

THE

CORNELL UNIVERSITY

REGISTER

1890-91



THE  
CORNELL UNIVERSITY  
REGISTER

1890-91

"I would found an institution where any person can find instruction in any study"

EZRA CORNELL.

ITHACA, N. Y.  
PUBLISHED BY THE UNIVERSITY  
PRESS OF ANDRUS & CHURCH



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<b>NOVEMBER.</b>							<b>MARCH.</b>							<b>JULY.</b>						
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# THE UNIVERSITY CALENDAR.

1890-91.

## FALL TERM—1890.

Sept.	24	Wednesday	Entrance Examinations begin.
Sept.	29	Monday	REGISTRATION of new Students in the School of Law.
Sept.	30	Tuesday	
Oct.	1	Wednesday	Matriculation of new Students (except Students in the School of Law).
Oct.	2	Thursday	
Oct.	3	Friday	Classical Scholarship Examinations begin.
Nov. Dec.	27 1	Thu.-Mon.	Thanksgiving Recess, from the evening of Wednesday, Nov. 26, to the morning of Tuesday, Dec. 2.
Dec.	2		
Dec.	16	Tuesday	Term Examinations begin.
Dec.	23	Tuesday	Term ends.

## WINTER TERM—1891.

Jan.	2-3	Fri.-Sat.	REGISTRATION for the Term.
Jan.	5	Monday	Instruction begins.
Jan.	9	Friday	Latest date for announcing Subjects of Theses for baccalaureate degrees.
Jan.	11	Sunday	
March	20	Friday	Term Examinations begin.
March	27	Friday	Term ends.

## SPRING TERM—1891.

April	6-7	Mon.-Tues.	REGISTRATION for the Term.
April	8	Wednesday	Instruction begins.
April	13	Monday	Latest date for presenting Woodford Orations.
May	1	Friday	{ Latest date for presenting Theses for advanced degrees.
May	11	Monday	{ Latest date for presenting Commencement Theses.
May	15	Friday	{ Latest date for receiving applications for Fellowships.
May	22	Friday	Eighty-Six Memorial Prize Competition.
May	30	Saturday	Decoration Day.
June	1	Monday	{ Latest date for receiving applications for Teachers Certificates, for Special Mention, for degrees in History and Political Science and in Natural History, and for Medical Preparatory Certificates.
June	5	Friday	Term Examinations begin.
June	12	Friday	{ Term Examinations end. { Entrance Examinations begin.
June	14	Sunday	Baccalaureate Sermon.
June	16	Tuesday	Class Day.
June	17	Wednesday	{ Alumni Day. { Annual Meeting of the Trustees. { Woodford Prize Competition.
June	18	Thursday	Twenty-third Annual Commencement.

## SUMMER COURSE.

June	24	Wednesday	{ Summer course in Entomology and Invertebrate Zoology begins.
Sept.	2	Wednesday	Summer course ends.

**FALL TERM—1891.**

Sept.	23	Wednesday	Entrance Examinations begin.
Sept.	28	Monday	{ REGISTRATION of new Students in the School of Law, and of matriculated Students.
Sept.	29	Tuesday	
Sept.	30	Wednesday	{ MATRICULATION of new Students, (except Students in the School of Law).
Oct.	1	Thursday	
Nov.	26	} Thu.—Mon.	{ Thanksgiving Recess, from the evening of Wednesday, Nov. 25, to the morning of Tuesday, Dec. 1.
Nov.	30		
Dec.	1	Tuesday	{ Latest date for announcing subjects of Theses for advanced degrees.
Dec.	16	Wednesday	Term Examinations begin.
Dec.	23	Wednesday	Term ends.

**DIRECTORY.**

- The office of the *President* is No. 2 Morrill Hall.
- The office of the *Dean of the Faculty* is No. 2 Morrill Hall.
- The office of the *Registrar* is No. 9 Morrill Hall.
- The office of the *Treasurer* is No. 1 Morrill Hall.
- The office of the *Director of Sibley College* is on the second floor of Sibley College, east entrance.
- The office of the *Director of the College of Civil Engineering* is in Lincoln Hall, first floor, south entrance.
- The office of the *Director of the College of Agriculture* is No. 20 Morrill Hall.
- The offices of the *Military Commandant* and of the *Professor of Physical Culture* are in the Armory.
- The office of the *Secretary of the School of Law* is 24 Morrill Hall.

## ORGANIZATION AND GOVERNMENT.

### THE UNIVERSITY AND THE STATE.

The existence of Cornell University is due to the bounty of the United States and Ezra Cornell. On the second day of July, 1862, Congress passed an act granting public lands to the several States which should "provide at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts." Thirty thousand acres for each of its senators and representatives in Congress were appropriated to every State; and the share of the State of New York was nine hundred and ninety thousand acres.

On the twenty-seventh of April, 1865, the Legislature of New York incorporated "The Cornell University," appropriating to it the income arising from the sale of this land script. The most important conditions were, that Ezra Cornell should give to the University five hundred thousand dollars, that the University should give instruction in branches relating to agriculture, mechanic arts, and military tactics; and that it should receive, without charge for tuition, one student annually from each assembly district. Mr. Cornell fulfilled the first requirements of the charter, and made an additional gift of more than two hundred acres of land, with buildings to be used for the general purposes of the University and for the department of agriculture.

The Act of Incorporation satisfies the condition of the congressional grant by providing for instruction in such branches of learning as are related to agriculture and the mechanic arts, and in military tactics, "in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." And it further declares that "such other branches of science and knowledge may be embraced in the plan of instruction and investigation pertaining to the University, as the trustees may deem useful and proper."

By Act of the Legislature, passed April 10, 1866, the State authorized the Comptroller to sell the scrip remaining unsold to the Trustees of Cornell University at a price of not less than thirty cents per acre;

and in case the Trustees should not agree to make the purchase, the Legislature further authorized the sale "to any person or persons" on the terms above named, provided that proper security should be given that "the whole net avails and profits from the sale of scrip" should be paid over and devoted to the purposes of Cornell University. The Trustees were not in condition to make the purchase. After some delay Mr. Cornell offered to take the scrip on certain conditions, the most important of which was embodied in a letter to the Comptroller containing the following words :

"I shall most cheerfully accept your views so far as to consent to place the entire profits to be derived from the sale of the lands to be located with the college land scrip in the treasury of the State, if the State will receive the money as a separate fund from that which may be derived from the sale of the scrip, and will keep it permanently invested, and appropriate the proceeds from the income thereof annually to the Cornell University, subject to the direction of the trustees thereof for the general purposes of said institution, and not to hold it subject to the restrictions which the Act of Congress places upon the funds derived from the sale of college land scrip, or as a donation from the Government of the United States, but as a donation from Ezra Cornell to the Cornell University."

The terms proposed by Mr. Cornell were accepted, and the profits on the land located under this agreement constitute the larger part of the endowment from which the income of the University is derived.

The University, organized in accordance with the requirements of its charter, was opened on the seventh of October, 1868.

### TRUSTEES.

The number of trustees, when the Board is full, is twenty-three. The eldest male lineal descendant of the Founder is, by the law of the State, a trustee. The President of the University, the Governor of the State of New York, the Lieutenant-Governor, the Speaker of the Assembly, the Superintendent of Public Instruction, the President of the State Agricultural Society, and the Librarian of the Cornell Library, are *ex officio* members of the Board. Of the remaining fifteen, two are elected annually by the trustees and one by the alumni. The term of every trustee not *ex officio* is five years.

### FACULTY.

The Faculty consists of professors, acting professors, associate professors, and assistant professors, and is aided by non-resident professors

and lecturers, and by instructors, assistants, and examiners. It comprises the following special faculties: Arts; Literature; Philosophy; Science; Agriculture; Architecture; Chemistry and Physics; Civil Engineering; Mathematics; Mechanical Engineering and the Mechanic Arts; Natural History; History and Political Science; Law. The several special faculties constitute standing committees to which are referred questions relating to the departments under their control, but their action, except in the case of the Faculty of Law, is subject to the approval of the general faculty.

### STATE STUDENTS.

The ninth paragraph of the original Act of Incorporation provides for the admission of one student annually from each assembly district without payment of tuition. The number thus received, when all the scholarships are filled, is five hundred and twelve. These State students are selected, by yearly competitive examinations held on the first Saturday in June, from pupils of the various academies and public schools of the State. It is the duty of the school commissioners of counties and of the boards of education of cities to hold and conduct such examinations, and on the basis of these examinations the scholarships are awarded by the State Superintendent of Public Instruction, in whom the administration of the law is exclusively vested. As the law requires the selection of "the best scholar," no distinction of sex is recognized in the competition.

### OPTIONAL AND SPECIAL STUDENTS.

It is one of the leading objects in founding the University to provide for the wants of those who, though earnest and industrious students, cannot complete a full four-year course. The class distinctions which are in most cases strictly observed elsewhere, are not regarded by the Faculty of the University as any obstacle to recitation and attendance upon lectures with any class which the student is prepared to join. Students not candidates for a degree may therefore pursue an optional course provided their proficiency is equivalent to that required of students admitted to one of the general courses. Special students of approved character, maturity, and attainments, are admitted for a limited period without examination, on recommendation of some member of the Faculty under whom a large part of the work is to be taken.

## GRADUATE STUDENTS.

For purposes of advanced study the University extends its privileges to its own graduates and to graduates of like standing from other colleges and universities, and it confers advanced degrees under conditions described elsewhere. Graduate students who are not candidates for a degree are also received.

## SCHOLARSHIPS AND FELLOWSHIPS.

The Scholarships and Fellowships of Cornell University were founded, in the prosperity of the University, in grateful remembrance of financial aid, given at a time of need by its Trustees, the Hon. Ezra Cornell, John McGraw, Esq., the Hon. Henry W. Sage, the Hon. Hiram Sibley, and President Andrew D. White. In accordance with their wishes as then expressed, a sum of money (amounting to one hundred and fifty-five thousand dollars) was permanently set aside to provide encouragement and assistance for students of high character and ability of either sex, in the prosecution of collegiate work, and of advanced study and research after graduation. In the year 1890-91 provision was also made for four additional fellowships and nine additional scholarships. Details concerning these fellowships and scholarships, and the manner in which they are awarded, will be found in their appropriate places, by referring to the index.

## PECUNIARY ASSISTANCE TO STUDENTS.

The most effective method of rendering assistance to that large class of gifted and ambitious young persons who lack the means for securing an education, without compromising their self-respect and independence, or injuring their health by over-exertion, has been for years one of the perplexing problems before educators everywhere. Letters come almost daily to the office of the University from young men and women who are willing to make any possible sacrifice, if only the way can be opened by which they can secure the education they so much crave. As a general thing the answers that can be given to such letters are not very encouraging. In offering annually free tuition to more than five hundred holders of State Scholarships, Cornell University is able to help a great many, and, by means of her thirty-six University scholarships she renders additional aid to many more. Experience has shown that with very few exceptions these scholarships are taken by students who actually are in need of the pecuniary assistance they afford. The good that is thus accomplished

cannot be estimated. In behalf of those young men and women whom a little assistance will enable to take positions of commanding influence in society, the University would call the attention of philanthropic people to the good which their means can in this way be made to accomplish. The Trustees hold themselves in readiness at all times to receive and carefully administer any endowment that may be offered for this purpose.

### SELF-SUPPORT BY STUDENTS.

So numerous are the inquiries addressed to the University by applicants for admission who have received the impression that this institution undertakes to furnish to students without means employment by which they can support themselves wholly or in part, that it is but right to say that Cornell University cannot undertake to furnish employment to any student. Nor can any student be encouraged to come here who is entirely without resources. It is true that many students have aided themselves by their labor while pursuing their studies and a considerable number are always doing so; but the opportunities for such employment are not offered by the University, and every student must rely upon his own ability, industry, and perseverance. Skilled labor often secures fair remuneration; but for unskilled labor, such as most students have to offer, the price here is the same as elsewhere.

### HIGHER EDUCATION OF WOMEN.

By an act of the trustees, passed in April, 1872, women are admitted to the University on the same terms as men, except that they must be at least seventeen years old. A separate building, the Sage College, has been erected and furnished for their residence. The entrance examinations, and all the studies, except military science, are the same for women as for men. In view of the superior advantages afforded by the Sage College, it is expected that all women students of the University, so far as the capacity of Sage College permits, will live in that building.

In order to give Sage College more of the safeguards of a well-ordered home, and to bring its inmates directly under an influence akin to that of the family, the trustees, in the year 1884-85, established a Principalship, the intention being to have a woman of high character, attainments, and social position living at the college, associating with its students, ready to give suggestions as to their general culture, and counsel in special matters at any moment, and to act toward them at all times as a friend and adviser.

Special provision has also been made for physical training in the Sage College Gymnasium. The professor, Edward Hitchcock, Jr., M. D., and his assistant in this department, have organized a system of exercises calculated to maintain and develop the physical strength of young women, and at the same time prevent any of the evils which might arise from exercises that are too violent or too long continued.

The exercises thus provided for are obligatory upon all members of the freshman and sophomore classes in the college, subject to exceptions in particular cases by the Principal and by the Professor of Physical Culture.

Letters of inquiry in regard to rooms and board at Sage College should be addressed to Mr. E. P. Gilbert, Business Manager of Sage College, Ithaca, N. Y.

### PHYSICAL TRAINING.

For the physical training and development of male students there has been provided a Gymnasium, thoroughly equipped with baths, dressing-rooms, and all the apparatus usually found in a well-furnished gymnasium. This is under the charge of an experienced physician, the Professor of Physical Culture and Director of the Gymnasium, who examines every male student at his entrance and at stated intervals thereafter, learns the condition of his health, takes his physical measurements, and prescribes such exercises as may be required for his complete and symmetrical bodily development. The gymnasium is also open to all the members of the University for voluntary exercise; but the Professor of Physical Culture or the Instructor in Gymnastics is in constant attendance, and no student is suffered to indulge in hazardous or excessive athletic efforts, or to attempt any feat which in his individual case might be attended with risk. The supplementary gymnasium at the Sage College for the women students is described above. In the physical training of the students the practical instruction in military science is found to be a valuable aid.

An athletic ground, to be called Percy Field after the son of one of the donors, has recently been provided and equipped for out-of-door sports by the joint gifts of Mr. J. J. Hagerman and Mr. W. H. Sage. The field has an area of nearly ten acres, including a quarter-mile cinder track and a grand stand seating about twelve hundred persons, and is arranged for football, baseball, tennis, and general athletics.

## MILITARY SCIENCE.

Pursuant to the act of Congress creating the land grant on which the Cornell University is founded, and the act of the Legislature of the State of New York assigning that land grant, instruction is provided in Tactics and Military Science. Drill and Military Science are part of the studies and exercises in all courses of study and in the requirements of all male students in the University during the fall and spring terms of the freshman and sophomore years and the winter term of the senior year. Aliens, laboring students, special students, and those physically unfitted therefor are excused from drill. Students in the Department of Law are exempted from this requirement, but are at entire liberty to take the exercises in Military Science if they desire to do so. Students are required to provide themselves with the University uniform, unless excused on account of inability to procure it, and they are held accountable for loss or injury to the arms and other public property issued to them.

## RELIGIOUS SERVICES.

The University, established by a government which recognizes no distinction of religious belief, seeks neither to promote any creed nor to exclude any. By the terms of its charter, persons of any religious denomination or of no religious denomination are equally eligible to all offices and appointments; but it is expressly ordered that "at no time shall a majority of the Board of Trustees be of any one religious sect, or of no religious sect." This is understood to imply that, while the University cannot be identified with, or under the control of, any one religious denomination, it must, nevertheless, always be religious in spirit. In the University Chapel—the gift of the Hon. Henry W. Sage—religious services are held, and discourses, provided for by the Dean Sage Preachership Endowment, are delivered by eminent clergymen selected from the various Christian denominations.

## CHRISTIAN ASSOCIATION.

The Christian Association is a voluntary organization of about five hundred students and professors for the promotion of their religious culture, and for Christian work in the University. It has a permanent Secretary, a carefully selected library, and a well equipped reading-room of religious and secular journals. A committee of this Association is in attendance at Barnes Hall

during the first week of every fall term for the purpose of assisting those entering the University with information in regard to rooms, board, times and places of examinations, etc., and in general to afford any assistance in their power which students who are strangers in Ithaca may feel inclined to seek from them. A handsome and commodious building, the gift of the late Alfred S. Barnes, Esq., a former trustee of the University, has been erected for the Association, and came into use in the summer of 1889.

### **GENERAL STUDENT ORGANIZATIONS.**

The St. Andrew's Brotherhood, the Presbyterian Union, the Methodist Alliance, the Catholic Union, the Baptist Circle, the several Engineering Associations, the Architectural Association, the History and Political Science Association, the Classical Association, the Natural History Society, the Camera Club, the Agricultural Association, the Chemical Association, the Medical Society, the Mock Congress, the Prohibition Club, the Fortnightly Club, and the Ethical Culture Society, are organizations of professors and students for mutual assistance and improvement in the several lines indicated by the names of the associations. These all hold regular meetings, and are guided and directed in their work by members of the Faculty, whenever such assistance is practicable and desirable.

# BOARD OF TRUSTEES.

The Hon. ALONZO B. CORNELL, . . . . .	New York City.
The PRESIDENT of the University, . . . . .	<i>Ex officio.</i>
His Excellency the GOVERNOR of New York, . . . . .	“
His Honor the LIEUTENANT-GOVERNOR, . . . . .	“
The SPEAKER of the Assembly, . . . . .	“
The SUPERINTENDENT of Public Instruction, . . . . .	“
The PRESIDENT of the State Agricultural Society, . . . . .	“
The LIBRARIAN of the Cornell Library, . . . . .	“
ANDREW CARNEGIE, Esq., . . . . . Pittsburgh, Pa.	} Term of office expires in 1891.
GEORGE R. WILLIAMS, LL.B., . . . . . Ithaca.	
MYNDERSE VAN CLEEF, B.S., . . . . . Ithaca.	
The Hon. DOUGLAS BOARDMAN, A.M., Ithaca.	} Term of office expires in 1892.
The Hon. HENRY W. SAGE, . . . . . Ithaca.	
DAVID S. JORDAN, LL.D., . . . . . Bloomington, Ind.	
WILLIAM H. SAGE, A.B., . . . . . Ithaca.	} Term of office expires in 1893.
DANIEL E. SALMON, D.V.M., . . . . . Washington, D. C.	
Gen. ALFRED C. BARNES, . . . . . Brooklyn.	
The Hon. STEWART L. WOODFORD, LL.D., New York.	} Term of office expires in 1894.
HIRAM W. SIBLEY, Esq., . . . . . Rochester.	
FRANK H. HISCOCK, A.B., . . . . . Syracuse.	
The Hon. HENRY B. LORD, . . . . . Ithaca,	} Term of office expires in 1895.
The Hon. ANDREW D. WHITE, LL.D., L.H.D., Ithaca.	
WALTER CRAIG KERR, B.M.E., . . . . . New York.	

OFFICERS OF THE BOARD.

HENRY W. SAGE, . . . . . Chairman  
 WILLIAM R. HUMPHREY, . . . . . Secretary  
 EMMONS L. WILLIAMS, . . . . . Treasurer

EXECUTIVE COMMITTEE.

HENRY W. SAGE, . . . . . Chairman.  
 EMMONS L. WILLIAMS, . . . . . Secretary.

The PRESIDENT of the University,	HENRY B. LORD,
The LIBRARIAN of the Cornell Library,	ANDREW D. WHITE,
GEORGE R. WILLIAMS,	MYNDERSE VAN CLEEF,
DOUGLAS BOARDMAN,	WILLIAM H. SAGE.

STANDING COMMITTEES.

*Committee on Buildings and Grounds :*  
 Trustees H. W. SAGE, ADAMS, WILLIAMS.

*Finance Committee :*  
 Trustees BOARDMAN, LORD, H. W. SAGE, WILLIAMS.

*Land Committee :*  
 Trustees H. W. SAGE, BOARDMAN, and the Treasurer.

*Committee on Appropriations :*  
 Trustees ADAMS, H. W. SAGE, BOARDMAN.

*Committee on Sage College :*  
 Trustees H. W. SAGE, ADAMS, and the Treasurer.

*Auditing Committee :*  
 Trustees LORD, WILLIAMS.

*Committee on Departments of Applied Science :*  
 Trustees WILLIAMS, LORD, H. W. SAGE.

*Committee on Departments of Natural History :*  
 Trustees VAN CLEEF, BOARDMAN, TYLER.

*Committee on Ancient and Modern Languages :*  
 Trustees TYLER, LORD, VAN CLEEF.

*Committee on Departments of History, Philosophy, and Pedagogy :*  
 Trustees WHITE, ADAMS, LORD.

*Committee on Physical Culture and Military Tactics :*  
 Trustees W. H. SAGE, VAN CLEEF, WILLIAMS.

## THE UNIVERSITY COUNCILS.

## LIBRARY COUNCIL.

The PRESIDENT of the University and the LIBRARIAN, *ex officis*; the Hon. ANDREW D. WHITE, of the Trustees, and Professors H. S. WILLIAMS, NEWBURY, HART, and SCHURMAN, of the Faculty.

## AGRICULTURAL EXPERIMENT STATION COUNCIL.

The PRESIDENT of the University, the PRESIDENT of the State Agricultural Society, and the Director of the Experiment Station, *ex officis*; the Hon. ANDREW D. WHITE, of the Trustees, and Professors CALDWELL, PRENTISS, COMSTOCK, LAW, BAILEY, and DUDLEY, of the College of Agriculture.

# OFFICERS OF INSTRUCTION AND ADMINISTRATION.

---

## FACULTY.

[ARRANGED IN GROUPS IN THE ORDER OF SENIORITY OF  
APPOINTMENT.]

CHARLES KENDALL ADAMS, LL. D., PRESIDENT,

*41 East Avenue*

THE REV. WILLIAM DEXTER WILSON, D. D., LL. D., L. II. D.,  
Professor of Moral and Intellectual Philosophy, Emeritus,

*Syracuse*

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*60 Cascadilla Place*

JAMES LAW, F. R. C. V. S., Professor of Veterinary Medicine and  
Surgery,

*33 East Avenue*

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culture, and Arboriculture,

*3 Central Avenue*

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Mechanics and Machine Construction,

*5 Central Avenue*

THOMAS FREDERICK CRANE, A. M., Professor of the Romance  
Languages and Literatures,

*9 Central Avenue*

HIRAM CORSON, A. M., LL. D., Professor of English Literature,

*Cascadilla Cottage*

WATERMAN THOMAS HEWETT, A. B., Ph. D., Professor of the  
German Language and Literature,

*31 East Avenue*

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neering,  
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*Green and Albany Streets*
- HENRY SHALER WILLIAMS, Ph.B., Ph.D., Professor of Geology  
and Paleontology,  
*1 East Avenue*
- WILLIAM GARDNER HALE, A.B., Professor of the Latin Language  
and Literature,  
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- THE REV. MOSES COIT TYLER, LL.D., LL.M., Professor of Ameri-  
can Constitutional History and Law,  
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of Sibley College, and Professor of Mechanical Engineering,  
*15 East Avenue*
- JACOB GOULD SCHURMAN, A.B., D.Sc., DEAN of the Susan Linn  
Sage School of Philosophy, and Professor of Philosophy,  
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*11 East Avenue*
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Comparative Philology,  
*39 East Avenue*
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*22 E. Buffalo Street*
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tary of the Law Faculty,  
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- CHARLES AVERY COLLIN, A.M., Professor of Law,  
116 *E. Seneca Street*
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*South Avenue*
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- EDWARD HITCHCOCK, JR., A.M., M.D., Professor of Physical  
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- \*— — Professor of Psychology.
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Drawing and Mechanical Drawing, *Cortland*
- BRAINARD GARDNER SMITH, A.M., Associate Professor of Elo-  
cution and Oratory, *3 Grove Place*
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Lecturer on Microscopical Technology, *South Avenue*
- ROLLA CLINTON CARPENTER, M.S., C.E., M.M.E., Associate  
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\*This professorship will be filled before the opening of the University year 1891-92.

- GEORGE PRENTICE BRISTOL, A.M., Associate Professor of Greek, and Secretary of the Faculty, *63 Eddy Street*
- CHARLES LEE CRANDALL, C.E., Assistant Professor of Civil Engineering, in charge of Railway Engineering and Geodesy, *100 Hector Street*
- IRVING PORTER CHURCH, C.E., Assistant Professor of Civil Engineering, in charge of Applied Mechanics and Hydraulic Engineering, *151 E. Seneca Street*
- WILLIAM RUSSELL DUDLEY, M.S., Assistant Professor of Cryptogamic Botany, *108 Cascadilla Place*
- GEORGE WILLIAM JONES, A.M., Assistant Professor of Mathematics, *17 Stewart Avenue*
- GEORGE SYLVANUS MOLER, A.B., B.M.E., Assistant Professor of Physics, *119 N. Aurora Street*
- CHARLES FRANCIS OSBORNE, Assistant Professor of Architecture, *142 Cascadilla Place*
- ALBERT WILLIAM SMITH, M.M.E., Assistant Professor of Mechanical Engineering and Machine Construction, *212 E. State*
- JAMES FURMAN KEMP, A.M., E.M., Assistant Professor of Geology and Mineralogy, *163 E. Buffalo Street*
- ALFRED BRUCE CANAGA, Passed Assistant Engineer, U.S.N., Assistant Professor of Mechanical Engineering, and Instructor in Marine Engineering, *69 Heustis Street*
- GEORGE LINCOLN BURR, A.B., Assistant Professor of Ancient and Mediaeval History, *43 East Avenue*
- HARRIS JOSEPH RYAN, M.E., Assistant Professor of Electrical Engineering, *31 Dryden Road*
- HERBERT CHARLES ELMER, A.B., Ph.D., Assistant Professor of Latin, *77 Heustis Street*
- HARVEY DANIEL WILLIAMS, M.E., Assistant Professor of Mechanical Drawing, *100 Cascadilla Place*
- CHARLES BENJAMIN WING, C.E., Assistant Professor of Civil Engineering, in charge of Masonry Structures and Superintendent of the Laboratories, *38 Hazen Street*
- JAMES McMAHON, A.M., Assistant Professor of Mathematics, *1 Quarry Street*

ARTHUR STAFFORD HATHAWAY, B.S., Assistant Professor of  
Mathematics, *19 Stewart Avenue*

WILLIAM RIDGELY ORNDORFF, A.B., Ph.D., Assistant Profes-  
sor of General and Organic Chemistry, *163 E. Buffalo Street*

HENRY SILVESTER JACOBY, C.E., Assistant Professor of Civil  
Engineering, in charge of Bridge Engineering and Graphics,  
*3 Quarry Street*

\*— — Assistant Professor of Philosophy (Ancient).

\*— — Assistant Professor of Philosophy (Modern).

### INSTRUCTORS AND ASSISTANTS.

JAMES OWEN GRIFFIN, Instructor in German, and REGISTRAR,  
*229 E. State Street*

ORRIN LESLIE ELLIOTT, Ph.D., Instructor in English, and As-  
sistant Registrar and President's Secretary, *Dryden Road*

EUGENE HENRY PRESWICK, B.S., Instructor in Qualitative  
Analytical Chemistry, *Forest Home*

LUDLOW ELIAKIM LAPHAM, A.B., Instructor in French,  
*10 Stewart Avenue*

DUANE STUDLEY, B.S., Instructor in Mathematics,  
*71 Dryden Road*

RICHARD FRANCIS NELLIGAN, Instructor in Gymnastics,  
*96 E. Seneca Street*

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*48 W. Seneca Street*

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*9 Heustis Street*

FRANK HOVEY NOYES, Instructor in Industrial Art,  
*96 E. Seneca Street*

HIRAM SAMUEL GUTSELL, B.P., A.M., Instructor in Drawing  
and Industrial Art, *26 Hazen Street*

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\*These Professorships will be filled before the opening of the University year  
1891-92.

- FRANK MELVILLE BRONSON, A.M., Instructor in Greek and Latin,  
135 *N. Tioga Street*
- WALTER LORING WEBB, C.E., Instructor in Civil Engineering,  
40 *Hazen Street*
- GEORGE WELTON BISSSELL, M.E., Instructor in Sibley College,  
170 *Cascadilla Place*
- WILLARD WINFIELD ROWLEE, B.L., Instructor in Botany,  
40 *Heustis Street*
- JAMES EDWIN CREIGHTON, A.B., Instructor in Philosophy,  
69 *Heustis Street*
- ERNEST GEORGE MERRITT, M.E., Instructor in Physics,  
69 *Heustis Street*
- OLIVER FARRAR EMERSON, A.M., Instructor in English,  
69 *Heustis Street*
- HENRY NEELY OGDEN, C.E., Instructor in Civil Engineering, in charge of Sanitary Engineering Laboratory,  
9 *E. Buffalo Street*
- WILLIAM BELKNAP NEWBURY, Ph.B., Instructor in Chemistry,  
163 *E. Buffalo Street*
- ALBERT PAUL WILLIS, Instructor in Freehand Drawing,  
100 *Cascadilla Place*
- CHARLES SUMNER FOWLER, A.B., Instructor in Mathematics,  
10 *Stewart Avenue*
- WILLIAM MASON TOWLE, B.S., Instructor in Mechanical Engineering and Foreman of the Machine Shop,  
63 *Eddy Street*
- WALKER GLAZIER RAPPLEYE, B.S., Instructor in Mathematics,  
27 *Stewart Avenue*
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114 *University Avenue*
- GRANT SHERMAN HOPKINS, B.S., Instructor in Anatomy,  
231 *E. State Street*
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163 *E. Buffalo Street*

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*114 University Avenue*

LESTER JAMES YOUNG, Instructor in Architecture,  
*163 E. Buffalo Street*

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CAMILLO VON KLENZE, Ph.D., Instructor in Romance Languages,  
*71 Dryden Road*

EDWARD BAILLOT, B.S., Instructor in Romance Languages,  
*9 Heustis Street*

HENRY HIRAM WING, B.Agr., Instructor in Dairy Husbandry,  
*Reservoir Avenue*

\*— —, Instructor in Civil Engineering.

\*— —, Instructor in Civil Engineering.

EMILE MONNIN CHAMOT, Assistant in Chemical Analysis,  
*178 E. State Street*

FREDERIC LAWRENCE KORTRIGIIT, B.S., Assistant in General  
Chemistry, *35 Dryden Road*

GEORGE W BOTSFORD, A.B., Assistant in Ancient History,  
*81 Cascadilla Place*

STEWART WOODFORD YOUNG, B.S., Assistant in Chemistry,  
*East Hill House*

JAMES WHEAT GRANGER, Instructor in Forging,  
*Exchange Hotel*

WILLIAM HENRY WOOD, Instructor in Woodworking,  
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JAMES ELIJAH VANDERHOEF, Instructor in Moulding,  
*Sibley College*

FRED CLARKSON FOWLER, Mechanician, and Instructor in  
Physics, *75 W. Mill Street*

GEORGE POLLAY, Instructor in the Wood Shop,  
*86 W. Seneca Street*

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\* These Instructorships will be filled before the opening of the University year 1891-92.

- LEVI FREDERICK CHESEBROUGH, Instructor in Mechanic Arts,  
134 *E. State Street*
- GEORGE W TAILBY, Assistant to the Professor of Agriculture, and  
Foreman of the Farm, *Reservoir Avenue*
- ROBERT SHORE, Assistant to the Professor of Botany, and Head  
Gardener, *23 Hazen Street*
- OLIN S BLAKESLEE, Mechanician to the College of Civil Engi-  
neering, *65 E. Mill Street*

### SPECIAL LECTURERS.

Besides the instruction regularly given by the resident officers of the University, a large number of lectures are delivered by non-resident lecturers on special subjects of importance. For this branch of instruction the services of eminent specialists are sought, and the number of lectures given by each lecturer varies according to the nature of the subject treated. In the year 1889-90 the lecturers and their subjects were as follows :

- PROFESSOR GOLDWIN SMITH, LL.D., L.H.D. : The Story of an  
Old University (Oxford), *Toronto, Canada*
- THE HON. GARDINER G. HUBBARD : Recent Discoveries in Africa,  
*Washington, D. C.*
- PROFESSOR LOUIS DYER, A.B. : The Aphrodite Cult of Paphos at  
Cyprus, *Oxford, England*
- ALBERT SHAW, Ph.D. : The Municipal Government of European  
Cities, *Minneapolis, Minn.*
- PROFESSOR W. W. FOLWELL, Ph.D. : Property and Taxation, and  
The Constitution and Paper Money, *St. Paul, Minn.*
- PROFESSOR W. J. ASHLEY, A.M. : The Economic Development of  
England, *Toronto, Canada*
- PROFESSOR HENRY C. ADAMS, Ph.D. : Some Aspects of Social  
Questions, *Ann Arbor, Mich.*

- PROFESSOR JAMES L. LAUGHLIN, A.M., Ph.D. : The Relation of  
Christianity to Economics, *Philadelphia, Pa.*
- PROFESSOR W. LECONTE STEPHENS : Aeronautics, *Brooklyn*
- CHARLES E. EMERY, Ph.D. : Marine Engineering,  
*New York City*
- CHIEF ENGINEER B. F. ISHERWOOD, U. S. N. : Steam in the Steam  
Engine, *New York City*
- ECKLEY B. COXE, E.M., Ph.D. : Mine Engineering, *Drifton, Pa.*
- GEORGE H. BABCOCK, M.E. : Steam Engineering,  
*New York City*
- J. F. HOLLOWAY, M.E. : Steam Pumping Machinery,  
*New York City*
- J. M. ALLEN, M.E. : Steam Boiler Design, *Hartford, Conn.*
- R. W. HUNT, E.M. : Steel and Car-Wheels, *Chicago, Ill.*
- PROFESSOR W. A. ANTHONY, C.E., Ph.B. : Electrical Engineering,  
*Manchester, Conn.*
- OCTAVE CHANUTE, C.E. : Aeronautics, *Chicago, Ill.*
- THE HON. FRANCIS M. FINCH, LL.D. : Fraudulent Conveyances,  
*Ithaca*
- THE HON. DANIEL H. CHAMBERLAIN, LL.D. : The Executive—  
its Place and Powers—Under the Constitution, *New York City*
- THE HON. ALFRED COXE : The Law of Shipping and Admiralty,  
*Utica*
- THE HON. BENJAMIN F. THURSTON, A.M. : The Patent Laws of  
the United States, *Providence, R. I.*
- THE HON. WM. F. COGSWELL : The Law of Insurance, *Rochester*
- THE HON. GOODWIN BROWN, A.M. : The Law of Extradition.  
*Albany*
- THE HON. HENRY W. CORNELL : Telegraph Law, *New York City*

## UNIVERSITY PREACHERS.

The preachers appointed from year to year on the Dean Sage foundation are chosen from eminent representatives of the several religious denominations. The following were the preachers for 1889-90 :

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THE REV. BROOKE HERFORD,	<i>Boston, Mass.</i>
THE REV. JULIUS H. WARD, D.D.,	<i>Boston, Mass.</i>
THE REV. WM. J. TUCKER, D.D.,	<i>Andover, Mass.</i>
THE REV. JENKIN LLOYD JONES,	<i>Chicago, Ill.</i>
THE REV. TENNIS S. HAMLIN, D.D.,	<i>Washington, D. C.</i>
THE REV. GEO. D. BOARDMAN, D.D.,	<i>Philadelphia, Penn.</i>
THE REV. JAS. H. ECOB, D.D.,	<i>Albany</i>
THE REV. J. M. BUCKLEY, D.D.,	<i>New York City</i>
THE REV. C. A. BRIGGS, D.D.,	<i>New York City</i>
THE REV. S. M. HOPKINS, D.D.,	<i>Auburn</i>
THE REV. JOHN M. CHADWICK,	<i>New York City</i>
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THE REV. CHANCELLOR SIMMS, D.D.,	<i>Syracuse</i>
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THE REV. WM. HAYES WARD, D.D., LL.D.,	<i>New York City</i>
THE REV. PHILIP S. MOXOM, D.D.,	<i>Boston, Mass.</i>
THE REV. PROFESSOR FRANCIS G. PEABODY, D.D.,	<i>Cambridge, Mass.</i>
THE RT. REV. W. C. DOANE, D.D., LL.D.,	<i>Albany</i>
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THE REV. J. H. TWICHELL, A.M.,	<i>Hartford, Conn.</i>
THE REV. ROBERT COLLYER,	<i>New York City</i>
THE REV. J. A. M. CHAPMAN, D.D.,	<i>Philadelphia, Penn.</i>
THE REV. THEODORE L. CUYLER, D.D.,	<i>Brooklyn</i>
THE REV. ALEXANDER MCKENZIE, D.D.,	<i>Cambridge, Mass.</i>

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- ANDREW CURTIS WHITE, Ph.D., Assistant Librarian in charge of  
Classification, 130 *E. Seneca Street*
- WILLIAM HENRY HUDSON, Assistant Librarian in charge of Ref-  
erence Library, 41 *Heustis Street*
- MARY FOWLER, B.S., First Cataloguer in the Library,  
148 *Cascadilla Place*
- JULIA WELLS BROWN, Cataloguer in the Library,  
*Sage College*
- GERTRUDE FRANCES VAN DUSEN, Cataloguer in the Library,  
212 *E. State Street*
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- WILLARD HENRY AUSTIN, Delivery Assistant in the Library,  
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- CHARLES HENRY PARSHALL, A.B., Delivery Assistant in the  
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- HORACE MACK, Assistant to the Treasurer in the Land Office,  
116 *Cascadilla Place*
- SARA ADELIA BEACH, Treasurer's Stenographer,  
58 *N. Geneva Street*

ALICE BELLE CARMAN, President's Stenographer,  
10 *E. Mill Street*

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*Sage College*

EDWARD PAYSON GILBERT, Business Manager of Sage College,  
166 *E. State Street*

CLARENCE WENTWORTH MATHEWS, Master of the Chime,  
*South Avenue*

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The Corps of the Agricultural Experiment Station is made up as follows :

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37 *East Avenue*

HENRY HIRAM WING, B.Agr., Deputy Director and Secretary,  
*Reservoir Avenue*

GEORGE CHAPMAN CALDWELL, B.S., Ph.D., Chemist,  
11 *Central Avenue*

JAMES LAW, F.R.C.V.S., Veterinarian,  
33 *East Avenue*

ALBERT NELSON PRENTISS, M.S., Botanist and Arboriculturist,  
3 *Central Avenue*

JOHN HENRY COMSTOCK, B.S., Entomologist and Invertebrate  
Zoologist, 43 *East Avenue*

HENRY SHALER WILLIAMS, Ph.B., Ph.D., Geologist,  
1 *East Avenue*

LIBERTY HYDE BAILEY, M.S., Horticulturist, 3 *East Avenue*

SIMON HENRY GAGE, B.S., Anatomist, *South Avenue*

WILLIAM RUSSELL DUDLEY, M.S., Cryptogamic Botanist,  
108 *Cascadilla Place*

HARRY SNYDER, B.S., Assistant Chemist, 9 *East Buffalo Street*

WELTON MARKS MUNSON, B.S., Assistant Horticulturist,  
*40 Heustis Street*

CLINTON DEWITT SMITH, M.S., Assistant Agriculturist,  
*Reservoir Avenue*

MARK VERNON SLINGERLAND, Assistant Entomologist,  
*43 East Avenue*

**METEOROLOGICAL BUREAU OF THE STATE OF  
NEW YORK.**

**CENTRAL OFFICE AT CORNELL UNIVERSITY.**

(Under Chapter 148 of the Laws of 1899.)

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President, and Commissioner *Ex-officio*, *Albany*

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*Cornell University*

THE HON. SIMEON SMITH, Treasurer and Commissioner, *Ithaca*

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EBENEZER T. TURNER, C.E., *Meteorologist*

WILLIAM O. KERR, *Clerk*

ROBERT M. HARDINGE, *U. S. S. S. Assistant*

## SPECIAL FACULTIES.

The President of the University is *ex officio* Chairman of each of the Special Faculties. In the absence of the President, the Professor whose name is printed first on the list of members, is the acting Chairman.

**ARTS**—Professor HALE, Professors WHEELER, OLIVER, SCHURMAN, BRISTOL, and ELMER.

**LETTERS**—Professor CORSON, Professors CRANE, HEWETT, WAIT, WHITE, WILDER, SCHURMAN, HART, and B. G. SMITH.

**PHILOSOPHY**—Professor SCHURMAN, Professors NICHOLS, COMSTOCK, CRANE, OLIVER, PRENTISS, CALDWELL, WHITE, H. S. WILLIAMS, S. G. WILLIAMS, HALE, WHEELER, and WILDER.

**SCIENCE**—Professor WILDER, Professors COMSTOCK, CRANE, HEWETT, PRENTISS, CALDWELL, NICHOLS, WAIT, and H. S. WILLIAMS.

**AGRICULTURE**—Professor ROBERTS, Professors CALDWELL, COMSTOCK, LAW, PRENTISS, BAILEY, and H. S. WILLIAMS.

**ARCHITECTURE**—Professor BABCOCK, Professors FUERTES, OLIVER, CLEAVES, and OSBORNE.

**CHEMISTRY AND PHYSICS**—Professor CALDWELL, Professors NICHOLS, NEWBURY, MOLER, RYAN, and ORNDORFF.

**CIVIL ENGINEERING**—Professor FUERTES, Professors BABCOCK, NICHOLS, THURSTON, OLIVER, CALDWELL, CHURCH, CRANDALL, JACOBY, and C. B. WING.

**MATHEMATICS**—Professor OLIVER, Professors WAIT, JONES, NICHOLS, BABCOCK, FUERTES, MORRIS, THURSTON, MCMAHON, and HATHAWAY.

**THE SIBLEY COLLEGE OF MECHANICAL ENGINEERING AND THE MECHANIC ARTS**—Professor THURSTON, Professors NICHOLS, FUERTES, MORRIS, CALDWELL, OLIVER, CLEAVES, CARPENTER, A. W. SMITH, CANAGA, and H. D. WILLIAMS.

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**HISTORY AND POLITICAL SCIENCE**—Professor TYLER, Professors TUTTLE, CRANE, HALE, HEWETT, WHITE, LAUGHLIN, and BURR.

**SCHOOL OF LAW**—Judge BOARDMAN, Professors HUTCHINS, BURDICK, COLLIN, TYLER, and TUTTLE.

THE UNIVERSITY SENATE.

---

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BURT GREEN WILDER, B.S., M.D.  
JAMES LAW, F.R.C.V.S.  
ALBERT NELSON PRENTISS, M.S.  
JOHN LEWIS MORRIS, A.M., C.E.  
THOMAS FREDERICK CRANE, A.M.  
HIRAM CORSON, A.M., LL.D.  
WATERMAN THOMAS HEWETT, A.B., Ph.D.  
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JAMES EDWARD OLIVER, A.M.  
ESTEVAN ANTONIO FUERTES, C.E., M.A.S.C.E.  
ISAAC PHILLIPS ROBERTS, M.Agr.  
HORATIO STEVENS WHITE, A.B.  
JOHN HENRY COMSTOCK, B.S.  
SAMUEL GARDNER WILLIAMS, A.B., Ph.D.  
HENRY SHALER WILLIAMS, Ph.B., Ph.D.  
WILLIAM GARDNER HALE, A.B.  
THE REV. MOSES COIT TYLER, LL.D., L.H.D.  
ROBERT HENRY THURSTON, A.M., LL.D., Doc. Eng.  
JACOB GOULD SCHURMAN, A.B., D.Sc.  
HERBERT TUTTLE, A.M., L.H.D.  
BENJAMIN IDE WHEELER, A.B., Ph.D.  
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EDWARD LEAMINGTON NICHOLS, B.S., Ph.D.  
LIBERTY HYDE BAILEY, M.S.  
EDWARD HITCHCOCK, JR., A.M., M.D.  
HERBERT EVERETT TUTHERLY, A.M., 1st Lieut., 1st Cav.,  
U.S.A.  
JAMES MORGAN HART, A.M., J.U.D.  
JAMES LAURENCE LAUGHLIN, A.B., Ph.D.

# MATERIAL EQUIPMENT OF THE UNIVERSITY.

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## LOCATION.

CORNELL UNIVERSITY is situated on the eastern hillside of the Cayuga Lake valley, some four hundred feet above the head of the lake. This lake stretches away more than twenty miles to the north, and the valley leading to it twelve or fifteen miles to the south, in full view from the University. From both sides of the lake ravines run back, through which considerable streams fall from four to six hundred feet in the course of a mile.

The University grounds consist of two hundred and seventy acres of land bounded north and south by Fall Creek Ravine and Cascadilla Gorge respectively. The eastern portion, of about two hundred acres, is devoted to the uses of the agricultural department. Two main avenues, Central and East Avenue, well shaded by elms, run parallel to each other the entire length of the eastern portion, a distance of half a mile. On these and the intersecting avenues are grouped the university buildings and more than thirty residences of professors. The grounds are laid out with great care, are decorated with ornamental trees and shrubs, and are made to illustrate the courses of instruction in botany, horticulture, and arboriculture.

## BUILDINGS.

MORRILL HALL AND WHITE HALL.—These two edifices, architecturally alike, are each one hundred and sixty-five feet by fifty, four stories in height, of blue Ithaca stone, with light Medina trimmings. Each building is divided by three corridors, running from front to rear. The middle corridors lead to the larger lecture-rooms, and the other corridors to the smaller lecture and recitation-rooms. In Morrill Hall are the offices of the President, the Treasurer, the Dean, and the Registrar of the University, and the Secretary of the School of Law; the faculty-room, agricultural museum, and office of the Agricultural Experiment Station.

**MCGRAW HALL.**—This building, the gift of the late Mr. John McGraw, of Ithaca, is constructed, like the edifices adjacent to it, of dark blue stone, quarried near the University grounds, but with dressings and cornices of gray Onondaga limestone. In its architecture it corresponds with the other buildings. Its length is two hundred feet, and its width sixty, while its tower rises to a height of over one hundred and twenty feet. It consists of a main edifice and two wings. The main or central portion of the building comprises one room one hundred feet long, fifty-six wide, and nineteen in height; and another above it of the same length and breadth, but nearly forty feet high, and containing three galleries with an average height of twelve feet each. In this part of McGraw Hall are alcoves and galleries for the library on the lower floor; while on the second floor and in the galleries above it a large part of the museum of natural history is arranged. In the north wing is the anatomical lecture-room, and the special anatomical laboratory. Beneath this is the seminary-room, and the basement is occupied by the general anatomical laboratory. In the south wing are the geological lecture-room and the paleontological laboratory, and immediately over them the geological laboratory. In the campanile, in the center of the front of McGraw Hall—a massive stone tower twenty-two feet square—are placed the great bell of the University, the nine smaller bells of the McGraw chime, and the great University clock. The different parts of McGraw Hall are separated by walls of brick and doors of iron, rendering them completely fire-proof. The library room contains shelving for eighty thousand volumes. The galleries of the museum are fifteen feet deep, with a total length of six hundred feet.

The trustees of the University at a recent meeting, provided for the erection of a fire-proof building for the use of the Library. The extreme dimensions of this building, which will be constructed of stone, will be one hundred and seventy feet by one hundred and fifty-three feet. Its book capacity will be four hundred and seventy-five thousand volumes. It is hoped that it will be ready for occupation by the opening of the next collegiate year.

**LINCOLN HALL** is a substantial brown stone structure, two hundred feet long and seventy feet wide. It contains sixty-one rooms in its five floors, and has been specially designed for the use of the departments of Civil Engineering and Architecture. In addition to the laboratories and museums described elsewhere, the building contains the libraries of the two departments, aggregating about three thousand volumes, reading-rooms, class-rooms, and draughting-rooms. The latter are eighty feet long and sixteen feet wide, and are provided with means for regu-

lating the height and intensity of the illumination. The building contains also the offices of the professors, the central office of the Commissioners of the State Meteorological Bureau, and the meteorological observatory of the department of civil engineering.

A temporary astronomical observatory has been erected near the main building, in which are mounted, on brick piers, an astronomical transit by Troughton and Sims, provided with two collimators; a sidereal clock; a four-and-a-half inch Clark equatorial; two large altazimuths reading to seconds by levels and micrometers; and a three-and-three-eighths inch zenith telescope by Fauth.

**THE SIBLEY COLLEGE.**—The buildings of Sibley College were erected and presented to the University by the late Hon. Hiram Sibley, of Rochester, N. Y., who also gave the machinery, and the greater part of all the collections with which they are supplied. The main building is of Ithaca stone, trimmed with white sandstone, and in architecture similar to Morrill and White Halls. It is one hundred and sixty feet long, forty feet in width, and three stories in height. The workshops form three sides of a quadrangle, of which the fourth side is formed by the college building proper; they are of brick and two stories in height. The main building contains on the first floor two large museums, fully described elsewhere, the library and reading-room, a large and well lighted lecture-room, and the private rooms of the professor of practical mechanics. On the second floor are the lecture-room of the professor of mechanical engineering and the director, with its collections, the drawing-rooms of the departments of electrical engineering and of industrial drawing and art, and the lecture-rooms of the professor of electrical engineering, and the room of an instructor. The third floor is occupied by the drawing-rooms for the younger classes in freehand drawing and decorative art, and the private rooms of the professor of drawing and his assistants. The workshops consist of a machine shop, a foundry, a blacksmith shop, and a wood-working shop; and include rooms devoted to the storage of tools, to emery grinding, etc. These shops are one hundred to one hundred and fifty feet in length, about forty feet in width, and are well lighted. The forge and the foundry are in a separate structure, one hundred and fifty feet in length, built in 1890. An additional building, one hundred and fifty feet by forty in dimensions, and two stories in height, has its second floor devoted to work in machine design, and includes several drawing-rooms for upper classmen, a lecture-room, and a room appropriated to the use of the professor having charge of the laboratories. The main floor is divided into several rooms, each devoted to some department of experimental

work. The tools and machinery are described fully under the head of Sibley College Collections. At the bottom of Fall Creek gorge is the house protecting the turbine which supplies the power ordinarily required for driving the machinery of the college, and the electric apparatus for lighting the campus and the buildings. The large engine and dynamo room, containing all the engines and dynamos employed in lighting the University, is adjacent to the shops, and beside the boiler-room in which are placed the 600 H. P. boilers.

**FRANKLIN HALL.**—This building, situated on the north side of the quadrangle, was opened for occupancy in September, 1883. It is of red sandstone, about one hundred and forty feet in length, with a width of fifty and seventy feet, and is three stories in height above a well-lighted basement. The exterior is ornamented with casts and medallions of distinguished scientists. The building contains, in addition to the amply-equipped laboratories of the department of physics, two large lecture-rooms, seating about one hundred and seventy students each. A fire-proof, one-story annex, built of brick, is situated behind Franklin Hall. It contains, in addition to the assay laboratory of the chemical department, a large room devoted to applied electricity, also the instrument making and repair shops and the storage-battery room of the department of physics.

**MORSE HALL.**—This building, for the exclusive use of the chemical department, stands west of Franklin Hall. It is built of brick, with slow-burning construction throughout, and is therefore nearly fire-proof. It is one hundred and eighty feet long, and seventy feet wide, with high basement and two stories, and contains forty rooms, besides a large sub-basement. It will be occupied this year for the first time. For the internal arrangements see the chemical laboratory.

**THE SAGE COLLEGE FOR WOMEN.**—This building is the gift of the Hon. Henry W. Sage. It is a home or dormitory for students, not a separate department or school. The front façade has a length of one hundred and sixty-eight feet, a depth of forty-one feet, and is four stories in height. The north wing is eighty-five feet long, and the south wing one hundred and twelve. The building is of brick, with stone trimmings. A gymnasium nearly connects the wings in the rear. The rooms for the students are eighteen feet by fourteen, with a low partition dividing off one part for a sleeping-room. The college will accommodate about one hundred students. Besides the dormitories, dining-hall, and parlors, it contains a large lecture-room, a museum, laboratories, with very complete equipments, for students in botany, with green-houses, forcing-houses, and other necessary facilities for the pursuit of floriculture and ornamental gardening.

**THE SAGE CHAPEL.**—This chapel, the gift of the Hon. Henry W. Sage, and situated about midway between Morrill Hall and Sage College, is constructed of brick with elaborately carved stone trimmings, and is of the Gothic order of architecture. The auditorium has a seating capacity of about five hundred persons. One of the most noteworthy features of the room is the number of memorial windows and tablets. Opening into the auditorium is a smaller chapel, so arranged as to be used in connection with it. On the opposite or north side is **THE MEMORIAL CHAPEL**, constructed in the Gothic style of the second or decorated period. It was erected, as a tablet in its northern end bears witness, to the memory of Ezra Cornell, John McGraw, and Jennie McGraw-Fiske, and was completed in 1884. The exterior is of red brick with stone trimmings. The interior walls are of Ohio stone and yellow brick. The ceiling is vaulted, with Ohio stone ribs and Caen stone panels. On entering the chapel the eye is at once arrested by the rich memorial windows, constructed by Clayton and Bell, of London. They are designed not only to commemorate the connection of Mr. Cornell, Mr. McGraw, and Mrs. Jennie McGraw-Fiske with this University, but also to associate their names with the names of some of the greatest benefactors in the cause of education. The north window contains the figures of William of Wykeham, John Harvard, and Ezra Cornell; the east window the figures of Jeanne of Navarre, Margaret of Richmond, and Jennie McGraw-Fiske; the west window those of Elisha Yale, Sir Thomas Bodley, and John McGraw. Directly beneath the great northern window is a recumbent figure of Ezra Cornell, in white marble, of heroic size, by William W. Story, of Rome; near this is another recumbent figure, that of Mrs. Andrew D. White, also in white marble, by Frankliu Simmons, of Rome. A vault underneath the chapel contains recesses for the remains of the founders of the University.

The building erected for the purposes of the **GYMNASIUM AND ARMORY** is situated at the extreme southern end of the campus, and was completed in the winter of 1883-4. The main portion is of brick, one hundred and fifty feet long, sixty feet wide, and fifty feet high. The Annex, joining the main hall on the south, is a two-storied building, having an area of fifty-two by forty-eight feet. The main building, with the exception of a small portion that is set apart for an office and military store-room, is used for gymnastics and military drill. This contains the arms and equipment of the cadet corps, and a carefully selected supply of the most improved gymnastic apparatus and appliances for both individual and class work. The hall is heated by steam and lighted by electricity, and gives a clear space

for floor room in the gymnasium of one hundred and fifty by sixty feet. The Annex contains the offices of the Department of Physical Culture, faculty dressing-room, bath-rooms, lavatory, closets, general repair room and dressing-rooms which contain locker accommodations for eight hundred students.

CASCADILLA PLACE, situated on the south bank of Cascadilla gorge, is built of blue stone, is one hundred and ninety-five feet long by one hundred feet wide, four stories high, and contains about two hundred rooms. It was completed in 1868. University exercises are no longer held there, the rooms being rented to professors and students as living apartments.

BARNES HALL.--The University is indebted to the generosity of the late Alfred S. Barnes, Esq., of New York, for a commodious and elegant building designed mainly for the use of the University Christian Association. This building is one hundred and twenty feet by eighty feet in dimensions, and three stories in height. The material is brick, with trimmings of Ohio stone, brown stone and granite. On the north, the main entrance is marked by a graceful tower rising to a height of one hundred feet. The building contains a secretary's room, assembly-room, library, reading-room, and all other needed accommodations for the work of the association, in addition to a spacious auditorium which occupies the larger part of the second floor. Besides the auditorium, there is a smaller class-room on this floor, the two being separated by a screen which in case of need is easily removed, thus throwing the entire second floor into one hall, and furnishing seating room for one thousand persons. The various assembly-rooms and class-rooms are furnished with fire-places, and the best modern methods of heating and ventilation are employed.

## MUSEUMS.

THE AGRICULTURAL MUSEUM occupies a large room on the second floor of Morrill Hall and four rooms in the basement. It contains, 1. THE RAU MODELS, being one hundred and eighty-seven models of plows made at the Royal Agricultural College of Würtemberg, under the direction of Professor Rau, and arranged and classified by him for the Paris Exposition of 1867. 2. Engravings and photographs of cultivated plants and animals, obtained at the various agricultural colleges of Europe. 3. THE AUZOUX VETERINARY MODELS, being the entire series used at the government veterinary colleges of France and Russia. 4. A collection of the CEREALS OF GREAT BRITAIN, being a duplicate of that in the Royal Museum of Science and Art at Edin-

burg, presented by the British government. 5. A collection of agricultural seeds. 6. A large number of models representing a great variety of agricultural implements. The class-room has been provided with a special set of diagrams and other appliances designed to illustrate the subject of the lectures on agriculture.

**THE MUSEUM OF ARCHÆOLOGY** consists of about four thousand specimens. Of these about fifteen hundred illustrate primitive society in South America and the Pacific Islands, and were collected chiefly by Professors Hartt, Barnard, Derby, Steere, and Ward. There are a few hundred antiquities from Great Britain, Denmark, France, Switzerland, and Egypt. The most valuable object in the Egyptian collection is a mummy of the XXIII dynasty, taken in 1883 from the necropolis at Thebes, and presented to the University by the Hon. G. P. Pomeroy, American Consul at Cairo. The remainder of the museum is composed of the relics of the Indians and Mound-Builders of North America.

**THE ARCHITECTURAL MUSEUM** contains over three hundred and fifty models, in wood, stone, and plaster, illustrating the various constructive forms of the different styles, and one hundred and fifty of ornamental forms, sculpture, leaf-work, mouldings, etc., in stone, plaster, and terra cotta, besides numerous specimens of tiles, mosaic work, marbles, granites, and other materials used for decorative and constructive purposes. The collection of architectural photographs numbers about fifteen hundred, many of which are of large size.

**THE BOTANICAL MUSEUM.**—The means of illustrating the instruction in botany include the herbarium, estimated to contain fifteen thousand species; two series of models, the Auzoux and the Brendel; the full set of wall maps of Achille Compté, and the botanical charts of Professor Kny; a lime lantern with five hundred views, illustrating different departments of botany; twenty compound and dissecting microscopes; a collection of fruits, cones, nuts, seeds, fibres, and various dry and alcoholic specimens; a general collection of economic vegetable products, and above a thousand specimens of the woods of different countries. Besides these, the large conservatories and gardens, and an uncommonly rich native flora afford abundant material for illustration and laboratory work.

**THE MUSEUM OF CHEMISTRY AND PHARMACY** occupies a large room, specially designed for this purpose, on the second floor of Morse Hall. In this room are displayed, I. **THE APPLIED CHEMISTRY COLLECTION**, which includes a full series of typical organic compounds, and also a great number of specimens illustrating the leading chemico-industries, such as the manufacture of the various acids,

alkalies and salts, pigments, glass, pottery, soap and stearine, the chemical processes of bleaching and dyeing, photography, etc. 2. **THE COLLECTION OF PHARMACY AND MATERIA MEDICA**, consisting of specimens of dried medicinal plants, drugs, active principles and pharmaceutical apparatus. 3. **THE METALLURGICAL COLLECTION**, which includes the typical fuels, ores, slags and finished products necessary to illustrate the processes of extraction of the useful metals.

In the arrangement, display, and labeling of these collections especial pains have been taken, in order that the significance of each specimen may be evident to all visitors to the museum.

**THE MUSEUM OF CONCHOLOGY**, one of the most complete in existence, is on the second floor of McGraw Hall. It contains the Newcomb collection of shells, which embraces more than eighty thousand examples of more than twenty thousand varieties, representing at least fifteen thousand species. The collection is systematically classified and exhibited with special reference to making it available for study. As many of the specimens are of great rarity and not a few unique, the collection offers unusual facilities for the systematic study of conchology.

**THE SPECIAL MUSEUMS OF THE COLLEGE OF CIVIL ENGINEERING** contain the following collections: 1. The MURET collection of models in descriptive geometry and stone cutting. 2. The DE LAGRAVE general and special models in topography, geognosy, and engineering. 3. The SCHROEDER models in descriptive geometry and stereotomy, with over fifty brass and silk transformable models made in this college after the OLIVIER models. 4. The GRUND collections of bridge and track details, roofs, trusses, and masonry, supplemented by similar models by Schroeder and other makers. 5. A model railroad bridge of twenty-five feet span, the scale being one-fourth of the natural size. 6. The DIGEON collection of movable dams and working models in hydraulic engineering. 7. Working models of water-wheels, turbines, and other water engines. 8. Several large collections of European and American photographs of engineering works during the process of construction, and many other photographs, blue prints, models and diagrams. 9. An extensive collection of instruments of precision, such as a Troughton and Sims astronomical transit; a universal instrument, by the same makers, reading to single seconds; sextants, astronomical clocks, chronographs, a Negus chronometer, two equatorials—the larger having an objective, by Alvan Clark, four and a half inches in diameter, a large zenith telescope of improved construction for latitude work, and other instruments, like pier collimators, etc., necessary to the complete

equipment of a training observatory. 10. A GEO ESIC collection, consisting of a secondary base line apparatus made under the direction of the Coast Survey, two new base line bars designed and constructed in the laboratories of this college, and all the portable, astronomical, and field instruments needed for extensive triangulations, including sounding-machines, tachometers, deep-water thermometers, heliotropes, etc. 11. Among the usual field instruments there is nearly every variety of engineers' transits, theodolites, levels, solar and other compasses, omnimeters and tachometers with a large number of special instruments, such as planimeters, pantographs, elliptographs, arithmometers, computing machines, altazimuths, sextants, hypsometers, and self-recording meteorological instruments of all descriptions. 12. A very complete set of all appliances and instruments for making reconnaissances in topographical, hydrographical and mining surveys, in addition to the instrumental equipment which is common to the museums, and the ten laboratories of this College, which are described elsewhere.

**THE MUSEUM OF ENTOMOLOGY AND GENERAL INVERTEBRATE ZOOLOGY.** The entomological cabinet contains, in addition to many exotic insects, specimens of a large proportion of the more common species of the northeastern United States. The collection includes many sets of specimens illustrative of the metamorphoses and habits of insects. The general collection of invertebrates comprises a well-selected series of forms representing all of the larger groups. In this collection there is a nearly complete set of the duplicates distributed by the U. S. National Museum, many specimens collected on the coast of Brazil by the late Professor C. F. Hartt, and specimens from Florida and the West Indies, collected by Dr. Wesley Newcomb. The collection includes, moreover, a set of the Auzoux models and of the glass models made by the Blaschka.

**THE MUSEUMS AND COLLECTIONS OF THE SIBLEY COLLEGE OF MECHANICAL ENGINEERING AND MECHANIC ARTS** are of exceptional extent, value, and interest. The two principal rooms on the first floor of the main building are devoted to the purposes of a museum of illustrative apparatus, machinery, products of manufacturing, and collections exhibiting processes and methods, new inventions, forms of motors, and other collections of value in the courses of technical instruction. In the west museum are placed a full Reuleaux collection of models of kinematic movements, which is, so far as known, the only complete collection on this continent, and is one of the very few in the world. Besides these are the Schroeder and other models, exhibiting parts of machinery, the construction of steam

engines and other machines. In the east museum are placed a large number of samples of machines constructed to illustrate special forms and methods of manufacture. Among these are several beautifully finished samples of steam-pumps "sectioned" to exhibit their internal construction, steam-boiler injectors similarly divided, governors for motors, devices for lubrication, and apparatus for the transmission of power, both by shafting and by wire-rope transmission. The lecture-rooms of Sibley College, each being devoted to a specified line of instruction and list of subjects, are each supplied with a collection of materials, drawings, models and machines, especially adapted to the wants of the lecturer. Thus, the lecture-room of the instructor in Materials of Engineering contains a large collection of the metals in common use in the arts, with samples of ores and of special products, exhibiting processes of reduction and manufacture. Among these are the whole range of copper-tin and copper-zinc alloys, and of the "kalchoids" produced by their mixture, such as were the subjects of investigations by the Committee on Alloys of the U. S. Board appointed in the year 1875. The collection is supplemented by other alloys produced later by the Director, and is one which has no known superior, and is perhaps unequaled. The course of instruction in mechanical engineering is illustrated by a fine collection of steam-engines of our own make and of various well-known types, gas and vapor engines, water-wheels and other motors, models and drawings of every standard or historical form of prime mover, of parts of machines, and of completed machinery.

The collections of the Department of Drawing also include a large variety of studies of natural and conventional forms, shaded and in outline, geometrical models, casts and illustrations of historical ornament.

The workshops are supplied with every needed kind of machine or tool, including lathes of our own and other makes, and hand and bench tools sufficient to meet the wants of one hundred and fifty students of the first year, in woodworking; in the foundry and forge, all needed tools for a class of over one hundred in the second year; in the machine shop, machine tools from the best builders, and others made in the University shops, and a great variety of special and hand tools, which are sufficient to work a class of one hundred in the third year, and sixty or eighty seniors and graduate students.

The Department of Experimental Engineering possesses experimental engines and boilers, and other heat motors, such as air and gas engines, and is well supplied with testing machines in considerable variety, as well as all the apparatus required, as indicators, dynamometers, etc., for determining the efficiency of engines. Each of

the several rooms on the first floor of the Sibley College annex is a museum of apparatus. These collections are elsewhere described.

**THE MUSEUM OF GEOLOGY, PALEONTOLOGY, AND MINERALOGY** comprises the following collections: 1. **THE JEWETT COLLECTION**, accumulated by the late Colonel Jewett when curator of the State Cabinet of Natural History. This collection is especially rich in New York fossils, containing many of the original specimens described in the State reports, and not a few unique specimens. 2. A fair representation of the rich faunas of the cretaceous and tertiary formations along the eastern and southern parts of the Union, and a large number of characteristic English and European fossils. 3. A fine series of English mesozoic fossils; of tertiary fossils from Santo Domingo; of pre-glacial fossils from Sweden; and numerous smaller collections from various typical localities in our own country. 4. The Ward series of casts. 5. The unique collections from Brazil, made by Professor Hartt and party on the Morgan expedition, containing the original specimens and a great number of duplicates. Numerous additions have been made during the past year. 6. **THE SILLIMAN COLLECTION** of minerals accumulated by the late Benjamin Silliman, Jr., and illustrating the rarer and commoner mineral species. Notable additions have been made to it from year to year by purchase and donation. 7. The collections in economic geology are intended to illustrate the ores and useful minerals of the United States, and although of recent date already begin to represent in detail the resources of the country.

**THE MUSEUM OF VETERINARY SCIENCE** embraces the following collections: 1. The Auzoux veterinary models, comprising plastic models of the horse, showing the relative position of over three thousand anatomical parts; models of limbs, sound and with detachable pieces, and their morbid counterparts, illustrating changes in diseases of the bones, joints, muscles, etc.; a set of obstetrical models, showing the virgin and gravid uterus in different animals, and the peculiarities of the female pelvis and its joints; models of the gastric cavities of domestic animals; an extensive set of models of jaws, showing the indications of age as well as various habits and diseases; models of equine teeth in sections, showing structure and the changes effected by wear. 2. Skeletons of the domestic animals, articulated and unarticulated. 3. A collection of diseased bones, illustrating the various constitutional diseases which impair the nutrition of these structures, together with the changes caused by accidental injuries and purely local disease. 4. Skulls of domestic animals, prepared to illustrate the surgical operations demanded in the different genera.

5. Jaws of farm animals, illustrating the growth and wear of the teeth, age, dentinal tumors, caries, etc. 6. A collection of specimens of teratology, consisting of monstrous foals, calves, and pigs. 7. A collection of tumors and morbid growths removed from the different domestic animals. 8. Some hundreds of specimens of parasites from domestic animals. 9. A collection of calculi from the digestive and urinary organs, etc., of farm animals. 10. Foreign bodies taken from various parts of the animal economy. 11. A collection of surgical instruments used in veterinary practice. 12. A collection of medicinal agents. 13. In addition, a large number of diagrams, the property of Professor Law, available in illustration of different points in anatomy, physiology, and pathology.

**THE MUSEUM OF GENERAL ZOOLOGY.**—The vertebrate collections are as follows : About thirty-seven hundred examples of about twenty-five hundred species of entire animals in alcohol, nearly half of the specimens being fishes collected in Brazil by the late Professor C. F. Hartt ; the remainder include series of named fishes from the Smithsonian Institution and the Museum of Comparative Zoology, representatives of the general North American fauna, and of the local fauna and many rare forms from various parts of the world, including the following : Chimpanzee, orang, cheiromys, dingo, pangolin, sloth, ant-eater, armadillo, ornithorhynchus, echidna, jacana, sphenodon, monitor, heloderma, crocodile, alligator, draco, axolotl, proteus, megalobatrachus, siren, amphiuma, pipa, ceratodus, protopterus, flying-fish, polypterus, calamoicthys, thalassophryne, chimæra, cestracion, myxine, bdellostoma, and branchiostoma ; about twenty-eight hundred anatomical preparations, including mounted skeletons of man, gorilla, lion, panther, camel, horse, porpoise, manatee, sloth, kangaroo, ostrich, apteryx, alligator, draco, frog, cryptobranchus, necturus, cæcilia, and amia ; more than one thousand preparations of the brain ; large series of dissections of the lamprey, necturus, and cat ; embryos or young of man, ape, leopard, opossum, kangaroo, manatee, dugoug, peccary, llama, sea-lion, bat, alligator, necturus, amia, lepidosteus, shark, skate, and domesticated animals ; about one thousand microscopical preparations, chiefly from the cat, frog, and necturus ; more than eleven hundred mounted skins, including orang, tiger, cheetah, otter, moose, tragulus, camel, beaver, hyrax, centetes, galeopithecus, sloth, armadillo, manatee, porpoise, koala, wombat, kangaroo, echidna, ornithorhynchus, emeu, apteryx, boat-bill, penguin, gavial, crocodile, rattlesnake, heloderma, megalobatrachus, ceratodus, cestracion, saw-fish, gar-pike, polypterus, etc. Besides the papier-mâché models by Auzoux mentioned above, there are several

Bock-Steger models in plaster, a Buechi model of the brain, and series of wax models by Weisker and Ziegler. In the arrangement of the collections reference has been had to the exemplification of zoological and morphological ideas, such as the unity of general structure under diversity of form and mode of life in the branch and within each class, the resemblances between members of different classes, the existence of apparently useless organs, etc. Among special series are placed together the vertebrates inhabiting this neighborhood, all venomous forms, and preparations illustrating the resemblances and differences between man and apes.

### LABORATORIES.

**THE ANATOMICAL LABORATORIES** are in the north wing of McGraw Hall, second floor and basement. They are furnished with instruments and materials for practical work in anatomy, human and comparative, histology, and elementary physiology. Among the appliances recently acquired are an incubator, a first-class microscope with apochromatic objectives and oculars, and apparatus for determining the results of aquatic or combined aquatic and aerial respiration. Students have access to many works of reference and to a standard series of anatomical and microscopical preparations.

**THE BOTANICAL LABORATORY** is located on the first and second floors of the south wing of Sage College, adjoining the botanical lecture-rooms. The laboratory is supplied with microscopes and other apparatus necessary for study and investigation in the several departments of botanical science. Connected with the laboratory are the green-houses, which at all seasons of the year furnish material for illustration and for laboratory use.

**THE CHEMICAL LABORATORY.**—The new chemical laboratory contains two lecture-rooms, one seating three hundred, and the other eighty students. Both rooms are supplied with all the necessary appliances for the illustration of the lectures, by experiments or the lantern. On the second floor, besides the large lecture-room, there is a laboratory for the work of students in introductory chemistry, with two hundred and sixty-four places, and adjoining this the private laboratory of the instructor in that course; on this floor are also the office and laboratory of the professor of general chemistry, apparatus and preparation rooms in connection with the lecture-room, a room for occasional special work, and, finally, the chemical museum for the collections illustrating the courses in applied chemistry and pharmacy.

On the first floor is the general quantitative laboratory, with places

for one hundred and forty students, besides twelve special places for analysis by electrolysis. Adjoining this room are the balance room for students, and the private laboratory of the assistant professor of analytical chemistry ; next follow the general supply room for all departments of the laboratory in general, the office and private laboratory of the professor of agricultural and analytical chemistry, the women's cloak room, the chemical library, the combustion and muffle room, the special room for iron analysis, with places for eight students, the sanitary laboratory and distilling room, with places for ten students, the room for analysis by optical methods, the smaller lecture-room, and the men's coat room.

On the basement floor is the qualitative students' laboratory, with places for two hundred and fifty-six students, if it is necessary to crowd them, but accommodating easily one hundred and eighty-four ; and it is so arranged that in the terms when the quantitative laboratory is liable to be overcrowded, and fewer students are working at qualitative analysis, twenty quantitative students can work here, with all the advantages enjoyed by the beginners in the regular quantitative room, and for whose use balances are placed in an adjoining room. On this floor are also the private laboratory of the instructor in qualitative analysis, the laboratory of the agricultural experiment station, and a room for gas analysis, with a northern exposure. In the eastern section of the building on this floor the organic laboratory is located, with places for twenty-four students, a combustion room, a room for advanced organic work, the private laboratory of the assistant professor of organic chemistry, the pharmaceutical laboratory, with places for sixteen students, the private laboratory of the assistant professor of pharmacy, and store-rooms.

In a sub-basement is ample space for a cool, fire-proof room, and other store-rooms for chemical stock in bulk ; and in the attic story are rooms for photographic work.

Every room in which unwholesome or offensive fumes are liable to be evolved is connected with a special system of ventilation for their rapid removal. Distilled water is conducted in block tin pipe to all the more important rooms on each floor, from a tin-lined tank in the uppermost story where the distilling apparatus is placed.

Every student's place is furnished with all the essential apparatus for his general work, and with water, and in the quantitative rooms with suction ; oxygen, hydrogen, and air-blast are supplied wherever required, from reservoir tanks in the basement.

The chemical library contains complete sets of all the important journals, and works of reference ; and such additions are made to it

from year to year, as are necessary to keep it abreast with the times. It is accessible to all students, under such restrictions only as are necessary to secure it against any detriment.

THE CIVIL ENGINEERING LABORATORIES cover a floor area of about ten thousand square feet. They are well equipped and comprise:

1. A GENERAL LABORATORY containing a large collection of machines and apparatus for the experimental study of subjects connected with the theoretical instruction of the lecture-rooms, and as preparation for the special laboratories.
2. AN HYDRAULIC LABORATORY with complete appliances for determinations of "efficiency"; piping, mouth pieces, and special castings, for the derivation of coefficients; weirs provided with all forms and heights of notches and orifices; gauges, electrical and automatic devices for the most refined measurements of weights, pressures, velocities, equilibrium, viscosity, efflux in closed and open conduits, water reaction, etc.
3. A CEMENT LABORATORY provided with automatic machines for the establishment of standard tests. The furniture of this laboratory has been designed by specialists in view of its needs, and what has been done already at the great laboratories of Professors Tetmayer and Bauschinger, at Zurich and Munich.
4. A BRIDGE LABORATORY for the study of stresses in many types of trusses, the determination of the effect of permanent and variable strains upon the nature and requirements of bridge designs and their details, etc. This laboratory has under way important investigations.
5. A GRAVIMETRIC LABORATORY where cold and hot pendulums swing in connection with other instruments of precision.
6. A GEODETIC LABORATORY for the determination of the values and errors of graduation of circles and levels of high precision, fitted with level testers, collimators, cathetometers, etc.
7. A MAGNETIC LABORATORY in which is acquired the skill necessary to use the Kew magnetometer and Barrow's circle. The instrumental constants are derived in an isolated "copper house"; but the magnetic quantities are obtained each year, by the students in civil engineering, at the astronomical stations of the systematic survey of the State. This work has been carried on since 1874 under the auspices of Cornell University.
8. A METRIC LABORATORY for the absolute comparison of lengths, provided with line and end comparators and dividing engines with independent microscopes mounted on isolated piers. This room is built with hollow double walls, and provision has been made to maintain it at a constant temperature. Telescopic observations may be made through tubes in the walls, which avoid the necessity of entering the room, thus disturbing its temperature.
9. A BACTERIOLOGICAL LABORATORY in which students may become acquainted with bacterial

forms and such portions of this subject as bear upon sanitary engineering. The optical apparatus has been expressly manufactured for us by Reichert, of Vienna; and, as the result of consultation with biologists, physicians and sanitary engineers, the balance of the equipment for the special purposes of this laboratory has been made by Dr. Rohrbeck of Berlin. 10. A PHOTOGRAPHIC LABORATORY for reproducing the appearance of tested specimens, for the purposes of the lecture-room, as aid in topographical surveys, and for the distribution, to graduates and purchasers, of reprints of the great collection of progress photos of engineering structures owned by this college.

THE SIBLEY COLLEGE LABORATORIES OF ELECTRICAL ENGINEERING, including the apparatus of the Department of Electrical Engineering of Sibley College and also that available in the Department of Physics, comprehend many special collections of apparatus. The collections include a number of large and small dynamos, of arc and incandescent lighting types, including a five hundred light and a twenty-five light Edison, two Thomson-Houston, three Weston, a Ball, a Mather, a Waterhouse third brush, a Gramme, a Siemens and Halske, a six hundred and fifty light Westinghouse alternate current machine and its complement of converters, and a Westinghouse forty arc light alternator with its full complement of lamps; a variety of motors including two ten H. P. automatic Sprague motors, a Brush five H. P. constant current, and a Tesla alternate current motor. Storage batteries are of the Julien, Gibson, Sorley, and "accumulator" types; aggregating one hundred cells in number. There are arc and incandescent lamps of the various types, and commercial electric meters. The great tangent galvanometer and electro-dynamometer, and the potential instrument at the Magnetic Observatory, and the authorized copies of the British Association standards of resistance afford every facility for making measurements in absolute measure of current, E. M. F., and resistance with the highest attainable accuracy.

There are a large number of ammeters, voltmeters, Wheatstone bridges, electro-dynamometers, electric balances, long range electrometers, etc., that have been built or procured for general use, that are always kept in correct adjustment by comparison with the above standardizing apparatus. Apparatus is provided for all delicate testing, for the exact study and determination of alternate current energy, for conductivity and insulation tests, and for the determination of the properties of the magnetic materials. Means for making quantitative measurements are supplied through a well equipped photometer room for the photometry of arc and incandescent lamps; several Brackett "cradle" dynamometers for efficiency tests of dynamos and

motors ; a reostat of german-silver wire for a working resistance with a capacity ranging from twenty-two hundred ohms and four ampères, to four-tenths of an ohm and three hundred ampères. The apparatus of electrical measurement is the property of the Department of Physics, as are many of the dynamos.

The Sibley College machinery, and the dynamos of the Department of Physics, are placed in large apartments adjacent to the steam-boiler " plant" of the University and the College.

THE LABORATORY OF ENTOMOLOGY AND GENERAL INVERTEBRATE ZOOLOGY occupies the entire second floor of the north division of White Hall. It is equipped with microscopes, and other apparatus necessary for practical work in entomology. The greater part of the entomological cabinet is kept here for reference. The laboratory is also supplied with a large collection of duplicate specimens of insects, and typical forms of other orders of invertebrates for the use of the students. THE INSECTARY OF THE AGRICULTURAL EXPERIMENT STATION affords facilities to a limited number of advanced students for special investigations in the study of the life history of insects, and for experiments in applied entomology.

THE GEOLOGICAL LABORATORIES occupy the entire second floor of the south wing of McGraw Hall, and are well furnished with the appliances needful for successful study in paleontology, lithology, practical geology, and the optical study of rocks and minerals. The laboratory on the east side is devoted especially to the collections and other equipments for the study of fossils and the various branches of paleontological science. The west room is devoted to the lithological and advanced mineralogical collection and the equipments for macroscopic and microscopic study of minerals and rocks. Both laboratories are in connection with the main geological museum, occupying the central part of the same floor. The laboratory for introductory work in mineralogy and blowpipe analysis occupies the west basement and is equipped with study collections and facilities for blowpipe determinations. Here are also placed the study collections in economic geology.

THE SIBLEY COLLEGE MECHANICAL LABORATORIES constitute the department of demonstration and experimental research of Sibley College, in which not only instruction but investigation is conducted. They are principally located in the annex of Sibley College, in several rooms of good height, well lighted on all sides, and carefully fitted up for the purpose for which they are designed, occupying the entire lower floor, a space of one hundred and fifty feet long by forty feet wide. It is supplied with the apparatus for experimental work in the deter-

mination of power and efficiency of motors, including a number of experimental and other steam engines, and the turbine driving the machinery of the establishment; with the boiler-testing plant and instruments; and with numerous machines, of the various standard types, for testing the strength of metals. Several steam engines and boilers, air and gas engines, several kinds of dynamometers, lubricant-testing machines, standard pressure-gauges, and a large collection of steam engine indicators and other apparatus and instruments of precision employed by the engineer in such researches as he is called upon to make, are collected here. All the motors of the University, and its 600 horse-power boilers, are available for test trials. The steam engines are set up, with the heavy lighting dynamos, adjacent to the boilers.

**THE PHYSICAL LABORATORY.**—The rooms of the physical department occupy Franklin Hall. Piers are provided in several of the rooms for apparatus requiring immovable support, and some of the rooms in the basement and in the annex have solid floors of cement, upon any part of which galvanometers, etc., may be used. The lecture-room on the first floor has fixed seats for one hundred and fifty-four students. The arrangements for experimental demonstrations are most complete. Gas, water, steam, oxygen, hydrogen, compressed air, blast, and vacuum cocks are within easy reach of the lecturer, and dynamo and battery currents are always at hand, and under complete control from the lecture-table. A masonry pier, four by twelve feet, permits the use in the lecture-room of apparatus that could otherwise only be used in the laboratory. A small turbine on the lecture-table furnishes power for a variety of experiments. Lanterns with the lime or electric light are always in readiness for use when their use can in any way aid a demonstration. Adjacent to the lecture-room are three large apparatus rooms. On the first floor are several laboratory rooms, equipped with reference to various special lines of work, among which may be mentioned one for electric light photometry, without windows, and painted black throughout.

The laboratory rooms in the western end of the main building are devoted to advanced work, those on upper floors of the eastern end, to elementary practice. On the fourth floor is a suite of rooms arranged for the study of photography, with special reference to its application to physical investigation. Work in applied electricity is carried on chiefly in the basement laboratories, in the annex, and in the dynamo rooms of the department.

The equipment of the physical department comprises many fine instruments of precision. The standard clock, having Professor Young's

gravity escapement, is placed in a room provided with double walls, and actuates two chronographs by which the time observations of the laboratory are recorded. A very perfect automatic dividing engine, a large comparator, a standard yard and meter, an electro-calorimeter of a platinum wire resistance in a hard rubber tank, a spectrometer reading to seconds, sets of resistance coils, and galvanometers of various forms are among the instruments. For magnetic and other measurements by the magnetic needle, a special building free from iron has been erected. In this are placed the magnetometers and the instruments for the accurate measurement of currents and potentials. Of the latter is the large tangent galvanometer, constructed at the University, with coils respectively one and six-tenths and two meters in diameter, and giving deflections to ten seconds. A very valuable adjunct is a well-equipped workshop connected with the department, where a skilled mechanic is constantly employed in making apparatus. Some of the most valuable instruments in the collection have been made in this shop.

#### THE UNIVERSITY LIBRARY.

The Library, including the President White collection, described below, contains about one hundred and seven thousand volumes, besides thirty thousand pamphlets. It is made up largely of the following collections, increased by annual additions of from three thousand to five thousand volumes : A SELECTION of about five thousand volumes purchased in Europe in 1868, embracing works illustrative of agriculture, the mechanic arts, chemistry, engineering, the natural sciences, physiology, and veterinary surgery ; THE ANTHON LIBRARY, of nearly seven thousand volumes, consisting of the collection made by the late Professor Charles Anthon, of Columbia College, in the ancient classical languages and literatures, besides works in history and general literature ; THE BOPP LIBRARY, of about twenty-five hundred volumes, relating to the oriental languages and literatures, and comparative philology, being the collection of the late Professor Franz Bopp, of the University of Berlin ; THE GOLDWIN SMITH LIBRARY of thirty-five hundred volumes, comprising chiefly historical works and editions of the English and ancient classics, presented to the University in 1869 by Professor Goldwin Smith, and increased during later years by the continued liberality of the donor ; THE PUBLICATIONS of the Patent Office of Great Britain, about three thousand volumes, of great importance to the student in technology and to scientific investigators ; THE WHITE ARCHITECTURAL LIBRARY, a

collection of over twelve hundred volumes relating to architecture and kindred branches of science, given by ex-President White ; **THE KELLEY MATHEMATICAL LIBRARY**, comprising eighteen hundred volumes and seven hundred tracts, presented by the late Hon. William Kelley, of Rhinebeck ; **THE CORNELL AGRICULTURAL LIBRARY**, bought by the Hon. Ezra Cornell, chiefly in 1868 ; **THE SPARKS LIBRARY**, being the library of Jared Sparks, late president of Harvard University, consisting of upwards of five thousand volumes and four thousand pamphlets, relating chiefly to the history of America ; **THE MAY COLLECTION**, relating to the history of slavery and anti-slavery, the nucleus of which was formed by the gift of the library of the late Rev. Samuel J. May, of Syracuse ; **THE SCHUYLER COLLECTION** of folklore, Russian history and literature, presented by the Hon. Eugene Schuyler in 1884 ; **THE LAW LIBRARY**, containing over seven thousand five hundred volumes of legal works. The number of periodicals and transactions, literary and scientific, currently received at the Library is five hundred and thirty, and of many of these complete sets are on the shelves.

The British Patent Office and the United States Patent Office supply all reports published by them ; a very large number of mechanical and engineering periodicals are taken, and some progress has been made toward collecting a library of books of similar character.

The Library is a circulating one for members of the Faculty and a library of reference for students. Undergraduates have free access to a collection of encyclopædias, dictionaries, and works of reference in the various departments of study, but they apply to the librarian for other works desired. Graduate students are admitted to the alcoves. Upon the recommendation of the professor in any department, students of the senior and junior classes, engaged in special work in that department, will be granted access to the shelves for purposes of consultation.

Connected with the Library, and intended for use as a study room by advanced students, is the seminary-room, containing one hundred and fifty of the principal historical, literary, and philological periodicals, and about four thousand volumes, selected with reference to the needs of students engaged in special work. In the departments of architecture, agriculture, arts, botany, civil engineering, mechanical engineering, and philology, collections are set apart in seminary-rooms for the use of students carrying on special investigations.

The Library is managed by a body known as the **LIBRARY COUNCIL**, which consists of seven members, as follows : The President of the University and the Acting Librarian, *ex officio*, one trustee chosen by

the Board, and four professors nominated by the Faculty and confirmed by the Board of Trustees. The President of the University is *ex officio* chairman of the council. The elected members hold office one year.

The generous gift of the Hon. Henry W. Sage, consisting of a new Library Building, now in course of erection, at a cost of more than two hundred thousand dollars, and an endowment fund of three hundred thousand dollars, the income of which is to be devoted to the increase of the Library, not only adds greatly to the present facilities for study, but also secures a future measure of growth much larger and more uniform than has hitherto been possible.

THE LIBRARY BULLETIN is issued three or four times a year, and contains classified lists of recent accessions, and of books in various departments, as well as other bibliographical matter intended to assist students in their use of the Library.

THE PRESIDENT WHITE LIBRARY OF HISTORY AND POLITICAL SCIENCE.—On the 19th of January, 1887, ex-President Andrew D. White, in accordance with a purpose long entertained, made a formal proffer of his Library of History and Political Science as a gift to the University. On the same day a committee was appointed by the trustees to confer with Mr. White in regard to the conditions of the transfer of the collection. The preliminary arrangements were satisfactorily made, and this invaluable collection thus at once became available for the purposes of the University. A catalogue, already far advanced, will be pushed forward to completion with the utmost practicable rapidity, with a view to publication. The collection consists of about 30,000 volumes and 10,000 pamphlets, besides a large number of manuscripts of unusual interest and value. In almost all departments it contains works that are rare and valuable, while in one or two its completeness is believed to be unequalled in the United States. It is especially rich in primary sources on the History of Superstition, on the period of the Reformation, on the French Revolution, and on the Period of the Civil War. The principal conditions on which this munificent gift is made are that it shall be placed in a fire-proof room, where it will be easily accessible to students and historical scholars, that it shall be placed in care of a special attendant, and that a sum of money shall be annually appropriated by the University to keep the collection supplied with the most important new books.

**THE UNIVERSITY FARM.**

The Farm consists of about one hundred and ten acres of land, exclusive of that under the charge of the Professor of Horticulture, and is devoted to the uses of the agricultural department, for experimental purposes, and for the illustration of the principles and practice of agriculture. Nearly all the domestic animals are kept to serve the same ends. Those portions of the farm and stock not used for experiments are managed with a view to their greatest productiveness. Statistics of both experiments and management are kept on such a system as to show at the close of each year the profit or loss not only of the whole farm, but also of each crop and group of animals. The North Barn (one hundred and forty feet in length by one hundred and twenty in width, and three stories in height) is used for experimental purposes and the general needs of practical agriculture. The large basement contains a covered yard and accommodations for the dairy cows, thirty in number, besides a cellar for roots and a place for cattle scales, the steam boiler and the engine. The second floor is largely devoted to accommodations for wagons, carriages, farm implements, and rooms for the purpose of administration. The third story contains the stationary thresher, the chaffer, the grain, straw and hay, and the sheep pens. The Dairy House, an independent structure not far from the North Barn, is a wooden building two stories high, and fitted with accommodations for the making of butter and cheese by the most approved modern methods. The building is constructed with special reference to securing the most even temperature and the most perfect ventilation. Its equipment embraces a steam boiler, an engine, two creamers, and other modern appliances for the manufacture of butter and cheese.

**THE UNIVERSITY GARDENS.**

About thirty acres are devoted to gardens and orchards. The area presents a great variety of soils and exposures. There are now growing upon this area over fifty varieties of apples, over fifty of grapes, and many kinds of plums, cherries, peaches, apricots, mulberries, currants, gooseberries, raspberries, blackberries, strawberries, and many miscellaneous fruits, as almonds, nectarines, figs, service berries, and edible nuts. A large portion of the grounds is devoted to illustrative and experimental vegetable gardening in great variety. A dwarf pear orchard of 300 trees occupies a commanding site. Two steam heated forcing-houses, each 20 by 60 feet, with their adjuncts, belong to the horticultural department, and a garden-house, with

work-rooms, office, and photographic rooms, is attached. A mushroom pit is connected with the forcing-house. The South Barn (eighty feet long by sixty wide, and three stories high) is now used by the department, and contains, aside from stables, a large grafting-room, tool-room, and rooms for the storing of vegetables. A portion of the ground adjoining the forcing-house is used for specimen plots.

### ATHLETICS.

The Cornell Athletic Association, composed of representatives from the trustees, faculty, and student athletic organizations, was incorporated in June, 1889. A standing committee on athletics, including the faculty members of the association, has also been appointed from the faculty. It is hoped that the coöperation of these various interests, and the existence of a permanent organization may tend to produce a greater steadiness in the management of athletics, and permit of some continuity in the transmission of athletic methods and traditions.

Through the generosity of friends of the University, the association has had placed at its disposal a field of about nine acres, situated on the north side of Fall Creek gorge, together with a sum of money sufficient for enclosing and grading the field properly, erecting a grand stand, and providing a suitable cinder track. The field, which is admirably adapted to the purpose, contains base-ball and foot-ball grounds, with additional space sufficient for lawn-tennis and other out-door sports.

# ORGANIZATION OF DEPARTMENTS AND METHODS OF INSTRUCTION.

## ANCIENT CLASSICS.

### I. GREEK.

The courses of study in the department of Greek have been arranged with distinct reference to the fact that the course in Arts does not require the study of Greek after the sophomore year, and, furthermore, with reference to the principle, that the choice of this Course does not by any means imply an intention to specialize in Greek.

In view of this it is clearly desirable to give to the Greek studies of the first two years such a form that they will satisfy some distinct purpose and represent in themselves some sort of completeness.

The work of the freshman year is directed toward cultivating the ability of reading easily and at sight. Authors of the simplest style have therefore been selected, Lysias and Plato as representatives of the purest Attic type, and the Odyssey of Homer of the Epic. The first term of the year will include in connection with the reading of Lysias and Plato, a thorough review-drill in the fundamentals of accidence and syntax, and exercises in Greek composition will be required throughout the year. The class will be divided on the basis of scholarship into two numerically equal sections at the beginning of each term.

The required work of the sophomore year aims at giving the student some acquaintance with the scope and meaning of Greek literature and with the characteristics of Greek thought. It couples with the study of representative masterpieces of Athenian literature a course of text-book study, lectures, and illustrative readings briefly reviewing in outline the history of the Greek literature.

The elective work of the department falls under three distinct heads :

1. The literature. Six reading courses accompanied by lectures are offered, three of which are given each year ; viz., a course in the drama, a course in the historians and orators, a course in the philosophers, a course in the lyric and epic poets, a course in New Testament Greek, and a course in the Greek of the Roman period.

2. The antiquities. Course 7 treats of the entire equipment and environment of ancient Greek life as made known to us in the literature and from the monuments, its usages and occupations, its ideas and institutions.

3. The language. Lectures on Greek grammar from a historical point of view are given in alternate years. The exercises of the philological seminary are especially adapted to the needs of prospective teachers of the classics, and introduce the student to the original sources of information concerning the language and its history, and accustom him to methods of independent investigation. The seminary-room has been equipped with a carefully selected reference library of over six hundred volumes, and will be used as a regular study-room and laboratory by the more advanced students.

A course in elementary Greek has been added for the advantage of non-Greek students, who for any reason, may have found it, though late in their college course, desirable to acquire at least a rudimentary knowledge of the language, and are willing to incur the labor incident to doing two years work in one. The acknowledged purpose of the course is to attain within one year of extraordinary effort a reading knowledge of Attic prose, and all other objects are made secondary to this. The course cannot be used to make up conditions in the entrance examinations, it cannot be counted for graduation in the Course in Arts, and it cannot, without much additional study, serve as a preparation for the entrance examination.

## II. LATIN.

The aim of the work in Latin covers several distinct heads :

1. To teach students of fair ability and of industry to read Latin understandingly and rapidly, without translating.

2. To give to students who acquire this power the opportunity of making a considerable acquaintance with the literature of the language, through the reading of large quantities of the important writers ; with the history of the development of the literature, through a brief course given in the sophomore year, and a more detailed study in connection with the authors read in the later years ; and with the political and social development of the Roman people, through the required course in history in the freshman year (see History 1), and in the last years, the collateral reading of history in greater detail in connection with the reading of Roman writers.

3. To afford a more thorough and sympathetic knowledge of Roman private life than the courses in the literature alone would give, through

systematic lectures, illustrated abundantly, mainly by lantern views and photographs, from the remains of Roman civilization preserved in Pompeii, Herculaneum, and Rome, and elsewhere.

4. To offer to students whose interest extends to the scientific aspects of the language (and especially to those who are preparing to be teachers) advanced courses, partly by lectures, and partly by work in the seminary, in tracing the development of the forms from the earliest stage of the language known to us, in the study of these forms from a comparative point of view, and in the advanced study of the origin and development of the syntactical uses of the language, and of the beginnings of their decay.

### III. COMPARATIVE PHILOLOGY.

The work in comparative philology is planned with reference to the needs : first, of the general student with linguistic interests ; second, of those proposing to be teachers of language, and more especially, of the classical languages ; third, of those who propose to devote themselves to the special scientific study of the Indo-European languages.

To the first mentioned class of students course 1 is especially adapted. For those who propose to be teachers of other than the classical languages the course in comparative grammar is recommended in addition to course 1. The courses on Greek and Latin grammar, and the seminary work on the Greek dialects are of the first importance for prospective teachers of the classics, and for such work a preliminary study of the elements of Sanskrit is considered eminently desirable, though not absolutely essential. For such as may wish to devote themselves exclusively to the study of comparative philology, there will be offered, as occasion may demand, in addition to the courses already announced, a more advanced course in Sanskrit, and special courses in the comparative grammar of other branches of the Indo-European family of languages. The course in Gothic grammar is intended both for students of comparative philology and for specialists in Germanic, including English, philology.

### GERMANIC LANGUAGES.

The aim of the first two years in German, besides preparing the student for progressive and independent work, is to afford those who have not a full classical training some grammatical and linguistic discipline, an insight into the relations between German and English, and a certain degree of literary culture.

During the freshman year Brandt's Grammar and Reader are used, accompanied by exercises in writing German, and translation at sight, and followed by some special work, containing easy novels or plays.

In the sophomore year the standard German classics are translated and special attention is paid to the study of etymology, to prose composition, to reading at sight, and to literary biography.

During the junior and senior years occur lectures and recitations, with elective classes, on German history, literature, and mythology; and courses are given varying from year to year, embracing the works of the leading authors. Classes are also formed in composition and conversation, and recent dramatic literature and the writings of living novelists are read. Instruction is further provided in Middle High German and the older Germanic dialects.

The seminary system of study for advanced students has been employed in the department for several years with satisfactory results. To different members of such classes different portions of the same general subject are assigned, with references to the proper authorities or sources; or individual members pursue individual courses of reading under the supervision of the professor in charge. Lectures for those intending to be teachers are also given on class-room methods and theories of instruction in the modern languages; and generous provision has been made by the University for the use of lantern slides for illustrative purposes.

## ROMANCE LANGUAGES.

Instruction in French during the first year is essentially the same for all courses. It is expected that students in the technical courses, who take but one year of French, will be enabled to read ordinary French scientific works and the French text-books which may be used in their courses. In the second year the object of study is more literary than grammatical; two hours a week are devoted to reading advanced French and the study of the history of the literature, with special reference to its principal schools or movements. One hour a week is given up to French composition, dictation, and pronunciation.

The instruction in the department is so planned that a student who pursues French for three or four years has an opportunity to study every period in French literature from the mediæval to the modern. Special instruction is also provided for graduates and other advanced students in French philology, Old-French, and Provençal.

The courses in Spanish and Italian are of two years each, two hours a week. The grammar is rapidly studied the first term, and reading

begun in the second. In the second year more advanced works in Spanish and Italian are read; in the former Cervantes and Calderon; in the latter, selections from Dante, Petrarch and Boccaccio, with lectures on the history of the literature. Advanced instruction is given in Spanish and Italian philology.

The library is well provided with materials for the special study of the literature of the XVIIth century and of the Romantic school, while means are not wanting for the study of other periods, and of the other Romance literatures and philology.

## ENGLISH.

### I. RHETORIC.

The instruction given in the first two years is chiefly practical. It aims at training students to express themselves clearly and concisely, and with discrimination in the use of terms. Text-book work is supplemented by lectures and discussions. Special attention is given to the construction of the paragraph and the theme. The greater part of the work in these two years consists in the preparation of brief essays upon topics assigned by the instructor. Each essay is read and criticised privately with the writer. Instruction is thus adapted to the needs of the individual student.

The Rhetoric of the junior and senior years is more literary and historical in its nature. It aims at tracing the formation and development of English style, chiefly prose, beginning with the Elizabethan period. The relations between English style and classic and modern continental theories are touched upon. In the senior year some one group of authors (varying from year to year) is read critically, with a view to ascertaining and formulating stylistic characteristics. In both years much collateral reading is required, and in the senior year some original research, to be embodied in theses. These theses are criticised in class and become the property of the department, to be used as the basis of subsequent investigation.

It may be observed that the junior and senior classes, while open to all properly qualified students, are planned with direct reference to such as are aiming at specific literary culture.

### II. PHILOLOGY.

The aim of this course is to train both undergraduate and graduate students in the methods of philological science as applied to English. The English language is studied in its historic evolution, from the

earliest recorded monuments down to and including Chaucer. Stress is laid upon the relations between English and the cognate languages of the continent. Students are expected to pursue the University courses in Gothic and in Old and Middle High German. In the seminary each member is required to follow throughout the year some line of original research and embody the results in a thesis, which becomes the property of the department.

### III. ELOCUTION AND ORATORY.

In the junior year, the first term is devoted to the study of Mandeville's *Elements of Reading and Oratory*, to special work in vocal gymnastics, and to exercises in articulation and enunciation. The second and third terms are devoted to the practical application of the elements of reading and oratory, and to instruction in general delivery.

In the senior year, each student electing the work is required to write orations as the professor may direct. Each oration is read and criticised with the writer, who is then instructed as to its proper delivery. To give the students experience before audiences, there are weekly oratorical exercises, which are open to all students and visitors who may wish to attend.

### IV. ENGLISH LITERATURE.

In the sophomore year a general survey is made of English Prose through Minto's *Manual of Prose Literature*, which is supplemented, in various respects, by the talks of the instructor.

In the junior and senior years lectures are given on English Literature, from the fourteenth to the nineteenth century, inclusive, the principal courses, or groups, being, 1. On Wycliffe; the Vision of William concerning Piers Plowman; Chaucer; and Gower. 2. On Shakespeare. This embraces about forty lectures, which are specially devoted to the dramatic art, the action, and the moral proportion of about fifteen plays, representing the poet's early, middle, and late work. Additional lectures are given on Shakespearian bibliography, and on the language-shaping of the plays as a chronological test. In connection with the latter subject, several lectures are given on the æsthetics of English verse, in which analyses are presented of the most important poetical forms from Chaucer to Tennyson. Corson's *Introduction to the study of Shakespeare* is used as the basis of the work done throughout this course, the appended *Examination Questions* affording subjects which will be assigned, from time to

time, for treatment by the student. This work and Dowden's "Primer" all students are required to have. 3. On Milton's poetical and prose works. 4. On the drama of the Restoration, and on the subsequent drama to Goldsmith and Sheridan. This course includes a special treatment of Dryden, as the central literary figure of the period, and of the "Collier Controversy." 5. On Pope and the principal contemporary poets and prose writers. 6. On the Revival in English Poetry; the Ossian controversy; Bishop Percy's *Reliques of Ancient English Poetry*; Burns; Cowper. 7. Wordsworth's protest against the artificial school of Pope; the *Lyrical Ballads*; the influences of the French Revolution upon the English Literature of the period; the poetry of Wordsworth, Coleridge, Shelley, and Byron, and its relation to the French Revolution. 8. The reaction against the revolutionary spirit, first distinctly indicated in "Poems chiefly Lyrical," by Alfred Tennyson, 1830; the poetry of Tennyson, the Brownings, Rossetti, and Matthew Arnold, and that of their several disciples.

It is made a leading purpose in these lectures to present the literature, in its *essential* character, rather than in its historical, though the latter receives attention, but not such as to set the minds of students especially in that direction. It is considered all important that students should first attain to a sympathetic appreciation of what is *essential* and *intrinsic*, before the adventitious features of literature—features due to time and place—be considered.

Much importance is attached to the vocal interpretation of literature; as students are by this means brought into a more sympathetic appreciation of the subtler elements of poetry and impassioned prose. To this end a course of readings from the great poets and dramatists and prose writers is given, at intervals, during the year. These readings are given in the evening, in the Botanical Lecture Room, Sage College, and are open to all students and others who may wish to avail themselves of them.

*Seminary Work.*—The literary seminary, to which only seniors, in good standing in the regular literary work, and graduate students, are admitted, is confined to prose authors. Certain classical works are assigned by the instructor, as subjects of study, from which each student makes a selection. This he studies carefully, first, in its essential, intrinsic character, and, secondly, in its accidental and historical character, and afterwards embodies the result of his studies in a paper, which is read in the Seminary, and discussed by the several members, each member having been required to read, in advance, the work in question.

## PHILOSOPHY

The study of philosophy begins in the sophomore year, with a prescribed course of two hours a week in psychology and logic, throughout the year. Thereafter the work is altogether elective. In the junior year there is offered a three hour course on ethics; and there will be offered next year a three hour course on the history of philosophy, and a course on post-Kantian German philosophy. For seniors and graduates who have completed these courses, there is a course in the philosophy of Kant, and a course on metaphysics. During the Winter term there will also be given a general course, open to all students, on the philosophy and history of religion. A more detailed characterization of these courses will be found under "Courses of Instruction."

The department is manned by a professor and an instructor. It has a seminary-room (with chairs, tables, and a select collection of books), reserved for the exclusive use of advanced students (seniors and graduates), who are engaged in investigation and writing. The library contains complete sets of the leading American, English, French, and German philosophical periodicals.

## THE SCIENCE AND ART OF TEACHING.

Believing that a need exists for more thoroughly equipped teachers in our higher educational institutions, the University has made provision for supplying this want, both by the establishment of a professorship of the science and art of teaching, and by such additions to some of the chief lines of university study as seem best adapted to fit students to teach them successfully. The lectures of the Professor of Teaching are given in two courses, each of which continues a year:

1. A course of three hours a week on the general theory of education, the art of instruction with its application to various branches, and the organization, management, and administration of schools;
2. A course of two hours a week on the history of education, with a discussion of the views of eminent writers on education. The lectures are supplemented by conferences for the discussion of educational topics, for the special investigation of important educational questions, and for reports on visits to schools; and, to students who have completed either of the courses mentioned above, there is offered a seminary for the examination of some advanced German work on pedagogy.

Arrangements have also been made in several departments of the

University, by special classes and by seminaries, to give extended instruction to those who intend to teach, in the best methods of presenting the branches of study to which these departments are devoted.

Certificates of scholarly fitness to teach, will, upon application on or before June 1, be given to such graduates as have successfully pursued the course of the Professor of Teaching, numbered (1) above, or that portion of it which relates to the general theory of education, together with the course on the history of education, and have besides attained marked proficiency in at least five hours of advanced work for two years, in each subject for which the Teacher's Certificate is given, in such courses as offer five or more hours of such work.

## HISTORY AND POLITICAL SCIENCE.

Instruction in history and political science has three distinct purposes in view. The first is to furnish the general information that is necessary for intelligent citizenship; the second to give such training as will be valuable to students intending to go into the profession of the law, into journalism, into the civil service, or into active political life; and the third to provide for such special and advanced training as will qualify students for higher degrees and for the subsequent teaching of history and political science as a profession. The first of these ends is sought by means of text-books, examinations, and lectures; the second and third by means of lectures, examinations, and the careful investigation of special subjects carried on in the seminaries of history and political science.

In General History the courses (all of one year each), offer facilities for a comprehensive and somewhat careful study of the whole period from the beginning of Greek civilization to the present time. A course of two hours a week is devoted to the social and political history of Greece and Rome. This course can be followed in the sophomore year by a course of three hours a week on European history, from Constantine to the Renaissance, and this in turn in the junior year by one of three hours a week on the period from the Renaissance to the French Revolution. In the senior year students may appropriately take the course of three hours on the period from the French Revolution to the Franco-German War of 1870. English History is represented by two courses, one on the political and social development of England, and one on the development of English constitutional history and constitutional law. In American History are two principal courses: the one, of three hours a week, and extending through two years, devoted to the general history of our country—

social, political, and intellectual—from the earliest colonial settlements down to the end of the war for the union ; the other, of two hours a week, and extending through one year, devoted to the development of American constitutional principles and practice during the colonial, revolutionary, and national periods. Seminaries in general history, as well as in the history of England and of America, are organized for the prosecution of advanced work.

In Political Economy provision is made for the following courses : a general course of three hours a week in the elements of political economy ; an advanced course of two hours on unsettled problems in political economy and finance ; a course of one hour on the history of tariff legislation ; a seminary of two hours for the examination of special problems. After the present year additional courses on the historical development of different economic and financial systems may be expected. Within the wider scope of Political Science, the following are given, viz. : a course of two hours a week on the history of political and municipal institutions ; a course of one hour a week on international law and diplomacy ; a course of one hour a week on the literature of political science, and a course of one hour a week on the leading principles of Roman law. The advanced courses offer special facilities for graduate students of this and of other universities.

No course of study in History and Political Science is laid down ; but the various courses offered in the list of Courses of Instruction are open to election by all candidates for the degrees of Bachelor of Arts, Bachelor of Philosophy, Bachelor of Letters, or Bachelor of Science ; and students in the course in Philosophy who, in the last two years, elect continuously not less than nine hours in history and political science may receive the degree of Bachelor of Philosophy in History and Political Science. Candidates for either of these degrees desiring to make a specialty of historical studies, are advised to elect from the more elementary courses in the sophomore year. In the junior and senior years, as nearly all studies are purely elective, there is ample opportunity for selecting the work that may be desired.

Graduate studies may be carried on with advantage during two years after the baccalaureate degree is taken. The general seminary-room contains some three thousand volumes of works selected with special reference to the needs of advanced students of history and political science, and this room is open to such students from nine o'clock in the morning to the same hour at night. The alcoves of the General Library, which is specially rich in historical literature, are also freely accessible to this class of students, whenever they are carrying on in-

vestigations in special subjects. The White Library of History, containing about thirty thousand volumes and ten thousand pamphlets, though not yet placed in one of the University buildings, is, for the most part, upon the University grounds, and through the carefully prepared catalogue kept in the University Library, is made available to all advanced students.

The number of professors and other teachers devoted to this work, the character and range of the instruction given, as well as the facilities offered by the seminaries and libraries, afford peculiarly favorable opportunities for the prosecution of a thorough and comprehensive course of historical training.

## MATHEMATICS AND ASTRONOMY.

The instruction offered by this department is directed toward three ends : (1) to aid in developing certain powers and habits needed by every true student and good citizen ; namely, of sustained, exact, candid, independent reasoning, even when the subject-matter becomes general or abstract ; of imagination, to grasp as a whole a complex geometric or other concept, or an extended scheme of thought ; of applying theory to practical problems ; and of precision and clearness in stating one's own convictions and the grounds of them ; (2) to present the fundamental relations of space, number and sequence, and the structure of the system of worlds, in which we live ; (3) to meet the special needs of students doing the higher technical and scientific work, and of those intending to be teachers and investigators in mathematics and mathematical physics.

It is hoped that the courses offered give enough in each of the chief branches of pure mathematics, and in some of the applications, to exhibit the fundamental ideas and characteristics of each branch, and to meet its fundamental difficulties ; so that the student's further studies may not require a teacher. This is the more desirable, as the educational uses of these various lines of study differ somewhat in kind ; but it sometimes requires that, to save time, problems collateral to those examined be deferred until the whole shall come to be reviewed, or until later studies, at the University or elsewhere, shall call for them or throw new light upon them.

In presenting the different topics, the endeavor is to cultivate the powers of insight, judgment, and origination, rather than to rely very much upon memory. Attention is given to the criticism and choice of methods, and to the detection of their motives ; and the methods most naturally suggested by general considerations are oftenest preferred.

Students are encouraged to think both with and without the aid of symbolic language ; to give concrete interpretations of important steps as well as of results ; and, on the other hand, to see how far the symbols with their laws of combination can be separated from the particular subject-matters, and to make free use of symbolic methods.

### PURE MATHEMATICS.

The courses prescribed, in whole or in part, for all candidates for baccalaureate degrees comprise a year of solid geometry, algebra, and trigonometry, and a year of analytic geometry and calculus ; making up about the usual college curriculum of pure mathematics. These are supplemented by problems in geometry, algebra, and trigonometry (elective, two hours a week) ; and by the elective advanced work in algebra, including determinants, imaginaries, and theory of equations (two hours), in trigonometry (one hour), in plane and solid analytic geometry (three hours), and in calculus (six hours) ; thus forming a tolerably full course in these subjects, which a good student can complete before commencing his senior year, and which gives a good preparation for most of the courses that follow. Among the books used in the elective work are Burnside and Panton's *Theory of Equations*, Todhunter's and Casey's *Plane Trigonometry*, Salmon's *Conic Sections*, and selections from his *Higher Plane Curves* and *Analytic Geometry of Three Dimensions*, Williamson's *Calculus*, and (for reference) Bertrand's *Calcul*.

Related to the above work from Salmon are two other courses, of three hours each, viz.: (a) a course in synthetic geometry, which gives the theories of transversals, of reciprocal polars, and of projection, thus showing the fundamental distinction between graphic and metric geometry, with the point-and-plane dualism that runs through the former, and training the imagination to see by ordinary perspective the chief properties of all conic sections in those of the circle ; (b) a course in quantics, including the theories of elimination, of canonical forms, and of such relations among functions or values as persist when variables are linearly transformed or the corresponding geometric figures are deformed as by perspective.

Two principal lines of further calculus study are offered, each of them for three hours a week, and sometimes running through two years, viz.: differential equations, and the theory of functions. Perhaps the first of these is specially important as an introduction to the higher physical applications of calculus ; and the second as leading up to some of the largest of modern analytical concepts. The work at

first is based upon the treatises of Forsyth, and of Briot and Bouquet, respectively.

For the sake of the practical applications, there is instruction in finite differences or in spherical harmonics and the potential function, usually in alternate years. The elements of vector analysis, or of non-Euclidean and hyper-geometry, or of probabilities and least squares with sociological applications, including some recent work of Galton, are also usually taught if desired. In either of these subjects, the lectures are two a week.

#### ASTRONOMY AND CELESTIAL MECHANICS.

There is yearly a three-hour course in descriptive and physical astronomy; and in alternate years one in celestial mechanics. The first course considers the phenomena of the heavenly bodies and their probable conditions and histories; the class investigating for themselves various questions bearing upon these points. The second course deals mainly with the figures of the planets, the tides, the elliptic motion and perturbations; the latter being treated geometrically as well as by the usual analytic method. Neither course takes up practical astronomy, which is taught by the college of civil engineering.

#### MATHEMATICAL PHYSICS.

The work in mathematical physics is arranged as a continuous course, occupying at least two years; but it may be taken either in whole or part, and some of the subjects may be simultaneous. It includes: (1) preliminary work in statics, in the theory of strains and stresses, and in general dynamical principles, with special reference to the motion of a vibrating system; (2) applications to the mathematical theory of sound and of light; (3) a course in molecular dynamics based on Sir William Thomson's Baltimore lectures, given by one who reported them, and, with the lecturer, prepared them for the press; (4) a course in the mathematical theory of electricity and magnetism based on Maxwell's text-book.

#### SEMINARY WORK, ESSAYS, FACILITIES.

An inquiry into the powers employed and the objects to be sought in the study of mathematics, and into the best ways of securing those objects in teaching, is conducted by lectures and discussions in a weekly seminary.

Besides the theses for graduation, provision is made for the writing and criticism of mathematical essays, in order to cultivate a neat and

clear style of mathematical writing, and, as far as may be, to stimulate originality.

In preparing essays and theses, students are encouraged to follow up special inquiries by aid of the University Library, which now contains some five thousand volumes on mathematics and the allied sciences, including many of the most important mathematical journals, and transactions of many scientific societies. Informal weekly meetings are held for the purpose of discussing the chief articles of interest in such periodicals, in order to keep abreast, as far as possible, with the current mathematical literature. A collection of models is also begun, which will be very useful in the study of surfaces, of functions, and of hyper-geometry.

## PHYSICS.

### LECTURE COURSES IN ELEMENTARY PHYSICS.

The instruction in the elements of Physics is by means of lectures given twice a week throughout the year. In these lectures the general laws of mechanics and heat, electricity and magnetism, and acoustics and optics, are presented. The very large collection of lecture-room apparatus possessed by the department, makes it possible to give experimental demonstrations of all important phenomena. The course of lectures is supplemented by weekly recitations, for which purpose the class is divided into sections of about twenty members each.

Two courses are given, one of which is intended for students in Science and Letters; the other for students in the various technical courses. The ground covered in these courses is essentially the same, but the methods of treatment differ, being adapted in each case to the needs and previous training of the class of students for which the course is designed. The successful completion of the freshman mathematics is in all cases a prerequisite for admission to these courses.

### COURSES OF LABORATORY INSTRUCTION.

The first year of laboratory work is devoted to the experimental verification of physical formulæ, to practice in the use of instruments of precision and to the attainment of some knowledge of the simpler methods of physical manipulation.

In Mechanics, the student is taught the proper use of the microscope and of various forms of the micrometer, cathetometer, dividing engine, comparator, analytical balance, and chronograph; and of

other instruments for the measurement of length, mass, and time. In Heat the course includes methods of testing thermometers, the use of the calorimeter and thermopile, and practice determinations, by various methods, of melting and boiling points, of specific heat and the heat of fusion and vaporization. In Optics the elementary laboratory instruction embraces the use of the spectroscope and spectrometer, the determination of wave-lengths, the measurement of lenses and prisms, and of indices of refraction; together with a variety of other experiments calculated to familiarize the student with the fundamental principles of the subject. In Electricity the work consists of the adjustment and calibration of galvanometers, of the verification of the principles upon which the measurements of current, electromotive force and resistance are based, the use of the electrometer, and the performance of such other experiments as offer the best preparation for advanced work in electricity. In Magnetism practice determinations are made of the magnetic dip and of the horizontal intensity and variations in the direction and intensity of the earth's magnetism; and the student makes a preliminary study of the methods of measuring the magnetic field.

Advanced students make a more extended study of various physical constants. They learn the use of standard instruments, make electrical and magnetic determinations in absolute measure, test the efficiency and determine the characteristics of dynamo machines. The opportunities afforded for advanced work in electricity are unusual.

Every encouragement is offered to advanced students for the carrying on of original investigations, and every opportunity is taken to stimulate a spirit of scientific inquiry. Courses of reading are suggested to such students, in connection with their experimental work; and they are brought together informally at frequent intervals for the discussion of topics of scientific interest. It is the aim of the department to furnish every possible facility for research in physics on the part of students qualified to do original work.

## CHEMISTRY.

### I. INORGANIC CHEMISTRY.

The elements of general chemistry are taught by a course of lectures, accompanied by recitations from the text-book, designed to give an outline of the principles of the science, and to make the student familiar with the most important compounds of the common elements. In the recitations, a large part of the time is given to the writing of

reactions and the working of chemical problems. In addition to this course, students who propose to pursue subsequently the study of analytical chemistry are required to perform in the laboratory an extended series of simple experiments, illustrating the principles discussed in the lectures; they are thus brought into close contact with the phenomena to be studied, and the impression produced is greatly deepened.

In the following year, a course of lectures on advanced inorganic chemistry is given, which is open to all students who have successfully completed the elementary course. In these lectures the subject is treated on the basis of the periodic law, and by more extended study and comparison of typical compounds, and full experimental illustration, the relation between the different groups of elements is brought out more clearly than is possible in the first year.

## II. ORGANIC CHEMISTRY.

The general subject of organic chemistry is taught by a course of lectures, recitations, and laboratory practice, extending through one year. The theoretical basis of the study is made as thorough as possible, while the full illustration of the lectures by specimens, and constant laboratory practice in the preparation and purification of typical compounds, prevent the study from becoming an abstract exercise of memory. On the completion of the first year, the subject of organic chemistry is continued by a course of lectures on special branches of the subject, and further laboratory practice in the preparation of specimens for the museum, and in following out reactions of particular interest, in the course of which constant reference is made to original papers published in the leading French and German periodicals. As soon as the necessary proficiency in manipulation and theoretical knowledge is attained, the student is given every encouragement to devote himself to original investigation, for which organic chemistry offers an especially promising field.

## III. THEORETICAL CHEMISTRY.

The theoretical chemistry, which is naturally given to some extent in connection with the instruction in inorganic and organic chemistry, as above described, is supplemented by a course of lectures with correlative reading in chemical philosophy, including the history of chemical theory and physical chemistry. To the more advanced students, especially such as wish to make teaching their profession, the opportunity will be given for laboratory work on some of the lines

that have been followed in recent times in the establishment of chemical principles.

#### IV. ANALYTICAL CHEMISTRY.

*Elementary Qualitative Analysis.*—The course in elementary qualitative analysis occupies about one and a half terms of seven hours a week of actual practice, the work in the laboratory being supplemented by lectures and recitations. It is the purpose of this class-room work—of which practice in writing chemical equations explanatory of the operations and reactions of the actual analytical work forms an important feature—to give the student some acquaintance with the chemical principles upon which that work is based, so that he may carry it out more intelligently and successfully than if he only mechanically followed the directions in the text-book.

This course being completed, those who intend to make a special study of chemistry are required to take a supplementary qualitative course, for the purpose of making their knowledge of the subject more complete, before passing on to more advanced work in the quantitative laboratory.

*Elementary Quantitative Analysis.*—This course extends for all students through at least one and a half terms of ten hours of actual practice, and comprises a small number of simple gravimetric and volumetric determinations, together with some required study of the chemistry of the operations involved. Beyond this the work of each student is adapted to the particular purpose for which it is taken, as follows:

*In Agricultural Chemistry.*—Practice in the analysis of fertilizers and feeding materials, of foods, of dairy products, and of waters used for the household.

*In Engineering Chemistry.*—The student in the course of Mechanical Engineering may, if he can give more time to chemical practice than is prescribed for his course, work on the analysis of iron and steel, and of other materials used in the mechanic arts.

*In Medical Chemistry.*—For students in the Medical Preparatory course practice in the analysis of urine, milk, and drinking water, in the separation of mineral and vegetable poisons from animal matter, and their identification, and the assay of medicinal preparations.

*In Pharmaceutical Chemistry.*—For students in the School of Pharmacy practice in all kinds of analysis mentioned in the preceding course, and also in the assay of the crude materials used in the manufacture of drugs and medicinal preparations.

*In Sanitary Chemistry.*—For the student of sanitary science prac-

tice in the examination of drinking water, of air (in connection with the study of the ventilation of rooms), of illuminating oils, and the detection of injurious adulterations of foods and beverages, or the injurious qualities of other articles in common use.

*The Full Course in Quantitative Analysis in the Wet Way.*—The student in the course in Chemistry, besides taking all work above mentioned, is drilled also in the methods of analysis of ores, the useful metals in their commercial condition—especially iron and steel—of alloys, and of gaseous mixtures; in the use of the polariscope and spectroscope, so far as they can be profitably applied in chemical analysis, the analysis of technical products, the examination of articles of food and drink for adulterations of commercial as well as sanitary significance, etc.

To these students lectures are given on the recent literature of chemical analysis; and readings are held in German chemical journals, for the purpose of giving such a familiarity with technical German that the abundant and important literature of the subject in that language can be consulted with facility.

*Assaying.*—A short course in assaying is offered, open only to students who have studied quantitative analysis, in which practice is given in the sampling and assay of ores of lead, silver and gold, and in the assay of gold and silver bullion. A special laboratory, occupying part of the Chemical Annex, is reserved for this work, and is fully equipped with all necessary furnaces and tools.

#### V. APPLIED CHEMISTRY.

This subject is taught by a course of lectures, continuing throughout the year, on the principles of chemical manufacture and the important chemical industries. The course is supplemented and continued by special work in the analytical and organic laboratories, by which the student is trained in the special determinations and operations of the particular industry to which he may in end to devote himself.

#### VI. METALLURGY.

During the winter term of the junior year three lectures a week are devoted to metallurgy. These lectures are intended to give the students in the technical courses a general idea of fuels, ores and the most important methods of extracting the metals which are especially used in construction, the metallurgy of iron naturally claiming the most attention.

For description of the chemical laboratories, museum, and equipment, see "Material Equipment."

## NATURAL HISTORY.

This title embraces Botany (including horticulture and arboriculture) ; Geology (including paleontology and mineralogy) ; Invertebrate Zoology (including entomology) ; Vertebrate Zoology (including physiology and hygiene, human and comparative anatomy, histology and embryology). Veterinary Science is presented under Agriculture.

Collectively, the branches named above form a large part of the four-year course, leading to the degree of Bachelor of Science in Natural History, which is specially adapted to those who intend to become teachers or investigators of natural history, or to pursue the study of medicine.

The University lays special stress on the desirability of thorough studies in natural history as a preliminary to the study of medicine. Accordingly, a special course known as "The Two-Year Course Preparatory to the Study of Medicine" is provided for those who desire such preparatory work, but for some reason are unable to take the full course of four years.

Nearly all the branches in natural history are required in the course in Agriculture. In all the general courses physiology is a prerequisite to psychology ; course 1 in botany is required in the courses leading to the degrees of Bachelor of Science and Civil Engineer. In the courses in Architecture and Civil Engineering, geology and mineralogy are also required.

The instruction in the branches named above is either general (*e. g.*, courses 1 in botany, physiology, and invertebrate zoology, and 2 in geology), or special (*e. g.*, course 9 in botany, fungi ; course 4 in geology, historical paleontology ; course 3 in entomology ; and course 3 in vertebrate zoology, the morphology of the brain). The special courses consist largely, or in some cases wholly, of laboratory practice. The general courses are abundantly illustrated by specimens, diagrams and experiments, and include practical exercises of the class in sections. The natural history instruction, as a whole, is therefore eminently direct, objective, and practical.

## I. BOTANY.

In this department are offered eleven different courses, some of them, however, in alternate years. The general and introductory course (1), and the introductory laboratory course (2), are required as preparatory to all the other courses. These latter present the following subjects : systematic and economic botany ; arboriculture ; exotics ; plant phys-

iology ; histology of plants ; higher cryptogams ; fungi ; special advanced work on phænogams and cryptogams.

The herbarium, the collections, the spacious green-houses and the very rich flora native to the region about Ithaca should be mentioned as an important part of the means for successfully carrying on botanical studies. These are more fully described in connection with the botanical museum and laboratory.

## II. GEOLOGY.

The instruction in geology is arranged so that students wishing to make a thorough study of the subject may take the courses 1, 2, 3, or 1, 2, 4, in order, according as they make a special study of the mineralogical or the biological aspects of the subject. These courses occupy the first year. A second year of advanced study is afforded in courses 5, 6, 7, and 10. Course 1, occupying three hours in the fall term, comprises two hours weekly devoted to the study and determination of about 120 species of commoner minerals, of rocks, and one hour weekly of blowpipe practice and determinations, the latter being, so far as is possible, parallel with the former. Course 2, of three hours in the winter term, treats of dynamical and historical geology, and leads naturally either to course 4, which discusses the development of forms of life, or to course 3, which deals with the material resources of the country, and prepares for the subsequent study of metallurgy. Courses 1, 2, and 3 are required of students in Civil Engineering, and courses 8 and 9 of students in Architecture.

The advanced courses, 5, 6, 7, and 10, afford opportunities for those having had the first year, or its equivalent, to pursue advanced work, leading to original investigations. On the biological side the department is equipped with complete and carefully arranged study collections, and the large collection in the museum, to which access may be had. On the mineralogical side the work includes study in the advanced study collection of minerals, in measuring and drawing crystals, and work in the microscopic study of thin sections of the massive and metamorphic rocks. The Silliman collection of minerals is made accessible in an adjoining room.

Courses 8 and 9, for students of Architecture, comprise the study and determination of the minerals prominent in rocks ; of the rocks themselves ; of the geological structure of the United States, and the distribution and character of its building materials.

## III. INVERTEBRATE ZOOLOGY AND ENTOMOLOGY.

The general course in invertebrate zoology, in the fall term, consists of two lectures a week and one practical exercise, at which specimens

and preparations of representative forms are examined by the students, with the aid of compound microscopes when necessary. A more special course in entomology occurs in the spring. During both of these terms there is laboratory practice in entomology and invertebrate zoology.

An important feature of this department is the "Summer Course in Entomology and General Invertebrate Zoology," consisting of lectures, field work and laboratory practice, at the season of the year most favorable for the study of insect life. Particular attention is paid to the habits of insects and their relations to agriculture; and there are large series illustrating the life histories of interesting and economically important forms, in addition to the collections elsewhere described.

#### IV. VERTEBRATE ZOOLOGY.

Under this department are offered two general and six special courses. The former are: 1. Physiology, illustrated by painless experiments upon animals, and giving special reference to the structure and functions of the brain. 2. Zoology. In courses 1 and 2 one third of the exercises are practical, the students examining under direction the viscera and the brain of the cat, the heart of the sheep, microscopic preparations of the various tissues, and alcoholic examples of representative vertebrates.

Courses 4 and 5 consist of weekly lectures on anatomical and histological methods with corresponding laboratory work. In courses 6 and 3 are set forth the elements and methods of embryology and the morphology of the brain, with appropriate laboratory work. Courses 7 and 8 consist of advanced work in human or comparative anatomy or systematic zoology of vertebrates, and vertebrate histology.

In the lectures constant use is made of diagrams and models, and of specimens from the museum, which has been formed and arranged with particular reference to its educational purpose.

### THE COLLEGE OF AGRICULTURE.

The distinctive work of the College of Agriculture embraces instruction in General Chemistry, in Agricultural Chemistry, in Botany, in Horticulture, in Zoology, in Entomology, in Veterinary Science, and in the various branches of Theoretical and Practical Agriculture.

All students are required to work five hours each week for one year, under the direct supervision of the Professor of Agriculture, in the farm workshop, in the barns, or in the fields. Nearly as much time is spent

in the fields and barns under the Professors of Veterinary Science, Botany, Horticulture, Geology, and Entomology. Students receive no pay for this or any other educational work. The field-work supplements the lectures and recitations in such a way that the application and value of the principles taught may be thoroughly understood and remembered by the student. Students in agriculture are divided into two classes: those who desire a complete course of four years, and are candidates for a degree; and those who desire to take a special course, embracing instruction in such studies only as have a direct bearing on practical agriculture.

### THE COMPLETE COURSE.

Students in the four-year course are presumed at the time of their admission to be fairly familiar with all of the rudimentary operations of the farm. If they are not they can acquire this knowledge and practice either at the University farm, or under the eye of some good farmer, during their first summer vacation.

Visits are made from time to time to the best farms and herds in New York and Canada, in order that the students may have opportunities for a wide range of study and comparison, and may come into direct contact and relations with the best class of farmers. These visits give the students the best of opportunities for studying the results of science and practice combined.

### SPECIAL COURSE.

There is a large number of farmers' sons who would be willing to spend one or two years at the University pursuing studies in applied agriculture, of whom the four-year course demands too much in the way of preparation, as well as of time and expense. To accommodate this class a special course has been provided, the only requirements of which are that students must possess a fair knowledge of English, and must select at least three-fourths of their studies in subjects pertaining to agriculture, as elsewhere prescribed. The student is able, even in one year, to attend the courses of lectures given by the Professors of Agriculture, Dairy Husbandry, Veterinary Science, Agricultural Chemistry, Botany, Entomology, and Horticulture; and he may thus gain a systematic and practical knowledge of those branches that will be of most service to him. Special students, during the time they are in the University, enjoy equal advantages in all respects with students who are studying for a degree.

## ARCHITECTURE.

The instruction is given by means of lectures and practical exercises. Its object is not only to develop the artistic powers of the student, but to lay that foundation of knowledge without which there can be no true art. Drawing is taught during three years, and thoroughly used in mechanics, stereotomy, and designing. Students in Architecture take two terms of mechanics, one of stereotomy, one of structural details, and three of descriptive geometry, with the classes in the course in Civil Engineering.

The study of the history of architecture and the development of the various styles runs through five terms. The lectures are illustrated by photographs, drawings, engravings, casts, and models. A lantern for the purpose of throwing pictures upon a screen before the class is in constant readiness for the use of the lecturer, and the windows are fitted with shades by which the room can be completely darkened in a moment.

Proper attention is paid to acoustics, ventilation, heating, plumbing, decoration, contracts, specifications, and professional practice.

The whole ground of education in Architecture,—practical, scientific, historical, and aesthetic,—is covered as completely as is practicable in a four years course.

For collections and equipments see "Material Equipments."

A pamphlet giving details in full of the entire course may be had on application to the Registrar.

## THE COLLEGE OF CIVIL ENGINEERING.

The several courses of preparatory and professional studies have been planned with a view to laying a substantial foundation for the general and technical knowledge needed by practitioners in civil engineering; so that our graduates, guided by their theoretical education and as much of engineering practice as can be taught in schools, may develop into useful investigators and constructors.

The aim of this college is mainly to make its students cultured and well-balanced professional men, trained to meet the actual demands of American engineering science and practice, without losing sight of the necessity of fostering professional progress.

The prominent characteristic of the organization of this department is the care exercised in the choice of its officers of instruction. The advanced mathematics, which have a prominent place in all the courses; the graphics, "office details" and field work; economics of

engineering, and investigations in the library and laboratories of the college are, with only one exception, in charge of a body of instructors who are specialists in their respective branches, and who join to a long training as teachers the professional experience derived from active service, not as subordinates, merely, but as designers, and contractors of important works; they are thus competent to judge of the needs and best methods for promoting the usefulness of the college. It is the duty of these officers to study closely, and to contribute to the advancement of their several specialties; and through their acquaintance with the engineering problems of the day and consultation with the Director of the College, to secure a proper balance between the various elements which enter into the technical education of the civil engineer. As the result of this system of administration, and of the success met in years past by heeding the growing tendency to specialize, within the means at our disposal at present, it has been necessary to add to the fundamental instruction of a general undergraduate school, five additional special schools for graduates desiring advanced study in the separate branches of their profession. These schools are constantly growing in strength and attracting a steadily increasing number of resident graduates. Under certain restrictions, as to the number of students, admission to these schools is open to civil engineers of this or other institutions having undergraduate courses similar to our own. Advanced and special studies are offered in the following schools: Bridge Engineering, Railroad Engineering, Sanitary and Municipal Engineering, Hydraulic Engineering, and Geodetic Engineering. The object of these schools is to provide the young graduate with the means of prosecuting advanced investigations after such experience in professional life as may lead him to decide in the choice of a specialty. Lectures in the museum and laboratories are given to these students for the purpose of directing and aiding their original researches. All graduate work may alternate with a limited number of elective studies in other professional schools, or in history, literature and general science; but the choice of electives implies suitable preparation for their prosecution, and must, besides, meet with the approval of the Director of the College.

The work of the students in the undergraduate school is based upon an extended course on the mechanics, and the graphics and economics of engineering. There are no elective studies in this school. The object aimed at is to give as thorough a preparation as possible for the general purposes of the profession in the following subjects: the survey, location, and construction of railroads, canals and water works; the construction of foundations in water and on land, and of super-

structures and tunnels ; the survey, improvements, and defenses of coasts, rivers, harbors, and lakes ; the astronomical determination of geographical co-ordinates for geodetic and other purposes ; the applications of mechanics, graphical statics, and descriptive geometry to the construction of the various kinds of right and oblique arches, bridges, roofs, trusses, suspension and cantilever bridges ; the drainage of districts, sewerage of towns, and the reclaiming of lands ; the design, construction, application and tests of wind and hydraulic motors ; air, electrical, and heat engines, and pneumatic works ; the preparation of plans and specifications, and the proper inspection, selection, and tests of the materials used in construction. A course of lectures is given in engineering and mining economy, finance and jurisprudence. The latter subject deals in an elementary manner only with the questions of easements and servitudes, and the ordinary principles of the laws of contracts and riparian rights.

The facilities for instruction and for advanced investigations are believed to be thorough and efficient. Laboratory work is required of the students, in chemistry, mineralogy, geology, physics, and civil engineering ; for which purpose all the libraries, collections, and laboratories of the University are open to the students of this college.

A detailed statement of the studies of the schools of this college, and the time devoted to each subject, will be found under the head of "Courses of Study in Civil Engineering."

The material equipment of this college is already very large, as may be seen, somewhat in detail, elsewhere in the Register. The value of this equipment is constantly enhanced by means of an adequate yearly appropriation, which, owing to the liberal policy of the governing body, has kept pace with the growth of the large resources of the University.

For a description of the special museums and laboratories see "Material Equipment."

For additional information upon this subject, address "The Director of the College of Civil Engineering."

## THE SIBLEY COLLEGE OF MECHANICAL ENGINEERING AND THE MECHANIC ARTS.

This college was founded and endowed by the liberal gifts of the late Hon. Hiram Sibley, of Rochester, who, in the year 1870, gave about thirty thousand dollars for the erection of a suitable building for the department of mechanic arts. He also gave ten thousand dollars for increasing its equipment of tools, machines, etc., and afterward made

a further gift of fifty thousand dollars for the endowment of the Sibley professorship of practical mechanics and machine construction. During the years 1883 to 1887 he gave about one hundred thousand dollars for the purchase of models, the extension of the Sibley College buildings, and the building and equipping of a complete set of work-shops. The total amount presented to Cornell University is nearly two hundred thousand dollars.

SIBLEY COLLEGE is the School of Mechanical Engineering and of the Mechanic Arts, of Cornell University. It includes four principal University departments: that of Mechanical Engineering, including a laboratory, in which experimental work and investigations are conducted; a department of Electrical Engineering; a department of Mechanic Arts, or shopwork; and a department of Drawing and Machine Design. The first named is presided over by the Director, who is also the Professor of Mechanical Engineering.

#### REGULAR COURSES.

Sibley College is intended by the Trustees of the University to be made a college of mechanical engineering, in which schools of the mechanic arts and of the various branches of mechanical engineering shall be developed, as rapidly and extensively as the means placed at the disposal of the Trustees of the University, and a demand for advanced and complete courses of instruction, shall allow. These courses are purely professional and it is advised that every student secure, not only thorough preparation as prescribed, but the most complete general education possible, before studying for his profession.

Elective work can be taken to a limited extent in undergraduate courses and to any desired extent in graduate work.

#### I. DEPARTMENT OF MECHANICAL ENGINEERING.

The department of mechanical engineering is divided into two principal sections: that of theoretical engineering and that of experimental engineering, or the mechanical laboratory.

Students are allowed in their senior year, to begin to specialize somewhat, taking work in steam, in marine, or in electrical engineering, for example, with specialists.

(1) *Section of Theoretical Engineering*:—The lecture-room course of instruction consists of the study, by text-book or lecture, of the materials used in mechanical engineering; the valuable qualities of these materials being exhibited in the mechanical laboratory by the use of the various kinds of testing machines. The theory of strength

of materials is here applied, and the effects of modifying conditions—such as variation of temperature, frequency and period of strain, method of application of stress—are illustrated. This course of study is followed by instruction in the science of pure mechanism or kinematics, which traces motions of connected parts, without reference to the causes of such motion, or to the work done, or the energy transmitted. This study is conducted largely in the drawing-rooms, where the successive positions of moving parts can be laid down on paper. It is illustrated, in some directions, by the set of kinematic models known as the Reuleaux models, a complete collection of which is found in the museums of Sibley College.

The study of machine design succeeds that of pure mechanism, just described. This study also is largely conducted in the drawing-rooms and is directed by an instructor familiar, practically as well as theoretically, with the designing and proportioning of machinery.

The closing work of the course consists of the study, by text-book and lecture, of the theory of the steam engine and other motors. The last term of the regular four-year course is devoted largely to the preparation of a graduating thesis, in which the student is expected to exhibit something of the working power and the knowledge gained during his course. A *graduating piece* is demanded, also, of each student, both in the drawing-room and the workshop, which shall show proficiency in those departments.

(2) *Section of Experimental Engineering, or Mechanical Laboratory Instruction*:—The work in this department will be conducted by an instructor familiar with its apparatus and with the best methods of work, and who will plan a systematic course of instruction intended not only to give the student skill in the use of apparatus of exact measurement, but to teach him also the best methods of research, and to give him a good idea of the most effective methods of planning and of prosecuting investigations, with a view to securing fruitfulness of result with minimum expenditure of time and money.

## II. DEPARTMENT OF ELECTRICAL ENGINEERING.

The student at the end of the third year may, if he choose, substitute the special work in electrical engineering for the prescribed work of the regular course. Thus, it will be seen, the two courses are identical during the first three years, comprising drawing, mathematics, mechanics, mechanism, machine design, the elementary study of physics, and preliminary practice in the use of tools and of electrical and other physical instruments. The special engineering work of the

fourth year comprises the study, under the direction of the Professor of Electrical Engineering, of station design and construction, of the prime-movers, the design and construction of electrical machinery, the study of the problems involved in the distribution of the electric light and the electrical transmission of power, besides practice in every variety of measurement, computation and testing, as applied to the construction and maintenance of electric lighting and power plants and telephone and telegraph lines and cables, and to the purposes of investigation ; while a large amount of work in the laboratories of the department of physics is given with special reference to the needs of the practical electrician.

All the extraordinary resources of the University and of Sibley College are available for the purposes of this department ; and the active coöperation of the Department of Physics, with its great collections and extensive laboratories, gives unexampled facilities for the study of every related branch of physics.

Graduates in the course of Electrical Engineering are given a degree as in other regular courses, and a statement that the student has paid special attention to electrical work is introduced into his diploma.

Electricians unfamiliar with engineering may secure special work.

### III. DEPARTMENT OF MECHANIC ARTS.

The aim of the instruction in this, the department of practical mechanics and machine construction, is to make the student, as far as time will permit, acquainted with the most approved methods of construction of machinery.

(1) *Section of Woodworking and Pattern-making* :—This course begins with a series of exercises in woodworking, each of which is intended to give the student familiarity with a certain application of a certain tool ; and the course of exercises, as a whole, is expected to enable the industrious student easily and exactly to perform any ordinary operation familiar to the carpenter, the joiner, and the pattern-maker. Time permitting, these prescribed exercises are followed by practice in making members of structures, joints, small complete structures, patterns, their core-boxes, and other constructions in wood. Particular attention will be paid to the details of pattern-making.

(2) *Section of Forging, Moulding and Foundrywork* :—These courses are expected not only to give the student a knowledge of the methods of the blacksmith and the moulder, but to give him that manual skill in the handling of tools which will permit him to enter the machine shop, and there quickly to acquire familiarity and skill

in the manipulation of the metals, and in the management of both hand and machine tools.

(3) *Section of Ironworking*:—The instruction in the machine shop, as in the foundry and the forge, is intended to be carried on in substantially the same manner as in the woodworking course, beginning by a series of graded exercises, which will give the student familiarity with the tools of the craft and with the operations for the performance of which they are particularly designed, and concluding by practice in the construction of parts of machinery, and, time permitting, in the building of complete machines which may have a market value.

#### IV. DEPARTMENT OF INDUSTRIAL DRAWING AND ART.

(1) *Section of Freehand Drawing and Art*.—Instruction in this department begins with freehand drawing, which is taught by means of lectures and general exercises from the blackboard, from flat copies, and from models. The work embraces a thorough training of the hand and eye in outline drawing, elementary perspective, model and object drawing, drawing from casts, and sketching from nature.

The course in freehand drawing may be followed by instruction in decoration, in every industrial art, in designing for textiles and ceramics, in modelling, and in other advanced studies introductory to the study of fine art.

(2) *Section of Mechanical Drawing*.—The course begins with freehand drawing, and in the latter part of this work considerable time is expected to be given to the sketching of parts of machines and of trains of mechanism, and, later, of working machines. The use of drawing instruments is next taught, and, after the student has acquired some knowledge of descriptive geometry and the allied branches, the methods of work in the drawing-rooms of workshops and manufacturing establishments are learned. Line-drawing, tracing and "blue printing," the conventional colors, geometrical construction, projections, and other important details of the draughtsman's work, are practised until the student has acquired proficiency.

The advanced instruction given the upper classes includes the tracing of curves and cams, the study of kinematics on the drawing-boards, tracing the motions of detail-mechanism, and the kinematic relations of connected parts. This part of the work is accompanied by lecture-room instruction and the study of the text-book, the instructors in the drawing-rooms being assisted by the lecture-room instructor, who is a specialist in this branch. The concluding part of the course embraces a similar method of teaching machine-design, the lecture-room and drawing-room work being correlated in the

same manner as in kinematics or mechanism. The course concludes, when time allows, by the designing of complete machines, as the steam engine or other motor, or some important special type of machine. Students often make original designs, and not infrequently put on paper their own inventions.

#### INDUSTRIAL ART.

A four-year course of instruction in industrial art is arranged for students having a talent for such work, and desiring to devote their whole time to this subject. No degree is conferred, but a certificate of proficiency may be given at the end of the course. This course is given additional interest by occasional general and public lectures on the history of art and the work of great artists.

*"Special" or Artisan Course.*—All special students are expected to follow as closely as possible a course of instruction in the Mechanic Arts planned with reference to the needs of such students, and of young men, not candidates for a degree.

The Mechanic Arts courses, or Artisan courses, do not lead to a degree. They are intended for students who are unable to pursue a complete course of preparatory and college work, including higher applied mathematics and the languages, such as is exacted of the candidate for the degree of Mechanical Engineer, but who may be able to undertake the work laid out for those intending to prepare themselves especially for superintendents of shops and establishments, and who are not likely to be called upon to do the work of the mechanical engineer, in designing, etc., demanding a good knowledge of those subjects prescribed in the engineering courses as essential to such higher work. These courses consist mainly of shopwork, drawing, and elementary mathematics; but students sufficiently well prepared may also take other useful studies if found prepared to do so.

#### GRADUATE COURSES.

The following are all purely professional courses. Special attention is also called to the elective courses of lectures, and of instruction, in the University, in its various departments and its several schools, as those in advanced mathematics, in the sciences, the languages, in political economy and history, and in patent law.

*Electrical Engineering.*—A graduate course is arranged for students in mechanical engineering who desire further instruction in electrical engineering, and for graduates in the course in electrical engineering.

*Marine Engineering.*—At the request of the University, an officer of the engineer corps of the United States Navy has been detailed for the purpose of giving instruction in Mechanical and Marine Engineering. Special work in this subject may therefore be taken by such students as desire it. This instruction should form a graduate or fifth-year course, after the student shall have completed the regular course in Mechanical Engineering or obtained its equivalent elsewhere.

*Chemical Engineering.*—In all the great chemical industries the success of the business depends chiefly upon the correct arrangement of the mechanical details of the plant, and the skillful design and proportioning of machinery. The chemical reactions involved are generally simple. Our leading manufacturers very generally owe their success to their early training in engineering, quite as much, at least, as to their knowledge of chemistry. The Director of Sibley College and the Professor of Applied Chemistry are at all times ready to give such advice and assistance as may be asked by students who may be desirous of entering upon this course of study.

*Mining Engineering.*—Although mining engineering courses have not been formally established, instruction required by the mining engineer is now given, as follows: the professor of civil engineering and his associates lecture on such constructions as are common to the professions of civil and mining engineering; the professor of mechanical engineering and his associates offer instruction relating to machinery; the professors of chemistry give instruction in metallurgy, chemical analysis, and cognate subjects; the professors of geology give instruction in the theory and classification of ores and in those branches relating to chemical geology.

*Steam Engineering.*—By an Act of Congress, an officer of the U. S. N. Engineer Corps is authorized to be detailed to give special instruction in steam engineering for advanced students and educated practicing engineers. The course is an extension of the work of the senior year and includes the study of the design and construction of steam engines and boilers and their accessory apparatus, the theory and the practice of engineering as applied to this class of motors.

*Railroad Machinery.*—This department is intended to prepare the same class of students for special work in railroad shops, and especially in the division of the organization of railways placed in charge of superintendents of motive power, and of master mechanics.

*Non-resident Lecturers, etc.*—Supplementing the regular course of instruction, lectures are delivered from time to time by the most distinguished men and the great specialists of the profession. Annual

“Inspection Tours” are made to the great cities and manufacturing establishments during the spring vacation.

The recent enlargement of Sibley College renders it possible to make the number admitted into the freshman class, as candidates for degrees, about one hundred; while twenty-five or more may be admitted into the upper classes and the advanced courses of post-graduate instruction. Should more apply, preference will be given to those best prepared. Students unable to register in courses leading to a degree, may enter any other courses, as Mechanic Arts, above, for which they may have sufficient preparation.

Persons desiring more information in regard to any subject connected with Sibley College, should address **THE DIRECTOR OF SIBLEY COLLEGE.**

## OPPORTUNITIES FOR GRADUATE STUDIES.

An inspection of the ensuing courses will show that the amount of instruction offered is greatly in excess of the amount which any person can avail himself of while an undergraduate student. Though all of the courses are open to undergraduates who have prepared themselves by taking the necessary preliminary electives, a large number of courses are especially adapted to the wants of graduate students. No sharp line of demarcation, therefore, separates the two classes. Graduates and advanced undergraduates are taught together; but in all cases the necessary prerequisite work must have been taken. In nearly or quite every branch of study, the advanced courses of lectures and the seminars and laboratories afford abundant opportunities for carrying on profitable work of a high grade during two or three years after the baccalaureate degree has been taken. The facilities thus afforded commend themselves especially to graduates of those colleges which do not offer a large range of electives during the undergraduate course. Students are admitted to graduate study after having taken a baccalaureate degree in this University, or on presenting a diploma giving evidence that a degree fully equivalent has been taken elsewhere. Courses appropriate for graduate students and leading to advanced degrees are provided in the following departments: Ancient Classical Languages and Literatures, Modern European Languages and Literatures, English Literature, Comparative Philology, History and Political Science, Philosophy, Mathematics, Chemistry and Physics, Natural History, The Science and Art of Teaching, Civil Engineering, Mechanical Engineering, Architecture, and Agriculture.

The graduate courses in Civil and Mechanical Engineering are fully described elsewhere in the Register.

In the list of Courses of Instruction courses will be found designated as specially adapted to the wants of graduate students.

Among the special advantages offered to graduate students in this University may be mentioned the following :

1. The greater part of such work is carried on in laboratories and seminaries, in which the student, with the aid and under the intimate personal guidance and direction of the professor, is encouraged in the prosecution of original investigation of an advanced nature. In all the graduate work the aim is to surround the student with an atmosphere of earnest devotion to the cause of the advancement of knowledge and to excite a true scholarly spirit.

2. Graduate students who are not candidates for a degree, as well as those who are, are required to work under the general direction of a committee of the Faculty, appointed for the special purpose of supervising and directing their work. All graduate students are at liberty to attend any of the exercises of the University ; but under the guidance of the appropriate committee every such student must take an amount of work not less than the minimum required of undergraduates during the senior year.

3. Graduate students have access to the alcoves of the library, as well as to the special collections in the seminary-rooms, and thus have exceptional opportunities for prosecuting advanced work.

4. Eight Fellowships, with stipends of four hundred dollars each, are annually given to such graduate students as may be selected by the Faculty for the superiority of their scholarship.

5. Tuition is free to such graduate students as, having been duly admitted by the proper authorities as candidates for a second degree, are regularly pursuing the courses of study leading to such degree in accordance with the requirements prescribed by the Faculty. The only payments required of such students by the University are those for materials actually consumed in the laboratories.

# COURSES OF INSTRUCTION.

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[Unless otherwise indicated each course runs through the year. Courses enclosed in brackets will not be given in 1890-91, but may be expected in 1891-92.]

## COMPARATIVE PHILOLOGY.

### 1. General Introduction to the Science of Language.

The chief principles of the life and growth of language; outlines of the science of phonetics; history of the science of comparative philology; historical and ethnological results of the science; classifications of languages; salient characteristics of the various branches of the Indo-European family of languages; methods of investigation. M., 11. Professor WHEELER.

[2. Comparative Grammar of the Indo-European Languages. Fall term the history of sounds (*Phonology*) in the various branches of the Indo-European family; Winter term, Greek grammar from the comparative point of view, chiefly with reference to the history of sounds and inflections; Spring term, Latin grammar. T., Th., 11. Professor WHEELER.]

3. Sanskrit. The first twenty-five lessons of Perry's Sanskrit Primer; the essentials of the grammar, given in the form of lectures; reading of selections from Lanman's Reader. T., Th., 12. Associate Professor BRISTOL.

4. Advanced Sanskrit. Reading of selections from the Rig-Veda. Grammatical discussions. Lectures upon the private and religious antiquities of the ancient Hindoos. S., 10. Professor WHEELER.

5. Gothic. Braune's Gothic Grammar. Reading of selections. Lectures on the relation of the Germanic languages to the Indo-European parent-speech. S., 9. Professor WHEELER.

6. Philological Seminary. See under Greek, courses 8 and 9. Professor WHEELER.

## GREEK.

A. Elementary Greek. The essentials of the grammar. Simple exercises in composition. The reading of selections from the *Cyropaedia*, *Anabasis*, and *Memorabilia* of Xenophon. M., W., F., 8. Mr. BRONSON.

This course is designed for students who wish to acquire, by extraordinary effort in one year, the ability to read Attic prose. It cannot be counted for graduation in the course in Arts.

1. Freshman course. First section. Reading of selected orations of Lysias, accompanied by a careful review of the Attic inflections and syntax. Twelve books of Homer's *Odysey*. Plato's *Apology of Socrates*. Greek composition throughout the year. T., Th., S., 10. Associate Professor BRISTOL.

Second section. Reading of selected orations of Lysias, as in first section. Six books of Homer's *Odysey*. Plato's *Apology of Socrates*. Greek composition throughout the year. T., Th., S., 10. Mr. BRONSON.

The class will be divided into sections on the basis of scholarship at the beginning of the winter term.

2. Sophomore course. Selections from Lucian. The *Philippics* of Demosthenes. Euripides' *Iphigenia among the Taurians*. The *Acharians* of Aristophanes. Greek composition throughout the year. Outline lectures upon the history of Greek literature. M., W., F., 9. Professor WHEELER.

3. The Greek drama. Two plays each of Aeschylus, Sophocles, and Euripides. Aristotle's *Poetics*. Lectures upon the Greek theatre and drama. M., W., F., 10. Associate Professor BRISTOL.

[4. History and Oratory. Thucydides, Books VI and VII. Andocides on the *Mysteries*. Isocrates' *Panegyricus*. Aeschines against Ctesiphon. Demosthenes on the *Crown*. Lectures on the history of Athens during the Peloponnesian war, and on the characteristics of Attic oratory. M., W., F., 10. Associate Professor BRISTOL.]

5. Greek Philosophy. The *Protagoras*, *Phaedo*, and selections from the *Republic* of Plato. The *Nicomachean Ethics* of Aristotle. Lectures upon the history of Greek philosophy. W., F., 9. Associate Professor BRISTOL.

[6. Greek Poetry. *Anthologia Lyrica* (Bergk). Selections from Pindar. Selections from Theocritus. Lectures and recitations. W., F., 9. Associate Professor BRISTOL.]

7. The Private, Political and Legal Antiquities of the Greeks. The first two terms will be devoted to a study of the private life of the Greeks, with illustrations (by lantern views, photographs, etc.), from ancient monuments and remains. The third term will be given to a review of the political and legal institutions of Athens and Sparta. T., Th., 11. Professor WHEELER.

See History and Political Science, course 2.

[8. New Testament Greek. Reading of selected passages from the

New Testament, and the Septuagint. Lectures on the characteristics of Hellenistic Greek. T., Th., 8. Mr. BRONSON.]

9. The Greek of the Roman period. Readings from Polybius, the New Testament, and the inscriptions. T., Th., 8. Mr. BRONSON.

10. Philological Seminary. The Greek dialects, particularly the Lesbian, Doric, and North Greek, studied from the inscriptions. Preparation and discussion of papers by members of the Seminary. T., 7-9 p. m. Professor WHEELER.

[11. Philological Seminary. The Attic dialect, studied from the inscriptions. Phases of the Attic dialect in literary use. Preparation and discussion of papers by members of the Seminary. T., 7-9 p. m. Professor WHEELER.]

12. Greek Grammar. Historical treatment in lectures. See under Comparative Philology, course 2.

For lectures on Greek art, see under Latin, course 9.

For Greek history, see under History and Political Science, course 1.

## LATIN.

*Courses 1 and 2 cover the required work for freshmen in Arts and Philosophy, courses 3 and 4 the required work for sophomores in those courses.*

1. Rapid Reading of Easy Latin (Nepos). The De Senectute of Cicero. Livy. Translation at sight. The writing of Latin. In two sections. M., W., F., 9. Mr. BRONSON. M., W., F., 11. Assistant Professor ELMER.

2. Rapid Reading of Easy Latin (Nepos). The De Senectute of Cicero. Livy. Translation at hearing. The writing of Latin. W., F., 10. Assistant Professor ELMER. M., 10. Professor HALE.

The purpose of this course, which is arranged for students who have given evidence of more than average knowledge and ability, is to prepare them to read ordinary Latin with ease and speed. A methodical study of the structure of the Latin sentence, in connection with syntax, is made in the class-room, and a written exercise in translating at first hearing, with formal questions set for written answers at one point after another in the progress of the sentence, is given weekly by the professor in charge of the department, the aim being to lead the student to grasp the thought in the order in which the Roman sentence develops it, with the final result of his gaining power to read continuous pages of Latin of moderate difficulty, and understand, without translating, as he reads.

3. The *Phormio* of Terence. Translation at sight. Horace : Selections from the Epodes, Satires, Odes, and Epistles. Collateral reading upon the history of Rome during the period covered by the life of Horace. Wilkins's *Primer of Roman Literature*. T., Th., S., 9. Assistant Professor ELMER.

Open to students who have completed course 1.

4. The *Phormio* of Terence. Horace : Selections from the Epodes, Satires, Odes, and Epistles. Translation at sight. Collateral reading upon the history of Rome during the life of Horace. Wilkins's *Primer of Roman Literature*. T., Th., S., 10. Assistant Professor ELMER.

Open to students who have completed course 2.

5. Selections from Cicero's Letters, with accompanying practice in composition in the epistolary form. Once a week, at an hour to be agreed upon. Assistant Professor ELMER.

The course is open to students who have completed course 1 or course 2, and is especially recommended to those who may be planning to elect Latin later.

6. Selections from the Republican Literature : Plautus, Lucretius, Catullus. Cruttwell's and Teuffel's *Histories of Roman Literature*. T., Th., S., 9. Professor HALP.

Courses 6 and 7 are given in alternate years.

[7. The Literature and History of the Early Empire (to 180 A. D.) : Pliny the Younger, Juvenal and Tacitus, with brief selections from other writers of the times. Cruttwell's and Teuffel's *Histories of Roman Literature* ; Capes's *Early Empire and Age of the Antonines*. T., Th., S., 9. Professor HALP.

Courses 6 and 7 are given in alternate years.]

8. Teacher's training course. After introductory lectures on the relation of preparatory and university work in Latin, and on the order of arrangement and methods of work in the former, the *Catiline* of Sallust (now required for admission to the University) will be read, together with selections from the *Cæsar*, Cicero, and Virgil of the preparatory course. In connection with the reading of the first two authors, a survey of the social and political conditions of the times will be made, and, in connection with the reading of Virgil, a study of the literary characteristics of his work.

Exercises in translation at sight from sentences written upon the board (as in the Fall term in course 2, but with reference to various stages of advancement in the preparatory work) will be conducted from time to time by the instructor and by members of the seminary. Occasional visits to preparatory schools will also be made, at hours to be arranged.

The general aim of the course is to prepare students who intend to teach to enter upon their first year of work with confidence. F., 12.

Professor HALE

[9. The private life of the Romans. A systematic treatment, with illustrations (by lantern views, photographs, etc.) from the remains of ancient art, and in particular from the results of excavations in Pompeii, Herculaneum, and Rome. W., F., 11. Fall and Winter terms.

Greek and Roman Art: pottery, coins, engraved gems, painting, sculpture. An introductory course, illustrated with lantern views, photographs, casts, etc. Lectures. W., F., 11. Spring term. Professor HALE.

See under History and Political Science, course 3. Open to students of the sophomore, junior, and senior years.

Course 8 alternates with course 9.]

10. Latin Syntactical Seminary. Unsettled problems in Latin syntax: Investigations. Lectures, and preparation of papers by members of the Seminary. T., 3-5. Professor HALE.

Open to graduates, and, with the consent of the instructor, to undergraduates of special attainments, who desire the course in addition to the other elective courses of the year.

For Roman History, see under History and Political Science, course 1.

## THE GERMANIC LANGUAGES.

1. Brandt's German Grammar and Reader. Translation from English into German. Reading easy stories, poems and novels. Committing short poems to memory. M., W., F., 8 9, 10. T., Th., S., 8, 9. Mr. HENCKELS. M., W., F., 10, 11; T., Th., S., 10. Mr. GRIFFIN.

2. Maria Stuart, Hermann und Dorothea, Lessing's Prosa. Advanced grammar and composition. Writing from dictation. Translation at sight. M., W., F., 8; T., Th., S., 9. Mr. GRIFFIN. M., W., F., 9. Professor WHITE. M., W., F., 10. Professor HEWETT.

3. German literature from Klopstock to Goethe's death. The classical period and the Romantic School. Lectures, biographical studies and papers. Illustrative readings and views. M., W., 11. Professor HEWETT.

(In 1891-2, lectures on the German literature and language from the earliest period to the Reformation. This course will be accompanied by views illustrating the literary history, art, and social life of the time).

4. The writings of Heine in prose and verse, examined in their relation to the literary, social, and political history of his times. Con-

tinuation of the course on German lyrics. To be concluded by a course on German Volkslieder. M., W., F., 10. Fall and Winter terms. Professor WHITE.

(In 1891-2, Luther's life and writings.)

5. Goethe's Faust. Lectures and readings. The place of Faust in art will be illustrated by an extensive series of lantern views. Fall and Winter terms. Goethe's life as illustrated in his works. Spring term. T., Th., 10. Professor HEWETT.

6. Old High German. Selections from Tatian, Otfrid's Krist, and minor specimens of Old High German literature. To be studied in connection with the literary history of the period. T., Th., 9. Professor WHITE.

(In 1891-2, Middle High German. Selections from the epics of Wolfram, Hartmann, and Gottfried, and the lyrics of Vogelweide.)

7. Middle High German. Selections from the popular and court epics and the songs of the Minnesinger. M., W., 9. Professor HEWETT.

8. Recent German novels and plays. For practice in rapid translation and reading at sight. Open to those who have had course 2, and to others on application. M., W., 10. Spring term. Professor WHITE.

[9. German literature since Goethe's death. The modern drama and novel. T., Th., 11. Professor HEWETT. In 1891-2.]

10. Advanced German composition. S., 9. Professor WHITE.

## THE ROMANCE LANGUAGES.

*Course 1 covers the required freshman work ; course 2 the required sophomore work.*

1. Whitney's French Grammar. Super's French Reader. Tableaux de la Révolution Française. Luquien's French Prose of Popular Science (for students in the technical courses). M., W., F., 8. Mr. — and Mr. —. 9. Mr. —. 10. Mr. —. 11. Mr. LAPHAM. T., Th., S., 8. Mr. LAPHAM. 9. Mr. —. 10. Mr. LAPHAM. 11. Mr. —.

2. Corneille's Horace. Le Romantisme Français. Hernani. French composition, and lectures on the French language and literature. M., W., F., 8. Mr. LAPHAM. 9. Professor CRANE. 10. Mr. —. T., Th., S., 9. Mr. —.

3. La Société Française au Dix-Septième Siècle. Molière's Les Précieuses Ridicules and Les Femmes Savantes. French memoirs of the XVIIth century. T., Th., 10. Professor CRANE.

4. Old-French Literature and Language. Chanson de Roland, Aucassin and Nicolette, etc. T., Th., 9. Professor CRANE.

5. Introduction to the study of the French classical drama. Tragedy. Lectures on the origin of the French drama, and rapid reading of the masterpieces of Corneille, Racine, Voltaire, etc. M., W., 10. Professor CRANE. [In 1891-92, a similar course will be given on French comedy].

6. French Philology. F., 10. Professor CRANE. Course 6 is open only to students who have had courses 1, 2 and Latin.

7. Recent French Literature. Daudet. Coppée. Claretie, etc. T., Th., 9. Mr. LAPHAM.

8. Advanced French composition, pronunciation, reading at sight, etc. S., 9. Mr. LAPHAM.

9. Modern French Writers. Victor Hugo's novels and lyrics. S., 10. Mr. ——. [In 1891-92, a similar course will be given on Balzac].

10. Modern French criticism. Sainte-Beuve. Taine. Scherer. S., 11. Mr. ——.

11. Italian grammar and reading. T., Th., 8. Mr. ——.

12. Spanish grammar and reading. T., Th., 8. Mr. ——.

Students in the Course of Letters may select the additional three hours of required work in French from among the above courses 3, 4, 5, 7, 8, 9, 10.

### ENGLISH.

1. Freshman Rhetoric. M., W., 11, 12; T., Th., 11, 12. Mr. ELLIOTT and Mr. COFFIN.

2. Sophomore Rhetoric. M., Th., 11; T., W., 10. Mr. EMERSON.

3. Junior Rhetoric. Open to students who have passed in courses 1 and 2. Lectures upon the history of the formation and growth of English style, with collateral readings and essays. T., Th., 11. Professor HART.

[4. Senior Rhetoric. Open to students who passed in course 3. A critical study of the stylistic peculiarities of English authors of prominence, chiefly prose writers. Lectures upon the foreign influences, classical and modern, that have affected English style. Members of the class will be required to investigate collateral topics, involving original research, and to submit the results in the shape of theses. Professor HART. Not offered until 1891-2.]

5. Elocution. Mandeville's Elements of Reading and Oratory; instruction in breathing, management of the voice, gesture, and general delivery; declamation in class and in public. Designed for juniors, seniors, and graduates. M., W., F., 9, 10, 11. Associate Professor BRAINARD G. SMITH.

Students who expect to study Elocution sometime in their University course are advised to do it in junior, rather than in senior year.

Juniors in Elocution who purpose to take Oratory in their senior year, are advised to elect the Junior Rhetoric as a desirable preparation for the work in Oratory.

6. Oratory. Orations, speeches and addresses. Each production read and criticised with the author, who may also have some instruction in its delivery. Weekly public oratorical exercises. Designed for seniors and graduates who have taken course 5, or its equivalent. Fall and Winter terms. M., 7.30. Other hours as assigned. Counting two hours. Associate Professor BRAINARD G. SMITH.

7. Early English Philology. Formation of the English language. Sievers, Old English Grammar; Sweet, Anglo-Saxon Reader; Zupitza, Uebungsbuch. M., W., F., 9. Professor HART.

8. Middle English Philology. Open to students who have passed in course 7. Further development of the language. Zupitza, Uebungsbuch; Morris, Specimens of Early English. T., Th., 12. Professor HART.

9. Seminary in English Philology. Open to students who have passed in course 7. Reading of longer Early or Middle English texts, with investigation of grammatical peculiarities; original research, to be submitted in the shape of theses. M., W., 11. Professor HART.

10. Seminary in English Literature. The direct study of masterpieces in English prose. Two hours. S., 11-1. Professor CORSON.

11. Lectures on English Literature, including the period from Milton to Cowper, the drama of the Restoration, the subsequent drama to Sheridan, and the literature of the XIXth century. M., W., F., 10. Professor CORSON.

12. English Literature. A General Survey of the Language and Literature of the XIIth and XIIIth Centuries. Lectures on Piers Plowman, Wycliffe, Chaucer, Spencer, and the Shakespearian drama. Readings by the class. T., Th., 10. Professor CORSON.

## PHILOSOPHY

*No course in Philosophy can be taken by freshmen. Course 1 is required of all sophomores, except those in the technical departments. The remaining courses, which are elective, are open to juniors, seniors, and graduates, on the conditions specified below.*

1. Logic and Psychology. Two hours a week. Lectures, T., 11. Professor SCHURMAN. Recitations, on Jevon's Logic and Murray's Psychology, in eight sections, M., W., Th., F., 10, 11. Mr. CREIGHTON.

*N. B.*—Supplementary examinations for removing conditions in this course are held on Saturday, Oct. 4th, at 9 a. m., in the Botanical Lecture Room, *and at no other time.*

2. **Advanced Logic and Psychology.** Lotze's *Logic* (Clarendon Press translation), Ladd's *Physiological Psychology*, Lotze's *Psychology* (being the third book of the *Metaphysics*, Clarendon Press translation). Recitations, discussions, and essays. Occasional lectures on the recent progress of Psychology in France, Germany, and Italy. T., Th., 8. Professor SCHURMAN.

Course 2 is intended for those who have taken, at least courses 1 and 3, but those who have passed in course 1 with distinction, and take course 5, may take it if specially permitted.

[3. **History of Philosophy.** An outline of speculative systems, from the rise of reflection among the Greeks down to our own day, in their relation to the development of the sciences and the progress of civilization. Lectures, with discussions and occasional essays. M., W., F., 8. Professor SCHURMAN.]

Course 3 and course 4 are given in alternate years.

4. **Ethics.** The contents of the moral consciousness of man, savage and barbarous as well as civilized; the philosophical interpretation and implication of these facts in the light of historico-critical survey of previous ethical theories, Greek, Roman, Christian, and modern (especially the evolutionary); and the application of the principles thus established to the regulation of life,—individual, family, and social,—including an examination of current questions in practical ethics. Lectures, discussions, and essays. M., W., F., 8. Professor SCHURMAN.

Course 4 is open to all who have taken course 1.

5. **Metaphysics.** Hume's *Treatise on Human Nature*, Hamilton's *Metaphysics*, Herbert Spencer's *First Principles*. Recitations, discussions, and essays. M., W., F., 9. Mr. CREIGHTON.

Course 5 is open to all who have taken course 3.

[6. **Metaphysics.** A critical study of Hume's *Enquiry concerning Human Understanding*, and Kant's *Critique of Pure Reason*, with introductory lectures on Locke and Berkeley. M., W., F., 9. Mr. CREIGHTON.]

Course 6, given in 1889-90, will not be repeated till 1891-2. See courses 5 and 7.

7. **Philosophical Seminary.** An examination of the origin, meaning, and worth of the Critical Philosophy of Kant, as expounded in the three great Critiques. Monday evening, 7 to 9. Professor SCHURMAN.

Course 7 is open to those who have completed course 6, or who have thoroughly mastered Kant's *Critique of Pure Reason*, but to no others without special permission.

8. Post-Kantian German Philosophy. In 1888-9 Hegel's *Philosophie der Religion*. In 1889-90, Lotze's Metaphysics. In 1890-91, Lotze's Logic and Psychology. T., Th., 8. Professor SCHURMAN.

[9. Philosophy of Religion. Martineau's Study of Religion. Th., 12. Professor SCHURMAN.]

Course 9, given in 1889-90, will not be repeated till 1891-2.

10. History and Philosophy of Religion. A course of weekly lectures, during the winter term, *open to all students of the university*, but not counting towards a degree. In 1889-90 the subject was: Belief in God: its sources, character, and grounds. In 1890-1 there will probably be offered an historical and comparative study of two or more of the great religions of the world. Professor SCHURMAN.

### THE SCIENCE AND ART OF TEACHING.

[These courses are open to juniors, seniors, and graduates.]

1. The science of education: philosophic basis; aims; methods; means. School instruction: application of methods to various branches; recitations; art of questioning and examining; illustration and exposition. Organization and management of schools: classification; courses of study; supervision; school buildings and appliances; school hygiene; school economy, etc. Lectures. M., W., F., 2. Professor S. G. WILLIAMS.

Weekly exercises in class instruction will be given during the last half of the year in course 1.

2. Seminary. Discussions and essays on educational topics, and reports on visits to schools. Th., 3. Professor S. G. WILLIAMS.

Course 2 is open only to students who have taken or are taking course 1.

3. History of education in various ages and countries: comparative education; theories of writers on education; eminent educators, etc. Lectures. T., Th. Professor S. G. WILLIAMS.

4. Pedagogic Seminary. Examination of Waitz's "Allgemeine Pädagogik." Professor S. G. WILLIAMS.

Course 4 is intended only for students who have completed course 1, or its equivalent, and a good knowledge of German is indispensable.

### HISTORY AND POLITICAL SCIENCE.

1. The History and Civilization of Greece and Rome. Fall term, Greece. Winter and Spring terms, Rome. T., Th., 9, 10, 11. Mr. BOTSFORD. Designed for freshmen, and required of all candidates for the degrees of A.B. and Ph.B.

2. Private, Political, and Legal Antiquities of the Greeks. The first two terms will be devoted to a study of the private life of the Greeks, with illustrations (by lantern views, photographs, etc.) from ancient monuments and remains. The third term will be given to a review of the political and legal institutions of Athens and Sparta. T., Th., 11. Professor WHEELER. Courses 2 and 3 will be given in alternate years.

[3. Private life of the Romans. A systematic treatment, with illustrations (by lantern views, photographs, etc.) from the remains of ancient art, and in particular from the results of excavations in Pompeii, Herculaneum, and Rome. Fall and Winter terms. W., F., 11. For Spring term see under Latin, course 9. Professor HALE. Courses 2 and 3 will be given in alternate years.]

[4. The Political and Social History of Europe during the Middle Ages. Lectures and examinations. M., W., F., 9. Assistant Professor BURR. Designed for sophomores and juniors, and may be taken either before or after course 5.]

5. The Political and Social History of Europe from the Renaissance to the French Revolution. Lectures and examinations. T., Th., S., 9. Assistant Professor BURR. May be taken either before or after course 4.

6. The Political and Social History of England from the Saxon Invasion to the close of the Napoleonic Wars. Lectures and examinations. Designed for sophomores and juniors. M., W., F., 9. Assistant Professor BURR. Required of sophomores in Philosophy.

[7. The Political, Social and Constitutional History of Europe from the beginning of the French Revolution of 1789 to the Franco-German War of 1870. Lectures and examinations. T., Th., S., 12. Several lectures on special subjects connected with the course may also be expected from ex-President WHITE and from President ADAMS.]

8. Palæography and Diplomatics (the reading of historical manuscripts and the interpretation of historical documents, especially those of the Middle Ages). A seminary for the critical study of the materials of Mediæval and Modern History in their original form. The course will be progressive by centuries and based upon actual study of the manuscripts and fac-similes in the University's possession. A knowledge of Latin is an indispensable prerequisite to this course. Winter term, counting for two hours. W., 4.30-6. Assistant Professor BURR.

[9. American History from the Earliest Discovery to the end of the War for Independence. Lectures and recitations. M., W., F., 3. Professor TYLER. Open only to those who have taken, or are taking course 6.]

10. American History from the end of the War for Independence to the end of the War for the Union. Lectures and recitations. M., W., F., 3. Professor TYLER. Open only to those who have taken, or are taking course 6.

11. American Historical Seminary for juniors and seniors. The investigation of historical subjects by study of the sources. M., 7-9 p. m. Professor TYLER. Open only to students taking course 9 or course 10 or course 12.

12. American Constitutional History, and American Constitutional Law. Lectures and recitations. T., Th., 3. Professor TYLER. Designed for those who have had course 9, or course 10, and also for seniors in the School of Law.

13. American Historical Seminary for seniors and graduates. The original investigation of subjects in American Constitutional History. T., 7-9 p. m. Professor TYLER. Open only to graduates and to seniors who have already taken course 11.

14. History of Institutions. Lectures. Fall term: General principles of political organization. Winter term: Growth of the English Constitution. Spring term: Methods of municipal administration. Designed for juniors and seniors who have done considerable work in History. M., W., F., 11. Professor TUTTLE.

15. International Law and History of Diplomacy. Lectures. Designed for juniors and seniors, and required in the Fall term of seniors in the School of Law. T., Th., 11. Professor TUTTLE.

16. Literature of Political Science. Lectures and readings. Open to graduates, and to seniors who have taken or are taking course 14. M., 3. Professor TUTTLE.

17. General Seminary. Study, from the sources, of obscure political and historical questions. Open only to graduates and properly qualified seniors. Th, 4-6. Professor TUTTLE.

19. Elementary course. Principles of Political Economy. Banking. Financial Legislation of the United States. M., W., F., 10. Designed for sophomores and juniors. Professor LAUGHLIN.

20. Advanced course. Discussion of economic writers and systems. Investigation of current economic topics: Bimetallism, Shipping, Railway Transportation. T., Th, 12. Open only to students who have passed satisfactorily in course 19. Professor LAUGHLIN.

21. History of Tariff Legislation of the United States. W., 12. Open to all students. Professor LAUGHLIN.

22. Economic seminary. Open only to students who can satisfy the instructor that they are competent to make critical studies of economic problems. M., 4-5.30. Professor LAUGHLIN.

26. Social Science, including the History and Management of Charitable and Penal Institutions. T., 4.30. Professor COLLIN.

27. Roman Law. Its growth; its characteristic features; its influence on modern legal systems, and its contributions to the principles of comparative jurisprudence. Lectures and examinations. Required of seniors in the School of Law, and open to other properly qualified students. M. 2. Professor BURDICK.

### BIBLIOGRAPHY.

Introductory survey of the historical development of the book, illustrated by examples of manuscripts and incunabula; explanation of book sizes and notation; systems of classification and cataloguing; bibliographical aids in the use of the Library. Winter and Spring terms. Lectures. M., II. Mr. HARRIS.

### MATHEMATICS AND ASTRONOMY.

#### I. PRESCRIBED WORK.

1. For students in Arts, Philosophy, and Agriculture.  
Two sections: M., W., F., 12; T., Th., S., 12. Mr. STUDLEY.  
(a) Fall term, Solid Geometry.  
(b) Winter term, Algebra.  
(c) Spring term, Trigonometry.
2. For students in Science, in Letters, and in Chemistry.  
Three sections, daily ex. S., 8, 9, 10. Mr. RAPPLEYE.  
(a) Fall term, Solid Geometry.  
(b) Winter term, Algebra, including the Theory of Equations.  
(c) Spring term, Trigonometry.
3. For students in Architecture, and in Civil Engineering.  
Three sections, daily ex. S., 8, 9, 10. Mr. ———.  
(a) Fall term, Algebra, including the Theory of Equations.  
(b) Winter term, Trigonometry.  
(c) Spring term, Analytic Geometry.
4. For students in the Sibley College courses.  
Six sections, daily ex. S., 8. Assistant Professor MCMAHON. 9.  
Assistant Professor HATHAWAY. 11. Assistant Professor JONES. 8,  
9, 11. Mr. FOWLER.  
(a) Fall term, Algebra.  
(b) Winter term, Algebra continued.  
(c) Spring term, Trigonometry.
5. For students in Agriculture.

One section, M., W., F., 11. Mr. RAPPLEYE.

Spring term, Practical Applications.

6. For students in Architecture.

Daily ex. S., 9. Assistant Professor JONES.

Fall Term, Differential and Integral Calculus.

7. For students in Civil Engineering.

Two sections, daily ex. S., 9. Associate Professor WAIT, and Assistant Professor MCMAHON.

(a) Fall term, Differential Calculus.

(b) Winter term, Integral Calculus.

8. For students in Sibley College courses.

Four sections, daily ex. S., 8. Assistant Professor JONES, Associate Professor WAIT, and Assistant Professor HATHAWAY. 9. Mr. STUDLEY.

(a) Fall term, Analytic Geometry.

(b) Winter term, Differential Calculus.

(c) Spring term, Integral Calculus.

## II. ELECTIVE WORK.

(For these courses, hours will be arranged by the Professors to suit the members of the class. Any course not desired at the beginning of the Fall term by at least five students, properly prepared, may not be given.)

11. Geometric, Algebraic, and Trigonometric Problems, with Applications; including something of Probabilities and Insurance, and of Spherical Astronomy. Two hours. Assistant Professor JONES.

12. Advanced work in Algebra, including Determinants and the Theory of Equations. Two hours. Associate Professor WAIT.

13. Advanced work in Trigonometry. Two hours. Mr. FOWLER.

(The equivalents of courses 8, 12, and 13, are necessary, and course 11 is useful, as a preparation for most of the courses that follow.)

14. Advanced work in Analytic Geometry of two and three Dimensions, viz:—

(a) First year, Lines and Surfaces of First and Second Orders. Three hours. Assistant Professor JONES.

(b) Second year, General Theory of Algebraic Curves and Surfaces. Two hours. Assistant Professor MCMAHON.

15. Modern Synthetic Geometry, including Projective Geometry. Two hours. Assistant Professor JONES.

16. Descriptive and Physical Astronomy. Mr. STUDLEY.

(a) Descriptive Astronomy, requiring but little Mathematics. One hour.

(*b*) Physical and Mathematical Astronomy, requiring the equivalents of courses 3 or 4, and 7 or 8, and of course 1 or 2 in Physics. Two hours.

17. Mathematical Pedagogy. One hour. Professor OLIVER.

18. Mathematical Essays and Theses. One hour. Professor OLIVER.

19. Advanced work in Differential and Integral Calculus.

(*a*) In Differential Calculus. Three hours. Associate Professor WAIT.

(*b*) In Integral Calculus. Two hours. Assistant Professor MCMAHON.

20. Theory of Invariants and Covariants. Requires courses 8, 12, 14 (*a*), and preferably also 11, 13, 19. May be simultaneous with 14 (*b*). Two hours. Assistant Professor MCMAHON.

21. Differential Equations. Fall term. Three hours. Assistant Professor HATHAWAY.

22. Theory of Functions. Three hours. Professor OLIVER.

24. The Potential Function, and Spherical Harmonics. Fall term. Two hours. Assistant Professor HATHAWAY.

26. Rational Statics. Two hours. Associate Professor WAIT.

28. Molecular Dynamics, and Physical Optics. Winter and Spring terms. Two hours. Assistant Professor HATHAWAY.

30. Quaternions and Vector Analysis. Two hours. Winter and Spring terms. Assistant Professor HATHAWAY.

31. Theory of Probabilities, and of Distribution of Errors, including some sociologic applications. One hour. Professor OLIVER.

32. Non-Euclidian Geometry. Two hours. Professor OLIVER.

33. The reading and discussion of the mathematical journals. Once a week.

41. Mathematical Optics, including Wave Theory and Geometric Optics. Two hours. Professor OLIVER.

42. Mathematical Theory of Heat and Thermodynamics. Three hours.

43. Mathematical Theory of Sound. Three hours. Assistant Professor MCMAHON.

44. Mathematical Theory of Electricity and Magnetism. Two hours. Assistant Professor HATHAWAY.

In most of the above branches of Pure Mathematics, an additional year's instruction, one or two hours a week, may be given if desired.

## PHYSICS.

1. Mechanics and Heat. Electricity and Magnetism. Acoustics and Optics. Two lectures a week. T., Th., 12. Professor NICHOLS. One recitation on Friday or Saturday by the class in sections, at hours to be arranged. Assistant Professor MOLER and Messrs. MERRITT, and SAUNDERS.

Course 1 is intended to meet the needs of students in Architecture, Civil Engineering, Mechanical Engineering, Electrical Engineering, Agriculture, and the course preparatory to Medicine. A knowledge of plane trigonometry is required.

2. [ (a) Mechanics (one term), Electricity and Magnetism (two terms). Two lectures a week. M., W., 12. Professor NICHOLS. One recitation on Friday or Saturday by the class in sections at hours to be arranged. Mr. ———.

Will not be given during 1890-91.]

(b) Heat (one term), Sound and Light (two terms). Two lectures a week. M., W., 12. Professor NICHOLS. One recitation on Friday or Saturday by the class in sections at hours to be arranged. Mr. ———. May be expected in 1890-91.

Course 2 is intended to meet the needs of students in the general courses. Parts (a) and (b) will be given in alternate years and either (a) or (b) will be accepted as the required work in Physics in the courses in Science and Letters. Students in the above courses will have an opportunity to complete the subject as elective work in the junior year. Such students may, however, substitute course 1 for (2a) or (2b); and students of whom course 1 is required may substitute for it the whole of course 2.

Course 2 demands a knowledge of plane trigonometry.

3. Physical Experiments. Theory and methods of physical measurements. Two to five hours, selected by the students from afternoons ex. S., 2-6. Messrs. ———, MERRITT, and SAUNDERS.

Course 3 includes laboratory experiments illustrating general laws in all branches of physics, and instruction in the adjustment and use of instruments of precision for measurements in mechanics, heat, light, and electricity. It is open to students who have passed satisfactorily in courses 1 or 2. All students desiring this course are strongly advised to prepare themselves by first taking courses in analytical geometry and calculus. Each student usually devotes to the course two afternoons each week, and pursues it in such order as the appointments of the laboratory may require.

Students in Mechanical Engineering and Electrical Engineering are required to take the equivalent of two hours a week only.

4. Electrical measurements. Tests of electrical instruments and determination of constants. Theory and experimental study of dynamo machines, including tests of efficiency. Electric lighting. Photometric and electrical tests of electric lamps. One hour lecture, F., 12. Professor NICHOLS. Four hours laboratory work, selected by the student from afternoons ex. S., 2-6. Assistant Professor MOLER and Mr. SAUNDERS.

Course 4 is designed for seniors in Electrical Engineering but it is open to all students who have completed course 3.

5. A shorter course in Heat and Applied Electricity for students in Mechanical Engineering. Two hours laboratory work, selected by the student from afternoons ex. S., 2-6. Assistant Professor MOLER and Mr. SAUNDERS.

Students taking course 5 are advised to attend the lectures announced under course 4.

6. Advanced laboratory practice in general Physics for undergraduates who have completed course 3. This course is preparatory to graduate courses 18, 19, and 20. It is intended to meet the wants of those who expect to teach experimental physics and may occupy from three to six hours a week. Professor NICHOLS, Mr. ———, and Mr. MERRITT.

7. Thesis work in Physics and Applied Electricity. (Seniors in Electrical Engineering devote the equivalent of twelve hours a week to this course during the Spring term.) Professor NICHOLS.

9. Practical Photography, counting one hour a week, during the Spring term. Assistant Professor MOLER and Mr. SAUNDERS.

Course 9 is open only to students who have the requisite knowledge of chemistry, and those wishing to take it must bring a certificate from the head of some department to the effect that it is needed in their course of study.

Courses 11 to 20 are open (1) to graduate students, (2) to undergraduates of exceptional advancement.

11. Dynamo-Electric Machinery. Two hours. Lectures, supplemented by recitations upon Thomson's Dynamo-Electric Machinery. M., F., 12. Mr. MERRITT.

12. Thermo-dynamics, (Clausius). Two hours, at times to be arranged. Mr. ———.

13. Theory of Electricity and Magnetism (Mascart—Joubert). Two hours, at times to be arranged. Mr. SAUNDERS.

14. Physiological Optics and the Science of Color. Three hours. One lecture a week and laboratory practice. Professor NICHOLS.

[15. Kinematics and Dynamics (based upon MacGregor's "Kinematics and Dynamics"). Two hours, at times to be arranged. Mr. ———. Will not be given in 1890-91].

16. Advanced Photography, with especial reference to its application to research. Two hours. Assistant Professor MOLER.

Students who have completed courses 3, 4 and 9, or an equivalent will be admitted to this class.

17. Readings and Discussions. Two hours. Critical reading of the

standard periodical literature relating to Physics. One evening a week. Professor NICHOLS, Assistant Professor MOLIER, Messrs. ———, MERRITT and SAUNDERS. Undergraduates taking advanced work in Physics, will be admitted to this class upon special application.

18. Absolute measurements in Electricity and Magnetism. Three hours. Laboratory practice in the determination of current, electromotive force, resistance, electric capacity and the magnetic elements in absolute measure. Professor NICHOLS and Assistant Professor MOIER.

19. Thermometry and Calorimetry. Three hours. Laboratory practice, including the study of the thermometer as an instrument of precision, methods of measuring temperatures and thermal capacities, influence of temperature upon various physical constants. Professor NICHOLS and Mr. MERRITT.

20. Advanced Spectroscopy. Three hours. Laboratory practice, devoted to the use of the spectrometer and spectrophotometer. Professor NICHOLS and Mr. ———.

Other courses of laboratory instruction will be arranged to meet the individual needs of graduate students.

### CHEMISTRY, METALLURGY, AND PHARMACY.

1. Inorganic Chemistry. Lectures throughout the year. Freshmen, T., Th., 12; Sophomores, M., W., 12. Acting Professor NEWBURY.

Recitations, Fr., in sections, by appointment. Assistant Professor ORNDORFF and Messrs. NEWBURY, KORTRIGHT, and ———.

2. Introductory Laboratory Practice in Inorganic Chemistry. One afternoon per week, by appointment. Acting Professor NEWBURY and Messrs. NEWBURY, KORTRIGHT, and ———.

This course is required, in addition to course 1, for all students who propose to take up later the studies of qualitative and quantitative analysis.

3. Inorganic Chemistry, advanced course. Lectures. T., 10, F., 12. Acting Professor NEWBURY.

Course 3 is open to all who have taken course 1.

4. Agricultural Chemistry. Lectures. M., W., F., 9. Professor CALDWELL.

5. Qualitative Analysis. Laboratory work. Daily ex. S., 9-5. Professor CALDWELL, Mr. PRESWICK, and Mr. CHAMOT.

Lectures and Recitations. Once weekly for each member of the class, in sections, by appointment. Mr. PRESWICK.

Course 5 is open only to those who have had courses 1 and 2.

6. Quantitative Analysis. Laboratory work. Daily ex. S., 9-5. Professor CALDWELL, Dr. EILOART, and Mr. CHAMOT.

Course 6 is open only to those who have had course 5.

7. Quantitative Methods. W., 4.30. Professor CALDWELL and Dr. EILOART.

Course 7 is open only to advanced students in course 6.

8. Chemical Philosophy. T., Th., 4.30. Professor CALDWELL.

[9. Applied Chemistry. Lectures. T., Th., 9. Acting Professor NEWBURY.]

Course 9 is open only to those who have had course 1. It is given in alternate years with course 8, and may be expected in 1891-92.

10. German Chemical Readings. M., W., 4.30. Dr. EILOART.

Course 10 is open only to advanced students in course 6.

11. Organic Chemistry. Lectures and recitations. T., W., Th., 9. Assistant Professor ORNDORFF.

Laboratory practice, daily, ex. S., 9-5. Acting Professor NEWBURY and Assistant Professor ORNDORFF.

Open only to those who have had courses 1, 2, and 5.

11a. Special Chapters in Organic Chemistry. Lectures, one hour per week, by appointment. Assistant Professor ORNDORFF.

Open to those who have had course 11.

12. Chemical Journals. One hour per week. Required of seniors in course in Chemistry. Professors and Instructors of the Department.

13. Metallurgy. Lectures. Spring term. T., Th., 12. Acting Professor NEWBURY.

14. Assaying. Laboratory work. Spring term. Daily, ex. F. and S., 9-1. Acting Professor NEWBURY and Mr. NEWBURY.

15. Practical Pharmacy. Lectures. M., W., F., 10. Assistant Professor ———.

16. Practical Pharmacy. Laboratory. Juniors. M., 2.30-5. Assistant Professor ———.

17. Practical Pharmacy. Laboratory. Seniors. Open only to those who have had course 15. Daily ex. S. Assistant Professor ———.

18. Materia Medica. T., Th., 12. Assistant Professor ———.

19. Pharmacognosy (juniors). Hours to be assigned. Assistant Professor ———.

20. Pharmacognosy (seniors). Hours to be assigned. Assistant Professor ———.

## BOTANY AND ARBORICULTURE.

1. Botany. Introductory and general course. Fall and Winter. Lectures. M., W., 11. Professor PRENTISS.

2. Botany. Introductory laboratory course. Spring term. Two or more hours per week. M., W., 11. Sections and hours by appointment. Mr. ROWLEE.

Course 2 is a continuation of course 1 and must be preceded by the latter; both courses are required of all students before admission to subsequent courses.

3. Systematic and Economic Botany. Three hours per week. In the Fall term, Taxonomy, with a study of the orders Compositæ and Gramineæ. Winter term, representative natural orders and groups of economic plants. Spring term, either *a*, field, herbarium and laboratory work; or *b*, special study of the structure, affinities, distribution and economy of some one natural order; or *c*, a special study of some economic group. Lectures. T., Th., 12. Professor PRENTISS. Laboratory work by appointment. Mr. ROWLEE.

[4. Arboriculture. Trees, their structure, characteristics and cultivation; forests and forest economy; elements of forestry. Spring term. Lectures. F., 10. Seminary work by appointment. Professor Prentiss.]

5. Plant Physiology. Spring term. Lectures F., 10. Laboratory work and experimental physiology by appointment. Professor PRENTISS.

6. Exotics. A study of conservatory plants, their cultivation and propagation; management of plant-houses; practical greenhouse work. Subjects and hours by appointment. Professor PRENTISS and Mr. SHORE.

7. Histology of Plants. Fall term. Three hours per week. Lectures T., 9. Laboratory work by appointment. Assistant Professor DUDLEY.

8. Higher Cryptogams. Fall term. Two or three hours per week. *a*. Mosses and Liverworts. *b*. Ferns and other Vascular Cryptogamia. Lectures. W., 9. Laboratory work by appointment. Assistant Professor DUDLEY.

(*a*) And (*b*) are given on alternate years. (*b*) May be expected in 1890-91.

9. Fungi. Spring term. Four hours per week. Lectures. T., Th., 9. Laboratory work by appointment. Assistant Professor DUDLEY.

Course 7 should be taken before course 9.

Courses 7 and 8 may be pursued during the same term.

10. Special advanced laboratory work ; investigations and theses. For graduate and advanced students.

a. Phanerogams and Plant Physiology. Professor PRENTISS.

b. Cryptogams and the Histology of Plants. Assistant Professor DUDLEY.

## ENTOMOLOGY AND GENERAL INVERTEBRATE ZOOLOGY.

1. Invertebrate Zoology. General course. Fall term. Lectures, M., W., F., 10. During the greater part of the term there will be only two lectures a week, and one practical exercise by the class in sections, at hours to be arranged. Professor COMSTOCK.

2. Invertebrate Zoology. Special laboratory course. Fall and Spring terms. M., W., F., 8-1 ; T., Th., 2-6. Professor COMSTOCK.

3. Entomology. Lectures on the characteristics of the orders, sub-orders, and the more important families, with special reference to those of economic importance. Spring term. M., W., F., 10. Professor COMSTOCK.

Course 3 is open only to students who have taken course 1. Those special students in agriculture that do not take course 1, but who wish to study entomology, are recommended to take at least three hours of laboratory work (course 4) in the Fall term, and to join the Entomological Seminary (course 5) in the Spring term.

4. Entomology. Laboratory work, insect anatomy, determination of species, and the study of the life-history of insects. Fall and Spring terms. M., W., F., 8-1 ; T., Th., 2-6. Professor COMSTOCK.

5. Entomological Seminary. The literature of entomology. Recent advances in the practical application of entomology. Preparation and discussion of papers by members of the Seminary. Spring term. T., 2.30-4.30. Professor COMSTOCK.

Course 5 is open only to students who have taken course 4.

### SUMMER COURSE.

6. Summer Course in Entomology and General Invertebrate Zoology. Lectures M., W., F., 9 ; field-work, T., Th., 8.30-11 ; laboratory work, daily ex. S., 8-5. Professor COMSTOCK.

The laboratory and field work is arranged with reference to the needs and attainments of each student. After completing an elementary course in either general zoology or entomology, the student may select some subject in systematic zoology, economic entomology, or insect anatomy for special investigation. It is planned to have the work of each student, as far as possible, an original investigation. The chief object of the course is to give training in methods of natu-

ral history work. The summer course begins the Wednesday following Commencement, and lasts ten weeks.

Only those students of this University who have taken courses 1 and 3 are admitted to course 6. Teachers and others desiring to take this course without previously attending the University, should state in their applications the amount of zoological work they have done. Registration for the course will close June 1st.

The tuition fee for the Summer Course is \$25. Undergraduate students that have been members of the University during the preceding year, and graduate students that have been admitted by the Faculty as candidates for an advanced degree are excused from the payment of this fee.

### PHYSIOLOGY AND VERTEBRATE ZOOLOGY.

1. Physiology. Fall term. (Circumstances may require this to be, as in 1889-90, a weekly course through the year.) Thirty-six lectures, demonstrations and practicums. T., Th., 11 or 12, and Th., 2.30, or S., 8-1. Two or more sections. Professor WILDER.

2. Vertebrate Zoology. Winter term. Twenty lectures, M., W., 10; ten practicums, T., 2.30; laboratory work, two hours a week. Professor WILDER.

Course 2 must be preceded or accompanied by course 1.

3. Morphology of the brain. Spring term. Eighteen lectures, T., 2.30, Th., 11; nine practicums, T., 3.30-6; laboratory work, two hours a week. Professor WILDER.

Course 3 must be preceded by course 2 and preceded or accompanied by course 1.

4. Anatomical Methods and Gross Anatomy. Fall term. Three hours per week. Laboratory work, with a weekly recitation or lecture, Th., 4.45. Associate Professor GAGE.

Course 4 must be preceded or accompanied by course 1 and freehand drawing.

5. Microscopical Methods and Histology. Winter term. Three hours per week. Laboratory work, with a weekly lecture or recitation, Th., 4.30. Associate Professor GAGE.

Course 5 is open only to students who have taken freehand drawing, and the first term of course 1. Course 4 is also desirable.

6. The Methods and Elements of Embryology. Spring term. Four hours per week. Laboratory work, with a weekly lecture or recitation, Th., 4.30. Associate Professor GAGE.

Course 6 is open only to students who have taken courses 1, 2, 4, 5, and 8.

7. Human or Comparative Anatomy, or Systematic Vertebrate Zoology. Laboratory work, daily throughout the year. Professor WILDER and Associate Professor GAGE.

Course 7 is a continuation of either courses 1 and 2 or 2 and 4, and must be preceded by the courses of which it is a continuation.

8. Vertebrate Histology. Laboratory work daily throughout the year. At least one term required for course 6. Associate Professor GAGE.

Course 8 is open only to those who have taken courses 1, 4, and 5.

The laboratory work varies with the needs and purposes of the student, and the extent of his preparation. The preliminary work includes the study of the skeleton, the study and dissection of the muscles, viscera, vascular system, and the brain and nerves of the cat.

### GEOLOGY, PALEONTOLOGY AND MINERALOGY.

1. Mineralogy and Blowpipe Analysis. Fall term. Three hours. Lectures and conferences. (Required for engineers). M., W., F., 9. Assistant Professor KEMP and Mr. MARSTERS.

2. Geology, general course. Winter term. Lectures on dynamical and historical geology to follow course 1. (Required for engineers). M., W., F., 9. Professor H. S. WILLIAMS.

3. Economic Geology. Lectures on the geology of ores, ore deposits and valuable rock material. Spring term. Three hours. (The course is intended to follow courses 1 and 2. Required for engineers). M., W., F., 9. Assistant Professor KEMP.

4. Historical Paleontology. Lectures and conferences, illustrating the history of organisms. Spring term. (This course is intended to follow courses 1 and 2). M., W., F., 11. Professor H. S. WILLIAMS.

5. Paleontology. Laboratory and field work and study of characteristic fossils, with conferences throughout the year. Professor H. S. WILLIAMS and Mr. MARSTERS. (Intended to follow courses 1 and 2.) Laboratory open 9-5.

6. Advanced Mineralogy and Petrography. Crystal measurement, optical properties of minerals and microscopic work on rocks. Two lectures weekly throughout the year. Additional hours of laboratory work may be elected at the option of the student and the work will be directed. Requires courses 1 and 2 or an equivalent, and is intended for seniors and for resident graduates, candidates for a second degree. (Hours to be arranged). Assistant Professor KEMP.

7. Geological Laboratory. Original investigations by advanced students, with excursions under the direction of the department. Hours to accommodate students. Assistant Professor KEMP and Mr. MARSTERS.

8. Lithology for Architects. One hour. Winter term. Mr. MARSTERS.

9. Geology. Special course ; required for architects. Three hours. Lectures and laboratory work. Spring term. M., W., F., 11. Assistant Professor KEMP.

10. Survey Methods. Lectures and demonstrations on the methods of making, recording, and interpreting geological observations. Spring term. Th., 4. Professor H. S. WILLIAMS.

### AGRICULTURE.

1. Applied Agriculture. The preparation of soils ; general management of stock ; farm buildings ; farm-yard manures ; commercial fertilizers ; farm accounts ; principles of stock-breeding ; races and breeds ; breeding ; feeding and management of cattle ; sheep husbandry ; the horse ; farm drainage ; farm implements and machinery ; grains, grasses, and weeds ; business customs, rights, and privileges ; relations of employers and laborers. Lectures, daily ex. S., 11. Professor ROBERTS.

Real estate ; three lectures by Professor H. B. HUTCHINS of the Law School. Personal Property and Contracts ; three lectures by Professor F. W. BURDICK of the Law School.

2. Agriculture, field work. Daily ex. S., 2-5. Professor ROBERTS. Inspection tours to points of technical interest throughout the State.

(For Agricultural Chemistry, see Chemistry, course 3 ; Arboriculture, see Botany, course 4 ; Economic Entomology, see Entomology, courses 3, 4, and 5.)

3. Dairy Husbandry. Lectures, one hour per week, and practice twenty-five hours by appointment. Spring term. M., 11. Mr. WING.

4. Experiment Station Methods. Seminary. Critical study of the work of the Agricultural Experiment Stations as found in the published reports and bulletins. Winter term. S., 10. Mr. WING.

### HORTICULTURE.

1. Variation of Plants under Culture. A discussion of the principles which underlie the modification and amelioration of plants under the hand of man. The course includes the consideration of acclimatization, the modification of plants by latitude and climate, pollination and hybridization, selection, influences of soils and treatments, histories of cultivated plants, etc. Fall term. Lectures. T., Th., 10. Professor BAILEY.

Course 1 is open to all students in all courses who have taken courses 1 and 2 in Botany.

2. Olericulture, or Vegetable Gardening; including a full discussion of forcing and forcing structures. Winter term. Lectures and other class work. M., W., F., 12. Laboratory work once a week. Professor BAILRY and assistants.

3. Pomology. Spring term. Lectures and other class work. M., W., F., 12. Practicums once a week. Professor BAILEY and assistants.

4. Handicraft. Practical training for students who intend to follow gardening as a business. An extension of either course 2 or 3, or both. By appointment. Professor BAILEY and assistants.

5. Investigation incident to previous courses. For graduates and advanced students. By appointment. Professor BAILEY.

### VETERINARY SCIENCE.

1. The anatomy, physiology, and hygiene of farm animals; data for determining age; principles of breeding, of shoeing, etc. Zymotic, parasitic, dietetic, and constitutional diseases of domestic animals. Veterinary sanitary science and police; prevention of animal plagues by legislative and individual action. General diseases of the different systems of organs in the domestic animals. Lectures. Daily ex. S., 8. Clinical demonstrations as opportunity offers. Professor LAW.

### ARCHITECTURE.

#### FRESHMAN YEAR.

1. Instrumental Drawing and Projection. Winter term. M., W., F., 11-1. Mr. YOUNG.

2. Building, Surveying and Levelling. Spring term. Lectures and field work, two afternoons per week. Assistant Professor OSBORNE.

#### SOPHOMORE YEAR.

3. Building Materials and Construction. Winter term. Lectures by Professor BABCOCK. M., W., F., 9. Drawing. M., W., F., 2-4. Mr. YOUNG. Spring term. Lectures and drawing. M., W., F., 2-4. Assistant Professor OSBORNE and Mr. YOUNG. And each week four hours additional drawing.

4. Shades, Shadows, and Perspective. Spring term. Lectures by Assistant Professor OSBORNE. M., W., 9. Drawing six hours per week.

#### JUNIOR YEAR.

5. History of Architecture. Lectures by Professor BABCOCK. Fall term. M., W., F., 10. Winter term. Daily, 11. Spring term. M., W., F., 9. Drawing six hours per week.

6. Designing. M., W., F., 2-5. Assistant Professor OSBORNE. Additional drawing and library work in each term ten hours. First half of Spring term, Mechanics applied to Architectural Construction. Lectures by Professor BABCOCK. T., Th., S., 9. With drawing as above.

7. Ornament. Spring term. Lectures by Professor BABCOCK. T., Th., 9.

#### SENIOR YEAR.

8. History of Architecture. Lectures by Professor BABCOCK. Fall term. M., W., F., 12. Winter term. T., Th., 9.

9. Designing. Fall and Winter terms. Lectures. T., W., 10. Lectures and drawing. T., W., Th., 2.30-5. Spring term. Lectures. T., Th., 11. Drawing. M., W., 10-12. Assistant Professor OSBORNE. Additional drawing and library work, each term, twelve hours per week.

10. Heating, etc. Lectures by Professor BABCOCK. Fall term. T., Th., 9, and T., 12.

11. Stereotomy. Lectures by Professor BABCOCK. Winter term. M., F., 2.30, and six hours per week drawing and modelling.

12. Professional Practice. Spring term. Lectures by Professor BABCOCK, once a week.

### CIVIL ENGINEERING.

#### FRESHMAN YEAR.

1a. Lettering. Round Writing. Fall term. Drawing, three hours per week. F., 10-1. Mr. VEDDER.

1b. Lettering. Spring term. Drawing, six hours per week. T., Th., 10-1. Mr. VEDDER.

2. Linear Drawing. Winter term. Drawing, six hours per week. T., Th., F., 10-12. Mr. VEDDER.

#### SOPHOMORE YEAR.

3. Descriptive Geometry. Recitations, two hours per week. Fall term. M., W., 8. Assistant Professor ———, Mr. VEDDER, and Mr. OGDEN. T., Th., 8. Assistant Professor ———, and Mr. VEDDER. M., W., 9. Assistant Professor ———, and Mr. OGDEN. T., Th., 9. Assistant Professor ———, and Mr. VEDDER.

Winter term. M., W., 8. Assistant Professor ———, Mr. VEDDER, and Mr. OGDEN. T., Th., 8. Mr. VEDDER. M., W., 9. Assistant Professor ———, Mr. VEDDER, and Mr. OGDEN. T., Th., 9. Assistant Professor CRANDALL, and Mr. VEDDER.

Spring term. Recitations in Descriptive Geometry for Architects and Civil Engineers. T., Th., 8. Assistant Professors CRANDALL, and ———. T., Th., 9. Assistant Professor ———.

Original Problems. Fall term. M., W., 10-12. Assistant Professor ———, and Mr. OGDEN. T., Th., 10-12. Assistant Professor ———, Mr. VEDDER, and Mr. OGDEN. Winter term. M., W., 10-12. Assistant Professor ———, Mr. WEBB, and Mr. OGDEN. T., Th., 10-12. Mr. WEBB, and Mr. OGDEN. Spring term. For Sibley College Students. M., W., 8-12. Assistant Professor ———, and Mr. WEBB. T., Th., 8-12. Mr. WEBB, and Mr. OGDEN. For Students in Civil Engineering and Architecture. M., W., 10-12. Assistant Professor CRANDALL. T., Th., 10-12. Assistant Professor ———.

4. Pen Topography. Fall Term. Drawing, four hours per week. M., W., 10-12. Mr. VEDDER. Winter term. Drawing, two hours per week. F., 10-12. Mr. OGDEN.

5. Land Surveying. Spring term. Lectures, recitations and field work, eight hours per week, M., W., 8-9; M., W., F., 10-12. Mr. VEDDER and Mr. OGDEN.

6. Colored Topography. Spring. T., Th., 10-12. Assistant Professor WING.

#### JUNIOR YEAR.

7. Mechanics of Engineering. Lectures and recitations, daily ex. S. Fall term. 10. Assistant Professor CHURCH. 10, 11, 12. Assistant Professor WING. 10, 12. Mr. WEBB. Winter term. 10, 11, 12. Assistant Professor CHURCH. 12. Assistant Professor WING. 8, 12. Mr. WEBB. Spring term. 10, 12. Assistant Professor CHURCH. 10, 12. Assistant Professor WING. 12. Mr. WEBB.

8. Shades, Shadows, Perspective, and Tinting. Lectures and drawing, ten hours per week. Daily, 8-10. Mr. WEBB.

9. Technical reading. Winter term. Critical study of foreign technical literature, three hours per week, M., T., W., 12. French, Italian, Spanish, Professor FUERTES; German, Assistant Professor ———; French, Mr. OGDEN.

10. Structural Details. Winter term. Lectures and drawing, six hours per week, T., Th., 8-11. Assistant Professor ———.

11. Forms and Proportions of Structures. Lectures, three hours per week, M., W., F., 12. Assistant Professor ———.

12. Railroad Location, Railroad Construction, and Railway Economics. Lectures, recitations, drawing, and field work. Fall term. M., W., F., 10-12. Winter term. M., W., F., 9-11. Spring term. T., Th., F., 11. Assistant Professor CRANDALL.

13. Bridge Stresses. Spring term. Lectures and recitations, five hours per week. Daily, ex. S., 9. Assistant Professor CRANDALL.

14. Topographical practice, etc. Spring term. Two weeks field work in the C. U. Surveys of Central New York, twelve hours per day, and one week office work, six hours per day. Professor FUERTES, Assistant Professors CRANDALL, CHURCH, and WING.

#### SENIOR YEAR.

15. Spherical Astronomy. Fall term. Lectures and computations. Daily, ex. S., 10. Professor FUERTES. Night observations, twice a week, 7-11. Professor FUERTES, Mr. VEDDER and Mr. OGDEN.

16. Stereotomy, and Theory of the Arch. Fall term. Lectures and drawing, six hours per week. M., W., F., 8-10. Assistant Professor CRANDALL.

17. Civil Engineering. Lectures. Winter term. M., W., F., 9. Professor FUERTES.

18. Hydraulics. Fall term. Lectures and recitations. Daily, ex. S., 11. Assistant Professor CHURCH.

13a. Bridge Designing. Fall term. Lectures and drawing, four hours per week. T., Th., 8-10. Assistant Professor CRANDALL.

19. Higher Geodesy. Winter term. Lectures and recitations. Daily, ex. S., 8. Assistant Professor CRANDALL.

20. Theory of Oblique Arches, Masonry Designs, and Stone Cutting. Winter term. Lectures and designs, six hours per week. M., W., F. Assistant Professor WING.

21. Hydraulic Motors. Spring term. Lectures and recitations. M., T., W., Th., 11. Assistant Professor CHURCH.

22. Engineering Economics. Spring term. Lectures. M., W., 10. Professor FUERTES.

23. Hydrographic Mapping and Chart Making. Spring term. Drawing, eight hours per week. M., T., W., Th., 8-10. Assistant Professor WING.

24. Theses. Spring term. The subject to be approved by the Director of the College.

14a. Geodetical practice, etc. Spring term. Two weeks field work in the C. U. Surveys of Central New York, fourteen hours per day. Office work, one week, five hours per day. Professor FUERTES, Assistant Professors CRANDALL, CHURCH, and WING.

25. Engineering Laboratory work. Throughout the year. Daily from 9 a. m. to 6 p. m., as assigned. The Professors and Instructors of the department.

26. Sanitary and Municipal Engineering. Fall term. Lectures. T., Th., 12. Professor FUERTES.

28. Hydraulic Engineering. Lectures. T., Th., 10. Professor FUERTES.

29. Geodetic office work. Winter term. T., Th., 10-12. Assistant Professor CRANDALL.

## MECHANICAL ENGINEERING AND THE MECHANIC ARTS.

1. Kinematics and Mechanism. Juniors. Recitations and lectures. Fall term. M., W., F., 9. Assistant Professor A. W. SMITH.

2. Materials of Construction. Juniors. Recitations and lectures. Winter term. M., W., F., 8, 9. Assistant Professor A. W. SMITH.

3. Machine Design. Fall and Winter terms. Seniors. M., W., F., 9. Assistant Professor CANAGA. Spring term. Juniors, daily, ex. S., 9. Assistant Professor A. W. SMITH.

4. Electrical Machinery. Fall and Winter terms. Seniors. M., W., F. Assistant Professor RYAN.

5. Steam Engines and other Motors. Thermodynamics and the theory of steam and other heat engines. Fall term. Lectures. Daily, ex. S., 10. Professor THURSTON.

6. Applied Theory of the Steam and other Engines. Winter term. Lectures. Daily, ex. S., 10. Structure and operation. Spring term. M., W., F., 10. Professor THURSTON.

7. Steam Generation. Design, construction, and operation of the steam boiler. Spring term. T., Th., 10. Professor THURSTON.

8. Shopwork. (a) Freshmen. Woodworking; use of tools; carpentry; joinery; pattern-making; turning. (b) Sophomores and juniors. Blacksmithing; use of tools; forging; welding; tool-dressing, etc. (c) Juniors and sophomores. Foundry work; moulding; casting; mixing metals; brass-work, etc. (d) Juniors and seniors. Machinist's work; use of hand and machine tools; working to form and to gauge; finishing; construction; assemblage; erection. Daily, as assigned, 8-1, 2-6. Professor MORRIS; Messrs. TOWLE, WOOD, VANDERHOFF, GRANGER, CHESEBROUGH, and POLLAY.

9. Freehand Drawing. Daily, ex. S., 10-1, 2-4. Associate Professor CLEAVES, Messrs. GUTSELL, NOYES, and WILLIS.

10. Instrumental Drawing. Required of freshmen in Mechanical and Electrical Engineering. Spring term. Daily, ex. S., 11-1. Associate Professor CLEAVES, and Messrs. NOYES, and WILLIS.

11. Mechanical Drawing. Specials. Daily, ex. S., 8-1. Professor MORRIS, or in classes as assigned.

12. Junior Designing and Drawing as assigned. Assistant Professor H. D. WILLIAMS.

13. Senior Designing and Drawing as assigned. T., Th., 11-1; S., 8-1. Assistant Professors RYAN, CANAGA, and ———.

14. Mechanical Laboratory. (Steam Engine.) Lectures. Juniors. Standardization of Apparatus, and Tests of Boilers and Prime Movers. Spring term. T., Th., 11. Seniors. Fall and Winter terms. Experimental work in standardization and in tests of boilers and prime movers. Daily, 2-5. Associate Professor CARPENTER, Assistant Professor CANAGA, and Mr. BISSELL.

15. Mechanical Laboratory. (Strength of Materials.) Study of methods of testing materials, in course. Juniors. Winter term. M., W., F., 8, 9. Experimental work in the laboratory, strength of materials. Spring term. Daily, 2-5. Associate Professor CARPENTER and Mr. BISSELL.

Advanced work and research, as assigned by the DIRECTOR.

16. Electrical Engineering. Graduates, as assigned. Assistant Professor RYAN.

17. Advanced work in special courses and graduate work in Mechanical Engineering, as may be assigned by Professor THURSTON.

18. Lectures on various professional subjects, by non-resident lecturers, as announced in the Register, at times to be assigned and announced.

### MILITARY SCIENCE AND TACTICS.

1. Infantry drill. School of the soldier. School of the company. School of the battalion and small-arm target practice. Fall and Spring terms. M., W., F., 4.15. Lieutenant TUTHERLY.

2. Artillery drill. School of the soldier dismounted. Saber exercise and target practice. School of the battery dismounted for selected detachments. Fall and Spring terms. M., W., F., 4.15. Lieutenant TUTHERLY.

3. Military Signaling, for selected detachments. Fall and Spring terms. M., W., F., 4.15. Lieutenant TUTHERLY.

Students in courses 2 and 3 are selected by the Commandant from those reasonably proficient in course 1.

4. Military Science. Lectures. Winter. M., W., 4.30. Lieutenant TUTHERLY.

Any member of the cadet corps who has satisfactorily performed all the duties required for the first year, and who is qualified therefor, may be selected for the place of a commissioned officer, if needed. For the performance of his duties as a commissioned officer in the junior or senior year, he is entitled to a credit of three recitation hours

a week for the Fall and Spring terms; and, at graduation, he may receive a certificate of military proficiency with his diploma, provided he has also completed the course in military science prescribed for the Winter term of the senior year.

On the graduation of each class, the names of such students as have shown special aptitude for military service will be reported to the *Adjutant General of the Army* and to the Adjutant General of the State of New York, and the names of the three most distinguished students in military science and tactics will, when graduated, be inserted on the *U. S. Army Register* and published in general orders from headquarters of the army.

### HYGIENE AND PHYSICAL CULTURE.

1. Hygiene, and Physical Culture. Required of all freshmen. Lectures. Fall term. Class in two sections. Saturdays throughout the term. Hours to be assigned. Professor HITCHCOCK.

2. Physical examinations. Students of all classes by special appointment. Gymnasium office. Daily, 10 to 12, and 2 to 4, ex. S. Professor HITCHCOCK.

3. Special medical advice to indigent students. Gymnasium office. Daily, from 12 to 1, throughout the year. Professor HITCHCOCK.

4. Gymnastic exercises. Asthenic class, consisting of men who in the judgment of the Director,—which judgment is founded on the physical examination,—are imperatively in need of special physical development. Fall and Spring terms. The work consists of class and squad work, special developing exercises, and exercises prescribed by the Director for individual deformity or immaturity. Daily, ex. S., 5—6. Mr. NELLIGAN.

5. Gymnastic exercises. Winter term. Sophomores. 4.30 to 6. T., F. Freshmen. Same hours on M., and Th. Optional class on W., and S., at 5. Special exercises for individuals during the forenoons at hours to be arranged. Mr. NELLIGAN.

6. Ladies' gymnastic exercise. All classes except seniors. Sage College gymnasium. Throughout the year. Instruction is given in class exercises, with and without apparatus. Daily, ex. S., 5. Professor HITCHCOCK.

# COURSES OF STUDY.

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## I. THE GENERAL COURSES.

The special requirements of each of the general courses will be seen below.

While pursuing their elective work, which covers a small part of the sophomore year, and nearly the whole of the junior and senior years, students are urgently advised to proceed upon a carefully formed and clearly defined plan, and to aim at the attainment of special proficiency in certain subjects. The members of the Faculty will be pleased to give advice and assistance in the forming of such plans.

The elective hours of the sophomore year should be used with thoughtful reference to the special studies which the student designs to pursue during the junior and senior years. For example, students who intend to make a specialty of Greek should add to the required work the elective hours in that study which are open to sophomores; students of history and political science should take mediæval history or modern history; candidates for the degree of Bachelor of Arts or Bachelor of Philosophy, who desire to make a specialty of science, should take physics; students of all courses who desire to pursue advanced mathematics should take analytic geometry and calculus; students desiring to take a complete course in natural history with a view to teaching it, or with the intention of the ultimate study of medicine, should elect freehand drawing, invertebrate zoology, vertebrate zoology, and botany.

Students who shall devote at least five hours continuously, with marked proficiency during the last two years to any single subject, and pass the requisite examinations, may, upon application on or before June 1, receive mention of the fact in their diplomas.

THE COURSE LEADING TO THE DEGREE OF BACHELOR  
OF ARTS.

<i>Freshman Year.</i>	1st Term.	2d Term.	3d Term.
Latin . . . . .	3*	3	3
Greek . . . . .	3	3	3
Mathematics . . . . .	3	3	3
French . . . . .	3	3	3
English . . . . .	2	2	2
Greek history . . . . .	2	Roman history. . . . . 2	2
Hygiene . . . . .	1	—	—
	—	—	—
	17	16	16
Military drill . . . . .	2	Physical training . . . . . 2	Military drill . . . . . 2

<i>Sophomore Year.</i>	1st Term.	2d Term.	3d Term.
Latin . . . . .	3	3	3
Greek . . . . .	3	3	3
German . . . . .	3	3	3
English . . . . .	2	2	2
Physiology, Psychology, and Logic	} 3	} 3	} 3
	—	—	—
	14	14	14
Military drill . . . . .	2	Physical training . . . . . 2	Military drill . . . . . 2
Elective . . . . .	0 to 4 each term.		

<i>Senior Year.</i>	2d Term.	3d Term.
Thesis . . . . .	2	2
Military Science . . . . .	2	
The remaining work of the junior and senior years is elective.		

THE COURSE LEADING TO THE DEGREE OF BACHELOR  
OF PHILOSOPHY.

Students in the course in Philosophy who in the last two years elect continuously not less than nine hours of studies in history and political science will, upon application on or before June 1, receive the degree of Bachelor of Philosophy in History and Political Science.

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\* The figures indicate the number of University exercises per week or their equivalent in hours counted toward graduation.

<i>Freshman Year.</i>	1st Term.	2d Term.	3d Term.
Latin . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
German . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
French . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
Mathematics . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
English . . . . .	2 . . . . .	2 . . . . .	2 . . . . .
Greek history . . . . .	2	Roman history . . . . .	2
Hygiene . . . . .	1 . . . . .	— . . . . .	— . . . . .
	—	—	—
	17	16	16

Military drill . . . 2 Physical training . 2 Military drill . . 2

<i>Sophomore Year.</i>	1st Term.	2d Term.	3d Term.
Latin . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
French or German	3 . . . . .	3 . . . . .	3 . . . . .
History . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
English . . . . .	2 . . . . .	2 . . . . .	2 . . . . .
Physiology, Psychology, and Logic	}	3 . . . . .	3 . . . . .
	—	—	—
	14	14	14

Military drill . . . 2 Physical training . 2 Military drill . . 2

Elective . . . 0 to 4 each term.

<i>Senior Year.</i>	2d Term.	3d Term.
Thesis . . . . .	2 . . . . .	2 . . . . .
Military science . . . . .	2	

The remaining work of the junior and senior years is elective.

Those who at entrance offer mathematics instead of French or German, must take two years of each of those languages in their course. They must also elect at least one hour a term in place of the mathematics assigned for the freshman year.

### THE COURSE LEADING TO THE DEGREE OF BACHELOR OF LETTERS.

<i>Freshman Year.</i>	1st Term.	2d Term.	3d Term.
Mathematics . . . . .	5 . . . . .	5 . . . . .	5 . . . . .
French . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
German . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
Chemistry . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
English . . . . .	2 . . . . .	2 . . . . .	2 . . . . .
Hygiene . . . . .	1 . . . . .	— . . . . .	— . . . . .
	—	—	—
	17	16	16

Military drill . . . 2 Physical training. 2 Military drill . . 2

<i>Sophomore Year.</i>	1st Term.	2d Term.	3d Term.
French . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
German . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
English . . . . .	2 . . . . .	2 . . . . .	2 . . . . .
Physics . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
Physiology, Psychology, and Logic	} 3 . . . . .	} 3 . . . . .	} 3 . . . . .
	—	—	—
	14	14	14
Military drill . . . . .	2	Physical training . . . . .	2
Elective . . . . .	0 to 4	Military drill . . . . .	2
	each term.		

<i>Senior Year.</i>	2d Term.	3d Term.
Thesis . . . . .	2 . . . . .	2 . . . . .
Military Science . . . . .	2 . . . . .	

The remaining work of the junior and senior years is elective, with the condition that students must devote at least nine hours continuously to literary, historical, and philosophical subjects.

For the course in Letters two years of both French and German are required, in addition to the entrance requirements in those languages.

Those who at entrance offer mathematics instead of one of the modern languages must take three years of that language in their course. They must also elect at least three hours a term in place of the mathematics assigned for the freshman year.

### THE GENERAL COURSE LEADING TO THE DEGREE OF BACHELOR OF SCIENCE.

Students in the course in Science who in their sophomore year elect invertebrate and vertebrate zoology, and at least two terms of freehand drawing, and who in the last two years elect continuously not less than nine hours in natural history, and pass an examination before the beginning of the senior year in Latin equivalent to four books of Cæsar's Commentaries, and in Greek sufficient to show ability to recognize and analyze scientific technical terms, will, upon application on or before June 1, receive the degree of Bachelor of Science in Natural History.

<i>Freshman Year.</i>	1st Term.	2d Term.	3d Term.
Mathematics . . . . .	5 . . . . .	5 . . . . .	5 . . . . .
French . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
German . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
English . . . . .	2 . . . . .	2 . . . . .	2 . . . . .
Chemistry . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
Hygiene . . . . .	1 . . . . .	— . . . . .	— . . . . .
	—	—	—
	17	16	16
Military drill . . . . .	2	Physical training . . . . .	2
		Military drill . . . . .	2

<i>Sophomore Year.</i>	1st Term.	2d Term.	3d Term.
French or German	3 . . . . .	3 . . . . .	3
English . . . . .	2 . . . . .	2 . . . . .	2
Physics . . . . .	3 . . . . .	3 . . . . .	3
Botany . . . . .	2 . . . . .	2 . . . . .	2
Physiology, Psychology, and Logic	} 3 . . . . .	} 3 . . . . .	3
	—	—	—
	13	13	13
Military drill . . . . .	2	Physical training . . . . .	2
Elective . . . . .	1-5 each term,		

<i>Senior Year.</i>	2d Term.	3d Term.
Thesis . . . . .	2 . . . . .	2
Military science . . . . .	2	

The remaining work of the junior and senior years is elective, with the condition that students must devote at least nine hours continuously to scientific subjects.

For the course in Science, two years of French and one year of German, or two years of German and one year of French are required, in addition to the entrance requirements in those subjects.

Those who at entrance offer mathematics instead of one of the modern languages must take the full amount of both French and German as indicated above. They must also elect at least three hours a term in place of the mathematics assigned for the freshman year.

## II. THE TECHNICAL COURSES.

### THE COURSE IN AGRICULTURE.

Leading to the degree of Bachelor of Science in Agriculture.

<i>Freshman Year.</i>	1st Term.	2d Term.	3d Term.
Mathematics . . . . .	3 . . . . .	3 . . . . .	3
French or German . . . . .	3 . . . . .	3 . . . . .	3
English . . . . .	2 . . . . .	2 . . . . .	2
Freehand drawing	3 . . . . .	3 . . . . .	3
Chemistry . . . . .	3 . . . . .	3 . . . . .	3
Hygiene . . . . .	1 . . . . .	— . . . . .	—
	—	—	—
	15	14	14
Military drill . . . . .	2	Physical training . . . . .	2
		Military drill . . . . .	2

<i>Sophomore Year.</i>	1st Term.		2d Term.		3d Term.
English . . . . .	2 . . . . .		2 . . . . .		2 . . . . .
Physics . . . . .	3 . . . . .		3 . . . . .		3 . . . . .
Invertebrate zool.	3	Vertebrate zoology	3	Entomology . . . . .	3
Physiology, Psychology, and Logic	} 3 . . . . .		} 3 . . . . .		} 3 . . . . .
Anat. methods . . . . .		1		Micros. methods . . . . .	
Anatomical lab. . . . .	2	Microscopical lab.	2	Applied Math. . . . .	3
Botany . . . . .	2 . . . . .		2 . . . . .		2 . . . . .
	—		—		—
	16		16		16
Military drill . . . . .	2	Physical training . . . . .	2	Military drill . . . . .	2
Elective, . . . . .	0-2 each term.				

<i>Senior Year.</i>		2d Term.		3d Term.
Thesis . . . . .		2 . . . . .		2 . . . . .
Military Science . . . . .		2		

The remaining work of the junior and senior years is elective, with the condition that at least twelve hours must be devoted continuously to studies specially relating to agriculture or horticulture, a list of which is given below (the studies being arranged in the general order in which they should be taken) :

**Agricultural chemistry :** lectures ; laboratory work in qualitative and quantitative analysis.

**Botany :** compositæ and graminæ ; arboriculture and landscape gardening ; vegetable physiology, vegetable histology ; fungi and algæ, and systematic and applied botany.

**Geology, economic :** lectures.

**Entomology :** lectures and laboratory practice.

**Horticulture :** lectures and field work.

**Veterinary studies :** anatomy and physiology ; pathology ; sanitary science ; parasites ; medicine and surgery.

**Agriculture :** lectures and field work ; dairy husbandry and laboratory work ; experiment station methods (for seniors).

**Land surveying.**

Those who at entrance offer mathematics instead of one of the modern languages, must take a year each of French and German in the University.

## THE COURSE IN ARCHITECTURE.

Leading to the degree of Bachelor of Science in Architecture.

## FRESHMAN YEAR.

FALL TERM.—French or German,\* 3 ; algebra, 5 ; rhetoric, 2 ; free-hand drawing, 3 ; hygiene, 1 ; chemistry, 2 ; drill, 2.

WINTER TERM.—French or German, 3 ; trigonometry, 5 ; rhetoric, 2 ; freehand drawing, 3 ; linear drawing, 2 ; chemistry, 2 ; physical training, 2.

SPRING TERM.—French or German, 3 ; analytic geometry, 5 ; rhetoric, 2 ; pen drawing, 3 ; chemistry, 2 ; surveying and levelling, 2 ; drill, 2.

## SOPHOMORE YEAR.

FALL TERM.—Calculus, 5 ; descriptive geometry, 3 ; mechanics and heat, 3 ; botany, 2 ; figure drawing, 2 ; drill, 2.

WINTER TERM.—Building materials and construction, 6 ; descriptive geometry, 3 ; electricity and magnetism, 3 ; botany, 2 ; pen drawing, 2 ; blowpipe analysis, 1 ; physical training, 2.

SPRING TERM.—Construction, 4 ; descriptive geometry, 3 ; acoustics and optics, 3 ; shades, shadows, and perspective, 3 ; geology, 3 ; drill, 2.

## JUNIOR YEAR.

FALL TERM.—Mechanics, 5 ; Egyptian, Greek, and Roman architecture, 3 ; designing, 5 ; water color drawing, 3.

WINTER TERM.—Mechanics, 5 ; Byzantine and Romanesque architecture, 5 ; designing, 5 ; structural details, 2.

SPRING TERM.—Gothic architecture, 5 ; ornament, 2 ; photography, 1 ; designing, 7 ; water color drawing, 2.

## SENIOR YEAR.

FALL TERM.—Renaissance architecture, 3 ; theory of the arch, 3 ; designing, 8 ; heating, ventilation, etc., 3.

WINTER TERM.—Modern architecture, 3 ; stereotomy, 2 ; designing, 8 ; thesis, 2 ; military science, 2.

SPRING TERM.—Professional practice, 1 ; modelling, 2 ; designing, 5 ; decoration, 3 ; thesis, 2.

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\* Freshmen in Architecture are recommended to elect a second year of the language offered at entrance.

## THE COURSE IN CHEMISTRY.

Leading to the degree of Bachelor of Science in Chemistry.

<i>Freshman Year.</i>	1st Term.	2d Term.	3d Term.
Mathematics . . . . .	5 . . . . .	5 . . . . .	5 . . . . .
German . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
English . . . . .	2 . . . . .	2 . . . . .	2 . . . . .
Chemistry . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
Hygiene . . . . .	1 . . . . .	— . . . . .	— . . . . .
	—	—	—
	15	14	14
Military drill . . . . .	2	Physical training . . . . .	2
		Military drill . . . . .	2

<i>Sophomore Year.</i>	1st Term.	2d Term.	3d Term.
German or Qual. anal. . . . .	3 . . . . .	3 or Quant. anal. . . . .	3 . . . . .
English . . . . .	2 . . . . .	2 . . . . .	2 . . . . .
Physics . . . . .	3 . . . . .	3 . . . . .	3 . . . . .
Physiology, Logic, } and Psychology }	3 . . . . .	3 . . . . .	3 . . . . .
Qual. or Quant. anal. . . . .	4 . . . . .	4 . . . . .	4 . . . . .
Adv. Inorg. Chem. . . . .	2 . . . . .	2 . . . . .	2 . . . . .
	—	—	—
	17	17	17
Military drill . . . . .	2	Physical training . . . . .	2
		Military drill . . . . .	2

<i>Junior Year.</i>	1st Term.	2d Term.	3d Term.
Applied Chemistry or Chem. Philosophy . . . . .	2 . . . . .	2 . . . . .	2 . . . . .
Organic Chemistry . . . . .	5 . . . . .	5 . . . . .	5 . . . . .
German Chemical Readings . . . . .	2 . . . . .	2 . . . . .	2 . . . . .
Quantitative Anal. . . . .	6 . . . . .	5 . . . . .	6 . . . . .
Blowpipe Anal. } and Mineralogy }	3	Microscopy . . . . .	1
	—	—	—
	18	15	15
Elective, . . . . .	3 each term.		

<i>Senior Year.</i>	1st Term.	2d Term.	3d Term.
Organic Chemistry Special Chapters	1 . . . . .	1 . . . . .	1
Organic Chem. La- boratory Practice	3 . . . . .	3 . . . . .	3
Quantitative Anal.	12 . . . . .	6 . . . . .	7
Metallurgy . . . . .	- . . . . .	2 Assaying . . . . .	3
Chem. Philosophy or Applied Chem. . . . .	2 . . . . .	2 . . . . .	2
Military Science . . . . .	- . . . . .	2	
Thesis . . . . .	- . . . . .	2 . . . . .	2
	— 18	— 18	— 18

The above assignment of time in the junior and senior years to quantitative analysis and organic chemistry, may be considerably modified with the advice and consent of the professor concerned, in accordance with the aims of the individual student.

Students in the course in Chemistry who at entrance offer mathematics and German, must take French in place of the mathematics assigned for the freshman year, and must elect at least two hours a term in addition; those who offer French and mathematics, must elect at least five hours in place of the mathematics assigned. In every case, one year of German is to be taken, in addition to the entrance requirement in that subject.

#### GRADUATE COURSES IN CHEMISTRY.

Special advantages are offered to graduates of this and other schools of science, who may desire to pursue advanced studies in the department of chemistry, leading to the higher scientific degrees. Graduate courses are offered in analytical, pharmaceutical, organic, and higher theoretical chemistry; and students pursuing these studies, or engaging in original research, will receive all possible advice and assistance from professors and instructors.

#### THE COURSES IN CIVIL ENGINEERING.

A four-year course leading to the degree of Civil Engineer.

##### FRESHMAN YEAR.

FALL TERM.—Algebra, 5; linear drawing and tinting, 4; land surveying, 3; chemistry, 2; rhetoric, 2; hygiene, 1; military drill, 2.

WINTER TERM.—Trigonometry, 5; pen topography, 3; lettering, 3; chemistry, 2; rhetoric, 2; physical training, 2.

**SPRING TERM.**—Analytic geometry, 5 ; land surveying, 4 ; colored topography, 3 ; lettering, 1 ; chemistry, 2 ; rhetoric, 2 ; military drill, 2.

#### SOPHOMORE YEAR.

**FALL TERM.**—Calculus, 5 ; descriptive geometry, 3 ; experimental mechanics and heat, 3 ; mineralogy and blowpipe analysis, 3 ; botany, 2 ; military drill, 2.

**WINTER TERM.**—Calculus, 5 ; descriptive geometry, 3 ; electricity and magnetism, 3 ; general geology, 3 ; botany, 2 ; physical training, 2.

**SPRING TERM.**—Descriptive geometry, 3 ; shadows and perspective, 2 ; acoustics and optics, 3 ; economic geology, 3 ; metallurgy, 2 ; rhetoric, 1 ; technical reading in foreign languages, 3 ; military drill, 2.

#### JUNIOR YEAR.

**FALL TERM.**—Mechanics of engineering, 5 ; railway location, 3 ; civil constructions, 3 ; engineering laboratory work, 3 ; political economy, 3.

**WINTER TERM.**—Mechanics of engineering, 5 ; railway construction, 4 ; structural details, 2 ; engineering laboratory work, 3 ; political economy, 3.

**SPRING TERM.**—Mechanics of engineering, 4 ; form and proportion of structures, 2 ; bridge stresses, 4 ; railway economics, 2 ; political economy, 3 ; topographical practice, two weeks, and office work, one week, 3.

#### SENIOR YEAR.

**FALL TERM.**—Hydraulics, 5 ; spherical astronomy, 5 ; practical astronomy, night observations, 2 ; bridge designing, 3 ; cartography, 3.

**WINTER TERM.**—Hydraulic motors, 2 ; hydraulic engineering, 3 ; theory of right and oblique arches, 3 ; higher geodesy, 5 ; special engineering laboratory work, 3.

**SPRING TERM.**—Municipal engineering, 3 ; sanitary engineering, 3 ; stone cutting, 3 ; geodetic and astronomical computations, 3 ; special engineering laboratory work, 3 ; trigonometric and hydrographic surveys of Central New York, two weeks, and office work, one week, 3 ; preparation of theses, 4.

The civil engineering laboratories, as well as the chemical, mechanical, and physical laboratories, are open throughout the year for students having the necessary preparation.

**GRADUATE COURSE IN BRIDGE ENGINEERING.**

**FALL TERM.**—Wood and stone bridges, 3 ; bridge details and design, 3 ; engineering architecture, 3 ; laboratory investigations of materials of construction, 3 ; elective, 6.

**WINTER TERM.**—Iron bridges, 3 ; bridge details and design, 3 ; hoisting and pumping machinery, 3 ; designs and details of cranes, pumps, etc., 2 ; hydraulic laboratory investigations, 4 ; elective, 4.

**SPRING TERM.**—Bridge contracts and specifications, 3 ; bridge superintendence and construction, 3 ; special types of trusses, swing and pivot bridges, 3 ; bridge designing, 3 ; thesis, 6.

**GRADUATE COURSE IN RAILROAD ENGINEERING.**

**FALL TERM.**—Economics of railway location, 3 ; railway projects, 3 ; structure and efficiency of locomotive engines and railway machinery, 3 ; advanced general and economic geology, 3 ; laboratory investigations of materials of construction, 3 ; elective, 3.

**WINTER TERM.**—Economics of railway construction, 3 ; projects and designs of track details and accessory works, 3 ; special types of railway machinery and locomotives, 3 ; hoisting and pumping machinery, 3 ; designs and details of cranes, pumps, etc., 2 ; electrical laboratory practice, 4.

**SPRING TERM.**—Railway maintenance and management, 5 ; contracts and specifications for railway construction, 3 ; contracts and specifications for railway machinery, 3 ; railway jurisprudence, 3 ; projects and thesis, 5.

**GRADUATE COURSE IN SANITARY ENGINEERING.**

**FALL TERM.**—Advanced general and economic geology, 3 ; laboratory investigations of materials of construction, 3 ; water collection and distribution, 5 ; special chemical laboratory practice, 3 ; elective, 4.

**WINTER TERM.**—Sewerage of cities and towns, 3 ; designs of water-supply systems, 3 ; hoisting and pumping machinery, 3 ; designs and details of cranes and pumps, 2 ; hydraulic laboratory investigations, 4 ; elective, 3.

**SPRING TERM.**—Drainage and improvement of lands, 3 ; sewerage and water supply designs, 3 ; estimates, specifications, and contracts, 3 ; administration and management of public works, 3 ; sanitary and municipal legislation, 2 ; projects and thesis, 4.

## GRADUATE COURSE IN HYDRAULIC ENGINEERING.

FALL TERM.—Advanced general and economic geology, 3; laboratory investigations of materials of construction, 3; water collection and distribution, 5; motion of water in natural and artificial channels, 3; elective, 4.

WINTER TERM.—Construction of canals and improvement of rivers, 5; hoisting and pumping machinery, 3; designs and details of cranes, pumps, etc., 2; hydraulic laboratory investigations, 4; study of hydraulic problems, 2; elective, 3.

SPRING TERM.—Coast and harbor improvements, 5; estimates, specifications, and contracts, 3; administration and management of public works, 3; projects and thesis, 6.

## GRADUATE COURSE IN GEODETIC ENGINEERING.

FALL TERM.—Advanced general and economic geology, 3; advanced astronomical practice, 5; geodetic field and laboratory work, 3; mineralogy, 3; political economy, 3; elective, 2 or 3.

WINTER TERM.—Advanced geodesy, 3; systematic and applied botany, 3; political economy, 3; special cartography, 3; metallurgy, 2; physical laboratory practice, 4.

SPRING TERM.—Geodetic practice, 6; political economy, 3; magnetic laboratory practice, 3; meteorology, 2; thesis, 4.

For detailed information as to the qualifications for admission to the above graduate courses, see index, or apply to the Director of the Department of Civil Engineering.

## COURSES IN MECHANICAL ENGINEERING.

Professional Courses leading to the Degree of Mechanical Engineer.\*

## REGULAR COURSE.

## FRESHMAN YEAR.

FALL TERM.—French or German, † 3; algebra, 5; chemistry, 3; freehand drawing, 3; shopwork, 3; hygiene, 1; drill, 2.

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\* All elections to be approved by the Director. Students will report for instructions. Number received limited by capacity; at present, to 100 in Freshman, or about 300 in all classes. Students are advised and encouraged to take shop practice in vacation. Three hours in the shop, or two and a half in the laboratory or drawing room, count as one in the schedule.

† Freshmen in Sibley College are recommended to elect the language not offered at entrance.

**WINTER TERM.**—French *or* German, 3; algebra, 5; chemistry, 3; freehand drawing and machine sketching, 3; shopwork, 3.

**SPRING TERM.**—French *or* German, 3; trigonometry, 5; instrumental drawing, 3; chemistry, 3; shopwork, 3; drill, 2.

#### SOPHOMORE YEAR.

**FALL TERM.**—Analytic geometry, 5; descriptive geometry, 3; experimental mechanics and heat, 3; chemical laboratory, 3; shopwork, 3; drill, 2.

**WINTER TERM.**—Differential calculus, 5; electricity and magnetism, 3; chemical laboratory, 3; descriptive geometry, 3; shopwork, 3.

**SPRING TERM.**—Integral calculus, 5; acoustics and optics, 3; descriptive geometry, 3; chemical laboratory, 3; shopwork, 3; drill, 2.

#### JUNIOR YEAR.

**FALL TERM.**—Mechanics of engineering, 5; materials of construction, 5; designing and drawing, 2; physical laboratory, 2; mechanical laboratory, 2; shopwork, 3.

**WINTER TERM.**—Mechanics of engineering, 5; machine design, 5; mechanical laboratory, 2; physical laboratory, 2; designing and drawing, 2; shopwork, 3.

**SPRING TERM.**—Mechanics of engineering, 5; machine design, 5; physical laboratory, 2; mechanical laboratory, 2; designing and drawing, 2; shopwork, 3.

#### SENIOR YEAR.

**FALL TERM.**—Steam engine and other motors, 5; physical laboratory, 2; mechanical laboratory, 2; mechanical engineering and machine design, 5; shopwork, 3; elective, 0 to 3.

**WINTER TERM.**—Steam engine and motors, 5; physical laboratory, 2; mechanical laboratory, 2; mechanical engineering and drawing, 5; shopwork, 3; elective, 0 to 3.

**SPRING TERM.**—Thesis; designing and drawing; mechanical laboratory investigations; shopwork; (time divided optionally, but subject to approval of head of the department\*), 12; elective, 5 to 8.

#### SPECIAL COURSES IN ELECTRICAL ENGINEERING, ETC.

The freshman, sophomore, and junior years are identical in all courses in Mechanical Engineering; in the senior year students may

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\* This term is devoted largely to the preparation of a thesis which must be approved by the Director and by the Committee on Theses. If not otherwise arranged, the student will take shopwork, laboratory work, and drawing, 3 each.

specialize somewhat, those proposing to devote themselves to steam engineering, to naval engineering and architecture, or to electrical or other branches, taking their work with specialists. The following is the course in Electrical Engineering :

#### SENIOR YEAR.

**FALL TERM.**—Physics, lectures and laboratory work (testing of instruments and determination of constants), 5 ; steam engine and other motors, 5 ; mechanical laboratory, 2 ; electrical engineering, 5 ; shop-work, 2.

**WINTER TERM.**—Physics, lectures and laboratory work (dynamo machines and electric motors, tests of efficiency), 5 ; steam engine and motors, 5 ; mechanical laboratory, 2 ; electrical engineering, 5 ; shop-work, 2.

**SPRING TERM.**—Physics, lectures and laboratory work (photometry, efficiency tests of electric lamps, tests of telegraphic instruments, lines and cables), 5 ; thesis (laboratory work, as above, and preparation of thesis\*), 12 ; elective, 0 to 3.

#### GRADUATE COURSE IN ELECTRICAL ENGINEERING.

##### ONE YEAR.

**FALL TERM.**—Structure and theory of electrical apparatus and machinery, 3 ; experimental work in laboratory, 5 ; contracts and specifications, 3 ; elective, 4 to 6.

**WINTER TERM.**—Construction, erection, and management of lines and plant, 3 ; laboratory, 5 ; contracts and specifications, 3 ; elective, 4 to 6.

**SPRING TERM.**—Designing dynamo-electric machinery and establishments, 5 ; experimental work, 3 ; preparation of reports or thesis, 3 ; elective, 4 to 6.

Choice of elective studies, as well as of the special courses of engineering, is subject to the approval of the Director.

#### GRADUATE COURSE IN MARINE ENGINEERING.

##### ONE YEAR.

**FALL TERM.**—Structure and efficiency of marine engines and machinery, 3 ; experimental work in mechanical laboratory, 3 ; contracts

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\* This term is devoted largely to the preparation of a thesis which must be approved by the Director, and by the Committee on Theses. If not otherwise arranged, the student will take shopwork, laboratory work, and drawing, 3 each.

and specifications, 3; chemical or physical laboratory work, 3; elective, 3 to 6.

**WINTER TERM.**—Naval architecture (resistance and speed of vessels, as affected by size, form, material of surfaces and power), 3; mechanical laboratory, investigations, 3; chemical or physical laboratory, 3; contracts and specifications, 3; elective, 6 to 9.

**SPRING TERM.**—Designs of marine machinery, etc., 3; investigations in mechanical laboratory, 3; chemical or physical laboratory, 3; preparation of reports or thesis, 3; elective, 6 to 9.

### GRADUATE COURSE IN STEAM ENGINEERING.

#### ONE YEAR.

**FALL TERM.**—Structure and efficiency of steam boilers, 3; experimental work, 3; contracts and specifications, 3; chemical or physical laboratory, 3; elective, 6 to 9.

**WINTER TERM.**—Structure and efficiency of steam engines, 3; investigation in the mechanical laboratory, 3; chemical or physical laboratory, 3; contracts and specifications, 3; elective, 6 to 9.

**SPRING TERM.**—Designing steam engines and boilers, 3; experimental investigation, 3; chemical or physical laboratory, 3; preparation of reports or thesis, 3; elective, 6 to 9.

### GRADUATE COURSE IN RAILWAY MACHINERY.

#### ONE YEAR.

**FALL TERM.**—Structure and efficiency of locomotive engines, and railway machinery, 3; civil engineering, 3; experimental work, 3; contracts and specifications, 3; chemical or physical laboratory, 3; elective, 3 to 6.

**WINTER TERM.**—Study of special types of locomotive engines and railway machinery, their structure and proportions, 3; civil engineering, 3; laboratory investigation, 3; chemical or physical laboratory, 3; contracts and specifications, 3; elective, 3 to 6.

**SPRING TERM.**—Designing railway machinery and apparatus, 3; civil engineering, 3; experimental investigation, 3; chemical or physical laboratory, 3; elective, 6 to 9.

## COURSE IN INDUSTRIAL ART.

A four-year course not leading to a degree.

## FRESHMAN YEAR.

FALL TERM.—French or German, \*5 ; algebra, 5 ; rhetoric, 2 ; outline drawing, 3 ; hygiene, 1 ; drill, 2.

WINTER TERM.—French or German, 5 ; trigonometry, 5 ; rhetoric, 2 ; outline and ornamental drawing, 3 ; physical training, 2.

SPRING TERM.—Drawing, from casts and figures, 3 ; analytical geometry, 5 ; instrumental drawing, 4 ; botany, 3 ; theory of color, 1 ; drill, 2.

## SOPHOMORE YEAR.

FALL TERM.—Calculus, 5 ; descriptive geometry, 3 ; chemistry, 3 ; experimental mechanics and heat, 3 ; composition, 1 ; studies in anatomy, 1 ; drill, 2.

WINTER TERM.—Cast and figure drawing, 4 ; electricity and magnetism, 3 ; chemistry, 3 ; elementary coloring, 1 ; principles of design, 3 ; descriptive geometry, 3 ; physical training, 2.

SPRING TERM.—Plant forms, 2 ; coloring, 3 ; modeling and potter's wheel, 3 ; acoustics and optics, 3 ; freehand drawing, 3 ; descriptive geometry, 3 ; drill, 2.

## JUNIOR YEAR.

FALL TERM.—Aesthetics, 2 ; drawing, 4 ; moulding and modeling, 4 ; geology, 3 ; physiology, 1 ; psychology and logic, 2 ; coloring and designing, 1.

WINTER TERM.—History of fine arts, 1 ; coloring, 4 ; physiology, 1 ; psychology and logic, 2 ; descriptive astronomy, 3 ; drawing from casts, 4.

SPRING TERM.—Woodworking, 2 ; photography, 2 ; history of art, 2 ; building materials and construction, 3 ; physiology, 1 ; psychology and logic, 2 ; drawing from nature, decoration and coloring, 4.

## SENIOR YEAR.

FALL TERM.—Stereotomy, 3 ; English literature, 3 ; history of industrial arts, 2 ; modeling in clay, 2 ; wood-carving, 2 ; designing in color, 3.

WINTER TERM.—History of art, 3 ; coloring from nature, 2 ; etching, 3 ; designing, 5 ; military science, 2.

SPRING TERM.—Designing in form and color, 4 ; working stone, 2 ; painting from nature, 3 ; graduating work and thesis.

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\*Choice to meet approval of the Director.

## A TWO-YEAR COURSE PREPARATORY TO THE STUDY OF MEDICINE.

Not leading to a degree.

### FIRST YEAR.

**FALL TERM.**—French or German, 3; freehand drawing, 3; anatomical methods, 3; chemistry, 3; physiology, 3; botany, 2; hygiene, 1; military drill, 2.

**WINTER TERM** —French or German, 3; microscopical methods and histology, 3; vertebrate zoology, 3; vertebrate zoology, laboratory practice, 2; chemistry, 3; botany, 2.

**SPRING TERM.**—French or German, 3; botany (lectures, 2, laboratory work, 2), 4; brain, (lectures and practicums, 3, laboratory, 2), 5; chemistry, 3; military drill, 2.

### SECOND YEAR.

**FALL TERM.**—Systematic and economic botany, 3; physics, 3; chemistry, 3; invertebrate zoology, 3; advanced anatomy or histology, 3.

**WINTER TERM.**—Systematic and economic botany, 3; physics, 3; chemistry, 3; logic and psychology, 3; advanced anatomy or histology, 5.

**SPRING TERM.**—Systematic and economic botany, 2; physics, 3; chemistry, 3; logic and psychology, 3; fungi, 3; embryology, 4.

Upon the completion of this course, or its equivalent, the student is, upon application on or before June 1, entitled to a certificate countersigned by the professor of physiology.

# THE PRESIDENT WHITE SCHOOL OF HISTORY AND POLITICAL SCIENCE.

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By action of the Board of Trustees, the courses of instruction in History and Political Science have been reorganized with the purpose of making them more comprehensive and efficient. While the Faculty does not rigidly prescribe any definite succession of courses, it earnestly recommends that students desiring to make themselves proficient in this general branch of study, early mark out their work in accordance with a systematic plan. During the freshman year there are weekly two hours of work in history prescribed for all students who are candidates for the degrees of A.B. or Ph.B. In the sophomore year candidates for the degree of Ph.B. are required to take three additional hours. With these exceptions, all work offered is elective.

Students in the course of Philosophy who elect nine hours of work continuously in History and Political science during the third and fourth years of the course, and pass satisfactorily the examinations in the same, will receive the degree of Bachelor of Philosophy in History and Political Science. Other students who elect five hours of history, or five hours of political science, or five hours of each, continuously in the third and fourth years of their courses, and pass satisfactorily the examinations in the same, will, upon application on or before June 1, receive mention of that fact in their diplomas.

In order to encourage definiteness of purpose on the part of students when making their elections, the following is offered as a suitable scheme of study. For full details in regard to the courses, the library, etc., see p. 65.

## FRESHMAN YEAR.

Course 1. History and Civilization of Greece and Rome. Required of all candidates for A.B. and Ph. B. T., Th., 9, 10, 11.

## SOPHOMORE YEAR.

(From two to five hours of elective work may be taken.)

[Course 4. The Political and Social History of Europe during the Middle Ages. M., W., F., 9.]

Course 5. The Political and Social History of Europe from the Renaissance to the French Revolution. T., Th., S., 9.

[Course 2. Private, Political, and Legal Antiquities of the Greeks. T., Th., 11.]

[Course 3. Private life of the Romans. This course is given in alternate years with course 2. Either of them may profitably be taken by those candidates for the degree of Ph.B., who in addition to course 6, desire five hours of elective work in history. W., F., 11.]

Course 6. The Political and Social History of England from the Saxon Invasion to the close of the Napoleonic Wars. Required of all candidates for Ph.B. T., Th., S., 9.

#### JUNIOR YEAR.

Courses 2, 3, 4, 5, and 6. (When not taken in the sophomore year.)

Course 9. The Social and Political History of America, from the Discovery to the end of the Revolution. M., W., F., 3. Open to those who have taken, or are taking, course 6. Course 9 is given on alternate years with course 10.

Course 10. American History from the end of the War for Independence to the end of the War for the Union. Designed for those who have taken, or are taking, course 6. M., W., F., 3.

Course 11. American Historical Seminary, for Juniors and Seniors. M., 7-9 P. M. Open only to those taking course 9, or course 10, or course 11.

Course 14. History of Institutions. Designed for students who have taken course 4, and who take, or have taken course 5. M., W., F., 11.

Course 19. The Elements of Political Economy. Required as a prerequisite to all the advanced courses in this subject. M., W., F., 10.

Course 15. International Law and Diplomacy. T., Th., 11.

Course 16. The Literature of Political Science. T., 3.

[Course 18. Historic Achievements in Statesmanship. Th., 11. Alternating with course 16.]

Course 21. History of Tariff Legislation. W., 12.

#### SENIOR YEAR.

Courses 10, 14, 15, 16, 18, 21, in case they have not been taken in the junior year.

[Course 7. General History of Europe from the beginning of the French Revolution to the War of 1870. T., Th., S., 12.]

Course 8. Palaeography and Diplomatics. W., 4.30-6.

Course 12. The Development of American Constitutional History and Constitutional Law from the Colonial Time to the Civil War. T., Th., 3.

Course 13. Seminary in American History. Designed for seniors specially prepared and for graduates. T., 7-9 P. M. Credit, two hours.

Course 20. Advanced course in Political Economy. Open to those who have taken course 19. T., Th., 12.

Course 17. General Seminary. Advanced course for the examination of obscure political and historical questions. Adapted specially to the needs of Fellows and other graduate students, and open to those undergraduates only who have already taken a large amount of historical work. Th., 4.30-6. Credit, two hours.

Course 24. Economic Seminary. For the study of difficult problems in applied economics. M., 4-5.30. Open only to advanced students.

Course 26. Social Science, including the History and Management of Charitable and Penal Institutions. T., 4.30.

Course 27. Roman Law and Comparative Jurisprudence. M., 2.

#### GRADUATE STUDENTS.

The courses above offered during the junior and senior years, so far as they may not be taken before the baccalaureate degree is received, are open to graduates of this or other institutions. An inspection of the courses will show that they cannot all be taken before graduation, even if no other branches of study are elected. The seminary courses are specially exacting, and with the other courses offered, will ordinarily afford abundant opportunity for advanced work during two years of graduate study. To students pursuing graduate work, the books of the seminary rooms and the general library are at all times immediately accessible. To students taking the advanced courses, the degrees of Master of Arts and Doctor of Philosophy are offered on conditions elsewhere explained. The History and Political Science Association holds frequent meetings and affords opportunity for bringing before the whole body of teachers and students interested in this field of study the results of any special investigations that may be deemed important.

# SCHOLARSHIPS, FELLOWSHIPS, AND PRIZES.

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## STATE SCHOLARSHIPS.

Under the Law of the State the Superintendent of Public Instruction is empowered to award annually a number of free scholarships in Cornell University equal to the number of Assembly districts in the State. These Scholarships entitle the holder to free tuition for four years. For particulars in regard to the scholarships, application should be made to the Superintendent of Public Instruction at Albany.

The Law provides that "any State student who shall make it appear to the satisfaction of the President of the University that he requires leave of absence for the purpose of earning funds with which to defray his living expenses while in attendance, may, in the discretion of the President, be granted such leave of absence, and may be allowed a period not exceeding six years from the commencement thereof for the completion of his course at said University." Under this provision of the charter the President of the University will, for the purpose indicated therein, grant leave of absence after an applicant has been regularly admitted to the University. The scholarship will then be kept good; but will not be extended for more than *four* years from its date, unless application is made after at least one year from the time of entrance, in case of applicants who have acquitted themselves creditably in the University during this period. Those holding scholarships are therefore advised, if possible, to enter the University at once, and to postpone asking for leave of absence until after one year in the University has been completed.

## UNIVERSITY SCHOLARSHIPS.

Pursuant to the action of the Trustees, described elsewhere, there will annually be thrown open to competition for all members of the freshman class who are registered in courses leading to degrees, at a special examination held directly after the September entrance examinations, nine scholarships of the value of two hundred dollars each.

Students of high ability from the State of New York will have the additional advantage of being able to secure State Scholarships, as there is nothing in the University statutes to prevent a student from holding both a State Scholarship and a University scholarship.

The name of every successful competitor for these scholarships is inserted in the annual Register of the University, together with the name of the school at which he or she was fitted for college, and the name of the principal of the school ; and these names remain in the Register as long as he or she retains the scholarship.

It has also been thought best to give the scholarships to the candidates passing the best examinations, regard being had to ability and attainments alone. It is believed that in this way only can the bestowal of the scholarships be put on the proper footing ; but the experience of the Trustees and Faculty leads them to believe that a system based on merit alone, will inure mainly to the benefit of students of small means, since the great majority of the best scholars come, not from the wealthy class, but from those whose circumstances have forced them to feel the need of thrift and energy.

The statute in regard to Scholarships is as follows :

1. There are established by the University thirty-six University Scholarships, each of the annual value of two hundred dollars.

2. Said Scholarships are named as follows : The Cornell Scholarships ; the Lord Scholarships ; the McGraw Scholarships ; the Sage Scholarships ; the Sibley Scholarships ; the President White Scholarships ; the Horace Greeley Scholarships ; the John Stanton Gould Scholarships ; and the Stewart L. Woodford Scholarships.

3. The University Scholarships are given :

(a). For the first two years of any course, on the basis of excellence in special examinations held at the beginning of the Freshman year.

(b). For the third and fourth years on the basis of highest general standing in the first two years, including all the required work, and as much elective work as may be necessary to complete an aggregate amounting to sixteen hours a week taken in the University during two years. Work for which credit is given in consequence of having been done before coming to the University, is not to be considered in the computation.

4. Applicants for a University Scholarship must be free from conditions at the time of making application.

5. Scholarships for the first two years will be given for passing examinations which shall average the highest in any three of the following groups, of which group (a) must be one :

- (a). Arithmetic, and algebra through quadratic equations ;
- (b). Plane and solid geometry ;
- (c). Greek ;
- (d). Latin ;
- (e). French ;
- (f). German.

6. The holder of a Scholarship shall forfeit the right to the same in case said holder shall at any time change the course in which he or she was registered at the time of receiving the award, unless the records of entrance examinations shall show that, at the time of the holder's admission to the University, all the subjects required for admission to the course last chosen were passed by him or her, and all candidates must state before the Scholarships are awarded what course they intend to pursue.

7. The holders of Scholarships must be candidates for the first degree, and shall not be recommended by the Faculty for such degree, except after a residence of the full period of four years at the University.

8. All persons shall be debarred from the competition for University Scholarships, for the first two years of any course, who shall have participated in any previous competition for the same, or shall have been in the previous year or years registered as a student in this University, or in any other University or College.

9. A Scholarship will be forfeited at any time in case two-thirds of the Faculty present at any meeting, notice having been given at the meeting immediately before, shall decide that the holder has been guilty of negligence, or of conduct of any kind that is unbecoming a student holding such Scholarship.

10. Whenever any Scholarship shall for any reason become vacant, the vacancy can be filled by the Faculty only from the students of the same course as that in which the vacancy occurred.

The scholarships are paid at the office of the Treasurer of the University in six equal payments, on November 1, December 1, February 15, March 15, May 1, and June 1.

### UNIVERSITY FELLOWSHIPS.

The fellowships hereinafter described are intended to offer to young men and women of exceptional ability and decided purpose the opportunity for advanced study of a high character.

The holders must have taken a baccalaureate degree, and will ordinarily be recent graduates of this or other institutions ; but it is hoped

that in occasional cases they will be students who have been for some years graduated, and who, whether as teachers or as professional workers, have felt the need of larger opportunities than they have yet enjoyed. And similarly, it is believed that holders of these fellowships who are preparing themselves for any profession to which the work of the University leads, will bring to that profession, in consequence of advanced study and research, a range and grasp in their chosen subjects which will lead them to exceptional usefulness and success.

The Fellows are required to reside at the University, and to engage in advanced work, with the immediate supervision and assistance of the professors concerned in their respective specialties; and, as the most conspicuous members of the student body, and representatives of the most advanced instruction given, they are expected, by high character and high intellectual aims, to exert an influence upon the entire life of the University.

The application of the candidate for a fellowship should contain a full statement of the branches of study he intends to carry on, if appointed; and if he has produced any literary or scientific work that could be put in evidence for him, a copy should accompany his application. Those candidates who are graduates of other colleges or universities than Cornell should submit recommendations from the instructors best acquainted with their ability and attainments in the specialities they desire to pursue. It should be borne in mind by such applicants that information cannot be too exact or full in the case of students not personally known to the appointing body. The list of applicants is large, and the Faculty desires to be aided in every way in making its selections.

In exceptional instances, a competitive examination may be resorted to as a means of discriminating among several candidates.

The statute in regard to Fellowships is as follows:

1. There are in this University eight Fellowships, each of the annual value of four hundred dollars, named as follows: the Cornell Fellowship; the McGraw Fellowship; the Sage Fellowship; the Schuyler Fellowship; the Sibley Fellowship; the Goldwin Smith Fellowship; the President White Fellowship; and the Erastus Brooks Fellowship.

2. All candidates for Fellowships must be graduates of this University, or of some other institution having equivalent courses of instruction, and must be men or women of high character and marked ability in some important department of study.

3. Fellows will be selected by the General Faculty on the recommendation of the head of that department in which the applicant desires to carry on the principal part of his work.

4. All applications and testimonials must be filed with the Registrar on or before the 15th of May of the collegiate year preceding the one for which the application is made.

5. The term of each Fellowship is one year; but the term may be extended to two years, providing the extension does not increase the number of Fellows beyond that named in paragraph 1 of this act.

6. In view of the fact that practical University instruction will be of use in training said Fellows for future usefulness, each holder of a Fellowship shall be liable to render service to the University in the work of instruction or examinations to the extent of four hours per week throughout the collegiate year. The distribution and assignment of this service shall be determined by the head of the department in which the Fellow is doing his principal work.

7. No person shall hold at one time more than one Fellowship, and any Fellow may be dispossessed of the income of his Fellowship by action of the Faculty, if he shall be guilty of any offence, or if he shall continue in any course of conduct which in the opinion of the Faculty shall render him unworthy of holding such Fellowship; but final action in such cases by the Faculty shall be by ballot, and shall require a two-thirds vote.

8. Vacancies in Fellowships that occur after October 1st, in order to be filled, shall require a three-fourths vote of the Faculty.

9. All persons elected to Fellowships are required, upon accepting their appointments, to file a bond to repay the University in case of their resignation before the expiration of the time for which they were appointed, any sums which they may have received.

10. The money due Fellows under the provisions of this act is paid in three equal parts; one each on the 15th of December, on the 15th of March, and on the 15th of June.

11. In all cases where Fellowships are not awarded, or when from any cause the income of one or more Fellowships may cease to be paid, or when the aggregate sum paid shall be less than the amount contemplated by this act, the surplus thus accruing shall be added to the principal of the loan fund for needy and meritorious students.

## PRIZES.

### I. THE WOODFORD PRIZE.

The Woodford Prize, founded by the Hon. Stewart Lyndon Woodford, and consisting of a gold medal of the value of one hundred dollars.

lars, will be given annually for the best English oration, both matter and manner being taken into account.

The prize may be competed for under the following conditions :

1. Any student registered as Senior in one of the four-year courses leading to a degree may be a competitor, provided he has taken at least one course of instruction in Elocution.

2. Every competitor shall be required to submit, at the Registrar's office, on or before noon of the first Monday of the Spring term, an original oration upon a subject which shall have previously been approved by the Professor of Elocution and Oratory.

3. The competing orations shall be limited to fifteen hundred words ; shall be written with a type-writer ; shall be signed with a fictitious name ; and be accompanied with a sealed envelope containing the fictitious name of the writer without, and the real name within.

4. From the orations submitted, a Committee appointed by the Faculty, shall select the best, not to exceed six in number, for delivery in public, and the names of the successful writers shall be announced as early as is practicable after the beginning of the Spring Term.

5. The prize shall not be conferred unless the successful competitor shall complete his course and take his degree at the Commencement next following.

6. The contest for the prize will take place on the evening of the Wednesday preceding Commencement Day, under the direction of the President of the University.

7. The prize shall be awarded by a Committee of three appointed by the President from persons not resident in Ithaca, whenever practicable.

8. A copy of each of the orations selected for the competition shall, within one week after the selection, be deposited by its author with the committee charged with the selection, who shall, after the completion of the competition, deposit the successful oration permanently in the University Library.

## II. THE '86 MEMORIAL PRIZE.

A public contest of speakers appointed from the junior class will be held in May of each year, and the successful competitor will be awarded the '86 Memorial Prize in Declamation, being the income of a sum of money left as a memorial by the class, and amounting to about thirty dollars annually. The conditions of the contest are as follows, viz. :

1. The Associate Professor of Elocution and Oratory is empowered to select from the students in the classes of Elocution, twelve members of the junior class whose general excellence in that course, in his judgment, warrants their competing for the prize.

2. The announcement of this selection is to be made not later than the middle of the third term.

3. The contest for the prize takes place on the evening of the second Friday preceding the beginning of examinations in the Spring term, under the direction of the Associate Professor of Rhetoric and Oratory.

4. The prize is awarded by a committee appointed by the President of the University.

### III. THE HORACE K. WHITE PRIZES.

These prizes, established by Horace K. White, Esq., of Syracuse, are awarded annually to the most meritorious students in the Department of Veterinary Science, as follows: To the first in merit, twenty dollars; to the second in merit, ten dollars.

### IV. SIBLEY PRIZES IN MECHANIC ARTS.

Under the gift of the late Hon. Hiram Sibley, made in 1884, the sum of one hundred dollars will be annually awarded to those students in the Sibley College who shall, in the opinion of the Faculty of that institution, show the greatest merit in their college work.

### V. THE MRS. A. S. BARNES SHAKESPEARE PRIZE.

A prize of sixty dollars, offered by Mrs. A. S. Barnes, is given annually, for the best essay on some subject connected with the Plays of Shakespeare, written by a student of Cornell University. The essays must be written with a type-writer, must be completed and deposited with the Registrar on or before the first day of June, and must bear, in every case, a fictitious signature, accompanied with the name of the writer in a sealed envelope.

The subject of the Barnes Shakespeare Prize Essay, for 1890-91, will be: The character of Henry V. as Prince of Wales, and as King; and the dramatic motive of Falstaff in relation to him as Prince of Wales.

### VI. THE NEW SHAKSPERE SOCIETY PRIZE.

The prize offered by "The New Shakspeare Society" of London, consisting of a number of valuable publications of the Society, is awarded to the student passing the best general examination on the Shaksperian work of the year.

# ADMISSION AND CLASSIFICATION.

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## CONDITIONS OF ADMISSION.

Candidates must be at least *sixteen* years of age, or, if women, *seventeen*. They must have certificates of good moral character, and students from other colleges or universities are required to furnish from those institutions certificates of honorable dismissal.

Candidates for admission must file their credentials and obtain permits for examination at the Registrar's office. The results of the examinations may be ascertained from the Registrar.

## ENTRANCE EXAMINATIONS.

Examinations in all the subjects required for admission to the University are held twice in the year, as follows: 1. In June, at the end of the Spring term; 2. In September, at the beginning of the Fall term. No examination of candidates for admission will be held at any other time. Further information in regard to the time of examinations may be found on pp. 7 and 154.

## ADMISSION ON EXAMINATION.

### I. THE PRIMARY ENTRANCE EXAMINATIONS.

*(Required for all courses, but not sufficient for admission to the University without the advanced examinations indicated on pp. 151-153).*

1. In *English*. The candidate will be required to write a short English composition,—correct in spelling, punctuation, grammar, division by paragraphs, and expression,—upon one of several subjects announced at the time of the examination. In 1891 the subjects will be drawn from one or more of the following works: Shakespeare's Julius Cæsar and Merchant of Venice, Coleridge's Ancient Mariner, Longfellow's Evangeline, Macaulay's Essay on Lord Clive, Webster's first Bunker Hill Oration, Irving's Alhambra, Scott's Old Mortality, George Eliot's Silas Marner, Hawthorne's House of the Seven Gables. Every candidate is expected to be familiar with all the books in this list.

The candidate will also be required to correct specimens of bad English set for him at the time of the examination.

[The works prescribed for the examinations of 1892 and 1893 are the following :

For 1892 : Shakespeare's Julius Cæsar and As You Like It, Scott's Marmion, Longfellow's Courtship of Miles Standish, Addison's Sir Roger de Coverley papers, Macaulay's second Essay on the Earl of Chatham, Webster's first Bunker Hill Oration, Irving's Alhambra, Scott's Talisman, George Eliot's Scenes from Clerical Life, Hawthorne's House of the Seven Gables.

For 1893 : Shakespeare's Julius Cæsar and Twelfth Night, Scott's Marmion, Longfellow's Courtship of Miles Standish, Addison's Sir Roger de Coverley papers, Macaulay's second Essay on the Earl of Chatham, Emerson's American Scholar, Irving's Sketch Book, Scott's Ivanhoe, Dickens's David Copperfield.

It is the special aim of the examination to test the candidate's practical, rather than his theoretical, knowledge of English, though the latter is taken due account of.

No student markedly deficient in English will be admitted to any of the courses in the University.

2. In *Geography*, political and physical ; as much as is contained in Harper's School Geography or in Warren's Common School Geography.

3. In *Physiology and Hygiene* ; the equivalent of Martin's "The Human Body" (briefer course), and of Wilder's "Health Notes" and "Emergencies." The treatises of Hutchinson, Huxley, and Walker are accepted as equivalents of Martin.

4. In *Arithmetic*, including the metric system of weights and measures ; as much as is contained in the larger text-books.

5. In *Plane Geometry* ; as much as is contained in the first five books of Chauvenet's Treatise on Elementary Geometry, or in the first five books of Wentworth's Elements of Plane and Solid Geometry, or in the first six books of Newcomb's Elements of Geometry, or in the first six books of Hamblin Smith's Elements of Geometry.

6. In *Algebra*, through quadratic equations, and including radicals and the theory of exponents ; as much as is contained in the corresponding parts of the larger treatises of Newcomb, Olney, Ray, Robinson, Todhunter, Wells, or Wentworth, or in those parts of Oliver, Wait, and Jones's Treatise on Algebra that are indicated below, with the corresponding examples at the ends of the several chapters : chapters I, II, III ; chapter IV, except theorems 4, 5, 6 ; chapter V, except §§ 3, 5, and notes 3, 4, of problem 2 ; chapter VII, § 11 ; chapter

VIII, §§ 1, 2, the first three pages of § 8, and § 9; chapter XI, except § 9, problem 9 of § 12, and §§ 13, 17, 18.

[In Arithmetic, and in the fundamental operations of Algebra, such as multiplication and division, the management of brackets, the solving of numerical and literal equations of the first and second degrees, the combining and simplifying of fractions and radicals, the interpretation and use of negative quantities, and of 0 and  $\infty$ , the putting of problems into equations—the student should have distinct notions of the meaning and the reason of all that he does, and be able to state them clearly in his own language; he should also be able to perform all these operations, even when somewhat complex, with rapidity, accuracy, and neatness; and to solve practical problems readily and completely. In his preparatory study he is advised to solve a great many problems, and to state and explain the reasons for the steps taken. In Geometry he should learn the definitions accurately, whether in the language of the text-book or not, and in proving a theorem or solving a problem he should be able to prove every statement made, going back step by step till he rests upon the primary definitions and axioms. He should be able to apply the principles of geometry to practical and numerical examples, to construct his diagrams readily with rule and compass, and to find for himself the solutions of simple problems and the demonstrations of simple theorems. To cultivate this power of origination, he should always, before reading the solution or proof given in his text-book, try to find out one for himself, making use, if necessary, of his author's diagram; and if successful, he should compare critically his own work with his author's, and see wherein either is the better. Besides oral recitation, he is advised to write out his demonstrations, having regard both to the matter and to the form of his statements; and when written he should carefully study them to make sure, first, that he has a complete chain of argument, and secondly, that it is so arranged that without defect or redundancy one step follows as a logical consequence of another.]

7. In *American History*; Eggleston's History of the United States, or its equivalent.

## II. ADVANCED EXAMINATIONS FOR ADMISSION TO THE VARIOUS COURSES.

For admission to the various courses of study, examinations *in addition to the Primary Entrance Examinations* are required as follows:

*To the Course leading to the degree of Bachelor of Arts :*

1. In *Greek* ; candidates are expected (1) to have read at least one hundred pages of Attic prose and eighteen hundred lines of Homer ; (2) to have acquired such facility in reading at sight as will enable them to read without previous preparation, but with the aid of a vocabulary of all unusual words, simple passages of Attic prose ; (3) to be thoroughly familiar with the inflectional forms, the principles of derivation, and the outlines of the syntax ; (4) to have completed Jones's *Greek Prose Composition*, or the first two parts of Allinsou's.

2. In *Latin* ; candidates are examined (1) in the following authors, with questions on subject-matter, constructions, and the formation and inflection of words : Cæsar, four books of the Gallic war ; Virgil, the *Eclogues* and six books of the *Æneid*, with the prosody ; Cicero, six *Orations*, including the four against *Catiline* ; Sallust's *Catiline* ; (2) in the translation at sight of passages of average difficulty from Cæsar and Cicero ; and (3) in the translation into Latin of a piece of connected English based upon the principles and vocabulary contained in the first forty lessons of Allen's *Introduction to Latin Composition*. Teachers who are preparing students in Latin for the University should aim to fit them to be admitted to course 2. The Professor of Latin will be glad to be of assistance, whether by correspondence or by personal interview, to any one who may desire to consult him upon methods of work in teaching the language. The hours after 11 o'clock on Saturday can be counted upon for any engagement that may be made by letter.

[The following pronunciation is recommended to students preparing for the University :

Long	Short
<i>a</i> as in <i>father</i> .	<i>a</i> as in <i>Cuba</i> .
<i>e</i> " <i>they</i> .	<i>e</i> " <i>them</i> .
<i>i</i> " <i>machine</i> .	<i>i</i> " <i>pin</i> .
<i>o</i> " <i>dole</i> .	<i>o</i> " <i>obey</i> (not as in <i>sob</i> .)
<i>u</i> " <i>rule</i> .	<i>u</i> " <i>full</i> .

*Æ* like *ay*, *æ* like *oy*, *au* like *ow* in *now*, *ei* as in *rein*, *eu* somewhat as in *few*, but with the first element pronounced with stress and instantly left, *qu* as in English *queen*, *bs* like *ps*, *v* like *w*, *j* like *y*, *c* and *g* always hard as in *cot* and *get*, *s* always as in *sing*. Every consonant should be fully and clearly pronounced, two sounds being distinctly heard in the case of doubled consonants. Care should be taken to give the true quantity of unaccented vowels (e. g. the second vowel in *verebatur*, *amabatur*, etc., should be pronounced long, not short, as

commonly), and not to lengthen final short *a* as is commonly done (*e. g.* in *arma*).

3. In *Grecian and Roman History*, and the outlines of ancient geography; Fyffe's *Primer of Greece*, Creighton's *Primer of Rome*, and Tozer's *Primer of Classical Geography* will indicate the amount and method of study required.

*To the Course leading to the degree of Bachelor of Philosophy:*

1. In *French*, or *German*, or *Mathematics*, as below. 2. In *Latin*, as above. 3. In *Grecian and Roman History*, as above.

*To the Courses leading to the degrees of Bachelor of Letters and Bachelor of Science, including the courses in Agriculture and Chemistry.*

In two of the three subjects following:

1. In *French*: the amount of French necessary for entrance would be represented approximately by the whole of Whitney's *Practical French Grammar*, and by the first hundred pages of Super's *French Reader*, and the whole of Crane and Brun's *Tableaux de la Révolution Française*. For the examination no specific authors or works are designated; but candidates are expected to be able to read easy French at sight, and to translate readily simple English into French. Pronunciation, and translation and writing of French from dictation will be included.

All candidates are required to present a statement from their teachers of the amount of French previously read, the text-books used, and the proficiency attained.

2. In *German*: the amount of German necessary for entrance would be represented approximately by the amount of reading matter in Brandt's *Reader*, or by the larger portion of Whitney's *Reader*, and by the amount of grammar in Brandt's, Joynes—Meissner's, or Whitney's *Grammar*. Preparation by the so-called "natural" method should be supplemented by a thorough drill in syntax.

A satisfactory preparation will require in general a considerable reading of simple German prose and verse, and the careful study of one or more modern dramas. An accurate knowledge is also required of the principles of grammar, embracing inflections, syntax, the composition of words, the force of prefixes and suffixes, and the laws of consonantal change in cognate words, as well as the ability to render easy narrative prose from English into German, to translate ordinary

German at sight, and to pronounce readily and correctly. The practice of committing to memory a number of short poems and anecdotes should constantly be cultivated.

For examinations no specific authors or works are designated. The writing of German from dictation will be included. All applicants are required to present a statement from their teachers of the amount of German previously read, the text-books used, and the proficiency attained.

Applicants for admission to the technical courses are advised to direct their preparatory study so as to enlarge their vocabulary, and to obtain a good reading knowledge of the language.

3. In *Mathematics*: Solid Geometry, as much as is contained in Newcomb's Elements of Geometry, or in the treatises of Chauvenet (old edition), Wentworth, Davies, or Robinson; Advanced Algebra, as much as is contained in those parts of Oliver, Wait, and Jones's, or Hall and Knight's Treatise on Algebra which are read at the University (a list is sent on application to the Registrar), or in the larger Treatises of Olney, Ray, or Wells; and Plane Trigonometry, as much as is contained in the unstarred portions of Oliver, Wait, and Jones's Treatise on Trigonometry, or in the Treatises of Wells, Wheeler, Olney, or Davies.

*To the Courses in Engineering and Architecture:*

1. In *Mathematics*, Solid Geometry, as above. 2. In *French* or *German* as above. For the course in Architecture, French is considered to be more desirable than German; and in that course *Latin* to the amount of four books of Cæsar's Gallic War and Sallust's Catiline, or an equivalent, may be substituted for the French or German required.

*To the Two-Year Course Preparatory to the Study of Medicine:*

1. In *Latin*; four books of Cæsar's Commentaries or an equivalent, with a good knowledge of the grammar. 2. In *Greek*; so much as will enable the student to recognize and analyze scientific terms. (Goodell's the Greek in English furnishes the amount required). 3. In *Plane Trigonometry*; as much as is contained in the unstarred portions of Oliver, Wait, and Jones's Treatise on Trigonometry. 4. In *French* or *German* as above.

*Optional Students.*—Students who have passed the examinations required for admission to any of the general courses may register as optional students, and elect such work as may be open to them.

## III. TIME AND CONDITIONS OF THE EXAMINATIONS.

The examinations are held in the following order. The dates may be found in the calendar on p. 7.

*First Day.*—2 P. M., Arithmetic; 4 P. M., Geography.

*Second Day.*—9 A. M., English; 11 A. M., Plane Geometry; 3 P. M., American History.

*Third Day.*—9 A. M., Algebra; 11.30 A. M., Physiology; 3 P. M., Grecian and Roman History.

*Fourth Day.*—8 A. M., Solid Geometry; 10.30 A. M., German; 3 P. M., Latin.

*Fifth Day.*—8 A. M., Greek and Advanced Algebra; 10.30 A. M., French; 3 P. M., Trigonometry.

Candidates for admission to the University, instead of passing the entire examination at one time, may present themselves in different years under the following conditions:

1. For the purposes of the division between two years the examinations in June and September of the same year may count as one series, the applicant, at his option, taking a part in June and a part in September.

2. Candidates are expected at their first presentation to take all the seven prescribed subjects of the primary entrance examinations before trying the advanced examinations.

3. No account will be taken of the result of such preliminary examinations unless at least four subjects are satisfactorily passed.

Candidates intending to offer Greek at this preliminary examination may present themselves for examination in the Anabasis. Those intending to offer Latin may offer Cæsar, or either Virgil or Cicero.

Applicants may be admitted conditionally to the University in spite of deficiencies in some subjects, in case such deficiencies are not so considerable as in the judgment of the Faculty to disqualify them for the performance of the work of the freshman year. Students deficient in subjects required for admission will not be permitted to remove such deficiencies by attending University instruction in those subjects; but are required to take the necessary instruction outside of the University.

## ADMISSION WITHOUT EXAMINATION.

## I. ON THE REGENTS' DIPLOMA.

Diplomas issued by the Regents of the University of the State of New York are accepted in place of examinations in all the subjects required for entrance which are covered by such diplomas, including,

upon the recommendation of the University departments concerned, the subjects of French and German. A statement from the teacher of the work done in these two subjects should be presented by the holder of the diploma.

## II. ON CERTIFICATE.

The following rules and regulations have been adopted by the Faculty of Cornell University on the subject of admission by certificate :

1. Certificates of work done in public or private schools, in or out of the State, will not be accepted in lieu of examinations, unless the applicant has completed a full course in the school.

2. The application for the admission of a student by certificate must be made by the principal of a school and not by the candidate himself.

3. The application from the principal must be accompanied by full and specific information with regard to the completeness and thoroughness of the studies and courses in which instruction is given. In case a catalogue or circular is published, a copy thereof should also be furnished.

4. The candidate, having received the certificate of a principal, will, however, not be exempted from the entrance examination in any particular subject unless his certificate shows that he has satisfactorily accomplish the full amount of work required in that subject for entrance.

5. The committee having charge of the acceptance of certificates may meet at any time during the collegiate year. To ensure consideration in season to relieve the candidate from any examinations, the certificates should be forwarded to the committee at least as early as the first week in June, or the first week in September.

All communications on this subject and all certificates must be addressed to the Dean of the Faculty, from whom also blank forms of certificates may be obtained.

## III. AS SPECIAL STUDENTS.

Persons at least twenty-one years of age may be admitted as special students, without examination, provided they give evidence of ability to do creditably special work in the University, and are recommended to the Faculty by the professor in charge of the department of study in which they desire to take a large part of their work. Candidates for admission as special students are advised to correspond directly with the professors in whose departments they expect to take work. Such students may graduate in any of the courses, on condition of passing all the required examinations, including those for admission.

Special students in Agriculture are admitted at the age of eighteen years.

Special students in Sibley College will be expected to work with regular classes wherever practicable, and to pursue a regular mechanic arts course, such as is considered by the Director to be suitable for artisans and other optional students, not candidates for a degree.

### ADMISSION TO ADVANCED STANDING.

**I. ON EXAMINATION.** On presenting evidence of good character, or, in case he comes from another college or university, a letter of honorable dismissal, a candidate may be admitted to any class at the beginning of any term not later than the first of the senior year, provided he appears, on examination, to be well versed in the following subjects:

*a.* In the studies required for admission to the freshman class of the course which he proposes to enter. But diplomas and certificates will be received for certain of these studies, as stated on page 155.

*b.* In all the studies already required of the class to which admission is sought, or in accepted equivalents therefor.

In a subject in which examinations are held only at stated times the candidate may, at the option of the department concerned, be required to wait until the first regularly recurring examination.

**II. WITHOUT FULL EXAMINATION.** Graduates of other colleges and universities, and undergraduates of such institutions who present letters of honorable dismissal, may be admitted provisionally to such standing and upon such terms as the Faculty may deem equitable in each case, regard being had to the applicant's previous course of study, and to the evidence of proficiency exhibited. Every such candidate is required, at the time of making his application, to forward to the Dean of the Faculty, along with a catalogue of the institution in which he has studied, a careful statement, duly certified, of the studies which he has pursued, and the degree of proficiency attained therein.

A student who has thus been admitted provisionally to a class, may, after residence of at least one term, be granted full and regular standing in that class, if, having taken the regular studies of the term, he give proof, by passing the regular term examinations with a record as high as is required for graduation, that he is able to go on satisfactorily with the class to which he has thus been temporarily assigned. Should he be unable to pass these examinations, special examinations may then be held, and he shall take the position and rank to which he may thereby be found entitled.

In the case of students thus admitted, the amount of work must be equal to fifteen hours a term for each term in the University.

#### ADMISSION TO RESIDENT GRADUATE STUDY.

Students are admitted to graduate study after having taken a baccalaureate degree in the University, or on presenting a diploma which shall be adjudged on application to represent the full equivalent of some one of the degrees conferred at this University, or a course approved by the Faculty. The plans of work of graduate students not candidates for a degree are to be presented to the Faculty for approval through the Committee on Graduate Work and Advanced Degrees, at the beginning of the University year. (See p. 89.) For a statement of the advantages offered to graduate students, see page 88.

# RESIDENCE AND GRADUATION.

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## REGISTRATION EACH TERM.

At the beginning of every term each student must obtain a Certificate of Registration, and no student, after having once been admitted to the University, will be allowed to register after the close of Registration Day, except by special permission of the Faculty.

## REGISTRATION OF STUDIES.

Students in all courses register at the beginning of the collegiate year, on Registration Day, for the work of the whole year. No credit will be allowed for work not so registered. Changes in registration will not be allowed after Friday of the week following Registration Day in the Fall term, except by special permission of the Faculty.

The Faculty regard it as advisable that a student should follow out for the year the plan of study which he has made at the beginning, even though it should seem to him later not to be the best plan conceivable.

## EXERCISES OF THE TERM.

In the general courses, students of the freshman year may take from fourteen to seventeen hours; of the sophomore, from fourteen to eighteen; of the junior, from twelve to eighteen; of the senior, from ten to eighteen. But no student will be graduated until he has passed successfully examinations in work which, including all the required work of his course, shall amount to an aggregate of fifteen hours a week during the whole of four years.

In the technical courses, the number of hours required each term may be seen in the detailed statement of those courses.

In all courses, two hours and a half of laboratory work, and, in the technical courses, three hours of draughting or shop-work, are regarded as the equivalent of one recitation.

Regular examinations are held at the end of each term. Failure at examination entails forfeiture of position in the class, or exclusion from the course, or in some cases from the University.

## PAYMENTS TO THE UNIVERSITY.

The annual tuition fee is \$125, \$50 to be paid at the beginning of the first term, \$40 at the beginning of the second, and \$35 at the beginning of the third. These fees are payable within ten days after registration.

Students taking work in Sibley College courses are charged \$5 per term for material and extra expenses.

A fee of \$5, to cover expenses of graduation, degrees, etc., is charged to each person taking the baccalaureate degree. This fee must be paid before the degree is conferred.

The fee charged for an advanced degree is \$10, and it must in all cases be paid before the degree is conferred.

Tuition is free to *students with State Scholarships*; to such *resident graduates* as, having been duly admitted by the proper authorities as candidates for a second degree, are regularly pursuing the course of study leading to such degree in accordance with the prescribed requirements of the proper faculty; to students pursuing the prescribed course in *Agriculture*, and *intending to complete* that course; and to *special students in Agriculture*.

Every person taking laboratory work in chemistry, physics, zoology, or entomology, must deposit with the Treasurer security for the materials to be used in the laboratory. Supplies in the chemical and physical departments are furnished at New York list prices. Students residing in the University buildings must pay their room-bills one term in advance. All the members of the University are held responsible for any injury done by them to its property.

## EXPENSES OF RESIDENCE.

The following is a fair estimate of the yearly expenses :

Tuition, per year,	- - - - -	\$125.00	\$125.00
Room, board, lights, fuel, and laundry,	- - - - -	200.00	to 300.00
Text-books, etc..	- - - - -	25.00	to 75.00
		<hr/>	<hr/>
Total,	- - - - -	\$350.00	to \$500.00

The additional expenses of a student depend so largely upon his personal tastes that it is difficult to give an estimate.

The expense of living in Ithaca varies, for board, room, fuel, and lights, from \$3 to \$7 a week. By the formation of clubs, students are sometimes able to reduce their expenses to \$3 a week for room and board, and occasionally to even less than that amount.

The cost for board, rent of furnished room, fuel, and lights, at the Sage College, which is exclusively for women, varies from \$5 to \$6.50 a week. A student occupying alone one of the best rooms pays \$6.50 a week. If two occupy such a room together, the price is \$5.75. Those occupying less desirable rooms, with two in a room, pay \$5 a week each. The entire building is warmed by steam, and, in most cases, the sleeping apartment is separated from the study.

### GRADUATION.

All the courses leading to the degree of Bachelor and to the corresponding degrees of Civil Engineer and Mechanical Engineer require four years for their completion ; and no student is allowed to graduate in less than four years of actual residence (except in case of admission to advanced standing, as elsewhere provided for) without special permission of the Faculty ; which permission will not be granted until the applicant has been in the University at least one year ; nor will it be granted after the first term of the year in which he proposes to graduate.

Every student, in order to be recommended for a degree, must have passed satisfactorily in at least one hundred and eighty hours of work, including all the required work of the course in which the degree is sought. In the case of students admitted from other colleges the amount of work must be equal to fifteen hours a term for each term in the University.

### GRADUATION THESIS.

A graduation thesis is required of every student. This thesis must represent some phase of the student's principal line of work during the later years of his course. The subject of the thesis must receive the approval of the professor in charge of the study to which it appertains, and with such approval must be left with the Dean or Registrar not later than noon of the second Friday of the second term, in order to be announced, and accepted by the Faculty, without whose permission no change in the subject can thereafter be made. In order to be acceptable, the thesis must have the character of a scholarly dissertation on the subject chosen, or, in technical courses, usually, actual work in designing or research ; and if finally accepted by the Faculty, it will entitle the writer to a credit of two hours a week for the second and third terms, or, in the technical courses, as specified elsewhere. The merit of the thesis will be judged not only from a technical point of view, but also from the point of view of its literary workmanship ;

and its merits, as judged from these two points of view, will be taken into account in determining the standing of the student for graduation.

## COMMENCEMENT ORATIONS.

### RULES AS TO COMMENCEMENT SPEAKERS.

1. Any member of the Senior class who is to receive a degree on the coming Commencement may compete for a place on the Commencement stage, providing proof of satisfactory oratorical ability has been given to the teacher of Elocution and Oratory.

2. Each competitor must present at the Registrar's office, at or before noon of the last Friday in April, a production of no more than 750 words on any subject approved by the head of the department in which the subject lies.

3. From such productions a Committee from the Faculty will select no more than nine to be delivered on the Commencement stage.

## THE FIRST DEGREES.

The degrees of Bachelor of Arts, Bachelor of Philosophy, Bachelor of Letters, Bachelor of Science, Bachelor of Science in Agriculture, Bachelor of Science in Architecture, Bachelor of Science in Chemistry, and the corresponding degrees of Civil Engineer and Mechanical Engineer, are conferred after the satisfactory completion of the respective courses.

## ADVANCED DEGREES.

Courses of graduate study leading to advanced degrees are provided in the following departments: Ancient Classical Languages and Literatures, Modern European Languages and Literatures, Comparative Philology, History and Political Science, Philosophy, Mathematics, Chemistry and Physics, Natural History, Civil Engineering, Mechanical Engineering, Agriculture, and Architecture.

Candidates for advanced degrees must present themselves for examination in one major and two minor subjects, (except for the Master's degree, for which one major and one minor are to be required,) which must have been determined upon, with the approval of a committee of the Faculty, as early as November 1 of the year in which the degree is expected to be given, if it be the Master's degree, or of the year preceding that in which the degree is expected to be given, if it be the Doctor's degree.

The work of candidates for advanced degrees in the general courses must be devoted to those subjects (one major and one or two minor), which may be comprised within the limits of one department of instruc-

tion, or may extend to two or three ; with the provision, however, that, except in case of special permission to the contrary, granted by the Faculty, the subjects shall be so related to one another as to imply a definite aim on the part of the student. The subject of the thesis required must be announced to the Faculty as early as December 1 of the year in which the degree is expected to be given, and the paper in its completed form must be presented as early as May 1.

The degree of Master is intended to represent a year of faithful work of an advanced character performed by a student who has previously taken a degree fully equivalent to that which is given in this University at the completion of four years of undergraduate work. The degree of Doctor is intended to represent not a specified amount of work, covering a specified time, but long study and high attainment in a special field, proved, in the first place by the presentation of a thesis that displays the power of independent investigation, and in the second place, by the passing of corresponding examinations upon the ground covered by the three subjects chosen at the beginning of the candidacy and approved by the Faculty. And it may therefore happen, through deficiencies existing at the outset, that a student who is entirely competent to accomplish work of this character may find it necessary to devote to it more than the minimum number of years (two) hereinafter mentioned.

In case of special distinction attained in the thesis and in the final examination by the candidate for the degree of Master of Arts, or Doctor of Philosophy, the degree of merit may, on the recommendation of the examining committee, be indicated in the diploma by one of the terms *Cum Laude*, *Magna cum Laude*, *Summa cum Laude*.

In case of special distinction attained in the thesis and in the final examination by the candidate for the degree of Master of Science, Master of Civil or Mechanical Engineering, or Doctor of Science, the degree of merit may, on the recommendation of the examining committee, be indicated in the diploma by one of the terms *With Distinction*, *With High Distinction*, *With the Highest Distinction*.

Successful candidates for the degree of Doctor must print the theses and deposit twenty-five copies in the Library. Successful candidates for the degree of Master must deposit one copy.

The final examinations for these degrees, except in the technical courses, are to be in charge of a committee of not less than three members, and may be both oral and written. These examinations occur in the second week before Commencement, except in the case of candidates who take their examination in the year subsequent to that in which the required amount of resident study was completed. In

case of necessity, the examination may be held during the week next preceding that now fixed for holding them.

The special requirements for these degrees will be as follows :

**THE DEGREES OF MASTER OF ARTS, OF PHILOSOPHY, OF LETTERS,  
OF SCIENCE, OF CIVIL ENGINEERING, OF MECHANICAL  
ENGINEERING, OF ARCHITECTURE,  
OF AGRICULTURE.**

The degree of Master of Arts, Master of Philosophy, Master of Letters, or Master of Science is conferred on those who have taken the corresponding baccalaureate degree here, or at some other college or university where the requirements for that degree are equal to those of this University, on the following conditions :

Candidates must spend at least one year at the University in pursuance of an accepted course of study.

The degree of Master of Science is conferred on graduates in Philosophy on the same conditions as on graduates in Science.

The degree of Master of Civil Engineering, Master of Mechanical Engineering, Master of Science in Architecture, or Master of Science in Agriculture is conferred on candidates who have received the corresponding first degree, upon presenting a satisfactory thesis and passing the required special final examination as above, (1) after one year of resident study, or (2) after two years of professional practice and study *in absentia*.

**THE DEGREES OF DOCTOR OF PHILOSOPHY AND DOCTOR OF SCIENCE.**

The degree of Doctor of Philosophy is conferred on graduates of this University, and of other universities and colleges whose requirements for the baccalaureate degree are equal to those of this University, on the following conditions :

1. In order to become a candidate the applicant must have pursued a course of study equal to that required for graduation in this University in the course of Arts or Philosophy. Graduates holding the degree of Bachelor of Science who shall pass an examination in Latin equivalent to that required for graduation in the course in Philosophy may become candidates for the degree of Doctor of Philosophy.

2. The candidate must spend at least two years at the University pursuing a course of study marked out by the Faculty. In exceptional cases a year of graduate work in a university elsewhere may, by a special vote of the Faculty, be accepted in place of a year's work in this University.

3. He must present a thesis of such a character as shall display power of original and independent investigation, and must pass the requisite special final examinations.

The degree of Doctor of Science is conferred on graduates of this University, and of other institutions whose course of study for the baccalaureate degree is substantially equivalent to the course for the degree of Bachelor of Science in this University, and who are prepared to pursue advanced work in Chemistry, Physics, Mathematics, or Natural History, on the following conditions :

1. The candidate must possess a knowledge of Latin and Greek at least equivalent to that required for graduation with the degree of Bachelor of Science in Natural History (see page 124).

2. He must spend at least two years at this University, pursuing a course of study marked out by the Faculty, in the departments of Chemistry, Physics, Mathematics, or Natural History.

3. He must present a thesis of such a character as shall display power of original and independent investigation, and must pass the requisite special final examinations.

# THE SCHOOL OF LAW.

## FACULTY.

### RESIDENT FACULTY.

CHARLES KENDALL ADAMS, LL. D., President.

THE HON. DOUGLAS BOARDMAN, A. M., Dean.

HARRY B. HUTCHINS, PH. B., Professor of Law, and Secretary.

CHARLES A. COLLIN, A. M., Professor of Law.

FRANCIS M. BURDICK, A. M., LL. B., Professor of Law.

MOSES COIT TYLER, LL. D., Professor of American Constitutional History and Law.

HERBERT TUTTLE, A. M., LL. D., Professor of International Law and of English Constitutional History.

BRAINARD GARDNER SMITH, A. M., Associate Professor of Elocution and Oratory.

### NON-RESIDENT LECTURERS.

THE HON. FRANCIS M. FINCH, LL. D., of the New York Court of Appeals.

THE HON. DANIEL H. CHAMBERLAIN, LL. D., of the New York City Bar.

THE HON. ALFRED C. COXE, A. M., of the United States District Court.

ALBERT H. WALKER, LL. B., of the Hartford Bar.

JOHN ORDRONAUX, LL. D., of New York City.

WILLIAM F. COGSWELL, LL. D., of the Rochester Bar.

THE HON. GOODWIN BROWN, A. M., of the Albany Bar.

### GENERAL PLAN OF ORGANIZATION.

It is the purpose of the Board of Trustees to furnish through the School of Law such facilities for legal training as will commend them-

selves to the most favorable judgment of the profession. The Faculty of the School is composed of both resident and non-resident members. The resident members devote themselves regularly to the work of daily instruction. This is carried on by lectures and examinations, by oral text-book exposition and recitations, and by the study of selected cases. Instruction to the more advanced students by means of the study of cases is made a special feature of the school. An effort is made by the resident instructors, not only to teach with special thoroughness the elements of the law, but also to give such practical training in the different methods of pleading and procedure as will fit the student for the active work of the profession in any part of the country. With this end in view, moot courts are organized under the immediate direction of the professors, and in these courts special attention is given to the drawing of pleadings and to questions of practice.

The instruction by the non-resident members of the Faculty is by lectures. Provision is made each year for several courses of lectures by eminent specialists in the profession, each course consisting of from four to ten lectures, according to the nature of the subject on which the lectures are given.

#### REQUIREMENTS FOR ADMISSION.

Applicants for admission to the School of Law must be at least nineteen years of age. If the person applying intends to be a candidate for the degree of L.L.B. at the end of his course, he must have had a preliminary education equal to that required for registration as a student of law by the rules of the Court of Appeals of the State of New York. This requirement consists of a thorough knowledge of arithmetic, English grammar, geography, orthography, American and English history, and English composition. All applicants for admission who are candidates for a degree, except those hereinafter designated, will be required to pass satisfactory examinations in the subjects named. The examinations will be both oral and written, and the papers submitted by the applicants must show an accurate knowledge of English grammar and ordinary facility in English composition. Graduates of universities or colleges, graduates of reputable academies or high schools, and persons who have received the "law student's certificate," issued by the Board of Regents of the University of the State of New York, will be admitted to the school without examination. But in order to be entitled to this privilege, the applicant should present to the Secretary of the School evidence that he comes

within some one of the classes named, which should be in the form of a diploma or certificate, or a certified copy thereof.

All applicants who are residents of the State of New York, and are not graduates of a college or university, should procure the "law student's certificate," issued by the Board of Regents, before presenting themselves for admission to the school.

It is very desirable that the student of law should have at least an elementary knowledge of the Latin language; and while the Faculty do not feel that they can at this time require such knowledge as a prerequisite for admission to the school, yet it is their purpose to add such requirement in the near future.

To entitle a person to admission to advanced standing as a member of the senior class, he must be at least nineteen years of age, must have had the required preliminary education, and must pass a satisfactory examination upon the subjects of the junior year or their equivalent. Attorneys at law, however, of any State, are entitled to admission to the senior class without examination, on the exhibition, at the opening of the college year, of their certificates of admission to the bar.

The regular examinations for admission and for advanced standing in the fall of 1891, will take place on Tuesday, September 29, at the Law Lecture Rooms, in Morrill Hall, beginning at nine o'clock in the morning and at two o'clock in the afternoon. Students desiring admission at other times than those mentioned must make special arrangements for examination with the Secretary of the School.

## COURSE OF INSTRUCTION.

The course of instruction is a graded one, and extends through two years of nine months each. The following is a statement of the subjects upon which the students of the school receive instruction and are required to pass satisfactory examinations:

### JUNIOR YEAR.

Elementary Law<sup>1</sup> (Blackstone). Contracts, including Agency.<sup>4</sup> Criminal Law and Procedure.<sup>3</sup> Torts.<sup>3</sup> Domestic Relations.<sup>2</sup> The Law of Real Property,<sup>2</sup> (the subject begun). Evidence,<sup>4</sup> (the subject begun). Common Law Pleading and Practice in Cases at Law.<sup>2</sup> Civil Procedure under the Codes,<sup>3</sup> (the subject begun). English Constitutional History.<sup>5</sup>

## SENIOR YEAR.

Private and Municipal Corporations.<sup>3</sup> Wills and Administration.<sup>3</sup> Mercantile law, including Bills, Partnership, Sales, Suretyship, etc. Evidence.<sup>4</sup> The Law of Real Property.<sup>2</sup> Equity Jurisprudence.<sup>2</sup> Equity Pleading and Procedure in State and in United States Courts.<sup>2</sup> Civil Procedure under the Codes.<sup>3</sup> Bailments.<sup>4</sup> Practical Suggestions concerning the Preparation, Trial, and Argument of Causes.<sup>1</sup> Roman Law.<sup>4</sup> International Law.<sup>4</sup> American Constitutional History.<sup>5</sup> American Constitutional Law.<sup>6</sup>

## COURSES OF SPECIAL LECTURES.

Lectures upon the following subjects are given by the non-resident members of the Faculty :

1. The Statute of Frauds and Fraudulent Conveyances, (two courses).  
The Hon. Francis M. Finch, LL.D., of the New York Court of Appeals.
2. The Judicial Department,—its Constitution, Powers and Limitations.  
The Hon. Daniel H. Chamberlain, LL.D., of the New York City Bar.
3. The Law of Shipping and Admiralty.  
The Hon. Alfred C. Coxe, A.M., of the United States District Court.
4. The Patent Laws of the United States.  
Albert H. Walker, LL.B., of the Hartford Bar.
5. Medical Jurisprudence.  
John Ordronaux, LL.D., of New York City.
6. The Law of Insurance.  
William F. Cogswell, LL.D., of the Rochester Bar.
7. Extradition.  
The Hon. Goodwin Brown, A.M., of the Albany Bar.

## AMOUNT OF REQUIRED WORK.

The regular class instruction of the School is at no time less than fifteen hours per week for each class.

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<sup>1</sup>By the Hon. Douglas Boardman; <sup>2</sup>by Professor Hutchins; <sup>3</sup>by Professor Collin; <sup>4</sup>by Professor Burdick; <sup>5</sup>by Professor Tyler; <sup>6</sup>by Professor Tuttle.

## THE UNIVERSITY COURT.

A session of the University Court is held, as a rule, each week during the school year. The resident members of the Law Faculty, assisted by the graduate students, constitute the Court. All opinions of the Court are in writing, and are placed on file in the Law Library.

The hearings in this Court are conducted upon an assumed state of facts, the only questions open to discussion being the principles of law that should be applied to the facts. The student having obtained from the Faculty a statement of facts, is required to prepare pleadings and to draw up a brief in which the principles of law applicable to the case must be clearly stated under appropriate divisions, and sustained by the citation of such authorities as he intends to rely upon in the oral argument. The pleadings are submitted to the professor having in charge the subject pleading and procedure, who calls attention to such errors as may exist, and gives such practical information as he may deem advisable.

The effort of the Faculty is to make *practical* lawyers, to teach both the principles of the law, and how to apply them. To this end, the University Court is made the forum for the discussion of such practical questions as most frequently arise in a professional career at the bar; and so far as it can be used for that purpose, it is made a means of familiarizing the student with matters of pleading and practice and with the general routine of work.

## ELOCUTION AND ORATORY.

Exceptional opportunities for work in Elocution and Oratory will hereafter be provided for students in the School of Law. The Professor in charge of this department of the University will form separate classes for such students, and the course of instruction will be specially adapted to their professional needs. The courses will be elective, and can be taken without the payment of extra tuition.

## EXAMINATIONS, THESES, ETC.

At the end of each term the members of both classes are subjected to oral and written examinations upon the work of the term. Promotion of the student to full standing in his class at the subsequent term is dependent upon the manner in which he passes the examinations upon the subjects of the previous term; and the Faculty do not hesitate to drop a student from the rolls at any time during the year on

becoming satisfied that such student is neglecting his work and is not complying with the requirements of the School.

Each member of the senior class who is a candidate for a degree, is required to prepare and deposit with the Faculty, at least one month before graduation, a thesis, not less than forty folios in length, upon some legal topic selected by himself and approved by the Faculty. The production must be satisfactory in matter, form, and style; and the student presenting it is examined upon it.

At the end of the senior year, all candidates for graduation are required to pass satisfactory oral and written examinations on all of the subjects of the course.

### PRIZES.

A fund of two thousand dollars has been given by a friend of the School, the income of which is devoted each year, under the direction of the Law Faculty, either for prizes for graduating theses, or for printing theses of special merit, or for both such purposes. The way in which the income is to be applied is determined each year upon the presentation of the graduating theses.

Two prizes are given for excellence in debate, the first of thirty dollars and the second of twenty dollars. The regulations for the contest are as follows:

1. From the members of the Senior Class who have gained the highest standard in the preparation and presentation of cases in the University Court, not more than six debaters are appointed by the resident Law Faculty. Their names and the question for debate, are announced at the close of the winter term. At the same time, the position of the debaters is determined by lot.

2. At the debate, the order in which the competitors are to be called is determined by lot, publicly drawn at the time. Each competitor is called twice, and is allowed to speak ten minutes on the first call and five minutes on the second.

3. The prizes are awarded by a committee of three, selected by the President of the University.

4. The contest takes place in public on the evening of the Saturday immediately preceding commencement week.

### TERMS OF GRADUATION.

Students who have received the full course of instruction, performed all required exercises, and passed the regular examinations, are ad-

mitted to the degree of Bachelor of Laws. Students admitted to advanced standing are entitled to all the privileges of the class of which they become members.

### CERTIFICATES OF ATTENDANCE.

When a person is connected with the School for a period not entitling him to graduate, he may, on application to the Secretary, receive, instead of a diploma, an official certificate of attendance, which states the time of his attendance and the degree of his attainments.

### HISTORY AND POLITICAL SCIENCE.

Special facilities are offered to students desiring to supplement their work in law with studies in history and political science. The instruction given in the President White School of History and Political Science may be taken as elective work by students in the School of Law. The courses of the School embrace instruction in the various branches of constitutional and political history, as well as in the history of political and municipal institutions.

It has been provided by resolution of the Board of Trustees that any student who, in addition to his course in the School of Law, shall pursue studies in history and political science amounting to at least four hours a week during two years, and shall pass creditably the regular examinations in the same, in addition to the required examinations in the School of Law, may, upon the creditable completion of the course in law, and on the recommendation of the Law Faculty and the Professors of History and Political Science, be accorded the degree of Bachelor of Laws, *cum laude*.

### GRADUATE INSTRUCTION.

Graduate instruction is offered by the Faculty of the School of Law with a view of giving to the student who is inclined to spend a longer period at a law school than that required for the baccalaureate degree an opportunity to add to his legal acquirements either by further general study or by pursuing special lines of legal investigation. It is believed that graduate work will meet the needs *first*, of those who desire to devote an additional year, under the direction of teachers, to the general study of the law, *secondly*, of those who purpose making a specialty in practice of some particular branch of the law, and who wish to take advanced preparatory work in the line of the specialty chosen, and *thirdly*, of those who have in view the study of the law

as a science and who desire to become familiar with the sources and philosophy of our jurisprudence. Provision is made for advanced instruction and study in the following subjects, according to the scheme hereinafter set forth: Contracts; Mercantile Law; Corporations; Railroad Law; Insurance Law; The Law of Real Property; Jurisdiction and Procedure in Equity; Domestic Relations; Admiralty; Roman Law; American Constitutional History; American Constitutional Law; English Constitutional History; English Constitutional Law; Comparative Jurisprudence; General Jurisprudence; Political and Social Science.

The graduate work is under the immediate supervision of the resident members of the Faculty, and is conducted in substantially the following manner: Each student at the opening of the university year is required to select three subjects to which the work of the year is to be devoted. One of these he will designate as his *major* subject. To this he will be expected to give his best energies, making his investigations therein thorough, comprehensive, and exhaustive. To the other subjects, known as *minors*, he will give such attention as his time will permit. It is expected that his work in the minor lines will be of a more general character, and, although thorough so far as prosecuted, will be less extended than that given to the major subject. By special permission from the Faculty, a student may devote all his time to one subject. Each student is under the special guidance of the professors in whose departments his subjects lie. He receives from each full instruction as to the questions to be investigated and as to the nature and direction of his work, and also such individual assistance as may be needed from time to time during the progress of his studies. Periodical reports and examinations upon work assigned are required, at which times the professor in charge goes over carefully with the student the ground covered since the last report, making such criticisms and suggestions as may be necessary. In a word, the scheme contemplates independent investigations by the student in the lines chosen, under the immediate direction and supervision of the different members of the Faculty.

In addition to the foregoing, each student is required to prepare a thesis upon some question connected with his *major* subject. This production must be scholarly in character and exhaustive in its subject matter, and the author must be prepared to defend the positions taken therein.

Graduate students are expected to attend all non-resident courses of lectures given before the School, and in making provision for such courses, their needs are kept specially in view.

Graduate instruction covers one year. In order to take advantage of it, the student must be actually in residence at the University during the year.

The work is open to the graduates of this or any law school of recognized standing. Tuition is free.

At the end of the year, each student is examined separately upon all work that has been assigned to him. This examination is both written and oral, and is especially thorough and searching in character.

The degree of Master of Law is conferred upon all who complete in a creditable manner the work of the graduate year.

### **MATERIAL EQUIPMENT.**

For the purposes of the School of Law ample accommodations are provided in Morrill Hall. Besides a sufficient number of lecture-rooms, there are offices for the several professors, and rooms for the Law Library.

The Law Library of the University contains upwards of 7,500 volumes. All sets of reports are kept up to date; and material additions to the collection are constantly being made by way of purchase and gift. The books of this Library are at all times accessible to students of the School, as are the books of the private libraries of the several professors, which are on the same floor. The General Library of the University, which is also open to use by students of the School of Law, contains about one hundred and seven thousand volumes, besides thirty thousand pamphlets. This includes the President White Library of History and Political Science, containing about thirty thousand volumes and ten thousand pamphlets, presented to the University in 1887 by ex-President Andrew D. White.

Students in the School of Law are entitled to the same privileges in the gymnasium as students in the other departments of the University.

### **FEES AND EXPENSES.**

The fees to the University and the expenses of living are the same as those of all other students, and will be found described elsewhere in the Register.

### **ANNOUNCEMENT.**

An announcement giving more detailed information in regard to the School will be sent on application to the Secretary of the School of Law.

# THE SUSAN LINN SAGE SCHOOL OF PHILOSOPHY.

The Hon. Henry W. Sage, (whose gifts to Cornell University now aggregate over \$1,000,000,) having added to his previous endowment of the Susan Linn Sage professorship a further gift of \$200,000 to the Department of Philosophy, the Trustees of the University, in accepting the gift, Oct. 22, 1890, constituted the department into a school, which, to commemorate the munificence of Mr. Sage, they designated The Susan Linn Sage School of Philosophy. Supplementing the endowments of Mr. Sage with appropriations from the general funds of the University, the Trustees have been able to provide for the School the following staff of instruction :—

One Professor of Philosophy.

One Professor of Psychology.

One Professor of Pedagogy.

One Professor of the History and Philosophy of Religion and Christian Ethics.

Two Assistant Professors of Philosophy.

One Instructor in Philosophy.

The Trustees have also made liberal provision for the equipment and maintenance of a Psychological Laboratory, for experimental investigation into mental phenomena. And for the encouragement of higher studies and research in every branch represented by the School of Philosophy, there have been established for award to distinguished graduates of this and other Universities six scholarships of the annual value of \$200 each, and four fellowships of the annual value of \$400 each, both scholarships and fellowships being tenable for one year, but subject to renewal in exceptional cases. (Scholars and fellows who are candidates for advanced degrees, are also exempted from the tuition fee, \$125). Furthermore, the Trustees have granted a liberal subsidy for a philosophical publication, which is to be edited by Professor Schurman. It will appear every month, or every two months, beginning with the latter half of the year 1891, under the name of *The Philosophical Review*, and the co-operation already secured of leading American and foreign philosophical writers, warrants the expectation

that the new *Review*, while filling a manifest need, will also be a worthy organ, national and international, of contemporary philosophy.

The appointments already made in the Susan Linn Sage School of Philosophy are as follows :

JACOB GOULD SCHURMAN, A.M., D.Sc., DEAN, and Professor of Philosophy.

SAMUEL GARDNER WILLIAMS, A.B., Ph.D., Professor of Pedagogy.

THE REV. CHARLES MELLEN TYLER, A.M., Professor of the History and Philosophy of Religion and Christian Ethics.

It is intended that the remaining members of the staff of instruction shall be appointed in time to enter upon their duties at the beginning of the academic year 1891-2, when all the legislation of the Trustees concerning the Susan Linn Sage School of Philosophy goes into effect. Before the close of the present academic year (probably as early as January or February), a pamphlet containing a detailed account of the courses of instruction to be given in the school will be issued and can be obtained on application to the Treasurer of the University. In the meantime the Dean of the School will be glad to give any further information desired by prospective students. But they may safely assume that with its large corps of instruction, the School of Philosophy will offer for 1891-2 such a variety of courses, both systematic and historical, in Logic, Psychology, Pedagogics, Ethics, Metaphysics, History and Philosophy of Religion, as has rarely, if ever, been offered by a single University ; and that special attention will be given by professors, through the laboratory, the seminaries, and personal intercourse, to the stimulation and guidance of advanced studies and research in these branches, to which, it is hoped, contributions worthy of publication may be made by at least some of the investigators. It should also be added that the University courses in Physiology and Morphology of the Brain, in Social Science, Economics, International Law, and Roman Law, and in the select works of Plato and Aristotle will be of peculiar service to students of Psychology, Ethics, and Ancient Philosophy. But for these and other details the reader is invited to consult the pamphlet already referred to, which is to contain an announcement of all the courses to be offered by the School of Philosophy. The organization and scope of the School are all that can be indicated in this issue of the *Register*, which follows so close upon its foundation.

# FELLOWSHIPS AND SCHOLARSHIPS.

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## FELLOWSHIPS FOR 1890-91.

### THE CORNELL FELLOWSHIP,

Floyd Lucien Robinson, B.S., *Architecture*

### THE MCGRAW FELLOWSHIP,

Arthur Gordon Laird, A.B., (Dalhousie College), *Classics*

### THE SAGE FELLOWSHIP,

Mason Blanchard Thomas, B.S., *Botany and Zoology*

### THE SCHUYLER FELLOWSHIP,

George Francis Myers, B.S., (Worcester Polytechnic Institute),  
*Electrical Engineering*

### THE SIBLEY FELLOWSHIP,

Daniel Royse, B.M.E., (Purdue University),  
*Mechanical Engineering*

### THE GOLDWIN SMITH FELLOWSHIP,

William Baird Elkin, A.B., (Manitoba University), *Philosophy*

### THE PRESIDENT WHITE FELLOWSHIP,

Joseph Alexander Liudquist, A.B., *History and Political Science*

### THE ERASTUS BROOKS FELLOWSHIP,

Anna Helene Palmié, Ph.B., *Mathematics*

## SCHOLARSHIPS FOR 1887-91.

## UNIVERSITY SCHOLARSHIPS.

## THE CORNELL SCHOLARSHIP,

John Henry Tanner, *Course in Science*  
Clinton Liberal Institute—Charles V. Parsell, A.M., Principal.

## THE H. B. LORD SCHOLARSHIP,

Winifred Ball, *Course in Arts*  
Rochester Free Academy—John G. Allen, Principal.

## THE MCGRAW SCHOLARSHIP,

James Wallace Beardsley, *Course in Civil Engineering*  
Cortland Normal School—James H. Hoose, A.M., Ph.D., Principal.

## THE SAGE SCHOLARSHIP,

Frank Crane Bentley, *Course in Arts*  
Phillips Andover Academy—C. F. P. Bancroft, Ph.D., Principal.

## THE SIBLEY SCHOLARSHIP,

Harrison Haskell Wood, *Course in Electrical Engineering*  
Pittsburgh Central High School—C. B. Wood, A.M., Principal.

## THE PRESIDENT WHITE SCHOLARSHIP,

Robert James Kellogg, *Course in Arts*  
Norwalk (Ohio) High School—Miss N. S. McDonald, Principal.

## SAGE SCHOLARSHIPS FOR WOMEN.

## Lena Frances Brown,

*Course in Science*  
South New Berlin Union School—S. J. Gibson, B.S., Principal.

## Eunice Maria Davis,

*Course in Science*  
Binghamton Central High School—Eliot R. Payson, A.M., Principal.

## Annie Florence Moon,

*Course in Arts*  
Clinton Liberal Institute—Charles V. Parsell, A.M., Principal.

## SCHOLARSHIPS FOR 1888-92.

## UNIVERSITY SCHOLARSHIPS.

## THE CORNELL SCHOLARSHIP,

George Wallingford Noyes, *Course in Arts*  
 Commuuity Academy—F. M. Loomis, A.B., Principal.

## THE H. B. LORD SCHOLARSHIP,

Grace Wilmarth Caldwell, *Course in Arts*  
 Miss Gertrude E. Hale, Ithaca, and Mr. E. D. Wright, A.B., Ithaca.

## THE MCGRAW SCHOLARSHIP,

Carolinne Harder Swartout, *Course in Philosophy*  
 Owego Free Academy—H. A. Balcam, Ph.D., Principal.

## THE SAGE SCHOLARSHIP,

Joseph McConnechy Michaelson, *Course in Civil Engineering*  
 Geneva Classical and Uniou School—H. K. Clapp, A.M., Principal.

## THE SIBLEY SCHOLARSHIP,

Louis Carroll Root, *Course in Arts*  
 Port Byron Academy—A. W. Morehouse, A.M., Principal.

## THE PRESIDENT WHITE SCHOLARSHIP,

Clyde Augustus Duniway, *Course in Arts*  
 Oregon State University, Eugene City, Oreg.—J. W. Johnson, A.M.,  
 President.

## SAGE SCHOLARSHIPS FOR WOMEN.

Frauces Elizabeth Holmau Flint, *Course in Arts*  
 Rochester Free Academy—John G. Allen, Principal.

Mary Grace Breckinridge, *Course in Philosophy*  
 Binghamton High School—Eliot R. Payson, A.M., Principal.

SCHOLARSHIPS FOR 1889-93.

**THE CORNELL SCHOLARSHIP,**

Wellyn Brayton Clark, *Course in Architecture*  
Lowville Academy—W. R. Adams, A.M., Principal.

**THE H. B. LORD SCHOLARSHIP,**

Arthur Charles Howland, *Course in Arts*  
Wyoming Seminary—Rev. L. L. Sprague, A.M., D.D., Principal.

**THE MCGRAW SCHOLARSHIP,**

Albert Henry Perkins, *Course in Civil Engineering*  
Fulton Academy—B. G. Clapp, Principal.

**THE SAGE SCHOLARSHIP,**

May Ransom Fitzpatrick, *Course in Arts*  
Brooklyn Central High School—Calvin Patterson, B.S., Principal.

**THE SIBLEY SCHOLARSHIP,**

Norman Frank Ballautyne, *Course in Electrical Engineering*  
Ottawa (Canada) Collegiate Institute—J. Macmillan, A.B., Principal.

**THE PRESIDENT WHITE SCHOLARSHIP,**

Clark Sutherland Northrup, *Course in Arts*  
Hartwick Seminary—Rev. James Pitcher, A.M., Principal.

## SCHOLARSHIPS FOR 1890-94.

## THE CORNELL SCHOLARSHIP,

Ezra Pierce Reynolds, *Course in Arts*  
Ithaca High School—D. O. Barto, Principal.

## THE H. B. LORD SCHOLARSHIP,

William Herbert Dole, *Course in Architecture*  
Brooklyn Central High School—Calvin Patterson, B.S., Principal.

## THE MCGRAW SCHOLARSHIP,

Adna Ferrin Weber, *Course in Philosophy*  
Salamanca Union School—Abial B. Davis, Ph.B., Principal.

## THE SAGE SCHOLARSHIP,

Maria Martha Hoppe, *Course in Arts*  
Rochester Free Academy—John G. Allen, Principal.

## THE SIBLEY SCHOLARSHIP,

Harry Merrick Beach, *Course in Mechanical Engineering*  
Cortland Normal School—James H. Hoose, A.M., Ph.D., Principal.

## THE PRESIDENT WHITE SCHOLARSHIP,

John Kasson Lathrop, *Course in Arts*  
Yonkers High School—Edward R. Shaw, Ph.D., Principal.

## THE HORACE GREELEY SCHOLARSHIP,

Raymond Allen Pearson, *Course in Agriculture*  
Ithaca High School—D. O. Barto, Principal.

## THE JOHN STANTON GOULD SCHOLARSHIP,

Noah Cummings, *Course in Civil Engineering*  
Schenevus Union School—Floyd S. Lowell, Principal.

## THE STEWART L. WOODFORD SCHOLARSHIP,

Elmer Ellsworth Bogart, *Course in Arts*  
Owego Free Academy—Ezra J. Peck, A.M., Principal.

# CATALOGUE OF STUDENTS.

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## GRADUATES.

### CANDIDATES FOR ADVANCED DEGREES.

Barnes, Earl, A. B.,	Indiana University.	History
Bedell, Frederick, A. B.,	Yale University.	Electrical Engineering
Best, Lyman Austin, B. S.,		Entomology
Botsford, George W., A. B.,	University of Nebraska.	Greek and Sanskrit
Briggs, Elizabeth,	Harvard Annex.	History
Cochran, Mary Emma, A. B.,	Vassar College.	History
Coffin, Victor Edwin, A. B.,	Dalhousie College.	History and Political Science
Cook, Charles Chauveau, B. L.,		Ethics and Economics
Cory, Clarence Linus, B. M. E.,	Purdue University.	Electrical Engineering
Creighton, James Edwin, A. B.,	Dalhousie College.	Philosophy
Crist, Arthur H., B. L.,		History and Political Science
† Davison, George Howard, Ph. B. (Yale University), B. S.,		Agriculture and Veterinary Science
Elkin, William Baird, A. B.,	Manitoba College.	Philosophy
Emerson, Oliver Farrar, A. M.,	Iowa College.	English and Comparative Philology
Estrem, Andrew, A. B. (Luther College), A. M.,		History and Political Science
Foster, William James, A. B.,	Williams College.	Physics

† In Absentia.

- Fowler, Charles Sumner, A.B., Mathematics
- Galbreath, Louis Hutchinson, B.L., Philosophy
- Goodell, Charles Elmer, A.B., History and Political Science  
Franklin College.
- Granrud, John Evenson, A.M., History and Political Science  
Luther College.
- Harding, Samuel Bannister, A.B., History  
Indiana University.
- Hitchcock, John Sawyer, A.B., Natural History  
Amherst College.
- Hotchkiss, Homer James, B.S., C.E., A.B., Electrical Engineering  
Allegheny College.
- Hyde, Lulu Eloise, B.S., Chemistry and Physiology
- Kortright, Frederic Lawrence, B.S., Chemistry
- Laird, Arthur Gordon, A.B., Greek, Latin, and Comparative Philology  
Dalhousie College.
- Lawrence, Antoinette, Ph.B., Comparative Philology
- Lindquist, Joseph Alexander, A.B., History and Political Science
- Lockhart, Thomas Edward, A.B., Philology  
Manitoba University.
- Louis, Otto Theodore, B.S., Electrical Engineering  
College of the City of New York.
- Lyford, Oliver Smith, Jr., Ph.B., Mechanical Engineering  
Yale University.
- McMynn, John Clarke, A.B., Electrical Engineering  
Williams College.
- Mace, William Harrison, M.L. (University of Michigan), A.M.,  
History and Political Science  
Indiana University.
- Maddox, Lola, A.B., English Literature and Latin  
Knox College.
- Maxwell, Fred B, Ph.B., Botany and Zoology  
Beloit College.
- Mishima, Yataro, B.S. (Massachusetts Agricultural College), M.S.,  
Invertebrate Zoology
- Moore, Burton Evans, A.B., (Otterbein University), A.M.,  
Electrical Engineering
- Morrison, William Henry, B.S., Chemistry and Mathematics
- Myers, George Francis, B.S., Electrical Engineering  
Worcester Polytechnic Institute.
- Nichols, Ernest Fox, B.S., Mathematics and Physics  
Kansas Agricultural College.

- Nicholson, William Franklin, A. B.,  
Knox College. Paleontology
- Palmié, Anna Helene, Ph. B., Mathematics
- Pattison, Salem Griswold, A. B.,  
Wabash College. History and Political Science
- Pellett, Sarah Frances, A. B., Greek, Latin, and Comparative Philology  
Smith College.
- Rappleye, Walter Glazier, B. S., Mathematics
- Rice, James Edward, B. S., Agriculture
- Ridgway, Ellis Branson, B. S.,  
Swarthmore College. Mechanical Engineering
- Robinson, Floyd Lucien, B. S., Architecture
- Rogers, Frederick John, B. S.,  
Kansas State Agricultural College. Mathematics and Physics
- Rogers, Miriam Nancy Shelton, A. B.,  
Smith College. Greek and Comparative Philology
- Rogers, Sara Bulkley, A. B.,  
Columbia College. History
- Rowlee, Willard Winfield, B. L., Botany
- Royse, Daniel, B. M. E.,  
Purdue University. Mechanical Engineering
- Rubert, Kennedy Furlong, A. B., Greek and Latin
- Saunders, Samuel J, A. B.,  
University of Toronto. Physics and Mathematics
- Saurel, Paul Louis, B. S.  
College of the City of New York. Mathematics
- Sherman, Belle, B. S.,  
Lombard University. Botany, Physiology, and Physics
- Shepardson, George Defrees, A. M. (Denison University), M. E.,  
Electrical Engineering
- Shoemaker, William Ross, B. S.,  
Iowa Agricultural College. Mathematics
- Snyder, Virgil, B. S.,  
Iowa Agricultural College. Mathematics and Physics
- Story, Ella, A. B.,  
Vassar College. English Literature and German
- Studley, Duane, B. S., Physics
- † Tarbell, Ed, B. S., Agriculture
- Taylor, John Myers, M. E., Mechanical Engineering

†Thatcher, Louis Grant, B.S.,	Agriculture
Thomas, Mason Blanchard, B.S.,	Botany and Zoology
Thompson, Milton Ellsworth, M.E.,	Electrical Engineering
Vickers, Thomas McEldeny, C.E.,	Civil Engineering
†Wait, John Cassan, C.E.,	Civil Engineering
Walton, Alice, A.B.,	Greek, Latin, and Comparative Philology Smith College.
†Wiechardt, August Julius, M.E.,	Mechanical Engineering Lehigh University.
Wing, Henry Hiram, B.Agr.,	Agriculture
†Withers, William Alphonso, A.M.,	Chemistry Davidson College.

## CANDIDATES FOR BACCALAUREATE DEGREES.

Boyrer, William Charles, B.S.,	Mechanical Engineering College of the City of New York.
Burwell, Robert Turnbull, Ph.B.,	Mechanical Engineering University of North Carolina.
Caldwell, Francis Carey, A.B.,	Electrical Engineering
Card, Wirt Dinsmoor, C.E.,	Electrical Engineering Rensselaer Polytechnic Institute.
Cothran, James Sproull, Jr., B.S.,	Mechanical Engineering South Carolina University.
Cox, Olive Annice, B.S.,	Philosophy Knox College.
Deuchler, Charles Henry, A.B.,	Architecture
Dick, William Amzi, A.B.,	Electrical Engineering Oberlin College.
Dingle, James Herveý, A.B.,	Civil Engineering Charleston College.
Ely, William Grosvenor, Jr., Ph.B.,	Mechanical Engineering Brown University.
Florer, Warren Washburn, A.B.,	Civil Engineering De Pauw University.
Floy, Henry, A.B.,	Electrical Engineering Wesleyan University.
Franco, Antonio de Barros, C.E.,	Electrical Engineering Rensselaer Polytechnic Institute.

† In Absentia.

Greene, Carleton, A. B.,	Civil Engineering
Harvard University.	
Harrison, Frank, C. E.,	Electrical Engineering
Troy Polytechnic Institute.	
Hatt, William Kendric, A. B.,	Civil Engineering
University of New Brunswick.	
Hibbard, Herbert Wade, A. B.,	Mechanical Engineering
Brown University.	
Knoch, Julius James, B. S.,	Civil Engineering
Grove City College.	
Levy, Lehman, B. S.,	Mechanical Engineering
College of the City of New York.	
McConahey, William McConnell, A. B.,	Electrical Engineering
Washington and Jefferson College.	
Whiting, Henry Freeman, A. B.,	Electrical Engineering
Dickinson College.	
Wolfe, Joseph Meixell, A. B.,	Electrical Engineering
Bucknell University.	

## NOT CANDIDATES FOR A DEGREE.

Duffey, James Calvin, B. S.,	Agriculture
Michigan Agricultural College.	
Pawling, Jesse, Jr., A. B.,	Optional
Central High School, Philadelphia.	
Rugg, Walter S, B. S.,	Electrical Engineering
Lawrence University.	

## UNDERGRADUATES.

## SENIORS.

Abrams, Alfred Willis,	<i>Seward,</i>	Philosophy
Adsitt, Carrie Ingersoll,	<i>Ithaca,</i>	Philosophy
Almirall, Juan Antonio,	<i>Brooklyn,</i>	Mechanical Eng.
Almirall, Raymond Francis,	<i>Brooklyn,</i>	Architecture
Anderson, Gilbert Hart,	<i>Peekskill,</i>	Architecture
Atwood, Horace,	<i>East Genoa,</i>	Agriculture
Baker, William Pimm,	<i>Skaneateles,</i>	Letters
Ball, Winifred,	<i>Rochester,</i>	Arts
Barton, Frank Arthur,	<i>Washington, D. C.,</i>	Electrical Eng.
Bates, Frank Greene,	<i>Summit, R. I.,</i>	Letters
Beardsley, James Wallace,	<i>Ithaca,</i>	Civil Eng.
Bentley, Elwyu Brockway,	<i>Springfield, Mo.,</i>	Arts
Bentley, Frank Crane,	<i>Springfield, Mo.,</i>	Arts
Bierbaum, Christopher Henry,	<i>Ceres, Iowa,</i>	Mechanical Eng.
Bird, Albert Alexander,	<i>Ellicottville,</i>	Philosophy
Bissell, Fred Olds,	<i>Buffalo,</i>	Arts
Booraem, John Francis,	<i>Brooklyn,</i>	Electrical Eng.
Bowes, Thomas Francis,	<i>Bath,</i>	Civil Eng.
Boyrer, William Charles, B.S.,	<i>New York City,</i>	Electrical Eng.
Bradley, Harry Merrit,	<i>Manchester, Iowa,</i>	Science
Bridges, Thomas John,	<i>Fairport,</i>	Letters
Brill, George Mackensie,	<i>Poughquag,</i>	Electrical Eng.
Browd, Paul Konstance,	<i>Odessa, Russia,</i>	Electrical Eng.
Brown, Ernest H.,	<i>Belfast,</i>	Electrical Eng.
Brown, Lena Frauces,	<i>New Berlin,</i>	Science
Caldwell, Francis Carey, A.B.,	<i>Ithaca,</i>	Electrical Eng.
Capron, Ola Beth,	<i>Boonville,</i>	Letters
Card, William Dinsmoor, C.E.,	<i>Pittsburgh, Pa.,</i>	Electrical Eng.
Casey, James Irving,	<i>Mohawk,</i>	Arts
Cauffman, Maurice,	<i>Rochester,</i>	Chemistry
Chamberlain, George Ray,	<i>New York City,</i>	Electrical Eng.
Chamot, Emile Monnin,	<i>Buffalo,</i>	Chemistry
Clarke, Herbert Burns,	<i>Peoria, Ill.,</i>	Mechanical Eng.
Cosad, Matie Adeline,	<i>Waterloo,</i>	Letters
Cox, Olive Aunice, B.S.,	<i>Vermont, Ill.,</i>	Philosophy
Crane, Albert Sears,	<i>Addison,</i>	Civil Eng.

Danforth, Richard Eugene,	<i>Buffalo,</i>	Electrical Eng.
Darlington, Philip Jackson,	<i>Lincoln Univ., Pa.,</i>	Mechanical Eng.
Davis, Burton William,	<i>St. Johnsville,</i>	Philosophy
Davis, Eunice Maria,	<i>Binghamton,</i>	Science
Deuchler, Charles Henry, A. B.,	<i>Lyons,</i>	Architecture
Dickinson, Charles Courter,	<i>Cobleskill,</i>	Letters
Dikeman, George Jason,	<i>Spencer,</i>	Letters
Dunlap, Milton Irwin,	<i>Greenfield, Ohio,</i>	Philosophy
Easton, Irving Boyd,	<i>Albany,</i>	Letters
Emerick, Louis Warren,	<i>Fulton,</i>	Electrical Eng.
Farber, Olin,	<i>Bellville, Ohio,</i>	Arts
Fitts, Edwin,	<i>Dresserville,</i>	Electrical Eng.
Floy, Henry, A. B.,	<i>Elizabeth, N. J.,</i>	Electrical Eng.
Fowler, Albert Perry,	<i>Syracuse,</i>	Arts
Franco, Antonio de Barros, B. S.,	<i>San Paulo, Brazil,</i>	Electrical Eng.
French, Charles Gilmore,	<i>New Hartford,</i>	Agriculture
Garnsey, John Kneeland,	<i>Troy,</i>	Letters
Genung, Ina Eloeen,	<i>Ithaca,</i>	Philosophy
Gill, William Robert,	<i>Cleveland, Ohio,</i>	Arts
Graves, Halsey Rogers,	<i>Au Sable Forks,</i>	Mechanical Eng.
Greene, Carletou, A. B.,	<i>New York City,</i>	Civil Eng.
Griswold, Mary Ellen,	<i>Southport,</i>	Letters
Hall, Joseph Linville,	<i>Springfield, Mass.,</i>	Electrical Eng.
Hallock, Elijah Allen,	<i>Moriches,</i>	Civil Eng.
Harrison, Frank, C. E.,	<i>Troy,</i>	Electrical Eng.
Hatch, Metcalf Bradley, Jr.,	<i>Middletown, Ohio,</i>	Letters
Hatt, William Kendriect, A. B.,	<i>Fredericton, Canada,</i>	Civil Eng.
Hawley, Sarah Ellen,	<i>Brandon, Vt.,</i>	Arts
Hayes, Stanley Wolcott,	<i>Hanover, Ohio,</i>	Mechanical Eng.
Heath, Byron Henry,	<i>North Evans,</i>	Letters
Hibbard, Herbert Wade, A. B.,	<i>Providence, R. I.,</i>	Mechanical Eng.
Hilborn, Edwin,	<i>Ithaca,</i>	Civil Eng.
Hitz, Irving,	<i>Chicago, Ill.,</i>	Civil Eng.
Hoskins, Mary Isabel,	<i>Erie, Pa.,</i>	Philosophy
Hoy, David Fletcher,	<i>Bovina Centre,</i>	Science
Hulse, Howard Corwin,	<i>Ithaca,</i>	Civil Eng.
Hyde, Ida,	<i>Chicago, Ill.,</i>	Science
Jackson, Lucian Cornes,	<i>Springville,</i>	Mechanical Eng.
Jeffrey, Samuel,	<i>Pittsburgh, Pa.,</i>	Agriculture
Kellogg, Robert James,	<i>Norwalk, Ohio,</i>	Arts
Kerr, Clara Hannah,	<i>Collin,</i>	Philosophy
Kerr, Irvine Jay,	<i>Ithaca,</i>	Science

Kirley, William Winant,	<i>Utica,</i>	Mechanical Eng.
Knighton, John Albert,	<i>Bowmansville,</i>	Civil Eng.
Kress, James Edward,	<i>Johnstown, Pa.,</i>	Mechanical Eng.
Kuchmsted, Albert Louis,	<i>Oshkosh, Wis.,</i>	Electrical Eng.
Land, Frank,	<i>Syracuse,</i>	Electrical Eng.
Levy, Lehman, B.S.,	<i>New York City,</i>	Electrical Eng.
Lewis, Clarence Charles,	<i>Cleveland, Ohio,</i>	Civil Eng.
Lewis, John Thomas,	<i>Lansingburgh,</i>	Architecture
Lomax, Clarence Stanley,	<i>Buffalo,</i>	Chemistry
Lovell, Earl Brink,	<i>Cortland,</i>	Civil Eng.
Lozier, Harry Abram, Jr.,	<i>Cleveland, Ohio,</i>	Arts
Lyon, Thomas Lyttleton,	<i>Pittsburgh,</i>	Agriculture
McConahey, William McConnell, A.B.,	<i>Washington, Pa.,</i>	Elec Eng.
McConville, Cornelia Adeline,	<i>Brooklyn,</i>	Science
MacLaren, Malcolm Neill, Jr.,	<i>Milwaukee, Wis.,</i>	Mechanical Eng.
MacNeil, Wilbur James,	<i>Chelsea, Mass.,</i>	Agriculture
Manierre, John Thompson,	<i>Chicago, Ill.,</i>	Science
Mausfield, Elmer G.,	<i>Akron, Ohio,</i>	Philosophy
Marble, Harry Mills,	<i>Washington, D. C.,</i>	Mech. Eng.
Marsh, Clinton Stoner,	<i>Ithaca,</i>	Arts
Meeker, Warren H.,	<i>Binghamton,</i>	Electrical Eng.
Moon, Annie Florence,	<i>Newport,</i>	Arts
Muñoz, José del Cármen,	<i>Rivas, Nicaragua,</i>	Civil Eng.
Niemeyer, Carl Hess,	<i>Williamsport, Pa.,</i>	Civil Eng.
Norton, Edith Marie,	<i>Jefferson, Ohio,</i>	Philosophy
Ogden, Phillip,	<i>Woodfords, Me.,</i>	Arts
Olmsted, Everett Ward,	<i>Galesburgh, Ill.,</i>	Philosophy
Parsons, Herbert,	<i>Marcellus,</i>	Civil Eng.
Perkins, Frank Clinton,	<i>Dunkirk,</i>	Electrical Eng.
Phillips, Ervin Louis,	<i>Franklinville,</i>	Arts
Phillips, Merton Ogden,	<i>Fremont, Ohio,</i>	Philosophy
Pollard, Seabury Gould,	<i>Seneca Falls,</i>	Electrical Eng.
Priest, Alice Lucinda,	<i>Shenandoah, Iowa,</i>	Letters
Raymond, Francis, 3d.	<i>Detroit, Mich.,</i>	Electrical Eng.
Reed, Bertha Prichard,	<i>Ithaca,</i>	Philosophy
Robbins, Mary Louise,	<i>Washington, D. C.,</i>	Philosophy
Rogers, Jesse Alanson,	<i>Evans Mills,</i>	Civil Eng.
Rouillion, Louis,	<i>Boston, Mass.,</i>	Science
Rumsey, William Earle,	<i>Van Etenville,</i>	Agriculture
Russell, Charles,	<i>Albany,</i>	Letters
Ryan, Rose Josephine,	<i>Medina,</i>	Letters
Sanger, Henry Hubbell,	<i>Detroit, Mich.,</i>	Letters

Schoonmaker, Frederic Palen,	<i>Limestone,</i>	Arts
Shapleigh, Amelia,	<i>Cambridge, Mass.,</i>	Arts
Shepard, Alvin Wayland,	<i>North Evans,</i>	Science
Simpson, Helen Augusta,	<i>Mansfield, Ohio,</i>	Letters
Slingerland, Mark Vernon,	<i>Otto,</i>	Agriculture
Smith, Frank Will,	<i>Hermitage,</i>	Letters
Smith, Harold Babbitt,	<i>Barre, Mass.,</i>	Electrical Eng.
Snider, Clarence A,	<i>Cleveland, Ohio,</i>	Civil Eng.
Stagg, Louis Rolfe,	<i>Chicago, Ill.,</i>	Architecture
Stidham, Harrison Lockwood,	<i>Washington, D. C.,</i>	Civil Eng.
Stiles, Charles Albert,	<i>Binghamton,</i>	Science
Stocker, John Henry,	<i>Angola,</i>	Science
Taintor, Grace Pierson,	<i>East Avon,</i>	Arts
Tanner, John Henry,	<i>Clarence, Mo.,</i>	Science
Taylor, Willard Underhill,	<i>Lyons,</i>	Philosophy
Thayer, Harry Stowe,	<i>Van Ettenville,</i>	Letters
Titus, Fred Allyn,	<i>Shortsville,</i>	Mechanical Eng.
Tone, Frank Jerome,	<i>Bergen,</i>	Civil Eng.
Tracy, Charles Sedgwick,	<i>Syracuse,</i>	Letters
Van Everen, Horace Greeley,	<i>Brooklyn,</i>	Mechanical Eng.
Van Kirk, Edwin Stratton,	<i>Newfield,</i>	Agriculture
Van Vleet, Carrie Lena,	<i>Candor,</i>	Philosophy
Van Wagenen, Jared, Jr.,	<i>Lawyersville,</i>	Agriculture
Vedder, Wellington Romeyn,	<i>Leeds,</i>	Civil Eng.
Vogel, George John,	<i>Albany,</i>	Arts
Waful, Edward Everett,	<i>Le Raysville,</i>	Architecture
Waterman, Jot Salisbury,	<i>Worcester,</i>	Letters
Weeks, Charles Melville,	<i>Brooklyn,</i>	Letters
Williams, Edward Eugene,	<i>Rochester,</i>	Electrical Eng.
Willson, Herbert McAdam,	<i>Sharon, Pa.,</i>	Electrical Eng.
Wood, Edward McGill,	<i>Indianapolis, Ind.,</i>	Electrical Eng.
Yawger, Edwin,	<i>Union Springs,</i>	Mechanical Eng.

## OPTIONAL STUDENTS.

Holmes, Manfred James, . . . . .	<i>Ithaca</i>
Moody, Robert Orton, . . . . .	<i>New Haven, Conn.</i>
Newbrook, William George, . . . . .	<i>Buffalo</i>
Sheldon, Edward Morgan, . . . . .	<i>Martinsburgh</i>
Stroud, Bert Brenette, . . . . .	<i>Ithaca</i>
Tarbell, George Schuyler, . . . . .	<i>Ithaca</i>

## JUNIORS.

Aldrich, Elliott Fournier,	<i>Aquebogue,</i>	Mechanical Eng.
Arnold, Charles Joseph,	<i>Albany,</i>	Mechanical Eng.
Atwood, William Greene,	<i>Fredonia,</i>	Civil Eng.
Babine, Alexey Vasilyevich,	<i>Elatma, Russia,</i>	Arts
Bacon, George Wood,	<i>Greenwich, N. J.,</i>	Electrical Eng.
Bailey, Edward Clifford,	<i>New York City,</i>	Letters
Baker, William Gregory,	<i>Clyde,</i>	Arts
Baldwin, Arthur J,	<i>Ithaca,</i>	Arts
Baldwin, Ernest Howard,	<i>Springfield, Mo.,</i>	Civil Eng.
Baldwin, Leonard DeWitt,	<i>Ithaca,</i>	Arts
Barnes, Stuart Gray,	<i>Syracuse,</i>	Mechanical Eng.
Bates, Fred Orlando,	<i>Shelby Centre,</i>	Arts
Bates, Sherman William,	<i>Akron,</i>	Science
Beardsley, Frank J,	<i>Owego,</i>	Arts
Beebe, Roscoe Conkling,	<i>Ludlowville,</i>	Civil Eng.
Bell, Frank Austin,	<i>Spencer,</i>	Arts
Benedict, Herschel Albert,	<i>Billing,</i>	Electrical Eng.
Bissell, Frank Brigham,	<i>Buffalo,</i>	Mechanical Eng.
Black, Frederic M,	<i>Newark, Ohio,</i>	Philosophy
Boland, Francis Halsey,	<i>New York City,</i>	Electrical Eng.
Booth, Henry Anson,	<i>Candor,</i>	Philosophy
Boright, William Parsons,	<i>Chatham,</i>	Civil Eng.
Bostwick, Charles Dibble,	<i>Ithaca,</i>	Arts
Breckinridge, Mary Grace,	<i>Binghamton,</i>	Philosophy
Brewer, Francis Ezra	<i>Gilbertsville,</i>	Arts
Brooks, William Benthall, Jr.,	<i>Erie, Pa.,</i>	Electrical Eng.
Brown, J Grove,	<i>Harford,</i>	Mechanical Eng.
Brown, William,	<i>Belfast,</i>	Civil Eng.
Brownell, James Parker,	<i>Carthage,</i>	Civil Eng.
Bump, Burton Nelson,	<i>Binghamton,</i>	Electrical Eng.
Burnett, Samuel Howard,	<i>Webster,</i>	Arts
Burns, Edward Michael,	<i>Bull's Head,</i>	Science
Burns, Justin Jerome Ambrose,	<i>Watertown,</i>	Civil Eng.
Burrage, George Closson,	<i>Worcester, Mass.,</i>	Philosophy
Burrage, Herbert Farwell,	<i>Worcester, Mass.,</i>	Agriculture
Burwell, Robert Turnbull, Ph.B.,	<i>Raleigh, N. C.,</i>	Mechanical Eng.
Caldwell, Grace Wilmarth,	<i>Ithaca,</i>	Arts
Cannon, Harrison Dickinson,	<i>Ithaca,</i>	Philosophy
Capwell, Allison Stone,	<i>Rockland, R. I.,</i>	Electrical Eng.
Carlton, Willard Gilbert,	<i>Warren, Ill.,</i>	Electrical Eng.

Carolan, Edgar Alfred,	<i>San Francisco, Cal.,</i>	Electrical Eng.
Clark, Charles Henry,	<i>Canastota,</i>	Civil Eng.
Clark, Edward Everett,	<i>Elmira,</i>	Electrical Eng.
Clark, Howard William,	<i>Irondequoit,</i>	Arts
Clemens, Abraham Bowman,	<i>Preston, Canada,</i>	Mechanical Eng.
Clementson, George Burr,	<i>Lancaster, Wis.,</i>	Letters
Clephane, Lewis Painter,	<i>Washington, D. C.,</i>	Electrical Eng.
Colton, Royal Fowler,	<i>Rockford, Ill.,</i>	Civil Eng.
Conklin, Harry Raymond,	<i>Appleton, Wis.,</i>	Electrical Eng.
Corey, Fred Brainard,	<i>Homer,</i>	Electrical Eng.
Cothrau, James Sproull, Jr., B.S.,	<i>Abbeville, S. C.,</i>	Mechanical Eng.
Couch, Vinton Myron,	<i>Odessa,</i>	Civil Eng.
Cowan, Freeman Britton,	<i>Gananoque, Canada,</i>	Mech. Eng.
Crouch, Calvin Henry,	<i>Oswego,</i>	Mechanical Eng.
Curtis, Winthrop Lincoln,	<i>Horsheads,</i>	Civil Eng.
Davis, George Henry,	<i>North Hannibal,</i>	Electrical Eng.
Davison, George Millard,	<i>Apalachin,</i>	Arts
Derham, Milo Grant,	<i>Allona, Ill.,</i>	Arts
Dick, William Amzi, A.B.,	<i>Oberlin, Ohio,</i>	Electrical Eng.
Dickey, Laura Stanley,	<i>Newburgh,</i>	Science
Dingle, James Hervey, A.B.,	<i>Charleston, S. C.,</i>	Civil Eng.
Doolittle, Adelia Francis,	<i>Washington, D. C.,</i>	Arts
Duniway, Clyde Augustus,	<i>Houston. Idaho,</i>	Arts
Dunn, Frank Slentz,	<i>Utica, Pa.,</i>	Civil Eng.
Dyett, James Hatheway,	<i>Rome,</i>	Mechanical Eng.
Eakle, Arthur Starr,	<i>Washington, D. C.,</i>	Science
Ely, William Grosvevor, Jr., Ph.B.,	<i>Norwich, Conn.,</i>	Mech. Eng.
Erisman, Henry,	<i>Wilhelm,</i>	Civil Eng.
Esterly, William Lawrence,	<i>Columbiana, Ohio,</i>	Philosophy
Etheridge, Charles Locke,	<i>Chicago, Ill.,</i>	Electrical Eng.
Farkell, George C,	<i>Canajoharie,</i>	Electrical Eng.
Field, Arthur Carpenter,	<i>Chicago, Ill.,</i>	Mechanical Eng.
Fish, John Charles Lounsbury,	<i>Florence, Ohio,</i>	Civil Eng.
Fisher, Edwin Eugene,	<i>Brooklyn,</i>	Electrical Eng.
Flint, Frances Elizabeth Holeman,	<i>Rochester,</i>	Arts
Foote, Robert Budroe, Jr.,	<i>Hamburgh,</i>	Letters
Fowler, Albert Merrill,	<i>Newburgh,</i>	Philosophy
Fuller, Thomas James Duncan,	<i>Washington, D. C.,</i>	Architecture
Garrett, Urias Evans,	<i>Iona, Pa.,</i>	Architecture
Geigel, Antonio Sabat,	<i>San Juan, Porto Rico,</i>	Civil Eng.
Gerecke, Amy,	<i>Newburgh,</i>	Science
Gibbon, Charles William,	<i>Charleston, S. C.,</i>	Mechanical Eng.

Gilbert, Frank Marble,	<i>Marcellus Falls,</i>	Mechanical Eng.
Gilliland, Alice Mabel,	<i>Delmar,</i>	Philosophy
Golden, Harry Eysaman,	<i>Little Falls,</i>	Civil Eng.
Goldsborough, Winder Elwell,	<i>Greensborough, Md.,</i>	Elec. Eng.
Griswold, George Carter,	<i>Milo, Ill.,</i>	Philosophy
Guinn, John Broome,	<i>Georgia City, Mo.,</i>	Civil Eng.
Haggett, Earle Clifford,	<i>Dunkirk,</i>	Mechanical Eng.
Hamann, Henry George,	<i>Davenport, Iowa,</i>	Electrical Eng.
Haring, Fred Benson,	<i>Ludlowville,</i>	Letters
Harmon, Mary Patterson,	<i>Corry, Pa.,</i>	Philosophy
Haynes, George White,	<i>Fremont, Ohio,</i>	Philosophy
Hedden, Edmond Jansen,	<i>Charlton,</i>	Civil Eng.
Heilman, Orin Gibson,	<i>Williamsport, Pa.,</i>	Mech. Eng.
Henry, Arthur Robert,	<i>Quebec, Canada,</i>	Mechanical Eng.
Hicks, Henry,	<i>Westbury Station,</i>	Agriculture
Holbrook, Dio Lewis,	<i>New York City,</i>	Mechanical Eng.
Horton, Elmer Grant,	<i>Arcade,</i>	Science
Howe, Harry Dresser,	<i>Hampton, Va.,</i>	Agriculture
Hoxie, George L.,	<i>Anamosa, Iowa,</i>	Mechanical Eng.
Hoxie, Robert Franklin,	<i>Whitesboro,</i>	Letters
Hoyt, Carroll Livingston,	<i>Wellsville,</i>	Mechanical Eng.
Huestis, Charles Calvin,	<i>Crown Point,</i>	Civil Eng.
Hurd, Brad French,	<i>Branchport,</i>	Architecture
Hyde, Frank Shaw,	<i>Montague, Mass.,</i>	Chemistry
Idle, Frank Pierce,	<i>Springfield, Ill.,</i>	Mechanical Eng.
Jackson, Frank Darwin,	<i>Bradford, Pa.,</i>	Electrical Eng.
Jenkins, David John,	<i>Milton, Pa.,</i>	Mechanical Eng.
Jones, Robert Valentine,	<i>Taghanic Falls,</i>	Civil Eng.
Kaiser, Arthur William Herman,	<i>Buffalo,</i>	Philosophy
Keiffer, Lenard Brown,	<i>New Orleans, La.,</i>	Chemistry
Kelsey, Arthur Townsend,	<i>Mecklenburgh,</i>	Mechanical Eng.
King, Walter Grant,	<i>New York City,</i>	Science
Knight, Percy Henry,	<i>Fredonia,</i>	Electrical Eng.
Knoch, Julius James, B.S.,	<i>Saxonburgh, Pa.,</i>	Civil Eng.
Kolb, Theodore Baldwin,	<i>Elmira,</i>	Chemistry
Kreidler, Charles Ray,	<i>South Dansville,</i>	Science
Kreidler, Deo Clair,	<i>South Dansville,</i>	Letters
Kuhn, Joseph,	<i>Lima, Ohio,</i>	Mechanical Eng.
Lachicotte, Walter Betts,	<i>Waverly Mills, S. C.,</i>	Electrical Eng.
Lathrop, John Pelatiah Perit,	<i>LeRoy,</i>	Civil Eng.
Law, Cecilia Agnes,	<i>Ithaca,</i>	Letters
Levy, Charles Joseph,	<i>New York City,</i>	Letters

Lewis, Liston Leone,	<i>Canton, Pa.,</i>	Philosophy
Lindsay, William Edward,	<i>Baltimore, Md.,</i>	Electrical Eng.
Ludlam, Harry Weeks,	<i>Oyster Bay,</i>	Electrical Eng.
McAllister, Peter Francis,	<i>Ithaca,</i>	Letters
McComb, William Nelson,	<i>Ithaca,</i>	Mechanical Eng.
MacGregor, James Ferguson,	<i>Galt, Canada,</i>	Mechanical Eng.
McKnight, George Harley,	<i>Sterling Valley,</i>	Arts
McLaren, Malcolm Neil,	<i>Milwaukee, Wis.,</i>	Mechanical Eng.
McNulty, Sarah Adeline,	<i>Washington, D. C.,</i>	Arts
Marble, Louis Mills,	<i>Washington, D. C.,</i>	Science
Marston, Amos Wilbur,	<i>Winnebago, Ill.,</i>	Letters
Massey, John Rice,	<i>Chicago, Ill.,</i>	Electrical Eng.
Mathews, Clarence Wentworth,	<i>Andover, Mass.,</i>	Agriculture
Matthews, Charles Philo,	<i>Fort Covington,</i>	Electrical Eng.
Maynard, Margaret Rebecca,	<i>Canton, Ill.,</i>	Arts
Maynard, Sherman Darwin,	<i>Lew Beach,</i>	Agriculture
Melotte, Julia Lorraine,	<i>Ithaca,</i>	Philosophy
Merritt, Ernest Gordon,	<i>Savannah,</i>	Science
Michaelson, Joseph McConnechy,	<i>Geneva,</i>	Civil Eng.
Mickle, Robert Thomas,	<i>Millville, N. J.,</i>	Mechanical Eng.
Miller, Alfred John,	<i>Doylestown, Ohio,</i>	Letters
Monfort, Frederick Delos,	<i>St. Paul, Minn.,</i>	Philosophy
Moore, Frank Cook,	<i>Aquebogue,</i>	Civil Eng.
Moreland, Sherman,	<i>Van Ettenville,</i>	Letters
Morley, Edgar Lewis,	<i>Baldwinsville,</i>	Electrical Eng.
Mosher, Ward,	<i>Cold Spring,</i>	Letters
Mulford, Furman Lloyd,	<i>Millville, N. J.,</i>	Agriculture
Muñoz, Salvador,	<i>Rivas, Nicaragua,</i>	Mech. Eng.
Murray, Lucy,	<i>San Francisco, Cal.,</i>	Arts
Newman, Jacob Kiefer,	<i>New Orleans, La.,</i>	Electrical Eng.
Nichols, Leon Nelson,	<i>West Winfield,</i>	Letters
Norton, Francis Leonard,	<i>Springfield, Mass.,</i>	Arts
Noyes, George Wallingford,	<i>Kenwood,</i>	Arts
Osborne, Loyall Allen,	<i>Newark, N. J.,</i>	Electrical Eng.
Palmer, Harry Mitchell,	<i>Pittsburgh, Pa.,</i>	Electrical Eng.
Park, Arthur Bushnell,	<i>Winfield,</i>	Mechanical Eng.
Parke, Frederic Huntington,	<i>Unadilla,</i>	Mechanical Eng.
Parris, William Albert,	<i>Philadelphia, Pa.,</i>	Electrical Eng.
Pearson, Anne R,	<i>Ithaca,</i>	Letters
Peck, John Sedgwick,	<i>Staunton, Va.,</i>	Electrical Eng.
Phillips, Fred Clinton,	<i>Little Falls,</i>	Civil Eng.
Piffard, Henry Haight,	<i>New York City,</i>	Electrical Eng.

Pillmore, Fred,	<i>Westernville,</i>	Mechanical Eng.
Platt, Frederick Joseph,	<i>Waterford,</i>	Mechanical Eng.
Pope, Charles Edward,	<i>Cleveland, Ohio,</i>	Mechanical Eng.
Poss, Victor Henry,	<i>St. Louis, Mo.,</i>	Civil Eng.
Potter, Mary Alice,	<i>North Easton,</i>	Letters
Purdy, George Carr,	<i>Middletown,</i>	Arts
Quencer, Albert Benore,	<i>Watertown,</i>	Arts
Register, Harry Vollmer,	<i>Philadelphia, Pa.,</i>	Arts
Rodriguez, Arturo,	<i>San Juan, Porto Rico,</i>	Civil Eng.
Root, Louis Carroll,	<i>Port Byron,</i>	Arts
Rowe, Bertrand Perry,	<i>Ithaca,</i>	Electrical Eng.
Rowe, Norman,	<i>Oswego,</i>	Electrical Eng.
Sawyer, Barton Mansfield,	<i>Ithaca,</i>	Electrical Eng.
Schreuder, Otto Peter,	<i>Syracuse,</i>	Architecture
Scidmore, Frank Lincoln,	<i>East Watertown,</i>	Electrical Eng.
Seymour, Arthur Trumbull,	<i>Turin,</i>	Letters
Shapleigh, William Chapman,	<i>Lockport,</i>	Mechanical Eng.
Shaw, Harry Wesley,	<i>South Orange, N. J.,</i>	Civil Eng.
Sheldon, Franklin Lacy,	<i>Auburn,</i>	Mechanical Eng.
Shillinger, John George,	<i>West Lebanon,</i>	Civil Eng.
Shurter, Edwin DuBois,	<i>Brookton,</i>	Philosophy
Smith, Laura Bertha,	<i>Ithaca,</i>	Science
Smith, Leonard J,	<i>Cortland,</i>	Civil Eng.
Smith, William Sumner,	<i>Hampden, Mass.,</i>	Mechanical Eng.
Snyder, George B McClellan,	<i>Nina,</i>	Science
Soulé, Frank,	<i>New Orleans, La.,</i>	Letters
Souza, Epaminoudas Alves de,	<i>Juiz de Fôra, Brazil,</i>	Agriculture
Sparrell, John Kirkwood,	<i>Oriskany,</i>	Arts
Spencer, Josephine,	<i>Waverly,</i>	Letters
Stanford, George Elijah,	<i>Evanston, Ill.,</i>	Philosophy
Starkweather, William Gustavus,	<i>Milwaukee, Wis.,</i>	Mechanical Eng.
Steinacher, Gustavo José,	<i>Ponce, Porto Rico,</i>	Civil Eng.
Stewart, Arthur Daniel,	<i>Anchor, Ill.,</i>	Mechanical Eng.
Strother, Robert Henry,	<i>Marshall, Mo.,</i>	Mechanical Eng.
Sturdevant, Charles Ralph,	<i>Youngsville, Pa.,</i>	Mechanical Eng.
Swartout, Carolinne Harder,	<i>Owego,</i>	Philosophy
Takahashi, Otoji,	<i>Tokio, Japan,</i>	Agriculture
Tappan, Frances,	<i>Baldwinsville,</i>	Letters
Taylor, Beulah Wilson,	<i>Schuyler's Lake,</i>	Science
Taylor, Frank Sylvester,	<i>Chicopee Falls, Mass.,</i>	Letters
Thayer, George Langstaff,	<i>Chicago, Ill.,</i>	Electrical Eng.
Throop, Francis Wayland,	<i>Port Gibson,</i>	Electrical Eng.

Tourtellot, Jerry Williams,	<i>Ithaca,</i>	Electrical Eng.
Townsend, George Rappleye,	<i>Chicago Ill.,</i>	Electrical Eng.
Turner, Horace Greeley,	<i>Pope's Mills,</i>	Civil Eng.
Tuttle, George Mott,	<i>Le Roy,</i>	Letters
Voetter, Thomas Wilson,	<i>Pittsburgh, Pa.,</i>	Electrical Eng.
Vose, Walter Irving,	<i>Manville, R. I.,</i>	Civil Eng.
Walker, John Charles,	<i>Akron,</i>	Letters
Walter, Harry Joseph,	<i>Whitney's Point,</i>	Philosophy
Warner, Robert Lyon,	<i>Portland, Oreg.,</i>	Electrical Eng.
Werner, Charles Hain,	<i>Reading, Pa.,</i>	Mechanical Eng.
White, Charles Miles,	<i>Buffalo,</i>	Electrical Eng.
Wille, Harry Valentine,	<i>Philadelphia, Pa.,</i>	Electrical Eng.
Williams, Roswell Carter, Jr.,	<i>Brooklyn,</i>	Mechanical Eng.
Wilson, Chester Paulton,	<i>Indianapolis, Ind.,</i>	Electrical Eng.
Wolf, Rennold,	<i>Ithaca,</i>	Philosophy
Wolfe, Joseph Meixell, A.B.,	<i>Lewisburgh, Pa.,</i>	Electrical Eng.
Wood, Augustus,	<i>Batavia,</i>	Mechanical Eng.
Wood, Edgar Harper,	<i>Ithaca,</i>	Mechanical Eng.
Wood, Harrison Haskell,	<i>Pittsburgh, Pa.,</i>	Electrical Eng.
Wood, Horatio Nelson,	<i>Westbury,</i>	Mechanical Eng.
Woodward, Arthur Herbert,	<i>Chicago, Ill.,</i>	Mechanical Eng.

OPTIONAL STUDENTS.

Bloss, Joseph Mackie, . . . . .	<i>Titusville, Pa.</i>
Breckenridge, Roeliff Morton, . . . . .	<i>Hamilton, Canada</i>
Brewster, Anna Roosa, . . . . .	<i>South Plainfield</i>
Collins, Florence Belle, . . . . .	<i>Syracuse</i>
Colnon, Aaron Joseph, . . . . .	<i>Ogdensburgh</i>
Elliott, John Lovejoy, . . . . .	<i>Princeton, Ill.</i>
Elliott, Russell, . . . . .	<i>Buffalo</i>
Hills, Elijah Clarence, . . . . .	<i>Tampa, Fla.</i>
Knapp, Alexander Payson, . . . . .	<i>New York City</i>
Laidlaw, Gilbert William, . . . . .	<i>Ellicottville</i>
McFarland, Alan Ramsay, . . . . .	<i>New Haven, Conn.</i>
O'Shea, Michael Vincent, . . . . .	<i>Le Roy</i>
Sutliff, Edward Milton, . . . . .	<i>Warren, Ohio</i>
Tuthill, Grace Blanch, . . . . .	<i>Waverly</i>
Vedder, Estella May, . . . . .	<i>St. Johnsville</i>
Whicher, Charles Maples, . . . . .	<i>Mayville</i>

## SOPHOMORES.

Adams, Percy Crowley,	<i>Randolph,</i>	Architecture
Adams, Spencer Lionel,	<i>Skaneateles,</i>	Arts
Alberger, Alvan Hyde,	<i>Buffalo,</i>	Mechanical Eng.
Alexander, Henry David,	<i>Minneapolis, Minn.,</i>	Civil Eng.
Allen, Edwin Pitcher,	<i>Clarence,</i>	Letters
Andrews, Arthur Lynn,	<i>Ithaca,</i>	Letters
Anthony, James Stowell,	<i>New York City,</i>	Electrical Eng.
Armstrong, Harley J,	<i>Decatur, Ill.,</i>	Electrical Eng.
Auel, Carl Bennett,	<i>Brooklyn,</i>	Electrical Eng.
Baeon, George Morgan,	<i>West Medford, Mass.,</i>	Civil Eng.
Baier, Julius William,	<i>Jersey City, N. J.,</i>	Medical Prep.
Baird, Frank Jewell,	<i>Pulaski,</i>	Agriculture
Baker, William Gregory,	<i>Clyde,</i>	Arts
Baldwin, Abram Turnure,	<i>New York City,</i>	Mechanical Eng.
Baldwin, George Lyon,	<i>Towanda, Pa.,</i>	Letters
Baldwin, Seward,	<i>Waverly,</i>	Mechanical Eng.
Ball, Charles Hubbard,	<i>Le Roy,</i>	Letters
Ballantyne, Norman Frank,	<i>Ottawa, Canada,</i>	Electrical Eng.
Barker, James Francis,	<i>Chicago, Ill.,</i>	Mechanical Eng.
Barnum, Ward,	<i>Centreville,</i>	Electrical Eng.
Barrett, Anna Frances,	<i>Albion,</i>	Philosophy
Barton, Rosetta Mayard,	<i>Oneonta,</i>	Arts
Beals, Albert Ebenezer,	<i>Norwich,</i>	Mechanical Eng.
Beckett, Samuel Gustavus.	<i>Toronto, Canada,</i>	Architecture
Bertholf, Charles Howard,	<i>Marlborough, N. J.,</i>	Electrical Eng.
Bingham, Arthur Walter,	<i>De Pere, Wis.,</i>	Science
Bishop, Hubert Keeney,	<i>Warsaw,</i>	Civil Eng.
Blood, Charles W H,	<i>New York City,</i>	Mechanical Eng.
Bolles, George Albert,	<i>Naples,</i>	Arts
Booth, Arthur Woodward,	<i>Elmira,</i>	Medical Prep.
Bowen, Corydon Hart,	<i>Le Roy,</i>	Civil Eng.
Boynton, Edmond Plumb,	<i>Cedar Rapids, Ia.,</i>	Civil Eng.
Boynton, Stuart Duulevy,	<i>Chicago, Ill.,</i>	Mechanical Eng.
Braine, Elizabeth Musgrove,	<i>Brooklyn,</i>	Letters
Brayton, William Stanton,	<i>Providence, R. I.,</i>	Electrical Eng.
Bristol, Alice Josephine,	<i>Canton, Pa.,</i>	Letters
Brobeck, Joseph George,	<i>Sag Harbor,</i>	Science
Brooks, Alfred Charles.	<i>Ithaca,</i>	Architecture
Brown, Martha Avery,	<i>Le Roy,</i>	Science
Brown, Walter Frazer,	<i>Chicago, Ill.,</i>	Mechanical Eng.

Brown, William Hiram,	<i>Cleveland, Ohio,</i>	Mechanical Eng.
Brussel, Elbert,	<i>New York City,</i>	Electrical Eng.
Burr, Jonathan Sturges,	<i>Brooklyn,</i>	Mechanical Eng.
Burr, Nellie Ann,	<i>Boonville,</i>	Science
Burton, Paul Gibson,	<i>Albany,</i>	Electrical Eng.
Bush, Harold Montfort,	<i>Ithaca,</i>	Mechanical Eng.
Cadmus, George Woodhead,	<i>Brooklyn,</i>	Civil Eng.
Camp, Charles Forster,	<i>Brooklyn,</i>	Mechanical Eng.
Campbell, John Palmer,	<i>New York Mills,</i>	Mechanical Eng.
Carpenter, Gilbert Congdon,	<i>Providence, R. I.,</i>	Civil Eng.
Cavanaugh, George Walter,	<i>Watertown,</i>	Chemistry
Center, Henry Price,	<i>Ottawa, Ill.,</i>	Mechanical Eng.
Cessna, Julia,	<i>Ithaca,</i>	Architecture
Cessna, John Randolph,	<i>Ithaca,</i>	Mechanical Eng.
Chapin, Ernest Pitney,	<i>Antrim, N. H.,</i>	Electrical Eng.
Christiauce, Minnie May,	<i>Ithaca,</i>	Letters
Clark, Dan Baker,	<i>Olean,</i>	Civil Eng.
Clark, Edwin Carleton,	<i>Lancaster,</i>	Electrical Eng.
Clark, Wellyn Brayton,	<i>Castorland,</i>	Architecture
Clarke, William Addison,	<i>Toledo, Ohio,</i>	Mechanical Eng.
Clay, Francis Warfield,	<i>Lexington, Ky.,</i>	Civil Eng.
Clephaue, Malcolm Wolcott,	<i>Philadelphia, Pa.,</i>	Electrical Eng.
Cohen, Alan Mordecai,	<i>Baltimore, Md.,</i>	Mechanical Eng.
Comesky, John,	<i>Norwalk, Ohio,</i>	Mechanical Eng.
Connard, Frank Leavenworth,	<i>Reading, Pa.,</i>	Mechanical Eng.
Cook, John Ames,	<i>Chicago, Ill.,</i>	Mechanical Eng.
Cook, Junius Ford,	<i>Whitney's Point,</i>	Mechanical Eng.
Cosby, Frank Clark,	<i>Washington, D. C.,</i>	Electrical Eng.
Cross, Frank Leonard,	<i>Niagara Falls,</i>	Electrical Eng.
Cruikshank, Lyle,	<i>Carthage,</i>	Mechanical Eng.
Crum, Fred Stephen,	<i>West Candor,</i>	Letters
Cushman, Blin Sill,	<i>New Berlin,</i>	Chemistry
Darling, Frederick Edgar Bradford,	<i>Troy,</i>	Letters
Davenport, Ward Palmer,	<i>Plymouth, Pa.,</i>	Civil Eng.
Davis, Carl Everett,	<i>Council Bluffs, Iowa,</i>	Civil Eng.
Davis, Theron Dexter,	<i>Varysburgh,</i>	Arts
De Witt, John Hull,	<i>Port Jervis,</i>	Chemistry
Dewsnap, Samuel Brown,	<i>New York City,</i>	Electrical Eng.
Doepf, Louis Ernest,	<i>New York City,</i>	Electrical Eng.
Dole, Walter Sanford,	<i>Kapaa Kanai, Hawaiian Is.,</i>	C. Eng.
Doney, De Witt Clinton,	<i>Columbus, Ohio,</i>	Mechanical Eng.
Donn, John Mahon,	<i>Baltimore, Md.,</i>	Architecture

Doolittle, Lewis Joseph,	<i>Plantsville, Conn.</i> ,	Electrical Eng.
Doores, William Richard	<i>Washington, D. C.</i> ,	Civil Eng.
Downes, Charles Sawyer,	<i>Francistown, N. H.</i> ,	Mech. Eng.
Draper, Frederick Clinton,	<i>Fulton,</i>	Architecture
Duncan, Charles Henry,	<i>Cincinnati, Ohio,</i>	Mechanical Eng.
Dunn, Charles,	<i>Granville, Ill.</i> ,	Mechanical Eng.
Durand, Elias Judah,	<i>Canandaigua,</i>	Arts
Earle, Henry Curtis,	<i>Providence, R. I.</i> ,	Electrical Eng.
Eastman, Walter Lane,	<i>Ithaca,</i>	Electrical Eng.
Edwards, Walter Wallace,	<i>Forest Home,</i>	Electrical Eng.
Eickemeyer, Carl,	<i>Yonkers,</i>	Mechanical Eng.
Emery, Arthur Lowell,	<i>Westborough, Mass.</i> ,	Chemistry
Everett, William Root,	<i>Cleveland, Ohio,</i>	Chemistry
Farnham, Irving Tupper,	<i>Deposit,</i>	Civil Eng.
Federspiel, Mortimer Alexander,	<i>Lockport,</i>	Philosophy
Fenner, Leslie A,	<i>Lake Ridge,</i>	Electrical Eng.
Filkins, Claude William Leroy,	<i>Olean,</i>	Civil Eng.
Fitzpatrick, May Ransom,	<i>Albany,</i>	Arts
Florer, Warren Washburn, A.B.,	<i>Greencastle, Ind.</i> ,	Civil Eng.
Ford, James Story,	<i>West Albany,</i>	Electrical Eng.
Ford, Paul Cooley, Jr.,	<i>Ashtabula, Ohio,</i>	Mechanical Eng.
Fowler, George Vermilyea,	<i>Yonkers,</i>	Arts
Freshman, Charles Homer,	<i>New York City,</i>	Letters
Frost, Frank Raymond,	<i>Ithaca,</i>	Electrical Eng.
Gardinier, William John,	<i>Little Falls,</i>	Philosophy
Gilbert, Wells Smith,	<i>Duluth, Minn.</i> ,	Arts
Goda, Kanemaro,	<i>Tokio, Japan,</i>	Architecture
Goddard, Mary,	<i>Worcester, Mass.</i> ,	Philosophy
Goodbody, Louise Anne,	<i>Gainesville,</i>	Letters
Goodnow, Harold Plympton,	<i>Brooklyn,</i>	Architecture
Grafft, Jennie Bonnell,	<i>Waverly,</i>	Philosophy
Green, Andrew Heatley, Jr.,	<i>Syracuse,</i>	Mechanical Eng.
Greene, George de Boketon,	<i>New York City,</i>	Electrical Eng.
Grube, Warren Earl Marble,	<i>Rochester,</i>	Architecture
Halsey, Abram Augustus,	<i>Water Mill,</i>	Arts
Hamilton, John Alan,	<i>East Saginaw, Mich.</i> ,	Philosophy
Hand, William Benjamin,	<i>Nyack,</i>	Architecture
Harman, John Nepomucene,	<i>Watertown,</i>	Letters
Harris, William Allison,	<i>Niles, Ohio,</i>	Electrical Eng.
Hasbrouck, Maude Estelle,	<i>Ithaca,</i>	Letters
Heberd, Caroline Louise,	<i>Homer,</i>	Letters
Hegeler, Herman,	<i>LaSalle, Ill.</i> ,	Mechanical Eng.

Heinrich, Christoph,	<i>Milwaukee, Wis.,</i>	Mechanical Eng.
Henderson, Thaddeus Clarence,	<i>Havana,</i>	Arts
Hill, Ernest Rowland,	<i>Riverdale, N. J.,</i>	Mechanical Eng.
Hill, Lizzie,	<i>Danvers, Mass.,</i>	Philosophy
Hill, Theodore William,	<i>Lyons,</i>	Civil Eng.
Hinman, Edgar Lenderson,	<i>Astoria,</i>	Arts
Hiscock, Fidelio King,	<i>Syracuse,</i>	Letters
Hitt, Samuel Edward,	<i>Chicago, Ill.,</i>	Electrical Eng.
Hogg, George Thomas,	<i>Franklinville,</i>	Arts
Hopkins, Walter David,	<i>Ithaca,</i>	Arts
Howard, George Edwin,	<i>Butler, Pa.,</i>	Mechanical Eng.
Howe, Charles Burton,	<i>Clarence,</i>	Electrical Eng.
Howe, Herbert Crombie,	<i>Fulton,</i>	Letters
Howland, Arthur Charles,	<i>South Danby,</i>	Arts
Hoxie, Kinney,	<i>Leonardsville,</i>	Mechanical Eng.
Hubbell, Benjamin S,	<i>Cleveland, Ohio,</i>	Architecture
Hubby, Lester Meade,	<i>Cleveland, Ohio,</i>	Philosophy
Hutchinson, Frederick Lane,	<i>Elizabeth, N. J.,</i>	Electrical Eng.
Hyde, Walter Woodburn,	<i>Ithaca,</i>	Arts
Insull, Martin John,	<i>London, England,</i>	Mech. Eng.
Jacobs, Robert Hyde,	<i>Delhi,</i>	Civil Eng.
Jameson, Joseph Moore,	<i>Montrose, Pa.,</i>	Science
Jaquish, Ben Murray,	<i>Luzerne, Pa.,</i>	Science
Jeffrey, Charles Louis,	<i>New Berlin,</i>	Electrical Eng.
Jewell, Edward Winchell,	<i>Wheaton, Ill.,</i>	Mechanical Eng.
Jewett, Frank N,	<i>Elmira,</i>	Science
Joy, John Marston,	<i>Amesbury, Mass.,</i>	Electrical Eng.
Katte, Edwin Britton,	<i>New York City,</i>	Mechanical Eng.
Keller, Frank Perry,	<i>Monongahela City, Pa.,</i>	Arch.
Kelley, Frederick Williams,	<i>Albany,</i>	Mechanical Eng.
Kellogg, Waldo Stewart,	<i>Atchison, Kan.,</i>	Architecture
Klinck, John Henry,	<i>Charleston, S. C.,</i>	Electrical Eng.
Kraus, George Augustus,	<i>Clarence,</i>	Electrical Eng.
Kress, Carl Fred,	<i>Johnstown, Pa.,</i>	Mechanical Eng.
Lacey, John Fletcher,	<i>Lincoln, Del.,</i>	Civil Eng.
Ladd, Carlton Eastman,	<i>Buffalo,</i>	Philosophy
Landis, John Christopher, Jr.,	<i>St. Joseph, Mo.,</i>	Philosophy
Langdon, William Chauncy, Jr.,	<i>Providence, R. I.,</i>	Arts
Lange, John,	<i>Poughkeepsie,</i>	Mechanical Eng.
Law, Grace Mary,	<i>Ithaca,</i>	Letters
Lawrence, Clara Louise,	<i>Waterville,</i>	Science
Lillie, Charles Maples,	<i>Gilbertsville,</i>	Arts

Locke, Sylvanus Dire, Jr.,	<i>Hoosick Falls,</i>	Mechanical Eng.
Lombard, Edwin Craffs,	<i>Jackson, Mich.,</i>	Electrical Eng.
Loomis, Willis Henry,	<i>Ilion,</i>	Civil Eng.
Lovell, Ross Meacham,	<i>Cortland,</i>	Arts
Lytle, George Andrew,	<i>Decatur, Ill.,</i>	Electrical Eng.
McClaghry, Mary,	<i>Ithaca,</i>	Letters
MacGillivray, Alexander Dyer,	<i>Salineville, Ohio,</i>	Science
McGonigal, Ethel Marion,	<i>Lyons,</i>	Arts
MacHarg, John Brainard, Jr.,	<i>Rome,</i>	Civil Eng.
McIntire, Mary Amelia Josephine,	<i>East Cambridge, Mass.,</i>	Philosophy
Mack, Horace, 2d,	<i>Ithaca,</i>	Letters
Mack, William Gordon,	<i>Norwalk, Ohio,</i>	Mechanical Eng.
Malvern, Lewis Keith,	<i>Providence, R. I.,</i>	Arts
Marx, Guido Hugo,	<i>Rochester,</i>	Mechanical Eng.
Mashek, George Milek,	<i>Kewanee, Wis.,</i>	Mechanical Eng.
Meech, Robert Owen,	<i>Buffalo,</i>	Arts
Melrose, Clifton John,	<i>Franklinville,</i>	Arts
Meyers, Alfred Hildebrand,	<i>Columbia, Pa.,</i>	Electrical Eng.
Mickle, John Daniel,	<i>Chatham,</i>	Electrical Eng.
Miles, William David,	<i>New Britain, Conn.,</i>	Electrical Eng.
Miller, Kempster Blanchard,	<i>Washington, D. C.,</i>	Electrical Eng.
Miller, Theron Butler,	<i>Columbus, Ohio,</i>	Letters
Moore, Harlan,	<i>Harrodsburgh, Ky.,</i>	Arts
Moore, Harlan Flavius,	<i>Holyoke, Mass.,</i>	Mechanical Eng.
Morris, Freeman L,	<i>Fredonia,</i>	Philosophy
Morris, Mary Augusta,	<i>Brooklyn,</i>	Letters
Morrison, Robert Orrell,	<i>Newark, Ohio,</i>	Civil Eng.
Moses, Julian A,	<i>New York City,</i>	Electrical Eng.
Mylod, Thomas Francis,	<i>Poughkeepsie,</i>	Medical Prep.
Nathan, Benjamin,	<i>New York City,</i>	Letters
Newell, Benjamin Haff,	<i>Brooklyn,</i>	Arts
Newton, Jacob Charles,	<i>Hamburgh,</i>	Letters
Northrop, George Henry,	<i>Cherry Creek,</i>	Arts
Northup, Clark Sutherland,	<i>Edmeston,</i>	Arts
Osgood, Winchester Dana,	<i>Jefferson Barracks, Mo.,</i>	Civil Eng.
O'Shea, Margaret,	<i>Rochester,</i>	Arts
Otis, Margaret,	<i>Rochester,</i>	Arts
Palmer, Harry Crowell,	<i>East Orange, N. J.,</i>	Civil Eng.
Parkhurst, Frederick Alexander,	<i>Albany,</i>	Architecture
Pearson, Sarah,	<i>Waterloo,</i>	Arts
Peck, Harry Gold,	<i>Waterville,</i>	Mechanical Eng.
Perkins, Albert Henry,	<i>Granby Center,</i>	Civil Eng.

Perkins, George Clarence,	<i>Newark,</i>	Science
Perrine, Charles,	<i>Wallkill,</i>	Arts
Peters, Heber Cushing,	<i>Boston, Mass.,</i>	Mechanical Eng.
Pettebone, Jacob Sharps, Jr.,	<i>Kingston, Pa.,</i>	Architecture
Pond, Freeman Clarke,	<i>Crown Point,</i>	Architecture
Priest, Asa Beaumont,	<i>Canandaigua,</i>	Arts
Ramsey, Harry Nathan,	<i>Olean,</i>	Electrical Eng.
Rice, Edward Carr,	<i>Fairfield,</i>	Arts
Rich, Charles Abiel,	<i>Gardner, Mass.,</i>	Mechanical Eng.
Ripley, John Wesley,	<i>Sag Harbor,</i>	Civil Eng.
Rossmann, Clark Green,	<i>Ancram,</i>	Civil Eng.
Rowland, John Thomas, Jr.,	<i>Jersey City, N. J.,</i>	Architecture
Sandersou, Edward Spalding,	<i>Scranton, Pa.,</i>	Mechanical Eng.
Sawyer, Emma Louise,	<i>Ithaca,</i>	Philosophy
Scherer, Charles Robert,	<i>Albany,</i>	Letters
Schmidt, William Henry,	<i>New York City,</i>	Civil Eng.
Schneck, George William,	<i>Waterloo,</i>	Arts
Schrenk, Hermann,	<i>New York City,</i>	Agriculture
Shantz, Oliver,	<i>Breslau, Canada,</i>	Architecture
Sheldon, Jeanette May,	<i>Watertown,</i>	Architecture
Shepard, Louis Alfred,	<i>Spencer,</i>	Arts
Shriver, Joseph Alexis,	<i>Baltimore, Md.,</i>	Agriculture
Sibson, Walter Woodhouse,	<i>Germanstown, Pa.,</i>	Electrical Eng.
Simpson, Ernest Baker,	<i>Cleveland, Ohio,</i>	Mechanical Eng.
Simpson, William Robert,	<i>Greenburgh,</i>	Mechanical Eng.
Smith, Charles Marvin,	<i>Lancaster,</i>	Letters
Smith, Jessie Woodbull,	<i>Newburgh,</i>	Electrical Eng.
Snyder, Frank Gerome,	<i>Nina,</i>	Mechanical Eng.
Soule, Grace,	<i>Savannah,</i>	Arts
Southworth, William Walter,	<i>Holley,</i>	Arts
Spalding, Mary Doan,	<i>Brooklyn,</i>	Letters
Sperry, Beardsley Northrop,	<i>Syracuse,</i>	Science
Springer, Anton, Jr.,	<i>Rome,</i>	Electrical Eng.
Spurr, Maud,	<i>South Edmeston,</i>	Science
Stacey, Harley James,	<i>Rural Hill,</i>	Arts
Stoddard, Charles Herbert,	<i>Glens Falls,</i>	Letters
Strait, Burton,	<i>Shokopee, Minn.,</i>	Letters
Strong, Frederick Finch,	<i>Ithaca,</i>	Chemistry
Studley, Elmer Ebenezer,	<i>East Ashford,</i>	Arts
Swearingen, Grace Fleming,	<i>Council Bluffs, Iowa,</i>	Science
Sweet, Horace Brimmer,	<i>Utica,</i>	Electrical Eng.
Symonds, George Parker,	<i>Ogdensburgh,</i>	Mechanical Eng.

Tassin, Wirt de Vivier,	<i>Fort Sully, S. D.,</i>	Chemistry
Tennant, Fred Adams,	<i>Ripley,</i>	Electrical Eng.
Thomas, James Mantelle, Jr.,	<i>Baltimore, Md.,</i>	Mechanical Eng.
Townsend, Edward Candee,	<i>Ithaca,</i>	Arts
Tracy, James Frank,	<i>Toledo, Ohio,</i>	Electrical Eng.
Truman, Frank Stedman,	<i>Owego,</i>	Arts
Tuck, John Bennett	<i>Flackville,</i>	Letters
Turnbull, Wallace Rupert,	<i>St. John, Canada,</i>	Electrical Eng.
Tyng, Charles,	<i>Victoria, Tex.,</i>	Civil Eng.
Tyng, George McAlpine,	<i>Victoria, Tex.,</i>	Chemistry
Van Buskirk, John Hamlin,	<i>Peoria, Ill.,</i>	Mechanical Eng.
Van Buskirk, William Tobey,	<i>Peoria, Ill.,</i>	Chemistry
Van Cleef, Henry Howell,	<i>Poughkeepsie,</i>	Mechanical Eng.
Van Dorn, Thomas Burten,	<i>Cleveland, Ohio,</i>	Mechanical Eng.
Vedder, Catherine Dorothy,	<i>St. Johnsville,</i>	Science
Walker, George Washington,	<i>Binghamton,</i>	Science
Wardlaw, George Augustus,	<i>New York City,</i>	Electrical Eng.
Ware, Louie Erville,	<i>Worcester, Mass.,</i>	Letters
Warner, George Bradner,	<i>Wellington, Ohio,</i>	Letters
Warriner, Thomas Read,	<i>Adams Centre,</i>	Civil Eng.
Watson, William,	<i>Cleveland, Ohio,</i>	Electrical Eng.
Webb, Abner Grant,	<i>Mineral Ridge, Ohio,</i>	Arts
Weed, Robert Murray,	<i>Leavenworth, Kan.,</i>	Letters
Wessling, Albert Gustave,	<i>Cincinnati, Ohio,</i>	Mechanical Eng.
Wharton, Hugh Morrison,	<i>Philadelphia, Pa.,</i>	Electrical Eng.
Whetstone, Walter,	<i>Eau Claire, Wis.,</i>	Mechanical Eng.
White, Ernest Ingersoll,	<i>Syracuse,</i>	Letters
White, Harry George,	<i>Buffalo,</i>	Mechanical Eng.
White, Louis Eugene,	<i>Detroit, Mich.,</i>	Mechanical Eng.
White, Rollin Henry,	<i>Cleveland, Ohio,</i>	Mechanical Eng.
White, William Curtis,	<i>Elmira,</i>	Arts
Whiting, Henry Freeman, A.B.,	<i>Carlisle, Pa.,</i>	Electrical Eng.
Whittemore, Charles Francis,	<i>Chicopee Falls, Mass.,</i>	Elec. Eng.
Widger, Clark William,	<i>Norwich,</i>	Civil Eng.
Wigglesworth, Albert Wesley,	<i>Palmyra,</i>	Electrical Eng.
Wilcox, Arabella Elizabeth,	<i>Middletown,</i>	Philosophy
Wilcox, Glenn Avery,	<i>North Litchfield,</i>	Science
Wilkins, Isaac Chester Griswold,	<i>Whitehall,</i>	Electrical Eng.
Williamson, Robert Baird,	<i>Port Hope, Canada,</i>	Electrical Eng.
Wilson, Emory Meyers,	<i>Washington, D. C.,</i>	Philosophy
Wilson, Fred Lewis,	<i>Buffalo,</i>	Electrical Eng.
Wing, Louis Fenuimore,	<i>Buffalo,</i>	Philosophy

Witherbee, George Pease,	<i>Port Henry,</i>	Mechanical Eng.
Woodbridge, Thomas Witherbee,	<i>Port Henry,</i>	Chemistry
Yates, Harry Deshields,	<i>Warrenton, Va.,</i>	Mechanical Eng.
Yerzley, William Alfred,	<i>Forrest City, Ark.,</i>	Mechanical Eng.
Young, William,	<i>Williamsport, Pa.,</i>	Civil Eng.

OPTIONAL STUDENTS.

Brown, LaMonte Gray, . . . . .	<i>Utica</i>
Burr, Jessie Alice, . . . . .	<i>Boonville</i>
Clauss, George Henry, Jr., . . . . .	<i>Lyons</i>
Cook, DeWitt Clinton, . . . . .	<i>Vienna</i>
Danser, Jason Seymour, . . . . .	<i>East Clarence</i>
Ellis, William Charles, . . . . .	<i>Pike</i>
Everett, Edward, . . . . .	<i>Williamsport, Pa.</i>
Hadden, Clarence Bernard, . . . . .	<i>Sandusky, Ohio</i>
Harrington, Herbert Russell, . . . . .	<i>Logan, Ohio</i>
Jackson, Edward, Jr., . . . . .	<i>Ithaca</i>
Jones, J Kirby, . . . . .	<i>East Chatham</i>
Kellogg, William Greenwood, . . . . .	<i>Greenwood</i>
Lautz, Otto John, . . . . .	<i>Buffalo</i>
Lewman, John, . . . . .	<i>Danville, Ill.</i>
Loveland, Floyd Neilson, . . . . .	<i>Richmondville</i>
McNeal, Louis Bertel, . . . . .	<i>Marion, Ohio</i>
Merriam, Henry Estes, . . . . .	<i>Waverly</i>
Morris, Julia Louise, . . . . .	<i>Brooklyn</i>
Murphy, Charles Eugene, . . . . .	<i>Pike</i>
Percy, Alice, . . . . .	<i>Chatham</i>
Scaife, William B, . . . . .	<i>Pittsburgh, Pa.</i>
Sechrist, Cora Stalling, . . . . .	<i>Canton, Ohio</i>
Shearer, John Sandford, . . . . .	<i>Homer</i>
Taylor, Mary Gilley, . . . . .	<i>Ithaca</i>
Yarrington, Adrian Monroe, . . . . .	<i>Sayville</i>

FRESHMEN.

Ahern, John Lewis,	<i>Whitney's Point,</i>	Philosophy
Ahern, Thomas Francis,	<i>Whitney's Point,</i>	Mechanical Eng.
Allan, Charles Davies,	<i>Montclair, N. J.,</i>	Mechanical Eng.
Alves, Bessie,	<i>Lansingburgh,</i>	Philosophy
Angell, Jennie Neta,	<i>West Bay City, Mich.,</i>	Philosophy
Ashby, Charles Wesley,	<i>Troy,</i>	Civil Eng.
Ashley, Edward Gordon,	<i>Batavia,</i>	Electrical Eng.

Austin, William Eugene,	<i>Brookfield,</i>	Architecture
Babcock, Maude Rose,	<i>Dunkirk,</i>	Philosophy
Babst, Earl Daniel,	<i>Crestline, Ohio,</i>	Philosophy
Bailey, Earl Bishop,	<i>Buffalo,</i>	Civil Eng.
Bailey, Frank Eugene,	<i>Dillsburg, Pa.,</i>	Electrical Eng.
Bailey, William Blakely,	<i>Buffalo,</i>	Civil Eng.
Barbour, Irvin William,	<i>Woodfords, Me.,</i>	Civil Eng.
Barlow, Edwin Thayer.	<i>Rochester,</i>	Architecture
Barnes, George Edward,	<i>Fairfield,</i>	Arts
Barnes George Warren,	<i>Syracuse,</i>	Electrical Eng.
Barnes, Jay Preston,	<i>Housatonic, Mass.,</i>	Civil Eng.
Barr, Charles James,	<i>Lindsay, Canada,</i>	Mechanical Eng.
Barry, Fred Wesley,	<i>Troy,</i>	Electrical Eng.
Batchelder, Francis Joseph,	<i>Glen Ridge, N. J.,</i>	Civil Eng.
Bates, Frank Henry,	<i>Philadelphia, Pa.,</i>	Mechanical Eng.
Batley, Alice Margaret,	<i>Buffalo,</i>	Arts
Bayer, August Hector von,	<i>Washington, D. C.,</i>	Electrical Eng.
Beach, Harry Merrick,	<i>Cortland,</i>	Civil Eng.
Beardsley, Wallace Beers,	<i>Ithaca,</i>	Chemistry
Benjamin, Anna Mynene,	<i>Owego,</i>	Science
Bennett, James Ewing,	<i>Chicago, Ill.,</i>	Mechanical Eng.
Bentley, Edward Abram,	<i>New Brighton, Pa.,</i>	Mech. Eng.
Bentley, Ernest Wilkinson,	<i>New Brighton, Pa.,</i>	Mech. Eng.
Bergmann, Louise S,	<i>Louisville, Ky.,</i>	Medical Prep.
Besosa, Joseph Celedonio,	<i>Ponce, Porto Rico,</i>	Mechanical Eng.
Blake, Clinton Frederick,	<i>Chicago, Ill.,</i>	Electrical Eng.
Bogart, Elmer Ellsworth,	<i>Owego,</i>	Arts
Bográn, Saturnino Pacheo.	<i>Pinalejo, Honduras,</i>	Agriculture
Boice, Theodore Hill,	<i>Rondout,</i>	Electrical Eng.
Bradley, Lyman Richard,	<i>Spencer,</i>	Civil Eng.
Bray, William L,	<i>Burnside, Ill.,</i>	Agriculture
Brewer, Henry,	<i>Enfield Centre,</i>	Mechanical Eng.
Briggs, Clifton Chidester,	<i>Clifton Springs,</i>	Chemistry
Brooks, George G,	<i>Scranton, Pa.,</i>	Civil Eng.
Brown, Charles Lyman,	<i>Chicago, Ill.,</i>	Electrical Eng.
Brown, Charlotte Wells,	<i>Brooklyn,</i>	Letters
Brown, Ethelbert Washington,	<i>Ithaca,</i>	Architecture
Brown, George Frederick, Jr.,	<i>Brooklyn,</i>	Civil Eng.
Brown, Garrett Hubbard,	<i>Syracuse,</i>	Electrical Eng.
Bryson, Thomas Bines,	<i>Mechanicsburg, Pa.,</i>	Civil Eng.
Bunting, Douglas,	<i>East Mauch Chunk, Pa.,</i>	Mech. Eng.
Burns, Clinton Sumner,	<i>Port Byron,</i>	Civil Eng.

Burr, Harry Kent,	<i>Florence, Mass.,</i>	Electrical Eng.
Burrage, Gertrude Amelia,	<i>Worcester, Mass.,</i>	Philosophy
Burroughs, Henry Harding,	<i>Washington, D. C.,</i>	Electrical Eng.
Canal, Carlos Julio,	<i>Cucuta, U. S. of Columbia,</i>	M. Eng.
Chapman, Roswell Curtis,	<i>Norwich,</i>	Arts
Clark, Eugene Bradley,	<i>Washington, D. C.,</i>	Mech. Eng.
Clark, Thomas Stevens,	<i>Denver, Col.,</i>	Civil Eng.
Cleaver, Charles Alfred,	<i>Chicago, Ill.,</i>	Mechanical Eng.
Close, Ralph Tompkins,	<i>Greenwich, Conn.,</i>	Mech. Eng.
Coe, Ira Judson,	<i>Dover, N. J.,</i>	Civil Eng.
Collin, Dwight Ripley,	<i>Ithaca,</i>	Arts
Colt, William Leonard,	<i>Chicago, Ill.,</i>	Electrical Eng.
Colwell, John Alexander, Jr.,	<i>Kittaning, Pa.,</i>	Mechanical Eng.
Connor, Harriett Chedie,	<i>Burlington, Iowa,</i>	Philosophy
Cook, George Frederick,	<i>Washington, D. C.,</i>	Mech. Eng.
Corson, Bayard Wilkeson,	<i>Norristown, Pa.,</i>	Electrical Eng.
Cowperthwat, Allan,	<i>New York City,</i>	Mechanical Eng.
Crissey, Lucy Love,	<i>Cherry Creek,</i>	Letters
Cuddeback, Allan Winter,	<i>Cuddebackville,</i>	Civil Eng.
Cummings, Noah,	<i>Chaseville,</i>	Civil Eng.
Cummings, Orrie Pratt,	<i>Little York,</i>	Electrical Eng.
Curran, Sherwood Spencer,	<i>Utica,</i>	Electrical Eng.
Daggett, Royal Bradford,	<i>Auburn, Me.,</i>	Electrical Eng.
Davis, William Everal,	<i>Athens, Pa.,</i>	Civil Eng.
Delahanty, William Raymond,	<i>Albany,</i>	Architecture
Dix, John Woodruff,	<i>New Brighton,</i>	Mechanical Eng.
Dodge, James Lynn,	<i>West Winfield,</i>	Civil Eng.
Dole, William Herbert,	<i>Brooklyn,</i>	Architecture
Donovan, James Clarence,	<i>Brooklyn,</i>	Architecture
Doubleday, Grace,	<i>Jamestown,</i>	Architecture
Douglas, Henry Percy,	<i>New York City,</i>	Letters
Downing, Frederick Bagg,	<i>Erie, Pa.,</i>	Electrical Eng.
Dunham, Walter Horatio,	<i>Nichols,</i>	Civil Eng.
Edgerton, Morgan Brown,	<i>Little Rock, Ark.,</i>	Mechanical Eng.
Edmonds, George Strettle,	<i>Glen Cove,</i>	Mechanical Eng.
Elkins, William Lukeus,	<i>Pittsburgh, Pa.,</i>	Electrical Eng.
Farnham, Sidney Wilkin,	<i>St. Louis, Mo.,</i>	Electrical Eng.
Faulkner, William Willis,	<i>Barton,</i>	Electrical Eng.
Fechheimer, Sam Henry,	<i>Cincinnati, Ohio,</i>	Electrical Eng.
Feehan, Ella,	<i>Ovid,</i>	Letters
Fernback, Oscar Henry,	<i>New York City,</i>	Electrical Eng.
Field, Frederick William,	<i>Brooklyn,</i>	Architecture

Fish, Charles Adelbert,	<i>Salamanca,</i>	Letters
Fisher, George Milton,	<i>Westboro, Mass.,</i>	Chemistry
Fisher, William George,	<i>Utica,</i>	Electrical Eng.
Flint, Ralph Norton,	<i>Sanquoit,</i>	Electrical Eng.
Fordham, Herbert Latham,	<i>Greenport,</i>	Philosophy
Freeman, Samuel Arthur,	<i>Buffalo,</i>	Mechanical Eng.
French, Harry Livingston,	<i>Plymouth, Pa.,</i>	Architecture
Freshman, Edward Arthur,	<i>New York City,</i>	Letters
Fulford, Luella May,	<i>Fulton,</i>	Letters
Fuller, Burt Cornelius,	<i>Unadilla,</i>	Arts
Gallaher, Will Hallezen,	<i>New Washington, Pa.,</i>	Elec. Eng.
Gampp, David Jasper,	<i>East Otto,</i>	Arts
Gay, Hiram Burton,	<i>Eagle Bridge,</i>	Electrical Eng.
Gibbs, Harry Drake,	<i>Cincinnati, O.,</i>	Chemistry
Gilson, Emery Graves,	<i>Machias, Me.,</i>	Electrical Eng.
Goddard, Joseph Sterling,	<i>Chicago, Ill.,</i>	Mechanical Eng.
Godfrey, John Hanes,	<i>Waterloo,</i>	Mechanical Eng.
Goldsmith, Edwin,	<i>Cleveland, Ohio,</i>	Electrical Eng.
Goodman, Robert Barber,	<i>Buffalo,</i>	Civil Eng.
Gordon, Fred Force,	<i>Rochester,</i>	Civil Eng.
Green, Morris Miller,	<i>Syracuse,</i>	Mechanical Eng.
Green, Rutger Bleecker,	<i>Syracuse,</i>	Civil Eng.
Gregory, William Benjamin,	<i>Bellona,</i>	Electrical Eng.
Griffin, Marion Harwood,	<i>Riegelsville,</i>	Architecture
Hagerman, Herbert James,	<i>Colorado Springs, Col.,</i>	Letters
Hall, James Parker,	<i>Jamestown,</i>	Philosophy
Hall, Thomas,	<i>Washington, Ont.,</i>	Mechanical Eng.
Hamilton, James McMillan,	<i>West Rush,</i>	Electrical Eng.
Hapgood, William Henry,	<i>Sing Sing,</i>	Architecture
Harris, Charles Willis,	<i>Jamestown,</i>	Civil Eng.
Harris, Hannah Margaret,	<i>Belfast, Me.,</i>	Philosophy
Hart, Frances Gertrude,	<i>Canandaigua,</i>	Arts
Hartley, Carney,	<i>Fairmont, W. Va.,</i>	Mech. Eng.
Hartnell, Stephen Elihu,	<i>Cleveland, Ohio,</i>	Electrical Eng.
Harvey, George Roy,	<i>Hamilton, Canada,</i>	Electrical Eng.
Hawley, Carl Tracy,	<i>New Milford, Pa.,</i>	Architecture
Hayward, Harry,	<i>Lockport,</i>	Agriculture
Hazelton, Frank Purple,	<i>Bradford, Pa.,</i>	Civil Eng.
Healy, Raymond John,	<i>Chicago, Ill.,</i>	Mechanical Eng.
Helmer, Frederic Flagler,	<i>Lockport,</i>	Architecture
Hernandez, Rafael,	<i>Mayaguez, Porto Rico,</i>	Mech. Eng.
Herson, Hannah Gertrude,	<i>Ithaca,</i>	Philosophy

Hickey, John,	<i>Auburn,</i>	Mechanical Eng.
Higley, Seth Duane,	<i>Windsor, Ohio,</i>	Electrical Eng.
Himrod, Hugh Carpenter,	<i>Brooklyn,</i>	Architecture
Hoag, Nellie Elisabeth,	<i>Ithaca,</i>	Arts
Holden, Edgar Buckingham, Jr.,	<i>Albany,</i>	Electrical Eng.
Holloway, Carl Sheldon,	<i>New York City,</i>	Mechanical Eng.
Holt, Charles Lorin,	<i>New York City,</i>	Electrical Eng.
Hoppe, Marie Martha,	<i>Rochester,</i>	Arts
Horner, Charles S,	<i>Cleveland, Ohio,</i>	Chemistry
Horton, Frank,	<i>Winona, Minn.,</i>	Letters
Hoskins, Delos West,	<i>Aurclius,</i>	Mechanical Eng.
Howe, George,	<i>North Salem,</i>	Electrical Eng.
Howerth, Joseph,	<i>Waterloo,</i>	Arts
Hoxsie, Burton K, Jr.,	<i>Auburn,</i>	Philosophy
Hoyt, Charles Seward, Jr.,	<i>Canandaigua,</i>	Arts
Hughes, David,	<i>Boole, England,</i>	Agriculture
Hull, Howard Windson,	<i>Scranton, Pa.,</i>	Electrical Eng.
Hunt, Sidney Eggleston,	<i>Guilford,</i>	Civil Eng.
Hunt, William Floyd,	<i>West New Brighton,</i>	Mech. Eng.
Ives, Robert F,	<i>Brooklyn,</i>	Medical Prep.
Jeness, Jennie Maria,	<i>Brooklyn,</i>	Philosophy
Johnson, Willis Grant,	<i>New Albany, Ohio,</i>	Science
Kaveny, Thomas,	<i>Canandaigua,</i>	Electrical Eng.
Kehler, Sherman Isaac,	<i>Liberty, Pa.,</i>	Civil Eng.
Kelsey, Thomas,	<i>Mecklenburgh,</i>	Mechanical Eng.
Kendrick, John Ryland, Jr.,	<i>Philadelphia, Pa.,</i>	Letters
King, Willis Eldredge,	<i>Ithaca,</i>	Medical Prep.
Kinne, Elmer Frederic,	<i>Ovid,</i>	Mechanical Eng.
Knowles, Charles P,	<i>Albany,</i>	Medical Prep.
Knox, Herbert William,	<i>Knoxboro,</i>	Arts
Knudson, John Charles,	<i>Lansingburgh,</i>	Philosophy
Kranz, William George,	<i>Berlin, Canada,</i>	Mechanical Eng.
Landfield, Jerome Barker,	<i>Binghamton,</i>	Arts
Lanphear, Burton Smith,	<i>Carthage,</i>	Electrical Eng.
Larned, William Augustus,	<i>New York City,</i>	Mechanical Eng.
Lathrop, John Kasson,	<i>Cortland,</i>	Arts
Latting, Benjamin Franklin,	<i>Shortsville,</i>	Civil Eng
Lee, Marguerite Thourou,	<i>Brooklyn,</i>	Letters
Legg, William Fairfax,	<i>Ithaca,</i>	Mechanical Eng.
Leite, Francisco Eusebio de Aquino,	<i>Trez-Ilhas, Minas, Brazil,</i>	M. Eng.
Lewis, Frederic Worthington,	<i>Atlanta, Ga.,</i>	Mechanical Eng.
Lewis, Theodore Butcher,	<i>Philadelphia, Pa.,</i>	Electrical Eng.

Lighty, William Henry,	<i>Mulberry, Pa.,</i>	Civil Eng.
Lindall, Grant,	<i>New Haven,</i>	Civil Eng.
Lindsey, Leah Ella,	<i>Lockport,</i>	Arts
Linke, J Ralph Audley,	<i>Troy,</i>	Electrical Eng.
Littleton, Alexander Silliman,	<i>Hazelton, Pa.,</i>	Mechanic Arts
Lordly, Henry Robertson,	<i>St. John, N. B.,</i>	Civil Eng.
Louer, Lewis Stern,	<i>New Castle, Pa.,</i>	Mechanical Eng.
McAllister, Girard Lindsley,	<i>Rondout,</i>	Arts
McConnell, Edward Denison,	<i>Chicago, Ill.</i>	Mechanical Eng.
McConville, William Thomas,	<i>Jersey City, N. J.,</i>	Medical Prep.
McDermott, Jay P.,	<i>Fond du Lac, Wis.,</i>	Letters
McDonald, Clarence Alexander,	<i>Sherbrooke, Nova Scotia,</i>	Mech. Eng.
McEwen, Kenneth Butts,	<i>Barnards,</i>	Mechanic Arts
McFaddin, Harrison Dawson,	<i>East Orange, N. J.,</i>	Civil Eng.
McGuire, John James,	<i>Cicero,</i>	Arts
McLaren, William Frederick,	<i>Hamilton, Canada,</i>	Electrical Eng.
MacNider, Stanley Corwine,	<i>Hamilton, Canada,</i>	Mech. Eng.
McCaffery, Woodruff Marbury,	<i>Tompkinsville,</i>	Architecture
Macomber, Irving Emerson,	<i>Toledo, Ohio,</i>	Mechanical Eng.
Maguire, Percy Bertram,	<i>New York City,</i>	Electrical Eng.
Mandelbaum, Cheri Abraham,	<i>Detroit, Mich.,</i>	Architecture
Manning, Samuel,	<i>Albany,</i>	Electrical Eng.
Markham, Mary Catharine,	<i>Horseheads,</i>	Letters
Marsh, Clarence Wallace,	<i>Saratoga,</i>	Civil Eng.
Marshall, Jesse Burton,	<i>Allegheny, Pa.,</i>	Architecture
Mason, Daniel Ambrose,	<i>East Gaines,</i>	Electrical Eng.
Mason, Eugene George,	<i>Fredonia,</i>	Electrical Eng.
Matlock, Robert Cutter,	<i>Springfield, Ill.,</i>	Electrical Eng.
Matthiessen, Frederick William, Jr.,	<i>La Salle, Ill.,</i>	Civil Eng.
May, Walter Alfred,	<i>Allegheny, Pa.</i>	Electrical Eng.
Mayhew, Robert,	<i>Saratoga Springs,</i>	Civil Eng.
Mayo, Earl Williams,	<i>Springville,</i>	Arts
Medden, Frederick John,	<i>Seneca Falls,</i>	Mechanical Eng.
Meikle, John Hotson,	<i>Morrisburg, Ontario,</i>	Mech. Eng.
Mendenhall, Samuel Achilles,	<i>Bozeman, Mont.,</i>	Mechanical Eng.
Messer, Paul,	<i>Chicago, Ill.,</i>	Mechanical Eng.
Metcalf, William, Jr.,	<i>Pittsburgh, Pa.,</i>	Civil Eng.
Miller, Emma Sophia,	<i>Columbus, Pa.,</i>	Letters
Milliken, Albert Evans,	<i>San Francisco, Cal.,</i>	Mech. Eng.
Moody, Arthur Edson Blair,	<i>New Haven, Conn.,</i>	Electrical Eng.
Moore, Charles S,	<i>Moore's Station, Quebec,</i>	Agricul.
Moore, Thomas Manger,	<i>Palmyra,</i>	Philosophy

Morris, Windsor,	<i>Baldwinsville,</i>	Mechanical Eng.
Morrison, William,	<i>Cincinnati, Ohio,</i>	Mechanical Eng.
Mowrer, Frank Roger,	<i>Xenia, Ohio,</i>	Electrical Eng.
Mullikin, Clark Wasgatt,	<i>Cincinnati, Ohio,</i>	Mechanical Eng.
Murray, Linwood Asa,	<i>Tottenville,</i>	Electrical Eng.
Nevius, Joseph Nelson,	<i>South Orange, N. J.,</i>	Elec. Eng.
Newman, Horace Bacon,	<i>Canandaigua,</i>	Medical Prep.
Newton, Peter Augustin, Jr.,	<i>Chicago, Ill.,</i>	Mechanical Eng.
Nicholls, Thomas Henry,	<i>Dutch Flats, Cal.,</i>	Electrical Eng.
Norton, Alfred Buckley,	<i>Syracuse,</i>	Electrical Eng.
Ohlmeyer, Henry Charles,	<i>West Hoboken, N. J.,</i>	Mech. Eng.
Orton, Albert Lossing,	<i>Ithaca,</i>	Electrical Eng.
Osmond, Eloise Livermore,	<i>Norwich,</i>	Arts
Palen, Fred Pomeroy,	<i>Monticello,</i>	Mechanical Eng.
Palmer, Marshall Barker,	<i>Clinton,</i>	Civil Eng.
Park, Robert Bruce,	<i>Athens, Pa.,</i>	Civil Eng.
Park, William Osborne,	<i>Atchison, Kan.,</i>	Electrical Eng.
Payne, Earl H,	<i>Rushville, Ind.,</i>	Science
Payne, Olcott,	<i>Little Neck,</i>	Electrical Eng.
Paz, Louis,	<i>Santa Barbara, Honduras,</i>	C. Eng.
Pearson, Raymond Allen,	<i>Ithaca,</i>	Agriculture
Pease, Charles,	<i>Windsor Locks, Conn.,</i>	Philosophy
Penfield, Walter Grant,	<i>East Berlin, Conn.,</i>	Civil Eng.
Perry, Anna Louise,	<i>Churchville,</i>	Arts
Perry, Samuel B,	<i>Bethel,</i>	Mechanical Eng.
Place, Arthur Harrington,	<i>Cortland,</i>	Civil Eng.
Potter, Howard Leon,	<i>Wells Bridge,</i>	Arts
Pratt, Frank Everett,	<i>Nicholson, Pa.,</i>	Civil Eng.
Preston, Charles Seymour,	<i>Pittsburgh, Pa.,</i>	Mechanical Eng.
Pruyn, Francis Lansing,	<i>Albany,</i>	Electrical Eng.
Quick, Robert Winchell,	<i>Slaterville,</i>	Electrical Eng.
Reed, Addison Berton,	<i>Waterloo,</i>	Arts
Reynolds, Ezra Pierce,	<i>Allton,</i>	Arts
Reynolds, William Grant,	<i>Amboy, Ill.,</i>	Mechanical Eng.
Rich, Herbert Givens,	<i>Chicago, Ill.,</i>	Mechanical Eng.
Richardson, Albert Goldwin George,	<i>Ithaca,</i>	Agriculture
Rider, Frederick Jackson,	<i>Portsmouth, N. H.,</i>	Civil Eng.
Robbins, Nathaniel C,	<i>Nyack,</i>	Electrical Eng.
Roberts, Edmund Wilson,	<i>Denver, Col.,</i>	Electrical Eng.
Robinson, Charles,	<i>Chittenango,</i>	Mechanical Eng.
Robinson, Lester Ludyah,	<i>San Francisco, Cal.,</i>	Electrical Eng.
Rogers, Charles Edward,	<i>Whitney's Point,</i>	Mechanical Eng.

Rogers, Thomas Chattle,	<i>Middletown,</i>	Arts
Root, Francis Stanton,	<i>Port Byron,</i>	Civil Eng.
Ros, Antonio Maximo,	<i>New Durham, N. J.,</i>	Mech. Eng.
Rosenstock, Edgar Horace,	<i>Petersburg, Va.,</i>	Civil Eng.
Rosewater, Charles Colmau,	<i>Omaha, Neb.,</i>	Philosophy
Rosser, David,	<i>Kingston, Pa.,</i>	Civil Eng.
Royce, Charles Howard,	<i>Mongaup Valley,</i>	Agriculture
Rulison, George Warren,	<i>Mohawk,</i>	Philosophy
Rumsey, George Augustin, Jr.,	<i>Salem, N. J.,</i>	Electrical Eng.
Russell, Howard,	<i>Albany,</i>	Science
Saxton, Charles Bullock,	<i>Buffalo,</i>	Mechanical Eng.
Schaefer, Cuthbert,	<i>Yazoo City, Miss.,</i>	Mechanical Eng.
Schouton, Clara Esther,	<i>Brockport,</i>	Letters
Schroeder, William Emerson,	<i>Toledo, Ohio,</i>	Mechanical Eng.
Scott, Quincy Adams,	<i>Pittsburgh, Pa.,</i>	Mechanical Eng.
Seyffert, Felipe Victor,	<i>Yoquivo, Chihuahua, Mexico,</i>	C. Eng.
Shaffer, Von Collins,	<i>Huntington, Ind.,</i>	Letters
Siedentopf, William Frederick,	<i>Council Bluffs, Iowa,</i>	Science
Simpson, Le Roy,	<i>Aurora, Ill.,</i>	Electrical Eng.
Simpson, Louis Wright,	<i>Portville,</i>	Mechanical Eng.
Slater, Frederick Raymond,	<i>Washington, D. C.,</i>	Electrical Eng.
Sloan, Harry,	<i>Albany,</i>	Electrical Eng.
Sloan, John Young,	<i>Buffalo,</i>	Electrical Eng.
Smith, Cora Ermina,	<i>Ithaca,</i>	Science
Smith, Edna Cuyler,	<i>Erie, Pa.,</i>	Science
Smith, Elma Jouett,	<i>Erie, Pa.,</i>	Philosophy
Smith, Floyd Kipp,	<i>Bayonne, N. J.,</i>	Civil Eng.
Smith, Harry James,	<i>Buffalo,</i>	Electrical Eng.
Smith, William Griswold,	<i>Toledo, Ohio,</i>	Mechanical Eng.
Snider, Otho Carleton,	<i>Cleveland, Ohio,</i>	Letters
Sprague, Delos Everett,	<i>Penn Yan,</i>	Agriculture
Springer, Harwood Henry,	<i>Chicago, Ill.,</i>	Letters
Stephens, John Buell,	<i>Fulton,</i>	Philosophy
Stevenson, Harry Murray,	<i>South Kortright,</i>	Civil Eng.
Stocking, Albert Henry,	<i>Freeport, Ill.,</i>	Electrical Eng.
Stoddard, John Milton,	<i>Horseheads,</i>	Philosophy
Strong, Charles Henery, Jr.,	<i>Cleveland, Ohio,</i>	Mechanical Eng.
Sturges, Effingham Mackenzie,	<i>Zanesville, Ohio,</i>	Arts
Taylor, William Arthur,	<i>Freeport, Ill.,</i>	Electrical Eng.
Terry, Robert James,	<i>St. Louis, Mo.,</i>	Medical Prep.
Thayer, John Carl,	<i>Leyden,</i>	Architecture
Thompson, Arthur Bailey,	<i>Auburn,</i>	Civil Eng.

Tomliuson, Daniel West, Jr.,	<i>Batavia,</i>	Mechanical Eng.
Tompkins, John Stuart,	<i>Oneonta,</i>	Arts
Torrance, Stiles Albert,	<i>Gowanda,</i>	Philosophy
Torrance, William Martin,	<i>Gowanda,</i>	Civil Eng.
Towle, John Webster,	<i>Falls City, Neb.,</i>	Letters
Treat, Charles Henry,	<i>Weeping Water, Neb.,</i>	Mech. Eng.
Trible, Walter Philip,	<i>Buffalo,</i>	Letters
Truby, Albert Ernest,	<i>Otto,</i>	Agriculture
Truby, Willard Frederick,	<i>Otto,</i>	Agriculture
Turner, George Edwin,	<i>Lockport,</i>	Electrical Eng.
Turner, John Booth,	<i>Rouse's Point,</i>	Mechanical Eng.
Valentine, Warren Russell,	<i>Ithaca,</i>	Mechanical Eng.
Van Deusen, Clinton Sheldon,	<i>Newark,</i>	Electrical Eng.
Vanderbeek, Herbert,	<i>New York City,</i>	Mechanical Eng.
Wagner, George Francis,	<i>Denver, Col.,</i>	Mechanical Eng.
Warner, Edwin Henderson,	<i>New York Mills,</i>	Electrical Eng.
Waters, William, Jr.,	<i>Oshkosh, Wis.,</i>	Architecture
Weber, Adna Ferrin,	<i>Olean,</i>	Philosophy
Webster, Guy,	<i>Sparrow's Point, Md.,</i>	Mech. Eng.
Weiler, Ferdinand Albert,	<i>Washington, D. C.,</i>	Letters
Westervelt, John,	<i>Ithaca,</i>	Architecture
Wheeler, Edward Mayland,	<i>Trenton,</i>	Architecture
Wheelock, Charles Austin,	<i>Moscow,</i>	Arts
Wiegand, Karl McKay,	<i>Truxton,</i>	Chemistry
Wilkin, Thomas John,	<i>Elmira,</i>	Mechanical Eng.
Williams, Earnest Porte,	<i>Bellefontaine, Ohio,</i>	Arts
Williams, Herbert Howard,	<i>Ithaca,</i>	Electrical Eng.
Williams, Sophia Wells,	<i>Auburndale, Mass.,</i>	Arts
Wilson, Leroy Merle,	<i>Newton, N. J.,</i>	Electrical Eng.
Winaus, Sarah Frances,	<i>Schenectady,</i>	Arts
Wines, Arthur Frederick,	<i>Springfield, Ill.,</i>	Mechanical Eng.
Wintermute, Peter,	<i>Horseheads,</i>	Electrical Eng.
Wolcott, Henry George,	<i>Pike,</i>	Letters
Wood, Francis Edward,	<i>Campbell,</i>	Letters
Wood, George Green,	<i>Westbury,</i>	Electrical Eng.
Wood, George Whitney,	<i>Philadelphia, Pa.,</i>	Electrical Eng.
Wood, Robert Edward,	<i>Batavia,</i>	Arts
Woodford, Katherine G,	<i>Jamesstown,</i>	Arts
Woodworth, Benjamin Studley,	<i>Fort Wayne, Ind.,</i>	Electrical Eng.
Wray, Burt Gillender,	<i>New York City,</i>	Mechanical Eng.
Wyckoff, Arcalous Welling,	<i>Elmira,</i>	Mechanical Eng.
Yard, James Buoy,	<i>Olean,</i>	Arts

Ycaza, Oswaldo A,	<i>Panama, South America,</i>	Mech. E.
Young, John Paul,	<i>Williamsport, Pa.,</i>	Architecture
Young, Walter Douglas,	<i>Auburn,</i>	Mechanical Eng.

## OPTIONAL STUDENTS.

Briggs, Lulu May, . . . . .	<i>Philadelphia, Pa.</i>
Brock, Bertha Marion, . . . . .	<i>Buffalo</i>
Conger, Cora May, . . . . .	<i>Springville</i>
Dimmick, Fenton Holt, . . . . .	<i>Savona</i>
Earll, Carrie May, . . . . .	<i>Syracuse</i>
Freeman, Lewis Castle, . . . . .	<i>Albany</i>
Freeman, William Eugene, . . . . .	<i>Masonville</i>
Griswold, Morgan Billings, . . . . .	<i>Whitehall</i>
Hamilton, Francis James, . . . . .	<i>West Rush</i>
James, Frederick William, . . . . .	<i>Whitesboro</i>
Korts, Ina Belle, . . . . .	<i>Ithaca</i>
Langtou, James A, . . . . .	<i>Smithfield, Utah</i>
McNeal, Alfred Francis, . . . . .	<i>Marion, Ohio</i>
Mahley, Jesse Wilber, . . . . .	<i>Edinburg, Ind.</i>
Mayer, Joseph George, . . . . .	<i>New York City</i>
Pawling, Jesse, Jr., A.B., . . . . .	<i>Overbrook, Pa.</i>
Ryan, Edwin Colburn, . . . . .	<i>Chicago, Ill.</i>
Sheldon, Francis Theodocia, . . . . .	<i>Martinsburg</i>
Sherwood, Jonathan William, . . . . .	<i>Suffern</i>
Slater, Samuel Scott, . . . . .	<i>New York City</i>
Southworth, John Howard, . . . . .	<i>Ithaca</i>
Terry, Albert Todd, . . . . .	<i>St. Louis, Mo.</i>
Thompson, Isaac Collin, . . . . .	<i>Edinburg, Ind.</i>
Van Buren, James Henry, . . . . .	<i>Dunkirk</i>
Varick, William Remsen, . . . . .	<i>Albany</i>
Webster, Charles Able, . . . . .	<i>Warsaw</i>
White, William Cravath, . . . . .	<i>Fredonia</i>
Young, Edwin Parson, . . . . .	<i>Williamsport, Pa.</i>

## SPECIAL STUDENTS.

Aguilar, Ramon B,	<i>New York City,</i>	Agriculture
Berkefeld, Alice Louise,	<i>Brooklyn,</i>	Latin
Berry, Albert Hutchinson,	<i>Wilhelm,</i>	Agriculture
Brown, Emerson Grant,	<i>Stephentown,</i>	Agriculture
Burtner, Emma F,	<i>Germantown, Ohio,</i>	Latin
Card, Fred Wallace,	<i>Sylvania, Pa.,</i>	Agriculture

Christie, William Wallace,	<i>Paterson, N. J.,</i>	Mechanical Eng.
Clark, Raymond,	<i>Brooklyn,</i>	Chemistry and Microscopy
Cushing, Harry Cooke, Jr.,	<i>Newport, R. I.,</i>	Electrical Eng.
Dickinson, David Knox,	<i>Honey Brook, Pa.,</i>	Agriculture
Donovan, John Thomas,	<i>Springfield, Mass.,</i>	Mechanic Arts
Duffey, James Calvin, B.S.,	<i>Diamond Springs, Mich.,</i>	Agriculture
Earll, Effie Brown,	<i>Mottville,</i>	Agriculture
Fay, Irving Patten,	<i>New York City,</i>	English Literature
Ford, Fred Ernest,	<i>Elba,</i>	Agriculture
Foster, Albert Woolson,	<i>Cape May, N. J.</i>	Electrical Eng.
French, Charlotte Catharine,	<i>Philadelphia, Pa.,</i>	English and Hist.
Garney, James W, Jr.,	<i>Scranton, Pa.,</i>	Chemistry and Microscopy
Gibbs, Kate Francesca,	<i>Westfield, Mass.,</i>	Mathematics
Gibbs, Lucius Tuckerman,	<i>Milwaukee, Wis.,</i>	Electrical Eng.
Green, Carl Melville,	<i>Kirksville, Mo.,</i>	Mechanical Eng.
Gridley, George Louis,	<i>Mycenae,</i>	Agriculture
Harris, Albert Louis,	<i>Washington, D. C.,</i>	Industrial Art
Hazeltine, Ray Thomas,	<i>Jamestown,</i>	Agriculture
Heath, Homer Jay,	<i>Rodman,</i>	Agriculture
Kane, Thomas Francis,	<i>Ithaca,</i>	History
Katsumata, Tosaku,	<i>Aichi, Japan,</i>	Chemistry
Kerr, William Jasper,	<i>Logan, Utah,</i>	Mathematics
Love, Frank William,	<i>Buffalo,</i>	Chemistry
McCaffrey, Kate,	<i>Amsterdam,</i>	English Literature
McLauchlin, Emma Christine,	<i>Amsterdam,</i>	English
Mack, Mary Clarissa,	<i>Linden, N. J.,</i>	Latin
Marsh, Florence Lillian,	<i>Groton,</i>	German
Martin, Harry Delos,	<i>Ithaca,</i>	Agriculture
Miller, Katharine Moncrief,	<i>New York City,</i>	Mathematics
Morrissey, Katherine Virginia,	<i>State Centre, Iowa,</i>	History
Morse, Albert P,	<i>Wellesley, Mass.,</i>	Entomology
Myrick, Harriette Augusta,	<i>Clinton,</i>	English
Newberry, John Stoughton,	<i>Detroit, Mich.,</i>	Mechanic Arts
Norris, Henry McCoy,	<i>Trenton, N. J.,</i>	Mechanical Eng.
Oliveira, Helcias de,	<i>Rio Janeiro, Brazil,</i>	Agriculture
Osincup, Frank Ashbury,	<i>Vestal Centre,</i>	Medical Prep.
Peirson, Albert Henry,	<i>Waterloo,</i>	Agriculture
Pettit, Rufus Hiram,	<i>Baldwinsville,</i>	Agriculture
Riemann, Gertrude Anna,	<i>Albany,</i>	English Literature

Rose, Alexander,	<i>Charleston, S. C.,</i>	Mechanic Arts
Royce, Ellen Mathilde,	<i>Fulton,</i>	English Literature
Rugg, Walter S, B.S.,	<i>Eldorado, Kan.,</i>	Electrical Eng.
Salant, William,	<i>New York City,</i>	Agriculture
Sands, Harry Senseney,	<i>Fairmount, W. Va.,</i>	Mechanic Arts
Smith, Asa Harmon,	<i>Manchester Centre,</i>	Agriculture
Strong, Howard Phelps,	<i>Ithaca,</i>	Agriculture
Swanick, Annie Veronica,	<i>Saratoga,</i>	English
Tod, John,	<i>Youngstown, Ohio,</i>	Chemistry
Watts, Marie Louise,	<i>Newark, N. J.,</i>	English Literature
Wood, Daniel Return,	<i>Markhams,</i>	Agriculture
Woodruff, William Hazlett,	<i>Auburn,</i>	Geology

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## STUDENTS IN THE SCHOOL OF LAW.

### GRADUATES.

Baker, George Comstock, LL.B., (Union University),	<i>Comstocks</i>
Benton, Frank Ranson, LL.B.,	<i>Ithaca</i>
Burnett, Archie Collamer, LL.B.,	<i>Ithaca</i>
Coville, Charles Ralph, LL.B.,	<i>Central Square</i>
Cumming, Robert Cushing, LL.B.,	<i>Fredonia</i>
Kambe, Kiichiro, LL.B., (University of Michigan),	<i>Tokio, Japan</i>
Lee, Ervin Delosse, LL.B.,	<i>Rome</i>
Ryan, Charles Patrick, LL.B.,	<i>Whitehall</i>
Takemura, Matsugu, LL.B.,	<i>Tokio, Japan</i>

### SENIORS.

Bagley, Frederick Goodrich,	<i>Freehold</i>
Barnes, Albert Sullard,	<i>Franklin</i>
Bowen, Jesse Page,	<i>Le Roy</i>
Cole, Alvarado Brown,	<i>Denver, Col.</i>
Cooke, Walter Platt,	<i>Buffalo</i>
Doolittle, William Gregg,	<i>Washington, D. C.</i>
Doudna, Frank B,	<i>Quaker City, Ohio</i>
Dowling, Edward Charles,	<i>Brooklyn</i>
Emerson, George Hale,	<i>Munich, Germany</i>
Fancher, Leon Livermore,	<i>Nashville</i>
Flaherty, James,	<i>Prattsburg</i>

Flannery, Martin Joseph, . . . . .	<i>Towanda, Pa.</i>
Frenkel, Charles, B.Lit., (University of Texas), . . . . .	<i>Galveston, Texas</i>
Gardner, Frank Gleason, . . . . .	<i>Penn Yan</i>
Gibbs, Merton Stanley, . . . . .	<i>Pike</i>
Gorham, John Milton, . . . . .	<i>Canajoharie</i>
Gould, Ernst Grove, . . . . .	<i>Seneca Falls</i>
Hargreaves, Fred Wells, B.L., . . . . .	<i>Wappinger's Falls</i>
Hubbs, Irving G, . . . . .	<i>Pulaski</i>
Johnson, Frank, . . . . .	<i>Havana</i>
Johnson, Peter Schermerhorn, . . . . .	<i>Bolivar</i>
Lattin, Charles Sumner, . . . . .	<i>Millport</i>
Lincoln, Spencer Francis, . . . . .	<i>Naples</i>
Loewenthal, Julius William, . . . . .	<i>Chicago, Ill.</i>
McFarland, Frank, B.L., . . . . .	<i>Buffalo</i>
Marquis, Frank P, . . . . .	<i>Cambridge, Ohio</i>
Maynard, Reuben Leslie, A.B., (Hamilton College), . . . . .	<i>Utica</i>
Munson, Harlan Lawrence, . . . . .	<i>Westfield</i>
O'Malley, Edward Richard, . . . . .	<i>Barkers</i>
Parker, Clarence Gray, . . . . .	<i>Moravia</i>
Parshall, Charles Henry, A.B., . . . . .	<i>Cooperstown</i>
Pool, James Henry, . . . . .	<i>De Ruyter</i>
Record, Byron Frank, . . . . .	<i>Smith's Mills</i>
Saunders, Henry Burr, . . . . .	<i>Hamburg</i>
Scovell, Josiah Boardman, . . . . .	<i>Lewiston</i>
Seymour, Carl Jay, . . . . .	<i>Westfield</i>
Stephens, Fred Kingsbury, . . . . .	<i>Sheshequin, Pa.</i>
Stillman, Alphonso Derwin, . . . . .	<i>Pendleton, Ore.</i>
Struble, Clinton Backus, . . . . .	<i>Penn Yan</i>
Sullivan, Thomas Allen Joseph, . . . . .	<i>Fishers</i>
Thistlethwait, Joe Layet, . . . . .	<i>Macedon</i>
Westbrook, Alfred B, . . . . .	<i>Kingston</i>
White, Hubert Lawrence, . . . . .	<i>Utica</i>
Whitney, Fred Moore, . . . . .	<i>Bethel, Conn.</i>
Wilkinson, Albert Thomas, . . . . .	<i>Lee Centre</i>
Williams, Howell Charles, . . . . .	<i>Palmyra</i>
Wittenberg, Albert Mack, . . . . .	<i>Elmira</i>
Woodward, Henry Lake, . . . . .	<i>Athens, Ohio</i>

## JUNIORS.

Albro, Henry Florence, . . . . .	<i>Woodsburgh</i>
Allison, William, . . . . .	<i>Salt Lake City, Utah</i>
Bell, James Donald, B.L., . . . . .	<i>Hillsdale</i>

Benedict, Truman Leonard, . . . . .	<i>Plattsburgh</i>
Blackmer, Samuel Huling, . . . . .	<i>Bennington, Vt.</i>
Bowman, Frank, . . . . .	<i>Barnes Corners</i>
Brooks, Edward Anderson, . . . . .	<i>Elmira</i>
Brown, Minor Harlan, . . . . .	<i>Ithaca</i>
Chaves, José Edward, . . . . .	<i>Belen, New Mexico</i>
Cole, Vernon, . . . . .	<i>Gowanda</i>
Corcoran, John Bernard, . . . . .	<i>Colton</i>
Crouch, Leonard Callender, Ph.B., . . . . .	<i>Kingston</i>
Daley, William Bailey, . . . . .	<i>Chatham</i>
Dardess, John Connelly, . . . . .	<i>Chatham</i>
Davies, Llewellyn, . . . . .	<i>Le Raysville, Pa.</i>
De Ford, William Allan, . . . . .	<i>Ottawa, Kansas</i>
Denton, Elmer Alonzo, . . . . .	<i>Forestport</i>
Dowd, Thomas Harry, . . . . .	<i>Cortland</i>
Duniway, Ralph Roelfsou, . . . . .	<i>Era, Idaho</i>
Fulton, Thomas Cooper, . . . . .	<i>Pittsburgh, Pa.</i>
Gordon, Henry Irving, . . . . .	<i>Rochester</i>
Gridley, Willis Timothy, . . . . .	<i>Mycenae</i>
Griffith, Ellis Albert, . . . . .	<i>Pike</i>
Halladay, Sylvester Charles, . . . . .	<i>Three Mile Bay</i>
Hartley, Edwin Forest, . . . . .	<i>Fairmont, W. Va.</i>
Has Brouck, Howard, B.L., . . . . .	<i>New Paltz</i>
Hisey, William Newell, . . . . .	<i>Los Angeles, Cal.</i>
Jenney, William Sherman, A.B., (College of New Jersey), . . . . .	<i>Syracuse</i>
Johanson, Carl Magnus, A.B., (Williams Coll.), <i>Colorado Springs, Col.</i>	
Kelly, Sidney Jay, . . . . .	<i>Fulton</i>
Kenefick, Richard Farrell, . . . . .	<i>Rome</i>
Lang, Louis Philip, . . . . .	<i>Syracuse</i>
Le Boeuf, Randall James, . . . . .	<i>Albany</i>
Lloyd, Benjamin Thomas, . . . . .	<i>Salt Lake City, Utah</i>
Lonergan, Richard Thomas, . . . . .	<i>Elmira</i>
McCelvey, George Edgar, . . . . .	<i>Temple, Texas</i>
McCormick, Robert Charles, . . . . .	<i>Milton, Pa.</i>
McLindon, Charles Francis, . . . . .	<i>Schuylerville</i>
Menken, Solomon Stanwood, B.L., . . . . .	<i>New York City</i>
Middaugh, Ray E, . . . . .	<i>Portville</i>
Monroe, Charles Wilbur, . . . . .	<i>Waterville</i>
Moran, Daniel Webster, . . . . .	<i>Seneca Falls</i>
Morse, Clarence W, . . . . .	<i>Bath, Me.</i>
Mould, Stephen Hyatt, B.L., . . . . .	<i>Newburgh</i>
Nall, George Arthur, . . . . .	<i>Brooklyn</i>

O'Connor, Michael Joseph, . . . . .	<i>Holyoke, Mass.</i>
Patterson, Arthur Grant, . . . . .	<i>Walton</i>
Perkins, Harry Kieth, . . . . .	<i>Bridgewater, Mass.</i>
Ried, Rollin H, . . . . .	<i>Ithaca</i>
Richards, Joseph T, . . . . .	<i>Salt Lake City, Utah</i>
Richey, George D, . . . . .	<i>Rexville</i>
Smith, Clarence Grant Tangier, . . . . .	<i>Brook Haven</i>
Smythe, Hugh Clayton, . . . . .	<i>West Pittston, Pa.</i>
Taylor, Emile George, . . . . .	<i>Owego</i>
Taylor, Harry Leonard, A.B., . . . . .	<i>Ithaca</i>
Taylor, Joseph William, . . . . .	<i>Schoharie</i>
Trax, Judson D, . . . . .	<i>Oil City, Pa.</i>
Tuttle, Daniel Sanford, . . . . .	<i>Watkins</i>
Walter, Guy Thornton, . . . . .	<i>Edinburgh, Pa.</i>
Watkins, Thomas David, . . . . .	<i>West Winfield</i>
Wilcox, George Burton, . . . . .	<i>Wellsville</i>

**SUMMARIES.**

**SUMMARY BY CLASSES.**

Graduates, . . . . .	98
Seniors, . . . . .	158
Juniors, . . . . .	245
Sophomores, . . . . .	322
Freshmen, . . . . .	374
Special Students, . . . . .	57
Students in the School of Law :	
Graduates, . . . . .	9
Seniors, . . . . .	48
Juniors, . . . . .	61
	<hr/>
	1372
Names repeated, . . . . .	25
	<hr/>
Total in the University, . . . . .	1347

## SUMMARY OF COURSES. [UNDERGRADUATES.]

	Seniors.	Juniors.	Sopho- mores.	Fresh- men.	Total.
Arts, . . . . .	19	28	43	34	124
Philosophy, . . . . .	17	20	16	23	76
Letters, . . . . .	22	23	33	23	101
Science, . . . . .	13	13	16	7	49
Agriculture, . . . . .	9	8	3	11	31
Architecture, . . . . .	6	4	19	22	51
Chemistry, . . . . .	3	3	10	6	22
Civil Engineering, . . . . .	20	34	32	50	136
Electrical Engineering, . . . . .	28	48	56	79	211
Mechanical Engineering, . . . . .	15	48	66	82	211
Mechanic Arts, . . . . .	—	—	—	2	2
Medical Preparatory, . . . . .	—	—	3	7	10
Optional, . . . . .	6	16	25	28	75

## SUMMARY BY RESIDENCES.

New York, . . . . .	790	New Hampshire, . . . . .	3
Pennsylvania, . . . . .	101	West Virginia, . . . . .	3
Ohio, . . . . .	73	Arkansas, . . . . .	2
Illinois, . . . . .	64	Idaho, . . . . .	2
Massachusetts, . . . . .	37	North Carolina, . . . . .	2
New Jersey, . . . . .	29	Oregon, . . . . .	2
District of Columbia, . . . . .	23	Vermont, . . . . .	2
Indiana, . . . . .	15	Delaware, . . . . .	1
Iowa, . . . . .	14	Florida, . . . . .	1
Wisconsin, . . . . .	14	Georgia, . . . . .	1
Missouri, . . . . .	13	Mississippi, . . . . .	1
Connecticut, . . . . .	12	Montana, . . . . .	1
Michigan, . . . . .	10	New Mexico, . . . . .	1
Rhode Island, . . . . .	10	South Dakota, . . . . .	1
Kansas, . . . . .	7	Canada, . . . . .	26
Maryland, . . . . .	7	Japan, . . . . .	6
California, . . . . .	6	Porto Rico, . . . . .	5
Colorado, . . . . .	6	Brazil, . . . . .	4
Maine, . . . . .	6	England, . . . . .	2
Minnesota, . . . . .	6	Honduras, . . . . .	2
South Carolina, . . . . .	6	Russia, . . . . .	2
Utah, . . . . .	5	U. S. of Columbia, . . . . .	2
Texas, . . . . .	4	Germany, . . . . .	1
Virginia, . . . . .	4	Hawaiian Islands, . . . . .	1
Kentucky, . . . . .	3	Mexico, . . . . .	1
Louisiana, . . . . .	3	Nicaragua, . . . . .	1
Nebraska, . . . . .	3		
Total, . . . . .			1347

# THE TWENTY-SECOND ANNUAL COMMENCEMENT.

JUNE 19, 1890.

## DEGREES CONFERRED.

### FIRST DEGREES.

#### BACHELORS OF ARTS.

Adelaide Eunice Benham,	John Ford,
Emma Louise Berry,	Emma Large Gilbert,
Mabel Preston Brown,	Edwin Milton Griffin,
Francis Cary Caldwell,	Leland Leroy Landers,
William Mathers Chamberlain,	Henrietta Emma Miller,
John Pitt Deane,	Frank Dean Patterson,
Charles Henry Deuchler,	Kennedy Furlong Rubert,
Lottie Irene Earll,	Frank Downing Russell,
Fred William Ely,	Thomas Bray Spence,
Edwin Emerson,	George Ray Wicker.

#### BACHELORS OF PHILOSOPHY.

Herbert Luther Barker,	Joseph William Ellis,
Calvin William Bartlett,	Colin Bell Gilchrist,
John Wilson Battin,	Henry Carpenter Gray,
Francis Hirau Callan,	Percy Hagerman,
George Flavel Danforth,	Anna Helene Palmié,
Henry Morris Eaton,	Charles Henry Walker.

(IN HISTORY AND POLITICAL SCIENCE.)

Willet Lyon Ward.

#### BACHELORS OF LETTERS.

Frank Addison Abbott,	Justin Samuel Galland,
Homer Allan Anderson,	James Maurice Gorman,
Junius Theodore Auerbach,	William Hagerman Graves,
Ella Teresa Barrett,	Howard HasBrouck,

James Donald Bell,	Byron Webber Holt,
George Alanson Blauvelt,	Frank Leigh Hume,
Jacob Brasser,	Muneyuki Ibaraki,
Frank Elbert Brooks,	Willard Cartwright Jackson,
Edmund Fowler Brown,	William Stanley Lamont,
Roscoe Litchfield Carle,	Solomon Stanwood Menken,
Charles Curtis Chillingworth,	Anson Clarence Morgan,
Charles Chauveau Cook,	Stephen Hyatt Mould,
Arthur H Crist,	Cyrus Story Palmer,
Robert Jacob Day,	Clarence John Shearn,
Louis Carl Ehle,	Reuben Oliver Smith,
Ernest Frederick Eidlitz,	Robert Eldredge Sternberg,
Edith Anna Ellis,	Mary Donna Stewart,
Frederick George Fisher,	Richard Wagner,
Louis Hutchinson Galbreath,	Harriet Elizabeth Warner,
	Justin Du Pratt White.

## BACHELORS OF SCIENCE.

Charles Talcott Brace,	Jennie Tift Martin,
Tracy Earl Clark,	Charles J Miller,
Jane Eleanor Datcher,	William Henry Morrison,
Pierre Augustine Fish,	Henry Hendricks Nathan,
Frank Leslie Frost,	Agnes Lillie Pearson,
Nelson Howard Genung,	Rosina Olive Phillips,
Ida May Hill,	Joseph Harrison Root,
Frederic Lawrence Kortright,	Milton Tibbits Royce,
Charles Joseph Ling,	Mason Blanchard Thomas.

## (IN AGRICULTURE.)

Newton David Chapman,	Harold Newton Reid,
Lee Cleveland Corbett,	James Edward Rice,
John Randolph Lochary,	William Webster Root,
	Louis Grant Thatcher.

## (IN ARCHITECTURE.)

Charles Hay Bernheisel,	Edwin Henry Hulbert,
Frank Horton Brown,	Edwin Augustus May,
Clément Benjamin Brun,	Floyd Lucien Robinson,
George Willard Conable,	Charles Goodwin Sands,
Clarence Ephraim Dobbin,	Frederick Farley Sewall,
Alexander Chadbourne Eschweiler,	George Francis Seymour,
Edward Thomas Fallows,	William Adam Stevens,
Arthur Norman Gibb,	Herman Frederick Stuhr,
William Tecumseh Sherman Hoyt,	Alexander Buel Trowbridge,
	Henry Wilhelm Wilkinson.

(IN CHEMISTRY.)

William Mitchell Irish, Jr.,                      Stewart Woodford Young.

CIVIL ENGINEERS.

Nelson Seymour Crouch,	John Franklin Skinner,
Joseph Haiues Dickinson,	Clinton Brown Stewart,
Franklin Marcus Grant Dodd,	Bunzo Sugi,
Albert Edward Duckham,	William Twining,
William Jackson, B.S.,	Thomas McEldeny Vickers,
Herbert Henry Landers,	Joel Edward Wadsworth,
Gustav Frederic Roess,	Robert Bruce Wilcox,
Frederick Kelly Wing.	

MECHANICAL ENGINEERS.

Louis Lees Bentley,	Wilson Freeman Higgins,
Ernest Spencer Bowen,	Embury Ashbury Hitchcock,
Paul Mellen Chamberlain, B.S.,	Edwin Curtis Knapp,
Fred Andrew Crossman,	Charles Philip Miller,
William Dalton,	William Stanton Monroe,
Francis Daniel Davis,	William Dye Mount,
John Jackson Ewing,	Harry Trevenen Shick,
Elbert Curtiss Fisher,	Louis Lincoln Smith,
Ferd Guy Gasche,	Henry King Spencer,
Victor Ignatius Hahn,	Ernest August Stege,
Benjamin Marvin Harris,	Guy Harold Thayer,
Charles Louis Heisler,	Daniel Upton,
George Cleveland Hicks, Jr.,	William Reuben Webster, Jr.

(IN ELECTRICAL ENGINEERING.)

George Hall Ashley,	Joseph Cowan Ramage,
Henry Primm Broughton,	Eugene Aertsin Rumsey,
Percy Alfred Clisdell,	Harland Aaron Sawyer,
Hayward Cochrane,	Eugene Charles Sickles,
Joseph Walker Cowles,	William Nelson Smith,
Samuel B Fortenbaugh,	Olin Ames Stranahan,
Frank Fairfield Goodwin,	Milton Ellsworth Thompson,
John Eckert Greenawalt,	Howard Ford Thurber,
Louis Watres Healy,	William Boardman Tobey,
Arthur Hobart Herschel,	George Hicks Walbridge,
Sherwood Johnston Larned,	Edward Hardenbergh Waldo, A.B.,
Max Levy,	John Ackroyd West, Jr.,
Julius Smith Loomis,	Ed Adam Wilhelm,
William Henry Powell,	Philip Bell Woodworth, B.S.

**BACHELORS OF LAW.**

William Edmund Beloate,	Daniel Vincent Murphy,
Frank Ransom Benton,	Gitaro Narukawa,
Charles Hazen Blood, Ph.B.,	George Washington O'Brien,
Archie Collamer Burnett,	James A Parsons,
Lewis Daniel Campbell,	Henry Valentine Pratt,
George David Chapman,	John Campbell Rice, A.B.,
Charles Ralph Coville,	Charles Patrick Ryan,
Harry Clayton Davis,	John Lockwood Seager,
William Joseph Delaney,	Burt Alonzo Smith,
George Meade Emory,	George Dallas Stanton, Jr.,
G Washington Fields,	Robert Gray Strong,
Walter Jones Hamilton, Ph.B.,	Matsugu Takemura,
Charles Frank Hammond,	Ira Thomas,
Ervin Delosse Lee,	Charles Henry Wells,
John Guy McDowell,	John Walter Wells,
John Tracy Morrison, A.B.,	Eugene McLachlan White.

**PHARMACEUTICAL CHEMISTS.**

Fred Barrett Ludlow,	Roscoe Conkling Wilson.
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**ADVANCED DEGREES.****MASTERS OF ARTS.**

Walter Cochrane Brouson, A.B.,	Archibald Angus Freeman, A.B.,
Edward Leroy Brown, A.B.,	Calvin Humphrey, A.B.,
Mabel Augusta Chase, A.B.,	Burton Evans Moore, A.B.,
Rosamond Almeda Field, A.B.,	Phebe Temperance Sutliff, A.B.

**MASTER OF PHILOSOPHY.**

Walter Jones Hamilton, Ph.B.

**MASTERS OF SCIENCE.**

Nathan Banks, B.S.,	William Grant Goodwin, B.L.,
Emma Neal Bassett, Ph.B.,	Jenny Kirk Howell, Ph.B.,
Moses Craig, B.S.,	Yataro Mishima, B.S.,
Frederick Victor Moss, A.B.	

**MASTER OF CIVIL ENGINEERING.**

Ernest Martin Holbrook, C.E.

**MASTERS OF MECHANICAL ENGINEERING.**

George Ira Alden, B.S.,	Arthur Bernard Levy, B.S.,
Wm. Wilberforce Churchill, M.E.,	Louis Benedict Marks, B.S., M.E.,
John Joseph Flather, Ph.B.,	Arthur Tannatt Woods.

**·MASTERS OF LAW.**

Edward Cornell, LL.B.,	Owen Lincoln Potter, LL.B.,
Myron McKee Crandall, LL.B.,	Monroe Marsh Sweetland, A.B.,
Masayasu Narusé, LL.B.,	LL.B.,
Ossian Gregory Noble, LL.B.,	Frank Edgar Thomas, LL.B.

**DOCTORS OF PHILOSOPHY.**

Orrin Leslie Elliott. Ph.B.,	Herbert Elmer Mills, A.M.
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**PRIZES AWARDED.**

**The Sibley Prizes in Mechanic Arts :**

1st Prize, . . . . .	HERBERT WADE HIBBARD, A.B.
2d Prize, . . . . .	JAMES EDWARD KRESS.
3d Prize, . . . . .	NORMAN FRANK BALLANTYNE.
4th Prize, . . . . .	ROSWELL CARTER WILLIAMS, JR.
5th Prize, . . . . .	OREN GIBSON HEILMAN.

**The Prize offered by the New Shakspere Society of London :**

WALTER COCHRANE BRONSON, A.B.

**The Mrs. A. S. Barnes Shakespeare Prize :**

WALTER COCHRANE BRONSON, A.B.

**The Eighty-Six Memorial Prize in Declamation :**

WILLARD HENRY AUSTIN

**Thesis Prizes in the School of Law :**

1st Prize, . . . . .	JOHN TRACY MORRISON, A.B.
2d Prize, . . . . .	CHARLES HAZEN BLOOD, Ph.B.
3d Prize, . . . . .	WALTER JONES HAMILTON, Ph.B.

**The Woodford Prize in Oratory :**

FRANK ADDISON ABBOTT

**CERTIFICATES AWARDED.**

**Certificates for the Medical Preparatory Course :**

HERBERT LUTHER BARKER,	FRANK MURRAY DINSMOOR,
CHARLES TALCOTT BRACE,	PIERRE AUGUSTINE FISH,
TRACY EARL CLARK,	SUSAN CAROLINE STRONG, A.B.,
CHARLES HENRY WALKER.	

**Teachers' Certificates :**

JUNIUS THEODORE AUERBACH, . . . . .	German
JANE ELEANOR DATCHER, . . . . .	Botany
LOUIS HUTCHINSON GALBREATH, . . . . .	Philosophy
WILLET LYON WARD, . . . . .	History

## Certificates for Proficiency in Military Science.:

HOMER ALLAN ANDERSON,	FRANK LESLIE FROST,
FRANK ELBERT BROOKS,	WILLIAM HAGERMAN GRAVES,
FRANK HORTON BROWN,	STEPHEN HYATT MOULD,
FRANCIS CARY CALDWELL,	JAMES EDWARD RICE,
TRACY EARL CLARK,	JOHN FRANKLIN SKINNER,
ALEXANDER BUEL TROWBRIDGE.	

## HONOR LISTS.

## THESES OF DISTINGUISHED EXCELLENCE.

- HOMER ALLAN ANDERSON: The Satire in *Lés Précieuses Ridicules* and *Les Femmes Savantes*, as far as it concerns the *habitués* of the Hôtel de Rambouillet.
- EMMA LOUISE BERRY: A Ninth Century Experiment in Co-education.
- GEORGE ALANSON BLAUVELT: First State Constitution of Pennsylvania.
- ERNEST SPENCER BOWEN: Design and Construction of a Frictionless Automatic Engine Governor.
- CLÉMENT BENJAMIN BRUN: The Romanesque in the South of France.
- FRANCIS CARY CALDWELL: A Study of the Alternating Arc between a Ball and Point.
- FRANCIS HIRAM CALLAN: The Decline of American Shipping.
- PAUL MELLEN CHAMBERLAIN: Losses of Heat in the Steam Cylinder and their Amelioration.
- NEWTON DAVID CHAPMAN: The Structural, Chemical, and Physiological Characteristics of Tough and Tender Meat.
- TRACY EARL CLARK: The Insula.
- CHARLES CHAUVEAU COOK: English Evolutionary Ethics.
- LEE CLEVELAND CORBETT: Rootings of Cuttings.
- JOSEPH WALKER COWLES: Test of an Electric Street Railway Plant at Scranton, Pa.
- GEORGE FLAVEL DANFORTH: A Problem in Pedagogics.
- JANE ELEANOR DATCHER: A Biological Sketch of *Hepatica Triloba Chaix* and *Hepatica Acutiloba, D. C.*
- ROBERT JACOB DAY: The Regicides, Whalley and Goffe, with special reference to their Life and Adventures in America.
- JOHN PITT DEANE: Certain Uses of the Modes in Terence, a Discussion of the Indicative Deliberative Question.

- LOUIS CARL EHLE : Charles Kingsley as a Novelist.
- EDWIN EMERSON : The Sophists.
- ALEXANDER CHADBOURNE ESCHWEILER : A Comparative Study of the English and Poloncean Roof-Trusses.
- PIERRE AUGUSTINE FISH : The Anatomy of the Olfactory Lobe.
- ELBERT CURTISS FISHER : Chimney Draughts.
- JOHN FORD : Protection as Applied to American Shipping.
- FERD GUY GASCHE : Efficiency of Steam Pumping.
- NEILSON HOWARD GENUNG : The Electro-Chemical Equivalent of Silver.
- ARTHUR NORMAN GIBB : The Library Building of the Cornell University.
- EMMA LARGE GILBERT : Parataxis in Terence.
- COLIN BELL GILCHRIST : The Social Reforms of Robert Owen.
- JAMES MAURICE GORMAN : The Chancellor L'Hopital and Intolerance in France in the Sixteenth Century.
- PERCY HAGERMAN : French Society in the Seventeenth Century, as Portrayed by the Letters of Voiture, with a short Life of Voiture.
- HOWARD HASBROUCK : The Historical Development of the American Civil Service.
- LOUIS WATRES HEALY : The Test of an Electric Street Railway Plant at Scranton, Pa.
- CHARLES LOUIS HEISLER : Calorimetry as Applied in Testing Boilers.
- GEORGE CLEVELAND HICKS, JR. : Calorimetry as Applied in Testing Boilers.
- IDA MAY HILL : Study of the Incandescent Mantle Gas-Burner.
- MUNEYUKI IBARAKI : The Monetary System of Japan.
- WILLIAM MITCHELL IRISH, JR. : The Oxidation of Some Organic Compounds by means of Hydrogen Peroxide.
- FREDERIC LAWRENCE KORTRIGHT : The Decomposition of some of the Diazo Compounds of Naphthalene by Alcohol.
- WILLIAM STANLEY LAMONT : The Economic Aspects of Education.
- HERBERT HENRY LANDERS : Review of the Court Street Bridge over Chenango River, at Binghamton, N. Y.
- CHARLES JOSEPH LING : Life and Duration of Incandescent Lamps.

JOHN RANDOLPH LOCHARY : Methods of Herbaceous Grafting.

SOLOMON STANWOOD MENKEN : Congressional Caucusses held to Nominate Presidential Candidates.

CHARLES J MILLER : Tariff, Taxes, and the American Farmer.

WILLIAM STANTON MONROE : Chimney Draughts.

HENRY HENDRICKS NATHAN : The Adirondacks a Study in Economic Forestry.

ANNA HELENE PALMIÉ : The Fringes of Shadows.

AGNES LILLIE PEARSON : Voiture and French Society in the Seventeenth Century.

ROSINA OLIVE PHILLIPS ; The Transformations of *Simulium innoxium*, new species.

WILLIAM HENRY POWELL ; The Efficiency of Transformers.

JAMES EDWARD RICE : The Flesh of the Domestic Fowl as affected by Nitrogenous and Carbonaceous Rations.

FLOYD LUCIEN ROBINSON : The Picturesque in Architecture.

KENNEDY FURLONG RUBERT : A Correction and Completion of the Attic Forms in our Common School Greek Grammars.

FRANK DOWNING RUSSELL : The Development of Natural History Education in the United States.

FREDERICK FARLEY SEWALL : The Smaller Gothic Churches of England.

CLARENCE JOHN SHEARN : A Century of American Journalism.

REUBEN OLIVER SMITH : The Educational Ideas of Herbert Spencer.

WILLIAM NELSON SMITH : Electrical Motive Power on Elevated Railways, and its Practical Application in Chicago.

THOMAS BRAY SPENCE : A Comparison of the External and Middle Ear of Man and the Cat.

CLINTON BROWN STEWART : Design and Construction of High Masonry Dams.

OLIN AMES STRANAHAN : A Study of Power Distribution.

WILLIAM BOARDMAN TOBEY : Investigation of Stanley Alternate Current Arc Dynamo.

THOMAS MCELDENY VICKERS : The Gunpowder Water Supply of Baltimore, Md.

**JOEL EDWARD WADSWORTH** : Review of the Gowanda Highway Bridge.

**GEORGE HICKS WALBRIDGE** : Investigation of Stanley Alternate Current Arc Dynamo.

**EDWARD HARDENBERGH WALDO, A.B.** : A Proposed Power Plant for Cornell University.

**HARRIET ELIZABETH WARNER** : A Study of the Middle English Poem called the Pearl.

**STEWART WOODFORD YOUNG** : A Study of the Products of the Reaction between Concentrated Sulphuric Acid and Acetone.

**IN THE SCHOOL OF LAW.**

**CHARLES HAZEN BLOOD, Ph.B.** : The Power of Congress to Regulate Commerce.

**WALTER JONES HAMILTON, Ph.B.** : The Delivery of Deeds.

**JOHN TRACY MORRISON, A.B.** : The Liability of Telegraph Companies.

**JAMES A PARSONS** : Constructive Notice and its Effect on Conveyances of Real Estate.

**HENRY VALENTINE PRATT** : Holders for Value of Commercial Paper.

**JOHN CAMPBELL RICE, A.B.** : The Law of License.

**CHARLES PATRICK RYAN** : The Property Rights of Married Women, with Special Reference to the Law of New York.

**JOHN LOCKWOOD SEAGER** : Homicide as a Tort.

**ROBERT GRAY STRONG** : Debtors' Relief Laws.

**SPECIAL MENTION.**

(Awarded for special study in particular lines during the last two years of the course.)

**JAMES DONALD BELL**, . . . . . History

**EMMA LOUISE BERRY**, . . . . . History

**GEORGE ALANSON BLAUVELT**, . . . . . History

**CHARLES CURTIS CHILLINGWORTH**, . . . . . History

**JANE ELEANOR DATCHER**, . . . . . Botany

**JOHN PITT DEANE**, . . . . . Latin

**FRED WILLIAM ELY**, . . . . . Latin

**LOUIS HUTCHINSON GALBREATH**, . . . . . Philosophy

**EMMA LARGE GILBERT**, . . . . . Latin

JAMES MAURICE GORMAN, . . . . .	History
FREDERIC LAWRENCE KORTRIGHT, . . . . .	Chemistry
WILLIAM HENRY MORRISON, . . . . .	Chemistry
ANNA HELENE PALMIÉ, . . . . .	Mathematics
JOSEPH HARRISON ROOT, . . . . .	Mathematics
KENNEDY FURLONG RUBERT, . . . . .	Latin and Greek
RICHARD WAGNER, . . . . .	History

THESES OF CANDIDATES FOR ADVANCED DEGREES.

GEORGE IRA ALDEN, B.S.: A Method of Diminishing Cylinder Condensation in the Steam Engine, including Experiments and Tests with an Engine of Special Design.

NATHAN BANKS, B.S.: The Spider Fauna of the Upper Cayuga Lake Basin.

EMMA NEAL BASSETT, Ph.B.: Woman in Mediæval England.

WALTER COCHRANE BRONSON, A.B.: Shakespeare's Treatment of the Story of Troilus and Cressida compared with Chaucer and Dryden's Treatment of the same.

EDWARD LEROY BROWN, A.B.: Gamma-Functions.

MABEL AUGUSTA CHASE, A.B.: The Fundamental Color Curves of the Human Eye.

WILLIAM WILBERFORCE CHURCHILL, M.E.: Condensation in the Cylinder of the Steam Engine.

MOSES CRAIG, B.S.: A Critical Review of the Genus *Aecidium*.

ORRIN LESLIE ELLIOTT, Ph.B.: The Tariff Controversy in the United States from 1789 to 1833.

ROSAMOND ALMEDA FIELD, A.B.: The Government of the Confederate States, its Constitution and Practical Workings.

JOHN JOSEPH FLATHER, Ph.B.: The Measurement of Power.

ARCHIBALD ANGUS FREEMAN, A.B.: The Territorial Acquisitions of the United States.

WILLIAM GRANT GOODWIN, B.L.: Friedrich Spee: a Biographical Sketch, with an Account of His Literary Activity.

ERNEST MARTIN HOLBROOK, C.E.: Experimental Researches in Hydraulics.

JENNY KIRK HOWELL, Ph.B.: Life History of *Uromyces Trifolii*.

CALVIN HUMPHREY, A.B.: A Study of the Magnetization of Powdered Iron in connection with the Alternate Current Transformer.

**ARTHUR BERNARD LEVY, B.S.:** Arc-Light Carbons.

**LOUIS BENEDICT MARKS, B.S., M.E.:** The Effects of Heating the Core of the Converter.

**HERBERT ELMER MILLS, A.M.:** The Early Days of the French Revolution in San Domingo.

**YATARO MISHIMA, B.S.:** The Characters and Transformations of an Undescribed Coccid Injurious to Palms.

**BURTON EVANS MOORE, A.B.:** The Influence of Age upon Incandescent Lamps.

**FREDERIC VICTOR MOSS, A.B.:** The Measure of the Temperature of Incandescence by means of the Distribution of Energy in the Spectrum.

**PHEBE TEMPERANCE SUTLIFF, A.B.:** The History of Reconstruction during President Grant's Two Terms, 1869-1877.

**ARTHUR TANNATT WOODS:** The Prevention of Smoke.

## ASSOCIATE ALUMNI.

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By the charter of the University the graduates are entitled to elect one of the Board of Trustees each year. At a meeting called for the purpose, and held on Wednesday, June 26, 1872, the day preceding the Annual Commencement, representatives of all the classes that had graduated being present, the following organization was effected :

### ARTICLES OF ASSOCIATION AS ADOPTED JUNE 26, 1872, AND AFTERWARDS AMENDED.

I. The Alumni of Cornell University hereby constitute themselves an association to be known by the name of the Associate Alumni of Cornell University.

II. The object of this association is declared to be to promote in every proper way the interest of the University, and to foster among the graduates a sentiment of regard for each other, and attachment to their Alma Mater.

III. All graduates of this University, who, by their diplomas, are entitled electors of the University, are members of this association. All members of the Faculty of this University are honorary members of this association.

IV. The officers of this association shall consist (1) of a president ; (2) vice-presidents to be elected as follows : one vice-president from the classes numbered from '69 to '74 inclusive, and one from each succeeding group of five classes, provided that when the last group shall number three classes it shall thereafter be entitled to a vice-president ; (3) a corresponding secretary ; (4) a recording secretary ; (5) a treasurer.

V. This association shall meet annually on the day preceding Commencement, at ten o'clock in the forenoon.

VI. Any proposition to alter or amend these articles of association must be made at a regular meeting and have the assent of two-thirds of the members present.

By an amendment to the charter of the University, passed May 15, 1883, permitting members of the Alumni, not present in person, to vote by written ballot at the annual election of Trustees, the Treasur-

er is required to keep "a registry of the signature and address of each alumnus." It is therefore important that each alumnus keep the Treasurer informed of his full address (in cities, street and number) and notify him immediately of any change.

The following ordinance was adopted by the Board of Trustees, October 24, 1888: All graduates of the first degree, in any of the departments of Cornell University, and all persons who have been admitted to any degree higher than the first in said University shall be alumni of said University, and as such be entitled to vote for alumni trustees under and in pursuance of the provisions contained in Chapter 763 of the Laws of New York passed in 1867.

#### OFFICERS FOR 1890-91.

President—J. C. Branner, '82.

Vice-Presidents—M. L. Buchwalter, '69; H. T. Eddy, '70; E. L. Parker, '71; C. L. Crandall, '72; M. W. Van Auken, '73; W. N. Smith, '74; J. T. Newman, '75; A. A. Alling, '83; M. A. Wardwell, '88.

Corresponding Secretary—W. T. Hewett, '79.

Recording Secretary—G. W. Harris, '73, Ithaca.

Treasurer—H. M. Hibbard, '74, Ithaca.

Executive Committee—J. C. Branner, W. T. Hewett, G. W. Harris, H. M. Hibbard, *ex officio*; W. R. Dudley, '74; W. A. Finch, '80.

Auditing Committee—D. F. Van Vleet, '77; A. B. Comstock, '85.

#### OFFICERS OF LOCAL ALUMNI ASSOCIATIONS.\*

##### CENTRAL NEW YORK ASSOCIATION.

President—Hamilton S. White, '77.

Vice-President—S. F. Belknap, '73.

Secretary—C. C. Chase, '83.

Treasurer—W. K. Pierce.

##### ITHACA ASSOCIATION.

President—C. E. Van Cleef, '71.

Vice-President—William R. Dudley, '74.

Secretary—D. F. Van Vleet, '77.

Treasurer—Wm. Hazlitt Smith, '73.

Members of Executive Committee—Above named officers, *ex officio*; G. W. Harris, '73; J. S. Waterman, '77.

\*As last reported.

## MICHIGAN ASSOCIATION.

President—Chas. S. Cobb, '77, Eaton Rapids, Mich.  
 Secretary—Celos D. Jayne, '81, Orchard Lake, Mich.

## MINNESOTA ASSOCIATION.

President—John G. Moore, '73.  
 Vice-President—H. W. Slack, '72.  
 Secretary—E. B. Barnes, '88, Minneapolis, Minn.  
 Treasurer—E. H. Crooker, '84.  
 Directors—W. E. Lucas, '77; F. I. Wilson, '82; C. E. Carpenter, '86.

## NEBRASKA ASSOCIATION.

President—A. C. Wakeley, '79.  
 Vice-Presidents—A. J. Cornish, '80; L. E. Fuller, '77.  
 Secretary—Frank Irvine, '80, Omaha, Neb.  
 Treasurer—C. L. Saunders, '80.

## NEW ENGLAND ASSOCIATION.

President—Mary E. Roberts, '80.  
 Vice-President—Howard P. Bellows, '75.  
 Secretary—Joseph Ness, '78, 147 Summer Street, Boston, Mass.  
 Executive Committee—Alla W. Foster, '77, and C. B. Wheelock, '76.

## NEW YORK ASSOCIATION.

President—John D. Warner, '72.  
 Vice-Presidents—G. P. Serviss, '72; John W. Boothby, '73; Asa A. Ailing, '83.  
 Secretary—Chas. H. Johnson, '80, Temple Court, New York City.  
 Treasurer—Otto M. Eidlitz, '81.  
 Executive Committee—Dudley R. Horton, '75; President, Secretary, and Treasurer, *ex officio*; Chas. D. Baker, '73; Merritt E. Haviland, '77; Frank A. Wright, '80; Ira A. Place, '81; John T. Sackett, '86.

## NORTHEASTERN PENNSYLVANIA ASSOCIATION.

President—H. M. Streeter, '82.  
 Vice-Presidents—J. L. Stone, '74; T. J. McConnon, '72; M. G. Peters, '72.

Recording Secretary—R. H. Patterson, '83.

Corresponding Secretary and Treasurer—F. I. Brown, '82, Scranton, Pa.

Executive Committee—Myron Kasson, '71; F. I. Brown, '82; R. B. Howland, '72.

#### NORTHWESTERN ASSOCIATION.

President—James O'Neill, '71.

Vice-President—Winchester Fitch, '88.

Secretary—Chas. E. Acker, '88, Chicago, Ill.

Treasurer—Jas. H. Peirce, '74.

Registrar—D. F. Flannery, '76, Illinois Bank Building, Chicago, Ill.

#### PHILADELPHIA ASSOCIATION.

President—Charles Barclay, '76.

Vice-Presidents—A. J. Loos, '77; M. R. Couable, '76.

Corresponding Secretary—J. L. Knapp, '80.

Recording Secretary—G. B. Davidson, '84.

Treasurer—J. M. Dodge, '72.

Executive Committee—M. M. Garver, '76; E. M. Howard, '73; W. C. Russell, Jr., '80; W. H. Smith.

#### SOUTHWESTERN ASSOCIATION.

President—Leverett G. Boies, '73.

Vice-Presidents—Frank W. Cooper, '74; Geo. B. Richards, Kansas City, Mo.

Secretary—Ed. A. Wagener, '76, Topeka, Kan.

Treasurer—Wm. S. Elliott, '77.

Registrar—Eugene L. Hopkins, Topeka, Kan.

#### WASHINGTON ASSOCIATION.

President—D. H. Decker, '84.

Vice-Presidents—A. M. Farrington, '79; F. V. Coville, '87; J. McK. Borden, '78.

Secretary and Treasurer—Percy E. Clarke, '81, Room 249, U. S. Patent Office.

Members of Executive Committee—Above named officers, *ex officio*.

## WESTERN NEW YORK ASSOCIATION.

President—C. C. Wood, '74.

Vice-President—Eugene Cary, '78.

Secretary—A. C. Good, '85, 18 West Swan St., Buffalo.

Treasurer—W. B. Hoyt, '80.

Executive Committee—James F. Gluck, '74; W. C. Ely, '78; S. A. Simons, '79; D. J. Matteson, '80; H. H. Seymour, '71.

Other associations have not reported their officers.

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**ALUMNI BUREAU.**

The Alumni Association voted at its meeting in June, 1890, to establish in the University an Alumni Bureau, the object of which shall be to promote the interests of graduates of Cornell in securing professional and educational positions. In accordance with this resolution a permanent Bureau has been constituted where the names of graduates are registered with a record of the position desired and of the studies and experience of those who wish situations. To render this organization in the highest degree efficient, it is desired that all interested should communicate as early in the year as possible to Professor Hewett, the Corresponding Secretary of the Alumni, information of vacancies which may occur in public positions which graduates are prepared to fill. Former students can thus render a constant service to the University, and to successive classes as they graduate. A list of such situations is kept and is available for consultation by all students. In accordance with the vote of the Alumni Association, the annual report of the Alumni Trustee, containing a review of the year and such matters affecting the University as interest the Alumni, is sent to all members whose annual dues have been paid. Remittances may be made to the order of the Corresponding Secretary. The last report, by Frank H. Hiscock, Esq., is now ready for distribution.

The Corresponding Secretary is required to keep a list of the addresses of graduates, and it is requested that he may be notified of changes in the address of any member.

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# Special Notice.

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**A**T the meeting of the Trustees of the University, held June 19, 1889, the following resolution was adopted :

*Resolved*, That during and after the university year 1890-91, the annual tuition fees for students in the University be fixed at \$125 ; \$50 to be paid at the beginning of the first term ; \$40 at the beginning of the second term ; and \$35 at the beginning of the third term.

This resolution, after the date given, will apply to all those students in the University who are required to pay for tuition. To students in the College of Agriculture, students holding State Scholarships, and such graduate students as are accepted by the Faculty as candidates for higher degrees, tuition will be free as heretofore.





