot, Manufacturing Chemist.
HERBERT C. DAGGETT . . 66 Broadway, Lowell, Mass.	I.	Assistant Engineer in Office of Locks and Canals.
HOWARD A. DILL, B. S. . . Richmond, Ind.	I.	Secretary and Treasurer, Richmond Bicycle Co.
EDWARD W. DONN, JR. . . Metzerott Bldg., Washington, D. C.	IV.	Of the Firm of Donn & Peter, Architects.
FRANK H. DORR . . . . 6519 Sheridan Ave., Chicago, Ill.	VI.	With General Electric Co. (Engineering Department).
LEWIS A. DUNHAM . . . . San Juancito, Honduras, C. A.	I.	Mining Engineer with the New York and Honduras Rosario Mining Co.
PAUL W. ENGLAND . . . 42 Farnsworth St., So. Boston.	VI.	With American Bell Telephone Co.
HORACE H. ENSWORTH . . 510 Farmington Ave., Hartford, Conn.	VI.	With L. L. Ensworth, Dealer in Iron and Steel.
GEORGE W. FAVOR . . . 54 No. Clinton St., Chicago, Ill.	III.	Representing Sullivan Machinery Co.
HENRY A. FISKE . . . . 45 Kilby St., Boston.	X.	Special Agent, Imperial Fire Insurance Co. of London, England.
HOWARD C. FORBES . . . 31 State St., Boston.	X.	Of Firm of Forbes & Glidden, Electrical and Chemical Engineers.
LESTER G. FRENCH . . . 9 Codding St., Providence, R. I.	II.	With the Builders' Iron Foundry.
FREDERICK W. FÜGER . . Governor's Island, New York, N. Y.	II.	Second Lieutenant, U. S. Infantry.
CHARLES GARRISON . . . 93 Federal St., Boston.	VI.	Treasurer and Manager, Shawmut Fuse Wire Co.
MEDOREM W. GREER . . . Stanford University, Cal.	VI.	Engaged in Literary Work.
EDGAR L. HAMILTON . . . Marinette, Wis.	III.	Secretary, Marinette and Menominee Paper Co.
CHARLES F. HAMMOND . . 1015 Hammond Bldg., Detroit, Mich.	I.	In Business.
WILLIAM HASKINS . . . . 17 Liberty St., Waltham, Mass.	III.	Secretary and Treasurer, Waltham Lumber Co.
ARTHUR E. HATCH . . . 13 Eddy St., Providence, R. I.	I.	With Henry R. Worthington, Hydraulic Machinery.
HERBERT E. HATHAWAY . Providence, R. I.	V.	With the Silver Spring Bleaching and Dyeing Co.
ERNEST A. HERSAM . . . Berkeley, Cal.	V.	Instructor in Metallurgy and Analytical Assistant, University of California.

1891. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
GEORGE A. HOLMES . . . 95 Milk St., Boston.	X.	With Consolidated Fastener Co.
WALTER E. HOPTON . . . 634 Jersey Ave., Jersey City, N. J.	II.	Mechanical Engineer, with Colgate & Co.
HARRY W. JORDAN . . . 406 E. Willow St., Syracuse, N.Y.	V.	With Solvay Process Co.; Manager, Loewig Caustic Soda Department.
MILTON H. KAUFFMAN . . 53 Dearborn St., Chicago, Ill.	V.	Consulting and Analytical Chemist.
THOMAS M. KEENE . . . 15 Court Sq., Boston.	I.	Assistant Engineer, Mass. Highway Commission.
HERBERT S. KIMBALL . . Malden, Mass.	X.	With the Boston Rubber Shoe Co.
MORRIS KNOWLES, 2d . . 3 Mt. Vernon St., Boston.	I.	Assistant Engineer, Metropolitan Water Board.
WILLIAM H. LAWRENCE . . Boston, Mass.	IV.	Instructor in Architecture, Mass. Institute of Technology.
WOODRUFF LEEMING . . . 216 Park Pl., Brooklyn, N. Y.	IV.	Architect.
WILLIAM E. LELAND . . . 909 Fulton Bldg., New York, N.Y.	II.	With A. R. Wolff, Consulting Engineer.
MARGARET E. MALTBY, Ph.D. Göttingen, Germany.	VIII.	Student at the University.
ARTHUR N. MANSFIELD . . 153 Cedar St., New York, N. Y.	VIII.	With the American Telephone and Telegraph Co.
CLEMENT MARCH . . . . Bridgeport, Conn.	I.	With American Graphophone Co.
PHILIP MARQUAND, A. B. . 70 Kilby St., Boston, Mass.	I.	Of Marquand & Stearns, Agents, Edge Moor Bridge Works.
ALEXANDER G. MCKENNA . Demmler, Pa.	V.	With Sterling Steel Co.
GUY EDWARD MITCHELL . Medford, Mass.	II.	Chief Draughtsman, Motive Power Department, Boston & Maine R. R.
FREDERICK CLOUSTON MOORE Auburn, N. Y.	II.	Assistant General Superintendent, D. M. Osborne & Co., Manufacturers of Harvesting Machinery.
FRED F. MOORE . . . . . South Framingham, Mass.	I.	Assistant Engineer, Boston Water Works, Western Division.
ALEXANDER W. MOSELEY . Boston, Mass.	II.	Assistant in Mechanical Engineering, Mass. Institute of Technology.
WILLIAM MOSSMAN . . . Mattapan, Mass.	VI.	Assistant Superintendent, Mattapan Mills, The Tileston & Hollingsworth Co.
FRED E. NORTON . . . . Johannesburg, South African Republic.	II.	Mechanical Engineer for Edw. P. Allis Co. (Milwaukee, Mich.).
GEORGE H. K. OXFORD . . 105 Quincy St., Chicago, Ill.	VI.	With the American Telephone and Telegraph Co.

1891. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
WILLIAM I. PALMER . . . 103 Medford St., Charlestown, Mass.	VI.	With Palmer, Parker, & Co.
ALLAN RAMSEY . . . . . 293 McMillan St., W. H., Cincinnati, Ohio.	VII.	Student, Ohio Medical College.
CARLETON A. READ . . . Boston, Mass.	II.	Instructor in Mechanical Engineering, Mass. Institute of Technology.
WILLIAM C. RICHARDSON . P. O. Box 5282, Boston.	II.	Travelling.
CHARLES W. RICKER . . . 1200 D. S. Morgan Bldg., Buffalo, N. Y.	VI.	Electrical Engineer.
WILLIAM J. ROBERTS, A. B. Pullman, Wash.	I.	Assistant Professor of Mathematics and Civil Engineering, Washington Agricultural College.
WILLARD H. ROOTS . . . 22 Lawrence Hall, Cambridge, Mass.	IX.	Student, Episcopal Theological School.
FREDERIC H. ROSE . . . . 39 Woodland Ave., Cleveland, Ohio.	II.	Manager of the Cleveland Chocolate and Cocoa Co.
A. FORREST SHATTUCK . . Syracuse, N. Y.	V.	Chemist, the Solvay Process Co.
FREDERICK T. SNYDER . . Mack Block, Denver, Colo.	VI.	Consulting Engineer for Metallurgical Plants.
THEODORE SPENCER . . . 106 Market St., Philadelphia, Pa.	VI.	With the Bell Telephone Co. of Philadelphia.
GEORGE H. SPOONER . . . 55 Kilby St., Boston.	VI.	Electrical Inspector, Boston Board of Fire Underwriters.
SOLOMON H. STIX . . . . 1241 State St., Chicago, Ill.	IV.	Of the Firm of Friedlander, Brady, & Co., Manufacturers of Knitted Goods.
ARTHUR B. STODDARD . . La Salle, Ill.	V.	Superintendent, Acid Department, Matthiessen & Hegeler Zinc Co.
JAMES SWAN . . . . . Boston, Mass.	II.	Instructor in Naval Architecture, Mass. Institute of Technology.
HENRY H. SYKES, Ph. B. . Tenth & Olive Sts., St. Louis, Mo.	VI.	Chief Engineer, Bell Telephone Co. of Missouri.
HARRY B. TAYLOR . . . . 69 Myrtle St., Lowell, Mass.	V.	With Laurie & Buchanan (14 Stone St., New York, N. Y.).
HERBERT A. THOMPSON . Amherst, Mass.	VIII.	In Department of Physics, Amherst College.
CLIFFORD M. TYLER . . . Harvard St., Brookline, Mass.	II.	Superintendent, Aberthaw Construction Co. (31 State St., Boston).

1891. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
LUIS F. VERGES . . . . . 37 Central St., Boston.	I.	In Business.
FRANCIS S. VIELÉ, A. B. . . 542 Rookery Bldg., Chicago, Ill.	VI.	With Standard Underground Cable Co.
HENRY H. WAIT . . . . 227 So. Clinton St., Chicago, Ill.	VI.	With the Western Electric Co.
GEORGE M. WARNER . . . 50 Broadway, New York, N. Y.	VI.	Consulting and Supervising Engineer.
LEONARD C. WASON . . . 199 Harvard St., Brookline, Mass.	VI.	Vice-President, Aberthaw Construction Co., Concrete Engineers and Contractors (Boston).
HENRY T. WEED . . . . Court & Livingston Sts., Brooklyn, N. Y.	V.	Teacher of Physics and Chemistry, Manual Training High School.
WILLIAM H. WESTON . . P. O. Box 2916, Boston, Mass.	III.	President and General Manager, Guysboro Mining and Milling Co. (Melrose, Nova Scotia).
CHARLES P. WETHERBEE . Baltimore, Md.	II.	Draughtsman, Columbian Iron Works and Dry Dock Co.
ANNE E. WHITE . . . . 193 Delaware Ave., Buffalo, N. Y.	V.	Chemist, New York Car Wheel Works.
SALMON W. WILDER, JR. . Bellows Falls, Vt.	X.	With the Fall Mountain Paper Co.
FRED A. WILSON . . . . 134 Pearl St., Boston.	II.	With S. C. Nightingale & Childs, Manufacturers of Pipe and Boiler Coverings.
CHARLES H. WOOD . . . 45 Milk St., Boston.	II.	Clerk, International Trust Co.

1892.

CHARLES A. BEAL . . . . Abington, Mass.	VI.	Electrical Engineer (116 Bedford St., Boston).
ALICE H. BECKLER . . . 1414 Pine St., Philadelphia, Pa.	VII.	Assistant in Biology, Philadelphia Normal School.
CHARLES H. BIGELOW . . 6 Broad St., Salem, Mass.	VI.	With West End Street Ry. (Boston).
PHILLIPS PAYSON BOURNE . Cambridgeport, Mass.	II.	With The George F. Blake Manufacturing Co.
STEPHEN BOWEN . . . . South Boston, Mass.	II.	With Whittier Machine Co.
BERTHA MILLARD BROWN . 16 Holborn St., Roxbury, Mass.	VII.	
PHILIP M. BURBANK . . . 132 Church St., Waltham, Mass.	VI.	First Assistant in Office of City Engineer.
CHARLES M. BURNHAM . . 36 Beach St., Waltham, Mass.	VI.	With American Waltham Watch Co.

1892. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
GUY J. BURNHAM . . . . Gloucester, Mass.	X.	
HARRY A. BURNHAM . . . 36 Myrtle St., Waltham, Mass.	II.	Draughtsman, Waltham Bleachery and Dye Works.
SEVERANCE BURRAGE . . . La Fayette, Ind.	VII.	Instructor in Sanitary Science, Purdue University.
HUBER D. CARD . . . . 6 Murray Block, Willimantic, Conn.	XII.	Surveyor; Superintendent of City Sewer Construction.
DOUGLAS A. CATER . . . 142 Pearl St., New York, N. Y.	II.	
CHARLES H. CHASE . . . Stoneham, Mass.	VI.	With Boston Electric Co. (Boston).
RICHARD D. CHASE . . . 38 Clinton St., Brooklyn, N. Y.	XI.*	Assistant Sanitary Engineer, Department of Health, City of Brooklyn.
ALBERT K. CHURCH . . . McKeesport, Pa.	V.	With National Tube Works Co.
LEWIS P. CODY . . . . . 9 So. Division St., Grand Rapids, Mich.	VI.	President and Treasurer, Grand Rapids Electric Co.; Secretary, Michigan Harrison Telephone Construction Co.
CHARLES P. COGSWELL, JR. South Norwalk, Conn.	I.	Assistant Engineer, with New York, New Haven, & Hartford R. R. Co.
JOHN M. COLBY, JR. . . . Willimantic, Conn.	II.	With the Willimantic Linen Co.
JOSHUA CRANE, JR., A. B. . 15 Court Sq., Boston.	VI.	Electrical Expert and Consulting Engineer.
JOHN A. CURTIN . . . . 108 Ames Bldg., Boston.	I.	Student, Boston University School of Law.
GEORGE E. DADMUN, A. B. . 89 Mt. Vernon St., Boston.	II.	With "Ball Bearing Co."
GORHAM DANA . . . . . 93 Water St., Boston.	I.	Inspector, The Underwriters' Bureau of New England.
RAUL R. DE CARVALHO . . Amparoda Barra Mansa, Rio de Janeiro, Brazil.	IX.	Coffee Planter.
W. HARTLEY DENNETT . . 31 State St., Boston.	IV.	With Aberthaw Construction Co.
LOUIS DERR, M. A. . . . Boston, Mass.	VI.	Instructor in Physics, Mass. Institute of Technology.
MARGARET E. DODD . . . Cleveland, Ohio.	VII.	Teacher of Sciences, Hathaway-Brown School.
WALTER B. DOUGLASS . . Second St., East Everett, Mass.	I.	Engineer, Norton Iron Co.
HENRY C. DRESSER . . . 22 Concord Sq., Boston.	II.	With Lockwood, Greene, & Co., Mill Engineers (131 Devonshire St.).

1892. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
BARRON P. DU BOIS U. S. S. Wabash, Boston, Mass.	VI.	Assistant Paymaster, U. S. N.
GEORGE F. ELDRIDGE Third & Walnut Sts., Cincinnati, Ohio.	V.	Assistant to the President, Addyston Pipe and Steel Co.
SUMNER B. ELY 406 Richmond St., Philadelphia, Pa.	II.	With William Cramp & Son's Ship and Engine Building Co.
LOGAN FELAND Owensboro', Ky.	IV.	Architect.
HENRY A. FISKE	VI.	(See Class of 1891.)
HOWARD C. FORBES	VI.	(See Class of 1891.)
GAYLE T. FORBUSH Natick, Mass.	X.	Special Agent, German American Insurance Co.
FREDERICK L. FRANCIS Fitchburg, Mass.	IV.	With H. M. Francis, Architect.
ALLEN FRENCH Care of Baring Bros. & Co., London, England.	IX.	Studying in Europe.
EDWARD R. FRENCH 75 Murray St., Elizabeth, N. J.	VI.	Electrician, Suburban Electric Co.
CHARLES E. FULLER Boston, Mass.	II.	Instructor in Mechanical Engineering, Mass. Institute of Technology.
EDWARD P. GILL P. O. Box 626, Baltimore, Md.	IV.	In the Lumber Business.
HOWARD GILMORE North Easton, Mass.	II.	Manufacturer, The Howard Gilmore Electrical and Manufacturing Co.
GEORGE H. GOODELL Lock Box 55, Susquehanna, Pa.	II.	Engineer of Tests, New York, Lake Erie, & Western R. R.
WILLIAM P. GRAY 8 So. Fifth St., Richmond, Va.	VI.	
WILLIAM W. GREEN	I.	
CHARLES B. GRIMES Chicago, Ill.	V.	Superintendent, Western Factory and Office, Carter, Dinsmore, & Co., Ink Manufacturers.
EDWARD C. HALL, JR. Rainy Lake City, Minn.	II.	Dealing in Mining Property.
HARRY A. HARWOOD 386 Washington St., Boston.	I.	With Harwood Brothers.
ALBERT S. HEYWOOD 41 Oak Ave., Worcester, Mass.	VI.	With General Electric Co. (Railway Department).
JOHN D. HILLIARD, JR. 216 Industrial Trust Co. Bldg., Providence, R. I.	VI.	Electrical Engineer.

1892. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
FRANCIS C. HOLMES . . . North Plymouth, Mass.	IX.	With Plymouth Cordage Co.
PRESCOTT A. HOPKINS, M. S. 152 Portland St., Boston.	IV.	With L. M. Ham & Co., Iron Works.
FREDERICK J. HOXIE . . . Phenix, R. I.	VI.	President, Hoxie Bros. Co.
W. SPENCER HUTCHINSON . Galt, Sacramento Co., Cal.	III.	Of Harvey & Hutchinson, Mining Engineers and Metallurgists.
GEORGE H. INGRAHAM . . 6 Beacon St., Boston.	IV.	Architect.
ARTHUR L. JACOBS . . . 122 Boylston St., Boston.	VI.	Manager, Methot Electric Dental Engine Co.
JESSE F. JOHNSON . . . . Montreal, Que.	X.	With Hamilton Powder Co.
WILLIAM A. JOHNSTON . . Boston, Mass.	II.	Instructor in Mechanical Engineering, Mass. Institute of Technology.
WILLIAM R. KALES . . . Cleveland, Ohio.	II.	Draughtsman, Brown Hoisting and Conveying Machine Co.
WILLIAM R. KENDALL . . 307 Delaware St., Kansas City, Mo.	VI.	Vice-President, William W. Kendall Boot and Shoe Co.
ARMAND D. KOCH . . . . Care Munroe & Co., 7 Rue Scribe, Paris, France.	IV.	Student, Ecole des Beaux-Arts.
WILLIAM H. LANE . . . . 153 Cedar St., New York, N. Y.	VI.	With American Telephone and Telegraph Co.
ELISHA LEE, JR. . . . . Port-of-Spain, Trinidad, W. I.	I.	
WILLIAM W. LOCKE . . . 40 Clinton St., Brooklyn, N. Y.	XI.	Sanitary Engineer, Department of Health, City of Brooklyn.
JOSEPH B. LUKES . . . . 139 Adams St., Chicago, Ill.	VI.	Inspector, Chicago Edison Co.
JOSEPH P. LYON . . . . . Boston, Mass.	I.	Instructor in Civil Engineering, Mass. Institute of Technology.
ELMER G. MANAHAN . . . 3 Mt. Vernon St., Boston.	XI.	Assistant, Metropolitan Water Board.
LAURENCE B. MANLEY . Mt. Vernon St., West Roxbury, Mass.	I.	Assistant Engineer, Brookline Gas-Light Co. (Boston).
R. HERBERT MANSFIELD, JR. Hoboken, N. J.	VI.	Treasurer, Carpenter Enamel Rheostat Co.
ALBERT P. MATHEWS . . . Hotel Kaiserhof, Marburg, Germany.	VII.	Studying in Europe.
GEORGE H. MAY . . . Syracuse, N. Y.	V.	Superintendent, Crown Filter Department, Solvay Process Co.

1892. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
WALLACE E. MCCAW . . . Macon, Ga.	VI.	President and Manager, Georgia Mills and Elevator Co.
GEORGE A. MERRILL . . . City Hall, Cambridge, Mass.	XI.	With L. M. Hastings, City Engineer.
WILLIAM H. MESSENGER . E. One-hundred-and-thirty-eighth St., New York, N. Y.	II.	With De La Vergne Refrigerating Machine Co.
LEONARD METCALF . . . Amherst, Mass.	I.	Professor of Mathematics and Engineering, Massachusetts Agricultural College; Meteorologist, Hatch Experiment Station.
HERBERT S. MILLER . . . 1025 E. Jersey St., Elizabeth, N. J.	VI.	With Diehl & Co., Electric Motors.
LILLY MILLER . . . . . Charlestown, Mass.	V.	Assistant Chemist, Mass. State Board of Health.
HERBERT R. MOODY . . . Winsted, Conn.	V.	Instructor in Science, Gilbert School.
FREDERICK CAMPBELL MOORE 58 William St., New York, N. Y.	X.	Insurance Inspector, Middle States Inspection Bureau.
ASA HALL MORRILL . . . Woonsocket, R. I.	I.	Assistant Roadmaster, Worcester Division, New York, New Haven, & Hartford R. R.
WALTER M. NEWKIRK . . Detroit, Mich.	II.	Assistant to Chief Engineer, Public Lighting Commission.
FRANK E. NEWMAN . . . Plainfield, N. J.	IV.	Architect.
ARTHUR J. OBER . . . . West Medford, Mass.	I.	With B. R. Felton, Civil Engineer (10 Tremont St., Boston).
HAMILTON OTIS . . . . . Cazadero, Sonoma Co., Cal.	I.	Rancher.
CHARLES F. PARK . . . . Boston, Mass.	II.	Instructor in Mechanical Engineering, Mass. Institute of Technology.
J. SCOTT PARRISH . . . . Richmond, Va.	II.	Acting Treasurer, Richmond Cedar Works; Secretary, Gulf Red Cedar Co.
FRANK EDSON PERKINS . . Hotel Foyot, Paris, France.	IV.	Student, Ecole des Beaux-Arts.
JOHN C. PERRY . . . . . 1000 Cass St., Joliet, Ill.	II.	With the Bates Machine Co.
HENRY M. PHILLIPS . . . Stamford, Conn.	VI.	Electrical Engineer, Yale Lock Manufacturing Co.
ARTHUR G. PIERCE . . . 3 Head Pl., Boston.	VI.	Electrical Engineer, Edison Electric Illuminating Co.
ARTHUR W. PIERCE . . . P. O. Box 168, Bennington, N. H.	VI.	In charge of Electric Plant for the Goodell Co. (Antrim, N. H.).

1892. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
MACY S. POPE . . . . . 31 Milk St., Boston.	I.	Assistant Inspector, Associated Factory Mutual Insurance Cos.
DANA M. PRATT . . . . Brookline, Mass.	I.	With French & Bryant, Civil Engineers.
ARTHUR G. RANLETT . . . Ranlett P. O., Amador Co., Cal.	III.	Superintendent, Newton Copper Mine.
FREDERICK L. RHODES . . 42 Farnsworth St., South Boston, Mass.	VI.	Electrician with American Bell Telephone Co.
ANDREW R. ROBERTSON . . 8 Park Circus Pl., Glasgow, Scotland.	II.	With Messrs. Watson, Laidlaw, & Co., Engineers.
DWIGHT P. ROBINSON, A. B. 100 Washington St., Chicago, Ill.	VI.	With Stone & Webster, Electrical Experts and Engineers.
WILLIAM M. ROSEWATER . 330 Woodland Ave., Cleveland, Ohio.	II.	Draughtsman, The Brown Hoisting and Conveying Co.
GEORGE F. ROWELL . . . 38 Clinton St., Brooklyn, N. Y.	I.	Assistant Sanitary Engineer, Health Department, City of Brooklyn.
HORACE F. RUGGLES . . . Coixa-Correio 226, Pernambuco, Brazil.	II.	
WARD M. SACKETT, C. E. . 203 Washington St., Chicago, Ill.	VI.	With Chicago Telephone Co.
HENRY J. SAGE, B. A. . . Rochester, Pa.	VI.	Electrical Engineer.
OSCAR F. SAGER . . . . . Brockton, Mass.	II.	Teacher of Manual Training, Brockton High School.
ALBERT F. SARGENT, JR. . 425 Main St., Malden, Mass.	I.	With A. F. Sargent, Civil Engineer, Surveyor, and Conveyancer.
ROBERT T. SAUNDERS . . Malden, Mass.	I.	With City Engineer.
RUSSELL SELFRIDGE . . . Washington, D. C.	IX.	
FRANK C. SHEPHERD . . . 20 Beacon St., Boston.	XI.	Assistant Engineer, Boston Transit Commission.
LE ROY K. SHERMAN . . . 225 So. Leavitt St., Chicago, Ill.	I.	Assistant Engineer, Chicago Sanitary Drainage Canal.
HARRY D. SHUTE . . . . Pittsburgh, Pa.	VI.	With the Westinghouse Electric and Manufacturing Co.
THEODORE H. SKINNER . . 160 Fifth Ave., New York, N. Y.	IV.	With McKim, Mead, & White, Architects.
ARTHUR C. SMITH . . . . Waltham, Mass.	V.	With W. E. Bright.

1892. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
HENRY P. SPAULDING . . . 59 Rue de Provence, Paris, France.	VI.	Artist.
RALPH H. SWEETSER . . . Sparrows Point, Md.	III.	Chemist, Blast Furnace Department, Maryland Steel Co.
GEORGE P. TALLANT . . . Tallac, Lake Tahoe, Cal.	IX.	
ROBERT R. TAYLOR . . . Tuskegee, Ala.	IV.	Teacher, Tuskegee Normal and Industrial School.
WILLIAM C. THALHEIMER . 755 Superior St., Cleveland, Ohio.	I.	With The King Bridge Co.
WALTER B. TROWBRIDGE . 53 State St., Boston.	II.	With Westinghouse, Church, Kerr, & Co.
ROSS F. TUCKER . . . . . 31 State St., Boston.	IV.	President, Aberthaw Construction Co.
GEORGE W. VAILLANT . . 1 Broadway, New York, N. Y.	III.	With Mannesmann Tube Co.
JOHN F. VINING . . . . . South Weymouth, Mass.	IV.	Architect.
THOMAS C. WALES, JR. . . 42 Farnsworth St., South Boston, Mass.	VI.	With American Bell Telephone Co.
FRANCIS WALKER, Ph. D. . Colorado Springs, Colo.	IX.	Instructor in Political Science, Colorado College.
CHARLES F. WALLACE . . 4 Post-Office Sq., Boston.	VI.	With Stone & Webster, Electrical Experts and Engineers.
MURRAY WARNER . . . . 1490 Old Colony Bldg., Chicago, Ill.	II.	Engineer, New England Engineering Co.
JOSEPH A. WARREN . . . Cumberland Mills, Me.	XI.	With S. D. Warren & Co.
CHARLES C. WATERMAN . . 153 Cedar St., New York, N. Y.	VI.	Assistant Electrician, American Telephone and Telegraph Co.
RICHARD WATERMAN, JR. . 100 Washington St., Chicago, Ill.	II.	
HENRY S. WEBB . . . . . South Bethlehem, Pa.	VI.	Instructor in Electrical Engineering, Lehigh University.
EDWARD C. WELLS . . . . 3 Wells Bldg., Quincy, Ill.	II.	With Wells & Adams, Real Estate Loans.
GEORGE V. WENDELL . . Boston, Mass.	VIII.	Instructor in Physics, Mass. Institute of Technology.
FRANK T. WESTCOTT, B. P. . 42 Rand St., Central Falls, R. I.	I.	Civil Engineer of the Firm of Keene & Westcott.
ARTHUR M. WORTHINGTON Dedham, Mass.	VII.	Student, Harvard Medical School (Boston).

1893.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
FREDERIC B. ABBOTT . . . Swampscott, Mass.	VI.	Of F. B. Abbott Co., Shoe Manufacturers.
ORTON W. ALBEE . . . . P. O. Box 1606, Philadelphia, Pa.	III.	Assistant to Inspector of Ordnance, U. S. A.
HERBERT W. ALDEN . . . Lynn, Mass.	II.	With American Projectile Co.
CHARLES V. ALLEN . . . . 423 Atlantic Ave., Pittsburgh, Pa.	VI.	With Westinghouse Electric and Manufacturing Co.
JOHN G. ANTHONY . . . . 1224 No. Forty-first St., Philadelphia, Pa.	III.	With A. E. Foote, Minerals.
FRANK S. BADGER . . . . 66 Broadway, Lowell, Mass.	I.	With Proprietors of the Locks and Canals on Merrimack River.
FREDERIC W. BAKER . . . New York, N. Y.	II.	Travelling.
HETTY O. BALLARD . . . Boston, Mass.	XII.	Assistant in Palæontology, Museum of Boston Society of Natural History.
MINARD T. BARBOUR . . . 348 Ashland Boulevard, Chicago, Ill.	II.	With Crane Elevator Co. (219 Jefferson St.).
WILLIAM T. BARNES . . . 95 Milk St., Boston.	I.	With George S. Rice & George E. Evans, Civil and Hydraulic Engineers.
ROY H. BEATTIE . . . . 122 No. Main St., Fall River, Mass.	I.	Contractor.
ALBERT F. BEMIS . . . . 89 State St., Boston.	I.	With the Bemis Brothers Bag Co.
MAURICE B. BISCOE . . . Newtonville, Mass.	IV.	Draughtsman with H. Langford Warren, Architect (Boston).
EDMUND E. BLAKE . . . . Newton Upper Falls, Mass.	II.	With Pettee Machine Co.
GROSVENOR TARBELL BLOOD 125 Milk St., Boston.	VI.	With the American Bell Telephone Co.
SAMUEL N. BRAMAN . . . Wayland, Mass.	II.	With Motive Power Department, Boston & Maine R. R.
JOHN CLIFFORD BROWN . . 18 Cortlandt St., New York, N. Y.	VI.	With the Metropolitan Telephone and Telegraph Co.
ERNEST C. BRYANT, B. S. . Middlebury, Vt.	I.	Professor of Physics and Higher Mathematics, Middlebury College.
LEONARD B. BUCHANAN . . 4 Post-Office Sq., Boston.	VI.	With Stone & Webster, Electrical Experts and Engineers.
CHARLES E. BUCHHOLZ . . Watertown, N. Y.	I.	Inspector of Masonry, Rome, Watertown, & Ogdensburg R. R.
ARTHUR A. BUCK . . . . Washington, D. C.	IV.	Fourth Assistant Examiner, U. S. Patent Office.

1893. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
JOHN R. BURKE . . . . . 65 Bowdoin St., Boston.	I.	With Board of Harbor and Land Commissioners of Massachusetts.
DENNIS E. CALLAHAN . . . 329 Federal St., Boston.	VI.	Electrical Engineer, Wire Department, City of Boston.
EDWARD B. CARNEY . . . 547 Moody St., Lowell, Mass.	II.	With City Engineer.
WILLIAM W. CARTER . . . P. O. Box 2195, New York, N. Y.	X.	With Jobbins & Van Ruymbeke, Patentees of New Process for Glycerine Distillation.
HARRY L. CLAPP . . . . Washington, D. C.	X.	Assistant Examiner in U. S. Patent Office.
WILFRED A. CLAPP . . . 688½ Fifth St., South Boston, Mass.	I.	With Metropolitan Water Board (at Clinton, Mass.).
JOHN S. CODMAN, A. B. . . 57 Marlborough St., Boston.	VI.	With the American Bell Telephone Co. (125 Milk St.).
CHARLES NOURSE COOK . . Providence, R. I.	X.	With Silver Spring Bleaching and Dyeing Co.
NATHANIEL R. CRAIGHILL . Raleigh, N. C.	II.	Professor of Mechanical Engineering, North Carolina College of Agriculture and Mechanic Arts.
WILLIAM W. CROSBY . . . Mt. Vernon St., Lowell, Mass.	II.	Superintendent, Otis Allen & Son.
COURTLAND R. DARROW . 142 Broadway, Norwich, Conn.	I.	With C. E. Chandler, Civil Engineer.
ALBERT G. DAVIS . . . . 1101 K. St., Washington, D. C.	VI.	Assistant Examiner, U. S. Patent Office.
CARLTON E. DAVIS . . . . 95 Milk St., Boston.	I.	With George S. Rice & George E. Evans, Civil and Hydraulic Engineers.
HERBERT N. DAWES . . . 15 Court Sq. Boston, Mass.	II.	Assistant Engineer, Mass. Highway Commission.
GEORGE K. DEARBORN . . 105 Quincy St., Chicago, Ill.	IX.	With American Telephone and Telegraph Co.
CHARLES D. DEMOND . . . Boston, Mass.	III.	Assistant to Prof. Richards, Massachusetts Institute of Technology.
EDWARD D. DENSMORE . . 44 Porter St., Somerville, Mass.	VI.	
FREDERICK N. DILLON . . Fitchburg, Mass.	V.	With D. M. Dillon, Boiler Manufacturer.
LAURENCE B. DIXON . . . 227 So. Clinton St., Chicago, Ill.	VI.	With the Western Electric Co.
SAMUEL D. DODGE . . . Arlington, Mass.	I.	With Massachusetts Metropolitan Water Board.
PETER F. DOLAN . . . . 185 Chelsea St., East Boston.	VI.	Electrical Engineer, Wire Department, City of Boston (Old Court House).
THEODORE T. DORMAN . . Washington, D. C.	X.	Assistant Examiner, U. S. Patent Office.

1893.—*Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
JAMES A. EMERY . . . . Washington Ave., Philadelphia, Pa.	I.	With Wm. Wharton, Jr., & Co.
WILLIAM ESTY, M. A. . . Urbana, Ill.	VI.	Instructor in Electrical Engineering, University of Illinois.
ARTHUR G. FARWELL . . 279 Dartmouth St., Boston.	VI.	Student.
FREDERIC H. FAY, M. S. . 65 City Hall, Boston.	I.	With Engineering Department, City of Boston.
FRED B. FORBES . . . . Lawrence, Mass.	V.	Assistant Chemist, Lawrence Experiment Station, Mass. State Board of Health.
ARTHUR E. FOWLE . . . 70 Kilby St., Boston.	X.	With Boston Bridge Works.
WALTER L. FRISBIE . . . 73 Lake Pl., New Haven, Conn.	II.	Reading Patent Law.
WILLIAM BURT GAMBLE . Detroit, Mich.	IX.	Assistant Secretary of The Detroit Chamber of Commerce.
WALLACE K. GAYLORD . . 146 Terrace Drive, Pasadena, Cal.	V.	Instructor in Chemistry, Throop Polytechnic Institute.
HOWARD GILMORE . . .	VI.	(See Class of 1892.)
MARVINE GORHAM . . . . 250 Elmwood Ave., Buffalo, N. Y.	II.	Foreman with Plumb, Burdick, & Barnard, Nut and Bolt Manufacturers.
FREDERICK W. HADLEY . . Pittsburgh, Pa.	VI.	With Westinghouse Electric and Manufacturing Co.
EDW. MCKIM HAGAR, M.M.E. 554 The Rookery, Chicago, Ill.	II.	Representative, Southwark Foundry and Machine Co. of Philadelphia.
GEORGE T. HANCHETT . . 253 Broadway, New York, N.Y.	VI.	Editor of the Electric Railway Gazette.
FREDERIC H. HARVEY . . Galt, Sacramento Co., Cal.	III.	Managing the Estate of the late O. Harvey, M. D.; of Harvey & Hutchinson, Mining Engineers and Metallurgists.
J. FRED. HINCKLEY . . . Baltimore, Md.	X.	Chemist and Overseer of the Glycerine Plant, for C. Lipps, Soap Manufacturer.
WILLIAM G. HOUCK . . . 97 High St., Buffalo, N. Y.	I.	Inspector of Iron Work, Bureau of Public Buildings.
FREDERICK H. HOWLAND . 1729 Twenty-first St., N. W., Washington, D. C.	IX.	Correspondent, Providence Journal.
DANIEL D. JACKSON . . . 525 Boylston St., Boston.	V.	Assistant Biologist, Mass. State Board of Health; Lecturer on Microscopical Examination of Water Supplies, Mass. Institute of Technology.

1893.— *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
LAWRENCE S. JAMES . . . 32 Hawley St., Boston.	V.	Assistant State Inspector of Illuminating Gas and Gas Meters.
ARTHUR H. JAMESON . . . South Chicago, Ill.	V.	Chemist, Cleveland Linseed Oil Co.
SIMEON C. KEITH, JR. . . Boston, Mass.	VII.	Instructor in Biology, Mass. Institute of Technology.
ERVIN KENISON . . . . . Boston, Mass.	II.	Instructor in Mechanical Drawing, Mass. Institute of Technology.
FREDERIC H. KEYES . . . Boston, Mass.	II.	Instructor in Mechanical Engineering, Mass. Institute of Technology.
WARREN D. KING . . . . Peabody, Mass.	VI.	Electrical Engineer, Broad Cove Coal Co. (Limited) (Mason Bldg., Boston).
WILLIS T. KNOWLTON . . 60 Cedar St., Malden, Mass.	I.	Assistant, City Engineer's Office, Medford, Mass.
WILLIAM F. LAMB . . . . 26 Seventh Ave., Pittsburgh, Pa.	VI.	With the American Telephone and Telegraph Co.
WALLACE C. LAMBERT . . East Cambridge, Mass.	I.	With Boston Bridge Works.
HARRY N. LATEY . . . . 3625 Finney Ave., St. Louis, Mo.	VI.	With Westinghouse Electric and Manufacturing Co.
HARRY M. LATHAM . . . Newark, N. J.	II.	With Crocker-Wheeler Electric Co.
HERBERT LEWIS, M. A. . .	VI.	
JOHN W. LOGAN . . . . Bala, Pa.	II.	With Pennsylvania Iron Works Co. (Philadelphia)
HEIICHIRO MAKI . . . . 39 Washio St., Kioto, Japan.	VI.	Chief Electrical Engineer, Kioto Traction Co.
WILLARD A. MARCY . . . Newton Upper Falls, Mass.	II.	With Pettee Machine Co.
GEORGE E. MCQUESTEN . . 27 Kilby St., Boston.	VI.	In Business.
FRANK H. MERRILL . . . P. O. Box 2195, New York, N. Y.	X.	With Jobbins & Van Ruymbeke, Patentees of New Process for Glycerine Distillation.
BENJAMIN M. MITCHELL . . Passaic, N. J.	II.	Mechanical Engineer, Manhattan Rubber Co.
HENRY A. MORSS . . . . 79 Cornhill, Boston.	VI.	With Morss & Whyte, Wire Workers.
HENRY W. NICHOLS . . . Field Columbian Museum, Chicago, Ill.	XII.	Curator, Department of Economic Geology.
CHARLES L. NORTON . . . Boston, Mass.	VI.	Instructor in Physics, Mass. Institute of Technology.
FRANCIS C. NORTON . . . Rockland, Me.	IX.	With Francis Cobb & Co.

1893. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
CHARLES L. NUTTER . . . East Bridgewater, Mass.	II.	Mechanical Engineer, Carver Cotton-Gin Co.
CECIL E. PAINE . . . . . Bath, Me.	II.	With the Bath Iron Works.
JOSEPH Y. PARCE, JR. . . Denver, Colo.	II.	Teacher, Manual Training High School.
OREN E. PARKS . . . . . 82 No. Elm St., Westfield, Mass.	I.	Town Engineer.
HARRY M. PHILLIPS . . . 96 Maiden Lane, New York, N. Y.	II.	Of Firm of Winslow & Phillips, Proprietors of the Winslow Pharmaceutical Laboratories.
LEO W. PICKERT . . . . Granite St., South Boston.	V.	Assistant Chemist, American Sugar Refining Co.
JAMES H. REED, JR. . . . 124 Pearl St., Boston.	VI.	With the National Sewing Machine Co.
WILLIAM S. RESOR . . . Resor Park, Clifton, Cincinnati, Ohio.	VI.	Sales Agent, The Card Electric Motor and Dynamo Co. (Hunt St. & Broadway).
HARRY L. RICE . . . . . Milwaukee, Wis.	X.	Superintendent of Distribution, Milwaukee Gas Light Co.
FRANK D. RICHARDSON . . 400 McDonough St., Brooklyn, N. Y.	II.	With Standard Air-Brake Co. (35 Wall St., New York).
HAROLD A. RICHMOND . . 33 India Wharf, Boston.	II.	Designer for "The Ball Bearing Co."
FENWICK F. SKINNER . . Boston, Mass.	I.	In City Engineer's Office, Park Department, City of Boston.
A. BLAKELEY SMITH . . . 20 Davis St., Providence, R. I.	IX.	With Albert W. Smith, Dealer in Domestic Wools.
FREDERICK D. SMITH . . . 25 Waverly St., Malden Mass.	I.	Assistant Engineer, Metropolitan Sewerage Commission.
JOHN I. SOLOMON . . . . 59 E. One-hundred-and-eleventh St., New York, N. Y.	VI.	In Business.
J. RAMSEY SPEER . . . . Pittsburgh, Pa.	II.	Manager, Blast Furnace Department, Shoenberger Steel Co.
CHARLES M. SPOFFORD . . Phœnixville, Pa.	I.	With Phœnix Bridge Co.
GEORGE W. STOSE . . . . Washington, D. C.	I.	Assistant Geologist, U. S. Geological Survey.
LOVELL BAKER STOWE . . White River Junction, Vt.	VI.	With New England Telephone and Telegraph Co.
FRED B. STUDLEY . . . . Rockland, Mass.	VI.	
FREDERICK C. SUTTER . . Pittsburgh, Pa.	VI.	With Westinghouse Electric and Manufacturing Co.

1893. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
WALTER I. SWANTON . . . Kneeland St., Boston.	I.	In Civil Engineering Department, Boston & Albany R. R. Co.
KILBURN S. SWEET . . . Boston, Mass.	I.	Instructor in Civil Engineering, Mass. Institute of Technology.
CHARLES WILSON TAINTOR 125 Milk St., Boston.	VI.	With New England Telephone and Telegraph Co.
CHARLES M. TAYLOR . . . Weymouth Heights, Mass.	II.	
WINTHROP P. TENNEY . . 85 Water St., Boston.	VI.	With Scull & Field, Insurance.
ALFRED C. THOMAS . . . 18 Cortlandt St., New York, N.Y.	VI.	With the Metropolitan Telephone and Telegraph Co.
PERCY H. THOMAS . . . . East Pittsburgh, Pa.	VI.	With Westinghouse Electric and Manufacturing Co.
WINTHROP L. TIDD . . . Taunton, Mass.	II.	With Oakland Mills.
JOHN F. TOMFOHRDE . . . 24 Mt. Vernon St., Charlestown, Mass.	II.	Counsellor-at-law.
CHARLES A. TRIPP . . . . Pittsburgh, Pa.	VI.	With Westinghouse Electric and Manufacturing Co.
WILLIAM A. TUCKER . . . Boston, Mass.	III.	Assistant to Prof. Richards, Mass. Institute of Technology.
LOUIS B. VINING . . . . 534 Columbus Ave., Boston.	VI.	With Gamewell Fire Alarm Telegraph Co. (Newton Upper Falls, Mass.).
AUGUSTUS B. WADSWORTH . 44 New St., New York, N. Y.	VII.	Medical Student, College of Physicians and Surgeons.
S. PAYSON WALDRON . . . East Cambridge, Mass.	I.	With Boston Bridge Works.
CHARLES R. WALKER . . Boston, Mass.	V.	Assistant in General Chemistry, Mass. Institute of Technology.
GEORGE L. WALKER, B. S. . 890 Grand Boulevard, New York, N. Y.	I.	Master Mechanic, Street Cleaning Department, New York City.
FREDERIC A. WALLACE . . Lawrence, Mass.	II.	Chief Engineer, Pacific Mills.
ROBERT N. WALLIS . . . Fitchburg, Mass.	IX.	Treasurer, Fitchburg & Leominster Street Ry.
HARRY C. WATERMAN . . 55 Kilby St., Boston.	IV.	Draughtsman with J. Williams Beal, Architect.
S. EDGAR WHITAKER, A. B. 3 Franklin St., Lynn, Mass.	VI.	With the General Electric Co. (Expert Department).
PARKER H. WILDER . . . Hunt & Broadway, Cincinnati, Ohio.	VI.	With The Card Electric Motor and Dynamo Co.
JONATHAN E. WOODBRIDGE 311 E. Third St., Duluth, Minn.	VI.	Electric Engineer (68 W. Forty-ninth St., New York, N. Y.)

1893. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
HENRY T. WOODS . . . . 224 Huntington Ave., Boston.	II.	With W. G. Bell Co., Store Fitters (52 Commercial St.).
GEORGE M. YORKE . . . . 114 So. Fourth St., Philadelphia, Pa.	VI.	With American Telephone and Telegraph Co.

1894.

CHARLES G. ABBOT, S. M. 226 Second St., N. E., Washington, D. C.	VIII.	Assistant, Astrophysical Observatory, Smithsonian Institution.
RALEIGH B. ADAMS . . . 2 Gleason St., Dorchester, Mass.	X.	With Boston Belting Co.
GEORGE H. ANDERSON . . P. O. Box 2195, New York, N. Y.	X.	With Jobbins & Van Ruymbeke, Patentees of New Process Glycerine Distillation.
EDMUND L. ANDREWS . . 2520 Prairie Ave., Chicago, Ill.	VI.	With Dynamo Department, Western Electric Co.
FRED C. BAKER . . . . . Waltham, Mass.	II.	Draughtsman, The George F. Blake Manufacturing Co. (East Cambridge).
GEORGE E. BARSTOW . . . 27 Union St., Lynn, Mass.	II.	Draughtsman with E. E. Winkley & Co., Mechanical Engineers.
HOWARD R. BARTON . . . Englewood, N. J.	VI.	
HARRY R. BATES . . . . North Weymouth, Mass.	V.	Chemist, Bradley Fertilizer Co.
WALTER V. BATSON . . . 37 Vine St., Lynn, Mass.	VI.	In Testing Department, General Electric Co.
CHARLES BURR BEACH . . 1183 Locust St., Dubuque, Iowa.	X.	Chemical Engineer, J. Beach & Son, Soap Manufacturers.
IRVING EVERETT BEACH . Lawrence, Mass.	V.	Of Beach Soap Co.
NORWIN S. BEAN . . . . 23 Prospect St., Manchester, N. H.	VI.	With Second National Bank.
VALLETTE L. BENEDICT . . Schenectady, N. Y.	VI.	With General Electric Co.
HEREFORD BERRY . . . . North Andover, Mass.	VI.	
GROSVENOR T. BLOOD, S. B.	II.	(See Class of 1893.)
CHARLES R. BOSS . . . . 34 Broad St., New London, Conn.	IX.	Manufacturer.
WILLIAM H. BOVEY . . . 12 So. Thirteenth St., Minneapolis, Minn.	VI.	With Washburn-Crosby Co., Merchant Millers.

1894. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
S. ALEC BREED . . . . . 9 Portland St., Lynn, Mass.	II.	Superintendent of Mill, S. N. Breed & Co.
WALTER V. BROWN . . . 19 W. Twenty-first St., New York, N. Y.	VI.	
WILLIAM W. CARTER, S. B.	VI.	(See Class of 1893.)
MASON S. CHACE . . . . Care of "Credit Lyonnais," Paris, France.	II.	Student.
JOHN WINSLOW CHAPMAN, JR. 96 Brownell St., Providence, R.I.	II.	Draughtsman, Brown & Sharpe Manufacturing Co.
NATHAN C. W. CHAPMAN . 96 Brownell St., Providence, R. I.	II.	Draughtsman, Brown & Sharpe Manufacturing Co.
HAROLD M. CHASE . . . . 401 So. Front St., Wilmington, N. C.	X.	In charge of Dyeing Department, Wilmington Cotton Mills.
ALAN A. CLAFLIN . . . . Littleton, Mass.	V.	Assistant Superintendent, Avery Chemical Co.
EDWARD D. CLARKE . . . 249 Linwood Ave., Buffalo, N. Y.	VI.	With Plumb, Benedict, & Barnard, Nut and Bolt Manufacturers.
FRED H. CLARKE . . . . Brookline, Mass.	I.	With French & Bryant, Civil Engineers.
ARTHUR A. CLEMENT . . . New York, N. Y.	X.	Chemist for The W. J. Wilcox Lard and Refining Co. (Guttenberg, N. J.).
PRESCOTT H. COOLIDGE . . Carmel, N. Y.	I.	With Croton Aqueduct Commission (New York, N. Y.).
HENRY F. COPELAND . . . 357 W. Fortieth St., New York, N. Y.	I.	Member of Firm, Rodda Piano Co.
NATHANIEL R. CRAIGHILL, S. B.	VI.	(See Class of 1893.)
HORACE A. CRARY . . . . Sheffield, Warren Co., Pa.	I.	Engineer, Tionesta Valley Ry.
CHARLES H. CUTLER . . . 125 Milk St., Boston.	VI.	With the American Bell Telephone Co.
NELSON W. DALTON . . . Sandy Hill, N. Y.	VI.	
HENRY B. DATES . . . . East Pittsburgh, Pa.	VI.	With Westinghouse Electric and Manufacturing Co.
T. CLIVE DAVIES . . . . Honolulu, H. I.	II.	In Business.
LEON K. DAVIS . . . . . P. O. Box 2195, New York, N.Y.	X.	With Jobbins & Van Ruymbeke, Patentees of New Process Glycerine Distillation.
NATHAN B. DAY, A. B. . . 280 Newbury St., Boston.	II.	With United States Cordage Co.

1894. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
HARRY S. DUCKWORTH 32 Princeton St., Lowell, Mass.	V.	In Color Department, Pacific Mills.
HENRY B. DU PONT Wilmington, Del.	X.	With E. I. du Pont, De Nemours, & Co.
JOHN ELLIS Lonsdale, R. I.	VI.	Manager, Lonsdale Co.'s Electric Light Plant.
ARTHUR J. FARNSWORTH Mamaroneck, N. Y.	VI.	Chief Engineer, Larchmont Electric Co.
JOHN N. FERGUSON Readville, Mass.	I.	With the Metropolitan Water Board.
FREDERICK E. FOWLE, JR Washington, D. C.	VIII.	Junior Assistant, Astrophysical Observatory, Smithsonian Institution.
HARRIET T. GALLUP 249 Dearborn Ave, Chicago, Ill.	V.	Teacher of Science, Grant Collegiate Institute.
HARRY W. GARDNER Boston, Mass.	IV.	Instructor in Architecture, Mass. Institute of Technology.
J. HOWLAND GARDNER Harlem River Station, New York, N. Y.	II.	Assistant Engineer, Lighterage Department, New York, New Haven, & Hartford R. R.
R. WALDO GILKEY 9 Irving St., Watertown, Mass.	II.	With the Metropolitan Water Board.
LEWIS S. GREENLEAF The Ludlow, Trinity Terrace, Boston.	VI.	With the American Bell Telephone Co. (42 Farnsworth St., South Boston).
SARAH ABBIE HALL Hotel Adelphi, Roxbury, Mass.	VIII.	
BURT S. HARRISON 16 So. Canal St., Chicago, Ill.	IV.	Chief Draughtsman, Western Branch of B. F. Sturtevant Co.
HARRY P. HASTINGS South Framingham, Mass.	I.	In Retail Clothing Business.
GEORGE B. HAVEN Boston, Mass.	II.	Assistant in Mechanical Engineering, Mass. Institute of Technology.
WILLIAM R. HILL Milton, Mass.	IV.	
CHARLES F. HOPEWELL City Hall, Cambridge, Mass.	VI.	Inspector of Wires; Superintendent of Lamps, Fire Alarms, and Police Telegraph, City of Cambridge.
THEODORE HORTON State House, Boston.	XI.	Assistant, Mass. State Board of Health (Engineering Department).
CLIFTON A. HOWES 22 Trowbridge St., Cambridge, Mass.	VI.	
WILLIAM S. HULSE Calverton, Baltimore, Md.	VI.	Electrical Engineer, Fort Wayne Electric Corporation.

1894. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
ALBERT F. HUNT, JR. . . . 40 So. Washington Sq., New York, N. Y.	I.	On Personal Staff of Col. Waring, Street Cleaning Department.
EDWARD M. HUNT . . . . 22 Beckett St., Portland, Me.	I.	Secretary, Commission of Public Works, City of Portland.
NED H. JANVRIN . . . . Lexington, Mass.	I.	Draughtsman, Boston Bridge Works (East Cambridge, Mass.).
CHARLES H. JOHNSON . . 494 Center St., Jamaica Plain, Mass.	I.	Assistant Engineer, Mass. Highway Commission.
HERBERT E. JOHNSON . . 438 No. Meridian St., Indianapolis, Ind.	VI.	With the American Telephone and Telegraph Co.
ALBERT L. KENDALL . . . 31 Milk St., Boston.	II.	Surveyor and Draughtsman, Associated Factory Mutual Insurance Cos.
JOSEPH H. KIMBALL . . . West Newton, Mass.	XI.	In Office of City Engineer, City of Newton.
WILLIAM HERBERT KING . Melrose, Mass.	IX.	Student, Harvard University (Cambridge, Mass.).
ROBERT H. KIRK . . . . Boston, Mass.	II.	Graduate Student, Mass. Institute of Technology.
JOHN W. KITTREDGE . . . Victor, Colo.	II.	Of the Firm of Stevens & Kittredge, U. S. Deputy Mineral Surveyors, and Mining Engineers.
CHARLES R. KNAPP . . . 1709 First St., Louisville, Ky.	IV.	With the Snead & Co. Iron Works.
HENRY O. LACOUNT . . . 31 Milk St., Boston, Mass.	II.	Assistant Electrical Inspector, Associated Factory Mutual Insurance Cos.
LUCIUS PAGE LANE . . . 623 Tremont St., Boston.	IX.	Student, Harvard University (Cambridge, Mass.).
FREDERICK M. LEONARD . Medford, Mass.	I.	Assistant Engineer, Sewerage System, City of Medford.
ROBERT LORING . . . . . 192 Devonshire St., Boston.	X.	Salesman and Assistant to New England Agent of R. Hoe & Co., of New York.
FRANK W. LOVEJOY . . . 184 Broadway, Cambridgeport, Mass.	X.	With Curtis Davis & Co., Soap Manufacturers.
GUY LOWELL, A. B. . . . Care Hottingner & Co., Paris, France.	IV.	Student, Ecole des Beaux-Arts.
PATRICK M. LYNCH . . . 276 Dwight St., Holyoke, Mass.	I.	Civil Engineer.
COLBERT A. MACCLURE . . 716 Ferguson Bldg., Pittsburgh, Pa.	IV.	In Charge of Pittsburgh Office of Peabody & Stearns, Architects.

1894 — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
ANGUS R. MACKAY . . . . Deadwood, S. Dak.	III.	With the Horseshoe Mining and Milling Company.
MARION L. MAHONY . . . 720 W. Congress St., Chicago, Ill.	IV.	With Frank Wright, Architect.
FRED M. MANN, B. C. E., S.M. Philadelphia, Pa.	IV.	Instructor in Architectural Design, University of Pennsylvania.
VIRGINIUS A. MAYER . . . 91 Shelton St., Ashmont, Mass.	VI.	With the National Telephone Manufacturing Co. (620 Atlantic Ave.).
HENRY K. MCGOODWIN, B. S. Cook Bldg., Bowling Green, Ky.	IV.	Architect.
WILLIAM D. MCJENNETT . 46 Sidney Pl., Brooklyn, N. Y.	X.	Chemist for Kirkman & Son, Soap Manufacturers.
FRANK P. MCKIBBEN . . . Boston, Mass.	I.	Assistant in Civil Engineering, Mass. Institute of Technology.
CHARLES A. MEADE . . . 303 E. Eighteenth St., New York, N. Y.	I.	Superintendent, Final Disposition, Street Cleaning Department, New York City.
LESLIE R. MOORE . . . . Landhausstr. 22, Heidelberg, Germany.	V.	Student in the University.
LUTHER R. NASH . . . . Titicus, Conn.	VI.	With Stone & Webster, Electrical Experts and Engineers (Boston, Mass.).
PARKER C. NEWBEGIN . . Defiance, Ohio.	I.	In Engineering Department, Bangor & Aroostook R. R. (Houlton, Me.).
HENRY L. NEWHOUSE . . 204 Dearborn St., Chicago, Ill.	IV.	Architect.
FREDERIC M. NOA . . . . Melrose Highlands, Mass.	IX.	Teacher.
JOHN C. NOWELL . . . . 406 Market St., Philadelphia, Pa.	VI.	With Bell Telephone Co. of Philadelphia.
GEORGE OWEN, JR. . . . 215 Haverhill St., Lawrence, Mass.	II.	Draughtsman, Pacific Mills.
EDWIN M. PARKER . . . West Acton, Mass.	IV.	Draughtsman with G. Wilton Lewis, Architect (Boston).
WALTER W. PATCH . . . Fayville, Mass.	I.	With the Boston Water Works, Western Division.
JOSEPH W. PHELAN . . . Boston, Mass.	V.	Assistant in General Chemistry, Mass. Institute of Technology.
WALTER E. PIPER . . . . Malden, Mass.	V.	Chemist, Boston Rubber Shoe Co.
CLARENCE D. POLLOCK . . 149 Pierrepont St., Brooklyn, N. Y.	I.	Assistant Civil Engineer, Department of City Works.

1894. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
WILLIAM H. PRATT . . . 78 Mall St., Lynn, Mass.	VI.	With Meter Department, General Electric Co.
SAMUEL C. PRESCOTT . . . 334 Broadway, Cambridgeport, Mass.	V.	Assistant in Biology, Mass. Institute of Technology.
RAYMOND BEACH PRICE . . Hampshire & Portland Sts., Cambridgeport, Mass.	X.	Chemical Engineer.
RICHARD W. PROCTOR . . Cincinnati, Ohio.	V.	Chemist, William S. Merrell Chemical Co.
LOUIS W. PULSIFER, A. B. . 6 Beacon St., Boston.	IV.	Architect.
NARCISO T. QUEVEDO, B. S. 11ª Avenida, Sur 45, Guatemala, Central America.	II.	Mechanical Engineer.
SAMUEL G. REED . . . . Boston, Mass.	II.	Assistant in Mechanical Engineering, Mass. Institute of Technology.
HOWARD S. REYNOLDS . . Braintree, Mass.	VI.	Draughtsman, West End Street Ry. (Boston).
ROBERT D. REYNOLDS . . 45 Orchard St., Jamaica Plain, Mass.	II.	Draughtsman with B. F. Sturtevant Co.
THOMAS G. RICHARDS . . Cambridgeport, Mass.	II.	Manager of Textile Department, Boston Woven Hose and Rubber Co.
HENRY F. RIPLEY . . . . Uxbridge, Mass.	II.	In Calumet Woollen Mill.
FRANKLIN H. ROBBINS . . Boston, Mass.	II.	Assistant in Mechanical Drawing, Mass. Institute of Technology.
ARTHUR S. ROGERS . . . 5535 Monroe Ave., Chicago, Ill.	VI.	With the American Telephone and Telegraph Co.
S. ANTHONY SAVAGE . . . 117 Hawthorne St., Chelsea, Mass.	II.	Assistant Superintending Engineer, U. S. Light House Service.
ALBERT H. SAWYER . . . 19 Pearl St., Boston.	IX.	With Industrial Development Co.
WILLIAM H. SAYWARD, JR. 69 Monadnock St., Dorchester, Mass.	VII.	Student, Harvard Medical School (Boston).
FERDINAND ALFRED SCHIERTZ Boston, Mass.	III.	Private Assistant to Prof. Lodge (Mass. Institute of Technology).
WALTER O. SCOTT, S. M. . 790 Westminster St., Providence, R. I.	V.	Private Assistant to Prof. Noyes (Mass. Institute of Technology).
GEORGE W. SHERMAN . . 33 Hampshire St., Cambridgeport, Mass.	X.	With the Boston Woven Hose and Rubber Co.

1894. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
ARTHUR A. SHURTLEFF . . 9 W. Cedar St., Boston.	II.	Student, Harvard University (Cambridge, Mass.)
FREDERIC P. SIMONDS . . 55 Kilby St., Boston.	IV.	Draughtsman with J. Williams Beal, Architect.
WILLIAM A. SOLEY . . . Maple St., Chelsea, Mass.	III.	Clerk with J. Soley, Building Mover and Contractor.
FRANK M. SOUTHARD . . 18 Broadway, New York, N.Y.	VI.	With Southard & Co., Timber and Lumber.
AUSTIN SPERRY . . . . . 2100 Pacific Ave., San Francisco, Cal.	II.	In Shipbuilding Department, Union Iron Works.
JOHN CONYNGHAM STEVENS 1914 Rittenhouse Sq., Philadelphia, Pa.	XI.	With Diagraph Co.
HENRY A. SWANTON . . . 45 Bedford St., Bath, Me.	II.	Draughtsman, Engine Department, Bath Iron Works.
GEORGE AYMAR TABER . . New York, N. Y.	I.	Member of Special Staff of Col. Waring, Commissioner Street-Cleaning Department.
GEORGE TAYLOR . . . . 70 Kilby St., Boston, Mass.	II.	With Mexican Central R. R.
ALBERT B. TENNEY . . . 35 Fremont Ave., Everett, Mass.	II.	With Boston Rubber Co.
JOSEPH E. THROPP, JR. . . Everett, Bedford Co., Pa.	III.	Assistant to Superintendent, Everett Furnace and Mines.
ARTHUR W. TIDD . . . . Clinton, Mass.	I.	With the Aqueduct Division, Metropolitan Water Supply.
TOROS H. TOROSSIAN, B. A. Rustchuk, Bulgaria.	I.	Civil Engineer.
THEODORE VARNEY . . . U. S. Arsenal, Indianapolis, Ind.	VI.	With Commercial Electric Co.
HENRY E. WARREN . . . Newton Centre, Mass.	VI.	
RIGBY WASON . . . . . 8 Sussex Gardens, Hyde Park, London, W., England.	VI.	Officer in charge of Electric Light Engine Room, General Post-Office, London E.
WILLIAM R. WESTCOTT, A. B. 88 Appleton St., Cambridge, Mass.	VI.	With the American Bell Telephone Co. (125 Milk St., Boston).
ROBERT C. WHEELER . . . 15 Court Sq., Boston.	I.	Assistant Engineer, Mass. Highway Commission.
KENNETH F. WOOD . . . 329 High St., Central Falls, R. I.	II.	Draughtsman for W. F. & F. C. Sayles (Saylesville, R. I.).
C. NELSON WRIGHTINGTON . Ludlow, Mass.	II.	With Ludlow Manufacturing Co.

1895.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
LOUIS ANDREW ABBOT . . Medford, Mass.	II.	Assistant Draughtsman, Wellman Sole Cutting Machine Co.
BENJAMIN ADAMS . . . . 75 Hicks St., Brooklyn, N. Y.	VI.	Inspector, American Telephone and Telegraph Co.
CHARLES M. ADAMS . . . 59 Waverly St., Roxbury, Mass.	VI.	
EDWIN CLEMENT ALDEN . 75 Hicks St., Brooklyn, N. Y.	VI.	Inspector, American Telephone and Telegraph Co.
AZEL AMES, JR. . . . . Union Station, Boston, Mass.	I.	Assistant, Engineering Department, Boston & Maine R. R.
ERNEST FRANKLIN BADGER . Lawrence, Mass.	V.	In Experiment Station, Mass. State Board of Health.
LATIMER W. BALLOU . . . Ithaca, N. Y.	II.	Student, Cornell University.
LAWRENCE BARR, A. B. . . 275 Marlborough St., Boston.	VI.	
HAROLD K. BARROWS . . . Reading, Mass.	I.	Assistant in Civil Engineering, Mass. Institute of Technology.
EDMUND D. BARRY . . Bowdoin St., Dorchester, Mass.	XIII.	Draughtsman with U. S. Naval Constructor (at Wm. Cramp & Sons, Philadelphia, Pa.).
ETHEL BARTHOLOMEW, B. L. Chariton, Iowa.	IV.	
FRANCIS W. BELKNAP . . . 15 Court Sq., Boston.	I.	Assistant Engineer, Mass. Highway Commission (Hadley, Mass.).
CHARLES W. BERRY . . . 6 Centre St., Somerville, Mass.	VI.	Student in the University of Göttingen (Germany.)
SAMUEL L. BIGELOW, A. B. . Hotel Victoria, Boston.	V.	Student in the University of Leipsic (Germany).
GEORGE L. BIXBY . . . . 350 Franklin St., Elizabeth, N. J.	X.	With Bowker Fertilizer Co.
WALTER D. BLISS . . . . Carson City, Nev.	IV.	Travelling in Europe.
PERLEY H. BLODGETT . . . 288 Gregory Ave., Passaic, N. J.	V.	With Passaic Print Works.
JOHN BOEDEKER . . . . . 8 Atwood Pl., Springfield, Mass.	VI.	Draughtsman, Duryea Motor-Carriage Co.
EDGAR A. BOESEKE . . . Indianapolis, Ind.	II.	With Nordyke & Marmon Co., Manufacturers of Flour Mill Machinery, and Constructors of Mills.
THOMAS B. BOOTH . . . . 18 Cortlandt St., New York, N. Y.	VI.	With American Telephone and Telegraph Co.
FRANK A. BOURNE . . . . Boston, Mass.	IV.	Graduate Student, Mass. Institute of Technology.

1895. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
JESSE H. BOURNE . . . . Boston, Mass.	II.	Assistant in Mechanical Engineering, Mass. Institute of Technology.
WALLACE C. BRACKETT . . State House, Boston.	XI.	Assistant Engineer, Mass. State Board of Health.
ALLEN P. BROWN . . . . 7 Durham St., Boston.	IX.	With Linder & Meyer, Commission Merchants (89 State St.).
ARTHUR S. CANFIELD . . . Hyde Park, Mass.	II.	With Boston Blower Co.
H. W. CHAMBERLAIN, B.Sc. Boston, Mass.	IV.	Graduate Student, Mass. Institute of Technology.
WALTER S. CHASE . . . . Portland, Me.	IV.	
WILLIAM B. CLAFLIN . . . Wayne, Pa.	IV.	Draughtsman, McKim, Mead, & White, Architects (New York, N. Y.).
SIDNEY K. CLAPP . . . . 179 Boston St., South Boston.	I.	With Metropolitan Water Board (State House).
ARTHUR H. CLARK . . . . 107 Quincy St., Chicago, Ill.	VI.	With American Telephone and Telegraph Co.
CARL H. CLARK . . . . Boston, Mass.	XIII.	Assistant in Mechanical Engineering, Mass. Institute of Technology.
SCHUYLER S. CLARK . . 505 W. Fourth St., South Bethlehem, Pa.	VIII.	Instructor in Physics, Lehigh University.
ARTHUR S. COBURN . . . Sparrow's Point, Md.	III.	With Maryland Steel Co.
LUTHER CONANT, JR. . . . Acton, Mass.	IX.	
CHARLES P. COOKE . . . . 113 Chandler St., Boston.	VI.	With Hawks Electric Co.
J. WILLIAMSON COOKE . . Waltham, Mass.	VI.	With Edison Electric Illuminating Co. (3 Head Pl., Boston).
J. WINFIELD COOKE . . . Farmington, N. H.	VI.	
FRED E. COX . . . . . 2641 Russell Ave., St. Louis, Mo.	IV.	With E. A. Manny, Architect.
WALTER N. CRAFTS, A. B. . Troy, N. Y.	III.	With Troy Steel and Iron Co.
HENRY M. CRANE . . . . Boston, Mass.	II.	Graduate Student, Mass. Institute of Technology.
GEORGE A. CUTTER . . . . Dover, N. H.	II.	With the Cocheco Manufacturing Co.
WILLIAM E. DAVIS, JR. . . 7214 Webster Ave., Chicago, Ill.	IV.	Draughtsman, D. H. Burnham & Co., Architects (The Rookery).
ARTHUR D. DEAN . . . . 223 High St., Portland, Me.	VI.	Instructor in Manual Training, Portland Public Schools.

1895. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
GEORGE DEFREN . . . . Boston, Mass.	V.	Graduate Student, Mass. Institute of Technology.
ALFRED L. DEJONGE . . . Stapleton, N. Y.	II.	
EDWARD E. DENISON . . . Boston, Mass.	X.	Graduate Student, Mass. Institute of Technology.
JUDSON C. DICKERMAN . . 113 Pembroke St., Boston.	X.	Chemical Engineer with Merrimac Chemical Co., Hydrate of Aluminum Department (South Wilmington, Mass.).
BENJAMIN C. DONHAM . . 42 Market St., San Francisco, Cal.	I.	With San Francisco Bridge Co.
JOHN THOMPSON DORRANCE Bristol, Pa.	V.	Student in the University of Göttingen, (Germany).
ALBERT W. DRAKE . . . 134 So. Fourth St, Philadelphia, Pa.	VI.	With American Telephone and Telegraph Co.
FRED W. DRAPER . . . . 241 Flagg St., Aurora, Ill.	III.	With Chicago & Aurora Smelting and Refining Co.
WILLIAM J. DRISKO . . Boston, Mass.	VIII.	Assistant in Physics, Mass. Institute of Technology.
ROLFE M. ELLIS . . . . . 117 Seventh St, McKeesport, Pa.	V.	Chemist, National Tube Works Co.
WALTER H. ELLIS . . . . 50 Prospect St., Woonsocket, R. I.	I.	With J. W. Ellis, Civil Engineer.
CHARLES F. EVELETH . . 105 Quincy St., Chicago, Ill.	VI.	With American Telephone and Telegraph Co.
ROBERT D. FARQUHAR, A. B. 55 Pembroke St., Newton, Mass.	IV.	Studying abroad (Paris, France).
FRANCIS E. FAXON . . . . 27 Lincoln St., Auburn, N. Y.	II.	Draughtsman and Assistant in Experimental Department, D. M. Osborne & Co., Manufacturers of Harvesting Machinery.
MILTON L. FISH . . . . Pasadena, Cal.	VI.	With Pasadena Electric Light and Power Co.
F. A. J. FITZ GERALD, B. A. Niagara Falls, N. Y.	VI.	With the Carborundum Co.
ANDREW D. FULLER . . . 28 Court Sq., Boston.	I.	With Street Department, City of Boston.
JOHN H. GARDINER . . . Jamestown, R. I.	II.	With Southwark Foundry and Machine Co. (Fifth St., Philadelphia).
CHARLES M. GAY, JR., A. B. 59 Rue de Provence, Paris, France.	IV.	Student of Architecture.

1895. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
PERLEY F. GILBERT . . . Andover, Mass.	IV.	
WATSON E. GOODYEAR . . Cambridge, Mass.	VI.	Student, Harvard University.
FRANCIS C. GREEN . . . . 277 Pearl St., New York, N. Y.	XI.	With Rudolph Hering, Civil and Sanitary Engineer.
JOHN H. GREGORY . . . . 3 Mt. Vernon St., Boston.	I.	With Metropolitan Water Board.
WILLIAM T. HALL . . . . Göttingen, Germany.	V.	Student in the University.
FREDERICK A. HANNAH . . Boston, Mass.	II.	Assistant in Mechanical Engineering, Mass. Institute of Technology.
FREDERICK W. HARRIS . . State House, Boston.	XI.	In Office of Chief Engineer, Metropolitan Water Board.
HARRY M. HAVEN . . . . Somerville, Mass.	II.	With Quincy Market Cold Storage Co. (Boston).
GEORGE W. HAYDEN . . . 493 Warren St., Roxbury, Mass.	VI.	With American Telephone and Telegraph Co. (134 So. Fourth St., Philadelphia).
HENRY A. HOLDREGE . . Boston, Mass.	VI.	Assistant in Physics, Mass. Institute of Technology.
LEMUEL F. HOWARD . . . Ludlow, Mass.	VI.	In U. S. Lighthouse Machine Shops (3 Gilbert Pl., Boston).
GEORGE R. HOWARTH . . 3 Young Ave., Providence, R.I.	II.	With Rhode Island Locomotive Works.
GEORGE E. HOWE . . . . 22 Summer St., Somerville, Mass.	I.	With Metropolitan Water Board (Boston).
SAMUEL P. HUNT . . 747 Union St., Manchester, N.H.	VI., X.	Graduate Student, Mass. Institute of Technology (Boston).
E. LAURENCE HURD . . . 8 Butler St., Dorchester, Mass.	II.	
EDWARD H. HUXLEY . . . 149 Austin St., Cambridge, Mass.	II.	With Boston Woven Hose and Rubber Co.
HERMANN KOTZSCHMAR, JR. Portland, Me.	II.	Assistant Engineer, U. S. Revenue Steamer "Woodbury."
HENRY O. LACOUNT, S. B. .	VI.	(See Class of 1894.)
RALPH R. LAWRENCE . . . Boston, Mass.	VI.	Graduate Student, Mass. Institute of Technology.
MAURICE LE BOSQUET . . 182 State St., Springfield, Mass.	V.	Chemist, United Manufacturing Co.
DORVILLE LIBBY, JR. . . . 520 Twenty-first St., San Francisco, Cal.	VI.	Electrical Engineer, Union Iron Works.
ALFRED V. LINCOLN, JR. . . Boston, Mass.	II.	Graduate Student, Mass. Institute of Technology.
ANDREW J. G. LOGAN . . . Leadville, Colo.	I.	With Maintenance of Way Department, Boston & Maine R. R. (Boston).

1895. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
ERNEST J. LORING . . . . 53 State St., Boston.	IV.	Draughtsman with Loring & Phipps, Architects.
THOMAS M. LATHROP . . . 164 High St., Boston.	II.	With Light House Engineer.
DWIGHT N. MARBLE, A. B. . 18 Cortlandt St., New York, N. Y.	VI.	With American Telephone and Telegraph Co.
WALTER C. MARMON . . . Toledo, Ohio.	II.	With the National Milling Co.
FRANK B. MASTERS . . . 20 Morse St., Newton, Mass.	II.	With the B. F. Sturtevant Co. (Jamaica Plain, Mass.).
FRANÇOIS E. MATTHES . . Rutland, Vt.	I.	Draughtsman with City Engineer.
GERARD H. MATTHES . . Brookline, Mass.	I.	Draughtsman with Town Engineer.
JAMES T. R. McMANUS . . 70 Kilby St., Boston.	I.	With Boston Bridge Works.
GEORGE F. C. MERRISS . . 57 Park Pl., Pawtucket, R. I.	I.	With Samuel M. Gray, Civil Engineer.
CHARLES A. MESERVE . . . Boston, Mass.	V.	Assistant in Sanitary Chemistry. Mass. Institute of Technology.
FRANKLIN T. MILLER . Auburndale, Mass.	XIII.	
JOHN D. J. MOORE . . . . Boston, Mass.	II.	Graduate Student, Mass. Institute of Technology.
RICHARD MOREY . . . . Sedalia, Mo.	I.	City Engineer.
ARTHUR F. NESBIT, A. B. . Durham, N. H.	VI.	Instructor in Physics and Electrical Engineering, New Hampshire College of Agriculture and the Mechanic Arts.
JOHN L. NEWELL . . . . 241 Walnut Ave., Roxbury, Mass.	X.	Assistant in Chemical Laboratory, Pope Manufacturing Co. (Hartford, Conn.).
FRANKLIN A. PARK . . . Winchendon, Mass.	II.	With Baxter D. Whitney, Manufacturer of Wood-working Machinery.
WINTHROP D. PARKER . . 70 Kilby St., Boston.	IV.	Draughtsman with Little, Browne, & Moore, Architects.
CHARLES L. PARMELEE . 56 Law Bldg., Toledo, O.	I., XI.	Civil and Sanitary Engineer.
WILLIAM F. PATTEN . . . 203 Savin Hill Ave., Dorchester, Mass.	VI.	With the American Bell Telephone Co. (Boston).
WALTER C. POWERS . . 116 Pearl St., Springfield, Mass.	X.	With Powers Paper Co. (Holyoke, Mass.).
WALTER W. REED . . . . 38 Floyd St., Waltham, Mass.	VI.	

1895. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
FREDERICK L. RICHARDS . 217 Summer St., Somerville, Mass.	X.	With James C. Davis & Son, Soap Manufacturers, Cambridgeport, Mass.
WALTER J. RICKEY . . . Danbury, Conn.	II.	Draughtsman with T. & B. Tool Co.
GEORGE A. ROCKWELL . . The Warren, Roxbury, Mass.	X.	
LOUIS K. ROURKE . . . . Abington, Mass.	I.	With Maintenance of Way Department, Boston & Maine R. R.
HAROLD N. RUST . . . . 41 Federal St., Boston.	VI.	With Hancock Equipment Co., Electrical and Mechanical Contractors.
SAMUEL S. SADTLER . . . 204 No. Thirty-fourth St. Philadelphia, Pa.	V.	Chemist in U. S. Appraisers' Office.
CLIFFORD B. SANBORN . . Norwood, Mass.	IX.	Teacher.
FRANK C. SCHMITZ . . . Pittsburgh, Pa.	I.	Assistant Engineer, Pennsylvania Lines west of Pittsburgh.
EDWARD P. SCHOENTGEN . Council Bluffs, Iowa.	IV.	Student of Architecture (Paris, France).
ROBERT K. SHEPPARD . . 6 William St., Worcester, Mass.	X.	With Washburn & Moen Manufacturing Co.
RICHARD G. B. SHERIDAN Hotel Warwick, Newport News, Va.	XIII.	Assistant Draughtsman, Construction Department, U. S. N.
JOHN C. SHERMAN . . . . Baltimore, Md.	VI.	Graduate Student, Johns Hopkins University.
ALFRED L. SIMMONS . . . So. Braintree, Mass.	I.	Draughtsman.
ALFRED P. SLOAN, JR. . . 240 Garfield Pl., Brooklyn, N. Y.	VI.	
WALTER F. STEVENS . . . Newton Highlands, Mass.	II.	With B. F. Sturtevant Co. (Jamaica Plain).
WILLIAM E. SWIFT . . . State House, Boston.	I.	In Engineering Department, Metropolitan Water Board.
GERARD SWOPE . . . . . 227 So. Clinton St., Chicago, Ill.	VI.	With the Western Electric Co.
CHARLES C. TAFT . . . . 3607 Baring St., Philadelphia, Pa.	X.	With The E. H. Godshalk Co.
JAMES W. THOMAS . . . Boston, Mass.	II.	Apprentice, Motive Power Department, Boston & Maine R. R.
STURGIS H. THORNDIKE, A. B. 22 Garden St., Cambridge, Mass.	I.	With City Engineer, City of Boston.

1895. — *Continued.*

NAME AND ADDRESS.	COURSE.	OCCUPATION.
CHARLES F. TILLINGHAST . 108 Angell St., Providence, R. I.	II.	With Granger Foundry and Machine Co.
EDWARD A. TUCKER . . . 63 Myrtle St., Melrose, Mass.	I.	With Boston Bridge Works (Boston).
HUGH M. TUCKER . . . . Macon, El Paso Co., Colo.	II.	Engineer, Rubicund Mining Co.
LOREN G. WAITE . . . . 105 Beltran St., Malden, Mass.	VI.	With General Electric Co. (Lynn, Mass.).
JOSEPH E. WALWORTH . . Lawrence, Mass.	V.	Student, University of Leipsic (Germany).
WILLIAM H. WATKINS . . 77 William St., New York, N. Y.	V.	Assistant Chemist for Farbenfabriken of Elberfeld Co.
DAVID B. WESTON . . . . Watertown, Mass.	V.	Chemist, Crystal Springs Manufacturing Co.
RALPH N. WHEELER . . . Municipal Bldg., Brooklyn, N.Y.	I.	Leveller, Department of City Works.
THOMAS H. WIGGIN . . . 154 Mountain Ave., Malden, Mass.	I.	With Metropolitan Water Board (Boston).
CHARLES G. WILLIAMS . . 553 Main St., Norwalk, O.	I.	Assistant Engineer, Mass. Highway Commission (Boston).
ROGER J. WILLIAMS . . . Canton, Mass.	IX.	
WALTER S. WILLIAMS . . Boston, Mass.	X.	Assistant in Industrial Chemistry, Mass. Institute of Technology.
WILLIAM H. WINKLEY . . 58 Kilby St., Boston, Mass.	XIII.	Special Agent, Hartford Fire Insurance Co.
JOHN J. C. WOLFE . . . . 24 Main St., Rutland, Vt.	II.	With Howe Scale Co.
LUTHER K. YODER . . . . Sparrows Point, Md.	II.	With Construction Department, Maryland Steel Co.
HENRY YOERG . . . . . 229 Ninth St., Milwaukee, Wis.	II.	Draughtsman, Viltee Manufacturing Co.
ALFRED E. ZAPF . . . . . 70 Kilby St., Boston.	IV.	Draughtsman with Willard T. Sears, Architect.

Alumni will confer a favor by informing the Secretary of the Faculty of any change of address or occupation.

Other persons who have been connected with the Institute for one year or more will also confer a favor by informing the Secretary of the Faculty of their address and occupation.

It should be noticed that the graduates comprise but about one-fourth of all the students who have in the past been connected with the Institute.

NUMBER OF GRADUATES BY CLASSES.

Class of 1868	14	Class of 1882	24
" " 1869	5	" " 1883	19
" " 1870	10	" " 1884	36
" " 1871	17	" " 1885	27
" " 1872	12	" " 1886	59
" " 1873	26	" " 1887	58
" " 1874	18	" " 1888	77
" " 1875	27	" " 1889	75
" " 1876	43	" " 1890	102
" " 1877	32	" " 1891	102
" " 1878	19	" " 1892	133
" " 1879	23	" " 1893	129
" " 1880	8	" " 1894	137
" " 1881	28	" " 1895	143

Total	1,403
Deduct names counted twice	9
	1,394

ALPHABETICAL LIST OE GRADUATES.

NAME.	COURSE.	CLASS.
Abbot, Charles G.	VIII.	1894
Abbot, Louis A.	II.	1895
Abbott, Frederic B.	VI.	1893
Abbott, Ira	I.	1881
Aborn, George P.	II.	1886
Adams, Arthur H.	II.	1890
Adams, Benjamin	VI.	1895
Adams, Charles M.	VI.	1895
Adams, Ralph B.	X.	1894
Aiken, Charles W.	II.	1891
Albee, Orton W.	III.	1893
Alden, Charles H., Jr.	IV.	1890
Alden, Edwin C.	VI.	1895
Alden, Herbert W.	II.	1893
Alden, John	V.	1877
Allbright, William B.	V.	1878
Allen, C. Frank	I.	1872
Allen, Charles F.	III.	1876
Allen, Charles R.	V.	1885
Allen, Charles V.	VI.	1893
Allen, John H.	III.	1881
Allen, Samuel E.	I.	1875
Allen, Walter S.	V.	1879
Ames, Azel	I.	1895
Ames, Clara P.	V.	1882
Anderson, George H.	X.	1894
Andrews, Edmund L.	VI.	1894
Anthony, Arthur C.	III.	1886
Anthony, John G.	III.	1893
Appleton, Charles B.	II.	1884
Appleton, Ellery C.	III.	1868
Armington, George A.	II.	1887
Arnott, James L.	Sci. and Lit.	1875
Aspinwall, Thomas	I.	1876
*Atkinson, James S. (Dec. 17, '83)	II.	1881
Atwood, Frank W.	V.	1890
Atwood, William P.	V.	1876
Austin, Amory	V.	1873
Ayer, Arthur W.	II.	1890
Babb, Cyrus C.	I.	1890
Bachelder, Charles S.	V.	1877
Badger, Ernest F.	V.	1895
Badger, Frank S.	I.	1893
Baker, Charles M.	IV.	1878
Baker, David	III.	1885
Baker, Fred C.	II.	1894
Baker, Frederic W.	II.	1893
Baker, Joseph B.	VI.	1890
Baker, William H.	I.	1869
Baldwin, Henry F.	II.	1884
Baldwin, Hiram E.	I.	1890
Baldwin, Thomas W.	I.	1876
Ball, Robert S.	II.	1891
Ballard, Hetty O.	XII.	1893
Ballou, Latimer W.	II.	1895
Barbour, Minard T.	II.	1893
Bardwell, Fred L.	V.	1884
Bardwell, Herbert T.	I.	1883
Barnes, William T.	I.	1893
Barr, Lawrence	VI.	1895
Barri, Joel G.	I.	1891
Barrows, Harold K.	I.	1895
Barrows, Herbert	I.	1874
Barrows, Walter B.	VII.	1876
Barrus, George H.	II.	1874
Barry, Edmund D.	XIII.	1895
Barstow, George E.	II.	1894
Bartholomew, Ethel	IV.	1895
Bartlett, Dana P.	VI.	1886
Bartlett, Sidney R.	VII.	1887
Bartlett, Spaulding	V.	1890
Bartlett, T. Harris	III.	1884
Bartol, George	III.	1877
Barton, Charles A.	II.	1887
Barton, George H.	III.	1880
Barton, Howard R.	VI.	1894
Basford, George M.	II.	1889
Bassett, William H.	V.	1891
Batchelder, John L.	VII.	1890
Batcheller, Birney C.	II.	1886
Bates, Harry R.	V.	1894
Bates, Henry D.	IV.	1888
Batson, Walter V.	VI.	1894
Beach, Charles B.	X.	1894
Beach, Edward J.	V.	1889
Beach, Irving E.	V.	1894
Beal, Charles A.	VI.	1892
Beal, Foster E. L.	I.	1871

* Deceased.

NAME.	COURSE.	CLASS.
Beal, J. Williams	IV.	1877
Bean, Norwin S.	VI.	1894
Beasom, Charles B.	II.	1890
Beattie, Roy H.	I.	1893
Beckler, Alice H.	VII.	1892
Beeching, William H.	II.	1877
Belknap, Francis W.	I.	1895
Bellows, Arthur B.	II.	1889
Bemis, Albert F.	I.	1893
Benedict, Vallette L.	VI.	1894
Benton, Edward R.	IV.	1885
Berry, Charles W.	VI.	1895
Berry, Hereford	VI.	1894
Bickford, Elizabeth E.	VII.	1890
Bigelow, Charles H.	VI.	1892
Bigelow, Henry F.	IV.	1888
Bigelow, Samuel L.	V.	1895
Binney, Amos	V.	1881
Bird, Adelaide	VII.	1891
Bird, Herbert S.	V.	1888
Birks, John H.	II.	1891
Biscoe, Maurice B.	IV.	1893
Bissell, David S.	III.	1881
Bixby, George L.	X.	1895
Bixby, Willard G.	II.	1889
Blackwell, Ethel B.	VII.	1891
Blake, Edmund E.	II.	1893
Blake, William B.	I.	1887
Blanchard, Frederick C.	II.	1891
Blanchard, Winslow	II.	1888
Bliss, Walter D.	IV.	1895
Bliss, Zenas W.	II.	1889
Blodgett, Aaron D.	II.	1876
Blodgett, George W.	I.	1873
Blodgett, Perley H.	V.	1895
Blood, Grosvenor T.	II.	1894. VI. 1893
Blood, John B.	VI.	1890
Blunt, William T.	I.	1874
Boardman, Henry A.	V.	1884
Boedeker, John	VI.	1895
Boeseke, Edgar A.	II.	1895
Bolan, Thomas V.	VI.	1891
Booth, Thomas B.	VI.	1895
Borden, Charles N.	II.	1889
Boss, Austin D.	II.	1890
Boss, Charles R.	IX.	1894
Bothfeld, Charles C.	I.	1884
Bourne, Frank A.	IV.	1895
Bourne, Jesse H.	II.	1895
Bourne, Phillips P.	II.	1892
Bovey, William H.	VI.	1894
Bowen, Stephen	II.	1892
Boyden, Amos J.	IV.	1875
Brace, Walter C.	III.	1887
Brackett, Wallace C.	XI.	1895
Bradlee, Arthur T.	II.	1888
Bradlee, Henry G.	VI.	1891
Bradley, Frederick W.	VI.	1889
Bradley, Harry C.	I.	1891
Bragg, Edward F.	II.	1890
Bragg, Lottie A.	V.	1890
Brainerd, Dwight	IX.	1887
Brainerd, Frederick H.	III.	1889
Brainerd, Henry B.	IX.	1887
Brainerd, Wallace H.	VI.	1891
Brainerd, William L.	IV.	1886
Braley, Samuel T.	II.	1879
Braman, Samuel N.	II.	1893
Brand, Horace L.	II.	1891
Breed, Joshua B. F.	I.	1876
Breed, Stephen A.	II.	1894
Brewster, Benjamin E.	III.	1872
Bridges, Luther W.	II.	1889
Briggs, Frank H.	IX.	1881
Brotherton, William E.	V.	1873
Brown, Alice I. (see Tyler).		
Brown, Allen P.	IX.	1895
Brown, Bertha M.	VII.	1892
Brown, Charles H.	I.	1880
Brown, Edward D.	VI.	1890
Brown, John C.	VI.	1893
Brown, Walter V.	VI.	1894
Brownell, Ernest H.	I.	1890
Bryant, Dixie L.	XII.	1891
Bryant, Ernest C.	I.	1893
Bryant, George H.	II.	1883
Bryant, Henry F.	I.	1887
Bryant, William P.	X.	1891
Bryden, George W.	II.	1891
Buchanan, Leonard B.	VI.	1893
Buchholz, Charles E.	I.	1893
Buck, Arthur A.	VI.	1893
Bulkley, Joseph N.	VI.	1889
Burbank, Philip M.	VI.	1892
Burgess, Frank G.	I.	1887
Burgess, John K.	II.	1886
Burke, John R.	I.	1893
Burlingham, Charles L.	III.	1886
Burnet, Moses D.	III.	1875
Burnham, Charles M.	VI.	1892
Burnham, Edward C.	II.	1890
Burnham, Guy J.	X.	1892

NAME.	COURSE.	CLASS.
Burnham, Harry A.	II.	1892
Burrage, Severance	VII.	1892
Burrison, Henry K.	I.	1875
Burton, Frank H.	II.	1891
Buttolph, Benjamin G.	II.	1888
Buttolph, Harry T.	I.	1876
Cabot, John W.	III.	1879
Calkins, Gary N.	IX.	1890
Callahan, Dennis E.	VI.	1893
Came, Frank E.	I.	1881
Cameron, Julian A.	II.	1887
Campbell, George A.	I.	1891
Campbell, Harry H.	III.	1879
Canfield, Arthur L.	II.	1895
Capen, Barnard, Jr.	VI.	1891
Capen, G. Walter	IV.	1877
Card, Huber D.	XII.	1892
Carleton, Elbridge S.	IV.	1888
Carlisle, Morten	VI.	1890
Carlton, Chester V.	I.	1890
Carney, Edward B.	II.	1893
Carney, Frank D.	III.	1887
Carney, James A.	V.	1890
Carr, W. Frank	I.	1884
Carson, Howard A.	I.	1869
Carson, Thomas B.	II.	1882
Carter, Henry H.	I.	1877
Carter, William W.	VI. 1894, X.	1893
Carven, Christopher J.	I.	1884
Cater, Douglas A.	II.	1892
Center, David A.	VI.	1888
Chace, Mason S.	II.	1894
Chadbourn, William H., Jr.,	III.	1886
Chamberlain, Herbert W.	IV.	1895
Chamberlin, William E.	IV.	1877
Chapman, George D.	II.	1890
*Chapman, George (Jan. 21, '79)	II.	1877
Chapman, John W., Jr.	II.	1894
Chapman, Nathan C. W.	II.	1894
Chase, Charles H.	VI.	1892
Chase, Edwin E.	I.	1880
Chase, Frank D.	III.	1881
Chase, Frank L.	I.	1890
Chase, Harold M.	X.	1894
Chase, Harvey S.	II.	1883
Chase, Richard D.	XI.	1892
Chase, Roscoe L.	V.	1884
Chase, Walter S.	IV.	1895
Child, Stephen	I.	1888
*Childs, Edward L. (Mar. 3, '94)	II.	1891
Church, Albert K.	V.	1892
Church, Christopher A.	I.	1875
Church, William L.	VI.	1886
Cilley, Frank H.	I.	1889
Claflin, Allan A.	V.	1894
Claflin, George E.	VI.	1888
Claflin, William B.	IV.	1895
Clapp, Harry L.	X.	1893
Clapp, Sidney K.	I.	1895
Clapp, Wilfred A.	I.	1893
Clark, Arthur H.	VI.	1895
Clark, Carl H.	XIII.	1895
Clark, Carrie Rice	V.	1882
*Clark, Edward K. (Sept. 10, '78)	II.	1870
Clark, Frederick W.	III.	1880
Clark, James, Jr.	VI.	1890
Clark, Schuyler S.	VIII.	1895
Clarke, Edward D.	VI.	1894
Clarke, Fred H.	I.	1894
Clement, Arthur A.	X.	1894
Clement, Hugh B.	IV.	1891
Clifford, Harry E.	VI.	1886
Clough, Albert L.	VI.	1891
Cobb, Louis R.	I.	1886
Cobb, Sylvanus H.	VI.	1888
Coburn, Arthur S.	III.	1895
Cochran, Heywood	II.	1885
Codman, John S.	VI.	1893
Cody, Lewis P.	VI.	1892
Coffin, Fred S.	III.	1879
Cogswell, Charles P., Jr.	I.	1892
Colby, John M., Jr.	II.	1892
Colby, Russell A.	V.	1888
Cole, Fred A.	II.	1891
Cole, Fred B.	II.	1888
Cole, Harrison I.	II.	1891
Cole, Winthrop	II.	1887
Collins, Benjamin G.	II.	1881
Collins, Bertrand R. T.	II.	1888
Collins, Edward, Jr.	VI.	1888
Collins, Reuben B.	I.	1891
Collins, William H.	V.	1890
Conant, Henry J.	II.	1887
Conant, Luther, Jr.	IX.	1895
Conant, Roger W.	VI.	1891
Conant, Whitney	III.	1868
Conner, Arthur J.	V.	1888
*Connor, Addison (Jan. 4, '91)	I.	1871
Cook, Charles N.	X.	1893
Cook, Walter F.	IX.	1890
Cooke, Charles P.	VI.	1895
Cooke, J. Williamson	VI.	1895

* Deceased.

NAME.	COURSE.	CLASS.
Cooke, J. Winfield	VI.	1895
Cooley, Helen	V.	1887
Coolidge, Prescott H.	I.	1894
Copeland, Frederick K.	I.	1876
Copeland, Henry F.	I.	1894
Cox, Fred E.	IV.	1895
Crabtree, Fred	V.	1889
Crafts, Walter N.	III.	1895
Craighill, Nathaniel R.,	VI.	1894, II. 1893
Craigin, Henry A.	II.	1889
*Crane, Francis H. (Apr. 15, '93)	VI.	1886
Crane, Henry M.	II.	1895
Crane, John G.	I.	1890
Crane, Joshua, Jr.	VI.	1892
Crary, Horace A.	I.	1894
Cromwell, Charles H.	II.	1889
Crosby, William O.	VII.	1876
Crosby, William W.	II.	1893
Cross, Charles R., Sci. and Lit.		1870
Cunningham, Edward	X.	1891
Curtin, John A.	I.	1892
Curtis, Ralph E.	II.	1887
Curtis, Russell H.	I.	1870
Cushing, William C.	I.	1887
Cutler, Charles H.	VI.	1894
Cutler, Harry H.	II.	1881
*Cutler, Henry M. (May 16, '77)	I.	1871
Cutter, George A.	II.	1895
Cutter, Louis F.	I.	1886
Cutter, Roland N.	I.	1889
Dadmun, George E.	II.	1892
Daggett, Herbert C.	I.	1891
Dalton, Nelson W.	VI.	1894
Dame, Frank L.	VI.	1889
Dan, Takuma	III.	1878
Dana, Gorham	I.	1892
Darlington, F. Graef	IX.	1881
Darrow, Courtland R.	I.	1893
Dates, Henry B.	VI.	1894
Davenport, William S.	V.	1889
Davies, T. Clive	II.	1894
Davis, Albert G.	VI.	1893
Davis, Arthur L.	II.	1889
Davis, Carleton E.	I.	1893
Davis, Frank E.	II.	1883
Davis, Leon K.	X.	1894
Davis, William E., Jr.	IV.	1895
Davis, Willis E. Sci. and Lit.		1876
Dawes, Herbert N.	II.	1893
Day, Nathan B.	II.	1894
Day, Sarah L.	V.	1887
Dean, Arthur D.	VI.	1895
Dearborn, George K.	IX.	1893
De Carvalho, Raul R.	IX.	1892
Defren, George	V.	1895
Dejonge, Alfred L.	II.	1895
De Lancey, Darragh	II.	1890
Delano, Alexander J.	I.	1890
Demond, Charles D.	III.	1893
Denison, Edward E.	X.	1895
*Dennett, Clarence L. (June 6, '78)	II.	1876
Dennett, William H.	IV.	1892
Densmore, Edward D.	VI.	1893
Derr, Louis	VI.	1892
Devens, Richard	II.	1888
De Wolf, John O.	II.	1890
Dewson, Edward H., Jr.	II.	1885
Dickerman, Judson C.	X.	1895
Dill, Howard A.	I.	1891
Dillon, Frederick N.	V.	1893
Dixon, Laurence B.	VI.	1893
Doane, Alfred O.	III.	1884
Doane, George E.	I.	1874
Dodd, Margaret E.	VII.	1892
Dodge, Charles B.	IX.	1889
Dodge, Frank S.	I.	1875
Dodge, Frederick H.	II.	1890
Dodge, Samuel D.	I.	1893
Dodge, William B.	I.	1872
Doe, Charles C.	VII.	1886
Dolan, Peter F.	VI.	1893
Dorham, Benjamin C.	I.	1895
Donn, Edward W., Jr.	IV.	1891
Doolittle, Orrin S.	V.	1886
Dorman, Theodore T.	X.	1893
Dorr, Edgar S.	I.	1875
Dorr, Frank H.	VI.	1891
Dorrance, John T.	V.	1895
Douglass, Walter B.	I.	1892
Dowse, William B.	IV.	1874
Drake, Albert W.	VI.	1895
Draper, Fred W.	III.	1895
Dresser, Henry C.	II.	1892
Drisko, William J.	VIII.	1895
Du Bois, Barron P.	VI.	1892
Duckworth, Harry S.	V.	1894
Duff, James C.	V.	1886
Duff, John	V.	1881
Dunbar, Francis W.	VI.	1890
Dunbar, W. Otis	II.	1879
Dunham, Lewis A.	I.	1891
Du Pont, Henry B.	X.	1894

* Deceased.

NAME.	COURSE.	CLASS.
Du Pont, Pierre S.	V.	1890
Durfee, Nathan	II.	1889
Dutton, Edgar F.	VI.	1888
Dwelley, Edwin F.	I.	1890
Dyar, Harrison G.	V.	1889
Eastman, Henry F.	II.	1888
Eaton, Charles S.	IV.	1878
Edes, William C.	I.	1875
Edmands, J. Rayner	II.	1869
Edwards, Arthur V.	IV.	1889
Eldridge, George F.	V.	1892
Ellis, John	VI.	1894
Ellis, Rolfe M.	V.	1895
Ellis, Walter H.	I.	1895
*Ellsworth, Alfred B. (Jan. 10,'93)	I.	1888
Ely, Edward F.	IV.	1882
Ely, Sumner B.	II.	1892
Emerson, Joseph S.	I.	1874
Emery, Elwood A.	IV.	1890
Emery, James A.	I.	1893
Emmerton, Frederic A.	V.	1872
England, Paul W.	VI.	1891
Ensworth, Horace H.	VI.	1891
Eppendorff, John G.	IV.	1883
Eppes, Richard, Jr.	II.	1888
Esty, William	VI.	1893
Eveleth, Charles F.	VI.	1895
Fabens, George W.	I.	1879
*Fabens, Samuel A., Jr. (Mar. 14,'75)	I.	1873
Farmer, George W.	II.	1886
Farnsworth, Arthur J.	VI.	1894
Farquhar, Robert D.	IV.	1895
Farwell, Arthur G.	VI.	1893
*Faunce, Elmer (July 6, '82)	III.	1871
Faunce, George	III.	1882
Faunce, Linus	II.	1877
Favor, George W.	III.	1891
Faxon, Francis E.	II.	1895
Fay, Frederic H.	I.	1893
Feland, Logan	IV.	1892
Felton, Samuel M.	I.	1873
Fenn, William H.	I.	1890
Ferguson, John N.	I.	1894
Ferguson, Louis A.	VI.	1888
*Firth, Frank R. (June 9, '72)	I.	1868
Fish, Milton L.	VI.	1895
Fish, Walter C.	VI.	1887
Fisher, Charles H.	II.	1877
Fisher, Frederick L.	I.	1873
Fiske, Henry A.	VI. 1892, X.	1891
Fiske, J. Parker B.	VI.	1889

NAME.	COURSE.	CLASS.
Fitch, Alfred L.	II.	1884
Fitz Gerald, Francis A. J.	VI.	1895
Fletcher, Charles R.	V.	1876
Flint, Bertram P.	II.	1888
*Flint, Wm. C. (June 14,'81)	III.	1877
Flint, William P.	II.	1890
Flood, Samuel D.	II.	1890
Foote, Edward H.	I.	1871
Foque, Theodore A.	II.	1888
Foran, George J.	II.	1883
Forbes, Eli	Sci. and Lit.	1868
Forbes, Fred B.	V.	1893
Forbes, Howard C.	VI. 1892, X.	1891
Forbush, Gayle T.	X.	1892
*Foss, Edward S. (Oct. 3, '90)	V.	1886
Foss, Fred E.	I.	1886
*Foss, Harry A. (Aug. 19,'85)	II.	1882
Foster, Theodore R.	II.	1886
Fowle, Arthur E.	X.	1893
Fowle, Frederick E., Jr.	VIII.	1894
Fox, Frederick	V.	1885
Fox, John M.	VI.	1887
Francis, Frederick L.	IV.	1892
Freeman, John R.	I.	1876
French, Alfred W.	I.	1889
French, Allen	IX.	1892
French, Charles A.	III.	1882
French, Edward R.	VI.	1892
French, Edward V.	II.	1889
French, George L. R.	I.	1884
French, Hollis	VI.	1889
French, Lester G.	II.	1891
Frisbie, Walter L.	II.	1893
Frost, Howard V.	V.	1882
Fry, Thomas W.	II.	1885
Fukuzawa, Stejiro	I.	1888
Füger, Frederic W.	II.	1891
Fuller, Andrew D.	I.	1895
Fuller, Charles E.	II.	1892
Fuller, Frank L.	I.	1871
Fuller, George W.	V.	1890
Fuller, James E., Jr.	IV.	1888
Fuller, William B.	I.	1883
*Furber, Pierce P. (Apr. 7,'83)	IV.	1877
Gale, Horace B.	II.	1883
Galloupe, Francis E.	II.	1876
Gallup, Harriet T.	V.	1894
Gamble, Walter B.	IX.	1893
Gannett, Earl W.	VI.	1889
Gardiner, Edward G.	VII.	1882
Gardiner, John H.	II.	1895

* Deceased.

NAME.	COURSE.	CLASS.
Gardner, Harry W.	IV.	1894
Gardner, John H.	II.	1894
Garfield, Alexander S.	II.	1886
Garrison, Charles	VI.	1891
Gay, Charles M.	IV.	1895
Gay, Joseph B.	IV.	1887
Gay, Martin	I.	1877
Gaylord, Wallace K.	V.	1893
Gerrish, William H.	II.	1888
Gilbert, James P.	V.	1889
Gilbert, Perley F.	IV.	1895
Gilkey, Royal W.	II.	1894
Gill, Augustus H.	V.	1884
Gill, Edward P.	IV.	1892
Gilman, Charles C.	III.	1868
Gilmore, George L.	II.	1890
Gilmore, Howard VI.	1893, II.	1892
Gleason, Walter H.	V.	1887
Glidden, John W.	II.	1890
*Glover, Marie O. (see Holman).		
Goddard, David S.	III.	1881
Goodale, Charles W.	III.	1875
Goodell, George H.	II.	1892
Gooding, Charles S.	II.	1879
Goodrich, Robert R.	III.	1885
Goodwin, Harry M.	VIII.	1890
Goodyear, Watson E.	VI.	1895
Gorham, Marvine	II.	1893
Gould, Robert H.	Metallurgy.	1876
Gray, Joseph P.	I.	1877
Gray, William P.	VI.	1892
Green, Francis C.	XI.	1895
Green, William W.	I.	1892
Greene, Charles E.	I.	1868
*Greene, Irving G. (Feb. 24,'91)	I.	1888
Greenlaw, Frank M.	VI.	1890
Greenleaf, Lewis S.	VI.	1894
Gregory, John H.	I.	1895
Greer, Medorem W.	VI.	1891
Grimes, Charles B.	V.	1892
Gross, Harold G.	VII.	1888
Grover, Edmund	I.	1877
Guild, Frederick, Jr.	Sci. and Lit.	1873
Guppy, Benjamin W.	I.	1889
Gustin, George H.	III.	1883
Hadaway, William S., Jr.	VIII.	1887
Hadley, Frederick W.	VI.	1893
Hagar, Edward McK.	II.	1893
Haines, Frank M.	III.	1884
Hale, George E.	VIII.	1890
Hale, Richard A.	I.	1877
Hall, Albert F.	II.	1868
Hall, Edward C., Jr.	II.	1892
Hall, Francis P.	V.	1882
Hall, John R.	VI.	1890
Hall, Sarah A.	VIII.	1894
Hall, William T.	V.	1895
Hamblet, George W.	II.	1888
Hamilton, Edgar L.	III.	1891
Hamilton, George W.	I.	1880
Hammatt, Edward A. W.	I.	1875
Hammett, Philip M.	II.	1890
Hammond, Charles F.	I.	1891
Hanchett, George T.	VI.	1893
Handy, Edward A.	I.	1875
Hannah, Frederick A.	II.	1895
Hardman, John E.	III.	1877
Harriman, Frederic O.	I.	1883
Harrington, Walter K.	I.	1885
Harris, Frederick W.	XI.	1895
Harris, W. Dale	I.	1873
Harris, William L.	VII.	1888
Harrison, Burt S.	IV.	1894
*Hartwell, Ernest G. (Sept. 22,'89)	IV.	1879
Harvey, Frederic H.	III.	1893
Harvey, George L.	II.	1888
*Harwood, F. W., Jr. (Oct. 18,'95)	VI.	1894
Harwood, Harry A.	I.	1892
Haskins, William	III.	1891
Hastings, Charles F.	III.	1888
Hastings, Harry P.	I.	1894
Hatch, Arthur E.	I.	1891
Hathaway, D. Lewis K.	II.	1886
Hathaway, Herbert E.	V.	1891
Hathaway, Savory C., Jr.	VI.	1888
Haven, George B.	II.	1894
Haven, Harry M.	II.	1895
Hayden, Charles	IX.	1890
Hayden, George W.	VI.	1895
Hayden, Sophia G.	IV.	1890
Hayes, Frank	II.	1890
Hayes, Harry E.	VI.	1890
Hazard, Schuyler	I.	1890
*Head, James H. (Aug. 18,'75)	II.	1875
Heath, George L.	V.	1888
Heins, George L.	IV.	1882
Henck, John B., Jr.	VIII.	1876
Herrick, Edward W.	II.	1888
Herrick, James A.	V.	1872
Hersam, Ernest A.	V.	1891
Heywood, Albert S.	VI.	1892
Heywood, George H.	III.	1884

* Deceased.

NAME.	COURSE.	CLASS.
*Heywood, Lincoln C. (Dec. '94)	I.	1891
Hibbard, Henry D.	III.	1877
Hibbard, Thomas	II.	1875
Higgins, Alfred S.	IV.	1878
Higgins, Edward E.	VI.	1886
Hildreth, William O.	II.	1887
Hill, William R.	IV.	1894
Hilliard, John D., Jr.	IV.	1892
Hinckley, John F.	X.	1893
Hinman, Charles W.	III.	1870
Hobart, Henry M.	VI.	1889
Hobart, James C.	II.	1887
Hobbs, Franklin W.	II.	1889
Hodgdon, Frank W.	I.	1876
Hodge, James M.	III.	1872
Holbrook, Elliot	I.	1874
Holder, James G.	V.	1884
Holdrege, Henry A.	VI.	1895
Hollingsworth, Sumner	II.	1876
Hollis, Frederick S.	V.	1890
Holman, George U. G.	VI.	1889
*Holman, Marie G. (May 5, '85)	V.	1881
Holman, Silas W.	VIII.	1876
Holmes, Francis C.	IX.	1892
Holmes, George A.	X.	1891
Holton, Edward C.	V.	1888
Homer, Eleazer B.	IV.	1885
Hongma, Aechirau	I.	1874
Hooker, Richard	IV.	1889
Hopewell, Charles F.	VI.	1894
Hopkins, Frederick L.	V.	1889
Hopkins, Prescott A.	IV.	1892
Hopkins, William J.	VI.	1886
Hopton, Walter E.	II.	1891
Horn, Henry J., Jr.	I.	1888
Horton, Sidney E.	II.	1890
Horton, Theodore	XI.	1894
Hosea, Raphael M.	I.	1879
Houck, William G.	I.	1893
Howard, Charles P.	I.	1874
Howard, Lemuel F.	VI.	1895
Howarth, George R.	II.	1895
Howe, George E.	I.	1895
Howe, Henry M.	III.	1871
Howe, Horace J.	I.	1879
Howes, Clarence L.	II.	1873
Howes, Clifton A.	VI.	1894
Howland, Albert H.	I.	1871
Howland, Frederick H.	IX.	1893
Hoxie, Frederick J.	VI.	1892
Hoyt, William E.	I.	1868
Hulse, William S.	VI.	1894
Hunt, Albert F., Jr.	I.	1894
Hunt, Alfred E.	III.	1876
Hunt, Edward M.	I.	1894
Hunt, Harry H.	VI.	1889
Hunt, Samuel P.	VI., X.	1895
*Huntington, W. F. (Aug. 7, '77)	I.	1875
Hurd, Edward L.	II.	1895
Hussey, Oren S.	II.	1887
Hutchings, James H.	II.	1883
Hutchins, Edward S.	II.	1889
Hutchinson, William S.	III.	1892
Huxley, Edward H.	II.	1895
Ingalls, Walter R.	III.	1886
Ingraham, George H.	IV.	1892
Jackson, Daniel D.	V.	1893
Jackson, Frank H.	III.	1874
Jacobs, Arthur L.	VI.	1892
Jacques, William W.	VIII.	1876
James, Frank M.	II.	1888
James, Lawrence S.	V.	1893
James, Samuel, Jr.	III.	1876
Jameson, Arthur H.	V.	1893
Janvrin, Ned H.	I.	1894
Jenkins, Charles D.	V.	1882
Jenney, Walter	III.	1877
*Jewett, William P. (Jan. 4, '84)	I.	1873
Johnson, Charles H.	I.	1894
Johnson, Herbert E.	VI.	1894
Johnson, James W.	I.	1882
Johnson, Jesse F.	X.	1892
Johnson, Lewis E.	II.	1889
Johnson, William S.	I.	1889
Johnston, William A.	II.	1892
Jones, Arthur W.	VI.	1888
Jones, Edward A.	II.	1887
Jordan, Edwin O.	VII.	1888
Jordan, Harry W.	V.	1891
Jordan, William F.	I.	1886
Kales, William R.	II.	1892
Kauffman, Milton H.	V.	1891
Kebler, Julian A.	I.	1878
Keene, Thomas M.	I.	1891
Keith, Simeon C., Jr.	VII.	1893
Kendall, Albert L.	II.	1894
Kendall, Charles B.	V.	1887
Kendall, Francis H.	I.	1890
Kendall, William R.	VI.	1892
Kenison, Ervin	II.	1893
Kenney, C. Belle	V.	1886
Kennicott, Harry A.	I.	1890

* Deceased.

NAME.	COURSE.	CLASS.
Keough, William T.	II.	1888
Keyes, Frederic H.	II.	1893
Kilham, Alfred C.	II.	1876
Kilham, Walter H.	IV.	1889
Kimball, Herbert S.	X.	1891
Kimball, Joseph H.	XI.	1894
*Kimball, William A. (Dec. '87)	II.	1873
King, Warren D.	VI.	1893
King, William H.	IX.	1894
Kinnicutt, Leonard P.	V.	1875
Kirsman, Arthur D.	VIII.	1889
*Kirk, Joseph (July, '86)	II.	1877
Kirk, Robert H.	II.	1894
Kittredge, George W.	I.	1877
Kittredge, John W.	II.	1894
Knapp, Charles R.	IV.	1894
Knapp, Frederick B.	I.	1879
Knapp, George F.	V.	1884
Knapp, J. Austin	II.	1876
Knight, Franklin	I.	1890
Knowles, Morris, 2d	I.	1891
Knowlton, Willis T.	I.	1893
Koch, Armand D.	IV.	1892
Koehler, Walter J.	V.	1881
Kotzschmar, Hermann, Jr.	II.	1895
Kunhardt, Lewis H.	II.	1889
Lacount, Henry O. VI. 1895,	II.	1894
Lamb, William F.	VI.	1893
Lambert, Wallace C.	I.	1893
Lane, Fred H.	II.	1879
Lane, Lucius P.	IX.	1894
Lane, William H.	VI.	1892
Latey, Harry N.	VI.	1893
Latham, Harry M.	II.	1893
Lauder, George B.	VI.	1889
*Lawrence, J. A. McC. (Jan. 18, '93)	II.	1886
Lawrence, Ralph R.	VI.	1895
Lawrence, William H.	IV.	1891
Laws, Frank A.	VI.	1889
Lawton, Charles F.	I.	1877
Leach, Albert E.	II.	1886
Le Bosquet, Maurice	V.	1895
Lee, Elisha, Jr.	I.	1892
Lee, George S.	I.	1888
Leeming, Woodruff	IV.	1891
Leland, William E.	II.	1891
Lenfest, Bertram A.	II.	1890
Leonard, Frederick M.	I.	1894
Leonard, H. Ward	III.	1883
Le Sueur, Ernest A.	VI.	1890
Lewis, Edwin J., Jr.	IV.	1881
Lewis, Herbert	VI.	1893
Lewis, Theodore J.	II.	1876
Lewis, Wilfred	II.	1875
Lewis, William W.	II.	1889
Libby, Dorville, Jr.	VI.	1895
Lincoln, Alfred V.	II.	1895
Lincoln, G. Russell	III.	1871
Lindsay, William B.	V.	1881
Linzee, John W., Jr.	I.	1889
Livermore, William D.	V.	1887
Locke, Bradford H.	III.	1872
Locke, Frank L.	I.	1886
Locke, William W.	XI.	1892
Logan, Andrew J. G.	I.	1895
Logan, John W.	II.	1893
*Lord, Frank H. (Dec. 31, '90)	II.	1885
Loring, Ernest J.	IV.	1895
Loring, Fred R.	VII.	1879
Loring, Harrison, Jr.	II.	1889
Loring, Robert	X.	1894
Lothrop, Thomas M.	II.	1895
Lovejoy, Frank W.	X.	1894
Loveland, James W.	V.	1888
Low, Albert H.	V.	1876
Low, John F.	V.	1882
Low, Wilson H.	V.	1886
Lowell, Guy	IV.	1894
Lufkin, Elgood C.	II.	1886
Lukes, Joseph B.	VI.	1892
*Lund, Amy Stantial (Feb. 11, '88)	V.	1884
Lund, James	V.	1881
Lyle, David A.	III.	1884
Lynch, Patrick M.	I.	1894
Lynde, James P.	IX.	1886
Lyon, Joseph P.	I.	1892
Lyon, Tracy	II.	1885
MacClure, Colbert A.	IV.	1894
Macfarlane, William W.	V.	1879
MacKay, Angus R.	III.	1894
MacRae, Hugh	III.	1885
Mahony, Marion L.	IV.	1894
Main, Charles T.	II.	1876
Maki, Heiichiro	VI.	1893
Maltby, Margaret E.	VIII.	1891
Manahan, Elmer G.	XI.	1892
Manley, Laurence B.	I.	1892
Mann, Arthur S.	II.	1888
Mann, Bertram H.	VI.	1890
Mann, Fred M.	IV.	1894
Manning, Harry G.	II	1882
Mansfield, Arthur N.	VIII.	1891

* Deceased.

NAME.	COURSE.	CLASS.
Mansfield, George W.	III.	1882
Mansfield, Harvey M.	III.	1883
Mansfield, Richard H., Jr.	VI.	1892
Marble, Dwight N.	VI.	1895
March, Clement	I.	1891
Marcy, Willard A.	II.	1893
Marmon, Walter C.	II.	1895
Marquand, Philip	I.	1891
Martin, Henry	V.	1885
Mason, Sampson D.	I.	1870
Masters, Frank B.	II.	1895
Mathews, Albert P.	VII.	1892
Matthes, François E.	I.	1895
Matthes, Gerard H.	I.	1895
May, George H.	V.	1892
*May, William C. (Mar. 11, '78)	V.	1873
Mayer, Virginius A.	VI.	1894
McCaw, Wallace E.	VI.	1892
McConnell, George B.	I.	1890
McGoodwin, Henry K.	IV.	1894
McJennett, William D.	X.	1894
McKenna, Alexander G.	V.	1891
McKibben, Frank P.	I.	1894
McKim, Alexander R.	I.	1886
*McLauthlin, G.V. (Aug. 14, '92)	V.	1888
McManus, James T. R.	I.	1895
McQuesten, George E.	VI.	1893
Meade, Charles A.	I.	1894
Merrell, Charles G.	V.	1888
Merriam, Harry B.	I.	1886
Merriam, Henry P.	VI.	1886
*Merrick, George E. (Apr. 23, '92)	V.	1890
Merrill, Allyne L.	II.	1885
*Merrill, Eben G. (Oct. 12, '87)	I.	1885
Merrill, Frank H.	X.	1893
Merrill, George A.	XI.	1892
Merrill, N. Frederick	V.	1870
Merriss, George F. C.	I.	1895
Meserve, Charles A.	V.	1895
Messenger, William H.	II.	1892
Metcalf, Arthur H.	II.	1879
Metcalf, Frederick	II.	1890
Metcalf, Leonard	I.	1892
*Meyer, Jos. A., Jr. (Dec. 20, '94)	IV.	1891
Mildram, Samuel H.	I.	1889
Millen, Loring R.	III.	1880
Miller, Edward F.	II.	1886
Miller, Edwin C.	II.	1879
Miller, Franklin T.	XIII.	1895
Miller, Herbert S.	VI.	1892
Miller, Lilly	V.	1892
Miller, William T.	Elective.	1880
Mills, Arthur L.	I.	1876
Minot, Charles S.	V.	1872
Mitchell, Benjamin M.	II.	1893
Mitchell, Guy E.	II.	1891
Mixter, Samuel J.	VIII.	1875
Moody, Burdett	I.	1890
Moody, Herbert R.	V.	1892
Moore, Frank A.	IV.	1888
Moore, Fred F.	I.	1891
Moore, Frederick Campbell	X.	1892
Moore, Frederick Clouston	II.	1891
Moore, Henry C.	II.	1888
Moore, John D. J.	II.	1895
Moore, Leslie R.	V.	1894
Moore, Stephen W.	II.	1890
Morey, Richard	I.	1895
*Morgan, Frank H. (Dec. 5, '89)	V.	1878
Morrill, Asa H.	I.	1892
Morrison, Frank C.	I.	1882
Morse, Frank B.	I.	1873
Morse, Philip S.	III.	1884
Morss, Everett	III.	1885
Morss, Henry A.	VI.	1893
Moseley, Alexander W.	II.	1891
Mosman, Philip A.	III.	1887
Mossman, William	VI.	1891
Mott, William E.	I.	1889
Mower, George A.	II.	1881
Mudge, Benjamin C.	I.	1877
Mulliken, Samuel P.	V.	1887
Mumford, Edgar H.	II.	1886
Munroe, James P.	III.	1882
*Myrick, Willis H. (Oct. 17, '75)	II.	1874
Nash, Luther R.	VI.	1894
Neave, Charles	VI.	1890
Nesbit, Arthur F.	VI.	1895
Newbegin, Parker C.	I.	1894
Newell, Allan H.	II.	1890
Newell, Frederick H.	III.	1885
Newell, John L.	X.	1895
Newhouse, Henry L.	IV.	1894
Newkirk, Walter M.	II.	1892
Newman, Frank E.	IV.	1892
Nichols, Everell J.	I.	1878
Nichols, Henry W.	XII.	1893
*Nichols, William R. (July 14, '86)	V.	1869
Nickerson, Addison D.	I.	1888
Nickerson, William E.	V.	1876
Nims, Norman G.	IV.	1890
Noa, Frederic M.	IX.	1894

* Deceased.

NAME.	COURSE.	CLASS.
Norris, Almon E.	II	1890
Norris, Clarence G.	I.	1890
Norris, George L.	III.	1887
Norris, Webster	III.	1881
Norton, Charles L.	VI.	1893
Norton, Francis C.	IX.	1893
Norton, Fred E.	II.	1891
Nowell, John C.	VI.	1894
Noyes, Arthur A.	V.	1886
Noyes, Harry L.	I.	1890
Noyes, Joseph K.	I.	1890
Nute, Joseph E.	I.	1885
Nutter, Charles L.	II.	1893
Ober, Arthur J.	I.	1892
O'Grady, Marcella I.	IX.	1885
Ordway, Evelyn W.	V.	1881
Otis, Hamilton	I.	1892
*Owen, E. H., Jr. (July 3, '90)	II.	1879
Owen, G., Jr.	II.	1894
Oxford, George H. K.	VI.	1891
Oxnard, Benjamin A.	III.	1875
Packard, George A.	III.	1890
Paine, Cecil E.	II.	1893
Palmer, William I.	VI.	1891
*Parasch, N. T. (Mar. 22, '93)	I.	1892
Parce, Joseph Y., Jr.	II.	1893
Park, Charles F.	II.	1892
Park, Franklin A.	II.	1895
Parker, Edwin M.	IV.	1894
Parker, Theodore	I.	1881
Parker, Winthrop D.	IV.	1895
Parks, Oren E.	I.	1893
Parmelee, Charles L.	I., XI.	1895
Parrish, James S.	II.	1892
*Parsons, Charles O. (Oct. 5, '94)	III.	1873
Patch, Maurice B.	III.	1872
Patch, Walter W.	I.	1894
Patten, William F.	VI.	1895
Patterson, George W., Jr.	VI.	1887
Peabody, Cecil H.	II.	1877
Pearson, Edwin R.	VI.	1888
Perkins, Frank E.	IV.	1892
Perkins, Herbert B.	I.	1874
Perry, John C.	II.	1892
*Peters, Quintard (Aug. 2, '94)	IX.	1887
Peterson, Charles A.	VI.	1888
Peyton, William R.	II.	1890
Phelan, Joseph W.	V.	1894
Phillipps, George	III.	1873
Phillips, Harry M.	II.	1893
Phillips, Henry A.	IV.	1873
Phillips, Henry M.	VI.	1892
Phipps, David W.	Phil.	1876
Pickering, William H.	VIII.	1879
Pickernell, Frank A.	VI.	1885
Pickert, Leo W.	V.	1893
Pierce, Arthur G.	VI.	1892
Pierce, Arthur W.	VI.	1892
Pierce, Edward L., Jr.	II.	1886
Pierce, Herbert F.	I.	1888
Pierce, Richard H.	VI.	1885
Pike, Clayton W.	VI.	1889
*Pike, William A. (Oct., 1895)	I.	1871
Piper, Walter E.	V.	1894
Plimpton, Arthur L.	I.	1877
Plimpton, Thomas D.	II.	1875
Poland, William B.	I.	1890
Pollock, Clarence D.	I.	1894
Pond, Frank H.	II.	1874
Pool, George B.	VI.	1888
Pope, Macy S.	I.	1892
Power, Charles W.	VI.	1889
Powers, Walter C.	X.	1895
Pratt, Dana M.	I.	1892
Pratt, George H.	V.	1871
Pratt, William H.	VI.	1894
Prentiss, Frederick H.	II.	1878
Prentiss, Wm. A.	Sci. and Lit.	1875
Prescott, Charles O.	V.	1884
Prescott, Samuel C.	V.	1894
Price, Raymond B.	X.	1894
Prichard, Charles F.	II.	1876
Proctor, Richard W.	V.	1894
Puffer, William L.	III.	1884
Pulsifer, Louis W.	IV.	1894
Purinton, Arthur J.	II.	1884
Quevedo, Narciso T.	II.	1894
Raeder, Henry	I.	1876
Ramsey, Allan	VII.	1891
Randall, Newbert M.	III.	1885
Ranlett, Arthur G.	III.	1892
Ranno, Fred W.	I.	1889
Ray, J. Stites	II.	1888
Raymond, Edward B.	VI.	1890
Read, Carleton A.	II.	1891
Reed, James H., Jr.	VI.	1893
Reed, Samuel G.	II.	1894
Reed, Walter W.	VI.	1895
Resor, William S.	VI.	1893
*Reynolds, George F. (Jan. 19, '91)	II.	1886
Reynolds, Howard S.	VI.	1894
Reynolds, Robert D.	II.	1894

* Deceased.

NAME.	COURSE.	CLASS.
Rhodes, Frederick L.	VI.	1892
Rice, Calvin W.	VI.	1890
Rice, Carrie (see Clark).		
Rice, Harry L.	X.	1893
Rich, Charles L.	I.	1876
Rich, William J.	III.	1884
Richards, Ellen H.	V.	1873
Richards, Franklin B.	III.	1884
Richards, Frederick L.	X.	1895
Richards, Robert H.	III.	1868
Richards, Thomas G.	II.	1894
Richardson, Charles F.	II.	1886
Richardson, Frank D.	II.	1893
Richardson, George L.	I.	1889
Richardson, Herbert A.	V.	1887
Richardson, William C.	II.	1891
Richmond, Harold A.	II.	1893
Richmond, Knight C.	II.	1890
Ricker, Charles W.	VI.	1891
Rickey, Walter J.	II.	1895
Riggs, George F.	I.	1879
Ripley, Henry F.	II.	1894
Ripley, Henry L.	I.	1873
*Ripley, William T. (Aug. 26, '93)	II.	1882
Ripley, William Z.	I.	1890
Ritchie, James	I.	1878
Robb, Russell	VI.	1888
Robbins, Arthur G.	I.	1886
Robbins, Franklin H.	II.	1894
Roberts, Harold B.	II.	1890
Roberts, Odin B.	II.	1888
Roberts, William J.	I.	1891
Robertson, Andrew R.	II.	1892
Robinson, C. Snelling	III.	1884
Robinson, Dwight P.	VI.	1892
Robinson, Edward	II.	1890
Robinson, Theodore W.	III.	1884
*Robinson, Thos. W. (Nov. 3, '80)	III.	1876
Rockwell, George A.	X.	1895
Rogers, Allen H.	III.	1890
Rogers, Arthur S.	VI.	1894
Rogers, Minnie H.	IX.	1890
Rollins, Edward W.	III.	1871
Rollins, James W., Jr.	I.	1878
Roots, Willard H.	IX.	1891
Rose, Frederick H.	II.	1891
Rosewater, William M.	II.	1892
Ross, Henry F.	III.	1882
Ross, John H.	Sci. and Lit.	1882
Rotch, A. Lawrence	II.	1884
Rounds, George W.	VI.	1889
Rourke, Louis K.	I.	1895
Rowell, George F.	I.	1892
Ruggles, Horace F.	II.	1892
*Russel, Richard L. (July 31, '94)	I.	1889
Russell, L. Kimball	V.	1886
Rust, Harold N.	VI.	1895
Ryder, Josiah P.	V.	1884
Sabine, Annie W. (see Siebert).		
Sackett, Ward M.	VI.	1892
Sadtler, Samuel S.	V.	1895
Safford, Frederick H.	VI.	1888
Sage, Henry J.	VI.	1892
Sager, Oscar F.	II.	1892
Sanborn, Clifford B.	IX.	1895
Sanborn, Frank E.	II.	1889
Sargent, Albert F., Jr.	I.	1892
Sargent, Francis T.	II.	1875
Sargent, Welland F.	I.	1875
Saunders, Robert T.	I.	1892
Sauveur, Albert	III.	1889
Savage, Silas A.	II.	1894
Sawin, Charles D.	Sci. and Lit.	1878
Sawyer, Albert H.	IX.	1894
Sawyer, Alfred H.	II.	1888
Sawyer, Charles A.	Sci. and Lit.	1876
Sayer, Frederick L.	II.	1888
Sayward, William H., Jr.	VII.	1894
Schiertz, Ferdinand A.	III.	1894
Schmidt, Louis	V.	1890
Schmitz, Frank C.	I.	1895
Schoentgen, Edward P.	IV.	1895
Schwamb, Peter	II.	1878
Schwarz, Franz H.	II.	1887
Schwarz, Theodore E.	III.	1876
Scott, Robert W.	II.	1883
Scott, Walter O.	V.	1894
Sears, Henry D.	VI.	1887
Sears, Walter H.	I.	1868
Seavey, John F.	II.	1886
Selfridge, Russell	IX.	1892
Shailer, Robert A.	I.	1873
Shattuck, Arthur F.	V.	1891
Shaw, Edward S.	I.	1874
Shaw, Walter K.	II.	1888
Shed, Nathaniel W.	V.	1881
Shepard, Edward V.	I.	1889
Shepard, Frank E.	II.	1887
Shepard, Walter	I.	1872
Shepard, William E.	VI.	1886
Shepherd, Frank C.	XI.	1892
Sheppard, Robert K.	X.	1895

* Deceased.

NAME.	COURSE.	CLASS.
Sheridan, Richard G. B.	XIII.	1895
Sherman, Adelaide	V.	1890
Sherman, Charles W.	I.	1890
Sherman, George W.	X.	1894
Sherman, John C.	VI.	1895
Sherman, LeRoy K.	I.	1892
Shockley, William H.	III.	1875
Shute, Harry D.	VI.	1892
Shurtleff, Arthur A.	II.	1894
Siebert, Annie W.	VIII.	1888
Silsbee, Francis H.	II.	1874
Simmons, Alfred L.	I.	1895
Simonds, Frederic P.	IV.	1894
Simpson, Edmund T.	V.	1890
Simpson, James E.	III.	1886
Sjöström, Ivar L.	I.	1888
Skinner, Fenwick F.	I.	1893
Skinner, Theodore H.	IV.	1892
Slater, Howard C.	II.	1890
Sloan, Alfred P., Jr.	VI.	1895
*Small, Nathaniel C. (July 14,'80)	V.	1880
Smith, Arthur B.	IX.	1893
Smith, Arthur C.	V.	1892
*Smith, Charles A. (Feb. 4,'84)	I.	1868
Smith, Charles P.	II.	1887
Smith, Clarence W.	V.	1888
Smith, Edward M.	II.	1888
Smith, Frederick D.	I.	1893
Smith, George A.	V.	1883
Smith, Harry E.	V.	1887
Smith, J. Waldo	I.	1887
Smith, Walter W.	II.	1871
Smith, William L.	VI.	1890
Snead, William R.	IV.	1881
Snelling, Grenville T.	IV.	1882
Snow, Walter B.	II.	1882
Snow, William G.	II.	1889
Snyder, Frederick T.	VI.	1891
Soley, William A.	III.	1894
Solomon, John I.	VI.	1893
Sonnemann, George A.	III.	1890
Soule, Richard H.	II.	1872
Southard, Francis M.	VI.	1894
Souther, Henry, Jr.	III.	1887
Southworth, Harry C.	III.	1877
Southworth, Martin O.	VI.	1890
Spalding, Frederic P.	I.	1878
Spaulding, Henry P.	VI.	1892
Spaulding, Hollon C.	II.	1887
Speer, James R.	II.	1893
Spencer, Theodore	VI.	1891
Sperry, Austin	II.	1894
Spofford, Charles M.	I.	1893
Spooner, George H.	VI.	1891
Sprague, Timothy W.	III.	1887
Stafford, C. Edward	III.	1873
*Stantial, Amy M. (see Lund).		
Stantial, Frank G.	V.	1879
Stantial, Otis T.	III.	1885
Stanwood, James B.	II.	1875
Stanwood, James H.	I.	1887
Stearns, Harold E.	II.	1881
Stearns, William S.	I.	1879
Stebbins, Alfred, Jr.	III.	1884
Stebbins, Theodore	VI.	1886
Stetson, Frank O.	V.	1888
Stevens, John C.	XI.	1894
Stevens, Walter F.	II.	1895
*Stewart, Charles E. (Oct. 7,'77)	I.	1877
Stickney, Delia	V.	1889
Stimpson, Thomas F.	III.	1877
Stix, Solomon H.	IV.	1891
Stoddard, Arthur B.	V.	1891
Stoddard, Henry F.	II.	1887
Stone, Charles A.	VI.	1888
Stone, Charles F.	III.	1871
*Stone, G. Goodwin (Mar. 4,'93)	III.	1889
Stone, Joseph	I.	1868
Storrow, Samuel	I.	1890
Story, Isaac M.	I.	1878
Stose, George W.	I.	1893
Stoughton, Augustus B.	II.	1886
Stowe, Lovell B.	VI.	1893
Studley, Fred B.	VI.	1893
Sturges, Benton	IX.	1890
Sturgis, Elliot T.	III.	1884
Sturtevant, Thomas J.	VI.	1890
Sully, John M.	III.	1888
Susmann, Julius H.	III.	1876
Sutter, Frederick C.	VI.	1893
Swain, George F.	I.	1877
Swallow, Ellen H. (see Richards).		
Swan, James	II.	1891
Swanton, Frederick W.	VI.	1890
Swanton, Henry A.	II.	1894
Swanton, Walter I.	I.	1893
Sweet, Kilburn S. *	I.	1893
Sweetland, Ralph	II.	1889
*Sweetser, Arthur W. (Apr. 10,'78)	I.	1874
Sweetser, Ralph H.	III.	1892
Swift, William E.	I.	1895
Swope, Gerard	VI.	1895

* Deceased.

NAME.	COURSE.	CLASS.
Sykes, Henry H.	VI.	1891
Taber, George A.	I.	1894
Taft, Charles C.	X.	1895
Taintor, Charles W.	VI.	1893
Taintor, Giles	VI.	1887
Talbot, Henry P.	V.	1885
Talbot, Marion	IX.	1888
Tallant, George P.	IX.	1892
*Taney, Edmund (May 1, '90)	I.	1878
Taylor, Charles M.	II.	1893
Taylor, George	II.	1894
Taylor, Harry B.	V.	1891
Taylor, Robert R.	IV.	1892
Taylor, William M.	II.	1886
Tenney, Albert B.	II.	1894
Tenney, Frank	III.	1883
Tenney, Winthrop P.	VI.	1893
Thalheimer, William C.	I.	1892
Thomas, Alfred C.	VI.	1893
Thomas, Edward G.	II.	1887
Thomas, James W.	II.	1895
Thomas, Percy H.	VI.	1893
Thompson, Frederick	I.	1887
Thompson, Herbert A.	VIII.	1891
Thompson, Sanford E.	I.	1889
Thompson, Walter S.	I.	1887
Thorndike, Sturgis H.	I.	1895
Thorp, Frank H.	V.	1889
Thropp, Joseph E., Jr.	III.	1894
Thurber, William B.	IX.	1889
Tidd, Arthur W.	I.	1894
Tidd, Winthrop L.	II.	1893
Tilden, Bryant P.	III.	1868
Tillinghast, Charles F.	II.	1895
Tillinghast, Theodore F.	I.	1870
Tinkham, Samuel E.	I.	1873
Tolman, James P.	III.	1868
Tomfohrde, John F.	II.	1893
Tompkins, Charles H., Jr.	III.	1883
Torossian, Toros H.	I.	1894
Towne, John H.	IX.	1890
Towne, Linwood O.	III.	1878
Towne, Walter I.	VI.	1888
Townsend, Walter D.	III.	1876
Tripp, Charles A	VI.	1893
*Trowbridge, A., Jr. (Dec. 5, '78)	II.	1871
Trowbridge, Walter B.	II.	1892
Truesdell, Arthur E.	VI.	1889
Tucker, Edward A.	I.	1895
Tucker, Greenleaf R.	V.	1887
Tucker, H. Judson	VI.	1887
Tucker, Hugh M.	II.	1895
Tucker, Ross F.	IV.	1892
Tucker, William A.	III.	1893
Turnbull, Charles D.	II.	1886
Turner, Edmund K.	I.	1870
Twombly, Alexander H.	II.	1887
Tyler, Alice Brown	V.	1884
Tyler, Clifford M.	II.	1891
Tyler, Harry W.	V.	1884
Underhill, William W.	II.	1889
Underwood, George R.	V.	1883
Vaillant, George W.	III.	1892
Van Alstine, David	II.	1886
Vanier, George P.	III.	1885
Varney, Theodore	VI.	1894
Verges, Luis F.	I.	1891
Very, Frank W.	V.	1873
Vielé, Francis S.	VI.	1891
Vielé, Maurice A.	II.	1886
Vining, John F.	IV.	1892
Vining, Louis B.	VI.	1893
Vorce, Clarence B.	I.	1888
Vose, Ralph	VI.	1887
Wadsworth, Augustus B.	VII.	1893
Wait, Henry H.	VI.	1891
Waite, Charles N.	V.	1876
Waite, Loren G.	VI.	1895
Waitt, Arthur M.	II.	1879
Waitt, Henry M.	I.	1876
Waldron, Samuel P.	I.	1893
Wales, Thomas C., Jr.	VI.	1892
Walker, Charles R.	V.	1893
Walker, Elton D.	I.	1890
Walker, Francis	IX.	1892
Walker, George L.	I.	1893
Walker, Robert T.	IV.	1890
Wallace, Charles F.	VI.	1892
Wallace, Frederic A.	II.	1893
Wallis, Robert N.	IX.	1893
Walton, Evelyn M. (see Ordway).		
Walworth, Joseph E.	V.	1895
Ward, Clarence S.	III.	1872
Ward, Nahum	V.	1884
*Ware, Robert C. (June 25, '83) Phil. 1876, Sci and Lit.		1874
Warner, Charles H.	VI.	1889
Warner, George M.	VI.	1891
Warner, Murray	II.	1892
Warren, A. Sydney	III.	1888
Warren, Edward R.	VII.	1881
Warren, Henry E.	VI.	1894

* Deceased.

NAME.	COURSE.	CLASS.
Warren, H. L. J.	III.	1875
Warren, Joseph A.	XI.	1892
Wason, Leonard C.	VI.	1891
Wason, Rigby	VI.	1894
Waterman, Charles C.	VI.	1892
Waterman, Harry C.	IV.	1893
Waterman, Richard, Jr.	IX.	1892
Watkins, Willard H.	V.	1895
Webb, Henry S.	VI.	1892
Webster, Edwin S.	VI.	1888
Webster, William R.	III.	1875
Weed, Henry T.	V.	1891
Weeks, Isaiah S. P.	I.	1871
Weil, Charles L.	II.	1888
Wells, Edward C.	II.	1892
Wells, Webster	I.	1873
Wendell, George V.	VIII.	1892
Wesson, David	V.	1883
Westcott, Frank T.	I.	1892
Westcott, William R.	VI.	1894
Weston, David B.	V.	1895
Weston, William H.	III.	1891
Wetherbee, Charles P.	II.	1891
Wheeler, Ralph N.	I.	1895
Wheeler, Robert C.	I.	1894
Whipple, George C.	I.	1889
Whitaker, Channing	II.	1869
Whitaker, S. Edgar	VI.	1893
White, Anne E.	V.	1891
*White, A. C. (Dec. 27,'93)	VIII.	1882
White, Franklin W.	VII.	1890
Whiting, Jasper	III.	1889
Whitmore, Walter G.	VI.	1887
Whitney, Frank P.	VI.	1889
Whitney, Granger	III.	1887
Whitney, William A.	I.	1887
Whitney, William M.	II.	1884
Whitney, Willis R.	V.	1890
Whittier, Randal	I. 1873, V.	1871
*Wiggin, Frank E. (Dec. 21,'90)	I.	1878
Wiggin, Thomas H.	I.	1895
Wilcox, Herbert A.	III.	1887
Wilder, C. Morris	VI.	1886
Wilder, Parker H.	VI.	1893
Wilder, Stephen H.	Sci. and Lit.	1874
Wilder, Salmon W., Jr.	X.	1891
Wilkes, Charles M.	IV.	1881
Willard, Daniel W.	II.	1870
Williams, Arthur S.	VI.	1888
Williams, Charles G.	I.	1895
Williams, Emile F.	I.	1878
Williams, Francis C., Jr.	I.	1884
Williams, Francis H.	V.	1873
Williams, Robert C.	III.	1889
Williams, Roger J.	IX.	1895
Williams, Sidney	I.	1887
Williams, Walter S.	X.	1895
Williston, Arthur L.	II.	1889
Wilson, Arthur R.	I.	1890
Wilson, Elwood J.	III.	1886
Wilson, Fred A.	II.	1891
Windett, Victor	II.	1889
Winkley, William H.	XIII.	1895
Winslow, Arthur	III.	1881
Wolfe, John J. C.	II.	1895
*Wood, Charles (Nov. 28,'95)	I.	1886
Wood, Charles H.	II.	1891
Wood, Frederick W.	III.	1877
Wood, Henry B.	I.	1876
Wood, Kenneth F.	II.	1894
Wood, Louis F.	V.	1873
Woodbridge, Jonathan E.	VI.	1893
Woodbury, Charles H.	II.	1886
Woodman, Andrew W.	I.	1890
Woodman, Caroline A.	VII.	1889
Woods, Henry T.	II.	1893
*Woodward, A. E. (Sept. '91)	III.	1888
Woolworth, James G.	V.	1878
Worcester, Vernor F.	II.	1886
Worthington, Arthur M.	VII.	1892
Worthington, Erastus, Jr.	I.	1885
Wrightington, Charles N.	II.	1894
Wrinkle, Laurence F. J.	III.	1870
Wuichet, Walter G.	II.	1889
Yoder, Luther K.	II.	1895
Yoerg, Henry	II.	1895
Yorke, George M.	VI.	1893
Young, Fred R.	III.	1886
Young, John E.	I.	1888
Zapf, Alfred E.	IV.	1895

* Deceased.

Titles of Theses

OF SUCCESSFUL CANDIDATES FOR GRADUATION, MAY, 1895.

Candidates for the Degree of Master of Science.

CHARLES GREELEY ABBOT, S.B.,

Measurements of Osmotic Pressure.

FRED MAYNARD MANN, B.C.E., S.B.,

A Study of the Growth of the Architecture of France through Eastern Influence up to the Time when it Became distinctly French.

WALTER OSGOOD SCOTT, S.B.,

The Velocity of the Reactions between Hydrogen Peroxide and Hydriodic Acid and between Bromic Acid and Hydriodic Acid.

Candidates for the Degree of Bachelor of Science.

LOUIS ANDREW ABBOT,

Experiments on the Shearing Strength of Cast Iron.

BENJAMIN ADAMS,

A Study of the Methods of Testing the Efficiency of Transformers. (*With A. P. Sloan, Jr.*)

CHARLES MILLS ADAMS,

Investigations on a General Electric Fifteen Kilowatt Three-Wire Transformer. (*With J. Williamson Cooke.*)

EDWIN CLEMENT ALDEN,

A Study of a Stanley Two-Phase Motor. (*With T. B. Booth.*)

AZEL AMES, JR.,
A Design for a Turntable.

ERNEST FRANKLIN BADGER,
Chlorine and Bromine Derivatives of Benzyl-Sulphonic Acid.

LATIMER WILLIS BALLOU,
Tests on the Power Plant of a Cotton Factory. (*With A. V. Lincoln, Jr.*)

LAWRENCE BARR, A.B.,
Researches in Pyrometry. (*With R. R. Lawrence.*)

HAROLD KILBRETH BARROWS,
A Design for a Water Supply System for the Town of Weston. (*With B. C. Donham.*)

EDMUND DRINAN BARRY,
Stability of the Oil Steamer Maverick.

ETHEL BARTHOLOMEW, B.L.,
A Science Building for Wellesley College.

FRANCIS WHEELWRIGHT BELKNAP,
Concrete as a Substitute for Masonry in Structures Exposed to the Weather.

CHARLES WILLIAM BERRY,
Thermoelectric Properties of Low Percentage Rhodo-Platinum Alloys. (*With L. F. Howard.*)

SAMUEL LAWRENCE BIGELOW, A.B.,
The Preparation of the Ethyl Ethers of Trimethylene Glycol.

GEORGE LINDER BIXBY,
A Comparison of the Heating Values of Coals as Obtained by the Mahler Bomb, the Sir William Thomson Calorimeter, and Certain Formulæ. (*With W. S. Williams.*)

WALTER DANFORTH BLISS,
A Summer Villa.

PERLEY HARTWELL BLODGETT,
The Action of Methyl Chloride upon Para Chlor-Toluene in the Presence of Aluminum Chloride.

JOHN BOEDEKER,

A Test of Engines and Dynamos in the Massachusetts State House Extension.

EDGAR AUGUSTUS BOESEKE,

Tests on Power Plant of the National Milling Company, Toledo, Ohio. (*With W. C. Marmon.*)

THOMAS BUTLER BOOTH,

A Study of a Stanley Two-Phase Motor. (*With E. C. Alden.*)

FRANK AUGUSTUS BOURNE,

A Public Library for the City of Bangor, Me.

JESSE HASKELL BOURNE,

Tests on a 16-inch by 10½-inch by 12-inch Blake Duplex Pump, and an Investigation of the Velocity of the Pistons at the Different Parts of the Stroke. (*With H. Kotzschmar, Jr.*)

WALLACE CLARKE BRACKETT,

A Plan for the Disposal of the Sewage of the City of Fitchburg, Mass. (*With F. W. Harris.*)

ALLEN PERCY BROWN,

Scientific Theory for the Origin and Development of Religion.

ARTHUR LAKE CANFIELD,

Tests on a Refrigerating Plant. (*With R. K. Sheppard.*)

HERBERT W. CHAMBERLAIN, B.SC.,

A Reception House for the Governor of Massachusetts.

WALTER SIMONS CHASE,

A Museum for Sculpture.

WILLIAM BEMENT CLAFLIN,

A Bank and Stock Exchange.

SIDNEY KINGMAN CLAPP,

A Design for a High Viaduct.

ARTHUR HENRY CLARK,

Development and Distribution of Heat in Railway Motors. (*With A. W. Drake.*)

CARL HERBERT CLARK,

Design for an Ocean Towboat. (*With W. H. Winkley.*)

SCHUYLER STEVENS CLARK,

A Study of a New Method of Determining Cooling Correction in Calorimetry.

ARTHUR STONE COBURN,

The Concentration and Smelting of Dracut Nickel Ore.

LUTHER CONANT, JR.,

The Office of President of the Republic in France.

CHARLES PRENTICE COOKE,

Current and Electromotive Force Waves in Transformers. (*With J. Winfield Cooke.*)

JOHN WILLIAMSON COOKE,

Investigations on a General Electric Fifteen Kilowatt Three-Wire Transformer. (*With C. M. Adams.*)

JOHN WINFIELD COOKE,

Current and Electromotive Force Waves in Transformers. (*With C. P. Cooke.*)

FRED EDWARD COX,

A Design for a City National Bank.

WALTER NATHAN CRAFTS, A.B.,

The Relative Coking Qualities of Various Coals. (*With F. W. Draper.*)

HENRY MIDDLEBROOK CRANE,

An Investigation of the Errors in the Cards of the Steam-Engine Indicator Due to the Length and Size of the Pipe Connections Used therewith.

GEORGE ALBERT CUTTER,

Design for a Rock Crusher.

WILLIAM EDWARD DAVIS, JR.,

A Building for Instruction in History.

ARTHUR DAVIS DEAN,

A Study of the Dielectric Hysteresis of a Condenser. (*With C. F. Eveleth.*)

GEORGE DEFREN,

Some Derivatives of Para Ethyl Toluene.

ALFRED LOUIS DEJONGE,

A Series of Tests on an Evaporative Surface Condenser. (*With T. M. Lothrop.*)

EDWARD ELIAS DENISON,

An Investigation of a Smoke-Consuming Device for Boiler Furnaces. (*With J. C. Dickerman.*)

JUDSON CHARLES DICKERMAN,

An Investigation of a Smoke-Consuming Device for Boiler Furnaces. (*With E. E. Denison.*)

BENJAMIN CURTIS DONHAM,

A Design for a Water Supply System for the Town of Weston. (*With H. K. Barrows.*)

JOHN THOMPSON DORRANCE,

The Electrolytic Reduction of Para Nitro Compounds in Sulphuric Acid Solution.

ALBERT WESLEY DRAKE,

Development and Distribution of Heat in Railway Motors. (*With A. H. Clark.*)

FRED WALLACE DRAPER,

The Relative Coking Qualities of Various Coals. (*With W. N. Crafts.*)

WILLIAM JOHNSON DRISKO,

A Study of the Effect of Electrolytic Dissociation on the Magnetic Rotation of Solutions.

ROLFE MARSH ELLIS,

The Synthesis of Diphenyl-Biphenyl and its Identification as Benzerythrene.

WALTER HOWE ELLIS,

A Design for a Roof.

CHARLES FREDERIC EVELETH,

A Study of the Dielectric Hysteresis of a Condenser. (*With A. D. Dean.*)

ROBERT DAVID FARQUHAR, A.B.,

A College Lecture and Recitation Hall.

FRANCIS EDWIN FAXON,

Investigation of the Action of a Steam Rock-Drill under Varying Pressures. (*With H. M. Haven.*)

MILTON LATHROP FISH,

An Optical Method of Studying Phase Relations of Polyphase Currents. (*With D. Libby, Jr.*)

FRANCIS A. J. FITZGERALD, B.A.,

The Telephone as a Detector of Alternating Currents.

ANDREW DANIEL FULLER,

An Investigation of the Value of Tidal Reservoirs for Preserving the Channels in Harbors.

JOHN HOWLAND GARDINER,

Tests of the Tensile Strength and Elasticity of Malleable Iron. (*With J. D. J. Moore.*)

CHARLES MERRICK GAY, JR., A.B.,

An Art Museum for a College.

PERLEY FRED GILBERT,

A School for Invalids.

WATSON EDWARD GOODYEAR,

A New Method of Investigating the Thermal Conductivity of Solids. (*With G. Swope.*)

FRANCIS CUSHING GREEN,

Design for a Sewerage System for Concord, Mass. (*With R. N. Wheeler.*)

JOHN HERBERT GREGORY,

A Design for a Steel Railroad Bridge.

WILLIAM THOMAS HALL,

A Comparison of the Rates of Inversion of Salicin with Dilute Acids.

FREDERICK AUGUSTUS HANNAH,

An Investigation of the Errors of the Steam-Engine Indicator, together with a Special Study of the Action of the Spring. (*With F. B. Masters.*)

FREDERICK WALTER HARRIS,

A Plan for the Disposal of the Sewage of the City of Fitchburg, Mass. (*With W. C. Brackett.*)

HARRY MERRITT HAVEN,

Investigation of the Action of a Steam Rock-Drill under Varying Pressures. (*With F. E. Faxon.*)

GEORGE WELLINGTON HAYDEN,

Experiments on Insulation under High Voltage.

HENRY ATKINSON HOLDREGE,

A Study of the Errors of Weston Magnetic Ammeters.

LEMUEL FREDERIC HOWARD,

Thermoelectric Properties of Low Percentage Rhodo-Platinum Alloys. (*With C. W. Berry.*)

GEORGE REUBEN HOWARTH,

Tests of an Eight-Wheel Passenger Locomotive on the New York, New Haven, & Hartford Railroad. (*With E. H. Huxley.*)

GEORGE EDWARD HOWE,

A Comparison of the Simultaneous Yields of Neighboring Watersheds. (*With G. F. C. Merriss.*)

SAMUEL PARKER HUNT, A.B.,

(VI.) Test of an Electric Light Station at Watertown, Mass. (*With D. N. Marble.*)

(X.) An Investigation and Comparison of Certain Methods of Gas Analysis.

EDWARD LAURENCE HURD,

An Economy Test upon a Small, Modern Steam Plant.

EDWARD HALEY HUXLEY,

Tests of an Eight-Wheel Passenger Locomotive on the New York, New Haven, & Hartford Railroad. (*With G. R. Howarth.*)

HERMANN KOTZSCHMAR, JR.,

Tests on a 16-inch by 10½ inch by 12-inch Blake Duplex Pump, and an Investigation of the Velocity of the Pistons at the Different Parts of the Stroke. (*With J. H. Bourne.*)

HENRY OSGOOD LACOUNT, S.B.,

The Distribution of Light of Alternating Current Arc Lamps. (*With L. G. Waite.*)

RALPH RESTIEAUX LAWRENCE,

Researches in Pyrometry. (*With L. Barr.*)

MAURICE LEBOSQUET,

The Action of Oxidizing Agents on Trimethylene Glycol.

DORVILLE LIBBY, JR.,

An Optical Method of Studying Phase Relations of Polyphase Currents. (*With M. L. Fish.*)

ALFRED VARNUM LINCOLN, JR.,

Tests on the Power Plant of a Cotton Factory. (*With L. W. Ballou.*)

ANDREW JEFFERS GARVEY LOGAN,

A Project for Abolishing a Grade Crossing at Union Market Station, Watertown, Mass. (*With J. T. R. McManus.*)

ERNEST JOHNSON LORING,

A Music Hall.

THOMAS MARK LOTHROP,

A Series of Tests on an Evaporative Surface Condenser. (*With A. L. Dejonge.*)

DWIGHT NEWCOMB MARBLE, A.B.,

Test of an Electric Light Station at Watertown, Mass. (*With S. P. Hunt.*)

WALTER CARPENTER MARMON,

Tests on Power Plant of the National Milling Company, Toledo, Ohio. (*With E. A. Boeseke.*)

FRANK BIRD MASTERS,

An Investigation of the Errors of the Steam-Engine Indicator, together with a Special Study of the Action of the Spring. (*With F. A. Hannah.*)

FRANCOIS EMILE MATTHES,

An Investigation of the Application of the Thermophone to the Determination of the Temperatures of Steel Tapes in Base Line Measurements. (*With G. H. Matthes.*)

GERARD HENDRIK MATTHES,

An Investigation of the Application of the Thermophone to the Determination of the Temperatures of Steel Tapes in Base Line Measurements. (*With F. E. Matthes.*)

JAMES THOMAS REID MCMANUS,

A project for Abolishing a Grade Crossing at Union Market Station, Watertown, Mass. (*With A. J. G. Logan.*)

GEORGE FREDERIC CARPENTER MERRISS,

A Comparison of the Simultaneous Yields of Neighboring Watersheds. (*With G. E. Howe.*)

CHARLES ARTHUR MESERVE,

Some Derivatives of Methane Disulphonic Acid.

FRANKLIN THOMAS MILLER,

Boiler and Engine Tests on Steamship Brookline. (*With R. G. B. Sheridan.*)

JOHN DENIS JOSEPH MOORE,

Tests of the Tensile Strength and Elasticity of Malleable Iron. (*With J. H. Gardiner.*)

RICHARD MOREY,

Method of Determining Experimentally the Ratio of the Intensity of Pressure of Wind on an Inclined Surface to that on a Normal Surface. (*With F. C. Schmitz.*)

ARTHUR FLEMING NESBIT, A.B.,

The Effect of Resistance, Inductance, and Capacity in Alternating Current Circuits. (*With W. F. Patten.*)

JOHN LOUIS NEWELL,

Experiments to Determine the Fusibility of Non-Refractory Clays. (*With G. A. Rockwell.*)

FRANKLIN ATWOOD PARK,

Determination of Maximum Calking Pitches for Boiler Joints.

WINTHROP DANA PARKER,

A Rendezvous at Rome for American Students of Architecture.

CHARLES LESTER PARMELEE,

A Discussion of Two Proposed Formulæ for the Flow of Water in Iron Pipes.

WILLIAM FLETCHER PATTEN,

The Effect of Resistance, Inductance, and Capacity in Alternating Current Circuits. (*With A. F. Nesbit.*)

WALTER CHAMPION POWERS,

The Forming Temperatures of Some Ferrous Slags.

WALTER WILSON REED,

A Study of a Three Kilowatt Generator.

FREDERICK LEONARD RICHARDS,

Investigation of the Boiler Plant of the State House Extension. (*With C. C. Taft.*)

WALTER JOSIAH RICKEY,

The Determination of Coefficients for Narrow Weirs. (*With W. F. Stevens.*)

GEORGE ARNOLD ROCKWELL,

Experiments to Determine the Fusibility of Non-Refractory Clays (*With J. L. Newell.*)

LOUIS KEEGAN ROURKE,

Design and Estimate for a Stone Arch.

HAROLD NORWOOD RUST,

The Safe Carrying Power of Wires.

SAMUEL SCHMUCKER SADTLER,

The Preparation of Iodoso Para Xylene.

CLIFFORD BARTLETT SANBORN,

Native American Movements in United States Politics.

FRANK CURTISS SCHMITZ,

Method of Determining Experimentally the Ratio of the Intensity of Pressure of Wind on an Inclined Surface to that on a Normal Surface. (*With R. Morey.*)

EDWARD PHILLIPP SCHOENTGEN,

A Design for a Museum of Art and Amphitheatre for a Large City.

ROBERT KIMBALL SHEPPARD,

Tests on a Refrigerating Plant. (*With A. L. Canfield.*)

RICHARD GEORGE B. SHERIDAN,

Boiler and Engine Tests on Steamship Brookline. (*With F. T. Miller.*)

JOHN CARLETON SHERMAN,

The Reduction of the Temperature Errors in Resistance Measurement by Wheatstone Bridge Method, with an Original Design for a Resistance Box.

ALFRED LESLIE SIMMONS,

A Study of Railroad Switches and Turnouts.

ALFRED PRITCHARD SLOAN, JR.,

A Study of the Methods of Testing the Efficiency of Transformers (*With B. Adams.*)

WALTER FREDERICK STEVENS,

The Determination of Coefficients for Narrow Weirs. (*With W. J. Rickey.*)

WILLIAM EVERETT SWIFT,

Experiments on the Loss of Head of Water Flowing through Diaphragms in Pipes. (*With C. G. Williams.*)

GERARD SWOPE,

A New Method of Investigating the Thermal Conductivity of Solids. (*With W. E. Goodyear.*)

CHARLES CHESTER TAFT,

Investigation of the Boiler Plant of The State House Extension. (*With F. L. Richards.*)

JAMES WINTHROP THOMAS,

Comparative Tests of an Eleven Hundred Horse Power Steam Plant Using Coke and Soft Coal. (*With C. F. Tillinghast.*)

STURGIS HOOPER THORNDIKE, A.B.,

A Study of the Expansion of Drawing Paper.

CHARLES FOSTER TILLINGHAST,

Comparative Tests of an Eleven Hundred Horse Power Steam Plant Using Coke and Soft Coal. (*With J. W. Thomas.*)

EDWARD AUSTIN TUCKER,

A Study of Steel Skeleton Construction of High Buildings.

HUGH MERCER TUCKER,

Effect of Jackets on a Simple Engine. (*With J. J. C. Wolfe.*)

LOREN GLEASON WAITE,

The Distribution of Light of Alternating Current Arc Lamps. (*With H. O. Lacount.*)

JOSEPH EDWARD WALWORTH,

The Iodo Derivatives of Ethyl Benzene.

WILLARD HASKELL WATKINS,

The Preparation of Trimethylene Thioglycol.

DAVID BRAINARD WESTON,

The Hydrolytic Decomposition of Sulphonic Acids.

RALPH NORMAN WHEELER,

Design for a Sewerage System for Concord, Mass. (*With F. C. Green.*)

THOMAS HOLLIS WIGGIN,

A Design for a Steel Stairway.

CHARLES GOODNOW WILLIAMS,

Experiments on the Loss of Head of Water Flowing Through Diaphragms in Pipes. (*With W. E. Swift.*)

ROGER JAMES WILLIAMS,

The W rld's Wheat.

WALTER SCOTT WILLIAMS,

A Comparison of the Heating Values of Coals as Obtained by the Mahler Bomb, the Sir William Thompson Calorimeter, and Certain Formulæ. (*With G. L. Bixby.*)

WILLIAM HENRY WINKLEY,

Design for an Ocean Towboat. (*With C. H. Clark.*)

JOHN J. COLVIN WOLFE,

Effect of Jackets on a Simple Engine. (*With H. M. Tucker.*)

LUTHER KELLER YODER,

Determination of the Pressure Required to form Bolt-Heads

HENRY YOERG,

A Design for Testing Riveted Joints under Repeated Stresses.

ALFRED EDWARD ZAPF,

A Design for a Masonic Hall and Theatre for a Small Town.

Alphabetical Index.