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Cornell University

1903-1904

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CALENDAR.

FIRST TERM—1903-1904.

Sept.	15	Tuesday	Entrance examinations begin.
Sept.	22	Tuesday	ACADEMIC YEAR BEGINS. Matriculation of New students. University Scholarship examinations begin.
Sept.	23	Wednesday	MATRICULATION of new students.
Sept.	24	Thursday	REGISTRATION of matriculated students.
Sept.	25	Friday	INSTRUCTION begins in all departments of the University at Ithaca. President's annual address to the students at 12:00 M.
Sept.	30	Wednesday	REGISTRATION of students in the Medical College in New York City.
Nov.	26	Thursday	THANKSGIVING DAY.
Dec.	1	Tuesday	Latest date for announcing subjects of Theses for Advanced Degrees.
Dec.	23	Wednesday	Christmas recess begins.
Jan.	2	Saturday	Registration in the College of Agriculture for Winter Course in Agriculture and Dairy Husbandry.
Jan.	5	Tuesday	Work resumed.
Jan.	9	Saturday	Ninety-four Memorial Prize Competition.
Jan.	11	Monday	FOUNDER'S DAY.
Jan.	29	Friday	First term closes.

SECOND TERM—1903-1904.

Feb.	1	Monday	REGISTRATION for second term.
Feb.	22	Monday	WASHINGTON'S BIRTHDAY.
Mar.	19	Saturday	Winter Course in Agriculture and Dairy Husbandry ends.
Apr.	1	Friday	Latest date for presenting Woodford Orations.
Apr.	1	Friday	Easter recess begins.
Apr.	12	Tuesday	Work resumed.
Apr.	15	Friday	Latest date for receiving applications for Fellowships and Graduate Scholarships.
May	2	Monday	Latest date for presenting Theses for Advanced Degrees.
May	6	Friday	Woodford Prize Competition.
May	30	Monday	DECORATON DAY.
May	31	Tuesday	Eighty-six Memorial Prize Competition.
June	8	Wednesday	COMMENCEMENT of Medical College in New York City.
June	16	Thursday	Instruction ends.
June	19	Sunday	Baccalaureate sermon.
June	21	Tuesday	Class Day.
June	22	Wednesday	Alumni Day and Annual Meeting of the Trustees.
June	23	Thursday	THIRTY-SIXTH ANNUAL COMMENCEMENT

SUMMER—1904.

June	29	Wednesday	Summer term (of ten weeks) in Entomology and Invertebrate Zoology.
July	7	Thursday	Summer Session begins.
Aug.	19	Friday	Summer Session ends.
Sept.	6	Tuesday	Summer term in Entomology ends.

FIRST TERM, 1904–1905.

Sept.	20 Tuesday	Entrance examinations begin.
Sept.	27 Tuesday	ACADEMIC YEAR BEGINS. Matriculation of new students. University Scholarship examinations begin.
Sept.	28 Wednesday	MATRICULATION of new students.
Sept.	28 Wednesday	REGISTRATION of students in the Medical College in New York City.
Sept.	29 Thursday	REGISTRATION of matriculated students.
Sept.	30 Friday	INSTRUCTION BEGINS in all departments of the University at Ithaca. President's annual address to the students at 12:00 M.
Nov.	— Thursday	THANKSGIVING DAY.
Dec.	1 Thursday	Latest date for announcing subjects of Theses for Advanced Degrees.

FOUNDATION AND ENDOWMENT.

Cornell University was incorporated by the legislature of the State of New York on the 27th of April, 1865, and opened on the 7th of October, 1868. The existence of the University is due to the combined wisdom and bounty of the United States, the State of New York and Ezra Cornell.

By an act of Congress, approved July 2, 1862, it was provided that there should be granted to the several states public lands, "thirty thousand acres for each senator and representative of congress," from the sale of which there should be established a perpetual fund "the interest of which shall be inviolably appropriated, by each state which may take and claim the benefit of this act, to the endowment, support and maintenance of 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, in such manner as the legislatures of the states may respectfully prescribe, in order to promote the liberal aud practical education of the industrial classes in the several pursuits and professions in life." The act forbade the use of any portion of the aforesaid fund, or of the interest thereon, for the purchase, erection or maintenance of any building or buildings; but the several states claiming and taking the benefit of the provisions of the act were required, by legislative assent previously given, "to provide, within five years at least, not less than one college" for carrying out the purposes of the act.

The share of the State of New York was nine hundred and ninety thousand acres. The scrip was delivered to the comptroller, who was authorized, by the act passed May 5, 1863, to receive it and with the approval and concurrence of other state officers to dispose of the whole or any portion of it for cash, or for stocks of the United States or of the states, or some other safe stocks yielding not less than five per cent. Under this act eight thousand acres were sold at eighty-three cents and sixty-eight thousand acres at eighty-five cents, producing together sixty-four thousand four hundred and forty dollars. But as other states were offering their scrip at a much lower rate, sales soon ceased. Furthermore there was the greatest uncertainty in regard to the disposition which the legislature might ultimately make of the fund that was expected to accrue from the sale of the land scrip.

Meantime Ezra Cornell was dreaming of a project which he had

come to formulate in the memorable words: "I would found an institution where any person can find instruction in any study." By a union of his own resources with the proceeds of the land grant he saw a way to the realization of his purpose. This union was effected by the act of April 27, 1865, establishing Cornell University, and appropriating to it the proceeds of the sale of the public lands granted by congress to the State of New York; and the founder's broad conception of a university was reconciled with the narrower purpose of the act of congress donating public lands to the states establishing colleges for the benefit of agriculture and the mechanic arts, by providing in the charter that "such other branches of science and knowledge may be embraced in the plan of instruction and investigation pertaining to the univerisity, as the trustees may deem useful and proper." In the same liberal spirit it was provided in regard to the board of trustees, that "at no time shall a majority of the board be of one religious sect, or of no religious sect"; in regard to professors and other officers, that "persons of every religious denomination, or of no religious denomination shall be equally eligible to all offices and appointments"; and in regard to students, that the university should admit them "at the lowest rate of expense consistent with its welfare and efficiency," and more particularly that it should "annually receive students, one from each assembly district of the state free of any tuition fee in consideration of their superior ability, and as a reward for superior scholarship in the academies and public schools of this state."

Ezra Cornell's direct donation to the university was five hundred thousand dollars, two hundred acres of land with useful buildings, and several smaller gifts for special purposes. His largest contribution, however, came in the shape of profits eventually made by the university on the land scrip which he purchased from the state. Of the New York scrip no further sales had been made by the comptroller prior to the autumn of 1865, when Ezra Cornell purchased one hundred thousand acres for fifty thousand dollars upon condition that all the profits which should accrue from the sale of land should be paid to Cornell University. By act of the legislature passed April 10, 1866, the state had authorized the comptroller to sell the scrip remaining unsold, that is to say, scrip for eight hundred and thirteen thousand nine hundred and twenty acres, 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 had 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 script " should be paid over and devoted to the purpose of Cornell University. The Trustees were not in condition to make the purchase. After some delay Mr. Cornell agreed to take the scrip at thirty cents an acre, with an addition of thirty cents if he should realize that sum on the sale of the land, making the following stipulation in a letter to the comptroller regarding any profits that might accrue in access of the purchase money.

" 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 agreement with the state was made August 4, 1866. The sixth paragraph of the agreement distinguishes clearly between the "College Land Scrip Fund"—being the receipts from the state's sale of the land scrip—and the " Cornell Endowment Fund," which was to be constituted by the profits made by Mr. Cornell in the management of the lands and by his other gifts to the University. Mr. Cornell sold scrip for three hundred and eighty-one thousand nine hundred and twenty acres, at prices varying from eighty-five cents to one dollar per acre, the total receipts being three hundred and fifty-seven thousand seven hundred and forty-eight dollars and sixty-one cents. With the remaining scrip for five hundred and thirty-two thousand acres he located five hundred and twelve thousand three hundred and forty-three and sixty-five hundredths acres ; and of the land thus located he sold one hundred and eleven thousand and forty six and eighty six-hundredths acres for four hundred and seventy thousand three hundred and sixty-four dollars and eighty-eight cents. The residue of the land he carried until October, 1874, when a new agreement was made, with the consent of the proper state officers, in virtue of which " the Cornell University" was to take the place and assume the duties and obligations of Ezra Cornell, in his contracts with the state, of November, 1865, and August, 1866, accepting from him a conveyance of his entire interest, and all his rights under such contracts, and of all the

lands located by him with college scrip, and paying at once in cash to the comptroller the full amount of Cornell's bond to the state principal and interest, and henceforward assuming the burden of the care, management, and sale of such lands." The university thus took the place of Ezra Cornell in his contracts with the state; but subsequently the legislature by an act passed May 18, 1880, directed the comptroller, upon the request of Cornell University, to assign, transfer, pay, and deliver to the latter "all money, security, stocks, bonds and contracts, constituting a part of or relating to the fund known as the Cornell Endowment Fund, now held by the state for the use of said university," and a short time thereafter such transfer was made. From the lands handed over by Mr. Cornell—four hundred and one thousand two hundred and ninety-six and seventy-nine-hundredths acres—the Board of Trustees, through the agency of their Land Committee (of which Henry W. Sage was long chairman), have already realized a net return of about four million eight hundred dollars. The absolute ownership by the university of the Cornell Endowment Fund was, on May 19, 1890, established by the decision of the Supreme Court of the United States, affirming a decision of the New York Court of Appeals.

The College Land Scrip Fund amounts to six hundred and eighty-eight thousand five hundred and seventy-six dollars and twelve cents. By chapter 78 of the laws of 1895 it was turned into the treasury of the state and a certificate of indebtedness for an interest thereupon of five per cent. annually was issued to Cornell University by the State, conformably to the conditions of the act of congress of July 2, 1862, under which the donation of public land was made.

The original charter of Cornell University set limits to the amount of property it could hold; but by an act passed May 12, 1882, the clause in the charter restricting the holdings of the university was amended so as to remove every limitation, the precise language of the amendment being as follows:

"*The corporation hereby created* ['Cornell University'] *may take and hold real and personal property to such an amount as may be or become necessary for the proper conduct and support of the several departments of education heretofore established or hereafter to be established by its board of trustees, and such property, real and personal, as has been or may hereafter be given to said corporation by gift, grant, devise, or bequest in trust or otherwise, for the uses and purposes permitted by its charter, and in cases of trusts so created the several trust estates shall be kept distinct, and the interest or income shall be faithfully applied to the purposes of such trust in accordance with the provisions of the act or instrument by which the respective trusts were created.*"

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*Term of office (5 years) expires in 1904, the next group of six in 1905, etc., etc.
(1) *B.*, elected by Board. (2) *A.*, elected by Alumni.

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DEPARTMENTS AND FACULTIES.

1. THE UNIVERSITY.—Cornell University comprehends the following departments, to-wit: the Graduate Department, the College of Arts and Sciences, the College of Law, the Medical College, the New York State Veterinary College, the College of Agriculture, the New York State College of Forestry, the College of Architecture, the College of Civil Engineering, the Sibley College of Mechanical Engineering and Mechanic Arts. The New York State Veterinary College and the New York State College of Forestry are administered by Cornell University, and their work is organically connected with that of the University.

2. THE FACULTIES.—The Faculties of Cornell University are: (a) a General Faculty, designated the University Faculty; and (b) Special Faculties as follows: the Faculty of Arts and Sciences, the Faculty of Law, the Faculty of Civil Engineering, the Faculty of Mechanical Engineering, the Faculty of Architecture, the Faculty of Agriculture, the Faculty of Veterinary Medicine, the Faculty of Forestry, and the Medical Faculty.

3. THE UNIVERSITY FACULTY.—The University Faculty consists of the President, who is *ex-officio* the presiding officer, and the Professors and Assistant Professors of the University, including the Professors and Assistant Professors of the New York State Veterinary College and the New York State College of Forestry. It is the function of the University Faculty to consider questions which concern more than one Special Faculty, questions of University policy, and questions relating to the administration of the discipline of the University. The Graduate Department is under the immediate charge of the University Faculty.

4. THE SPECIAL FACULTIES.—Each Special Faculty is composed of the President, who is *ex-officio* the presiding officer, and all Professors, Assistant Professors, and Instructors who teach in the department or departments under the charge of that Faculty; but Instructors shall not have the right to vote. Subject to the right of revision by the University Faculty on all matters affecting general University policy, it is the duty of each Special Faculty to determine the entrance requirements for its own students; to prescribe and define courses of study for them; to determine the requirements for such degrees as are offered to students under its jurisdiction; to enact and enforce rules for the education of its students; and to recommend to the Trustees such candidates for degrees as may have completed the requirements.

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[*Arranged in groups in the order of seniority of appointment.*]

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CONDITIONS OF ADMISSION.

Candidates must be at least *sixteen* years of age, or if women, *seventeen*. In the College of Law the minimum age is *eighteen* years. The minimum age for these entering as specials is given on page 52. Applicants 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 at the Registrar's office and obtain permits for examination. 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, *in Ithaca* in September, at the beginning of the first term at the dates given below. For examinations in June see below and page 52.

Students who have tried entrance examinations and failed to pass are not entitled to the privilege of admission on school certificates or Regents' credentials.

The certificates issued as the result of the examinations to be held in June by the College Entrance Examination Board of the Middle States and Maryland at Ithaca and various other places will be accepted under the same conditions as if such examinations were held by this University. For further particulars see page 52 and address Secretary of College Entrance Examination Board, Post Office, Sub-station No. 84, New York City.

Permits to take the September examinations must be secured from the Registrar. The permits should be obtained at least twenty-four hours before the date of the examination to be taken. They will be sent by mail upon application.

Permits to take the examinations held June 20–25, 1904 and the times and places at which they are held must be secured from the Secretary of the College Entrance Examination Board, Post Office, Sub-station No. 84, New York City. See also pages 34 and 52.

Students deficient in any of the subjects required for admission, who may be admitted to the University by the Faculty concerned, in spite fo such deficiences, *must make up all deficiencies within one year*, and

they will not in that case be permitted to remove them by attending University instruction in those subjects but are required to take the necessary instruction outside the University. For exception in case of students entering the College of Arts and Sciences, see page 83.

No examination of candidates for admission will be held at any other times or places Specimen copies of September examination papers will be sent on application to the Registrar.

The following table gives the date and hour for each entrance subject as given at Ithaca, September, 1904. It also shows the equivalent subject as given under the College Entrance Examination Board.

Cornell University Subject.	Sept.	Hour.	Equivalent College Board Subject.
1. English	21	9.00	English a, b.
2. Ancient History (to 814 A.D.)	22	9.00	Ancient History.
3. Modern History (from 814 A.D.)	24	9.00	Mediæval and Modern Hist.
4. American History (inc. Civil Government)	24	9.00	American Hist. and Civ. Gov.
5. English History	22	9.00	English History.
6. Plane Geometry	20	3.00	Plane Geometry.
7. Elementary Algebra	21	3.00	Ele. Algebra, I, to Quadratics. II, Quadratics.
8. Solid Geometry	22	9.00	Solid Geometry.
9. Advanced Algebra	24	3.00	Ele. Algebra, III, Prog., etc. Adv. Algebra, I, Series. II, Theory of Equations.
10a. Plane Trigonometry	23	3 00	Plane Trigonometry.
10b. Spherical Trigonometry	23	3.00	Spherical Trigonometry.
11a. Elementary German	22	3.00	Elementary German.
11a and b. AdvancedGerman	22	3.00	Intermediate German.
12a. Elementary French	24	9.00	Elementary French.
12a and b. Advanced French	24	9.00	Intermediate French.
13a. Elementary Spanish	20	9.00	Spanish.
13a and b. Advanced Spanish	20	9.00	———
14. Latin Grammar	23	3.00	Latin Grammar.
14a. Latin Composition	23	3.00	Latin Composition.
14b. Caesar	23	3.00	Cæsar.
14c. Cicero	23	3.00	Cicero.
14d. Virgil	23	3 00	Virgil.
15. Greek Grammar	22	3.00	Greek Grammar.
15a. Greek Composition	22	3.00	Greek Composition.
15b. Xenophon	22	3.00	Xenophon.
15c. Homer	22	3.00	Homer.
16. Physics	22	9.00	Physics.
17. Chemistry	22	3.00	Chemistry.
18. Botany	24	3.00	Botany.
19. Geology	24	3.00	———
20. Zoology	23	3.00	———
21. Drawing	by appointment		———

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 given by the College Entrance Examination Board and those in September given by the University in 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 prescribed subjects of the primary entrance examinations before trying the advanced examinations.

3. No account will be taken of the result of such examinations (except in English) 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 Caesar, or either Virgil or Cicero.

ADMISSION ON EXAMINATION.

(For the specific entrance subjects required for admission see under college concerned.)

1. **In English.** One hour of examination is assigned to answering questions upon the books marked *A*. Two more hours are occupied with writing longer papers upon subjects taken from the books marked *B*.

The books prescribed for 1904, and 1905 are : *A* : Shakespeare, The Merchant of Venice, Julius Caesar ; The Sir Roger de Coverly Papers in the Spectator ; Goldsmith, the Vicar of Wakefield ; Scott, Ivanhoe ; Coleridge, the Ancient Mariner ; Carlyle, Essay on Burns ; Tennyson, The Princess ; Lowell, The Vision of Sir Launfal ; George Eliot, Silas Marner. *B* : Shakespeare, Macbeth ; Milton, Lycidas, Comus, L'Allegro, Il Penseroso ; Burke, Conciliation with America ; Macaulay, Essays on Milton and on Addison.

The examination is not designed to test the candidate's familiarity with the history of English literature or with the minutiae of the books prescribed, but to test his ability to express himself readily and easily in accordance with the usages of ordinary prose composition. To this end the candidate is urgently advised :

a. To train himself in writing concise paragraphs in answer to questions upon the most striking narrative and descriptive incidents in the books of the *A*-list.

b. To study more systematically the contents of the books of the

B-list, endeavoring to retain a knowledge of each book as an organized whole. This result will be best secured by writing numerous essays or compositions of considerable length upon the general purport of each book.

c. To cultivate—in all his writing—the habits of correct grammar and spelling (including proper names characteristic of the books read), of correct sentence-structure, punctuation, and paragraphing.

d. To avoid most carefully the error of believing that the mere oral memorizing of the contents of the books prescribed is the kind of preparation desired. The candidate is expected to learn from these books the art of expressing himself.

In every case the University examiner will treat mere knowledge of the books as less important than the ability to write good English.

(Candidates evincing superior ability in the entrance examination in English are permitted to enter Course 2 or Course 3 without taking Course 1. See under English Department.

No candidate markedly deficient in English will be admitted to any course in the University.

Regents' credentials (see p. 49) are not accepted in place of the entrance examination, unless they cover first year English, second year English, and *either* third year English or English Reading. School certificates are not accepted in place of the entrance examination in English. But candidates coming from schools the certificates of which have been accepted in other subjects may obtain exemption from the one-hour examination in books marked *A*, by submitting specimens of school work upon these books. Printed directions to this end should be procured from the Registrar, not later than the first of January.

Graduates of high schools and academies of approved standing and holders of a Regents' diploma or any sixty academic count Regents' certificate are admitted to the three year course in the College of Law without an examination in English.

The Cornell medical student's certificate issued by the Regents admits to the Medical College. See also under Medical College.

In History, *one* of the four following subjects must be offered :

2. Ancient history, with special reference to Greek and Roman history, and including also a short introductory study of the more ancient nations and the chief events of the early Middle Ages, down to the death of Charles the Great (814 A. D.).

3. Mediæval and modern European history, from the death of Charles the Great to the present time.

4. American history and civil government.

5. English history.

Each of the above topics is intended to represent one year of historical work wherein the study is given five times per week, or two years of historical work wherein the study is given three times per week.

The examination in history will be so framed as to require comparison and the use of judgment on the pupil's part, rather than the mere use of memory. The examination will presuppose the use of good text-books, collateral reading, and practice in written work. Geographical knowledge will be tested by requiring the location of places and movements on an outline map, or otherwise.

(The requirement in History is based on the recommendations of the Committee of Seven of the American Historical Association.)

6. **Plane Geometry.** Including the solution of simple original exercises, numerical problems, and questions on the metric system; as much as is contained in the larger American and English text-books. The nature and scope of the work is shown in "McMahon's Plane Geometry."

7. **Elementary Algebra.** Factors, common divisors and multiples, fractions, equations of the first degree with one or more unknown quantities, involution including the binomial theorem for positive entire exponents, evolution, the doctrine of exponents, radicals and equations involving radicals, quadratics, equations of one or two unknown quantities and equations solved like quadratics, ratio and proportion, and putting problems into equations; as much as is contained in the larger American and English text-books. The nature and scope of the work is shown in "Tanner's Elementary Algebra."

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 o and ∞, the putting of problems into equations—the student should have distinct notions of the meaning and 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 redundance one step follows as a logical consequence of another.

In Advanced Mathematics as much as is contained in the standard American and English text-books on Solid Geometry, Advanced Algebra, and Plane and Spherical Trigonometry. The following topics may be especially noted in :

8. **Solid Geometry.**—The properties of straight lines and planes, of diedral and polyhedral angles, of projections, of polyhedrons, including prisms, pyramids, and the regular solids, of cylinders, cones, and spheres, of spherical triangles; and the measurement of surfaces and solids.

Precise definitions and rigorous proofs are required. Those under examination are expected to make neat drawings, to be able to prove simple propositions that are not in the text-books, and to make simple constructions. Warning is given that the proofs by "limits," as given in the books are generally unsatisfactory.

9. **Advanced Algebra.**—Variation, proportion, inequalities, and incommensurable numbers; the theory of powers and roots, including fraction powers and incommensurable powers; the theory of quadratic equations, including problems in maxima and minima that may be solved by aid of quadratics; the three progressions; the theory and use of logarithms; permutations, combinations, and probabilities; elementary propositions in series including the development and the summation of series and interpolation; continued fractions; elementary propositions in the theory of equations, including the platting of entire functions of one letter and the solution of higher numerical equations; and so much of the theory of numbers as pertains to the properties of prime and composite numbers, and to the multiples and measures of integers and of entire functions of one letter.

In algebra, theory and problem solving have equal weight.

10. **Plane and Spherical Trigonometry.**—The definition and relations of the six principal trigonometric functions, the properties of right and oblique plane triangles, and their solution, including the proof of the necessary formulæ and the use of trigonometric tables; applications of trigonometry to problems in surveying; the properties of triedral angles; and the solution of right and oblique spherical triangles, including the determination of the ambiguous cases.

The trigonometric functions must be defined as ratios, not as lines; and both the definitions and the proofs of trigonometry must be so broad as to apply to all angles, and all triangles, whatever the size or sign of the parts involved.

Special Directions.—Of the preparatory work in Mathematics two things are specially demanded.

That it shall have developed in the student a certain degree of mathematical maturity, and familiarized him with the subject matter and methods of mathematical work.

That it shall have furnished him with those specific facts, an accurate and ready knowledge of which is indispensable in the further prosecution of his professional study.

The first of these demands is fairly well satisfied in the case of students who have conscientiously performed the mathematical work required for a Regents' diploma or for a diploma from one of our better high schools. A careful review of this part of the student's work, given immediately before entering the University, would give him a broader and more comprehensive knowledge, would make clear to him the reasons for many things which he did not understand when he first went over them, and would equip him with better and more rapid methods of work. Thus informed, his work in the University would not only be much easier for him, but it would also mean much more to him, and such a review is therefore advisable.

On the other hand, most students who fail in their university mathematics fail because they are poorly equipped in the second requirement above mentioned. For example: they cannot perform the ordinary operations of algebra either rapidly or accurately, they do not know the theory of quadratic equations, they are lost among trigonometric formulæ, and they blunder when they use logarithms. Instead of spending their time and energy upon their new work, they must spend much of it in studying up those things with which they ought to be familiar, and, thus handicapped, they cannot keep up the pace set by men who are properly prepared, and they cannot do the work that must be done to fit them for the professional work that follows. They become discouraged and disheartened, and they soon rank as third-

rate men, when a little care in their preparation might have made them first rate men.

It is not sufficient that the student *should once have known* his preparatory mathematics ; he must know them *at the time when he begins his work here.* It seems absolutely essential, therefore, that these subjects be very carefully reviewed just prior to entrance.

11. **In Advanced German:** *The examination in advanced German covers the examination in the elementary requirement in that subject.* The attention of teachers preparing students in German is called to the valuable report of the "Committee of Twelve" of the Modern Language Association of America, published by D. C. Heath & Co., Boston. Mailing price, sixteen cents.

Elementary German.—(a) The examination will require an accurate knowledge of the principles of grammar and especially of the declension of articles, adjectives, pronouns, and nouns ; the conjugation of verbs ; the prepositions and their government ; the uses of the modal auxiliaries ; the elementary rules of syntax and word order. The proficiency of the applicant will be tested by questions on the above topics and by the translation into German of simple English sentences. (b) Translation at sight of a passage of easy prose containing no rare words. It is believed that the requisite facility can be acquired by reading not less than two hundred duodecimo pages of simple German.

Practice in pronunciation, in writing German from dictation, and in the use of simple German phrases in the class room is recommended.

Advanced German.—[Equivalent to Intermediate German of the College Entrance Examination Board.] (a) Advanced grammar. In addition to a thorough knowledge of accidence, of the elements of word formation, and of the principal uses of prepositions and conjunctions, the candidate must be familiar with the essentials of German syntax, and particularly with the uses of modal auxiliaries and the subjunctive and infinitive moods. The proficiency of the applicant will be tested by questions on these topics, and by the translation into German of easy connected English prose. (b) Translation at sight of passages from standard classical authors. It is believed that the requisite facility can be acquired by reading, in addition to the amount mentioned under elementary German, at least five hundred pages (a total, with the elementary requirement, of 700 pages) of classical and contemporary prose and poetry. It is recommended that not less than one-half of this reading be selected from the works of Lessing, Schiller, and Goethe.

It is recommended that the candidate acquire the ability to follow a

recitation conducted in German and to answer in that language questions asked by the instructor.

For examination no specific authors or works are designated. An examination in pronunciation and the writing of German from dictation may be included. All applicants for admission are required to present a statement from their teacher, mentioning the text-books used and the authors read, including the number of pages translated from German into English and from English into German.

12. **In Advanced French:** *The examination in advanced French covers the examination in the elementary requirement in that subject.* The attention of teachers preparing students in French is called to the valuable report of the "Committee of Twelve" of the Modern Language Association of America, published by D. C. Heath & Co., Boston. Mailing price, sixteen cents.

Elementary French.—(a) The translation at sight of ordinary nineteenth century prose. It is important that the passages set be rendered into clear and idiomatic English. It is believed that the power of translating at sight ordinary nineteenth century prose can be acquired by reading not less than four hundred duodecimo pages from the works of at least three different authors. Not more than one-half of this amount ought to be from works of fiction. This number of pages is to include not only prepared work, but all sight reading done in class. (b) The translation from English into French of sentences or of a short connected passage, to test the candidate's familiarity with elementary grammar. Elementary grammar is understood to include the conjugation of regular verbs, of the more frequent irregular verbs, such as aller, envoyer, tenir, pouvoir, voir, vouloir, dire, savoir, faire, and those belonging to the classes represented by ouvrir, dormir, connaître, conduire, and craindre; the forms and positions of personal pronouns, the uses of other pronouns and of possessive, demonstrative, and interrogative adjectives; the inflection of nouns and adjectives for gender and number, except rare cases; the uses of articles, and the partitive constructions.

Pronunciation should be carefully taught and pupils be trained to some extent to hear and understand spoken French. The writing of French from dictation is recommended as a useful exercise.

Advanced French: [Equivalent to Intermediate French of the College Entrance Examination Board.] (a) The translation at sight of standard French. It is important that the passages set be rendered into clear and idiomatic English. It is believed that the necessary proficiency in translation at sight can be acquired by reading, in addition to the elementary work, not less than six hundred duodecimo

pages (a total, with the elementary requirement, of 1,000 pages) of prose and verse from the writings of at least four standard authors. A considerable part of the amount read should be carefully translated into idiomatic English. (b) The translation into French of a connected passage of English prose. Candidates will be expected to show a thorough knowledge of accidence, and familiarity with the essentials of French syntax, especially the uses of tenses, moods, prepositions, and conjunctions. Careful attention should be paid to pronunciation and the use of spoken French.

For examination no specific authors or works are designated. An examination in pronunciation and the writing of French from dictation will be included. All applicants for admission are required to present a statement from their teacher mentioning the text-books used and the authors read, including the number of pages translated from French into English and from English into French.

13. **In Spanish:** *Elementary Spanish.*—(a) The rudiments of grammar, including the conjunction of the regular and the more common irregular verbs, the inflection of nouns, adjectives and pronouns, and the elementary rules of syntax. (b) Exercises containing illustrations of the principles of grammar. (c) The reading and accurate rendering into good English of from 100 to 175 duodecimo pages of graduated texts, with translation into Spanish of easy variations of the sentences read. (d) Careful drill in pronunciation and writing Spanish from dictation.

Suitable texts for the elementary work are: Moratin's *El Si de las Ninas;* Caballero's *La Familia de Alvareda;* Alarcon's *El Capitán Veneno*, and *Gil y Zárate; Guzmán el Bueno.*

Advanced Spanish.—(a) The reading of from 250 to 400 pages of modern prose from different authors. (b) Practice in translating Spanish into English, and English variations of the text into Spanish. (c) Continued study of the elements of grammar and syntax. (d) Mastery of all but the rare irregular verb forms and of the simpler uses of the modes and tenses. (e) Writing of Spanish from dictation and memorizing of easy short poems.

Suitable texts for the advanced work are: Galdo's *Doña Perfecta;* Valera's *El Pajaro verde;* Alarcon's *El Final de Norma;* Valdés's *José*, and Padre Isla's version of *Gil Blas.*

14. **In Latin**: Candidates are examined in the entrance requirements adopted by the College Entrance Examination Board. These are:

a. i. LATIN GRAMMAR: The inflections; the simpler rules for composition and derivation of words, syntax of cases and the verbs; struct-

ure of sentences in general, with particular regard to relative and conditional sentences, indirect discourse and the subjunctive: so much prosody as relates to accent, versification in general, and dactylic hexameter.

ii. LATIN COMPOSITION: Translation into Latin of detached sentences and very easy continuous prose based upon Caesar and Cicero.

b. CAESAR: Any four books of the *Gallic War*, preferably the first four.

c. CICERO: Any six orations from the following list, but preferably the first six mentioned: The four orations against Cataline, Archias, the Manilian Law, Marcellus, Roscius, Milo, Sestius, Ligarius, the fourteenth Philippic.

d. VIRGIL: The first six books of the *Æneid*.

15. **In Greek**: Candidates are examined in the entrance requirements adopted by the College Entrance Examination Board. These are:

a. i. GREEK GRAMMAR: The inflections of nouns and verbs; the principles of the syntax of nouns and of verbs; the structure of sentences in general, with particular regard to relative and conditional sentences, and to indirect discourse; versification so far as applied to the dactylic hexameter.

ii. GREEK PROSE COMPOSITION: Consisting principally of detached sentences to test the candidate's knowledge of grammatical constructions.

The examination in grammar and prose composition will be based on the first two books of Xenophon's *Anabasis*.

b. XENOPHON: The first four books of the *Anabasis*.

c. HOMER: The first three books of the *Iliad* (omitting II, 494–end).

16. **Physics.**—Students offering physics for entrance must show an acquaintance with the more important phenomena and with the principles involved in the explanation of them. They must, in addition to a year's work with the text-book, have completed a year of laboratory practice and must be prepared to work simple numerical problems upon the laws of falling bodies; upon the pendulum; upon properties of liquids and gases, including the determination of density; upon thermometry and calorimetry, including specific heats and heats of fusion and liquefaction; upon the relations of current and electromotive force and resistance; upon velocity, wave length, and resonance in sound; upon refractive indices, focal lengths, and the size and position of images in optics. The student must understand and be able to use the metric system in measurement and computation.

The laboratory work offered must be chiefly quantitative in character, and must consist of at least forty exercises or experiments of the character given in Nichols's "Outlines of Physics," or other works similar to this in grade and method. The laboratory work prescribed above must have been performed by the student individually, in evidence whereof he must present his laboratory note book at the time of examination. He must, moreover, be prepared to describe intelligently the method pursued and the results obtained in the experiments which he has performed.

17. **Chemistry.**—Students offering chemistry for entrance should have completed a course substantially equivalent to that outlined in the Report of the College Entrance Examination Board. This course comprises: "The chief physical and chemical characteristics, the preparation and the recognition of the following elements and their chief compounds: *Oxygen*, *hydrogen*, *carbon*, *nitrogen*, *chlorine*, *bromine*, *iodine*, *fluorine*, *sulphur*, phosphorus, silicon, potassium, *sodium*, calcium, magnesium, *zinc*, copper, mercury, silver, aluminum, *lead*, tin, *iron*, manganese, chromium.

"More detailed study should be confined to the italicized *elements* (as such) and to a restricted list of compounds, such as: Water, hydrochloric acid, carbon monoxide, carbon dioxide, nitric acid, ammonia, sulphur dioxide, sulphuric acid, hydrogen sulphide, sodium hydroxide.

"Attention should be given to the atmosphere (constitution and relation to animal and vegetable life), flames, acids, bases, salts, oxidation and reduction, crystallization, manufacturing processes, familiar substances (illuminating gas, explosives, baking powder, mortar, glass, metallurgy, steel, common alloys, porcelain, soap).

"Combining proportions by weight and volume; calculations founded on these and Boyle's and Charles's laws; symbols and nomenclature (with careful avoidance of special stress, since these are non-essential); atomic theory, atomic weights and valency in a very elementary way; nascent state; natural grouping of the elements; solution (solvents and solubility of gases, liquids and solids, saturation); strength (=activity) of acids and bases; conservation and dissipation of energy; chemical energy (very elementary); electrolysis. Chemical terms should be defined and explained, and the pupil should be able to illustrate and apply the ideas they embody. The theoretical topics are not intended to form separate subjects of study, but are to be taught only so far as is necessary for the correlation and explanation of the experimental facts.

"It is recommended that the candidate's preparation in chemistry should include :

a. Individual laboratory work, comprising at least forty exercises.

b. Instruction by lecture-table demonstrations, to be used mainly as a basis for questioning upon the general principles involved in the pupil's laboratory investigations.

c. The study of at least one standard text-book, to the end that the pupil may gain a comprehensive and connected view of the most important facts and laws of elementary chemistry."

The course quoted above includes also the subjects of ionization, mass action and equilibrium. It is, however, undesirable to accord these topics more than mere mention in the elementary course. Moreover, the instruction should not be extended to cover the elements of qualitative analysis, for the time usually at the disposal of the teacher for the presentation of elementary inorganic chemistry is no more than sufficient to properly cover that subject.

The text-book used should be similar in scope and treatment to the "Elementary Chemistry" by Clarke and Dennis, and the laboratory work offered should be substantially equivalent to that given in the laboratory manual by the same authors. A note book containing the student's own description of the laboratory experiments should be kept, and this book, endorsed by the teacher, should be forwarded with the application for credit in entrance chemistry, or, if the examination in this subject is to be taken, should be submitted at the time of the examination. If the note book is sent forward to this University it should be addressed to the Department of Chemistry, Cornell University, Ithaca, N. Y., and all charges should be prepaid. The laboratory note books will be returned to the candidates upon request at any time within one year after the examination.

18. **Botany.**—The student should aim to acquire a knowledge of the general laws and fundamental principles of plant nutrition, assimilation, growth, etc., as exemplified by plants chosen from the different groups, as well as the general comparative morphology and the broader relationships of plants.

The following brief synopsis will suggest the topics and methods of study :

Study protoplasm in plants representing different groups, as sprirogyra, mucor, nitella, and in the tissues of some of the higher plants, in order to demonstrate that this substance, though occurring in widely different plants, is fundamentally the same, and reacts in a similar manner to treatment with certain simple reagents.

Study absorption and osmose in plant cells, employing such plants

as spirogyra, mucor, the cells of some higher plant as the beet, and in the root hairs of a seeedling plant; test the effect of salt solutions in plasmolyzing the cells of these plants, then the restoration of turgescence in the same cells, and the movement of the protoplasmic membrane to demonstrate the part it plays in the process of absorption in plants.

Study nutrition by comparison of soil and water culture in seedlings; study also root pressure; turgidity in plant parts and cell masses; transpiration; the path of movement of liquids in higher plants, and the general structure correlated with these processes; study nutrition of parasites (carnation rust, dodder), of mushroom.

Study the movement of gases in carbon assimilation as shown by spirogyra, vaucheria, elodaea, etc., in respiration as shown in germinating seeds; study forms of chlorophyll bodies and the formation of starch, noting the parts of the plant where these processes take place, and using for comparison, spirogyra, zygnema, vaucheria, oedogonium; liverworts like riccia, marchantia, cephalozia; mosses like funaria, minum; and a few of the higher plants, including lemna.

Study growth of seedlings with reference to increase in length and diameter, direction of growth; irritability shown by movement of parts in response to stimuli. (The topics as above arranged, as far as possible represent progression of function, and the study of the lower plants throws great light on the processes in the higher forms, and at the same time familiarizes the student with a few of these lower forms).

Study general morphology, reproduction and fruiting in the different groups. Examples are suggested as follows: Among the algae,—spirogyra, vaucheria, oedogonium, coleochetae; among the fungi,—mucor, saprolegnia, puccinia, (wheat rust), one of the erisypheae (powdery mildews), mushrooms: among the liverworts,—riccia, marchantia, cephalozia; among the mosses,—funaria, mnium, or polytrichum; among fern plants,—a fern, equisetum, selaginella, isoetes; among gymnosperms,—one of the pines; among angiosperms,—one of the monocotyledons and a dicotyledon. (In this study it will be found useful in dealing with the lower plants to use the same plant as often as possible for the different topics, since fewer new names will be introduced and the student can concentrate the mind upon processes and structures. The plants suggested are chosen for a purpose since they represent progression of form and structure. The student should study all the stages suggested from the actual material, using text-books only as aids.)

In the algae, liverworts, mosses, and ferns the organs of reproduction

can usually be easily studied by beginners if material is preserved at the proper stages in advance, or it may be grown as wanted. In the higher plants the study of the reproductive organs is attended with difficulty. Here and in other difficult topics the studies should be supplemented by demonstrations on the part of the teacher, and by collateral reading.

Study the special morphology of the higher plants by careful examination of types in the families of angiosperms. The following are suggested,—ranunculacae, cruciferae, leguminosae, rosaceae, unbelliferae, compositae, labiatae, cupuliferae, salicaceae, liliaceae, araceae, cyperaceae, gerniaceae, orchidaceae.

As a part of the examination, careful notes and drawings must be presented as evidence that the work on the several topics outlined above has been faithfully and successfully accomplished. Those who wish to prepare an herbarium in addition, may present the same as partial evidence, but weight will be given to this only when the herbarium is prepared with a view of illustrating some definite problem either of relationship or of ecological study, as plant distribution in relation to soil, topography of the country, plant formations, etc.

19. **Geology.**—To meet the requirement in geology it will be neccessary to devote to the study at least five periods a week for one year. Of this time not less than two periods a week must be given to laboratory and field work. The text-book used should cover the ground treated in such books as Scott's "Introduction to Geology," Geikie's "Class Book of Geology," and Tarr's "Elementary Geology;" but in addition to the subjects included in these books the student will be expected to do collateral reading in such works of reference as Geikie's "Text-book of Geology," Dana's "Manual of Geology," Lyell's "Principles of Geology," and LeConte's "Elements of Geology." It would also be well to refer to books treating portions of Geology more specifically, such as Dana's "Characteristics of Volcanoes," Dana's "Corals and Coral Islands," Russell's "Volcanoes," Russell's "Lakes," Wright's "Ice Age in North America," Russell's "Glaciers," etc. The examination will test not merely the knowledge upon the text-book itself, but also the range and thoroughness of the work done with reference books. Carefully written digests of the parts read in the reference books, if certified to by the teacher, may be offered in evidence of the amount of work done with them.

Much stress will be placed upon that part of the examination testing the laboratory and field work. This laboratory and field work should in large measure be made a study of the home geology; and evidence of good work in this connection will be necessary in order to

pass the subject. Note books, certified to by the teacher, may be presented as evidence of work done in the field and laboratory.

In the laboratory the common minerals and rocks should be studied so that the pupil may identify them without difficulty. Photographs of geological phenomena should also be studied, and training be given in the interpretation of geological maps. An elementary knowledge of paleontology should be obtained by the study of some of the common fossils ; and if the school is situated in a fossiliferous region, field work in statigraphic geology should be included, together with the collection of fossils and their identification in the laboratory. Some hints concerning the nature of the work expected in the laboratory and the field may be gained from Tarr's "Suggestions for Laboratory and Field Work in High School Geology."

20. **Zoology.**—The examination in Zoology will consist of two parts as follows :

a. **Invertebrate Zoology.**—The candidate must have devoted the equivalent of five periods a week for at least one-half year to the study of invertebrate zoology ; and the greater part of this work must have been laboratory practice in the observation of living forms and in dissection. His laboratory notes and drawings, endorsed by the teacher, will be required at the time of the examination as evidence of the nature of this part of the work. This laboratory practice should include a study of at least thirteen of the forms named in the following list : amœba, paramœcinm, hydra, sea-anemone, star-fish, sea-urchin, earth-worm, cray-fish, lobster, spider, millipede, centipede, locust, (grasshopper), dragon-fly, squash-bug, butterfly, bumblebee, clam, snail and squid.

The laboratory work must be of the character given in Needham's "Elementary Lessons in Zoology," Colton's "Practical Zoology," Kellogg's "Elementary Zoology," or other works similar to these in grade and method. In addition to the above books, the student should have access to some advanced work like Parker and Haswell's "Text-book of Zoology," or Adam Sedgwick's "Student's Textbook of Zoology," 1898, for reference.

The examination will call for a discussion of the habitat, mode of life, and post-embryonic development (transformation) as well as of the morphology of the forms studied.

b. **Vertebrate Zoology.**—To meet the requirement there should be submitted drawings and notes in evidence of the dissection of the viscera of forms representing groups as follows : Mammal (cat, dog, monkey, rabbit, rat or opossum) : Bird (common fowl, pigeon, or other convenient form); Reptiles (serpent, and either a turtle or an

alligator) ; Batrachians (salamander, toad or frog, and a tadpole) ; "Fishes" (sturgeon, amia, or gar ; cat-fish, sucker, carp, or other soft-rayed fish ; bass, perch or other spiny-rayed fish ; shark or ray ; lamprey or hag ; lancelet (amphioxus), and a simpie tunicate, *i. e.*, boltenia or molgula).

Particular attention should be paid to the brain, the heart and the respiratory apparatus. The muscles of the arm and leg should be dissected upon a mammal, a bird, and a reptile, and the differences pointed out. There must be prepared a skeleton (which need not be mounted) of a mammal, bird, or fish ; and skulls of at least five other vertebrates. (In preparing these remember that the hyoid goes with the skull.) The skulls, with proper labels, must be submitted at the examination.

Two mammals should be compared in respect to their habits, food, mode of locomotion, etc. ; likewise two birds, two reptiles, two batrachians, and two "fish."

Besides the practical work above indicated, the student must gain from lectures, or from text-books designed for high schools or colleges (*e. g.*, Parker and Haswell's "Text-book of Zoology," 1897, or Adam Sedgwick's "Student's Text-book of Zoology," 1898), a comprehensive knowledge of the members of the classes or groups represented by the forms studied as described above. This knowledge must include their geographical distribution, habits, and relation to human beings, whether beneficial or injurious, directly or indirectly ; the relations of the young to the parent in respect to oviparity and viviparity and the exceptions to the general rules ; the form and structure of the red blood corpuscles and the exceptions to the general rules. In case some point of information in your note book is derived from a text-book or a cyclopedia, give an exact reference to the source of information.

21. **Drawing.** See under Architecture and Mechanical Engineering.

ADMISSION WITHOUT EXAMINATION.

(For the specific entrance subjects required for admission see under college concerned).

I. On Regents' Credentials.

Diplomas and sixty count academic certificates 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 credentials, including upon the recommendation of

the University departments concerned, the subjects of French, German, Spanish, Physics, Chemistry, Botany, Geology, and Zoology. A statement from the teacher giving in detail the work done and the proficiency attained in these subjects, must be submitted by the holder of the credentials.

No other credentials, including pass cards and certificates (for exceptions see under Veterinary and Medical Colleges), issued by the Regents are accepted unless they are presented by the holder of a Regents' diploma or sixty count academic certificate.

Students who have tried entrance examinations and failed to pass are not entitled to the privilege of admission on school certificates or Regents' credentials.

If a student fail in any subject in the University that depends upon an entrance subject, for which Regents' credentials have been accepted, the credits for that entrance subject may be cancelled.

To secure exemption from the entrance examinations in English, (see page 35), the Regents' diploma or sixty count academic certificate must cover first year English, second year English, and *either* third year English or English Reading.

Application for credit in all subjects for which credit is desired must be made at the time of the admission of the applicant, and not be postponed to any later date in his course.

Diplomas, certificates, and statements should be sent by mail to the Registrar before the opening of the term.

II. On School Certificates.

(For the specific entrance subjects required for admission, see under college concerned.)

The following rules and regulations have been adopted by the University Faculty of Cornell University on the subject of admission by certificate :

1. Certificates of work done in public and 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, and has been duly graduated after at least one year in the school, and the University authorities are satisfied regarding the standing of 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 thor-

oughness of the studies and course in which instruction is given. In case a catalogue or circular is published, a copy thereof should also be furnished.

4. Admission by certificate is in all cases provisional. If a student fail in any subject in the University that depends upon an entrance subject for which a certificate has been accepted, the credit for that entrance subject may be cancelled. Certificates from schools whose students prove to be imperfectly fitted will ultimately not be considered.

5. Subjects in which an examination has been passed for admission to the school, may be included in the certificate, but in all cases the full information called for by the blank should be given.

6. *No school certificate will be accepted in place of the entrance examination in English* (*see pages 35, 36, and 59*).

7. The committee having charge of the acceptance of certificates may meet at any time during the collegiate year, but the certificate should be forwarded as soon after the graduation of the student as is possible, and at least as early as the first of September.

8. The University does not engage in advance to accept the certificates of any school, and the previous acceptance of such certificates merely raises the presumption that similar certificates may be accepted again, but does not establish a permanent right to such acceptance.

9. Application for credit in all subjects for which credit is desired, must be made at the time of the admission of the applicant, and not be postponed to any later date in his course.

10. Students who have tried entrance examinations and failed to pass are not entitled to the privilege of admission on school certificates or Regents' credentials.

III. On the Certificates of the College Entrance Examination Board.

(For specific entrance subjects required for admission see under college concerned.)

The certificates issued as the result of the examinations to be held in June by the College Entrance Examination Board of the Middle States and Maryland at Ithaca and various other places **will be accepted under the same conditions as if such examinations were held by Cornell University.** See pages 33 and 34.

Students who have tried entrance examinations and failed to pass are not entitled to the privilege of admission on school certificates or Regents' credentials.

In June, 1904, the entrance examinations of Cornell University will

be the equivalent examinations of the College Entrance Examination Board, of which Cornell University is a member. These examinations will be held June 20–25, 1904. See also page 34.

All applications for examination must be addressed to the Secretary of the College Entrance Examination Board, Post-Office Sub-Station 84, New York, N. Y., and must be made upon a blank form to be obtained from the Secretary upon application.

Applications for examination at points in New England, the Middle States, or Maryland, must be received at the office of the Secretary not later than June 6.

Applications for examination at other points in the United States or in Canada must be received not later than May 30.

Applications for examination at points outside of the United States and Canada must be received not later than May 16.

Applications received later than the date named will be accepted when it is possible to arrange for the examination of the candidates concerned, *but only upon payment of five dollars in addition to the usual examination fee.* Candidates filing belated applications do so at their own risk.

The examination fee is five dollars for all candidates examined at points in the United States and Canada, and fifteen dollars for all candidates examined at points outside of the United States and Canada.

Candidates for admission to Cornell University who are examined at Ithaca, N. Y., in English alone, will in 1904 be required to pay an examination fee of only one dollar. If, however, the applications of such candidates are not received by the Secretary of the College Entrance Examination Board on or before June 6, 1904, an additional fee of five dollars must be paid.

A list of the places at which the examinations are to be held in June, 1904, will be published about March 1. Requests that the examinations be held at particular points, to receive proper consideration, should be transmitted to the Secretary not later than February 1.

All communications on this subject and all certificates must be addressed to the Registrar, from whom also blank forms for certificates may be obtained.

For further particulars see page 33 and address Secretary of College Entrance Examination Board, Postoffice Sub-station No. 84, New York City.

IV. As Special Students.

Persons of the requisite age may be admitted as special students, without examination, provided they give evidence of ability to do creditably special work in the University, are recommended to the

Faculty concerned by the professor in charge of the department of study in which they desire to take a large part of their work, and have not already been admitted to the University, nor, having applied for admission, been rejected. By Faculty action, the recommendation of a special student is to be referred to a committee for provisional acceptance before final ratification by the Faculty concerned. Such students may graduate in any of the courses, on condition of passing all the required examinations, including those for admission. Students are not permitted to make up deficiencies in entrance subjects by attending university instruction in those subjects, but are required to take the necessary instruction outside of the University. Special students are subject to the same regulations in regard to examinations and number of hours as students in the other courses.

Special students in the College of Arts and Sciences are admitted at the age of twenty-three years.

Candidates for admission as special students should apply to the Registrar for application blanks and should correspond directly with the professor in whose department they expect to take work, in order to secure a recommendation.

Special students in the College of Law are admitted at the age of twenty years.

Special students in the College of Agriculture are admitted at the age of eighteen years.

Special students in the College of Architecture and Sibley College are admitted at the age of twenty-one 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.

The College of Civil Engineering admits as special, students of the age of twenty-one, only graduates of other institutions pursuing advanced work, when the applicants are not candidates for a degree.

ADMISSION TO ADVANCED STANDING.

1. **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 (for exception see under College of Law) to any class at the beginning of any term not later than the first term 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 pages 50, 51.

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.

2. **Without Full Examinations.** Applicants for a baccalaureate degree coming from other colleges and universities, may be admitted (for exception see under College of Law) provisionally to such standing and upon such terms as the Faculty concerned 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 for a baccalaureate degree is required, at the time of making his application, to forward to the Secretary of the Faculty concerned, (application for admission to the College of Arts and Sciences should be forwarded to the Registrar of the University) along with a catalogue of the institution in which he has studied, a careful statement, duly certified to, of the studies which he has pursued, and the degree of proficiency attained therein, including his record at the *entrance* examinations and a letter of honorable dismissal. This statement should be made as full as possible, giving details of subjects taken, authors read, and in mathematics, the text-books used. To avoid delay in arranging the course, these credentials should be presented at an early date in order that the status of the applicant may be determined as far as is feasible before his arrival. Applications for credit in all subjects for which credit is desired, must be made at the time of the admission of the applicant, and not be postponed to any later date in his course.

A student who has thus been admitted provisionally to a class, is considered to be in full and regular standing in that class, if, having taken the regular studies of the course he give proof, by passing term examinations, that he is able to go on satisfactorily with the class to which he has been temporarily assigned. Should he be unable to pass these examinations, special examinations may then be held or the terms of his admission revised, and he shall take the position and rank to which he may thereby be found entitled.

Admission to the Graduate Department.—Applications for admission to the Graduate Department are to be addressed to the Dean of the University Faculty. See page 70.

RESIDENCE AND GRADUATION.

REGISTRATION EACH TERM.

At the beginning of every term each student must obtain a Certificate of Registration from the Registrar of the University, and no student, after having been once admitted to the University, will be allowed to register after the close of the Registration Day, except by special permission of the Faculty concerned.

REGISTRATION OF STUDIES.

Students in all undergraduate courses register at the beginning of the collegiate year at the Registrar's office for the work of the entire year. No credit will be allowed for work not so registered. Changes in registration will not be allowed later than one week after Registration Day in the first term except by special permission of the Faculty concerned.

EXERCISES OF THE TERM.

In the College of Arts and Sciences, students may take twelve to sixteen hours; but no student will be graduated until he has passed successfully examinations in work which shall amount to an aggregate of fifteen hours a week during the entire four years, exclusive of the requirement of drill and gymnasium.

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 drafting or shop work, are regarded as the equivalent of one recitation or lecture.

PAYMENTS TO THE UNIVERSITY.

Annual Tuition Fees.

(FOR FREE TUITION SEE PAGE 56.)

	Regulars.	*Specials.*
Graduate Department (General)	$100	—
Graduate Department (Technical)	125	—
College of Arts and Sciences	100	$125
Law	100	125
Medicine	150	150
Veterinary	100	125
Agriculture (for free tuition see p. 56)	100	125

	Regulars.		*Specials.*
Architecture	125		125
Civil Engineering	125		125
Mechanical Engineering	125		125

The $100 tuition is payable $55 at beginning of first term and $45 at beginning of second term; the $125, $70 and $55; the $150, $85 and $65; in the Medical College in New York City, the entire fee is paid at the beginning of the year.

These fees must be paid at the office of the Treasurer within twenty days after the registration day announced in the calendar.

Tuition is free to the students with State scholarships; to New York State students in the State Veterinary College; to students pursuing the prescribed course in Agriculture and intending to complete that course; and to special and graduate students in Agriculture taking at least two-thirds of their entire work in the departments of agriculture, horticulture, and in the courses in agricultural chemistry, entomology, origin of soils, diseases of farm animals, and zootechny.

Any student who has received free tuition under the above regulations and who desires to change to a course for which tuition is charged, must first pay to the Treasurer of the University the tuition fees for the full time spent in the free tuition course.

Other Fees.

Students taking work in Sibley College are charged $10 per half-year for material and extra expenses.

An incidental fee of $7.50 per half-year, to cover cost of materials used, is required of all students in Agriculture, except those in the first two years of the regular course.

A fee of $5, to cover expenses of graduation, degree, etc., is charged to each person taking the baccalaureate degree. This fee must be paid at least ten days before Commencement. The amount will be refunded should the degree not be conferred.

The fee charged for an advanced degree is $10, and it must in all cases be paid at least ten days before Commencement. The amount will be refunded should the degree not be conferred.

Every person taking laboratory work or practicums in chemistry, physics, zoology, botany, or entomology, must deposit with the Treasurer security for the materials to be used in the laboratory or in the practicums. Supplies in the chemical and physical departments are furnished at New York City list prices. Students residing in University buildings must pay their room bills one half-year in advance. All the members of the University are held responsible for any injury done by them to its property.

EXPENSES.

The expense of text-books, instruments, etc., varies from $25 to $75 per annum.

The cost of living in Ithaca, including board, room, fuel, and lights, varies from $4 to $10 per week. By the formation of clubs, students are sometimes able to reduce their expenses to $3.50 per week for room and board, and occasionally to even less than that amount.

A fair estimate of the yearly expenses is from $300 to $500, but much depends on the personal tastes of the student.

The cost of board, rent of furnished room, fuel, and lights, in Sage College or Sage College Cottage, which are 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. Both buildings are warmed by steam, lighted by electricity, and, in most cases, the sleeping apartment is separated from the study.

The responsibility for the conduct of the students living in Sage College and the Cottage rests with the Warden of Sage College.

Letters of inquiry in regard to board and rooms at the Sage College and the Cottage should be addressed to Mr. G. F. Foote, Business Manager of Sage College, Ithaca, N. Y.

GRADUATION.

The First Degree.

The degrees of Bachelor of Arts, Bachelor of Laws, Bachelor of the Science of Agriculture, Doctor of Veterinary Medicine, Doctor of Medicine, Bachelor of Architecture, and the corresponding degrees of Civil Engineer and Mechanical Engineer, are conferred after the satisfactory completion of the respective courses.

The single degree of Bachelor of Arts will be conferred on students in the College of Arts and Sciences.

All these courses, except the courses in Law and Veterinary Medicine, 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 concerned; 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.

The courses in Law and Veterinary Medicine require three years each for their completion.

SCHOLARSHIPS AND PRIZES.

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, N. Y.

Holders of State Scholarships are notified that failure to register before the close of registration day of each term involves the severance of their connection with the University and consequently the forfeiture of their scholarships. The President of the University is required by law to send immediate notice of such vacancies to the Superintendent of Public Instruction and the Superintendent fills vacancies forthwith.

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 purposes 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 UNDERGRADUATE SCHOLARSHIPS.

Pursuant to the action of the Trustees there will annually be thrown open to competition for all members of the freshman or first year class who are registered in courses leading to first degrees, at a special

examination held *at Ithaca* at the beginning of the freshman year, eighteen scholarships of the annual value of $200 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 the competitor was fitted for college, and the name of the principal of the school; and these names remain in the Register so long as the Scholarship is retained.

The statute in regard to scholarships is as follows:

1. There have been established by the University thirty-six undergraduate scholarships each of the annual value of $200.

2. These 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; the Stewart L. Woodford Scholarships.

3. These Scholarships are given for the first two years of any course on the basis of excellence in special examinations held at the beginning of the freshman year.

4. Recipients of the above scholarships must be free from entrance conditions.

5. These scholarships 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. Previous to entering this competitive examination, however, candidates are required to pass satisfactorily at the University the regular entrance examination in English, or the entrance examination in English given by the College Entrance Examination Board, or by offering satisfactory Regents' credentials covering first year English, second year English, and either third year English or English reading. See page 33 and 51. *Other diplomas and School certificates* are not accepted in place of this English examination.

(a). Algebra through quadratic equations, and plane geometry.

(b). Solid geometry, advanced algebra, plane and spherical trigonometry.

(c). Greek.

(d). Latin.

(e). French.

(f). German.

The above examinations cover substantially the same ground as the extrance examinations in the respective subjects. See pages 37, 38, 39, 40, 41, 42 and 43.

6. The holder of a University Undergraduate Scholarship shall forfeit the right to the same in case said scholar shall during incumbency change the course registered in 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, and all candidates must state before the scholarships are awarded what course they intend to pursue.

7. All persons shall be debarred from the competition for these Scholarships, 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.

8. These Scholarships 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 holders have been guilty of negligence, or failure to maintain a high standard of scholarship, or of conduct of any kind that is unbecoming students holding such Scholarships.

9. Whenever any of these Scholarships shall for any reason become vacant, the vacancy shall be filled as the Faculty may determine.

10. The moneys due on these Scholarships are paid at the office of the Treasurer of the University in two equal payments, on the 15th of February, and the 15th of June, upon the certificate of the chairman of the Scholarship Committee that the record of the holder is satisfactory.

The Frank William Padgham Scholarship has an annual value of $150 and will be assigned to the best competing candidate in the scholarship examination in the studies required for entrance to the regular course in Mechanical Engineering, who shall have had his preparatory education in the public schools of Syracuse, N. Y. For particulars address the Registrar. See also under Sibley College..

The Alumnæ Scholarship is an undergraduate scholarship of $100 for the present University year, and a like sum for each year hereafter so long as the sum is raised by the Associate Alumnæ by annual subscription. The scholarship is to be given under the following conditions :

1. It shall be awarded to a self-supporting woman who has already spent at least one year in the University as a student.

2. The basis of award shall be excellence of scholarship as shown by the University records, and a need of financial aid.

3. The nomination for the scholarship shall be made by a committee of the Alumnæ, who, after consultation with the Dean of the University Faculty and the Registrar as to the standing of the applicants, shall decide as to which one of them will be most benefited by the financial aid of the scholarship.

4. The approval of said nomination by the President of the University shall constitute an appointment.

The Boardman Senior Law Scholarship. A senior law scholarship of the value of one hundred dollars, the gift of Judge Douglass Boardman, the first Dean of the College, is awarded annually by the Faculty of Law in June to the Junior who during the preceding two years has, in the judgment of the Faculty, done the most satisfactory work in the College of Law. It is available during the Senior year and is payable in the same way as other University Scholarships.

PRIZES.

The Woodford Prize, founded by the Hon. Stewart Lyndon Woodford and consisting of a gold medal of the value of one hundred dollars 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 member of the graduating class who is to receive a degree at the coming Commencement, and who does not already hold a first degree, may be a competitor.

2. Every competitor shall be required to submit, at the Registrar's office on or before April 1st, an original oration upon a subject which shall have previously been approved by the Assistant Professor of Elocution and Oratory.

3. The competing orations shall be limited to fifteen hundred words and shall be written with a typewriter.

4. The orations submitted shall be read in private by their authors to a committee appointed by the Faculty, after which the committee shall examine the orations and shall select the best, not to exceed six in number, for delivery in public. The names of the successful writers shall be announced as early as practicable.

5. The contest for the prize will take place on the evening of the first Friday of May, under the direction of the President of the University.

6. The prize shall be awarded by a committee of three, to be ap-

pointed by the President, and wherever practicable, from persons not resident in Ithaca.

7. The prize shall not be conferred unless the successful competitor shall complete his course and take a degree at the Commencement next following.

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, which shall, after the completion of the competition, deposit the orations permanently in the University Library.

The '86 Memorial Prize is an undergraduate prize for declamation to be awarded at a public contest held in May of each year, being the income of a sum of money left as a memorial by the class of 1886, and amounting to eighty-six dollars annually. The conditions of the contest are as follows, viz. :—

1. The Assistant Professor of Elocution and Oratory is empowered to select from the students pursuing the courses in Public Speaking, twelve speakers, whose general excellence, in his judgment, warrants their competing for the prize.

2. The announcement of this selection is to be made not later than May 1st.

3. The contest for the prize takes place on the evening of the fourth Friday in May, under the direction of the Assistant Professor of Elocution and Oratory.

4. The prize is awarded by a committee appointed by the President of the University.

The Horace K. White Prizes in Veterinary Science. See under the New York State Veterinary College.

The Sibley Prizes in Mechanic Arts.—See under Sibley College.

The Mrs. A. S. Barnes Shakespeare Prize.—A prize of fifty 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 essay must be written with a typewriter, 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 Essay will be :

For 1903–1904. Shakespeare's use of English history in the service of his own independent dramatic motives, in his English historical plays, including Macbeth and King Lear.

For 1904–1905. The fatalism of passion exhibited in Shakespeare's tragedies, including Antony and Cleopatra.

The Fuertes Medals.—See under the College of Civil Engineering.

The '94 Memorial Prize is an undergraduate prize for debate to be awarded at a public contest held in January of each year, being the income of a fund established by the class of 1894 and amounting to about twenty-five dollars annually. The conditions governing the debate are as follows :

1. Any undergraduate student of Cornell University may become a competitor for this prize.

2. From the whole body of competitors there shall be selected by the University Faculty, in such manner as may seem best, the debaters, not to exceed eight in number, who shall take part in the final competition.

3. The final competition shall take place at a public debate to be held annually, under the direction of the President of the University, at such date and place and in such manner as shall be from time to time determined by the University Faculty.

4. The question for each competition shall be selected by the Professor of Oratory, subject to the approval of the University Faculty, and shall be publicly announced by him at least four weeks before the date set for each debate.

5. The prize shall be awarded by a committee of three judges appointed annually by the President of the University, to that competitor who shall be deemed by them the most effective debater, account being taken both of his thought and of its expression.

6. Any undergraduate who has already taken the prize may be selected by the University Faculty as an additional speaker, but may not be awarded the prize.

The Charles Goodwin Sands Memorial Medals.—See under College of Architecture.

The Clifton Beckwith Brown Memorial Medals.—See under College of Architecture.

The Guilford Essay Prize, founded by the late James B. Guilford to promote "a high standard of excellence in English prose composition," consists of about $150, being the annual income from his bequest of $3,000. The prize may be competed for under the following conditions :

1. Competition is open to all undergraduates in the University. An undergraduate in the meaning of this clause is any person who is registered in Cornell University as a candidate for the first degree, and who has not already received such an academic degree as would entitle him to register in the Graduate Department.

2. A winner of the prize shall not be eligible for subsequent competition.

3. Each competitor must submit a prose essay of his own composition, not less than five thousand nor more than eight thousand words in length.

4. The choice of subject is left to the discretion of the writer.

5. Essays offered in competition must be typewritten, on one side of the paper 8 x 10½ inches in size, and double spaced. Each essay must be signed with an assumed name. The real name of the competitor is to be enclosed in a sealed envelope, superscribed with the assumed name.

6. The essays and envelopes are to be deposited with the Registrar on or before the first Monday of March of each year.

7. The essays shall be examined first by a committee of three, appointed each year by the President from the University Faculty. This committee shall report to the Faculty such essays, not to exceed seven in number, as they may judge worthy of final consideration.

8. The essays thus selected shall be submitted to a second committee, appointed by the President and composed, when practicable, of persons not connected with the University. This committee shall recommend to the Faculty the essay which, in the judgment of the committee, is deserving of the prize.

9. The essay to which the prize is awarded shall be retained by the University and deposited in the University Library. The University also reserves the right of publishing the essay in its discretion.

10. It is a condition imposed by the donor "that in case none of the essays submitted in any given year shall, in the judgment of the Faculty, reach a high standard of literary excellence, the prize shall not be awarded, and the income for that year shall be constituted a special scholarship to be assigned to that graduate student studying at the University, who, in the judgment of the Faculty, writes the best English prose.

The Caroline Rollin Corson Dante Prize, established by Professor Hiram Corson and consisting of a gold medal of the value of $50, will be awarded annually for the best essay on some assigned subject connected with the Divina Commedia or other works of Dante. The recipient of the medal must be a graduate student or a member of the senior class and must have a good knowledge of the Italian language. This prize is never to be awarded in money.

The Hiram Corson Browning Prize, established by Professor Hiram Corson and consisting of a gold medal of the value of $50, will be awarded annually for the best essay on some assigned subject connected with the poetry of Robert Browning. The recipient of the medal must be a graduate student or a member of the senior class. This prize is never to be awarded in money.

Prizes in German.—An annual prize of one hundred dollars has been offered for three years by an eminent scholar interested in German literature, to the undergraduate who shall present the best essay upon the works of some representative German author. The prize for 1903–04 will be awarded for the best essay upon English translations of Schiller's dramas, embodying a literary estimate of the same and of English translations, having regard to fidelity, felicity of rendering, and poetic form. For 1904–05 the subject will be Goethe's Faust, First and Second Parts. For 1905–06, the subject will be Lessing's dramas.

GRADUATE DEPARTMENT.

Courses appropriate for graduate students and leading to advanced degrees are provided in the various departments, as indicated in the list of courses of instruction, and in the description of the departments and colleges. An inspection of these courses will show that the amount of instruction offered is greatly in excess of the amount of which any person can take advantage while an undergraduate student. Many of the courses are open to undergraduates who have prepared themselves by taking the necessary preliminary electives, but a large number of courses are specially adapted to the wants of graduate students. No sharp line of demarcation separates the two classes, 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 seminaries 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 specially to graduates of those colleges elsewhere which do not offer a large range of electives during the undergraduate course.

LABORATORY AND SEMINARY FACILITIES.

In 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 truly scholarly spirit. The greater part of such work is carried on in the numerous well-equipped 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.

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. The great library building, with its rich collections, affords an attractive and inspiring environment.

FELLOWSHIPS AND GRADUATE SCHOLARSHIPS.

Applications for fellowships and graduate scholarships should contain a full statement of the branches of study which the candidate

intends to carry on, if appointed; and if any literary or scientific work has been produced which could be put in evidence, specimens should accompany the application. Those candidates who are graduates of other colleges or universities should submit recommendations from the instructors best acquainted with their ability and attainments in the special subjects which they desire to pursue. It should be borne in mind by such applicants that information cannot be too exact or detailed in the case of students not personally known to the appointing body.

The Statute in regard to Fellowships and Graduate Scholarships is as follows:

1. There have been established at this University the following Fellowships and Graduate Scholarships:

(a). Eight University Fellowships, denominated respectively, 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.

(b). Five University Fellowships.

The above thirteen University Fellowships have been assigned to the following Departments or groups of Departments: Mathematics, Chemistry, Physics, Civil Engineering, Neurology and Physiology and Vertebrate Zoology (including Anatomical Methods and Human Anatomy and Microscopy, Histology, and Embryology) with Invertebrate Zoology and Entomology, Botany and Geology, Architecture, Agriculture and Horticulture and Veterinary Science, English, Germanic Languages, Romance Languages, one each; Mechanical and Electrical Engineering, two.

(c). Two President White Fellowships, denominated; first, the President White Fellowship of Modern History; second, the President White Fellowship of Political and Social Science.

(d). Three Susan Linn Sage Fellowships in Philosophy.

(e). Two Fellowships in Political Economy.

(f). Two Fellowships in Greek and Latin.

(g). One Fellowship in American History.

The President White Fellowships in History and in Political and Social Science have an annual value of $600 each; the others have an annual value of $500 each.

(h). Six Graduate Scholarships in the Susan Linn Sage School of Philosophy, each of the annual value of $300.

(i). Ten Graduate Scholarships, each of the annual value of $300, have been assigned to the following Departments or groups of Depart-

ments: Mathematics, Chemistry, Physics, Civil Engineering, Latin and Greek, Archæology and Comparative Philology, Neurology and Physiology and Vertebrate Zoology (including Anatomical Methods and Human Anatomy and Microscropy, Histology, and Embryology), with Invertebrate Zoology and Entomology, Botany and Geology, English, History, one each.

(j). The Oliver Graduate Scholarship in Mathematics, founded November, 1896, in memory of Professor James Edward Oliver, has an annual value of $300 and is awarded under the same conditions as other graduate scholarships.

2. All candidates for Fellowships and Graduate Scholarships must be graduates of this University, or of some other institution having equivalent courses of instruction, and must be of high character and marked ability in some important department of study.

3. Fellows and Graduate Scholars will be selected by the University Faculty on the recommendation of the department in which the applicants desire to carry on the principal part of their work.

4. All applications must be filed with the Registrar on or before the 15th of April of the collegiate year preceding the one for which the application is made. Blank forms for application may be obtained from the Registrar.

5. The term of each Fellowship and Graduate Scholarship is one year; but the term may be extended to two years, providing the extension does not increase the number of Fellows and Graduate Scholars beyond that named in paragraph 1 of this act.

6. The moneys due on Fellowships and Graduate Scholarships are paid at the office of the Treasurer of the University in two equal payments, on the 15th of January, and the 1st of June.

7. In view of the fact that practical University instruction will be of use in training said Fellows and Scholars for future usefulness, each holder of a Fellowship or Graduate Scholarship shall be liable to render service to the University in the work of instruction or examination to the extent of four hours per week through the collegiate year. The distribution and assignment of this service shall be determined by the head of the department in which the Fellow or Scholar is doing the principal work. It is expected that the President White Fellows in History and Political Science will do a large part of their study in the President White Library, and to this end it is required that, except when, with the consent of the Librarian of the University, they are excused or assigned to other duties by the Professors of History and Political Science, said Fellows shall be in attendance in the Library not less than four hours each per day.

8. No person shall hold at one time more than one Fellowship or Graduate Scholarship, except in the case hereafter specified under paragraph 12 of this statute, and any Fellow or Scholar may be dispossessed of the income of the Fellowship or Graduate Scholarship by action of the University Faculty, if guilty of any offense, or of any course of conduct, which in the opinion of said Faculty shall render the holder unworthy of retaining such Fellowship or Graduate Scholarship ; but final action in such cases by the Faculty shall be by ballot, and shall require a two-thirds vote.

9. Vacancies in Fellowships and Graduate Scholarships that occur after October 1st, in order to be filled, shall require a three-fourths vote of the Faculty present.

10. All persons elected to Fellowships are required, upon accepting their appointments, to file a bond of one thousand dollars (with two sureties to be approved by the Treasurer), to pay 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.

11. In all cases where Fellowships and Graduate Scholarships are not awarded, or when from any cause the income of one or more Fellowships or Graduate Scholarships 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.

12. Either or both of the President White Fellowships in History and Political Science may, in the discretion of the University Faculty, be made a Traveling Fellowship for the purpose of study and investigation, the holder thereof making from time to time to said Faculty such reports of progress as may be required. In the case of a student of very exceptional ability and promise in the fields of either of these Fellowships, the two Fellowships may, in the discretion of said Faculty, for the sake of enabling very thorough research, be combined for a single year into one.

SPECIAL FELLOWSHIP IN ARCHITECTURE.

See under College of Architecture.

Honorary Fellowships.

A class of Fellowships termed Honorary Fellowships was established in 1898. These Fellowships are open only to persons already holding the Doctor's degree. Holders of such Fellowships are to receive no emoluments and are not to be charged tuition. These Fellowships are to be conferred only upon persons actually in attendance at the University.

Admission.

Graduates in the several courses of this University, or of other institutions in which the requirements for the baccalaureate degree are substantially equivalent, may upon the recommendation of the Committee on Graduate Work and Advanced Degrees, be admitted to the graduate department. Such applicants may further be admitted to candidacy for the Master's and Doctor's Degree on recommendation of the same committee, in case the previous course of study and preparation in the major and minor subjects to be pursued, is accepted as adequate by the departments concerned. Graduate students who are not candidates for a degree, as well as those who are, are required to work under the direction of a special committee of the University Faculty, appointed for the purpose of supervising and directing their work. Tuition fees, except in Agriculture, are charged in all cases, including candidacy for degrees *in absentia*.

Applications for admission to the graduate department are to be addressed primarily to the Dean of the University Faculty. Full details should be forwarded of the candidate's previous course of study, the degree desired, and the special preparation already had in the major and minor subjects to be pursued.

The applicant would naturally communicate also with the professors in whose departments he intends to study, as they must ultimately approve of his application.

In acting upon an application for graduate work, the first question to be decided is whether the degree already taken by the applicant is substantially the equivalent of one of the degrees given at this Uuiversity, so that the applicant may be admitted to the graduate department. Full information upon this point is therefore required, including a general statement of the character of the course pursued, with special reference to the amount of mathematics and languages. Blank forms of application may be obtained from the Dean of the University Faculty.

After this point has been decided, the second question is whether the applicant is qualified to enter upon advanced work in the special departments of study in which the advanced degree is desired. In order to decide this question, a specific and detailed statement is to be made of the previous course of study and preparation in the major and minor subjects to be pursued. This statement is then submitted to the departments concerned for approval.

Official evidence of all the above statements must ultimately be presented.

After the status of the applicant is determined by the general committee, he is then put under the supervision of the special committee conducting the work which he desires to pursue. This special committee is made up of the professors in charge of the work in the major and minor subjects. It has been decided by the Faculty that instructors are not eligible for membership on the special committees nor on the committees conducting examinations. The chairman of the special committee, after consultation with the other members of the committee, is assumed to represent their views of action, and to be the regular channel of communication between candidates and the general committee; conveying or indorsing, for instance, petitions from candidates, and forwarding recommendations for changes in the announcements of major and minor subjects, or additions suggested to the membership of the special committee itself, either for the guidance of the work of candidates or to complete the number of examiners.

The function of the general committee is to decide matters of precedent or procedure or policy, securing Faculty action where necessary, and to be the channel of communication between the special committees and the University Faculty.

Advanced Degrees.

Courses of graduate study leading to advanced degrees are provided in the following departments: Semitic Languages, Classical Archæology and History of Art, Comparative Philology, Greek, Latin, Germanic Languages, Romance Languages, English, Philosophy, Science and Art of Education, History and Political Science, Mathematics and Astronomy, Physics, Chemistry, Botany, Entomology and General Invertebrate Zoology, Physiology and Vertebrate Zoology and Neurology, Anatomical Methods and Human Anatomy, Microscopy and Histology and Embryology, Geology and Paleontology and Mineralogy, Agriculture, Horticulture, Veterinary Science, Architecture, Civil Engineering, including Bridge, Railroad, Sanitary, Hydraulic and Geodetic Engineering, and in Mechanical Engineering, including Electrical, Steam and Marine Engineering, Naval Architecture, and Railway Mechanical Engineering.

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 required), which must have been determined upon, with the approval of a committee of the University Faculty, as early as October 15 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 above date is the limit for the acceptance of applications and for the selection of majors and minors, in the case of applicants who desire to receive credit for attendance during the whole of the academic year then entered upon.

The work of candidates for advanced degrees in the general courses must be devoted to those subjects (one major and one or two minors), which may be comprised within the limits of one department of instruction, or may extend to two or three; with the provision, however, that, except in case of special permission to the contrary granted by the University 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 filed with the Registrar, with the written approval of the special committee in charge of the work of the candidate, and be announced to the University 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. Theses accepted are to be delivered to the Registrar on or before the Friday preceding Commencement.

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 which displays the power of independent investigation, and in the second place, by passing corresponding examinations upon the ground covered by the three subjects chosen at the beginning of the candidacy and approved by the University Faculty.

Successful candidates for the degree of Master must deposit one copy of the thesis in the University Library.

Successful candidates for the degree of Doctor must print their thesis and deposit fifty copies in the University Library. In the title page of each of these copies shall appear the statement that the thesis was presented to the University Faculty of Cornell University for the degree in question. Unless the printed copies be previously deposited in the University Library, a type-written copy of the thesis must be delivered to the Registrar on or before the Friday preceding the Commencement at which the degree is conferred. This type-written copy is to become the permanent property of the University.

A text-book, presumably written and published without reference to the degree for which it was presented, will not be accepted in lieu of a thesis.

The final examinations for these degrees may be both oral and written, and in the non-technical courses are to be in charge of a committee of not less than three members, except for the Master's degree, where two members may suffice. These examinations occur in the second week before Commencement, except in the case of candidates who take their examination in a year subsequent to that in which the required amount of resident study was completed. In case of necessity, the examinations may be held during the week next preceding that now fixed for holding them.

In the final examination for advanced degrees, the examination of the thesis shall regularly precede the further examination of the candidate. In the case of students who take the examination in the year subsequent to that in which the required amount of study has been completed, the special committee is authorized to arrange such examinations at any time during the University year; provided that two weeks' notice be given to the chairman of the general committee.

The special requirements for these degrees are as follows:

The Master's Degree.

Hereafter, in place of the degrees of Master of Arts, Master of Philosophy, Master of Letters, and Master of Science, the one degree of Master of Arts is to be conferred. See pages 69 and 70.

Candidates for the Master's Degree whose major subject is in a department under the direction of the College of Agriculture, the College of Architecture, the College of Civil Engineering, or of Sibley College, are required to register for the corresponding Master's Degree, that is, M.S. in Agr., M.S. in Arch., M.C.E., or M.M.E.

The degree of Master of Science in Architecture is to be conferred as heretofore on those who have taken the corresponding baccalaureate degree here, or at some other college or university where the requirements for the said baccalaureate degree are equal to those of this University, in case the candidate has spent at least one year at the University, pursuing an accepted course of study, upon presenting a satisfactory thesis and passing the required special final examinations as above.

The degree of Master of Civil Engineering, Master of Mechanical Engineering, or Master of Science in Agriculture is conferred, after at least one year of resident study, on candidates who have received the corresponding first degree, upon presenting a satisfactory thesis

and passing the required special final examination as above. In special cases graduates of this University, on the recommendation of the special committee that would have charge of their work, may, by vote of the University Faculty in each case, become candidates for the degree of M.C.E., M.M.E., and M.S. in Agr., after two years of professional practice and study *in absentia*.

Candidates for degrees *in absentia* are to appear in person at the University to be examined, and to receive the diploma at Commencement.

The time spent in study for the Master's degree, whether that degree be taken or not, may be counted in the time required for the Doctor's degree, provided the special committee in charge of the work approve, certifying the work done as suitable to such Doctor's degree.

The Degree of Doctor of Philosophy.

Hereafter, in place of the degrees of Doctor of Philosophy and Doctor of Science, the one degree of Doctor of Philosophy is to be conferred.

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 substantially equivalent to that required for graduation in this University in the Academic Department.

2. The candidate is expected to spend at least three years at the University, pursuing a course of study marked out by the University Faculty. Graduate work in a university elsewhere may, by a special vote of the University Faculty, be accepted ; but at least one year's residence at this University is in all cases required.

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. Before the degree is conferred, a type-written copy of the thesis must be deposited in the University Library, unless the required number of printed copies be already deposited. The diploma for the degree shall be withheld until the required number of copies be so deposited. [See also pages 71 and 72].

The work of graduate students is expected to be in large measure independent of the regular courses of instruction. The special announcement of each department and college will, however, indicate the courses which are available as a basis for graduate work.

COLLEGE OF ARTS AND SCIENCES.

FACULTY OF ARTS AND SCIENCES.

JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President.

WALTER FRANCIS WILLCOX, LL.B., Ph.D., Dean, and Professor of Political Economy and Statistics.

GOLDWIN SMITH, D.C.L., LL.D., Professor of English History, Emeritus.

GEORGE CHAPMAN CALDWELL, B.S., Ph.D., Professor of Chemistry, Emeritus, and Lecturer on Chemistry.

HIRAM CORSON, A.M., L.H.D., Professor English Literature, Emeritus, and Lecturer on English Literature.

THE REV. CHARLES MELLEN TYLER, A.M., D.D., Sage Professor of the History and Philosophy of Religion and of Christian Ethics, Emeritus, and Lecturer on the History and Philosophy of Religion and of Christian Ethics.

BURT GREEN WILDER, B.S., M.D., Professor of Neurology, Vertebrate Zoology, and Physiology.

THOMAS FREDERICK CRANE, A.M., L.H.D., Dean of the University Faculty, and Professor of the Romance Languages and Literatures.

JOHN HENRY COMSTOCK, B.S., Professor of Entomology and General Invertebrate Zoology.

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

EDWARD HITCHCOCK, JR., A.M., M.D., Professor of Physical Culture and Hygiene, and Director of the Gymnasium.

EDWARD LEAMINGTON NICHOLS, B.S., Ph.D., Professor of Physics.

JAMES MORGAN HART, A.M., J.U.D., L.H.D., Professor of Rhetoric and English Philology.

JEREMIAH WHIPPLE JENKS, A.M., Ph.D., LL.D., Professor of Political Economy and Politics.

LUCIEN AUGUSTUS WAIT, A.B., Professor of Mathematics.

GEORGE LINCOLN BURR, A.B., Professor of Mediæval History.

CHARLES EDWIN BENNETT, A.B., Professor of Latin.

SIMON HENRY GAGE, B.S., Professor of Histology and Embryology.

GEORGE WILLIAM JONES, A.M., Professor of Mathematics.

JAMES EDWIN CREIGHTON, A.B., Ph.D., Sage Professor of Logic and Metaphysics.

EDWARD BRADFORD TITCHENER, M.A., Ph.D., Sage Professor of Psychology.

GEORGE FRANCIS ATKINSON, Ph.B., Professor of Botany with special reference to Comparative Morphology and Mycology.

RALPH STOCKMAN TARR, B.S., Professor of Dynamic Geology and Physical Geography.

THE REV. NATHANIEL SCHMIDT, A.M., Professor of the Semitic Languages and Literatures.

GEORGE PRENTICE BRISTOL, A.M., Professor of Greek.

CHARLES DE GARMO, Ph.D., Professor of the Science and Art of Education.

EVANDER BRADLEY McGILVARY, A.M., Ph.D., Sage Professor of Moral Philosophy.

LOUIS MUNROE DENNIS, Ph.B., B.S., Professor of Inorganic Chemistry.

JOSEPH ELLIS TREVOR, Ph.D., Professor of General Chemistry and Physical Chemistry.

WILLIAM PERCY VAN NESS, Major, U. S. A., Professor of Military Science and Tactics.

JOHN ROBERT SITLINGTON STERRETT, Ph.D., LL.D., Professor of Greek.

CHARLES HENRY HULL, Ph.D., Professor of American History.

FRANK ALBERT FETTER, A.B., Ph.D., Professor of Political Economy and Finance.

WILLIAM RIDGELY ORNDORFF, A.B., Ph.D., Professor of Organic and Physiological Chemistry.

ERNEST MERRITT, M.E., Professor of Physics.

WILDER DWIGHT BANCROFT, A.B., Ph.D., Professor of Physical Chemistry.

GEORGE SYLVANUS MOLER, A.B., B.M.E., Assistant Professor of Physics.

HERBERT CHARLES ELMER, A.B., Ph.D., Assistant Professor of Latin.

JAMES McMAHON, A.M., Assistant Professor of Mathematics.

WILLIAM ALEXANDER HAMMOND, A.M., Ph.D., Assistant Professor of Ancient and Mediæval Philosophy and Æsthetics, and Secretary of the University Faculty.

WILLARD WINFIELD ROWLEE, B.L., D.Sc., Assistant Professor of Botany with special reference to Comparative Histology and Systematic Botany.

DUNCAN CAMPBELL LEE, A.M., Assistant Professor of Elocution and Oratory.

FREDERICK BEDELL, Ph.D., Assistant Professor of Physics.

GILBERT DENNISON HARRIS, Ph.D., Assistant Professor of Palæontology and Stratigraphic Geology.

ADAM CAPEN GILL, Ph.D., Assistant Professor of Mineralogy and Petrography.

JOHN HENRY TANNER, B.S., Ph.D., Assistant Professor of Mathematics, and Secretary of the Faculty of Arts and Sciences.

FREDERICK CLARKE PRESCOTT, A.B., Assistant Professor of English Language and Literature.

EVERETT WARD OLMSTED, Ph.B., Ph.D., Assistant Professor of the Romance Languages.

WILLIAM STRUNK, Jr., Ph.D., Assistant Professor of English Language and Literature.

CHARLES LOVE DURHAM, A.B., Ph.D., Assistant Professor of Latin.

EMIL MONNIN CHAMOT, Ph.D., Assistant Professor of Chemistry.

ALFRED GUDEMAN, Ph.D., Acting Assistant Professor of Latin.

ALBERT LEFEVRE, Ph.D., Assistant Professor of Philosophy.

ERNEST ALBEE, Ph.D., Assistant Professor of Philosophy.

ISAAC MADISON BENTLEY, Ph.D., Assistant Professor of Psychology.

HEINRICH RIES, Ph.D., Assistant Professor of Economic Geology.

HENRY AUGUSTUS SILL, Ph.D., Assistant Professor of History in charge of Ancient History.

RALPH CHARLES HENRY CATTERALL, A.B., Assistant Professor of History in charge of Modern European History.

JOHN SANDFORD SHEARER, B.S., Ph.D., Assistant Professor of Physics.

JOHN IRWIN HUTCHINSON, A.B., Ph.D., Assistant Professor of Mathematics.

VIRGIL SNYDER, A.M., Ph.D., Assistant Professor of Mathematics.

CLARK SUTHERLAND NORTHUP, A.B., Ph.D., Assistant Professor of English Language and Literature.

ERNEST BLAKER, Ph.D., Assistant Professor of Physics.

GUY MONTROSE WHIPPLE, Ph.D., Lecturer in the Science and Art of Education.

HENRY HAYDEN LANNIGAN, Instructor in Gymnastics and Assistant in Physical Examinations.

FRANK EMIL LODEMAN, A.M., Ph.D., Instructor in the Romance Languages.

ALFRED AUSTIN MOORE, A.B., Instructor in the Romance Languages.
GEORGE BURRIDGE VILES, A.B., Ph.D., Instructor in German.
BLIN SILL CUSHMAN, B.S., Instructor in Chemistry.
ELLEN BRAINARD CANFIELD, Instructor in Sage College in charge of Gymnasium.
HECTOR RUSSELL CARVETH, A.B., Ph.D., Instructor in Physical Chemistry.
KARL McKAY WIEGAND, B.S., Ph.D., Instructor in Botany and Assistant Curator of the Phanerogamic Herbarium.
EUGENE PLUMB ANDREWS, A.B., Instructor in Archæology and Curator of the Museum of Casts.
OTHON GUEPP GUERLAC, Licencié ès lettres, Instructor in the Romance Languages.
ROBERT CLARKSON BROOKS, A.B., Ph.D., Instructor in Political Economy.
ALEXANDER DYER MacGILLIVRAY, Ph.B., Instructor in Entomology.
GEORGE MAXWELL HOWE, Ph.D., Instructor in German.
DONALD ALEXANDER McRAE, A.B,, Instructor in Greek.
BENTON SULLIVAN MUNROE, Ph.D., Instructor in English.
HENRY ROSE JESSEL, B.S., Ph.D., Instructor in Chemistry.
CLINTON LEROY BABCOCK, Ph.D., Instructor in Latin.
ARTHUR LYNN ANDREWS, M.L., Ph.D., Instructor in English.
WILLIAM BENJAMIN FITE, Ph.D., Instructor in Mathematics.
WILLIAM ROSS LEE, A.M., Instructor in Elocution and Oratory.
JOHN EDGAR TEEPLE, B.S., Ph.D., Instructor in Chemistry.
WILLIAM ALBERT RILEY, B.S.. Ph.D., Instructor in Entomology.
LOUIS LEAMING FORMAN, Ph.D., Instructor in Greek.
PAUL RUSSELL POPE, A.B., Instructor in German.
CHESTER MURRAY, Ph.B., Instructor in the Romance Languages.
LANE COOPER, Ph.D., Instructor in English.
WILLIAM COOK THRO, A.M., Ph.D., Instructor in Histology and Embryology.
HUGH DANIEL REED, B.S., Ph.D., Instructor in Physiology, Vertebrate Zoology, and Neurology.
CHRISTOPHER FRITZ PAULS, Ph D., Instructor in German.
JOHN CALVIN WATSON, Ph.D., Instructor in Latin.
HOLLIS ELLSWORTH DANN, Instructor in Music.
JAMES ALBERT WINANS, A.M., Instructor in Elocution and Oratory.

ELIAS JUDAH DURAND, A.B., D.Sc., Instructor in Botany and Assistant Curator of the Cryptogamic Herbarium.
FRANK ALLEN, Ph.D., Instructor in Physics.
ADDAMS STRATTON McALLISTER, M.M.E., Instructor in Physics.
ARTHUR WESLEY BROWNE, M.S., Ph.D., Instructor in Chemistry.
FRED CLARKSON FOWLER, Mechanician in the Department of Physics.
EDWARD GODFREY COX, A.M., Assistant in English.
JOSEPH HEYWOOD RUSSELL, A.B., Assistant in Chemistry.
FRED WILLIAM FOXWORTHY, B.S., A.M., Assistant in Botany.
JAY EMERY ROOT, A.B., Assistant in Chemistry.
PERLEY ORMAN RAY, A.B., Assistant in American History.
PAUL FREDERICK GAEHR, A.B., Assistant in Physics.
ANDREW GILBERT LAUDER, B.S.A., Assistant in Chemistry.
CHARLES THOM, Ph.D., Assistant in Botany.
CALVIN HENRY KAUFFMAN, A.B., Assistant in Botany.
BENJAMIN BERNARD TURNER, B.S., Assistant in Chemistry.
EARL BLOUGH, A.B., Assistant in Chemistry.
HAROLD ROLLIN WADE, A.B., Assistant in Chemistry.
JAMES MUNSIE BELL, B.A., Assistant in Chemistry.
ROBERT COYNER FENNER, Assistant in Physics.
WALTER SCHON LENK, B.S., Assistant in Chemistry.
HARRY HAMILTON COCHRANE, B.S., Assistant in Physics.
RAXLEY F WEBER, A.B., Assistant in Chemistry.
WALTER EDWARD McCOURT, Assistant in Geology.
LEE FRED HAWLEY, A.B., Assistant in Chemistry.
CLARENCE LEMUEL ELISHA MOORE, A.M., Assistant in Mathematics.
HERMAN CAMPBELL STEVENS, A.B., Assistant in Psychology.
CLARENCE ERROL FERREE, A.M., Assistant in Psychology.
IKE BAUM, M.E., Assistant in Chemistry.
ROSS STEVENSON, Assistant in Chemistry.
CHESTER WILLARD EVANS, Assistant in Military Science.
RALPH KENYON ROBERTSON, Assistant in Military Science.
FRANCIS LUTHER WHITNEY, Assistant in Geology.
ROY STUART PATTISON, M.E., Assistant in Physics.
ANDREW CURTIS WHITE, Ph.D., Reader in Greek.

SPECIAL LECTURERS.

Besides the instruction regularly given by the resident officers of the University, a large number of lectures are delivered by non-resident lectnrers 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.

H. W. COLLINGWOOD, *New York*
The Farmer's Kit of College Tools.

ADNA F. WEBER, Ph.D., *Albany*
Labor Legislation in New York State.

F. Y. EDGEWORTH, M.A., D C.L., *Oxford, Eng.*
Theory and Practice of Monopolies.

ARTHUR FARWELL, B.S., *Newton Centre, Mass.*
The Music of the American Indians.
Tendencies of Modern Music.

JAMES B. DILL, *New York City*
Publicity, Practical, and Theoretical, in the Regulation of Trusts.
Admission to the Bar: Then What?

A. K. ROGERS, Ph.D., *Indianapolis, Ind.*
The Philosophical Meaning of Immortality.

J. C. ROLFE, Ph.D., *Philadelphia, Pa.*
Early Roman Literature and Macaulay's 'Lays'

C. E. MONROE, Ph.D., *Washington, D. C.*
Modern Propellants.

SIDNEY LEE, *Oxford, Eng.*
The Character and Uses of National Biography.
Shakespeare's Philosophy.

FREDERICK WARDE, *England*
The Classic Drama.

REQUIREMENTS FOR ADMISSION AND GRADUATION.

The following subjects are required for admission to the course leading to the degree of Bachelor of Arts: English, History [one of the four following divisions in History: (a) American and Civil Government, (b) English, (c) Ancient, (d) Mediæval and Modern European,] Plane Geometry, Algebra, and either *A*, *B*, or *C*, as follows:

A. Greek and Latin.

B. Latin and Advanced French or Advanced German.

C. Advanced French, Advanced German, and Advanced Mathematics.

An alternate requirement instead of Advanced Mathematics may be offered in Physics, Chemistry, Botany, Geology, and Zoology.

Students, admitted to the College of Arts and Sciences without satisfying the specific subjects in the above groups, must make up such deficiency during the freshman year by attending the University instruction in such subjects if given. The credit thus obtained will be counted toward entrance and not toward graduation.

[*For details as to subjects and methods of admission see pages 33–54.*

For admission to the freshman class, communications should be addressed to the Registrar. See pages 33–54.

For admission to advanced standing from other colleges and universities, and as special students, communications should be addressed to the Registrar. See pages 53–54.

For admission to graduate work and candidacy for advanced degrees, communications should be addressed to the Dean of the University Faculty. See page 70.

Degree. The degree of Bachelor of Arts is conferred on all graduates from the College of Arts and Sciences.

General Conditions for Graduation. For graduation, 120 hours of instruction, besides military drill and physical training during the freshman year, are to be completed. In the case of students relieved from military drill and physical training, an equivalent in hours is added. All work in the college except military drill and gymnasium is elective, subject only to the limitations prescribed by each depart-

ment of instruction. Students are advised, however, to lay out definite and systematic lines of study.

Thesis.

If a senior elect to write a graduating thesis, it must represent some phase of his principal line of work during the later years of his course. The subject must receive the approval of the professor in charge of the study to which it relates, and a memorandum of the title and of such approval must be left with the Registrar not later than the fifteenth day of October. The thesis must have the character of a scholarly dissertation on the subject chosen ; and if accepted it will entitle the writer to credit. The copy of the thesis presented to the Faculty shall, if accepted, become the property of the University. 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. A standard form and size for theses, eight by ten and one-half inches, has been adopted.

LIST OF COURSES OPEN TO FRESHMEN IN THE COLLEGE OF ARTS AND SCIENCES.

The following list comprises the courses of instruction open to election by freshmen in the College of Arts and Sciences without special permission. They may not register in any other course until the written consent of the professor in charge of the subject be presented to the Registrar :

Semitic Languages and Literatures.—Courses 1, 6, and 8.
Classical Archæology.—Course 2 and 3.
Greek.—Courses 1, 2, 2a, 2b, 3 and, as stated, 27 and 28.
Latin.—Courses 1 and 2.
Germanic Languages.—Course 1, and, under certain restrictions, courses 2a, 2b, 3, 4, 5, 7, 8 and 13.
Romance Languages.—Course 1, and, under certain restrictions, courses 2, 3, 5, 7, 8, 10, 12, 13, 15, 16 and 17.
English.—Courses 1, and 21 (in connection with 1–3).
Philosophy.—Course 7.
History.—Courses 1, 8, and 10a.
Music.—Course 1.
Bibliography.—Courses 1, and 2.
Mathematics.—Courses 6, 8, and 9.

Physics.—Course 2. Course 2b, 2c, 2d [if advanced mathematics has been accepted at entrance].

Chemistry.—Courses 1 or 2. If Introductory Inorganic Chemistry has been accepted at entrance, Course 6 or 6a, or 7. If Course 1 is taken in the first term of the Freshman year Course 6a or Course 7 may be taken in the second term.

Botany.—Courses 1, 2, 3, and 5.

Entomology and General Invertebrate Zoology.—Courses 1, 2, 3, 4, 5, and 7.

Physiology, Vertebrate Zoology, and Neurology.—Courses 1–6.

Geology.—Courses 1, 2, 21.

Military Science.—Course 4.

Hygiene and Physical Culture.—Course 2.

Freehand Drawing.—Course 1.

Juniors and seniors in good standing in the College of Arts and Sciences are allowed, upon petition, to elect studies in other Colleges which shall count towards graduation in the College of Arts and Sciences, but the sum total of hours elected cannot exceed the number required for one year's work in such Colleges, nor exceed nine hours per week in any term. No student, however, in the College of Arts and Sciences is allowed to register in the Medical College until the beginning of his senior year, but he may then devote the whole of that year to studies in the Medical College. Students admitted from a preparatory school and entitled, as a result of advanced credit or summer work, to register as seniors after two years of residence will not be allowed to avail themselves of the foregoing privilege and at the same time to receive the degree of A.B. at the end of the third year.

DEPARTMENTS OF INSTRUCTION.

[*Unless otherwise indicated, each course runs through the year. Courses enclosed in brackets will not be given in 1903–4, but may be expected in 1904–5.*]

SEMITIC LANGUAGES AND LITERATURES.

Office of the Department, White 3 B. Consultation hours. T., Th., 5 P. M.

The work in this department falls under three heads.

The Languages. An elementary course in Hebrew will be given each year. The advanced work in this language is so arranged as to cover in three years the leading writers of the Old Testament and some parts of the Mishnaic and Talmudic literature. General students with linguistic interests, and those preparing to teach, are advised to begin their study of the Semitic languages with the Arabic, which will also be offered each year. Aramaic and Egyptian will alternate with Assyrian and Ethiopic. In the Semitic Seminary a part of each year will be given to epigraphical studies.

The Literatures. A course of lectures on the most important literary productions of the Semites will be given annually. *For this course a knowledge of Semitic Languages is not required.* The lectures will be devoted in part to a discussion of questions of authorship, date, literary composition and historical value, and in part to a translation and elucidation of the texts themselves. Much attention will be bestowed on the Old Testament. Thus an opportunity will be afforded to students who are not familiar with the Hebrew to become acquainted with the results of scientific Bible-study. The Hebrew apocrypha and pseudepigrapha, the Mishnah and the Talmud, the Quran and the Arabic poets, the Babylonian Gilgamish epic and the Book of the Dead will be discussed in a similar manner.

The History. In a series of lectures covering four years, an outline will be presented of the political and social history of Babylonia, Assyria, Persia, India, Armenia, Syria, Arabia, Ethiopia, Egypt, and the Spanish Caliphate.

The following courses will be given in 1903–1904 :

1. **Hebrew.** Grammar (Harper, with reference to Kautzsch and König). Exercises in composition. Genesis. M., W., F., 2. *White 3 B.* Professor SCHMIDT.

2. **Advanced Arabic.** Arabic Palaeography: Study of Minaean, Sabaean, Safaitic and Kufic inscriptions. Exercises in speaking, reading and writing modern Arabic. T., Th., 3, *White 3 B.* Professor SCHMIDT.

3. **Aramaic.** Syriac grammar (Brockelmann). Selections from *Clementis Romani recognitiones Syriace* and the *Chronicon Edessenum.* Samaritan grammar (Petermann). Deuteronomy in the Version, *Carmina Samaritanorum* and *Somnium Abishae.* T., Th., 4, *White 3 B.* Professor SCHMIDT.

4. **Shumerian.** Grammar (Hommel). Hommel's Sumerische Lesestücke. F., 4-6, *White 3 B.* Professor SCHMIDT.

5. **Egyptian.** Grammar (Erman). Hieroglyphic texts of the Middle Empire. Study of squeezes in the Eisenlohr collection, W., F., 6, *White 3 B.* Professor SCHMIDT.

6. **Semitic Literature.** General introduction to the Bible including Apocrypha and Pseudepigrapha, and special introductions to each book. This course of lectures presupposes no knowledge of Semitic languages or Greek and is designed to give in brief compass the results of scientific inquiry concerning the origin, date, composition and character of the books of the Bible. M., W., 3, *White 3 B.* Professor SCHMIDT.

7. **Semitic Seminary.** A study of the topography of Southern Palestine and Northwestern Arabia from the inscriptions, the Biblical and Rabbinic writers, the Classical and Arabic geographers, the Patristic and Pilgrim texts and the modern authorities. M., 4–6, Residence of the professor. Professor SCHMIDT.

8. **Oriental History.** Babylonia and Assyria, first half-year. The Spanish Caliphate, second half-year. T., Th., 2, *Morse 3.* Professor SCHMIDT.

9. **Comparative Semitic Philology.** Origin of the cuneiform signs, aud of the alphabet, first half-year. Genesis i to iv in Hebrew, Aramaic, (Targumic, Samaritan, Edessene), Arabic, and Ethiopic, second half-year. F., 3, *White 3 B.* Professor SCHMIDT.

CLASSICAL ARCHÆOLOGY AND HISTORY OF ART,

The Museum of Classical Archæology contains a collection of casts which furnishes ample material for the illustration of the history of Greek and Roman sculptural art. The museum is also equipped with a fine collection of Greek coins, with a full set of the British museum electrotypes, with a collection of Greek vases representing he periods of Greek ceramic art, and with various plans, models and reconstructions.

Course 3 the shorter course of lectures on Greek sculpture in the museum, will give the student a knowledge of the general history of the development of Greek art, such a knowledge as will enable him to view the treasures of the larger museums of this country and of Europe intelligently. The three hour course will give more opportunity for independent investigation. Thls course will be attractive to all who desire a somewhat more definite and intimate acquaintance with the work of the best Greek sculptors, and to those who would value the ability to recognize the beauties, spirit, and meaning of ancient art.

The courses in Greek Archæology and in Pausanias are planned to be of profit to those who would be glad to acquire, for a knowledge of the Greek language and literature, or of Greek history, a background of acquaintance with the Greek people in their artistic and industrial activities, or of the land, the cities and the temples of Greece. The course in Pausanias presupposes ability to read Greek prose readily. The Archælogical Seminary is intended primarily for those who desire specializing work in Greek architecture and Greek epigraphy. Courses 1, 2, 4, and 5 will prepare for the examinations for the fellowships of the American School of Classical Studies in Athens. Courses 6, 7, and 8 are culture courses; they will be of value not only to students of Greek, but will enable students of English to read English literature with more understanding and pleasure.

1. **Greek Archæology.** Lectures and readings. Mycenæan art and civilization, Greek terracottas, coins, bronzes, gems and vases. Greek Architecture, with special reference to the buildings on the acropolis of Athens. The coins and vases in the Museum of Classical Archæology will be used as material for study. Lectures illustrated by lantern slides. W., F., 9. *Museum of Casts.* Mr. ANDREWS.

2. **History of Greek Sculpture.** Lectures in the Museum of Casts. M., W., F., 11. Mr. ANDREWS.

3. **Outline History of Greek Sculpture.** Lectures in the Museum of Casts. T., Th., 10. Mr. ANDREWS.

4. **Pausanias.** A reading course in the sources of the knowledge of Greek topography, with special reference to Athenian topography. Supplemented by illustrated lectures and by readings from Thucydides, Herodotus and Xenophon. Each member of the class will be expected to own a Teubner text of Pausanias, of Thucydides, and of Herodotus. T., Th., 9, *White 6.* Mr. ANDREWS.

5. **Archælogical Seminary.** Greek epigraphy. First half-year, Greek epichoric alphabets and dialectical inscriptions. Second half-year, Attic inscriptions. The large collection of paper impressions of inscriptions will be used. M., 3–5, *White 3a.* Mr. ANDREWS.

6. **Myths of the Epic Cycle.** The entire cyle of myths relating to events before, during, and after the Trojan war will be illustrated by lantern views of extant monuments : vase paintings, bas-reliefs, sculpture in the round, gems and coins. First half-year. W., F., 8. *White 6.* Professor STERRETT.

Open to students who have entrance Latin.

See Greek, course 17.

7. **Myths of the Theban and Dionysiac Cycles.** A lecture course illustrated by lantern views as in course 6. Second half-year. W., F., 8, *White 6.* Professor STERRETT.

Open to students who have entrance Latin.

See Greek, course 18.

[8. **Art Mythology.** The origin and development of the types of the great gods. The history of gods and demi-gods as told in art and and literature. With illustrations by lantern views of extant monuments. M., F., 12, *White 6.* Professor STERRETT.]

See Greek, course 19.

[25. **Greek Life.** The land and the people. Home life and private antiquities. Public life and social institutions. A study of the private life of the Greek, with illustrations (by lantern views, photographs, etc.) from ancient monuments and remains. T., Th., 8, *White 6.* Professor STERRETT.]

9. **History of Architecture.** First half-year : Egyptian, Greek and Roman Architecture. Second half-year : Romanesque, Byzantine and Gothic Architecture. Three lectures per week throughout the year. T., Th., S., 9. Mr. PHELPS.

10. **History of Art.** Lectures on Painting, Sculpture, and the Industrial Arts in mediæval and modern times. T., Th., 12. Mr. GUTSELL.

11. **History of Art.** One lecture per week throughout the year on Tuesday afternoons at 4 o'clock. Assistant Professor BRAUNER.

This course to be given in 1902–3 and in alternate years thereafter.

12. **Introduction to Aesthetics.** An elementary course on the philosophy of art. Lectures, assigned readings, and examinations. M., 11. *White 6.* Assistant Professor HAMMOND.

See Philosophy, course 16.

COMPARATIVE INDO-EUROPEAN 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, courses 2 and 3 are recommended in addition to course 1. The eourses on Greek and Latin grammar, the course on the Greek dialects, and the Seminary work are of the first importance for prospective teachers of the classics, and for such work a preliminary study of the elements of Sanscrit is considered desirable though not absolutely essential. Attention is called to the courses offered by the English department in Gothic, in English philology, and in the history of the English language ; also to the philological courses of fered by the departments of Semitic languages, Germanic languages, and Romance languages.

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

a. History of linguistic science, and of theories of language. The value of language in determining questions of ethnology, and history. The "Aryan hypothesis." Linguistics and archaeology. The evidence of language concerning the early civilization of Europe. M., 11. *White 3B.* Professor BRISTOL.

b. The essential principles of the life and growth of language The elements of phonetics. Classification of the Indo-European languages. Relation of the Teutonic languages to the other members of the group. W., F., 11. *White 3B.* Professor BRISTOL.

The aim of these courses is to acquaint students of ancient or modern languages with the general principles of the science of language and its history. They are open to all seniors and graduates. Either course alone or both may be elected.

[2. **Comparative Grammar.** Elements of the methods of language study. The elements of phonetics. The phonology of Indo-European. Historical and comparative treatment of sounds and inflections with special reference to the Greek, Latin, and Germanic Languages. W., F., 11, *White 3B.* Professor BRISTOL.]

3. **Elementary Sanskrit.** Perry's Sanskrit Primer and Lanman's Reader. The course is designed with special reference to the needs of students in classical and Germanic Philology. T Th., at hours to be fixed after consultation. *White 3B.* Professor BRISTOL.

4. **Vedic Sanskrit.** The reading of selected hymns. Introduction to Vedic literature. Study of the Vedic period of the language and of the Vedic Religion. One meeting a week. Professor BRISTOL.

Historical Latin Grammar, see Latin course 41.

Germanic and English Philology, see German, course 12, and English course 15.

Romance Philology, see Romance languages, course 6.

GREEK.

The courses of study in this department have been arranged with distinct reference to the belief that the choice of Greek as a subject of study during the first two years of the college course should not necessarily imply an intention on the part of the student to specialize in Greek.

A course in elementary Greek is provided for the benefit of students who have not taken Greek in their preparatory course, and have found it desirable to acquire at least a rudimentary knowledge of the subject, and who are willing to incur the labor incident to doing two years' work in one. The purpose of the course is to attain in one year of extraordinary effort a reading knowledge of Attic prose, and all other objects are made secondary to this.

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, a thorough review of the fundamentals of accidence and syntax, and exercises in Greek composition will be required throughout the year.

The work of the sophomore year aims at giving the student some acquaintance with the scope and meaning of Greek literature as the embodiment of Greek thought. In order to enable the student to read a larger amount of literature a course in cursory reading in easy authors is provided.

The work adapted to specializing study falls under three distinct heads:

1. The literature. Reading courses accompanied by lectures are offered, of which are given this year a junior course in Herodotus and Thucydides, a course in Aristophanes, a course in Plato, a course in Pausanias, a course in Tragedy, and a course in the rapid reading of Sophocles, Euripides, and Aeschylus. Besides these the study of some one Greek author is taken up in alternate years in the Seminary.

2. The antiquities. Course 24 treats of the entire equipment and environment of ancient Greek life, its usage and occupations, its ideas and institutions. Courses 21 and 22 are given in alternate years and give a consecutive account of Greek Literature down to the time of Justinian. Courses 27, 28, and 29 are intended to supplement the study of Epic and Tragic poetry, by which Greek art was inspired. Greek vase-painting, reliefs, etc., depict the stories told by Homer,

Aeschylus, Sophocles, and Euripides, and give an archæological commentary which illustrates, enlivens, and makes still more charming both Epic and Tragic poetry. Modern poetry draws so largely on Greek mythology that these courses will be found valuable to students of all modern literatures. The department of Classical Archæology offers also courses in Greek art and archæology, and in epigraphy.

3. The language. Two courses in Advanced Prose Composition will give maturer students an opportunity for its practice in the writing of Greek under the direct personal supervision of a teacher, and for instruction in special questions of syntax and style. All students who intend to become specialists in Greek are advised to take these courses, if possible, both in the junior and senior years. The Teachers' Course in Greek is also adapted to the needs of undergraduates who expect to teach the classics. Lectures on Greek grammar from a historical point of view are given in alternate years and are intended for seniors and graduates. The course in Modern Greek should be taken by all who intend to specialize in archæology, or who plan to continue their studies in Greece.

The exercises of the philological seminary are especially adapted to the needs of graduate students, and introduce the student to the original sources of information concerning the language and its history, and accustom him to methods of independent investigation in matters of textual criticism and literary interpretation. The seminary room in the library building has been equipped with a reference library of over two thousand volumes and will be used as a regular study-room and laboratory by the more advanced students.

1. **Elementary Greek.** Forman's First Greek Book. The essentials of the grammar. Simple exercises in composition. The reading of selections from the Anabasis of Xenophon. M., T., W., Th., F., 8, *White 4.* Dr. FORMAN.

This course is designed for, and may be elected by all students who wish to acquire by extraordinary effort in one year, the ability to read Attic prose.

2. **Lysias, Homer, Plato.** Select orations of Lysias as illustrative of normal Attic prose. Incidental treatment of topography, history, political institutions and social usages. Readings from the Odyssey of Homer. Selections from the dialogues of Plato. T., Th., S., 10. *White 4.* Mr. MACRAE.

Open to Freshmen who present Greek at entrance.

2a. **Greek Composition.** The chief aim of the course is a mastery of forms. Declensions and verb-forms reviewed. Attention given to vocabulary and word-formation. Greek Syntax in outline. M., 10, *White 4.* Mr. MACRAE.

Open to those who are taking or have taken course 2.

2b. **Sight Translation.** Selections from Xenophon and the Orators. F., 10. *White 4.* Mr. MACRAE.

Especially recommended as collateral work for those taking course 2.

3. **Lysias, Homer, Plato.** Review of Attic inflections and syntax ; Greek composition ; Greek history in outline. Readings in the Odyssey. Brief introduction to Greek philosophy. M., T., W., Th., F., 10, *White 3 B.* Dr. FORMAN.

Open to Freshmen who present Greek at entrance.

4. **Plato,** Protagoras. **Lyric Poets,** Selections. First half-year. M., W., F., 9, *White 6.* Professor BRISTOL.

Open to students who have passed in course 2 or 3.

5. **Euripides and Sophocles.** The Iphigenia in Tauris and Oedipus Tyrannus will be read. Each play will be illustrated by lantern views of the ancient monuments relating thereto. Introduction to the Attic drama. Second half-year. M., W., F., 9, *White 6.* Professor STERRETT.

Open to students who have passed in course 2 (or 3).

6 **Course in Rapid Translation.** Selections from Diodorus and Lucian. May be elected as supplementary to courses 4 and 5, or taken independently by students who have completed courses 2 or 3. W., F,, 11, *White 5.* Mr. MACRAE.

7. **Herodotus.** Reading of book one with special reference to local history, topography and antiquities. First half-year. M., W., F., 10, *White 6.* Professor STERRETT.

Open to students who have passed in courses 2 (or 3), 4, and 5, and to those who have passed in 2 (or 3) and are taking course 4.

[8. **Demosthenes.** The Oration on the Crown, with a study of the life and work of the orator. Second half-year. M., W., F., 10, *White 6.* Professor BRISTOL.]

Open to students as stated under course 7.

9. **Thucydides.** Reading of books six and seven mainly with reference to the literary and historical questions connected with the subject matter. Second half-year. M., W., F., 10, *White 6.* Mr, MACRAE.

Open to students as stated under course 7.

[10. **Elegiac and Lyric Poetry.** First half-year the elegiac and iambic poets. Second half-year, the melic poets in Hiller's Anthologia Lyrica. T., Th., 11, *White 6.* Professor STERRETT.]

Open to seniors and graduates.

11. **The Tragedy.** Aeschylus, Agamemnon ; Sophocles, Philoctetes and Ajax ; Euripides, Hippolytus and Bacchae. T., Th., 11, *White 6.* Professor STERRETT.

Open to seniors and graduates.

12. **The Orations of Thucydides:** Studied (1) as a product of early Greek Oratory, (2) as an exposition, in concrete connection, of the principles of universal politics. One hour. Open to graduates. Dr. FORMAN.

13. **Aristophanes.** The Acharnians, Knights, Clouds, Wasps, Birds, Frogs. Study of the development of Greek comedy and its scenic representation. W., F., 9, *White 5*. Dr. FORMAN.

Open to seniors and graduates.

14. **Advanced Reading Course.** The aim of this course is to enable students to acquire a knowledge of the entire works of some one author, or of a particular field of literature. In 1902-3, Homer's *Iliad* was read and translated.

In 1903–4 the dramatic poets will be read; Sophocles' plays entire, and some of those of Aeschylus and Euripides. M., 2–4, *White 6*. Professor STERRETT. Open to seniors and graduates.

15. **Plato.** Reading of the Greek text of the Republic. M., W., F., 10, *White 5 a*. Assistant Professor HAMMOND.

This course is intended for students of Greek Literature as well as of Greek Philosophy. The Republic will be read in its entirety, the main attention being devoted to the content.

See Philosophy, course 9.

16. **Aristotle's Ethics.** Reading of the Greek text. M., 12 (or other hour to be arranged). *White 5 a*. Assistant Professor HAMMOND.

In this course the *Nicomachean Ethics* books I–IV and X will be read and interpreted. The course is intended for such students of Greek as wish to read rapidly through an Aristotelian treatise and for such students of Philosophy as wish to examine Artisotle's ethical ideas in the original.

See Philosophy, course 14.

17. **Pausanias.** A reading course in the sources of the knowledge of Greek topography, with special reference to Athenian topography. Supplemented by illustrated lectures and by readings from Thucydides, Herodotus and Xenophon. Each member of the class will be expected to own a text of Pausanias, of Thucydides and of Herodotus. T.,Th., 9, *White 6*. Mr. ANDREWS. Open to all students who have completed 1 and 2.

18. **New Testament Greek.** First half-year. General introduction to the canonical and extra-canonical gospels; reading and interpretation of the Gospel according to Mark. Second half-year. Justin Martyr. The members of the class should be provided with Westcott

and Hort's New Testament in Greek, and Gildersleeve's Apologies of Justin Martyr. W., F., 8, *Barnes Hall Library*. Dr. A. C. WHITE.

19. **Modern Greek.** The literary language as found in Athenian newspapers, and the spoken idiom as presented in Gardner's *Practical Method of Modern Greek*, W., F., 10, *Museum of Casts*. Mr. ANDREWS. Open to all students who have completed course 1.

20. **Greek Composition.** Intermediate course. Systematic drill by means of detached sentences, in the syntax of the verb, in case and prepositional usages, and in idiomatic expression. The course is designed for those who intend to teach Greek, and for any who may wish to gain an intimate knowledge of the language on its formal and syntactic side. T., F., 8, *White 4*. Mr. MACRAE.

Open to Juniors and to Sophomores.

21. **Greek Literature.** Lectures. A history of the development of the poetical literature in connection with the political and social history of the people. T., Th., 11, *White 6*. Professor STERRETT.

This course is open to all students of the University except Freshmen.

[22. **Greek Literature.** A lecture course covering the history of the prose literature of the classical period, and of the post-classical literature in general. T., Th., 10, *White 6*. Professor STERRETT.]

This course is open to all students of the University except Freshmen.

23. **Physical and Historical Geography of Greece.** The first term will be devoted to a discussion of the physical geography, the fauna and flora, the population in ancient times, the characterization of the ancient Greeks, the modern state, the modern Greeks, their lineage, and the traces of ancient Greece in the modern cnstoms, manners, and usages. The second term will be devoted to a systematic study of the historical geography and topography. In this term the stereopticon will be used as occasion requires. T., Th., 8, *White 6*. Professor STERRETT.

This course is open to all students of the University except Freshmen.

[24. **Greek Life.** The land and the people. Home life and private antiquities. Public life and social institutions. A study of the private life of the Greeks, with illustrations (by lantern views, photographs, etc.) from ancient monuments and remains. T., Th., 8, *White 6*. Professor STERRETT.

This course is open to all students of the University except Freshmen.]

25. **Studies in Greek History.** A discussion of selected and related topics, based on the sources and intended to afford training in historical method and an introduction to advanced work in this field, As far as practicable the seminary method will be followed. Th.. 4–6, *Greek and Latin Seminary Room.* Assistant Professor SILL.

See Ancient History, course 3.

26. **Greek and Roman History.** A survey of the history of the Mediterranean world from the beginning of Greek civilization to the dissolution of the Roman Empire in the West. Lectures, text-book, and examinations. Open to all students. M., W., F., 11, *Morrill 11.* Assistant Professor SILL.

See Ancient History, course 1 a.

27. **Myths of the Epic Cycle.** The entire cycle of myths relating to events before, during, and after the Trojan war will be illustrated by lantern views of extant monuments : vase-paintings, bas-reliefs, sculpture in the round, gems and coins. First half-year. W., F., 8, *White 6.* Professor STERRETT.

Open to students who have entrance Latin.

28. **Myths of the Theban and Dionysiac Cycles.** A lecture course illustrated by lantern views as in course 12. Second half-year. W., F., 8, *White 6.* Professor STERRETT.

Open to students who have entrance Latin.

[29. **Art Mythology.** The origin and development of the types of the great gods. The history of gods and demi-gods as told in art and literature. With illustrations by lantern views of extant monuments. M., F., 12, *White 6.* Professor STERRETT.]

Courses 28, 29, and 30 will be found valuable to students of English, French, and German, because modern poetry draws so largely on Greek Mythology.

30. **Platonism.** Lectures on the Philosophy of Plato and reading of the Dialogues. S., 11, *White 5.* Assistant Professor HAMMOND.

In the lectures of this course, Plato's philosophical system will be explained and the history of its influence on literature and culture discussed. In connection with the lectures, the following dialogues will be read in translations: Apology, Crito, Protagoras, Gorgias, Theætetus, Phædo, Timæus, Republic, and parts of the Laws. The course is intended for students of literature as well as of philosophy.

See philosophy, course 5.

31. **History of Ancient and Mediæval Philosophy.** Lectures and text-book. T., Th., 10, *White 5 a.* Assistant Professor HAMMOND.

In this course will be treated the history of philosophical ideas from

the early Greek cosmogonies down to the time of the Renaissance. See Philosophy, course 4.

32. **History, Scope and Aim of Classical Studies.** This course will present the history of classical study since the Renaissance, will outline the various fields of investigation, stating the present state of knowledge in each along with the chief problems still awaiting solution, and will give a very full bibliography. Open to graduates. First half-year. T., Th., 10, *Greek and Latin Seminary Room*, Acting Assistant Professor GUDEMAN.

33. **Scope and Aim of Greek Studies,** with special reference to their various branches, Language, Lexicography, Paleography, Epigraphy, Numismatics, Literature, History, Philosophy, Antiquities, Art and Archaeology. Second term, T., Th., 11. Professor A. GUDEMAN.

34. **Seminary in Greek and Roman History.** Open o graduates and, by permission, to qualified seniors. Subject for the year 1903–4 : Sources for the History of Alexander the Great. Th., 4–6. *Greek and Latin Seminary Room.* Assistant Professor SILL.

35. **Training Course for Teachers.** a. Advanced Composition. In connection with the study and reading of Xenophons Anabasis. S., 12, *White 3 A.* Dr. FORMAN.

b. Discussion of the subjects contained in "The Teaching of Greek in the Secondary School," which will be used as a text-book. The Iliad of Homer will be read with the class. T., Th., 12, *White 3 B.* Professor BRISTOL.

Open to properly qualified Seniors.

These courses, a and b, may be taken separately or together. But credit for the work required to obtain the certificate in the department of the Science of Education can be obtained only by passing in both of them.

36. **Historical Grammar of Greek.** The Greek dialects, and their relations to kindred tongues and to one another. Development and normalizing of these forms in literary use. History of the Greek Alphabets. Historical treatment of sounds and inflexions. M., W., 10, *White 3 B.* Professor BRISTOL.

Open to graduates and to properly qualified Seniors.

40. **Greek Seminary.** The First Book of the Iliad of Homer will be studied as an introduction to textual criticism. Preparation and discussion of papers by members of the seminary. W., 2–4, and an additional hour at the pleasure of the instructor. *Seminary Room.* Professor STERRETT.

Open to graduates.

In 1904–'05 The Agamemnon of Aeschylus.

LATIN.

Office hours : Professor BENNETT, M., 1–2, at residence.
Assistant Professor ELMER, M., W., 3–4; S., 2–3, at residence.
Assistant Professor DURHAM, daily, 10–11, *Morrill 14*.

The reading courses are as follows :

Course 1, the regular freshman reading course, open to all students who have presented Latin at entrance.

Courses 6, 7, and 8, the regular sophomore reading courses, open to those who have had course 1.

Courses 16 and 17, the regular junior and senior reading courses, open to those who have had courses 1 and either 6, 7, or 8.

Courses 2 and 3, intended primarily for freshmen who are taking course 1.

Courses 11 and 12, sophomore electives, intended primarily for those who are taking courses 6, 7, or 8, but open to all who have taken course 1.

Courses 4a and 4b which must be taken to make up an entrance deficiency in Cicero or Virgil.

The composition courses, the undergraduate, and the graduate lecture courses are open to students under the restrictions mentioned with each course.

Course 4 c must be taken by all students conditioned in Latin Composition at entrance, except those who are taking Course 1.

1. **Livy, Book I; Cicero, De Senectute; Horace, Selections from the Odes; Latin Writing.**

Section 1. M., W., F., 9, *Morrill 3*, Dr. WATSON.
Section 2. T., Th., S., 9, *Morrill 11*, Dr. BABCOCK.
Section 3. M., W., F., 10, *Morrill 3*, Dr. WATSON.
Section 4. M., W., F., 11, *Morrill 3*, Assistant Professor DURHAM.

2. **Sight Translation: Caesar, Civil War; Plautus, Amphitruo.** Five sections :

Section 1. T., 12, *Morrill 21*, Dr. BABCOCK.
Section 2. W., 12, *White 4*, Assistant Professor DURHAM.
Section 3. F., 12, *White 4*, Assistant Professor DURHAM.
Section 4. S., 10, *Morrill 21*, Acting Assistant Professor GUDEMAN.
Section 5. S., 11, *Morrill 3*, Dr. BABCOCK.

Especially recommended as collateral work for those who are taking course 1, but open to all students.

[3. **Sight Translation: Cicero, De Amicitia, Plautus, Menaechmi.** Courses 2 and 3 are given in alternate years.]

4a. **Cicero, Selected Orations.** T., Th., S., 12, first half year, *Morrill 13*, Dr. WATSON.

4b. **Virgil's Aeneid, Books I–VI.** T., Th., S., 12, second half year, *Morrill 13*, Dr. WATSON.

4c. **Latin Composition.** M., 12, throughout the year, *Morrill 13*, Dr. WATSON.

Students who have an entrance condition in Cicero, Virgil, or Latin Composition are required to make up that deficiency by taking the corresponding part (a, b, or c) of course 4. Open, by permission, also to qualified students who do not present Latin at entrance.

6. **Terence, Phormio; Horace, Selections from the Satires, Epistles, Ars Poetica; Tacitus, Dialogus, and Agricola.** Collateral reading in the history of Rome for the period covered by the life of Horace. Latin Writing. Wilkins's Primer of Roman Literature. T., Th., S., 9, *Morrill 21*, Assistant Professor ELMER.

Open to students who have completed course 1. See under course 8.

[7. **Lucan, Selections from the Pharsalia; Seneca, De Vita Beata.** Assistant Professor ELMER. Courses 6 and 7 are given in alternate years.]

8. **Catullus; Virgil, Georgics; Tibullus and Propertius, Selections; Ovid, Selections from the Tristia, Amores, and Fasti; Phaedrus; Martial.**

1. T., Th., S., 9, *Morrill 13*, Assistant Professor DURHAM.

2. T., Th., S., 10, *Morrill 3*, Dr. BABCOCK.

Open to students who have completed course 1.

Either course 6 or course 8 admits to the advanced reading courses 16 or 17.

[11. **Selections from Cicero's Letters; Cicero, De Oratore.** Assistant Professor ELMER.

Open to students who have completed course 1.

Courses 11 and 12 are given in alternate years.]

12. **Selections from Cicero's De Officiis; Cicero's Second Philippic.** W., F., 11, *Morrill 21*, Assistant Professor ELMER.

Open to students who have completed course 1.

[16. **Selections from the Republican Literature: Plautus,** two plays. **Lucretius. Lectures on the History of Roman Literature.** Professor BENNETT.

Open to students who have completed courses 1 and 6, 7, or 8.

Courses 16 and 17 are given in alternate years.]

17. **The Literature and History of the Early Empire: Suetonius, Pliny the Younger, Tacitus.** History of Roman Litera-

ture. Capes' Early Empire. T., Th., S., 9, *Morrill 3*, Professor BENNETT.

Open to students who have completed courses 1 and 6, 7, or 8.

18. **Exegetical and Critical Interpretation of Horace's Ars Poetica.** Lectures. Open to graduates and seniors. F., 3, *Morrill 3*, Acting Assistant Professor GUDEMAN.

21. **Intermediate Course in Latin Writing.** Open to students who have completed course 6, 7, or 8. M., 11, *Morrill 21*, Assistant Professor ELMER.

22. **Advanced Course in Latin Writing.** For students who have completed course 21, or an equivalent elsewhere. S., 11, *Morrill 21*, Assistant Professor ELMER.

[26. **Teachers' Training Course.**

a. Study of the evidences for the pronunciation of Latin; Hidden quantities; Pecularities of orthography; Theoretical consideration of Latin Syntax; Lectures on problems connected with the teaching of Latin in secondary schools; Practical work in Caesar. W., F., 12, *Morrill 3*, Professor BENNETT.

b. **Cicero.** This course is intended primarily for those prospective teachers in preparatory and high schools who desire an accurate knowledge of the various subjects that pertain to Cicero in general and the teaching of the orations in particular. A course of introductory lectures will be given, and the Catilinarian orations will be studied carefully with reference to all the points that should be emphasized in elementary instruction. M., 12, *Morrill 3*. Assistant Professor DURHAM.

Course 26 b can be taken only in connection with course 26a.

The general aim of courses 26a and 26 b is to prepare students who are intending to teach to enter upon their work with confidence.

These courses are open only to students who have had courses 1 and 6, 7, or 8, and have taken or are taking course 16 or 17. Special students in Latin are also admitted.

See also under Science and Art of Education, course 5.

Courses 26a and b alternate with course 27.]

27. **Roman Antiquities.** First term and until Easter recess: A systematic consideration of the constitution of the Roman family, status of women, marriage, children, education, slavery, the Roman house and its furniture, food, dress, baths, games and amusements, books, trade, travel, religion, death, burial, etc. Lectures, illustrated by lantern views, photographs, and material in the Museum of Casts. Easter recess until end of second term: The Political and Legal Antiquities of the Romans. Lectures. W., F., 12, *Morrill 3*. Professor BENNETT.

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

28. **Roman and Etruscan Archaeology and Art:** architecture, sculpture, painting, pottery, coins, gems, metal work, etc. Lectures illustrated by lantern views, photographs, and material in the Museum of Casts. M., 12, *Morrill 3*. Dr. BABCOCK.

29. **Roman Literature of the Empire:** Velleius to Apuleius. Lectures, supplemented by illustrative readings. W., 11. *White 3b*, Dr. WATSON.

Open to juniors, seniors, and graduates.

30. **The Sources of Roman History.** F., 9, *Morrill 21*. Acting Assistant Professor GUDEMAN.

31. **German Philological Reading.** Reading of one of the weekly periodicals. For juniors, seniors, and graduates. S., 12, *Morrill 14*. Assistant Professor DURHAM.

The object of the course is to familiarize students of Latin, Greek, and Comparative Philology with the style, vocabulary, and character of modern German philological investigations.

35. **Virgil, Aeneid VII to XII.** This course requires no prepared translation for the class-room work. The professor in charge will himself translate the last six books of the Aeneid, with full comments on subject-matter, style, difficulties, etc. The course will also aim to develop in students the ability to read and appreciate the Latin, without translating. Open to juniors, seniors, and graduates, and especially recommended to members of the Pro-Seminary. Th., 11, *Morrill 3*. Assistant Professor ELMER.

[36. **Latin Pro-Seminary.** Textual and exegetical study of the works of Catullus.

The primary object of the pro-seminary is to prepare students for membership in the graduate seminary. It will also serve to introduce to the principles of scientific textual criticism and interpretation students that may not be intending to take graduate courses.

Open to seniors and by special permission to juniors. Assistant Professor DURHAM.

Courses 36 and 37 are given in alternate years.]

37. **Latin Pro-Seminary, Virgil.** After a course of introductory lectures on the history and development of Latin epic poetry from the earliest times down to Statius, the work of the pro-seminary will be devoted to a textual and exegetical study of selected portions of Virgil. Each student will prepare a paper embodying the results of original investigation of some topic suggested by the work of the year. Open to seniors and by special permission to juniors. M., 3, *Latin and Greek Seminary Room*, Assistant Professor ELMER.

For the general objects that the pro-seminary has in view, see under course 36.

38. **Latin Seminary.** The work of the seminary for 1903–1904 will consist of textual and exegetical study of the Epidicus of Plautus, combined with the more rapid reading of Plautus's other plays.

The object of the seminary is to familiarize its members with the methods and habits of independent investigation. The work, therefore, as far as possible, is thrown into the hands of the students themselves. The seminary is open to graduates. Students who intend to take this course should confer with the instructor before Commencement, in order that the necessary books may be ordered from abroad in due season. The textual and exegetical work will come T., 2–3:30; the reading, Saturday at 10. *Greek and Latin Seminary Room*, Professor BENNETT.

39. **History, Scope, and Aim of Classical Studies.** This course will present the history of classical study since the Renaissance, will outline the various fields of investigation, stating the present state of knowledge in each along with the chief problems still awaiting solution, and will give a very full bibliography. Open to graduates. T., Th., 11, *Greek and Latin Seminary Room*, Acting Assistant Professor GUDEMAN (first half year, on the History of Classical Studies) and Professor BENNETT (second half year, on the Scope and Aim of Latin Studies.)

[40. **Historical Latin Syntax.** Lectures on the original force and historical development of the cases, and upon the subjunctive mood, with reference especially to its primitive meaning and its development in subordinate clauses. Open to graduates. T., Th., 10, *Morrill*, *3*, Professor BENNETT. Courses 39 and 40 are given in alternate years.]

41. **Historical Grammar of the Latin Language.** For juniors, seniors, and graduates. M., W., 9, *Morrill 21*, Professor BENNETT.

42. **Latin Epigraphy.** Introductory lectures and the interpretation of selected Latin inscriptions. For juniors, seniors, and graduates. T., Th., 12, *Morrill 3*, Assistant Professor DURHAM.

43. **Latin Palæography.** An actual study of mediæval manuscripts and fac-similes in the possession of the University. Second half-year. T., 4–6. Professor BURR.

For Roman History, see (besides course 30) under Ancient History.

THE GERMANIC LANGUAGES.

The aim of the first two courses 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 dis-

cipline, an insight into the relations between German and English, and a certain degree of literary culture.

In course 1 German Grammar and Hewett's Reader are used, accompanied by exercises in writing German, and in translation at sight. Later in the year easy novels or plays are studied.

In course 2a standard German classics are read, and special attention is paid to advanced syntax and etymology, the force of prefixes and suffixes, the composition of words, synonyms and sight translation.

Course 2b is arranged for the special benefit of students of science and those who are pursuing technical courses. Easy narrative and descriptive prose is read, the object being to impart facility in translation in connection with accurate grammatical knowledge.

The later work, in the form of lectures and recitations, includes the advanced study of the German literature and language. Courses are given, varying from year to year, embracing the works of the leading authors and the literature of different periods. Classes are also formed in composition and conversation, and recent dramatic literature and the writings of living novelists are read. Systematic instruction is further provided in Gothic, Old Norse, Netherlandish, in Old and Middle High German, also in the history of the German language and in the comparative grammar of the Germanic languages.

In the German Seminary attention will be paid in successive years both to German literature and philology. The Seminary in German literature is open to students who have had the elementary courses in German and at least one full course in German literature. For the Seminary in philology, preliminary courses in Gothic and Middle High German, also in the general principles and facts of language are desirable. Investigation, the careful examination of authorities, and special reports constitute distinctive features of this work. All graduate students will participate in both these Seminaries. Later, independent research in chosen fields according to the special gifts and tastes of individual students will follow. Broad as well as accurate culture will be sought in the case of all graduate students.

Courses for those intending to be teachers are also given on classroom methods and theories of instruction in the modern languages. The department is equipped with a rare collection of lantern slides for illustrative purposes. The seminary room in the general library building has a valuable library for consultation, containing the leading collections of German literature, philological journals and books of reference. The Zarncke library, which has been recently presented to the University, contains one of the largest single collections of books for the study of German literature and philology in America,

has materially enlarged the resources of the seminary and leave little to be desired.

A series of lectures in German by eminent scholars upon German life, literature and art will be given during the year.

Consultation hours. Sept. 22–26, 1903, 9–12; after Sept. 26, daily except S., 8:30–9. *Morrill 13 B*, Professor HEWETT,

Course 1, which cannot be taken to make up an entrance deficiency. is for beginners in German, and for those who have not already passed the entrance examination in Elementary German.

Course 2, which cannot be taken to make up an entrance deficiency, is otherwise open to those who have had Course 1, or have passed the entrance examination in Elementary German. Course 2 cannot be taken by those who have passed the entrance examination in Advanced German.

Courses 3–16 are open, under the restrictions hereafter noted, to those only who have had at least the equivalent of Courses 1 and 2.

Course 1, and, under certain restrictions, Courses 2a, 2b, 3, 4, 5, 7, 8 and 13 are open to Freshmen, whose previous work qualifies them for this work.

1. **Elementary Course in German.** Grammar, Hewett's German Reader. The principles of German pronunciation, inflexions, rules of syntax, re-writing of easy exercises in German, and memorizing familiar poems.

Section 1—M., W., F., 9. *Morrill 5*. Dr. HOWE.
Section 2—T., Th., S., 9. *Morrill 6*. Dr. KING.
Section 3—M., W., F., 10. *Morrill 5*. Dr. POPE.
Section 4—T., Th., S., 10. *Morrill 13*. Dr. HOWE.
Section 5—M., W., F , 11. *Morrill 13*. Dr. POPE.
Section 6—T., Th., S., 11. *Morrill 6*. Dr. VILES.
Section 7—M., W., F., 12. *Morrill 6*. Dr. VILES.
Section 8—T., Th., S., 12. *Morrill 6*. Dr. VILES.

2a. **Second Year.** Lessing's Minna von Barnhelm, Freytag's Verlorene Handschrift, Uhland's Poems.

Section 1—T., Th., S., 9. *Morrill 13*. Dr. HOWE.
Section 2—M., W., F., 10. *Morrill 6*. Dr. HOWE.
Section 3—T., Th., S., 10. *Morrill 5*. Dr. KING.

This course is intended for students of literature and for those who intend to make an advanced study of German. It is, however, open to all properly qualified students who have had Course 1. Advanced grammar, syntax, the use of the moods in main and dependent sentences, the derivation and composition of words, the force of prefixes and suffixes, also synonyms will be studied.

2b. **Second Year.** Course in the rapid reading of easy narrative and descriptive prose. The object of this course is to give facility in translation and especially to aid students in their later reading of technical and scientific works. This is a parallel course to 2a for the year.

Section 1—M., W., F., 11. *Morrill 6.* Dr. VILES.

Section 2—M., W., F., 12. *Morrill 13.* Dr. KING.

3. **Exercises in German Composition.** M., W., F., 12. *Morrill 5.* First half-year. Dr. POPE. This course will be conducted in German. Open only to students who have had Courses 1 and 2.

4. **Advanced German Composition.** M., W., F., 12. *Morrill 5.* Second half-year. Dr. POPE. This course will be conducted in German. Open only to students who have had Courses 1, 2 and 3, and to others by special permission of the Instructor. Candidates for teachers' certificates must have had the equivalent of Courses 3 and 4.

5. a. **Goethe: Faust, the First and Second Parts.** Lectures, recitations and reports. This course will be accompanied by lantern views illustrating the Faust legend and the influence of Goethe's drama in modern art.

b. **Dramas.** Open to students who have had Courses 1 and 2, and one full course in German literature. M., W., F., 9. *Morrill 13.* Professor HEWETT.

6. **Lectures on the History of German Literature from Luther to Lessing, with Readings from the Masterpieces.** This course will embrace a comparative survey of European literature in this period, and will be conducted entirely in German. M., W., F., 11. *Morrill 5.* Dr. KING.

7. **Schiller's Life, Historical Dramas and Prose Writings.** Studied in relation to the life of the author. This course will be illustrated by lantern views. M., W., F., 10. *Morrill 13.* Professor HEWETT. Open to students who have had Courses 1 and 2.

8. **Sight Translation.** Intended as an intermediate course between Courses 2 and 5 or 7. Numerous works giving a wide acquaintance with modern writers will be read. The aim of this course will be primarily to impart facility in translation and at the same time familiarize the student with the leading authors of the nineteenth century. T., Th., S., 10. *Morrill 6.* Dr. VILES.

9. **German Seminary. Advanced Course in Middle High German.** The Minnesinger, Walther von der Vogelweide, and selections from the court epics; investigations, reports and lectures. T., Th., S., 9. *German Seminary Room.* Professor HEWETT.

10. **Elementary Middle High German.** The popular epics, Hartmann von Aue, Nibelungenlied and Gudrun, mediæval German prose. T., Th., S,, 12. *Morrill 5.* Dr. HOWE.

11. **Course for Teachers.** Recent theories and methods of instruction in the modern languages will be discussed. The teacher's equipment will be considered, including representative works in linguistic study, histories of literature, biographies, dictionaries, grammars, annotated texts and maps. Moot points in pronunciation and syntax will be considered. After the Easter recess. T., Th., S., 9. *German Seminary Room.* Professor HEWETT.

Open to students who have had Courses 1–4, 12, and the equivalent of two full courses in German literature.

12. **Introduction to General Germanic Philology and Phonology.** Elementary phonetics, with special reference to German pronunciation and laws of linguistic change. The history of the German language. Historical and comparative syntax. First half-year. T., Th., S., 11. *Morrill 5.* Dr. POPE.

This course may be counted for credit for Teachers' Certificates.

13. **German Conversation.** The number of students in this course will be limited to twenty-five. Admission only to students who have had Courses 1 to 4, by special application to the instructor. Preference will be given to teachers and advanced students. Second half-year. T., Th., S., 11. *Morrill 13.* Dr. KING.

14. **Old High German.** Braune's Althochdeutsches Lesebuch. T., Th., S., 11. *Morrill 5.* Second half-year. Dr. POPE.

For graduates and advanced students of German literature. Admission only upon special application.

15. **Old Saxon: The Heliand,** and the minor Low German remains. Lectures and recitations. Early German metrical forms. For graduate and advanced students. First half-year. T., Th., S., 12. *Morrill 13.* Dr. POPE.

16. **Old Norse.** Lectures and recitations; continuation of Course 15. For graduate and advanced students of the Germanic languages. Second half-year. T., Th., S., 12. *Morrill 13.* Dr. POPE.

17. **Reading and Discussion of Current Reviews, and Criticisms of recent Works.** T., Th., 11. *German Seminary Room.* First half-year. Dr. KING.

18. **Old English Philology.** For students in Germanic philology and those especially interested in comparative grammar. M., W., F., 9, *English Seminary Room.* Assistant Professor STRUNK. See ENGLISH course 15.

19. **General Introduction to the Science of Language.** W., F., 11. *White 3 B.* Professor BRISTOL. See Comparative Indo-European Philology, course 1.

Candidates for the doctor's degree in Germanics are advised to present the equivalent of Course 1a and 1b, under Comparative Philology, as a part of their preparation for examination.

20. **The Deutscher Verein**, a club composed of the instructors in German, graduate students, and others specially qualified, will meet once a month for the reading of original investigations, for discussions and reports upon recent publications in the field of German literature and philology, 7:30 P. M. *German Seminary Room*, on the first Monday of each month.

21. **General lectures** upon German art and life, the history of German universities, the literature of special periods, and the history of German verse will be given before the German department by members of the Faculty and others. These will be given in the evening, at times to be announced during the year.

Candidates for Teachers' Certificates must have had Courses 1–4, 8, 11 and 12, and the equivalent of two full courses in German literature.

THE 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; three 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.

The instruction in the department is so planned that a student who pursues French for three or four years has no 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.

There are three courses offered in Spanish, an elementary course of grammar and reading the first year, followed by a course in modern Spanish literature and one in such classical authors as Cervantes, Calderon, and Lope de Vega. Either of these advanced courses may be taken the second year.

The courses in Italian are of two years. The grammar is rapidly studied the first term, and reading begun in the second. In the second year more advanced works are read; 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, in which a seminary room has recently been provided, is well furnished with materials for the special study of French 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 literature and philology.

Course 1, which cannot be taken to make up an entrance deficiency, is for beginners in French, and for those who have not already passed the entrance examination in Elementary French. Course 2, which cannot be taken to make up an entrance deficiency, is otherwise open to those who have had the equivalent of course 1, or have passed the entrance examination in Elementary French Course 2 cannot be taken by those who have passed the entrance examination in Advanced French (equivalent to the Intermediate French of the College Entrance Examination Board). Courses 3, 5, 7, 8, 10, 12, 13, are open, under the restrictions hereafter noted, to those who have had at least the equivalent of courses 1, 2. Course 1, and under certain restrictions, courses 2, 3, 5, 7, 8, 10, 12, 13, 15, 16, 17, are open to Freshmen.

1. **French Grammar and Reader.** Fraser and Squair's French Grammar. O'Connor's Choix de contes contemporains.

Section 1—M., W., F., 9. *White 13.* Mr. GUERLAC.
Section 2—M., W., F., 10. *White 13.* Dr. LODEMAN.
Section 3—M., W., F., 11. *White 10.* Mr. MOORE.
Section 4—M., W., F., 12. *White 10.* Dr. LODEMAN.
Section 5—M., W., F., 12. *White 13.* Mr. GUERLAC.
Section 6—T., Th., S., 9. *White 10.* Mr. MURRAY.
Section 7—T., Th., S., 10. *White 11.* Assistant Professor OLMSTED.
Section 8—T., Th., S., 11. *White 10.* Mr. MOORE.
Section 9—T., Th., S., 12. *White 10.* Mr. MOORE.
Section 10—T., Th., S., 12. *White 11.* Mr MURRAY.

2. **Hugo's Notre-Dame de Paris, Renan's Souvenirs d'enfance et de jeunesse, Rostand's Cyrano de Bergerac.**

Section 1—M., W., F., 9. *White 11.* Mr. MURRAY.
Section 2—M., W., F., 10. *White 10.* Mr. MOORE.
Section 3—M., W., F., 11. *White 11.* Assistant Professor OLMSTED.
Section 4—T., Th., S., 9. *White 13.* Dr. LODEMAN.
Section 5—T., Th., S., 10. *White 10.* Mr. MOORE.

3. **French Literature of the Eighteenth Century.** Prose and verse of the classic writers of the century, including readings of plays

by Regnard, Marivaux, Beaumarchais and Voltaire. M., W., F., 9, *White 10*. Professor CRANE.

Open to all who have had courses 1, 2.

4. **Romance Seminary.** Early Italian lyrical poetry. Monaci's Crestomazia italiana dei primi secoli. S., 10–12, *French Seminary Room*. Professor CRANE.

Open only to graduate students, and others on application.

5. **Origin and Development of the French Language and Literature down to the Sixteenth Century.** Lectures. S., 9, *White 11*. Professor CRANE.

Open to those who have had courses 1, 2, and Latin required for admission to the University.

6. **French Society in the Seventeenth Century.** Crane's La société française au dix-septième siècle, and Boileau's Dialogue des héros de roman. T., Th., 9, *White 10*. Professor CRANE.

Open to those who have had courses 1, 2, 3, or their equivalent.

7. **French Literature of the Seventeenth Century.** Prose and verse of the classic writers of the century, including readings of plays by Corneille, Racine and Molière. T., Th., 9, *White 11*. Assistant Professor OLMSTED.

Open to those who have had courses 1, 2.

8. **The French Romantic School.** Crane's Le romantisme français and plays by Hugo and Musset. W., F., 10, *White 11*. Assistant Professor OLMSTED.

Open to those who have had courses 1, 2.

9. **French Phonetics, Old-French Texts, etc.** T., Th., 11, *White 3 B*. Mr. MURRAY.

Open to those who have had courses 1, 2, 3, or their equivalent, and Latin required for admission to the University.

10. **French Fiction and Drama of the Nineteenth Century.** T., Th., 12, *White 13*. Mr. GUERLAC. This course will be conducted in French.

Open to those who have had courses 1, 2.

11. **French Prose-writers of the Nineteenth Century.** Lectures in French on the principal critics, historians, essayists, and political writers of the Nineteenth Century. S., 12, *White 13*. Mr. Mr. GUERLAC.

Open to those who have had courses 1, 2, 3, or their equivalent, and, in the judgment of the instructor, are capable of pursuing the course with profit.

12. **Elementary French Conversation and Composition.** T., Th., S., 11, *White 13*. Mr. GUERLAC.

Open to those who have had courses 1, 2, and, in the judgment of the instructor, are capable of pursuing the course with profit.

13. **Advanced French Conversation and Composition.** M., W., F., 11, *White 13*. Mr. GUERLAC.

Open to those who, in the judgment of the instructor, are capable of pursuing the course with profit.

14. ***Italian Reading.** Selections from Dante, Petrarch and Boccaccio. T., Th., 10, *French Seminary Room, Library*. Professor CRANE.

Open to those who have had course 15.

15. ***Italian Grammar and Reading.** M., W., F., 8, *White 11*. Mr. MURRAY.

This course cannot be taken in the same year with course 16, and is open to those who have had advanced entrance French or Latin.

16. **Spanish Grammar and Reading.** M., W., F., 12, *White 11*. Assistant Professor OLMSTED. T., Th., S., 8, *White 13*. Dr. LODEMAN.

This course cannot be taken in the same year with course 15, and is open to those who have had advanced entrance French, German, or Latin.

17. **Modern Spanish Literature.** Valdés, Galdós, Valera, Alarcón, Echegaray, etc. Th., S., 11, *White 11*. Assistant Professor OLMSTED.

Open to those who have had course 16.

18. ***Spanish Classics of the Sixteenth and Seventeenth Centuries.** Cervantes, Calderon, Lope de Vega. M., W., 11, *White 5*. Dr. LODEMAN.

Open to those who have had course 16.

ENGLISH.

CONSULTATION HOURS.

During the registration-period, September 27–29, 1904 :

Professor HART, daily, 10–12, 2–3, *Morrill 22*. Assistant Professor NORTHUP, daily, 9–10 ; Assistant Professor PRESCOTT, daily, 11–12 ; Assistant Professor STRUNK, daily, 12–1 ; Dr. COOPER, daily, 9–10 ; Dr. ANDREWS and Dr. MONROE, daily, 10–11 : —— *White 1a*.

After September 29 :

Professor HART, T., Th., 12–1, *Morrill 22*. Assistant Professor NORTHUP, M., 10–11 ; Assistant Professor STRUNK, S., 10–11 : *White 1a* ; Assistant Professor PRESCOTT, W., 10–11, *White 2*.

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*The hours for the courses in Romance Languages marked with an asterisk may be changed to meet the convenience of those desiring to take them.

The aims of the Department are threefold: I. Training in composition. II. Study of the growth of the language. III. Study of the literature. In all the courses there is much reading of texts. In 1–9, the aim of the reading is chiefly rhetorical; in 11–15, grammatical; in 21–29, interpretative. In 21–29, essays, reports, and other exercises in composition are required.

All the Courses except 15 must be continued through the college year.

Courses 1, 3, 9, 11, 12, 13, and at least two of the literature courses are required of students who desire to be recommended to high-school teacherships of English.

I. Composition.

(Candidates evincing marked ability in the entrance examination in English are permitted to enter Course 2 or Course 3 without taking Course 1. Candidates admitted upon Regents' diplomas without examination may obtain the like privilege on submitting to a test in writing, upon familiar topics, some of which will be connected with the entrance-books. This test, to be held Monday, September 26, 1904, 11 a. m., in the Library Lecture Room, and lasting about an hour, will not be treated as a University examination; no report will be made to the Registrar. For both classes of candidates the chief criterion will be facility in sentence- and paragraph-structure.

A list of the successful candidates will be posted before Registration Day.)

1. **The technique of narrative, descriptive, and expository writing.** Open to all students in Arts. Three weekly exercises in sentence-structure, paragraphing, essay-draughting, and the interpretation of illustrative specimens.

Section a. M., W., F., 9, *White 1b*, Dr. MONROE.
Section b. M., W., F., 10, *White 18*, Dr. ANDREWS.
Section c. M., W., F., 11, *White 4*, Dr. ANDREWS.
Section d. T., Th., S., 9, *White 1b*, Dr. MONROE.
Section e. T., Th., 2, S., 11, *White 2*, Mr. COX.
Section f. T., Th., 2, S., 11, *White 1b*, Dr. COOPER.
Section g. T., Th., 3, S., 12, *White 2*, Mr. COX.
Section h. T., Th., 3, S., 12, *White 1b*, Dr. COOPER.

All the study is under the direction of the head of the Department; administrative details are in charge of Assistant Professor NORTHUP.

2. **Theme-Writing**. Counts as three hours. Open to students who, having passed in Course 1, desire further training, especially in the technique of writing. Short daily themes, longer themes, conferences

at hours to be arranged; one lecture a week, T., 12, W., 12, *White 2*; Th., 11, *Morrill 21*. Assistant Professor PRESCOTT (in charge), Dr. MONROE, and Dr. ANDREWS.

3. **Theme-Writing.** Counts as three hours. Open to students who have attained good rank in Course 1, or given other evidence of marked proficiency in writing. Short daily themes, longer themes, conferences at hours to be arranged; one lecture a week, M., 12 or Th., 12, *White 2*. Assistant Professor STRUNK (in charge), Assistant Professor NORTHUP, and DR. COOPER.

Note.—Courses 2 and 3 are parallel; except by special permission of the Department, only one of them may be counted for a degree.

6. **Argumentative Composition.** Open to students who have attained good rank in Course 1, or have had Course 2 or 3. Six arguments, preceded by briefs. Lectures, study of texts, conferences. M., W., F., 10, *White 2*. Assistant Professor PRESCOTT.

(Preparatory to Course 3 in Oratory.)

9. **Teachers' Training Course.** Primarily for the training of high-school teachers of English, but serviceable to the general student. The work is partly literary, partly rhetorical. On the literary side, a general survey of English and American literature, in connection with the study of the books prescribed for admission to college; on the rhetorical side, a review of the general principles of composition, with practice in writing and correcting papers.

Open to students who have maintained good rank in 1 and 3 (2 in exceptional cases only) and in at least two of the Courses numbered 21–29 (or two of the Courses 13–16, *former numbering*). Good rank in 9 will entitle the student to count these hours towards the number requisite for a certificate in the Department of the Science of Education. M., W., F., 9, *Morrill 22*. Professor HART.

II. Language.

(Courses 11, 12, 13 constitute a series of studies in the history and present state of the language; all three are required of students who wish to be recommended to high-school teacherships of English. In each course there is enough text-reading to illustrate the periods of literature. Courses 11 and 12 are required for further study of the literature anterior to the Elizabethan period. Course 11 is recommended in preparation for 15; it is also serviceable for the general student of languages.)

11. **Old and Middle English.** Open to students in Arts who have had Course 1; to others, by special permission. Readings and lectures. M., W., F., 11, *White 1b*. Assistant Professor NORTHUP.

12. **Chaucer and Late Middle English.** Open to students who have had Course 11. Readings and lectures. T., Th., S., 10, *White 18*. Assistant Professor NORTHUP.

13. **Modern English.** Open to students who have had Courses 11 and 12. Historical English syntax, with a review of grammatical forms. Lectures and practical exercises. T., Th., 9, *Morrill 22*. Professor HART.

15. **Old English Philology.** For students engaged in the systematic study of the language. A knowledge of German is required for admission; some knowledge of Greek and Latin is also desirable. Students are also advised to take Course 11 in preparation. The phonology and inflections, first of Gothic, and then of Old English. Text-books, Wright, Gothic Primer; Bright, Anglo-Saxon Reader. Accompanied by lectures on general Germanic philology. M., W., F., 9, *English Seminary Room*. Assistant Professor STRUNK.

Note.—Students in Indo-European or in Germanic philology may withdraw at the completion of the Gothic portion of the course.

III. Literature.

21. **Introductory.** An elementary survey of the history of English literature; readings and lectures. Open to all students in Arts who have passed or who are taking one of the Courses 1–3. Registration in one of these courses is an integral part of 21. Students failing in Course 1 are not permitted to remain in 21.

Section a. T., Th., 10, *White 2*. Assistant Professor STRUNK (in charge).

Section b. T., Th., 11, *White 2*. Assistant Professor NORTHUP.

Section c. T., Th., 12, *White 1b*. Assistant Professor PRESCOTT.

Special Announcement.

In the year 1903–4 Courses 23–29 are open, with the permission of the instructor in charge, to students who have passed one of the Courses 1–3 and one of the Courses 13–16, 50–53, *former numbering*.

In 1904 the requirements will be one of the Courses 1–3 and Course 21; or, in place of 21, one of the Courses 13–16, *former numbering*.

23. **The English Novel.** Lectures upon its development; readings, essays, and discussions. T., Th., S., 10, *White 1b*. Dr. ANDREWS.

24. **Coleridge, Wordsworth, De Quincey.** A study of the lives and writings of these authors and some of their contemporaries. Lectures, readings, and papers. M., W., F., 9, *White 2*. Dr. COOPER.

25. **The English Essay.** Studies in the lives and works of the essayists from Bacon to Matthew Arnold ; with readings illustrative of the development of English prose. T., Th., S., 11, *White 4.* Dr. MONROE.

26. **Victorian Poetry.** A study of Tennyson, the Brownings, Clough, and Matthew Arnold. Lectures ; readings, reports, and discussions. M., W., F., 12, *White 1b.* Assistant Professor NORTHUP.

27. **Literary Forms.** A study of the origin and nature of the leading types of literary composition ; some illustrative works are read in class. First half-year : Narrative and Lyric poetry, and the principles of English verse. Second half-year : the Drama and the Novel. M., W., F., 10, *White 1b.* Assistant Professor STRUNK.

(Not open to students who have had Course 13, *former numbering.*)

28. **English Literary Criticism.** From the sixteenth century to the present time. Lectures and readings. M., W., F., 11, *White 2.* Assistant Professor PRESCOTT.

29. **Elizabethan Literature.** Shakespeare and his predecessors. Lectures and readings. M., W., F., 10, *Morrill 22.* Professor HART.

IV Graduate Study.

The several members of the Department will supervise research work, literary or linguistic, offered as a major or a minor subject for an advanced degree.

As a minimum of undergraduate preparation, three of the Courses 21–29, or their equivalent, are required for literary research ; Courses 11 and 15, or their equivalent, for linguistic research.

ORATORY.

Office of the Department, White Hall, 16a.

The instruction of the department embraces the philosophy and art of speech, the historical development of oratory and its influence upon human affairs, the writing and delivery of formal addresses, and the theory and practice of brief-writing and logical debate.

The essentials of good speaking are taught in nine elective courses, two elementary and seven advanced, so planned as to afford a knowledge of the principles and opportunity to apply these principles under the direction of instructors.

The elementary courses are the courses in public speaking. Their aim is to give the student a practical training in the technique of speech which will fit him to pursue the advanced courses in extempore speaking, debate and oratory, and prepare him as a speaker and thinker for public and professional life.

Those who elect the courses are divided into sections and the class exercises are conducted by the Professor of Oratory, and two instructors. The work of the class-room is supplemented and further applied by the assistants in the department, who meet the students of the several sections by appointment.

Principles of thought and expression are established inductively, and applied by the student in connection with original speeches. The system teaches that there can be no right speaking without right thinking, and that the way to secure right thinking is to enlarge the powers of observation, memory and reason. The student is assisted to see and feel the full value of meutal concepts, images and associated ideas, and to give expression to these as nature prompts. Stress is laid on originality in the interpretation of thought and emotion, complete assimilation, expression determined by the thought, not by the form of the sentences, rational gestures prompted by impulse, and a vocal culture that carries on voice-building and mind-training simultaneously. No imitation is permitted, and little of dogmatic or "elocutionary" theory finds a foothold. The purpose is to train, not public readers and elocutionists, but public speakers,—to start the young speaker on a course that will enable him to speak with composure, dignity and grace, and to satisfy the various demands of public life.

In the second half year, twelve speakers selected from the students pursuing the courses in public speaking contest for the prize founded by the class of 1886,—the '86 Memorial Prize in declamation.

The advanced courses in oratory give an acquaintance with the masters and masterpieces of the oratorical art and aim to develop on the part of the student such an appreciation of true rhetorical style that his writing may be more vigorous and better adapted to public delivery. The courses comprise lectures on the structure of orations and on oral discourse, the study of famous speeches, and the writing and speaking of orations. At the beginning of the year a limited field for research is determined upon by each student and all orations written by him during the year are based upon the result of this research. The productions are read and criticised with the writers and then delivered before the class and the public.

In the second half year there is a public contest in original oratory for the prize founded by the Hon. Stewart L. Woodford. Seniors may compete for a place in this contest according to conditions elsewhere described.

The courses in brief-writing, debate and extempore speaking are designed to ground the student in the principles of analysis, evidence and persuasion, and to give practice in the fields of argumentation and

original public speaking, according to a carefully-planned system and under the eye of an instructor who offers daily criticism and suggestions.

Near the close of the first half year there is held a public contest in debate for the memorial prize founded by the class of 1894. Not more than eight contestants are chosen to compete for this prize according to conditions elsewhere described.

The prizes of the department are not restricted to any college or colleges in the University.

The following courses are offered for 1903–1904.

1. **Public Speaking.** First half-year. An elementary course prescribed for admission to all the other courses of the department, except 2, and 2a. A practical training in public speech, with especial emphasis laid on analysis. Open to juniors who have pursued one or more courses in the department of rhetoric, and to sophomores whose record in English of freshman year is of a high grade and who purpose specializing in the department of oratory during junior and senior years. Also open to students in the College of Law who are not deficient in the English prescribed for admission to the college. Five sections, three hours. M., W., F., 9, 10, 11, 12; T., Th., S., 8, *White 16.* Assistant Professor LEE, and Messrs. WINANS, W R. LEE and ———.

Supplementary to this course and that which follows, Oratory 1a, personal instruction will be given, by appointment, throughout the year. Messrs. WINANS, LEE and ———.

The '86 Memorial Prize in declamation is awarded annually in connection with the courses in public speaking, the first competition being held at the end of the first half-year. For conditions governing this prize, see University Register.

1a. **Public Speaking.** Second half-year. Open only to those who have pursued course 1, and prescribed for admission to other courses of the department named below, except 2, and 2a. Thorough application of the principles of speech studied in the foregoing course. Weekly speaking exercises; each exercise preceded by a written report following "How to study a declamation," and by personal instruction from one of the teachers of the department. Five sections, three hours. M., W., F., 9, 10, 11, 12; T., Th., S., 8, *White 16.* Assistant Professor LEE, and Messrs. WINANS, W. R. LEE and ———.

2. **Public Speaking for Engineers.** First half-year. Two hours. The course in Public Speaking adapted to the practical needs of engineers. No student of the College of Law, or of Arts and Sciences, admitted. Assistant Professor LEE and Mr. ———.

2a. **Public Speaking for Engineers.** Second half-year. Two hours. Briefs, arguments and speeches in the field of engineering. Open only to those who have passed Course 2. Assistant Professor LEE and Mr. ———.

3. **Brief-Writing and Debate.** The theory of the preparation of debates. Lectures and brief-writing. First half-year. Open in order of merit to a limited number of students who have passed English 6 and have pursued with distinction the courses in public speaking; and also to a limited number of especially qualified students in the College of Law who have passed Oratory 1 and 1a with distinction. Two hours. S., 11–1, *White 16.* Assistant Professor LEE and Mr. W. R. LEE.

In the field of extemporaneous debate the University offers the '94 Memorial Prize, for conditions governing which see University Register.

3a. **Oral Debate, elementary.** Second half-year. The principles of argumentation applied to the oral discussion of questions of present interest. Weekly debates preceded by briefs. Open only to those who have passed courses 1, 1a, and 3. Two hours. S., 11–1, *White 16.* Assistant Professor LEE and Mr. W R. LEE.

3b. **Oral Debate, advanced.** First half-year. A half-course ending December 1. Open to those who have maintained a high standard of excellence in the two preceding courses in debate and who wish to enter the competitions for the '94 Memorial Prize. Credit, 1 hour first term. S., 9–11, *White 16.* Assistant Professor LEE.

4. **Extempore Speaking, elementary.** First half-year. Weekly addresses thoroughly outlined and mastered. Exercises based upon assigned topics in the fields of American history and politics. Study of vocabulary and lectures on methods and systematic treatment. Open, in order of merit, to a limited number of students who have pursued Oratory 1 and 1a with distinction. Two sections. Two hours. M., 4–6; T., 4–6, or other hours to be determined upon later. *White 16.* Assistant Professor LEE and Mr. ———

Application for admission to this course should be made before registration day of the first half-year.

4a. **Extempore Speaking, advanced.** Second half-year. Only those who have shown special proficiency in course 4 will be admitted to the advanced work. Weekly speaking exercises. Formal addresses. One section. Two hours. M., 4–6, *White* 16. Assistant Professor LEE.

5. **Formal Oratory.** The writing and delivery of orations; theory

and practice. First half-year. Exercise in writing orations, speeches and addresses. Each production read and criticized with the author. Public delivery of orations monthly. Open to seniors who have passed English 1 and 2, and have pursued with credit Oratory 1 and 1a. This course will afford special training for those who wish to write orations in competition for the Woodford Prize in oratory. For conditions governing this prize see University Register. Two hours. T., Th., 12. Assistant Professor LEE.

6. **The Masters and Masterpieces of Oratory.** Second half-year. Lectures and readings. Open to any student who has passed Course 1. Two hours. T., Th., 12. Assistant Professor LEE.

PHILOSOPHY.

The Department of Philosophy is known as "THE SUSAN LINN SAGE SCHOOL OF PHILOSOPHY." This school owes its existence to the generosity of the late Henry W Sage, Chairman of the Board of Trustees from 1875 to 1897. At a meeting of the Board held Oct. 22, 1890, Mr. Sage signified his intention of adding to the endowment of the Susan Linn Sage philosophical professorship, which he had established in 1886 in memory of his wife, a further gift of $200,000 to the Department of Philosophy. His object was to provide permanently at Cornell University for philosophical instruction and investigation of the most varied kind and of the highest order. To that end he stipulated that the Trustees should, whenever it was needed, supplement the proceeds of his endowments with appropriations from the general funds of the University. The gift was made and the legislation went into effect in September, 1891.

There are ten members of the instructing corps; a professor of the history and philosophy of religion, a professor of logic and metaphysics, a professor of psychology, a professor of moral philosophy, an assistant professor of ancient and mediæval philosophy, two assistant professors in philosophy, an assistant professor and two assistants in psychology. Thus all sides of philosophy are represented in the courses of instruction. Furthermore every method of discovering truth—observation, experiment, historical investigation, reflection, and speculation—is employed within its appropriate domain.

The endowments of the School of Philosophy enable it to secure besides this large faculty of specialists, whatever material facilities they require for the successful prosecution of philosophical studies and research. There is already a full equipment in some of the most important lines, and additions will be continually made as required. All the philosophical journals published, both at home and abroad,

are received. The library is also well supplied with philosophical works; and books not on hand are ordered when needed. In the new library building there is a large seminary room set apart for the exclusive use of advanced students in philosophy. This room contains complete sets of the more important philosophical journals, American, English, French, and German, and a carefully selected collection (which is being constantly enlarged) of books necessary for special study and independent research. Another room in the library building has been assigned to the School as an editorial room for "The Philosophical Review."

The Psychological Laboratory (Morrill Hall) consists of a suite of ten rooms, occupying a space of approximately 140 x 45 feet. Seven rooms are supplied with the direct current from the University circuit, five have gas, and three water. Every room is connected with every other by an elaborate system of telegraph wires, so that two or more rooms can be employed in a single investigation. Two rooms are devoted to work in psychological optics (one of them a dark room, 18 x 24 feet); and one each to acoustics, haptics, investigation into taste and smell, and chronometrical registration. A large lecture-room is used for experimental drill-work and demonstration. There are further a workshop and storeroom, a small room for special research work, and an office and seminary. The laboratory is especially rich in acoustical and haptical apparatus, while it is adequately supplied with the instruments necessary in other lines of investigation. The equipment is undergoing continued improvement, and apparatus needed for thesis work is at once procured. A skilled mechanician is in the service of the Department.

The Philosophical Review, now in its eleventh year, marks another function of the School, namely, the publishing of the results of investigation. It appears once in two months, each number containing from 112 to 128 pages. A large part of the material of the *Review* is contributed by the professors, fellows and graduates in the Sage School of Philosophy. It is found that the *Review*, which stands thus in the closest connection with the School, is an effective stimulus to students, whose constant intercourse with the members of the staff engaged in writing and planning for it, enables them to keep abreast of current philosophical problems and discussions. The *Review* also furnishes advanced students with a ready medium of publication. The results of original investigations which have been accepted for doctor's degrees are, in some cases, published in it.

With the *Review* for publishing and a large faculty of specialists for investigating, the School lays great stress upon original research and

inquiry. While much of the instruction is intended for undergraduates, the larger part of it is adapted to the needs of graduates of this and other institutions who are preparing themselves for positions as teachers, professors, etc. A student who has made a special study of philosophy during his junior and senior years, may still take a graduate course of three years' work in psychology, or metaphysics, or ethics, or in any other single philosophical discipline as his major subject. 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 $300 each, and three fellowships of the annual value of $500 each, both scholarships and fellowships being tenable for one year, but subject to renewal in exceptional cases. (A full account of these scholarships and fellowships will be found on page 66). The instruction of these advanced students is carried on in the seminaries and laboratory, where the students are fellow-workers with their teachers, who seek to guide them, partly by direct suggestion, and partly by precedent and example. It is believed, too, that students will receive much instruction, as well as enjoyment and benefit, from the close personal intercourse which it is an object to the School to cultivate between graduates and the members of the philosophical faculty. Students taking the graduate courses are in this way every effectively trained for the work of teaching; and it may be mentioned that most of the men who have completed their courses, have received appointments as instructors or professors of philosophy in different parts of the country.

Bracketed courses are not given in 1903–1904.

The courses in philosophy are designed for sophomores, juniors, seniors and graduates.

Psychological courses will be found under the numbers 1, 2, 2a, 18, 20, 21, 22, 40; courses in *Logic* and *Metaphysics*, under numbers 1, 24, 26, 26a; courses in *Ethics* under numbers 1, 6, 6a, 7, 14, 28, 29, 30, 43; courses in *Aesthetics* under the number 2, 16, 22; courses in the *History of Philosophy* under numbers 3, 4, 5, 9, 10, 11, 12, 12a, 14, 15, 24, 25, 26, 27, 30, 31, 32, 33, 34, 41, 42; courses in the *History and Philosophy of Religion* under numbers 8, 35, 44; *Reading Courses* under numbers 9, 14, 18, 19.

CONSULTATION HOURS.

Professor TYLER, T., 12 (till Thanksgiving recess), *White* 9. Professor CREIGHTON, T., Th., S., 1, *White* 5. Professor TITCHENER, until Christmas, T., Th., S., 12; after Christmas, M., W., F., 3,

Psychological Seminary Room, Morrill 16. Professor MCGILVARY, W., F., 10, *White 9.* Professor HAMMOND, M., W., 11, *White 7*, and at residence daily, 1:45–2:30. Professor ALBEE, M., 12, *White 5a.* Professor LEFEVRE, F., 1, *Boardman C.* Professor BENTLEY, M., W., F., 4, *Morrill 7*

I. Course Primarily for Sophomores.

1. **Introduction to Philosophy: Psychology, Logic, Ethics.** T., Th., S., 11. Psychology, until Christmas, *Psychological Laboratory Lecture Room.* Professor TITCHENER. Logic, until Easter, *Library Lecture Room.* Professor CREIGHTON. Ethics, after Easter, *Library Lecture Room.* Professor MCGILVARY.

Note.—Although Course 1 constitutes a single course, and must be taken as a whole, separate reports are made upon the three subjects treated, the credit being allowed as follows: Psychology, 2 hours first term; Logic, 1 hour for each term; Ethics, 2 hours second term.

This course is intended as a general introduction to the study of Philosophy through its central disciplines. The course or its equivalent is required of all those who propose to take work in Philosophy during their Junior or Senior year.

During the first third of the year, the class meets for lectures on Psychology by Professor Titchener, whose aim is at once to give an outline of what is established in the subject, and to remove obstacles from the path of beginners in mental science. The topics of sensation, affection, and attention are discussed in detail, and some time is devoted to the psychology of the abnormal (dreaming, hypnosis, and insanity) and to comparative psychology. The course concludes with lectures on the more complex mental processes, emotion, action, and association. Students who intend to enter upon this course are advised to take work in Physiology during their Freshman year. The lectures are supplemented throughout by experimental demonstrations, and Titchener's *Outline of Psychology* is used as a text book in the course. (For continuation of the work in psychology, see *Notes* under Courses 2 and 2a below.)

On the completion of this course at Christmas, Logic is taken up during the second part of the year. The lectures will present in an elementary way what is known regarding the general character of the thinking process and the methods by which thought actually proceeds to solve the problems presented to it. A considerable amount of attention will also be given to the analysis of logical arguments and the detection of fallacies, and for this purpose recitations in sections will sometimes be substituted for the regular lecture. Creighton's *Introductory Logic* will be used as a text-book.

After the Easter recess Professor McGilvary will give a series of lectures on Ethics, the object of which will be to bring out the distinctive features of moral action and to secure an insight into the leading principles underlying it.

II. Courses Primarily for Juniors and Seniors.

2. **Experimental Psychology.** Laboratory Work, with occasional lectures. M., W., F., 3, *Psychological Laboratory.* Professor TITCHENER, Assistant Professor BENTLEY, and Mr. ——.

The course falls into two parts. (1) For the first half of the year, the student's attention is devoted to the qualitative experiments upon sensation, affection, attention, action, perception and idea, and the association of ideas, outlined in Titchener's *Experimental Psychology*, Pt. I. The lectures supplement the laboratory work, on the side of systematic psychology. (2) In the second half of the year, lectures are given, with demonstrations, on the chief psychological measurement methods. The laboratory work is quantitative : verification of Weber's law in the various sense-departments, determination of stimulus limens, measurement of memory and attention, the psychophysics of volitional and selective action (compound reaction experiments), etc.

The object of the course is to familiarize the student with the elementary mental processes and the laws of their connection, and to accustom him to the handling of instruments of precision. The course is complete in itself, and may therefore be taken by those who desire to go farther than Course 1, but have no wish to make a special study of psychology. It will naturally be useful also to those who intend to graduate with a psychological thesis, as a preliminary to the systematic work of Course 20.

Note.—Students in their second year who have taken the psychological portion of Course 1, may enter this course for 1, 2, or 3 hours, while they are completing the Sophomore course in Logic and Ethics.

2a. **General Psychology.** T., Th., 9. Assistant Professor BENTLEY.

The lectures of this course will run parallel with the laboratory work of Course 2. The course, like Course 2, is complete in itself ; it will, however, be found a useful preparation for the systematic work of Course 20. It will cover the whole field of psychology, including the study of abnormal conditions (dreams, hypnosis, insanity, etc.). It will also pay attention to the problems of social and comparative psychology.

Note.—The lectures will be so arranged that students in their sec-

ond year, who have taken the psychological portion of Course 1, may enter this course at the beginning of the second semester.

3. **History of Philosophy.** Lectures, Prescribed reading, and occasional essays. T., Th., S., 12, *White 5*. Professor CREIGHTON.

This is an elementary course. and is intended primarily for the general student who wishes to know something of the history of thought, and the influence which philosophical ideas have exerted in the development of civilization. The lectures will give a general account of the history of philosophical speculation from its origin among the Greeks to the present time. An attempt will be made to present the various philosophical systems in their relation to the science and general civilization of the ages to which they belong, and to estimate their social and political significance. After a rapid survey of philosophy during the Greek, Roman, and Mediæval periods, the greater part of the year will be devoted to the theories and problems of modern times. It is proposed to give a considerable amount of time during the latter part of the course to a study of the speculative problems of the present century, and especially to an examination of the philosophical meaning and importance of the notion of Evolution or Development. Reading will be assigned from time to time, but there will be no class text-book.

4. **History of Ancient and Mediæval Philosophy.** Lectures and text-book. T., Th., 10, *White 5a*. Assistant Professor HAMMOND.

In this course will be treated the history of philosophical ideas from the early Greek cosmogonies down to the time of the Renaissance. The conditions under which occidental philosophy was developed and fostered from its beginnings in Greek literature, and the relations of those conditions to oriental influence, will form the subject of the introductory lectures. It will be the aim of the course to discuss the various systems and fragments of systems from Thales to the Neo-Platonists, and also the later influences of these systems in Rome, more particularly the ethical systems of Epicureanism and Stoicism. The course will then deal with the various movements of speculative thought in the Middle Ages. These philosophical ideas will be discussed in connection with the contemporaneous conditions of science and culture, and as the historical antecedents of modern intellectual life. Windelband's *History of Ancient Philosophy* and Gomperz's *Greek Thinkers* (both published by Charles Scribner's Sons, New York), will be used as text-books.

5. **Platonism.** Lectures on the Philosophy of Plato and reading on the Dialogues. S., 11. *White 5*. Assistant Professor HAMMOND.

In the lectures of this course, Plato's philosophical system will be

explained and the history of its influence on literature and culture discussed. In connection with the lectures, the following dialogues will be read : Apology, Crito, Protagoras, Gorgias, Theætetus, Phædo, Timæus, Republic, and parts of the Laws. The course is intended for students of literature as well as of philosophy.

6. **General Ethics.** Lectures and discussions. W., F., 9. *White 9.* Professor McGILVARY.

The main problems of Ethics will be studied, chiefly with reference to their bearings on life. The more important sociological data will be presented, the psychology of the moral consciousness will be studied, and the question of the relation of the individual to society will be discussed. This will involve an inquiry into the meaning of freedom and of moral responsibility, into the possibility of the reign of law in conduct, into the relation between tradition and individual initiative, and into the significance of human institutions for the moral life. In the light of the results thus obtained, the historic conceptions of duties and virtues will be critically examined, and finally the important practical problems of the moral life of the present will be investigated.

6a. **History of Morality.** Lectures. W., 12. *White 9.* Professor McGILVARY.

This course will present in outline the history of moral practice in primitive, ancient, mediæval and modern times. Especial emphasis will be laid on moral customs divergent from those now current among civilized peoples, in order to show how moral ideals vary according to the conditions of life. An attempt will be made to show the close interrelation between economic, political and social circumstances on the one hand, and morality on the other. No acquaintance with ethical theories is presupposed, and the course will be open to all regular students of the University, who have taken or are taking Course 1.

7. **Applied Ethics.** Lectures. Two hours till Thanksgiving recess, to count as one hour for the whole term. T., W., 12. *White 9.* Professor TYLER.

In the early part of the course, the lectures will be devoted to a discussion of the practical value of the ethical ideals given by Sociology, Utilitarianism, Aestheticism, Optimism, and Culture. The individualistic applications of these ideals will then be considered, and the personal virtues—right use of the intellect, control of the passions, truthfulness, honor—will be discussed. The second part of the course will treat of the bearing of moral standards upon Social Relations, the Duties of Friendship, Riches and Poverty, Public Opinion, University Life, the Theatre, the Press, Incivism, and

kindred topics. The lectures will keep in view the mutual bearings of practical ethics and Christian civilization.

[8. **History of Religions.** This course will not be given in 1903–1904].

9. **The Republic of Plato.** Reading of the Greek text. T., Th., S., 9. *White 5a.* Assistant Professor HAMMOND.

This course is intended for students of Greek Literature as well as of Greek Philosophy. The Republic will be read in its entirety, the main attention being devoted to the content. The text used will be that of Teubner, and Pater's *Plato and Platonism* (The Macmillan Co., New York) is recommended as a commentary.

10. **The Philosophy and Culture of the Renaissance.** Lectures. First term. F., 10. *White 5.* Assistant Professor HAMMOND.

The lectures of this course will deal with the Philosophy of Humanism from 1300 to 1600.

11. **The Influence of Philosophic Ideas upon Nineteenth Century Literature.** Lectures. Second term. F., 10. *White 9.* Assistant Professor LEFEVRE.

This course, open to both graduate and undergraduate students, will trace the general influence of philosophical conceptions, and particularly of German Idealism, upon British and American Literature. The opening lectures will discuss the general relations of philosophy and literature, and also outline and contrast the leading philosophical conceptions of eighteenth and nineteenth century thought. Coleridge will be then made the starting point, and Wordsworth, Carlyle, Emerson, and Browning will be successively treated from this special point of view.

12. **The Theory of Evolution: Its History and Significance.** Lectures. F., 12. *Boardman C.* Assistant Professor LEFEVRE.

These lectures are intended primarily for undergraduates. They do not presuppose acquaintance with the history or special terminology of philosophy. The lectures will trace the history of the theory of evolution from the first appearance of the concept among the Greeks to its formulation in modern times by Darwin. It is then proposed to discuss the recent modifications of the theory, and to indicate the application of the evolutionary method to the various sciences, special attention being directed to its bearing on ethics, sociology, and religion. In conclusion, an attempt will be made to estimate the significance of the evolutionary point of view for a theory of the world as a whole.

12a. **Supplementary Study in the Theory of Evolution.** Reading, discussions, and lectures. Th., F., 10, *White 5.* Assistant Professor LEFEVRE.

This course is open to students who have had Course 3 and to those who have passed Course 12 with distinction. After a resumé of the present state of biological theory, the application of the evolutionary method to the various sciences will be treated in some detail, and, finally, the philosophical bearings of the theory will be the subject of special study. Together with other reading which will be required, Spencer's *First Principles* will be critically reviewed.

14. **Aristotle's Ethics.** Reading of the Greek text. M., 11 (or other hour, to be arranged). *White 5a.* Assistant Professor HAMMOND.

In this course the *Nicomachean Ethics*, books I-IV and X, will be read and interpreted. The course is intended for such students of Greek as wish to read rapidly through an Aristotelian treatise and for such students of philosophy as wish to examine Aristotle's ethical ideas in the original.

15. **Thomas Aquinas**: Selections from the *Summa theologica*. T., Th., 12. *White 5a.* Assistant Professor HAMMOND.

This course is intended for students who desire to study at first hand the *Summa theologica*. In connection with the reading of the text the members of the class will study the general system of Thomism and the completion of Mediæval Philosophy.

16. **Introduction to Aesthetics.** An elementary course on the philosophy of art. Lectures, assigned readings, and examinations. M., 11, *White 6.* Assistant Professor HAMMOND.

The aim of this course is to give an historical survey of the more important theories of Aesthetics, to explain the nature of the aesthetic judgment and its significance for life, and to discuss some of the philosophical problems connected with the various forms of beauty and art : literature, industrial and decorative art, and the fine arts. The course will be of an elementary character, and is open to all students who have taken or are taking Course 1.

Reading Courses :—

18. **Reading of German Psychology.** Second term. T., 5, (or other hour, to be arranged). *Laboratory Lecture Room.* Professor TITCHENER.

The aim of this course is to assist toward the accurate and idiomatic rendering of German psychological literature. Fechner's *Elemente der Psychophysik*, vol. 1., will be translated in class.

Students who desire to read and translate a psychological monograph in French, German, or Italian, during the first term of the year, are requested to communicate, as early as possible, with Professor TITCHENER or Assistant Professor BENTLEY.

19. **Rapid Reading of German Philosophy.** S., 12. *White 5a.* Assistant Professor LEFEVRE.

The primary aim of this course is to aid the students in acquiring facility in translation and a knowledge of German philosophical terminology. Schopenhauer's Essay *Ueber die vierfache Wurzel des Satzes vom zureichenden Grunde* will be translated.

III. Courses Primarily for Seniors and Graduates.

20. **Systematic Psychology.** Lectures, essays, and experimental illustrations. M., W., F., 9. *Laboratory Lecture Room.* Professor TITCHENER, Assistant Professor BENTLEY, and Mr. ——.

The object of the course is twofold: to give the student a complete, if tentative, system of psychology, based upon the results of the experimental investigation of consciousness; and at the same time, by copious references to rival theories, to orientate him in experimental psychological literature. The first third of the year is devoted to a general introduction (problem, method, relations, and literature of psychology), and to a consideration of the problems of sensation and affection; the second third, to the topics of qualitative perception (with special emphasis upon the phenomena of tonal fusion), attention, and emotion; the remaining period, to those of spatial and temporal perception, memory and imagination, action and sentiment.

Essays will be written by the class on psychological questions. The most valuable of these may be published; several have already appeared in *Mind*, *The Philosophical Review*, and *The American Journal of Psychology*. There will be no text-book, but members of the class will be expected to be familiar with Wundt's *Outlines of Psychology*, and Kiilpe's *Outlines of Psychology*, and with selected portions of James' *Principles of Psychology*, Stout's *Analytic Psychology*, Ebbinghaus' *Grundzüge der Psychologie* aud Wundt's *Grundzüge der physiologischen Psychologie*.

The course may be taken by any student who has had courses 1, 2 and 2a, or their equivalents. It must be taken by all those who undertake advanced work in the psychological laboratory (cf. 40, below).

21. **Laboratory Exercises in Psychology.** Hours to be arranged. *Psychological Laboratory.* Professor TITCHENER, Assistant Professor BENTLEY, and Mr. ——.

These exercises will consist primarily in the repetition by the student of certain classical experiments in psychology, carried out in greater detail and with more accuracy than is possible in Course 2. They may also take the form of an original investigation in problems growing out of the work of that course, or of the simpler problems

suggested by the lectures of Course 20. The course may occupy from one to five hours a week, at the option of the student.

22. **Experimental Aesthetics.** Second term. S., 9 (or other hour, to be arranged). *Laboratory Lecture Room.* Assistant Professor BENTLEY.

This course is open to students who have taken (or are taking) Course 20. The lectures will deal with the history of Experimental Aesthetics, as defined by Fechner, devoting especial attention to the recent monographic literature

24. **Empiricism and Rationalism.** Lectures, discussions, and essays. T., Th., 11, *White 5.* Assistant Professor LEFEVRE.

In this course the empirical movement as represented by Locke, Hume, and Mill, and the rationalistic movement as represented especially by Descartes, Leibniz, and Wolff, will be studied with reference to their distinctive methods. The course is open to students who have taken, or are taking, Course 3 or an equivalent. The books needed will be Locke's *Essay* (Bohn edition, 2 vols.), Hume's *Treatise of Human Nature* (Clarendon Press), and Leibniz's *Philosophical Works* (Duncan's translation, Tuttle, Morehouse & Taylor, New Haven).

25. **The Critical Philosophy of Kant.** Lectures, discussions, and essays. T., Th., 11, *White 5a.* Assistant Professor ALBEE.

This course will presuppose a knowledge of the History of Philosophy. The greater part of the year will be devoted to the careful study of the *Critique of Pure Reason*, Müller's translation (published by The Macmillan Co.) being used in class. Frequent references will be given to standard commentaries and to the more recent literature on the subject. Toward the end of the year, the attempt will be made to show as clearly as possible the relation in which the three Critiques of Kant stand to each other. Instruction will be given mainly by lectures, but there will be opportunity for frequent discussions, and outside reading will be assigned from time to time.

26. **Types of Metaphysical Theory.** First term. Lectures and discussions. M., W., 12. *White 5.* Professor CREIGHTON.

This course is open to students who have had Course 3 or its equivalent. It is proposed to examine somewhat systematically, by means of lectures and informal discussions, the leading types of philosophical theory, such as Materialism, Idealism, and Pluralism, and in this connection to study some of the fundamental metaphysical problems, and to consider the various kinds of solution which have been offered. For a continuation of this work during the second term, see 26*a*.

26*a*. **Problems of Metaphysics.** Readings and discussions. Second term. M., W., 12. *White 5.* Professor CREIGHTON.

This course is a continuation of 26, and will be devoted to a further consideration and study of special metaphysical questions, and the reading of recent metaphysical works.

[27. **Post-Kantian Idealism.** Lectures and textual study. M., W., 12. *White 5.* Ass stant Professor LEFEVRE.]

This course was given in 1902–1903, aud will be repeated in 1904–1905.

28. **The History of Ethics.** Lectures, essays, and discussions. W., F., 11, *White 9.* Assistant Professors HAMMOND and ALBEE.

A history of ethical reflection, with special reference to the development of theories of morals in their relations to one another and to the general influences of their time. The first term will be occupied with the study of the moral theories and ideals of the peoples of Ancient Greece and Rome and of the Middle Ages. The second term will be given to the careful examination of modern theories, with special reference to the development of English ethics.

29. **Systematic Ethics.** W., F., 10, *White 9.* Professor MCGILVARY.

Some of the more important writers of different schools will be studied in detail by the students and will be fully discussed in class. Thus an acquaintance with recent systems will be gained, and by comparison of system with system an attempt will be made to secure appreciation of the strength and weakness of the various schools. All this work will be conducted with a view to aiding the student in reaching a constructive resul.

30. **German Pessimism, with special reference to Schopenhauer and E. von Hartmann.** Lectures and Discussions. T., Th., 12, *White 5a* Assistant Professor ALBEE.

In this course instruction will be given mainly by lectures, but the student will be expected to read Schopenhauer's *World as Will and Idea* and portions of von Hartmann's *Philosophy of the Unconscious* (translations of both published by Trübner & Co.). While these two representative works will be treated somewhat in detail in the lectures, the attempt will be made to show the ethical and social significance of modern pessimism and to assist the student in defining his own position with regard to the problems involved.

[31. **The Philosophy of Lotze.** Lectures and discussions. Two hours *White 5a.* Assistant Professor ALBEE.]

This course was given in 1902–3, and will be repeated in 1904–5.

[32. **Recent German Philosophy.** Lectures. One hour. Assistant Professor LEFEVRE.]

This course was given in 1901–1902, and will be repeated in 1904–1905.

33. **Recent British and American Philosophy.** Lectures. M., 11, *White 5a*. Assistant Professor ALBEE.

The object of this course is to give the student a coherent account of the development of metaphysical speculation in Great Britain and America from the rise of the Neo Hegelian School in England to the present time.

[34. **Recent French Philosophy.** Lectures. One hour. Assistant Professor LEFEVRE.]

This course will not be repeated in 1903–4.

[35. **Philosophy of Religion.**]

This course will not be given in 1903–1904.

IV. Seminaries.

40. **Seminary in Psychology and Advanced Laboratory Work.** Afternoons except S., 2–6; M., W., F., 10–12. Professor TITCHENER, Assistant Professor BENTLEY, and Mr. ——.

(a) *Graduate Section*. Graduate students will meet weekly by appointment with Professor Titchener or Assistant Professor Bentley, for the critical and historical discussion of psychological questions. These will, for the most part, be chosen with reference to thesis-subjects for advanced degrees. Theses need not necessarily be experimental; but students who graduate without undertaking original research in the laboratory must have taken Courses 2, 2a, and 20 or their equivalents.

(b) *Undergraduate Section*. Special hours will be set apart for reports of progress in undergraduate thesis work, experimental or historical. In the Senior laboratory work, experimental problems of a kind to extend over one or both terms, will be chosen to suit the inclination and attainment of students. The professor or his assistants will take constant part in all investigations in progress.

41. **Seminary in Ancient and Mediæval Philosophy.** W., 3–5. *White 5a*. Assistant Professor HAMMOND.

In this Seminary, which is open to graduates and seniors, students will be directed in thesis-work or in any special investigations they may be carrying on within the department of Ancient and Mediæval Philosophy. Once a week, in the hours above named, the members of the seminary will read the *De anima* or the *Poetics* of Aristotle.

42. **Seminary in Logic and Metaphysics.** M., 10. *White 5a*. Professor CREIGHTON.

During 1903–1904 it is proposed to undertake a study of modern logic. This seminary may be taken by anyone who has had Courses 1 and 3 or their equivalents. In attempting to reach a tenable view of the development of knowledge, the theories of the more prominent

recent writers on Logic will be passed in review, and the more important questions studied critically and in detail. Critical and constructive papers will from time to time be expected of the class.

43. **Ethical Seminary.** T., 3–5. *White 5a.* Professor McGILVARY.

The subject for 1903–1904 will be the theory of value, especially in its application to Ethics. The writings of Brentano, Meinong, von Ehrenfels and other recent theorists will be read and discussed in detail.

[44. **Seminary in the History and Philosophy of Religion.**]

This course will not be given in 1903–1904.

V Philosophical Conference.

A general conference of the professors, fellows, and scholars for the discussion of current philosophical literature will be held fortnightly.

THE SCIENCE AND ART OF EDUCATION.

Students wishing to qualify for the New York State college-graduate certificate are expected to take the state preliminary examinations before entering upon the courses in the Science and Art of Education. These examinations are set for the last Thursday in September and the first Thursday in May, and extend through two days in each case. The student may combine the standings earned in any three consecutive examinations. The subjects are grouped into four papers, as follows: 1. Arithmetic, Algebra; 2. American History, Civics, Geography; 3. Physiology, Physics, 4 Grammar, English Composition, Orthography. To qualify for the afore-mentioned certificate students are required to take an aggregate of eight hours of work for one year in the Science and Art of Education. The following courses are required: Course 3. Course 1 or 4, and one 1 hour Course.

A. Courses Primarily for Undergraduates.

1. **Philosophy of Education.** Lectures, discussions and text-book study. M., W., 2, *White 10.* Professor DEGARMO.

This course deals first with the relation of all school activities to modern society, and second with the principles underlying the art of teaching.

[2. **Friday Lectures on High School Work and Administration.** F., 2–3, *White 10.*

These lectures are given mostly by prominent principals and superintendents of New York and other states. One hour's credit will be given for attendance at the lectures. Omitted 1903–4. See Course 2*a*.]

2a. **Monday Lectures on the High School,** accompanied by discussions and readings, M., 3, *White 10.* Professor DEGARMO.

a. First half-year. Comparative study of the development of secondary schools in Germany, France, England and the United States. Required reading: Russell, "German Higher Schools"; Reports of the U. S. Commissioner of Education on Secondary Education in France and England; Brown, "The Making of our Secondary Schools."

b. Second half year. Special problems in High School teaching and management.

(The Friday Lectures on High School Work and Administration will be omitted in 1903–4.)

3. **History of Education.** Lectures, prescribed readings and essays. T., Th., 3, *White 10.* Professor DEGARMO.

This course includes a general survey of the whole history of education, and a special study of the following topics: the education of the Greek people; the rise and development of humanism; the educational doctrines of Comenius, Rousseau, Pestalozzi, Froebel, Herbart, Spencer; the development of modern systems of education.

4. **Psychological Basis of Education.** Lectures, prescribed readings and demonstrations. Lectures, T., Th., 2, *White 9*; demonstrations, hours to be arranged, *White 7 B.* Dr. WHIPPLE.

The lectures present a system of functional psychology and the applications of this system to educational theory are discusssed. From time to time the lectures will be illustrated by demonstrations of an experimental type in the laboratory of the department. Attendance at these demonstrations is optional and does not count for credit. Students who are particularly interested in this phase of the work and who are competent for experimental investigation may, however, register for systematic work, with credit, in Course 14.

5. **School Hygiene.** First half-year. Lectures, prescribed reading and demonstrations. F., 3, *White 7 A.* Dr. WHIPPLE.

The course will deal entirely with mental hygiene and the hygiene of instruction,—with such topics as fatigue, the period of study, school diseases, defects of sight and hearing, scientific tests, and, so far as time allows, with the hygiene of reading, writing and other studies. It is not intended to present the hygiene of school buildings, heating, ventilation, etc. For this work it is desired that students should have taken, or be taking, Course 4.

6. **The Education of Defectives and the Feeble-Minded.** Second half-year. Lectures and prescribed readings. F., 3, *White 7 A.* Dr. WHIPPLE.

An historical, statistical and critical survey of the methods employed in the education of the blind, the deaf and dumb, the feeble-minded

and abnormal children generally. Course 5 forms a natural introduction to this work.

7. **Teachers' Course in Latin.** Lectures on problems connected with the teaching of Latin in the secondary school. Practical exercises in the study of the grammar and of Virgil's *Aeneid*. Study of evidences for the pronunciation of Latin. Hidden quantities. Peculiarities of Orthography. Theoretical consideration of Latin syntax. M., W., F., 12, *Morrill 3*. Professor BENNETT and Assistant Professor DURHAM.

The general aim of this course is to prepare students that intend to teach to enter upon their first year of work with confidence. See also under Latin, courses 26a and 26b.

8. **Teachers' Course in Greek.** a. Advanced Composition. Connection with the study and reading of Xenophon's Anabasis. S., 12, *White 3 A*. Dr. FORMAN.

b. Discussion of the subjects contained in "The Teaching of Greek in the Secondary School," which will be used as a text-book. The Iliad of Homer will be read with the class. T., Th., *White 3 B*. Professor BRISTOL.

Open to properly qualified Seniors.

Courses a and b may be taken separately or together, but credit for the work required to obtain the certificate in the department of the Science or Education can be obtained only by passing in both of them.

9. **Teachers' Course in English.** Primarily for the training of high-school teachers of English, but serviceable to the general student. The work is partly literary, partly rhetorical. On the literary side, a general survey of English and American literature, in connection with the study of the books prescribed for admission to college; on the rhetorical side, a review of the general principles of composition, with practice in writing and correcting papers.

Open to students who have maintained good rank in English 1 and 3 (2 in exceptional cases only) and in at least two of the Courses English 21–29 (or two of the Courses 13–16 *old numbering*). Good rank in English 9 will entitle the student to count these hours towards the number requisite for a certificate in the Department of the Science of Education. M., W., F., 9, *Morrill 22*. Professor HART.

10. **Teachers' Course in German.** a. **Discussions of Recent Theories and Methods of Instruction in the Modern Languages.** Moot points in pronunciation and syntax will be explained. The teacher's equipment will be considered, including representative works in linguistic study, histories of literature, biographies, dictionaries, grammars, annotated texts and maps.

After the Easter Recess follows Course 12. T., Th., S., *German Seminary Room.* Professor HEWETT.

Courses a and b may be accepted as credit toward Teachers' Certificates.

b. **Introduction to German Philology and Phonology.** Elementary phonetics with special reference to German pronunciation and the laws of linguistic change. The history of the German language. Historical and comparative syntax. To the Easter Recess. T., Th., S., 11. Dr. POPE.

Open only to students who have had German 1–4, 16, and the equivalent of two full courses in German literature.

B. Courses Primarily for Graduates.

Graduate students selecting education for their major will be expected to take from one-half to two-thirds of their work in the studies that are fundamental to an adequate mastery of educational theory and practice. These fall naturally into two groups, the philosophical and the social. The philosophical studies include psychology, ethics, and the history of philosophy; the social studies include political, social and economic science.

12. **School Supervision.** Lectures and discussions. T., Th., 2, *White 10.* Professor DEGARMO.

This course presents a comparative view of the various problems of elementary school administration in this and other countries. It investigates especially, courses of study; school management; principles of grading, promoting, and examining pupils; the appointment, dismissal and guidance of teachers; construction, heating, ventilating, lighting and adorning school buildings; school sanitation; relation of teachers to pupils and parents.

13. **Mental Development.** Lectures, prescribed readings and essays. W., F., 2, *White 7 A.* Dr. WHIPPLE.

A study of the growth of the individual mind with special reference to the periods of childhood and adolescence. In the treatment of such factors as heredity, reflex and instinctive action and the doctrine of recapitulation, some attention will be made to the evolution of mind in the animal kingdom. Ability to read either French or German is required. [This course will be given on alternate years. It will be omitted in 1904–5.]

14. **Seminary for Experimental Investigation.** Hours to be arranged. *White 7 B.* Dr. WHIPPLE.

The work will consist primarily in the repetition by the student of certain standard experiments, carried out more thoroughly than is

possible in the demonstrations connected with Courses 4 and 5. Competent students may also take up the investigation of some original problem. Students may register for from one to three hours a week. Philosophy 2 is a desirable preliminary.

15. **Seminary for the Science and Art of Education.** W., 3–5, *White 7 A*. Professor DEGARMO and Dr. WHIPPLE.

The work of the seminary will consist of reports and theses upon educational problems, partly of a social and partly of a psychological nature. These reports and theses will involve study from original sources. A critical survey of current educational literature, in the form of reports and abstracts, will also be made. French and German are required.

MUSIC.

1. **Chorus.** Open to all students evincing sufficient aptitude to pursue the subject with profit. Sight reading, ear training, vocal culture, the study of standard church music and a thorough study of at least one great masterpiece. The work selected for the coming year is Mendelssohn's oratorio, The Elijah. Attendance at two rehearsals each week, at the Sunday morning service in Sage Chapel and at special lectures on Music. *Sage Chapel and Barnes Hall.* Two hours. Hours to be arranged. Mr. DANN and Mr. DALAND.

2. **Advanced Chorus.** Study, interpretation and public presentation of the best choral works. This course is offered as advanced training to students possessing good voices who can read readily at sight. Students in this course constitute the Sage Chapel Choir at the Sunday afternoon Vesper Services, and participate in the preparation and public performance of larger choral works. The work selected for the coming year is Mendelssohn's oratorio, The Elijah. Attenddance at two rehearsals each week at the Sunday afternoon Vespcr Service in Sage Chapel and at special lectures on Music. *Sage Chapel.* Two hours. Hours to be arranged. Mr. DANN.

HISTORY AND POLITICAL SCIENCE.

By action of the Board of Trustees, in view of the gift to the University by ex-President Andrew D. White of his valuable historical library, the departments of History and Political Science have been named THE PRESIDENT WHITE SCHOOL OF HISTORY AND POLITICAL SCIENCE. The work of these departments is carried on by five professors, two assistant professors, an instructor, and an assistant.

A.—Ancient History.

The introductory course in Greek and Roman history, open to all students, is designed to cover in outline the history of antiquity from the emergence of the Greek nation to the overthrow of the Roman Empire in the West. Attention is concentrated especially upon the characteristic features and achievements of Greek and Roman civilization and upon the factors which led to the final unification of the ancient world under the sway of Rome. The lectures are supplemented by the study of a text book and by assigned readings in selected authorities. Students who have taken this course or who have otherwise acquired a general knowledge of the field it covers may be admitted to the more advanced courses which will be offered in this department. A course of this character, designed chiefly for mature students of history, political science or classical philology, is devoted to the history of the Roman Empire from its establishment throughout the Mediterranean world to the age of Justinian, with special reference to its political and economic organization. This course will involve the study of assigned topics with the use of primary authorities in translation. For graduate students and seniors, possessing sufficient acquaintance with Greek and Latin, there is provided in the seminary in Greek and Roman history an opportunity to engage in the critical study of some special period or problem from the sources. Lectures on the life and antiquities of the Greeks and Romans are offered by the departments of Greek and Latin, and courses on the history of the Oriental nations are given by the professor of Semitic Languages and Literatures.

B.—Mediæval History.

In mediæval history there is open to all students a course of three hours weekly on the history of Europe during the Middle Ages; and to those who have completed this course a similar one on the age of the Renaissance and the Reformation. For training in historical research in these fields, a practice-course familiarizes the student with the Latin of the mediæval chroniclers, then teaches him to read the manuscripts and interpret the documents of the Middle Ages; and a seminary meant less narrowly for students of pre-modern history, but open only to seniors and graduates, is devoted to historical method, examining first the scope, the materials, and the processes of history, and then addressing itself to the illustration of these by a critical study of some episode or period, in free use of the resources of the library. As further introduction to the mature study of history, a

course of one hour weekly deals with the sciences auxiliary to history, giving especial attention to historical geography.

C.—Modern European History.

In English History a general course, intended for sophomores, covers the history of the nation, while an advanced course deals with English Constitutional History, with special reference to the growth of those institutions, legal and political, which have been perpetuated and developed in America.

In the general history of modern Europe, a course, intended primarily for juniors, covers from the beginning of the 17th century to the present time. Special periods will be dealt with in more advanced courses and in weekly seminaries devoted to training in research.

D.—American History.

The most general course offered in this department affords a brief, comprehensive survey of our history to the outbreak of the Civil War. It requires the use and criticism of the leading secondary authorities and the study of a limited number of selected sources. It is an introductory course, designed to prepare undergraduates for further work involving the use, in special courses devoted to selected periods or topics, of a wider range of primary authorities. The subjects of such courses are changed from time to time. At present they comprise: (a) the constitutional history of the United States to 1860, (b) the non-military history of the Civil War and the history of reconstruction, (c) the expansion of the English in North America to 1867. In the last mentioned course the occupation of this continent is viewed rather as a phase of the history of European peoples than as an event exclusively American. More technical instruction in history is likewise offered. To such undergraduates as look forward to the intensive study or to the teaching of history, the practice class gives an opportunity for forming their habits of historical work under detailed guidance. The seminary of the department, to which the practice class is, in a sense, preparatory, enjoys the exclusive use of a well-equipped room in the University Library, conveniently adjacent to the history stacks. Its work involves the study, by all its members, of some one general subject, upon various phases of which they are expected to report, at weekly meetings, the results of their investigations in the sources. In 1902–03, the topic thus treated was the political career of Stephen A. Douglas. In the practice class and in the earlier meetings of the Seminary, before its student members are ready to report,

informal lectures are given on methods of historical investigation and on the materials of American history. Guidance in the preparation of the theses required for advanced degrees is given as individual need may require.

E.—Political Economy and Politics.

The course in Political Institutions by a study of the nature of the state, and by a somewhat detailed comparison between the systems of leading foreign governments and that of the United States, with especial reference to the practical workings of these systems rather than to the mere letter of the constitutional law, aims to give the student a needed knowledge of these governments, possibly to suggest at times needed reforms in our own political practices and especially to develop habits of thinking in an unprejudiced way on political questions.

In the Seminary the time is devoted to a study of the Principles of Politics. The work in this class is directed more to the fundamental principles of organic evolution and to those forces, physical, psychological, economic, social, which determine the formation and modification of society and of the state. It is the intention to illustrate these principles by reference to historical experience, especially American and English ; but all the classes in Politics are conducted with the intention of showing the practical nature of those studies in connection with the duties of citizens and of those holding positions of trust in the government.

The course on Modern Questions in International Politics, besides helping to make clear the political relations of modern states, affords also present day illustrations of political principles in action. In 1903–04 this course will treat particularly of the political and social problems of the Orient. The industrial, social and political conditions of Japan, Corea and China will be treated, and the relations existing between these countries and the leading powers of Europe with the industrial and diplomatic problems arising among them will be discussed in some detail.

Particular attention is called in the study of Political Economy, especially in the course in Economic Legislation, to the intimate relation existing between economic society and the state ; the influence of economic conditions upon government on the one hand, on the other the powerful influence of the state as a factor in determining economic conditions. The study of present economic questions that are subjects of legislation and the comparative study of the laws of other states and countries serve both to throw light on the subject

discussed and also to explain why laws on economic subjects seem often so imperfect as well as to show how complex is the nature of the task, of the conscientious, trained legislator. It is hoped to make the student see that the study of economic principles is intimately connected with the tasks of everyday life.

During the year 1903-04 the study of Money, Credit and Banking, with especial reference to the principles and practice in international exchange, will form the special subject of study in the course in Economic Legislation.

The collateral courses of the College of Law in American Constitutional Law, International Law and General Jurisprudence give information of general interest and value to all thoughtful citizens.

The large special collection of foreign statutes and the Moak Library of the College of Law afford special facilities for the study of Comparative Legislation and for the study of the historical development of politics and legislation.

F.—Political Economy and Statistics.

The course in Elementary Social Economics aims to show the significance for the student of economics and social life of the theories of evolution. Attention is centered upon the social group rather than upon the individual. The family, as the simplest and most important social group, is first studied in its historical development and its present organization and life. The study advances from this to the elementary study of more complex and ill defined social groups, such as races and the several classes of social dependents. Emphasis is laid upon the statistical method as an aid in the study of social groups and the measurement of social forces.

The course in the History of Economic Theories will be devoted to a detailed and critical analysis of certain masterpieces in economic theory. The books to be studied in 1903-04 are Adam Smith's Wealth of Nations and John Stuart Mill's Principles of Political Economy. Particular attention will be given to the philosophical presuppositions of these writers and the connection between their economic speculation and their conclusions in other fields.

The course in Elementary Statistics is an introduction to statistics as a method of studying social groups and social life. Emphasis is laid upon the results reached by this method in the simplest fields where the chances for error in observation or interpretation are least. Special attention is given, therefore, to simple statistics of population and the elements of vital statistics. The methods of the United States Census Office will be presented in detail and a critical analysis made

of the results of the twelfth census. The statistical laboratory is furnished with many of the electrical and mechanical devices to facilitate statistical work which are found in a modern statistical office. Two hours a week of laboratory work are required, in the course of which students gain some familiarity with present methods of statistical work.

The Course in Commercial Geography aims to survey the resources and products of the world with especial reference to those of the United States. Chisholm's Handbook of Commercial Geography will be used as a guide.

The course in Advanced Statistics will be upon race questions and race relations in the United States. The important figures of the Twelfth Census elucidating the condition of American negroes will be given special attention, topics for research in this field will be assigned, and the results compared and criticised in class.

G.—Political Economy and Finance.

The general course in Political Economy, 51, should be taken, preferably in the Sophomore year, by all purposing to pursue studies in Political Science. For a few courses only it is not an absolute prerequisite. The lectures given twice a week cover broadly both the theoretical and practical fields, and the section meetings in smaller groups afford an opportunity for questions and discussion on lectures and assigned reading.

Other courses represented are on the history and description of economic institutions; on the practical social questions connected with transportation; on the work and administration of the benevolent institutions, public and private; and on monetary, banking and fiscal problems. In the laboratory exercises and research work connected with finance and philanthropy a useful preparation is given for many kinds of social and government work.

In the study of these practical subjects the aim is to gain a clear understanding of the history and facts involved, a close acquaintance with the sources and materials available, and the habit and power of considering them in a fair-minded way. More importance is attached to the interpreting of studies in the light of the personal experience of the student than to the acceptance of doctrines as final conclusion.

The courses in this and the related groups if pursued systematically, should aid in preparing for business, law, journalism, the ministry, professional philanthropy, and various lines of government and corporation service, as well as give a modernized "general education" that makes for broader life and better citizenship. Students having a

definite aim in view are invited to consult at the beginning of their college course regarding their arrangement of studies.

Courses in History and Political Science.

Students intending to devote themselves especially to the study of History or Political Science are advised to give as much as possible of their time in the early years of their course to the study of languages. Latin, French, and German will be found indispensable in much of their later work.

A.—Ancient History,

Consultation hours: Professor SILL, *T., Th., 12, Morrill 15. For Professor* BENNETT, *see under* LATIN. *For Professor* SCHMIDT *see under* SEMITIC LANGUAGES.

1. **Greek and Roman History.** A survey of the history of the Mediterranean world from the beginnings of Greek civilization to the dissolution of the Roman Empire in the West. Lectures, text-book, and examinations. Open to all students. M., W., F., 11, *Morrill 11*. Assistant Professor SILL.

2. **The Roman Empire.** A study of the history of the world under the dominion of Rome from the establishment of Roman supremacy in the Mediterranean to the age of Justinian. Lectures, discussions, and examinations. Open only to those who have had course 1 or its equivalent. T., Th., 11, *Morrill 21*. Assistant Professor SILL.

3. **Seminary in Greek and Roman History.** Open to graduates and, by permission, to qualified seniors. Subject for the year 1903–4: Sources for the History of Alexander the Great. Th., 4–6, *Greek and Latin Seminary Room*. Assistant Professor SILL.

[4. **Greek Life.** The land and the people. Home life and private antiquities. Public life and social institutions. A study of the private life of the Greeks, with illustrations (by lantern views, photographs, etc.) from ancient monuments and remains. T., Th., 10, *White 6*. Professor STERRETT. See Greek 24.]

5. **Roman Antiquities.** First term and until Easter recess: A systematic consideration of the constitution of the Roman family, status of women, marriage, children, education, slavery, the Roman house and its furniture, food, dress, baths, games and amusements, books, trade, travel, religion, death, burial, etc. Lectures illustrated by lantern views, photographs, and material in the Museum of Casts. Easter recess until end of year: The Political and Legal Antiquities of the Romans. Lectures. W , F., 12, *Morrill 3*. Professor BENNETT. See Latin 27.

6. **Sources of Roman History.** F., 9, *Morrill 21.* Acting Assistant Professor GUDEMAN. See Latin 30.

8. **Oriental History.** Babylonia and Assyria, first half-year; second half-year, The Spanish Caliphate. T., Th., 2, *Morse 3.* Professor SCHMIDT.

See Semitics 8.

Cognate courses Classical Archaeology 1, Greek Archaeology, Mr. ANDREWS; Greek 7, Herodotus, Professor STERRETT; Greek 8, Demosthenes, Professor BRISTOL; Greek 9, Thucydides, Mr. MACRAE; Greek 12, The Orations of Thucydides, Dr. FORMAN; Greek 21 and 22, Greek Literature, Professor STERRETT; Greek 23, Physical and Historical Geography of Greece, Professor STERRETT; Latin 17, Literature and History of the Early Empire, Professor BENNETT; Latin 42, Latin Epigraphy, Assistant Professor DURHAM; Philosophy 4, History of Ancient and Mediaeval Philosophy, Assistant Professor HAMMOND; Philosophy 5, Platonism, Assistant Professor HAMMOND.

The attention of students who wish to take advanced work in this department is called to the importance of acquiring a reading knowledge of Greek, which those who intend to teach Greek and Roman history will find indispensable. To those who have not taken Greek before entering the University the course in elementary Greek (Greek 1) offers an opportunity to acquire in one year the ability to read Attic prose.

B.—Mediæval History.

Consultation hours: Professor BURR, *T., Th., Sat., 12, Barnes Hall.*

10a. **Europe during the Middle Ages, 300–1300 A.D.** Lectures, discussions, and examinations. Open to all students. M., W., F., 9, *Barnes Hall.* Professor BURR,

10b. **Europe during the Renaissance and the Reformation, 1300-1600 A.D.** Lectures, discussions, and examinations. Open to those who have had course 10a or its equivalent. T., Th., S., 9, *Barnes Hall.* Professor BURR.

11. Courses 11a and 11b are meant especially for students of history who have taken course 10a or 10b and wish preparation for first-hand research in these fields. They presuppose some knowledge of Latin—as much, say, as is needed to read Caesar or Livy.

11a. **Mediæval Life.** The reading of some mediæval chronicle, with a view to acquaintance with mediæval life and facility in the reading of mediæval Latin. For the year 1903–1904 the chronicle

is the *Historia Langobardorum* of Paulus Diaconus. First half-year. T., 4–6, *European History Seminary Room.* Professor BURR.

11b. **Palæography and Diplomatics.** The reading of historical manuscripts and the interpretation of historical documents (especially those of the Middle Ages). The course is one of actual study of the manuscripts and facsimiles in the University's possession. Second half-year. T., 4–6. *European History Seminary Room.* Professor BURR.

12a. **The Sciences auxiliary to History.** A glance at the aims, the methods, the literature, and the use to History of the more important auxiliary sciences—Anthropology, Ethnology, Archæology, Philology, Epigraphy, Palæography, Diplomatics, Sphragistics, Numismatics, Heraldry, Genealogy, Chronology, Geography. First half-year. Th., 4–5, *Barnes Hall.* Professor BURR. Open only to upperclassmen.

12b. **Historical Geography.** A fuller study of this most indispensable of the auxiliary sciences. Second half-year. Th., 4–5, *Barnes Hall.* Professor BURR. Open only to upperclassmen.

13. **Historical Method.** A seminary open only to seniors and graduates, and meant especially for those looking forward to the teaching of history or to historical research. *a.* History : its nature, its purpose, its materials, its methods. *b.* The critical study of some period, event, or phase of history. For the year 1903–1904 the topic will be : The Life and Thought of a Rhenish Town in the Age of the Reformation. W., 4–6, *European History Seminary Room.* Professor BURR.

C.—Modern European History.

Consultation hours : Professor CATTERALL, *to be announced later* ; *Professor* SILL, *T., Th., 12, Morrill 15.*

15. **English History.** Lectures on the national development and the European relations of England, Scotland, and Ireland, with textbook and examinations. M., W., F., 12, *Boardman Hall, Room A.* First half-year (to 1603), Assistant Professor SILL ; second half-year, Assistant Professor CATTERALL. Open only to sophomores and juniors.

16. **Modern European History, 1600-1900.** Lectures with syllabus, reports and examinations M., W., F., 11, room to be announced. Assistant Professor CATTERALL. Open only to those who have had course 10b or course 15. A reading knowledge of French or German is required.

17a. **History of Europe from 1740 to 1795,** with special reference to the history of Prussia, Russia and Austria. Lectures, discus-

sions and examinations. T., Th., 11, *Morrill 11*. Assistant Professor CATTERALL. Open, save by permission, only to those who have had course 16 or its equivalent, or who this year take that course.

[17b. **History of the French Revolution and the Napoleonic Era, 1789-1815.** Lectures, discussions and examinations T., Th., 11, *Morrill 11*. Assistant Professor CATTERALL. Open only to those who have had course 16. To be given in 1904–5.]

[17c. **History of Europe from 1815 to the present.** Lectures, discussions and examina ions. T., Th., 11, *Morrill 11*. Assistant Professor CATTERALL. Open only to those who have had course 16. To be given in 1905–6.]

18a. **The Constitutional History of England to 1603.** Lectures, study of constitutional documents, and examinations. T., Th., 12, *Morrill 11*. Assistant Professor CATTERALL. Open only to those who have had course 15.

[18b. **The Constitutional History of England from 1603 to the present.** Lectures, study of constitutional documents, and examinations. T., Th., 12, *Morrill 11*. Assistant Professor CATTERALL. Open only to those who have had course 15. To be given in 1904–5.]

19. **Seminary.** Open to graduates and, by permission, to qualified seniors. M., 4–6. *European History Seminary Room.*

D.—American History.

Consultation hours: Professor Hull, daily at 11 except Saturday, Morrill 1.

22. **American History from the Period of Discovery to the Adoption of the Constitution of the United States.** Lectures, reports, and text books. First half-year. M., W., F., 10, *Morrill 11*. Professor HULL.

23. **History of the United States (since 1787).** Lectures, reports and text books. Second half-year. M., W F., 10, *Morrill 11*. Professor HULL.

Course 23 is open to those only who have taken course 22.

24. **The Expansion of the English in North America (to 1867).** Lectures, assigned readings and essays. First half-year. M., W., F., 9, *Morrill 11*. Professor HULL.

25. **Constitutional History of the United States to 1861.** Lectures, assigned readings and essays. First half-year. T., Th., 10, *Morrill 11*. Professor HULL.

Open to graduates and to such undergraduates as have had course 23 in American history or a university course in the history of England.

26. **Political and Constitutional History of the Civil War and**

of Reconstruction. Lectures, readings and reports. Second half-year. T., Th., 10, *Morrill 11*. Professor HULL.

Open to those only who have had course 25.

27. **American Constitutional Law.** McClain's Cases on Constitutional Law. W., 9, *Boardman B.* Professor POUND.

28. **Practice Class in Historical Investigation.** Library work and reports, with occasional lectures. Two hours, to be arranged. Professor HULL and Mr. RAY.

Open to juniors and seniors who have taken work in the department. Subject for 1903–04, The Repeal of the Missouri Compromise.

29. **Seminary.** T., 4, *American History Seminary Room.* Professor HULL.

Open to graduates and, by permission, to qualified seniors.

Baccalaureate Theses. Seniors who have taken courses 22 and 23 and whose essays give satisfactory evidence of their ability to do advanced work, may be permitted to write baccalaureate theses in this department. Permission should be obtained before the end of the junior year, and the thesis subject must be approved before October fifteenth of the senior year. Appropriate credit may be given for the completion of a satisfactory thesis.

E.—Political Economy and Politics.

Consultation hours: Professor Jenks, M., T., and W., 11:10 a. m. Morrill 4A.

31. **Political Institutions.** Nature and historical development of political institutions. The government of the United States, studied with especial reference to its practical working. Comparative study of foreign governments and their relations to present political problems in the United States. Lectures, collateral reading, reports and discussions. M., T., W., 10, *Morrill 12.* Professor JENKS.

33. **Modern Questions in International Politics: Political and Social Problems in the Far East.** A study of social and political conditions in China, Japan, Far Eastern Russia, and in the possessions of the different countries most closely connected with oriental economic and political problems. An effort will be made to explain the relations of these countries, and especially to show the nature of the interest of the United States in its international relations in the Orient. Lectures, with collateral reading and reports. M., W., 12. *Morrill 12.* Professor JENKS.

34. **Economic Legislation: Money, Credit and Banking.** The course in Economic Legislation in 1903–04 will be devoted to the special study of Money, Credit and Banking. Especial emphasis will

be laid upon credit instruments and their relation to business conditions, and upon banking laws with reference to reforms proposed in the United States. Course 51 or its equivalent is required for admission. M., W., 9, *Morrill 12.* Professor JENKS.

35. **Municipal Government in Europe and the United States.** Lectures and assigned reading on the governmental, financial, and social problems presented by the modern city. The latter part of the course will be devoted to an extended discussion of the policy of municipal ownership. Students will be required to investigate and report on municipal conditions in the localities with which they are most familiar. Second term, M., W., F., 9, *Morrill 11.* Dr. BROOKS.

[39. **American Politics.** An elementary course on the government of the United States. The formation and development of the leading political institutions, national, state, and local, and their methods of practical work: influences exerted by various physical, economic and social forces and institutions in shaping our government and its broader lines of policy; the historical development of certain important American political ideas, such as federation, freedom of the individual, expansion. The study will be comparative, but the illustrations will be mainly from English and American history. The aim is to give an insight into the practical working of American politics, as well as to suggest ways of viewing historical and social questions in general. Open to all students. Professor JENKS. Not given in 1903–04.]

40. **Seminary.** Special research work in Politics in connection with certain historical problems. Open only to graduates and by permission to specially prepared students. T., 4–6. *Political Science Seminary.*

Collateral Courses in the College of Law.

History and Evolution of Law. First term before Christmas. Lectures, M., W., 10. *Boardman C.* Professor F M. FINCH.

International Law.

Second term. Syllabus and lectures. T., Th., 10. *Boardman C.* Dean HUFFCUT.

American Constitutional Law.

Text book. W., 9. *Boardman B.* Professor POUND.

F.—Political Economy and Statistics.

41. **Elementary Social Economics.** An introductory course upon the relation of evolutionary theories to the social sciences; with applications to the study of the family, race relations, immigration, etc. T., Th., 9, *Morrill 12.* Professor WILLCOX.

42. **History of Economic Theories.** The reading and discussion of Adam Smith's Wealth of Nations, and John Stuart Mill's Principles of Political Economy, with especial reference to the other works of these writers. Th., 4–6, *Morrill 24*, Professor WILLCOX.

44. **Commercial Geography.** Text book, reports and lectures. Chisholm's Handbook of Commercial Geography will be used as a guide. W., F., 8, *Morrill 24*, Professor WILLCOX.

48. **Elementary Statistics.** An introductory course in statistical methods with practical work in investigation and tabulation. Special attention is given to census statistics and vital statistics. Course 41 should have been taken previously or be taken at the same time. T., Th., 8, and two laboratory hours a week at hours to be arranged. Credit, two hours each term. *Morrill 24*, Professor WILLCOX.

[49. **Advanced Statistics.** Open to those who have taken the Elementary Statistics, or can show that they are qualified to enter the class. Two hours. Professor WILLCOX.]

G.—Political Economy and Finance.

Consultation hours: Professor Fetter, M., W., 12 m., and F., 8 a. m., Political Economy Seminary.

51. **Elementary Political Economy.** For those wishing a general survey of the field of economic thought, as well as a preparation for further studies in the department. During the second term a special course in Transportation is given to the section for civil engineers. Three hours a week throughout the year. Lectures twice a week and discussions, once a week. Lectures, M., W., 11. *Library Lecture Hall.* Discussions in six sections: *Section* 1, Th., 8, *Morrill 12. Section 2*, Th., 10, *Morrill 12. Section* 3, Th., 11, *Morrill 11. Section* 4, F., 10, *Morrill 12. Section* 5, F., 11, *Morrill 12. Section* 6, M., 8, *Morrill 11.* Professor FETTER and Dr. BROOKS.

[52. **Exercises in Descriptive Economics.** Elementary practice in the use of the library sources of economic study to equip the student with essential facts and the ways to find them.]

[54. **Money, Credit and Banking.** A study of fundamental principles as illustrated in modern experience. In 1903–4, Course 34, Economic Legislation, will be devoted to this subject.]

55. **Methods of Modern Philanthropy.** To acquaint the student with the character and extent of charitable, correctional, and other allied social problems, and the methods employed in dealing with them. Intended as an aid to enlightened citizenship. Lectures, with lantern slide illustrations, readings, discussions and laboratory work at hours arranged. At least two days each term are spent in visiting

institutions. Two hours throughout the year. Not open to students below Junior. T., Th., 11, *Morrill 12*. Professor FETTER.

55a. **Research in Philanthropy.** Graduates, or undergraduates that have done superior work in course 55, may register for special studies in the history and statistics of charities and criminology, in connection with the laboratory exercises of the course in Modern Philanthropy. Credit one to three hours a term. *Political Economy Seminary*, at hours to be determined. Professor FETTER.

57. **The Economic History of England and the United States.** The first part of the course will consist of a rapid survey of the economic development of England, one of the shorter texts on the subject being used. This will be followed by a series of lectures on the economic history of the United States. Students will be required to prepare reports on the local economic history of various parts of the United States. Designed especially for those who have completed course 51, but may be taken as introductory to that course by students of sufficient historical training. First term, M., W., F., 9, *Morrill 11*. Dr. BROOKS.

59. **Public Finance.** General fiscal policies of nations, sources of public income, principles of taxation, and financial history with especial reference to American experience. Lectures, with laboratory work, mainly in problems of New York State, at appointed hours. Open to those who have had course 51 or an equivalent. T., Th., 12, *Morrill 12*. Professor FETTER.

59a. **Research in Public Finance.** Students that have done superior work in course 59, or maturer students wishing to give special attention to financial studies, may undertake research in coöperation with the laboratory exercises. Credit one to three hours a term. *Political Economy Seminary*, at hours to be determined. Professor FETTER.

60. **Seminary.** The central subject in 1903–4 will be the theory of shifting and incidence, and the problem of justice in taxation. Readings, reports on current literature and events, and theses on selected subjects. Open to graduates and a few other well equipped students. F., 9–11, *Political Economy Seminary*. Professor FETTER.

BIBLIOGRAPHY.

1. **Introductory Course to the Use of the Library,** including classification and arrangement of materials, principles of cataloguing, indexing, making bibliographies and preparation of materials for printing. First half-year. T., 4 p. m. Open to all students. Assistant Librarian AUSTEN.

2. **General Bibliography.** The materials and form of books in

ancient times ; books in the middle ages, block books, early printed books, illustrated by examples of manuscripts and incunabula ; book-illustration, book-bindings ; form-notation ; systems of classification and cataloguing ; general bibliographical aids. Second half-year. Lectures. T., 12. Mr. HARRIS.

MATHEMATICS AND ASTRONOMY.

Pure Mathematics.

The work in mathematics prescribed for students in ENGINEERING and ARCHITECTURE, in general, takes one year. It presupposes a good knowledge of plane and solid geometry, of elementary and advanced algebra, and of plane and spherical trigonometry ; and it consists of elementary courses in analytic geometry and the calculus.

For students in ARTS, all work in mathematics is elective, and this work may be roughly divided into elementary courses and advanced courses.

The elementary courses are in solid geometry, elementary and advanced algebra, plane and spherical trigonometry, analytic geometry including conic sections, differential and integral calculus, and differential equations. These courses may all be taken by a good student, well qualified, during his freshman and sophomore years. They serve as a sufficient preparation for the ordinary work in physics and physical chemistry, and they mark the minimum of attainments that a teacher of mathematics in a high school or academy ought to possess.

The advanced courses are for juniors, seniors, and graduates. Together they would take one's entire time for four or five years ; they give a general survey of the field of mathematical science, and serve as an introduction to any special field one might wish to cultivate.

The sequence and interdependence of these courses, and the order in which they may best be taken up, are shown in the detailed statement of the courses themselves. In their topical relations they fall into three groups which may be entitled :

1. The theory of discontinuous (discrete) operations.
2. The theory of continuous (differential) operations.
3. The theory of functions.

In the first group may be placed higher algebra, analytic and projective geometry, higher plane curves, the geometry of three dimensions, including Pliicker's line geometry ; the theory of numbers, substitution groups, quantics including the modern algebraic theories of elimination, canonical forms and their invariants ; quaternions and vector analysis ; and non-Euclidean geometry.

In the second group are included the calculus, differential equations, differential geometry, finite differences, Fourier's series and spherical harmonics, and probabilities with applications to insurance and to the theory of errors.

In the third group are included the general theory of functions, with the special theories of elliptic, hyperelliptic, Abelian, and automorphic functions.

Astronomy and Celestial Mechanics.

The course in descriptive and physical astronomy considers the phenomena of the heavenly bodies and their probable conditions and histories. The work in celestial mechanics deals mainly with the figures of the planets, the tides, the elliptic motion, and perturbations.

Practical astronomy is taught by the College of Civil Engineering.

Mathematical Physics.

The subjects offered in this connection fall into two main groups.

In the first group are the calculus, differential equations, probabilities and the theory of errors, vector analysis, and function-theory. These have already been mentioned under pure mathematics; but they are necessary, as introductions to most of the subjects in the second group, and they are important in themselves to the student of physics, much of whose work without their aid would be too purely empirical, no less than to the student of pure mathematics, whose outlook is enlarged by the physical concepts and interpretations involved. Most of the courses in this group are open to any good student who has had the elementary courses named above.

The second group consists of (1), two general introductory courses, one in theoretical mechanics with special reference to the dynamical principles needed for the subsequent work, and the other in Fourier's series and spherical harmonics, in which various typical physical problems are treated, the appropriate differential equations being derived from physical laws, and the most important solutions of these equations discussed; (2), the mathematical theories of definite branches of physics, such as sound, including the general vibrating system, with Rayleigh's treatise as the basis; hydrodynamics, including mechanics of the atmosphere and vortex-motion; electricity and magnetism; theories that have all been extensively developed by aid of the higher analysis.

Courses in light and thermodynamics are given by the Department of Physics, and courses in electricity and magnetism less mathematical in character than course 46.

The Mathematical Club, Theses, and the Library.

The Oliver Mathematical Club, composed of teachers and advanced students, has for its objects : The systematic presentation by the members, in turn, of some specified mathematical theory of recent development ; and the hearing of reports from different members on noteworthy articles in current journals, and on the results of special reading and investigation. During the academic year 1903–1904 the club will meet every other week.

In addition to the courses of instruction definitely announced, special reading in pure and applied mathematics is assigned to advanced students desiring it ; provision is made for the writing and criticism of mathematical theses, and students are encouraged to follow up special inquiries by aid of the University Library, which now contains several thousand volumes on pure mathematics, mathematical physics, and astronomy, including many of the principal mathematical journals, and transactions of scientific societies.

Mathematical Models.

The collection of models, about three hundred in number, includes:

1. Plaster models of the quadric and cubic surfaces, of several forms of the Kummer surface, of the cyclides, of surfaces of centres of quadrics, and of minimum surfaces.

2. Plaster models illustrating positive, negative, and parabolic curvature, and constant measure of curvature.

3. Plaster models illustrating the theory of functions ; among them models of simply and multiply connected surfaces and of several forms of Riemann's surfaces, and models representing the real parts of algebraic, exponential, logarithmic, and elliptic functions.

4. Wooden and glass models of crystals and polyhedra.

5. Wire and thread models of twisted curves and ruled surfaces, and skeleton frames for minimum surfaces.

The following schedule of hours is made out as nearly as possible, for the coming year ; but necessary changes will be made at any time.

I. Elementary Courses Prescribed for Students in Engineering and Architecture, and open to Election by Students in Arts.

2. For Freshmen in Engineering and Architecture.

Eleven sections, daily, ex. Sat.

At 8, *White 22*, Professor WAIT ; *White 24*, Assistant Professor HUTCHINSON ; *White 17*, Dr. FITE.

At 10, *White 22*, Professor WAIT; *White 18 A*, Assistant Professor TANNER; *White 17*, Assistant Professor SNYDER; *White 24*, Assistant Professor HUTCHINSON.

At 11, *White 18*, Assistant Professor MCMAHON; *White 18 A*, Assistant Professor TANNER; *White 24*, Assistant Professor SNYDER; *White 17*, Dr. FITE.

(*a*) Analytic Geometry. Credit, 4 hours first term.

(*b*) Differential Calculus. Credit, 1 hour first term, 2 hours second term.

(*c*) Integral Calculus. Credit, 3 hours second term.

4. For Freshmen in Engineering and Architecture.

Daily ex. Sat., after the Christmas recess, *White 22*, Assistant Professor MCMAHON; *White 17*, Assistant Professor SNYDER.

(*a*) Analytic Geometry. Credit, 2 hours each term.

(*b*) Differential Calculus. Credit, 3 hours second term.

II. Elementary Courses open to Freshmen and Sophomores in Arts.

6. For Freshmen who enter the University on the minor requirements in mathematics (plane geometry and elementary algebra). This course is substantially equivalent to the major entrance requirements in mathematics, and it is sufficient for elementary work in physics. Two sections: M., W., F., at 8, *White 21*, Professor JONES; M., W., F., at 12, *White 18 A*, Assistant Professor TANNER.

(*a*) Solid Geometry. Credit, 2 hours first term.

(*b*) Advanced Algebra. Credit, 1 hour each term.

(*c*) Plane Trigonometry, with field work in surveying. Credit, 2 hours second term.

7. For Freshmen who enter on the major requirements (solid geometry, advanced algebra, and plane and spherical trigonometry). Supplementary to those requirements and necessary to further elective work in mathematics. T., Th., at 8, *White 21*, Professor JONES.

(*a*) Solid Geometry. Credit, 1 hour first term.

(*b*) Advanced Algebra. Credit 1 hour first term.

(*c*) Spherical Trigonometry, with field work in surveying. Credit, 2 hours second term.

8. For Freshmen who enter on the minor requirements. Equivalent to courses 6 and 7 combined. Daily, ex. Sat., at 9. *White 21*, Professor JONES.

(*a*) Solid Geometry. Credit, 3 hours first term.

(*b*) Advanced Algebra. Credit, 2 hours first term, 1 hour second.

(*c*) Plane and Spherical Trigonometry, with field work in surveying. Credit, 4 hours second term.

9. **Problems in Geometry, Algebra, and Trigonometry.** Supplementary to courses 7 and 8, and may be taken at the same time with either of those courses. This course is for the benefit of those students, particularly freshmen, who, being interested in mathematical studies, wish to lay a good foundation for the higher work that follows. Credit, for Geometry, 1 hour first term; for Algebra, 1 hour first term; for Trigonometry, 2 hours second term. S., 8-10, *White 21*. Professor JONES.

10. **Analytic Geometry and Calculus.** For Sophomores who have had courses 7 or 8, but may be taken by Freshmen who are well qualified, at the same time with course 7. M., W., F., at 8. *White 18*, Assistant Professor MCMAHON.

(*a*) Analytic Geometry, credit, 2 hours first term.

(*b*) Differential Calculus, credit, 1 hour each term.

(*c*) Integral Calculus, credit, 2 hours second term.

11. **Differential Equations.** An elementary course arranged for students in engineering and in physics, and for those who intend to study advanced mathematics. The course is devoted mainly to the solution of the simpler ordinary and partial differential equations. An elementary knowledge of the integral calculus is a prerequisite for entrance to this course. Two hours. Dr. FITE.

III. Advanced Courses open to Juniors, Seniors, and Graduates.

For these courses, hours will be arranged to suit the members of the classes. In some cases the courses stated as necessary in a given course may be taken at the same time with it. A course may not be given if not more than two persons call for it.

12. **Higher Algebra and Trigonometry.** A continuation of courses 7 and 8. It covers continued fractions, limits and derivatives, imaginaries, series, theory of equations, application of imaginaries and exponentials to circular and hyberbolic trigonometry, and determinants. Necessary for most of the courses that follow. T., Th., S., at 10. *White 21*, Professor JONES.

13. **Projective Geometry.** Requires courses 7 or 8, and some knowledge of Analytic Geometry; necessary to courses 19, 20, 23, 33, and very useful in courses 15, 20, 41, 43, and in certain problems in mathematical drawing. T., Th., S., at 9, first term; T., Th., 9, second term. *White 18*, Assistant Professor HUTCHINSON.

The principal aim of the course is to familiarize the student with reasoning about geometric forms. No use is made of algebraic methods. The usual topics of elementary synthetic geometry are first studied, then the principles thus acquired are applied to the study of cubic curves, of cyclical collineations, and of the basis of metric geometry. Considerable attention is given to drawing.

14. **Theory of Probabilities and Least Squares**, with some applications to insurance and the theory of errors. Requires courses 2 or 10. Two hours. Professor JONES.

15. **Advanced Work in Analytic Geometry.** Requires courses 2 or 10, 12 and preferably 13. Necessary in most of the courses that follow. Professor WAIT.

Lines of the first and second orders. Two hours. Surfaces of the first and second orders. One hour.

[16. **Reading Course in German.** Requires courses 2 or 10, and 12. It is the purpose of this course to familiarize the student with mathematical German, and at the same time to critically examine some important points in the elementary mathematics. The reading will begin with Weber's Algebra, Vol. I. Two hours. Assistant Professor TANNER.]

17. **Advanced Work in Calculus.** Requires courses 2 or 10, and 12. Necessary to all the courses that follow.

(*a*) Differential Calculus. Two hours. Differential Equations. One hour. Professor WAIT.

(*b*) Integral Calculus. This course is given by lectures accompanied by mimeograph notes, frequent illustrative problems being assigned to the class as exercises. A short drill on the integration of various forms is followed by a full discussion of the conditions and criteria for integrability of any given function. Definite integrals, and methods for their evaluation. Various functions defined by definite integrals such as the gamma function. Curvilinear and multiple integrals. Two hours. Assistant Professor SNYDER.

18. **Introduction to the Theory of Groups.** The principal properties of substitution groups and abstract groups are presented. Some account is given of Frobenius' theory of group characteristics and of the application of the theory of substitution groups to the theory of algebraic equations. Three hours. Dr. FITE.

19. **General Theory of Algebraic Curves and Surfaces.** Requires courses 12, 13, 15, 17. Necessary to course 33, and preferably to many of the courses that follow.

(*a*) Algebraic Curves. The principal subjects treated are conditions which determine a curve, Plücker's numbers, envelopes, bira-

tional transformation, resolution of singularities, and forms of curves of the third and fourth orders. Three hours. Assistant Professor McMahon.

[(*b*) Theory of Surfaces. Requires courses 13, 15, 17 19*a*, 21. Begins with a short review of analytic geometry of three dimensions, including systems of coördinates and a few transformations. Then follows the derivation of the principal differential formulae of the theory of surfaces. Lines traced on surfaces are treated, giving especial attention to asymptotic lines and lines of curvature, with an introduction to Lie's geometry of the sphere and its group of transformations. The course deals largely with the derivation of differential equations and the study of infinitesimal deformations, but synthetic proofs are employed whenever they simplify the problems. Three hours.]

20. (*a*) **Algebraic Invariants.** Requires courses 12, 15, and 17; and preferably courses 11 and 13. This course is given chiefly by lecture. The general linear transformation is applied, first to a single binary quantic, and later to a system of simultaneous quantics in n variables; and the necessary and sufficient conditions for invariants, covariants, etc., are investigated. Simultaneous invariants are shown to include covariants as a special case, and such invariants are represented as functions of the coefficients, of the roots, and also in the symbolic notation. Hilbert's proof of Gordan's theorem on the finiteness of the number of irreducible invariants is given, both for the binary quantic, and also for any number of quantics in n variables. Much of Elliott's Algebra of Quantics is read by the class in connection with the lectures, and some attention is paid to the geometric side of the subject. Two hours. Assistant Professor Tanner.

20. (*b*) **Higher Algebra.** Instead of course 20 (*a*) there may be given in 1903–1904 a course in Higher Algebra—a continuation of course 12. This course would include symmetric functions, general theory of elimination, linear transformations, elements of invariants and covariants, etc. Two hours. Assistant Professor Tanner.

21. **Ordinary Differential Equations.** Advanced course. Requires courses 2 or 10, 11, 12, 25 (*a*).

[(*a*) General theory of the linear diffierential equation, with an introduction to the functions defined by such equations. Lectures, with references to the works of Heffter, Schlesinger, and Klein and to Part III of Forsyth's Theory of Differential Equations. Two hours.]

[(*b*) Ordinary differential equations, non-linear. Lectures, based upon Painlevè's Theorie analytique des equations differentielles, and Part II of Forsyth's Theory of Differential Equations. Two hours.]

[22. **Non-Euclidean Geometry.** Requires courses 2 or 10, 11, 12,

13, 15, and preferably 19. Begins with some consideration of the foundation of Geometry, followed by the projective theory of non-Euclidean Geometry as developed by Klein, with applications to the theory of functions, the theory of numbers, etc.; also portions of Lie's treatment of the Riemann-Helmholtz problem. Two hours.]

[23. (*a*) **Continuous Groups.** Lie's Continuierliche Gruppen will be followed. Requires courses 11 and 17. Three hours, first half-year. Dr. FITE.

(*b*) **Linear Groups.** A discussion of the theory of linear homogeneous groups. Requires course 29 Three hours, second half-year, Dr. FITE.]

[24. **Calculus of Variations.** Requires courses 2 or 10, 11, and 17 (*b*). Consideration of the general theory as developed by Weierstrass, Hilbert, and Kneser, with applications to classic problems. One hour.]

25. **Theory of Functions.** Requires courses 11, 12, and 17.

(*a*) Theories of Cauchy, Weierstrass, and Riemann, including infinite series and integration, conformal representation, algebraic functions and their integrals, etc. Rigour in the treatment of fundamental principles and methods is emphasized. Two hours. Assistant Professor HUTCHINSON.

(*b*) Second year. Elliptic and Abelian Functions. The elliptic and Abelian integrals studied by the methods of Riemann. The theta functions, and the inversion problem, geometrical applications to curves of genus one, and to hyperelliptic surfaces. Two hours. Assistant Professor HUTCHINSON.

[29. **Theory of Numbers.** Includes a discussion of congruences, quadratic residues, quadratic forms, and algebraic numbers. Requires course 12 and preferably course 20. Two hours. Dr. FITE.]

[30. **Quaternions and Vector Analysis.** Requires courses 12, 17, and something of mechanics. Two hours. Assistant Professor MCMAHON.]

33. **Line Geometry.** Requires courses 13, 15, 17, 19a, 20, 21. Line coördinates, systems of linear complexes, and cubic scrolls; infinitesimal geometry, normal correlation, surfaces of singularities, focal surfaces, asymptotic lines, developable surfaces; transformation of coördinates, Klein's fundamental complexes, the quadratic complex, and the Kummer surface. Three hours. Assistant Professor SNYDER.

Astronomy and Mathematical Physics.

40. **Descriptive and Theoretical Astronomy.** Mr.———.

(*a*) Descriptive Astronomy. Two hours.

(*b*) Physical and Mathematical Astronomy. Requires course 2 or 10, and course 1 or 2 of Physics. Two hours.

41. **Theoretical Mechanics.** Includes kinematics, statics, and kinetics, with special reference to the dynamical principles needed for subsequent work. Requires courses 11 (or preferably 21), 12, 15, 17. Necessary to most of the courses that follow. Two hours. Assistant Professor McMAHON.

42. (*a*) **Potential Function, Fourier's Series, and Spherical Harmonics** with applications to physical problems. Introductory to mathematical physics. Requires course 17, 21, 41. Useful in all of the courses that follow. Two hours.

(*b*) Continuation of 42 (*a*). Reading course in Riemann-Weber, *Die partiellen Differential gleichungen der mathematichen Physik*. Two hours. Assistant Professor McMAHON.

[43. **Celestial Mechanics.** Requires courses 12, 17, 21, 40, 41, and preferably 42. Two hours.]

[44. **Mathematical Theory of Sound**; including the general theory of vibrating systems. Based on Rayleigh's treatise. Requires courses 12, 17, 21, 41, 42, and preferably 15, 20, 25(*a*). Two hours. Assistant Professor McMAHON.

(*a*) First year. General theory with applications to strings, bars, membranes, and plates.

(*b*) Second year. Aerial vibrations.]

45. **Mathematical Theory of Fluid Motion**, including the mechanics of the atmosphere and vortex motion. Allied to course 44, and has the same prerequisites. Reading course.

46. **Mathematical Theory of Electricity and Magnetism.** Requires courses 12, 17, 21, 42, and preferably 15, 20, and 25(*a*). Reading course.

47. **Mathematical Theory of Thermodynamics.** Requires only a knowledge of calculus. Two hours. Professor TREVOR.

Other courses in Mathematical Physics are given by the Department of Physics.

PHYSICS.

Lecture Course 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 supple-

mented by recitations, for which purpose the class is divided into sections of about twenty members each.

Four courses are given, which vary in extent from two to five exercises a week. 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, except as noted elsewhere, is in all cases requisite 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. Students who have completed the first year's work make a more extended study of various physical constants. They learn the use of standard instruments, and become acquainted with the methods employed in research. For students of engineering complete courses in photometry, in the calibration of instruments and in the study and testing of direct, alternating and polyphase current machinery are arranged. 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 in seminary at frequent intervals for the discussion of topics of scientific interest. Several courses in mathematical physics are given for the benefit of such students. It is the aim of the department to furnish every possible facility for research.

The Laboratory of Physics.—Franklin Hall is devoted exclusively to the use of the department of Physics. It is of red sandstone, and is three stories in height above a well lighted basement. The building contains, in addition to the amply equipped laboratories of the department, a lecture room, seating about two hundred students, and four recitation rooms for the use of classes. 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 arrangements for experimental work are most complete. Gas, water, steam, oxygen, hydrogen, acetylene, compressed air, blast and vacuum cocks are within easy reach, and dynamo and battery cur-

rents are available. Liquid air, whenever needed for lecture or laboratory work, is manufactured by means of machinery installed for that purpose in the basement of the building. 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 they can in any way aid a demonstration. Adjacent to the lecture room are three large apparatus rooms.

The laboratory rooms in the lower portion of the main building are devoted to advanced work, those on the upper floors of the west 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 Department of Physics comprises many fine instruments of precision. A very valuable adjunct is a well equipped workshop connected with the department, where a skillful mechanician is constantly employed in making apparatus. Some of the most valuable instruments in the collection have been made in this shop. A further statement of equipment available for the use of the department will be found under the heading *laboratories of electrical engineering*.

The following courses are offered in 1903–1904.

1. **Mechanics and Heat, Electricity and Magnetism. Acoustics and Optics.** Four hours a week. Two lectures a week. M., W., or T., Th., 12. Professors NICHOLS and MERRITT. Two recitations by the class in sections, at hours to be arranged. Assistant Professor SHEARER and Messrs. ALLEN, MCALLISTER, SMITH, COCHRANE, PATTISON, FISHER, and DARGAN.

Course 1 is intended to meet the needs of students in Civil Engineering, Electrical Engineering, Mechanical Engineering, and of such others as have the requisite mathematical preparation. An elementary knowledge of the calculus is useful.

2. **Elective Course in Experimental Physics.** This course is divided into the following parts, 2a, 2b, 2c, and 2d, which may be taken together or separately as specified below.

2a. *Short Course in Experimental Physics.* Two hours, lectures. M., W., or T., Th., 9. Assistant Professor SHEARER.

Course 2a is offered for the benefit of students who do not intend to pursue the subject further nor to devote especial attention to the sci-

ences of Mathematics, Chemistry or Geology, but who desire to acquire some knowledge of the simpler phenomena of Physics. It is accepted as the required work of the courses in Agriculture and Architecture, but students in these courses are urged, whenever practicable, to take 2b and 2c also. Course 2a is open to freshmen, but it will not be accepted in place of the required courses for students of Medicine (see course 7). Students in the Academic Department who expect to study Medicine should take courses 7, 2 b, and 2 c.

The completion of 2 a does not qualify the student to enter course 3 or any subsequent course in Physics with the exception of 2 b, 2 c, 2 d, and course 9.

2b. *Recitations in Experimental Physics.* Two hours; Assistant Professor BLAKER, Messrs. GAEHR and FENNER.

Course 2b is open only to those who are taking 2a or have completed that course or its equivalent and who have a knowledge of plane trigonometry. It should be taken in connection with 2a by all who wish to prepare for any of the more advanced courses in Physics, or who intend to study Mathematics, Chemistry, Geology, Medicine, or the Biological Sciences.

2c. *Introductory Physical Experiments.* One hour; one 2½ hour period per week in the laboratory, Assistant Professor BLAKER, Messrs GAEHR and FENNER.

Course 2c is offered especially for those taking 2b, but is open to others who are taking, or have completed 2a or its equivalent. Mechanics, Heat, and Magnetism are taken the first term; and Electricity, Sound, and Light the second. If desired, the course may begin with the second term provided the first term of 2a has been completed.

2d. *Introductory Physical Experiments.* Two hours; two 2½ hour periods per week in the Laboratory, Assistant Professor BLAKER, Messrs. GAEHR and FENNER.

This course may be elected instead of 2c, if desired, by those who are taking, or have completed 2b or its equivalent; or, if 2c has been completed, they may take work in addition to that of 2c by registering for one hour in 2d. The work may begin with the second term if the first term of 2b has been completed.

Students of whom course 1 is required may substitute for the same courses 2a, 2b, and 2c (5 hours).

Examinations for those unavoidably absent from either term examinations in courses 1, 2a, or 2b, or who have conditions to make up in any of the above courses, will be held on registration day, Sept.

29, 1904, at 2:00 p.m , and in May. No special examinations at other times will be given.

3. **Physical Experiments.** Theory and methods of physical measurements. Two to six hours. The laboratory will be open M., T., W., Th., F., 2 to 5 ; and S , 8 to 12. Assistant Professor BLAKER, Messrs. ALLEN, SMITH, FISHER, and DARGAN.

Course 3 includes laboratory experiments illustrating general laws in all branches of Physics, and instruction in the adjustment and use of the instruments of precision employed in mechanics, heat, light, sound, electricity, and magnetism. 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 devotes to the course two afternoons or more each week, according to the amount of credit desired, 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. **Dynamo Laboratory Practice.** Tests of electrical instruments and determination of constants. Theory and experimental study of dynamo machines, including tests of efficiency. Alternating and polyphase currents. [For special work in alternating current testing, see course 24.] Two to four hours laboratory work. Daily. Assistant Professors MOLER and BEDELL and Messrs. MCALLISTER, COCHRANE and PATTISON.

Course 4 is open to all students who have completed course 3. Taken together with course 8, it forms part of the prescribed work of the senior year in Electrical Engineering.

6. **Advanced Laboratory Practice,** in general Physics for undergraduates who have completed course 3. This course is preparatory to graduate course 18. It is intended to meet the wants of those who expect to teach experimental physics, and may occupy from three to six hours per week. Professor NICHOLS, Professor MERRITT and Assistant Professor SHEARER.

Students in course 6 are expected to devote at least a term to a single problem, studying the literature of the subject exhaustively and performing the experimental work with all the care and thoroughness of an original research.

7. **Required Course in Elementary Physics** for students in Medicine. Two hours, M., W., 9 ; (lectures and experimental demonstrations). Assistant Professor SHEARER.

In this course special attention will be given to those portions of

the science which are of direct importance to medical students. The theory and construction of the balance; the phenomena of diffusion and osmosis; thermometry; the theory and operation of voltaic cells, induction coils, electro-static machines and X-ray apparatus; the theory and use of the microscope, spectroscope, polariscope, etc.; the physics of vision and audition and other topics essential to modern medical practice will be more fully treated than is customary in elementary courses in general physics.

8a. [**Applied Physics for Engineeers.** First half-year: Photometry and Physics of of Artificial Lighting. Second half-year: The Measurement of Current, Electromotive Force and Resistence. One hour. Lectures. F., 12. 1904–05. Professor NICHOLS.]

8b. **Applied Physics for Engineers.** First half-year; Primary and Secondary Batteries, Standard Cells and Voltameters. Second half-year: The Electric Transmission of Intelligence. One hour. Lectures. F., 12. Professor NICHOLS.

9. **Practical Photography.** Two hours. Lectures and laboratory practice. Second term. Assistant Professor MOLER.

Lectures Monday 3:30 to 4:30 throughout the term. Laboratory practice at hours to be arranged.

Course 9 is open only to students who have the requisite knowledge of chemistry and physics. The requisite knowledge of these subjects is in general that possessed by those who have completed Chemistry Course 1 and one term of Physics, 1, or 2a.

Courses for Graduate Students.

11a. **Theoretical Physics.** Mechanics and Thermodynamics. Professor MERRITT. Three hours lectures and one hour seminary throughout the year.

11b. [**Theoretical Physics.** Electricity and Magnetism. Professor MERRITT, Three hours lectures and one hour seminary throughout the year. 1904–5.]

Courses 11a and 11b, together with courses 14a and 14b, are intended to give an outline of theoretical physics for students who expect to specialize in this subject.

12. **Recent Advances in Experimental Physics.** Professor MERRITT. One lecture a week. F., 9 or 10. This course will be devoted to such of the more important developments in physics as have not yet found their way into the text-books. The lectures will be illustrated by experiments whenever the nature of the subject permits.

In 1902–3, about half the time of this course was devoted to the subject of Electrical Oscillations and Electrical Waves. In 1903-4

about the same proportion of the time will be devoted to the subject of the Discharge of Electricity in Gases.

13. **Electricity and Magnetism.** Professor MERRITT. Lectures and Seminary, For advanced students who have completed course 11b or its equivalent. This course is capable of modification to suit the needs of those electing it. Some treatise such as Boltzmann, Maxwell, or J. J. Thomson will be used as a basis.

14a. **Theory of Light.** Four hours. Assistant Professor SHEARER. Three recitations a week based on Drude's Theory of Light. One experimental lecture a week by members of the clsss under the direction of the instructor. 1903–4.

[14b. **Theory of Heat.** Four hours. Assistant Professor SHEARER. Three lectures a week on the Kinetic theory of Gases and Thermodynamics. One experimental lecture a week by members of the class under the direction of the instructor. 1904–5.]

15. **Wave Motion.** Two hours. Lectures on the theory of wave motion in optics, electricity, etc., with problems suited to the requirements of the class. Assistant Professor SHEARER.

16. **Advanced Photography,** with special reference to its application to research. Two hours. Laboratory practice. First term until Christmas recess. Assistant Professor MOLER.

Students who have completed courses 1, 3, and 9, or an equivalent, will be admitted to this class.

17. **Physical Seminary.** Two hours. Critical reading of original memoirs relating to physics ; followed in the latter part of the year by reports upon original work done in the department. Tuesday evenings, 7:30 to 9:00. Professor NICHOLS.

Course 17 is a colloquium in which all members of the teaching staff of the department, as well as graduate students of physics take an active part.

18. **Advanced laboratory practice in general physics** preparatory to research. This course is open to undergraduates who have completed courses 3 and 6 or 3 and 4 ; also to graduates who have had the above courses or their equivalent. The amount of time to be given and hours of attendance will be arranged to suit each individual case. Professors NICHOLS and MERRITT.

22. **Theory of Alternating Currents.** Inductive circuits, condensers and transformers. First half-year. Two hours. T. and S. 10. Assistant Professor BEDELL.

Particular attention will be given to graphical methods and the development of the elements of the subject.

23. **Magnetism and Electricity.** Second half-year. Two hours.

Special reading and seminary work for those who have completed course 22. Assistant Professor BEDELL.

By special arrangement this course may be taken during both terms.

24. **Alternating Current Measurement.** Testing of transformers, rotaries, and induction motors for single phase, two phase, and three phase curcuits, and the transmission and transformation of polyphase currents. Course 24 should be taken by students who expect to prepare experimental thesis upon the above subjects. Two hours throughout the year. Requirements the same as for course 4, and also the taking of course 22. Assistant Professor BEDELL.

By permission, course 24 may be substituted for equivalent hours in course 4.

CHEMISTRY.

Inorganic Chemistry. The elements of inorganic chemistry are taught by lectures, laboratory work and recitations from a text-book. The instruction conforms in the main to the course outlined by the College Entrance Examination Board.

Advanced courses of lectures in inorganic chemistry, both with and without laboratory practice, are offered for advanced students. These courses are also open to all who have completed certain preliminary work. In one of these lecture courses the history of chemistry is considered in detail. The other deals with the study of the properties of all the elements and is based upon the periodic law of Mendeleeff. The laboratory work in advanced inorganic chemistry comprises the preparation and purification of inorganic compounds and the extraction of the rarer elements from ores and minerals. The facilities for investigation in this field are very complete, and the student is afforded opportunity for research not merely in synthetic inorganic chemistry, but also in advanced spectroscopic chemical analysis and gas analysis.

The seminary in inorganic chemistry is for those advanced students who are working in that field. Each member of the seminary reports upon articles appearing in the current numbers of the chemical journals and upon special topics that are assigned to him from time to time.

Qualitative and Quantitative Analysis. Five beginning courses are given in chemical analysis. These vary in scope and length and are designed to meet the different needs of the students of chemistry, medicine, and engineering.

The qualitative analysis begins with the study of those reactions of the elements and their compounds which are used in their detec-

tion. This is followed by the practical application of the knowledge thus gained to the analysis of unknown substances, both in the solid form and in solution.

The quantitative work is taken up after the completion of the qualitative course, and comprises a small number of simple gravimetric and volumetric determinations, together with the study of the chemistry of the operations involved. This work in the laboratory is supplemented by lectures and recitations, the latter including practice in writing chemical equations explanatory of the actual operations of the analytical work.

Advanced Quantitative Analysis. For students intending to devote themselves chiefly to the study of chemistry there are provided advanced courses in quantitative analysis, especially designed to give them as wide an acquaintance as possible with analytical manipulation. These courses comprise the determination of the more important elements; the analysis of ores, minerals and alloys; the ultimate analysis of organic substances; agricultural analysis; the chemical and microscopic examination of foods and beverages; the analysis of water; the analysis of iron ores, iron and steel, slags, paints and varnishes, alloys, coal and coke, and a number of other commercial products.

Special Courses in Chemical Analysis. These comprise courses in gas analysis, spectroscopic chemical analysis and assaying. Each line of work is given in a laboratory especially designed for its accommodation and completely fitted with all necessary instruments and apparatus, and is accompanied by a course of lectures introductory to and explanatory of the laboratory work.

Micro-Chemistry. In micro-chemical analysis there is offered an elementary course serving as an introduction to the use of the microscope and its accessories in chemical analysis, special attention being paid to the chemical elements most frequently met with in commercial work, and to the examination of metals and alloys. Those who have completed the regular course are afforded opportunity for continuing work along special lines, or for conducting original research in micro-chemistry. A special laboratory has been equipped for this branch of chemical investigation. It is provided with work tables and with polarizing microscopes of special construction, photomicrographic apparatus, centrifuge, etc. The apparatus and reagents provided are such as to permit of the investigation and analysis of organic as well as inorganic compounds, including food and food products, fibres, textiles, paper, etc. The laboratory is further equipped for the study of the micro-structure of irons, steels and alloys, and for gen-

eral metallographic investigations. This renders the facilities for micro-chemical research in all branches unexcelled.

Organic Chemistry or the Chemistry of the Compounds of Carbon. Two elementary courses are given in this subject, one extending through the first half-year, the other through the year. The first course is intended for students in medicine and is especially adapted to their needs. The other course is for students specializing in chemistry or those who wish a more extended knowledge of the subject. The method of instruction is the same in both and consists of lectures, recitations and laboratory work, supplemented by frequent written examinations. The lectures are fully illustrated by experiments, specimens of the compounds considered and charts. The laboratory work follows the lectures closely and comprises the preparation and purification of a large number of typical organic compounds and the detailed study of their properties, reactions and relations. The second year's work consists of lectures on special chapters of the subject and of further laboratory work in the preparation and study of the compounds of carbon of a more complicated nature. Special courses of lectures are also given on the coal tar dyes and on the stereochemistry of the compounds of carbon and of nitrogen. In all the advanced work constant reference is made to the original literature of the subject in the various chemical journals. The advanced students also attend the seminary in organic ehemistry. In this course the students report on papers in the current numbers of the chemical journals assigned to them, or upon special topics which they work up historically from the original literature. Occasionally reports on original investigation in progress in the organic laboratory are made.

Physiological Chemistry. The courses in this subject are especially arranged for students in medicine who have completed the required courses in physiology and chemistry. The method of instruction is by lectures, recitations and laboratory work, accompanied by frequent written examinations. The work comprises the chemistry of the proteids, carbohydrates and fats, the detailed study of the compounds found in the animal organism, and of their reactions and decomposition products. In the laboratory the student separates from the various animal fluids and organs the chemical compounds which they contain, studies their properties, reactions and products of decomposition, and thus familiarizes himself with the methods of isolation and identification of these products. Especial attention is given to the chemistry of digestion and of the products of digestion. In the advanced work some special line of investigation is taken up, such as

the repetition of important and extended pieces of work and verification of results already published.

Physical Chemistry. An outline of the more important features of the physical aspect of chemical changes is given in an introductory course of classroom instruction in physical chemistry. This course is followed by lectures on the present state of development of the various phases of the experimental side of the subject: the Gibbsian phase rule, the laws of mass action, the velocity of reactions, and electrochemistry. Opportunity is given for experimental research in connection with this work, and the general lectures are supplemented by briefer courses on special topics.

Parallel to this group of experimental courses, instruction is given in mathemetical chemistry. The aim of this work is to present physical chemistry as a branch of mathematical physics: to develop a coherent body of mathematical theory as the consequence of a small number of inductively established postulates. The treatment is primarily thermodynamical. Two courses are offered: an introductory one, in which the present state of the subject is presented in a connected way; and an advanced course, in which the historical development of the theory is traced.

The results of the experimental and theoretical investigations that are carried on in physical chemistry are published in the *Journal of Physical Chemistry*, which is issued monthly, during the academic year, by officers of the department.

Sanitary Chemistry, Toxicology. These subjects are taught by several distinct courses of lectures accompanied in each case by laboratory practice. Special laboratories are provided for practical work in sanitary chemistry. These laboratories are exceptionally well equipped with the most modern apparatus, both chemical and optical. Other laboratories are provided for the bacteriological examinatlon of foods, water, etc. The bacteriological laboratories include a general work room with table space for ten students, a sterilizing and preparation room, and an incubator room. The material equipment includes a large and small hot air sterilizer, two steam sterilizers, one large autoclave, two large incubators, and special closets for cultures at room and at low temperatures. These laboratories have been specially equipped with a view to supplying every need for research in water analysis, water purification, and chemical bacteriology. A large collection of pure and adulterated food products supplies material for those desiring to specialize in Board of Health work or in Domestic Economy. The equipment in material and apparatus for the study of chemical toxicology is such as to permit of the detection and deter-

mination of the rarer as well as the common poisons of both organic and inorganic origin.

Agricultural Chemistry. An elementary course, consisting of lectures, laboratory practice and recitations, is given during the second half-year. It treats of the fertility of the soil, the relations of soils to plant growth, and the composition of plants and fertilizers. The laboratory practice is intended to familiarize the student with the chemical and physical properties of soils and fertilizers.

Two advanced courses are given during the first half-year: one on dairy chemistry and one on the chemistry of plant and animal life.

A series of elementary lectures is given for the winter course students.

A laboratory course in chemical analysis of agricultural products extends through the year. Special attention is given to the methods of analysis recommended by the Association of Official Agricultural Chemists.

The Chemical Laboratory. The Laboratory, named Morse Hall, consists of two buildings, with floor space of over 43,000 square feet. The buildings are connected by corridors on each floor. The laboratory contains four lecture rooms, one seating three hundred and fifty students, another eighty and each of the others sixty-two. These rooms are furnished with all the necessary appliances for the illustration of lectures by experiments and lantern projection, and are provided with adjacent preparation rooms. For elementary work in inorganic chemistry and qualitative and quantitative analysis, there are three large laboratories containing in the aggregate places for seven hundred and thirty-seven students working in sections. In addition to these are two rooms for organic chemistry and a research laboratory for advanced work in that field, one laboratory with one hundred and eight places for physiological chemistry and toxicology, a special laboratory for micro-chemical analysis, two for bacteriological work in connection with the analysis of water and foods, one room for distillation in water analysis, three rooms for assaying, two with northern exposure for gas analysis, a fire-proof room for work with highly inflammable substances, a laboratory for organic ultimate analysis by combustion provided with powerful ventilation and special balances, two hydrogen sulphide rooms connected with strong fan exhaust for work with noxious gases, an electric furnace laboratory, a large room for advanced inorganic chemistry, together with two smaller ones for research work in this field, a room for spectroscopic chemical analysis with a photographic dark room and a mercury-pump room adjoining, a large laboratory for elementary work in physical chemistry, one for

electrochemistry, one for undergraduate research and one for graduate work. The student laboratories contain in the aggregate places for one thousand and forty-seven students working in sections, or four hundred and thirty students working at once. In the sub-basement there are two large constant temperature rooms, a dynamo room containing motors and a high pressure blower for air blast, a room for the storage of ores, two others for the storage of highly inflammable chemicals, and a number of stock rooms. A general supply room from which all students draw their chemicals and apparatus for use in their work is situated on the main floor of the building. There are ten private laboratories for professors and instructors. The Chemical Library is centrally located on the first floor of the South Hall of the building. The laboratory of the University Experiment Station is also situated in Morse Hall. Distilled water is conducted in block tin pipes to all the more important rooms on each floor from a tin-lined tank in the upper story of each building. Air blast is conducted wherever required from a high pressure blower in the basement. The buildings are supplied with an alternating current of 1000 volts and with two direct currents of 500 and 110 volts. Lighter currents for electrochemical analysis and synthesis are furnished by storage batteries.

The Museum contains collections for the illustration of lectures upon inorganic, organic and applied chemistry. These collections include specimens of the elements, their compounds, and the ores from which they are obtained, a complete collection of the most important organic compounds, and also specimens illustrating the leading chemical industries, such as the manufacture of the various acids, alkalies and salts, pigments, glass, pottery, soap, stearine and glycerine, and the chemical processes of metallurgy, bleaching, dyeing, and photography.

The Chemical Library contains complete sets of all the important journals, and is very fully supplied with works of reference and the standard books on chemistry and allied subjects. Such additions are made to it from year to year as are necessary to keep it abreast of the times. It is accessible to all students, under such restrictions only as are necessary to secure it against injury or loss.

The laboratories are open from 8 to 5:30 except on Saturday, when they are closed at 1 o'clock. Instruction hours are from 8 to 1, and 2 to 5.

Fifty-three courses in chemistry are offered, as below.

Bracketed courses are not given in 1903–1904.

The following sequence of courses is recommended for **students**

specializing in chemistry, and deviation from the plan should not be made except upon the approval of Professor DENNIS and the Professors concerned :

FIRST YEAR—Introductory Inorganic Chemistry, course 1 ; Qualitative Analysis, course 7.

SECOND YEAR—Quantitative Analysis, course 12 ; Organic Chemistry, courses 30, 31 ; Assaying, course 18 ; Gas Analysis, courses 19 and 20.

THIRD YEAR—Physical Chemistry, courses 50, 51 ; Spectroscopic Chemical Analysis, course 17.

In filling out his time in the third year the student may elect such other courses as he wishes, but he is advised to take elementary courses in those branches of chemistry which he has not yet studied, rather than to elect advanced work in any particular field of the science.

FOURTH YEAR—History of Chemistry, course 45, and Advanced Inorganic Chemistry, course 46.

The student has full liberty of election in filling the remainder of the time of the senior year.

Students specializing in Chemistry should acquire a good reading knowledge of French and German, and should include in their elections course 2 in Physics, course 2 or 4 in Mathematics, courses 1 and 33 in Geology and courses 11 and 13 in Mineralogy.

The following course of study is recommended for **students of chemistry** who desire to fit themselves for **industrial positions :**

First Year.	No. of Course.	1st Term.	2d Term.
Introductory Inorganic Chemistry	1	6	–
Qualitative Analysis	7	–	6
Mathematics : Analytic Geometry, Differential Calculus, Integral Calculus	10	3	3
German or French	1	3	3
Physics	2a and 2b	4	4

Second Year.	No. of Course.	1st Term.	2d Term.
Quantitative Analysis	12	6	–
Organic Chemistry	30	3	3
Organic Chemistry	31	3	3
Assaying	18	–	3
Gas Analysis	19	1	–
Gas Analysis	20	2	–
Mineralogy	11	3	3
Spectroscopic Chemical Analysis	17	–	3

Third Year.	No. of Course.	1st Term.	2d Term.
Introductory Physical Chemistry	50	2	2
Physico-Chemical Methods	51	3	3
Mechanics of Engineering	C.E. 20	5	5
Mechanical Drawing (Sibley College)	M.D. 5	3	2
Electrochemistry for Engineers	56a	3	–
Physics	3	2	2
Advanced Quantitative Analysis	14b	–	2
Advanced Quantitative Analysis. Lectures	15	–	2

Fourth Year.

The student is advised to elect the work for the Senior year from the advanced courses in Chemistry and from the following courses offered by other departments :

	No. of Course.	1st Term.	2d Term.
General Economic Geology	33	3	3
Electrical Engineering (Sibley Coll.)	E.E. 11	4	–
Steam Machinery (Sibley College)	M.E. 11	–	4
Mechanical Laboratory (Sibley Coll.)	X.E. 11	3	3

Introductory Inorganic Chemistry.

1. **Introductory Inorganic Chemistry.** Six hours. First half-year.

(a) Lectures, M., W., F., 11, *Ch. L. R.*, 1. Professor DENNIS.

(b) Laboratory practice (two periods of 2½ hours each), and one recitation per week. Professor DENNIS and Dr. JESSEL, Messrs. ROOT, BELL, and WADE.

For students registered in the College of Medicine, the Veterinary College, College of Agriculture, College of Civil Engineering, and Sibley College, at hours as indicated in their respective schedules.

For students registered in the College of Arts and Sciences, at hours to be arranged.

Students in the College of Arts and Sciences, may, if they so desire, elect the lectures alone (credit 3 hours), and may take the recitations and laboratory practice (credit 3 hours) in some subsequent term.

Examinations for those unavoidably absent from the term examination in course 1 or course 2, or who have conditions to remove in either of these courses, will be held at 2:00 P. M. on the day before instruction begins in the Fall, and also in the month of May at a date to be announced. No special examinations will be given at other times.

2. **Introductory Inorganic Chemistry.** Six hours. Second half-year. This course is identical with course 1.

Analytical Chemistry.

6. **Qualitative and Quantitative Analysis.** Five hours. First half-year. Required of students in Mechanical Engineering. Lectures, T., Th., 9, *Ch. L. R., 1.* Laboratory practice, M., W., F., 2–5; or T., Th., S., 10–1.

Qualitative Analysis. Dr. BROWNE and Messrs. HAWLEY, BLOUGH, LENK, and WEBER.

Quantitative Analysis. Mr. CUSHMAN and Messrs. HAWLEY, BLOUGH, LENK, and WEBER.

Course 6 is open only to those who have taken course 1 or course 2.

6a. **Qualitative and Quantitative Analysis.** Second half-year. This course is identical with course 6.

7. **Qualitative Analysis.** Six hours. Second half-year. Students in science are advised, and those specializing in chemistry are required, to take this course instead of the qualitative analysis of course 6. Lectures, T., Th., 9, *Ch. L. R. 1.* Laboratory practice, M., F., 11–1, and T., Th., 2–4:30. Dr. BROWNE.

This course is open only to those who have had course 1 or course 2.

8. **Qualitative Analysis.** Second half-year to April 23rd. Credit two hours. Required of students in medicine. Lecture, S., 12, *Ch. L. R. 2.* Dr. BROWNE. Laboratory practice, W., 10–1, and Th., 8–10. Dr. BROWNE, and Messrs. HAWLEY, BLOUGH, LENK, and WEBER.

This course follows course 1, and is followed by course 68.

12. **Quantitative Analysis.** Elementary course for those who have had course 7. Six hours. First half-year. Lectures and recitations. M., W., 10, *Ch. L. R. 2.* Laboratory practice, T., Th., 2–5, and W., F., 11–1. Mr. CUSHMAN.

14. **Quantitative Analysis.** Advanced course. Open only to those who have had courses in qualitative analysis and elementary quantitative analysis. Mr. CUSHMAN.

a. General inorganic, and ultimate organic analysis.

b. Technical and engineering analysis. Iron ores, iron and steel, slags, paints, lubricants, coal and coke, cements and cement materials, alloys, ores of copper, lead, zinc, mercury, manganese, and tin, etc.

15. **Quantitative Analysis.** Lectures on selected topics in advanced quantitative analysis. Two hours. Second half-year. M., W., 11, Ch. L. R. 2. Open only to those who have had courses in Qualitative Analysis and elementary Quantitative Analysis. MR. CUSHMAN.

17. **Spectroscopic Chemical Analysis and Colorimetry.** Easter

recess to end of year. Credit, three hours. Lecture, T., 11. *Ch. L. R. 3.* Professor DENNIS.

Laboratory practice (7½ actual hours), at hours to be arranged. Professor DENNIS and Mr. ——.

The laboratory instruction comprises the observation and mapping of emission spectra with the Krüss spectroscope and direct vision spectroscope, the qualitative analysis of unknown mixtures and of minerals with each of these instruments, the spark spectra and oxyhydrogen spectra of minerals, the spark spectra of liquids and gases, the absorption spectra of certain colored solutions, of solutions of the rare earths and of organic dyes, and colorimetric determinations with the latest and most exact instruments.

18. **Assaying.** Lectures and laboratory practice. Six hours. Second half-year until Easter recess. Credit, three hours. Lectures, T., Th., 11, *Ch. L. R., 3.* Laboratory practice at hours to be arranged.

The course comprises lectures upon the theory and practice of the scorification and crucible assay, and upon the metallurgy of copper, lead, silver and gold. In the laboratory, practice is given in the assay of gold, silver and lead ores, and of bullion. The course should be preceded by elementary courses in qualitative and quantitative analysis. Mr. CUSHMAN.

19. **Qualitative and Quantitative Gas Analysis.** One hour. First half-year. Lecture. T., 11, *Ch. L. R. 3.* Professor DENNIS.

20. **Technical Gas Analysis.** Laboratory practice. Two hours. First half-year. Instruction is given in the analysis of gas mixtures with the apparatus of Honigmann, Bunte, Orsat, Lunge and Hempel, in the complete analysis of illuminating gas, generator gas, acetylene and air, the determination of the heating power of gaseous, liquid and solid fuels, and in the evaluation of nitrates with the nitrometers of Hempel, Lunge and Bodländer. Professor DENNIS and Mr. ——.

Organic Chemistry.

30. **Organic Chemistry.** Three hours throughout the year. Lectures and recitations. M., W., F.,9, *Ch. L. R. 3.* Professor ORNDORFF.

31. **Organic Chemistry.** Laboratory practice. Three hours throughout the year.

Courses 30 and 31 are required of all students specializing in chemistry; but course 30 may be taken separately by others, upon special permission granted in each case. These courses are open only to those who have had courses 1 and 6, or 1 and 7 and are taking 12.

The lectures and recitations serve as an introduction to the general subject of the chemistry of the compounds of carbon. In the laboratory the student prepares a large number of typical compounds of carbon, and familiarizes himself with their properties and reactions. Professor ORNDORFF, Dr. TEEPLE and Mr. RUSSELL.

32. **Elementary Organic Chemistry.** Three hours. First half-year. Lectures and recitations. M., W., 12, *Ch. L. R. 3*, F., 9, *Ch. L. R. 2*, and F., 12, *Ch. L. R. 1 and 3*.

This course is intended only for students in medicine and is preparatory to course 40. Professor ORNDORFF, Dr. TEEPLE and Mr. RUSSELL.

33. **Special Chapters in Organic Chemistry.** Two hours throughout the year. Lectures T., Th., 9. *Ch. L. R. 3*. This course is open only to those who have completed courses 30 and 31. In this course especial attention is given to certain important chapters of organic chemistry, for which an elementary knowledge of the subject is necessary. Frequent references are made to the original literature, and an attempt is made to acquaint the student with the classical researches of organic chemistry. Professor ORNDORFF.

34. **Advanced Organic Chemistry.** Laboratory practice. Hours to be arranged. The course in the preparation of organic compounds is here continued, the preparations, however, being more difficult and requiring more experience and skill on the part of the student. The original literature is consulted, and the student is finally required to repeat some extended and important piece of work and to compare his results with those published, before taking up original work in this field. Professor ORNDORFF and Dr. TEEPLE.

35. **The Coal Tar Dyestuffs.** One hour. First half-year. Lectures. Th., 11, *Ch. L. R. 3*.

The coal tar dyestuffs have become so important, from both a theoretical and practical standpoint, as to justify their consideration in a separate course of lectures. The methods of making the dyestuffs, their properties, constitution and relation to each other are discussed, the treatment being scientific rather than technical. Professor ORNDORFF.

36. **Stereochemistry.** One hour. Second half-year. Lectures. Th., 11, *Ch. L. R. 2*.

The stereochemistry of the compounds of carbon and nitrogen form the subject of this course of lectures. The necessity for considering the space relations of the atoms in certain classes of physical isomers is shown and the close agreement of the facts and theory is brought out. Professor ORNDORFF.

37. **Seminary in Organic Chemistry.** One hour per week by appointment.

The object of this course is to familiarize the student with the literature of organic chemistry and to bring him into touch with its recent investigations and theories. Articles in the current numbers of the journals are assigned to the students, who report on them weekly, after which there is a general discussion and criticism of the papers presented. Professor ORNDORFF.

Physiological Chemistry.

40. **Physiological Chemistry.** Two hours. Second half-year. Lectures or recitations. M., T., W., Th., 12, *Ch. L. R. 1*, T., Th., 12, *Ch. L. R. 2*. Professor ORNDORFF and Dr. TEEPLE. This course is the continuation of course 32, and is intended for students in medicine.

41. **Physiological Chemistry.** Three hours. Second half-year. Laboratory practice. M., T., W., Th., 2–6. Professor ORNDORFF, Dr. TEEPLE and Mr. RUSSELL. This course is required in medicine.

42. **Physiological Chemistry.** Advanced course. Laboratory practice. Hours to be arranged. Professor ORNDORFF.

Inorganic Chemistry.

45. **History of Chemistry.** Lectures. Two hours. First half-year. M., W., 11, *Ch. L. R. 2*. Professor CALDWELL.

For all students intending to specialize in chemistry. The general subject is divided into topics each of which is treated continuously from the beginning to the end of its history: biographies of chemists whose work has been prominent in any topic are given in connection with that topic.

This course must be preceded by courses 1, 7, 12, 30, and 31.

[46. **Inorganic Chemistry.** Advanced course. Second half-year. Three hours.

The chemical elements are discussed in the order in which they occur in the Periodic Law of Mendeléeff, and especial consideration is given to the group properties of the elemental substances and to the relations of the groups to one another. The rare elements and "rare earths" are treated in as great detail as are the more common elements. The lectures are fully illustrated by experiments. Professor DENNIS.

The course is open to those who have completed courses 1, 7, 12, 30 and 31.]

47. **Inorganic Chemistry,** Laboratory practice. Hours to be arranged. The preparation and purification of inorganic compounds and

the extraction of the rarer elements from ores and minerals. Professor DENNIS.

Course 47 is designed to accompany course 46. but either course may be taken separately.

48. **Inorganic Chemistry. Seminary.** Open to seniors and graduate students. One hour throughout the year. Professor DENNIS.

Physical Chemistry.

The following courses in physical chemistry are open to students specializing in chemistry who have completed courses 1, 7, and 12. but may be taken by students of other departments who have had introductory courses in chemistry and physics.

50. **Introductory Physical Chemistry.** Lectures. Two hours throughout the year. T., Th., 8, *Ch. L. R. 4.* DR. CARVETH.

The object of this course is to give a simple systematic presentation of modern chemical theory. The effect of the variables met in chemical work is studied in detail ; from a consideration of typical cases, many of the laws of chemistry are derived, and the methods employed in chemical practice critically examined.

51. **Physico-Chemical Methods.** Laboratory practice, three hours a week. DR. CARVETH.

Special attention is directed to sources of error in experimental work and calibration of instruments. The subject matter includes : methods of observation ; calculation of error ; the balance ; accurate determination of temperature and thermal effects ; pressures and volumes ; molecular weight by vapor density and other methods ; viscosity and capillarity ; formation, separation, and identification of phases, including fractionation methods ; study of optical, photochemical, electrical, and magnetic effects.

52. **Advanced Physical Chemistry** Lectures and recitations. Three hours throughout the year. Must be accompanied or preceded by courses 30 and 31. M., W., F., 10. *Ch. L. R. 4.* Professor BANCROFT.

A non-mathematical exposition of the law of mass action in its application to chemical equilibrium, to velocities of reaction, and to electromotive forces. These lectures should be snpplemented by at least two hours per week of laboratory practice, course 57.

53. **Mathematical Chemistry.** Lectures, colloquia, and problems for practice. Three hours per week, at times to be arranged. Professor TREVOR.

This study of the thermodynamic theory of chemical equilibria comprises : (*a*) the general principles of thermodynamics ; (*b*) applica-

tions of these principles to the thermodynamic behavior of one-component systems, including the phenomena of vaporization, fusion, transformation of allotropic forms, abnormal vapor densities, critical states, etc.; (*c*) applications to two-component systems, including the theory of solutions, the study of solubility curves, the theory of binary dissociation, and that of critical phenomena, etc.; (*d*) the corresponding applications to the three-component systems. The course presupposes an acquaintance with differential and integral calculus.

54. **Seminary in Mathematical Chemistry.** Five hours. A more detailed course in the thermodynamic theory of chemical equilibria, carried through in connection with supplementary reading and the study of new problems. Calculus is a prerequisite. Professor TREVOR.

[55. **Electrochemistry.** Lectures. Two hours throughout the year. T., Th., 10, *Ch. L. R.*, *4*. The historical development of the subject, with special reference to the theory of the voltaic cell. For advanced students in physical chemistry and physics. Professor BANCROFT.]

56. **Physical Chemistry for Engineers.** Intended primarily for students in electrical engineering and technical chemistry. Any one of the three divisions may be elected, independently of the others.

(a) **Electrochemistry.** Lectures. First half-year. Three hours. M., W., F., 9, *Ch. L. R.*, *4*. Electrolytic extraction and refining of metals; the preparation of compounds in the electric furnace; electrolytic manufacture of inorganic and organic compounds; theory and practice of storage cells. Students taking this course are recommended to supplement the lectures by laboratory practice, course 56 (c). Professor BANCROFT.

(b) **Technical Physical Chemistry.** Lectures. Second half-year. Three hours. M., W., F., 9, *Ch. L. R.*, *4*. The work deals with the physical and chemical nature of materials, reactions and separations, methods of construction, comparison and choice of method, and study of waste products. Dr. CARVETH.

(c) **Electrochemistry.** Laboratory practice. Two hours throughout the year. Preparation of electrical standards and measurement of electrical constants; qualitative study of conditions affecting electrolytic reactions; determination of current and energy efficiencies in electrolytic and electrothermal work; preparation and tests of storage batteries; electrolytic preparation of organic compounds. Students are advised to take this course in connection with course 56 (a). Professor BANCROFT and Mr. BAUM.

57. **Laboratory Practice.** Advanced course. Hours and work to

be arranged. Students may elect work in mass law, reaction velocity, efficiency, conductivity, electrometric, high and low temperature measurements with special reference to course 52; in electrometric determinations with special reference to course 55; in electrochemical synthesis with special reference to course 56; or in advanced problems and research work. Professor BANCROFT and Dr. CARVETH.

Sanitary Chemistry, Toxicology, and Microchemical Analysis.

65. **Foods and Beverages.** Second half-year. Two hours. Lectures. M., W., 10, *Ch. L. R.*, 2. Chemical composition, preparation for use, nutritive and calorific values, assimilability or digestibility, adulterations, preservatives, and their effects, dietaries and dietary standards, food economics. Professor CALDWELL.

66. **Potable Water.** First half-year. Two hours. Lectures. W., F., 8, *Ch. L. R.*, 2. Sources of potable water; how polluted; agencies at work leading to the "natural" or "self" purification of streams, etc., and what they accomplish; the data necessary for a decision as to the fitness of a water for household use; the interpretation of the results of water analyses, chemical, microscopical, and bacteriological. Modern methods of water purification. Assistant Professor CHAMOT.

67. **Toxicology.** Lectures. February 3 to May 9. Credit, one and one-half hours. M., W., 9, *Ch. L. R.*, 2. A brief review of the present ideas as to the classification, mode and cause of action, and method of elimination of poisonous substances, together with a discussion of some of the methods employed for their separation and identification. Assistant Professor CHAMOT.

This course is intended for students in Veterinary Medicine.

68. **Toxicology.** Laboratory practice. One hour. April 27th to end of year. W., 10–1; Th., 8–10; F., 8. This course has been planned to meet the needs of the students in the College of Medicine, and is intended to serve as an introduction to the methods employed for the separation and identification of the common poisons. Assistant Professor CHAMOT and Mr. LAUDER.

This course is open only to those who have completed the courses in chemistry required of first year students in medicine.

69. **Food Analysis.** Laboratory practice. Second half-year. Three hours. Instruction is given in the examination of foods by chemical and optical methods, with reference to adulteration, imitation, and alteration; the examination of foods for artificial coloring matters, preservatives, and poisonous substances. This course comprises a study of milk, infant and invalid foods, comestible fats and

oils, cereal products and starchy foods, canned goods, jellies, etc. The course may be extended so as to include the analysis of alcoholic beverages. Assistant Professor CHAMOT and Mr. LAUDER.

70. **Water Analysis.** Laboratory practice. First half-year. Three hours. Instruction in the methods employed for the examination of waters with reference to their fitness for household purposes, steam boilers, etc. The testing of filters and water purifying devices for efficiency. Assistant Professor CHAMOT and Mr. LAUDER.

Course 66 should be taken in connection with course 70.

72. **Microchemical Analysis.** Laboratory practice. Three hours throughout the year. An introduction to microchemical methods. Instruction is given in the use of the microscope and its accessories in chemical investigations. Practice in the examination and analysis of inorganic substances with special reference to rapid qualitative methods and the analysis of minute amounts of material. Assistant Professor CHAMOT.

74. **Microscopical Examination of Foods.** Laboratory practice. Two hours. Second half-year. Instruction in the use of the microscope in the examination of foods and condiments for the purpose of detecting adulterations and admixtures. Assistant Professor CHAMOT and Mr. LAUDER.

This course should be preceded by course 69.

Agricultural Chemistry.

80. **Agricultural Chemistry.** Elementary course, for students in special short course in Agriculture. Christmas recess to Easter recess. T., Th., 10, *Ch. L. R.*, 4. Assistant Professor CAVANAUGH.

81. **Agricultural Chemistry.** General course. Second half-year. Six hours. Three lectures, M., W., F., 11, *Ch. L. R.*, 3. Two laboratory periods and one recitation. Assistant Professor CAVANAUGH.

This course treats of the "Fertility of the Land," and deals with such subjects as the composition of plants, the sources of their food, the chemical and physical properties of soils, and the composition and behavior of fertilizers and manures.

This course is open only to those who have had course 1.

[82. **Agricultural Chemistry.** Advanced course. Lectures, two hours. First half-year. Assistant Professor CAVANAUGH.]

83. **Agricultural Analysis.** Laboratory practice. Three hours. Foods and feeding stuffs, sugar beets and sugar house products, and dairy products. Assistant Professor CAVANAUGH.

This course is open only to those who have had courses 1 and 6.

84. **Agricultural Analysis.** Laboratory practice. Three hours. Second half-year. Soils, fertilizers, insecticides, and fungicides. Assistant Professor CAVANAUGH.

This course is open only to those who have had courses 1 and 6.

85. **Dairy Chemistry.** First half-year. Lectures. Two hours. At hours to be arranged. Laboratory practice in Dairy Chemistry is given in course 83. Assistant Professor CAVANAUGH.

BOTANY.

The instruction in this department is offered at present in 19 courses. Courses 1 and 2 form a one year's course and are designed to lay the foundation for the advanced courses, as well as to present to the student a general outline of the principles of botanical science. Course 3 is designed especially for the needs of the students in civil engineering, where a knowledge of timber structure, strength of material as related to different kinds of timber tissue, and the diseases of timber, are important.

The advanced courses in comparative morphology, and embryology, comparative histology, mycology, and physiology, are intended to lay the foundation for independent investigations in these subjects as well as to present in a logical way the fundamental principles of development, relationship and phylogeny, as applied in these topics. Aside from the elementary courses these subjects are especially recommended to students who are fitting themselves for teachers, since a grasp of the principles underlying them is needed for the proper and thorough presentation of the elementary principles of botany. In the work of these courses each of the students gradually accumulates a set of permanent microscopic preparations which can be kept for future reference and demonstrations before the classes.

The flora of the region of Ithaca is very rich in species, and offers excellent opportunities for the student of systematic botany, and some facilities in the study of geographic botany. Excellent facilities are offered to the students who are fitting themselves for [experiment] economic work in the course in plant histology, plant physiology, and in the study of the fungi. While the laboratory is distant from the seashore it is well supplied with material of the marine algae for morphological and development study of typical forms.

The laboratory is well equipped with microscopes, microtomes, photographic apparatus, thermostats, sterilizers, culture rooms, an electric lantern and a large number of views for illustrating portions of the lectures, the Auzoux and Brendel models representing the different groups of plants, and other illustrative material in the way of charts,

maps, etc. The large green houses connected with Sage College adjoin the rooms of the department, and are filled with many exotics representing the Pteridophytes, Gymnosperms and Angiosperms, and offer available material at all seasons for studies in development, and histology, and furnish living plants for illustrative material for many of the lectures. Space is devoted to the study of plant growth, physiological experiments, and for the handling and treatment of greenhouse plants, the latter being in charge of the head gardner of the department. The department also contains a large and growing herbarium, as well as collections of fruits, cones, nuts, fibres, a general collection of economic products, and a large number of specimens of the woods of different countries.

Courses 1, 2, 3, 5, may be elected in the Freshman year.. Those desiring to specialize in botany are advised to take courses 1 and 2 in the first year.

I. General Courses.

(Courses 1 and 2 form a continuous course through the year.)

1. **General Comparative Morphology and Physiology of Plants.** Credit, 3 hours first term, 1 hour second term. First half-year, and second half-year until March 28. A study of representative plants of various groups, and of the fundamental principles of plant life and relationship. Lectures, M., 11. Laboratory practice and demonstrations, 1st section, T., 2–5 and W., 11–1; 2nd section, Th., 2–5, and F., 11–1. One forenoon and one afternoon session must be taken each week. Students in Forestry register in the 1st section (Tuesday and Wednesday); students in agriculture register in the second section (Thursday and Friday); other students register in either section. Professor ATKINSON, Dr. DURAND and Mr. LEWIS.

2. **Special Morphology, Taxonomy and Adaptation of Higher Plants.** Continues from course 1. Second half-year beginning March 31. Credit 2 hours second term. Studies of typical plants representing the more general groups of angiosperms. Field excursions for the purpose of studying the local flora. Lectures M., 11. Laboratory work in sections as in course 1. Assistant Professor ROWLEE, Dr. WIEGAND and Mr. LEWIS.

3. **Special Course in Dendrology for Engineers.** First half-year. Two hours. The Morphology and Taxonomy of trees. The structure and development of wood. The qualities and use of woods. Up to Christmas vacation. M., W., 9–10. Assistant Professor ROWLEE and Mr. FOXWORTHY. The diseases of timber and forest trees. Christmas vacation to midwinter recess. M., W., 9–10. Pro-

fessor ATKINSON and Mr. THOM. (Required of Civil Engineers, and open to election without any prerequisite in Botany, to those interested in these problems.)

5. **Geographical Botany.** Second half-year. Lectures, S., 9. Laboratory exercises and excursions, F., 2–5 and S. The distribution of plants over the surface of the earth. Practical field studies in plant distribution; also the preparation of an herbarium representing the local flora. Photographs are used to illustrate the distribution of plants. Assistant Professor ROWLEE and Mr. FOXWORTHY.

6. **Exotics.** One or two hours. The conservatory in connection with the department offers excellent opportunities for students who wish to become familar with practical methods in propagation and cultivation of conservatory plants, and in practical greenhouse work. Mr. Shore, the expert gardener, will have charge of the instruction and practical work. Students desiring to take this course should consult Professor ATKINSON, who will have charge of conference and reports. Hours by appointment.

II. Advanced Undergraduate Courses.

These advanced courses may be elected in any order which the student chooses, the only prerequisite being courses 1 and 2. They are also open to election by graduate students.

Comparative Histology and Systematic Botany.

7. **Taxonomy and phylogeny of Angiosperms.** Three hours through the year. Lectures, T., 9. Laboratory work by appointment. A study of the genetic relationships of the phanerogamous orders. Practical studies in the laboratory, of groups illustrating the principles of natural classification. Assistant Professor ROWLEE.

8. **Comparative Histology of Plants.** Three hours through the year. Introduction to methods of investigation. Studies of the vegetable cell, its multiplication and contents. The development of primary tissues. Kinds of tissue. Comparative study of vascular tissue. Secondary thickening. Lectures, F., 9. Laboratory work, Friday afternoon and Saturday morning. Dr. WEIGAND.

9. **Dendrology.** Three hours through the year. A biological and taxonomic study of trees, including field observations upon the native species, and laboratory investigations upon the structure and development of woody structures. Required of the students of forestry. Prerequisities, course 1 and 2. Course 5 may advantageously precede this course. Lectures, T., 8. Laboratory work, Friday afternoon and Saturday morning. Assistant Professor ROWLEE and Mr. FOXWORTHY.

Comparative Embryology, Mycology and Kiudred Subjects.

10. **Comparative Morphology and Embryology.** Three hours through the year. A study of representative groups which illustrate the line of evolution of green plants. Especial attention will be given to tracing the development and homologies of sporogenous, reproductive and embryological organs, with discussions of the principal plant phyla. Permanent microscopic preparations will be made, representing series in the liverworts, mosses, ferns, gymnosperms, and angiosperms. In the fall the chief attention will be given to the Bryophyta, the winter will be devoted principally to the Pteridophyta, followed by the gymnosperms and angiosperms in the spring. The course is continuous, and because of the logical sequence of the subjects, must be taken in the order presented. Lectures. Th., 11. Laboratory work Monday and Wednesday afternoons. Professor ATKINSON and Dr. DURAND. Prerequisites, courses 1 and 2. Offered in 1903-1904 ; alternates with course 12.

11. **Mycology.** Three hours through the year. First half-year until Christmas recess. *Basidiomycetes;* studies of representative genera of this large group, with especial attention to the structure and characters of edible and poisonous mushrooms and wood-destroying fungi. The equivalent of one weekly laboratory session will be devoted to field work in the collection of material. Christmas recess until Easter Recess, Parasitic Fungi ; the history and development of the most important parasitic fungi. Second half-year after Easter recess, general classification with studies in representative groups, and practice in culture methods. Practice in the recognition of species, or research work may in some cases be taken as a parallel course by registering in course 14a. Lectures, T., 11 ; laboratory work Monday and Wednesday afternoons. Professor ATKINSON, and Mr. THOM. Prerequisites, conrses 1 and 2.

12. **Taxonomy of the Pteridophytes, Bryophites, and Algae.** Three hours throughout the year. Lecture, one hour, Th., 11. Laboratory, two hours, Friday afternoon and Saturday morning. The Laboratory work will consist of a study of typical genera, practice in taxonomy, and field work. Dr. DURAND. Offered 1904-5. Alternates with Course 10.

III. Graduate Courses.

(*Primarily for graduates ; but open to election by undergraduate students engaged in research*).

To those electing any of the graduate courses for an advanced degree the following general announcement applies. A four hour course is the minimum period and if the subject is chosen for a major study, or as a minor, for the master's degree, more time will be required.

Comparative Morphology and Embryology, Mycology, etc.

13. **Methods of research in morphology and embryology.** Not less than four hours. Each student will be assigned some problem for original research with special reference to sporogeny or embryology, and the morphology of the nucleus with reference to sporogenesis, spermagensis, oogensis, and fertilization; or some problem in experimental morphology. The research will be made the basis for acquaintance with methods, and a thesis embodying the results will be prepared. The work should follow course 10, but in special cases may be taken as a parallel study. When these subjects are chosen as a major or minor for an advanced degree they can be pursued for several years according to the needs of the case. Reports weekly. Hours by appointment. Professor ATKINSON and Dr. DURAND.

14. **Methods of research in mycology.** The problems will be assigned according to the needs and capabilities of the student. In general it will be found desirable to devote a first period to an independent survey of the group of fungi in the collection of material and in general taxonomic work on the same to acquire a practical knowledge in the placing of genera and species in the various groups. From this point research on some problem can be directed to some monographic work, either in taxonomy, taking up one or more genera according to the number of species; or in development of a few species; or in problems of plant pathology. The periods are arranged as follows, but are subject to change in special cases:

14*a*. **General taxonomic survey of the fungi.** Four hours through the year; or eight hours for the first half of the year. Should follow course 11, or in special cases may be taken as a parallel course. Hours by appointment. Professor ATKINSON and Mr. THOM.

14*b*. **Research**; monograph of some genus or a limited number of genera; or some monographic study of development, or of plant pathology; through the year, and where the problem is selected as a major study more time will be required. In any case a thesis combining the results of the investigation will be required. Reports weekly. Hours by appointment. Professor ATKINSON.

Plant Physiology and Ecology.

15. **Plant Physiology.** Not less than four hours, but when chosen as a major study, more time will be required. Problems will be assigned for investigation, dealing with the physical properties of growth; with nutrition; with the effects of stimuli and certain natural and environmental forces upon cell activities, plant growth, development, etc. Each student will be required to prepare a thesis embody-

ing the results of his investigations. Prerequisites, courses 1 and 2, and in addition, one of courses 8, 10, or 11 (or an equivalent). Hours by appointment. Professor ATKINSON and Mr. KAUFFMAN. Weekly reports may be required.

Comparative Histology and Systematic Botany.

16. **Research in Taxonomy and Phylogeny of the Angiosperms.** Four or more hours. A monograph of some group which will include a comparative study of organs of taxonomic value, and also their development. Groups will be assigned for investigation preferably in the spring of the year before the course is to be taken up. Among the groups which may be taken up are the glume-bearing Monocotyledons (grasses, sedges, etc.), the amentiferous Dicotyledons, and the Compositae. Since different groups will be taken up in different years, students may pursue the work outlined in this course more than one year. Designed for those who have taken courses 7 and 8, or in special cases, permission will be given to take these as parallel courses. Hours by appointment. Assistant Professor ROWLEE.

17. **Research in Comparative Histology and Cytology.** Not less than four hours. Special problems. (a) Comparative histology: the comparative histology of a series of organs, or the anatomy of an individual plant. (b) Cytology: the biology and structure of starch, plastids, and other cell contents; also nuclear division and cell formation, with special reference to tissue development. Intended to follow course 8, and may form the basis of a major or minor subject for an advanced degree. Assistant Professor ROWLEE and Dr. WIEGAND.

IV. Botanical Seminaries.

18. **Seminary in Embryology, Mycology, Physiology, etc.** Weekly seminaries will be held in embryology, comparative morphology, mycology, physiology and related subjects. Readings and discussions of current literature; and problems under investigation will form the basis for the seminary work. Required of all graduates and open to undergraduates who are engaged in research in courses 13, 14 and 15 (one hour). By appointment. Professor ATKINSON.

19. **Seminary in Comparative Histology and taxonomy of the Angiosperms.** Weekly seminaries will be held in these subjects. Readings and discussions of current literature; and problems under investigation, courses 16, 17, will form the basis for the seminary work. Required of all graduates, and open to all undergraduates who are engaged in research work (one hour). By appointment. Assistant Professor ROWLEE.

ENTOMOLOGY AND GENERAL INVERTEBRATE ZOOLOGY.

The scope of the instruction in this department is indicated by the title of the department; elementary courses are given in the general subject of invertebrate zoology, and special courses, both elementary and advanced in entomology. An opportunity is offered the student to lay a broad foundation for zoological studies by lectures covering in a general way the field of invertebrate zoology, and by a study in the laboratory of a wide series of typical forms, illustrating the more important groups of Invertebrates. These two courses taken in connection with similar courses offered by the Department of Physiology and Vertebrate Zoology afford the instruction in zoology needed by students in the general courses and serve as an introduction to the more advanced work of those who wish to make a special study of zoology.

Owing to the difficulty of studying marine animals at any place remote from a sea coast and to the exceptionally good facilities for the study of insects at this University, those students wishing to take advanced work in invertebrate zoology here are advised to select some subject in entomology, and especial encouragement is given to those students wishing to make original investigations in this field. An important feature of this department is a summer term, consisting of lectures, field work, and laboratory practice, at the season of the year most favorable for the study of insects.

The Museum and Laboratory. The material equipment of the department for the study of General Invertebrate Zoology consists of a museum in which there is a good series of Invertebrates, including an excellent collection of corals and a very large collection of shells, the Newcomb Collection. The museum also contains the complete series of glass models of invertebrates made by Blaschka, the papier maché models of Auzoux, and a complete set of the zoological diagrams of Leuckhart. The laboratory is kept supplied with specimens of the typical marine forms studied by the students. These are supplied to the students at cost.

The entomological cabinet contains, in addition to many exotic insects, specimens of a large proportion of the more common species of the United States. These have been determined by specialists, and are accessible for comparison. The collection includes many sets of specimens illustrative of the metamorphoses and habits of insects. The laboratory is also supplied with a large collection of duplicates for the use of students; and is equipped with microscopes and other apparatus necessary for practical work in entomology.

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 following courses are offered in 1903–1904 :

1. **Invertebrate Zoology.** General course. First half-year until Christmas recess. Credit, 2 hours. M., W., 10, *White 12.* Professor COMSTOCK ; and one practical exercise by the class in sections. W., Th., F., 2–4:30, *White 20.* Messrs. MACGILLIVRAY, RILEY, and CHAMBERLAIN.

2. **Morphology of Invertebrates.** Special laboratory course. First half-year until Christmas recess, and second half-year after Easter recess. M., T., 8–5, W., Th., F., 8–1. *White 20.* Mr. MACGILLIVRAY.

3. **General Entomology.** Lectures on the characteristics of the orders, sub-orders, and the more important families, with special reference to those of economic importance. Second half-year after Easter recess. Credit, 2 hours. M., W., F., 10. *White 12.* Professor COMSTOCK ; and one practical exercise in sections for those who have not had courses 4 and 5. W., Th., F., 2–4:30, *White 20.* Messrs. MACGILLIVRAY, RILEY, and CHAMBERLAIN.

Course 3 is open only to students who have taken course 1. Those special students in agriculture who do not take course 1, but who wish to study entomology, are recommended to take courses 4, 7, and 5.

4. **Elementary Morphology of Insects.** Laboratory work. First half-year until Christmas recess. Three hours credit. M., T., 8–5, W., Th., F., 8–1, *White 20.* Messrs. MACGILLIVRAY and RILEY.

5. **Elementary Systematic Entomology.** Laboratory work. Second half-year after Easter recess. Credit, 2 hours. M., T., 8–5, W., Th., F., 8–1, *White 20.* Messrs. MACGILLIVRAY and RILEY.

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

6. **Histology of Insects.** Laboratory work. Introductory course. T., 8–5 ; Th., F., 8–1. Mr. RILEY.

Course 6 is open only to students who have taken courses 4 and 5.

7. **Research in Entomology.** Advanced laboratory course, special work arranged with reference to the needs and attainments of each student. First half-year until Christmas recess, and second half-year after Easter recess. M., T., 8–5 ; W., Th., F., 8–1, *White 20.* Professor COMSTOCK, and Messrs. MACGILLIVRAY and RILEY.

The entomological laboratory is closed from Christmas to the Easter vacation, and is open during the summer ; see below.

8. **Economic Entomology.** Lectures and field work. Discussion

of the more important insect pests and of the methods of combating them. At opportune times, the class will be taken into the field in sections to observe insect pests at work. Second half-year. Credit 2 hours. T., Th., 10, *White 12*. Assistant Professor SLINGERLAND.

9. **Economic Entomology.** Lectures, seminary and field work. Economic problems connected with applied entomology discussed, reported upon, and field observations made. Experimental methods in breeding, photographing, investigating and combating insects discussed and studied. Second half-year. One hour. One afternoon a week by appointment. *Insectary*. Assistant Professor SLINGERLAND.

Course 9 is designed for advanced students who desire to fit themselves for Experiment Station work. The course is open only to students who have taken courses 1, 3 and 8.

10. **Economic Entomology.** Elementary course for students in the Special Course and the Short Winter Course in Agriculture. Lectures on insect pests and remedial measures. Christmas recess until Easter recess. Two lectures a week. M., W., 10. *White 12*. Assistant Professor SLINGERLAND.

11. **Morphology and Classification of the Arachnida.** Special laboratory course. First half-year until Christmas recess, and second half-year after Easter recess. M., T., 8-5, W., Th., F., 8-1. *White 20*, Professor COMSTOCK, and Messrs. MACGILLIVRAY and RILEY.

Course 11 is open only to students who have taken courses 4 and 5.

Summer Term.

Owing to the better opportunities for the study of Entomology during the summer than in the winter, there has been established a summer term of this department. This term begins the first Wednesday following Commencement and lasts ten weeks. The courses are of an advanced nature ; and only those students of this University who have taken courses 1 and 3 are admitted to them. Teachers and others desiring to join the class without previously attending the University, should state in their application the amount of zoological work they have done.

The tuition fee for the summer term is $25.00. Students who have been members of the University during the preceding year are excused from the payment of this fee. Those who are members during the succeeding year may have the $25 applied on their first term's tuition. Application for admission to the course should be made before June 1st.

12. **Introductory Course.** Elementary morphology of insects and systematic entomology. Laboratory work, and one excursion per

week. Daily ex. S., 8–5, *White 11, 12, 20.* Messrs. MACGILLIVRAY and RILEY.

13. **Œcology of Insects.** Lectures and field work on the habits of insects, and on their relation to their environment. Th., 9–12, *White 12.* Professor COMSTOCK.

Course 13 is open only to students who are taking at least two hours of course 12. Credit is given as for laboratory work.

14. **Morphology and Classification of the Arachnida.** Special laboratory course with occasional lectures. Daily except S., 8-5, *White 11, 12, 20.* Professor COMSTOCK and Messrs. MACGILLIVRAY and RILEY.

15. **Morphology and Development of Insects.** Lectures and demonstrations. M., W., F., 10. Credit, 2 hours. *White 12.* Professor COMSTOCK and Mr. RILEY.

16. **Research in Entomology.** Special work arranged with reference to the needs and attainments of each student. Daily ex. S., 8–5. Professor COMSTOCK and Messrs. MACGILLIVRAY and RILEY.

PHYSIOLOGY, VERTEBRATE ZOOLOGY, AND NEUROLOGY.

Courses 1 to 6 are open to Freshmen.

The laboratories and lecture-rooms of the department occupy the entire north wing of McGraw Hall. The museum is in the centre of the building on the main floor and in the first gallery.

Course of Instruction. With all, practical work constitutes an essential feature. With the first three, Physiology, Vertebrate Zoology, and Neurology, one-third of the exercises are in the form of practicums, the objects being studied by the students in groups under constant supervision and with explicit directions. In the other courses the laboratory work is adapted to the needs of the individual.

The Museum. In its formation there has been kept in mind constantly its main purpose as an aid to instruction, elementary and advanced. Merely curious, showy or costly specimens have not been sought. But efforts have been made to obtain from all parts of the world representative forms of the various vertebrate groups, and by means of carefully prepared specimens, to illustrate ideas, *e. g.*, the adaptation of structure to function ; the persistence of apparently useless or injurious organs ; the unity of type under diversity of external form and mode of life ; the relationship of man to the apes, etc. The collection embraces an unusual number (about 1500) of well-preserved and prepared brains of man and other vertebrates. The local fauna is

already represented by about 250 species, of which 62 are fishes and about 150 are birds; it is believed that at least 350 different vertebrates inhabit the neighborhood of Ithaca.

The Vivarium. There is as yet no special provision for a zoologic garden, but living animals of moderate size and cost are kept in the basement of McGraw Hall, and are accessible at all times to students and visitors. During 1899–1900 the forms were as follows: Monkey, cat, fox, raccoon, ferret, porcupine, mouse, squirrel; crow, pigeon, parrot; alligator, heloderma (Gila monster), serpents and turtles; frogs, salamanders and necturus; lake lamprey, amia, gar, stickleback, catfishes, perch, suckers, sunfish, etc. On the upper floor are maintained aquariums in connection with the course in Systematic and Economic Zoology.

Opportunities for Research. Besides ordinary forms, there are readily obtained living necturus, amia, and two kinds of lamprey. The Brazilian fishes collected by the late Professor C. F. Hartt have been identified by Professor Eigenmann. The large number of cats, sheep hearts and brains, and of representative vertebrates used annually at the practicums in Physiology and Zoology facilitate the study of both normal anatomy and variation. Besides the museum specimens there are in store many entire vertebrates, particularly marsupials at various ages. The hearts of numerous forms have been prepared by injecting alcohol into their cavities. For the study of cerebral topography, unusual facilities are offered in both material and literature.

The following courses are offered in 1903–1904:

[For the sake of correlation with courses 1 and 3 in Entomology and Invertebrate Zoology some of the courses in this department will occupy each about one-third of the college year; the exercises occur three times per week but the courses will count each as a two hour course for a half-year. The Physiology of the first year in the Medical College includes the lectures of course 1. The Anatomy of the first year includes the lectures of course 3.]

1. **Physiology.** First half-year until Christmas recess. Three hours per week. Credit, two hours. Two lectures, T., Th., 11. One practicum; two sections at hours to be arranged Friday and Saturday. [If the lectures alone are taken the credit for the half-year term will be 1⅓.] The title of this course is employed in the absence of any single word fully indicating its scope; it really constitutes an introduction to the study of the structure, functions and relationships of man and other vertebrates. After a brief account of the several classes, especially the mammals and the order primates, the lectures

treat largely of the structures and functions of the nervous system and the sense organs. At the practicums each student dissects the viscera and certain muscles of the cat, and the heart, brain and eye of the sheep; the principal tissues, including living cilia, are examined under the microscope. Professor WILDER and Assistant.

2. **Vertebrate Zoology.** Christmas recess until Easter recess. Three hours per week. Credit, one hour each term. Two lectures and one practicum; days and hours as in course 1. At the practicums are dissected representative forms, including necturus, lamprey, ray, shark, etc.; sections of the lancelet are studied under the miscroscope. Professor WILDER, Dr. REED, and Assistant.

Course 2 must be preceded by course 1, or by course 1 in Entomology and Invertebrate Zoology.

3. **Neurology.** Easter recess until end of year. Three hours per week. Credit, two hours. Two lectures and one practicum; days and hours as in course 1. The lectures deal with (a) the comparative anatomy of the brain; (b) the morphology of the human brain; (c) the cerebral fissures. Professor WILDER and Assistant.

Course 3 must be preceded by course 1 or its equivalent.

4. **Dissection of the Cat.** First half-year. Laboratory work with occasional lectures at hours to be arranged. Three or more hours. This course is designed for those who intend to teach physiology or zoology, or who, in preparation for a medical course, desire to gain manipulative skill and familiarity with mammalian structure. Professor WILDER and Assistant.

5. **Comparative Anatomy**, including man and the other primates. Second half-year. Three or more hours at times to be arranged. Professor WILDER and Assistant.

6. **Systematic and Economic Zoology.** Three hours during the year at times to be arranged. One lecture, one practicum, and one field-excursion each week. The lectures discuss the characters and relationships of the groups, and the habits, life-histories and economic value of certain forms. As laboratory work representative species are examined with special reference to the parts employed in classification. In the fall the fishes are studied, in the spring the birds, and the other classes in the winter. Dr. REED and Assistant.

9. **Advanced Study, Research and Thesis Work.** Daily throughout the year. Professor WILDER and Dr. REED.

10. **Seminary.** Fortnightly throughout the year. Professor WILDER.

MICROSCOPY, HISTOLOGY AND EMBRYOLOGY.

As indicated by the following courses, this department offers elementary and advanced instruction in the theory and use of the microscope and its accessories, in photo-micrography, in vertebrate histology and vertebrate embryology ; and opportunities for research in all of these subjects.

The material equipment consists of a good supply of modern microscopes, while camera lucidas, polariscopes, micro-spectroscopes, photomicrographic cameras, microtomes, and other special apparatus are in sufficient numbers to give each student opportunity for personally learning to use them, and for applying them to any special study in which they are called for. Two projection microscopes are available for class demonstrations and for wax-plate reconstructions. The collection of histologic and embryologic specimens is extensive and constantly increasing.

The rooms for the use of this department are on the first and second floors of Stimson Hall. They consist of a large general laboratory, a research laboratory, a preparation room, and two laboratories for the instructing staff, where also special demonstrations of difficult subjects are given to small groups of students

The aim of the department is to bring the student into direct contact with the truths of nature, and hence while there are lectures to give broad and general views, there is a large amount of laboratory work in which the facts are learned at first hand, and the methods and manipulations necessary for acquiring the facts are practised by each student. It is recognized that less ground can be covered in a given time in this way, but it is believed, and experience has confirmed the belief, that the intellectual independence and power to acquire knowledge direct from nature which is gained by this personal work is of far higher value than the facts and theories that might be learned in the same time from books and lectures alone, or from specimens prepared by some other individual.

The lake region with its rich and varied fauna is especially favorable for investigations in the histology and embryology of all the main groups of vertebrates ; and the proximity of the abattoirs in the city makes it possible to obtain material for the study of the development of the sheep, cow and pig. The veterinary college clinic and the department of anatomy supply material for the embryology of the cat and dog, so that the opportunities for research upon the development of the domestic animals are excellent. Every encouragement is given for the fullest utilization of these opportunities.

1. **Microscopy, Histology and Embryology.** Second half-year. Credit, 8 hours. Two lectures M. and W 8, two recitations and two demonstrations by appointment, and twelve hours of laboratory work weekly during the second half-year. Professor GAGE, Instructor THRO, and Assistants HILTON, WINTER, and PARTRIDGE.

Course 1 is not open to Freshmen in Arts.

Microscopy. The aim is to give a working knowledge of the theory and use of the microscope and its accessories, methods of mounting microscopical specimens, etc. It serves as a basis for all subsequent work of the department. The work begins Feb. 1, and extends until Feb. 13.

Histology. This includes the study of the fine anatomy of the domestic animals and of man, and also the fundamental methods of histologic investigation and demonstration. The work begins Feb. 15, and extends until April 24.

Embryology. This deals with the elements and methods of embryology in the amphibia, in the domestic animals, especially the chick and the pig, and in man. The work begins April 26, and extends until June 7.

4. **Research in Histology and Embryology.** Laboratory work eight or more actual hours per week with seminary throughout the year. This course is designed for those preparing theses for the baccalaureate or advanced degrees and for those wishing to undertake special investigations in histology and embryology. Professor GAGE and Mr. THRO.

Course 4 is open only to those who have taken course 1, or its equivalent in some other university. Drawing, (course 1, in Industrial Drawing and Art, or its equivalent) and a reading knowledge of French and German are indispensable for the most successful work in this course.

Subjects for theses should be decided upon as early as possible so that material in suitable stages of development and physiologic activity may be prepared.

5. **Structure and Physiology of the Cell.** First half-year. Two lectures per week at hours to be arranged. This course is designed for students of biology and medicine, and gives the fundamental facts and principals relating to cell structure and activity, especially in their bearing on general problems of biology and theories of evolution and heredity. Open to students who have had satisfactory courses in zoology, botany or physiology, or course 1. Assistant Professor KINGSBURY.

6. **Microscopy, Advanced.** First half year. Credit, 1 hour,—40

actual hours. All the work will be completed during the first eight weeks of the term. This course consists of laboratory work with occasional lectures and demonstrations. Special instruction will be given in the theory and manipulation of the more important and difficult accessories of the microscope, *e.g.*, the micro-spectroscope, the micro-polariscope and the apertometer. The use and application of the projection microscope and of photo-micrographic apparatus will be learned by each student, in abundant practical experiments. Professor GAGE.

This course is open to those having pursued the Microscopy of course 1, and who have in addition a knowledge of elementary photography. Course 9, Department of Physics, is recommended.

7. **Seminary.** At hours to be arranged. At the seminary, there will be presented reports of special methods and the results of advanced work. Professor GAGE.

NOTE.—For the work of this department the student will find a knowledge of Latin and Greek of the greatest advantage. A year's study of Latin, three to five recitations per week, and of Greek, Goodell's Greek in English, or Coy's Greek for beginners, would represent the minimum amount needed. For all courses, the ability to draw well freehand, and a good reading knowledge of French and German are desirable, and for research work almost indispensable.

GEOLOGY.

INCLUDING: A. DYNAMIC GEOLOGY AND PHYSICAL GEOGRAPHY: B. MINERALOGY AND PETROGRAPHY; C. PALEONTOLOGY AND STRATIGRAPHIC GEOLOGY; D. ECONOMIC GEOLOGY.

A. Dynamic Geology and Physical Geography.

Two elementary introductory courses are offered, one in physical geography, the other in geology, placing especial stress upon the dynamic side, but introducing the other aspects of geology where they have a distinct bearing upon the course. These are not primarily professional courses but are intended to meet the needs of those who, without meaning to specialize, desire a general knowledge of the earth sciences. At the same time they serve as the basis for more advanced work. These two courses together will serve as a preparation for those who expect to teach the earth sciences in secondary schools. After taking these two courses the student is able to undertake work for himself in the library, laboratory and field. In these more advanced courses small problems are investigated and reports made

upon them, and thus a training is gained for more advanced field work upon larger problems.

The work of the first elementary courses consists partly of lectures and partly of field and laboratory work ; but in the advanced course no lectures are given, the work being largely individual. Therefore, from the very first the student is placed directly in contact with the problems of the field, and is given training in observation and geological reasoning. The laboratory is well equipped with models, maps, rock specimens and photographs illustrating geological and physiographical phenomena. The neighborhood of Ithaca abounds in both simple and complex illustrations of geological phenomena ; and in each class, in the spring and fall terms, excursions are made to points within easy reach of the University. These half-day excursions are supplemented by others to more distant points, occupying the entire day ; and still longer expeditions are made each year, for example, to Niagara and to the coal mines at Wilkes-Barrre. Now and then vacation trips may be undertaken, particularly during the summer. In 1896 a party of advanced students made a journey to Greenland ; in 1899 to Maine ; and in 1900 to the Adirondacks. These more extended field expeditions are planned to give training for those who intend to pursue the subject of geology. In 1902 several advanced students were taken as assistants in work on Pleistocene geology, which is being done by the head of the department for the United States Geological Survey.

B. Mineralogy and Petrography.

In this department both elementary and advanced courses are offered to students who have the necessary preliminary knowledge of chemistry and physics. The courses lead in two main directions : (a) toward an acquaintance with the properties, methods of investigation, and uses of minerals and rocks ; and (b) toward a knowledge of the characteristics of crystalized matter, and of the important relationship existing between crystallography and the sciences of physics and chemistry.

The laboratory rooms and museum are situated at present in McGraw Hall. They are well equipped with study collections, including the Benjamin Silliman, Jr. collection of minerals, and with apparatus for experiment and investigation. There is also material for original research.

C. Paleontology and Stratigraphic Geology.

The courses of this department are elective ; and are open to all. A special attempt is made to have all work, so far as is practicable,

carried on after the manner of original research. This is rendered feasible by the fortunate location of the University, in the midst of the most important and classical State of the Union, so far as paleontology and stratigraphic geology are concerned.

A seemingly large proportionate amount of time is spent in field and laboratory, with a few recitations and lectures, thus giving the future teacher a knowledge at first hand of these important branches of geology as taught in secondary schools, and the future specialist precisely the knowledge and methods of work he will need in any university, state or national geological survey.

Great stress is laid on the study of shells, for by means of them stratigraphy and the world's geological history are mainly interpreted. The large University collections of invertebrates, fossil and recent, mostly shells, have been rearranged and catalogued during the past few years, and now form a most valuable and indispensable aid to elementary and advanced workers. Among those most serviceable to students of older formations will be found: the Jewett collection, especially rich in New York Silurian species; local and practically complete Devonian faunas from Central New York; the Hartt type collection of Carboniferous fossils from Brazil.

Of late special attention has been given to Teritary paleontology and geology, several field expeditions being sent into the Southern States, where deposits of this age occur. The enormous amount of material so obtained when taken in connection with the Newcomb collection of recent shells (over 10,000 species) furnishes unparalleled opportunities for work in this branch of paleontology.

For the past four years this Department has been engaged in conducting a geological survey of the State of Louisiana. Winters have been spent in the field by several members of the Department. The studying and reporting upon these Teritary and younger formations necessarily occupies much time. Summers, however, have been devoted to the interests of a school of field geology, established by this Department in the Helderberg mountains of Eastern New York. The type sections of New York's classic formations are visited and studied in detail by means of excursious by boat on the Hudson, Lake Champlain and Erie canal. The opportunity for original research in almost all the different horizons of the geologic scale can properly be styled exceptionally good.

D. Economic Geology.

Instruction. The courses of instruction are both required and elective. The former are for students in the colleges of architecture,

forestry and civil engineering, and each course is adapted to the special needs of the class taking it.

The elective work is intended to give the student a general knowledge of the occurrence and properties of the useful minerals and rocks, or to enable him to specialize along certain lines if he so desires. The lectures are supplemented by laboratory and field work, and occasionally longer excursions are taken, as to the coal regions of Pennsylvania, the mining regions of Michigan, etc.

Collections. These include : (1) About 4,000 specimens of useful minerals and rocks, including ores (iron, copper, gold, silver, lead, zinc, etc.), building stones, coals, clays; cements, petroleum, etc., to which additions are constantly being made. In many cases the product in different stages of completion is exhibited with the raw material in order to show more clearly the use of the mineral or rock. These specimens are used in both the lecture and laboratory work. (2) A collection of about 1,200 lantern slides and several hundred photographs.

Laboratory. The department also has a laboratory in which either chemical work or fire tests can be carried on, there being for this latter purpose two furnaces capable of generating 3,300 degrees Fahrenheit of heat. These are useful for testing clays and building stones ; but the laboratory is especially well equipped with apparatus for clay investigation.

The following courses are offered in 1903–1904 :

A. Dynamic Geology and Physical Geography.

Consultation hours 11–12 daily, excepting Saturday. Office second floor, south end of McGraw Hall.

1. **Elementary Physical Geography, or Physiography.** Three hours throughout the year. Lectures, field work and laboratory work. The lectures consider the nature and origin of land forms,—plains, plateaus, mountains, valleys, lake basins, volcanoes, shore lines, etc. ; also the influence of physiography on the history and development of man. After the Easter recess the air and ocean are studied. Illustrated by lantern slides in the lectures, by the study of maps, models and photographs in the laboratory, and by field excursions during fall and spring. The required field work is mainly done near the University in regular laboratory periods ; but one all day excursion is made in the fall to Freeville and Cortland, and one in the spring to Lake Ontario. These excursions are made on Saturday

and each is counted as the equivalent of two laboratory periods. Voluntary excursions are offered to Niagara, and Watkins Glen.

Lectures, M., W., 9, *Geological Lecture Room.* Laboratory and Field Work either M., T., or Th., 2–4:30. It is necessary to have one free Saturday in fall and spring for an all day excursion. Professor TARR and Mr. ———.

Open to all elective students.

2. **Dynamic, Structural and Physiographic Geology.** Three hours throughout the year. Lectures, field work and laboratory work. Includes a study of weathering, rivers, lakes, glaciers, ocean, nature and origin of rocks, mountain formation, volcanoes, earthquakes, etc.; also the application of the principles of dynamic geology to an interpretation of the past history of the earth. Each phase of the subject is fully illustrated by lantern views.

The indoor laboratory work is mainly confined to the winter season. During the fall and spring the laboratory hour is devoted to a field study of geological phenomena near the University. One all day excursion is made by lake to Taughannock, and another by train to Union Springs. These excursions are made on Saturday, and each is counted as the equivalent of two laboratory periods. A voluntary excursion to the coal mines at Wilkesbarre is also offered.

Lectures T., Th., 9, *Geological Lecture Room.* Laboratory and field work either M., T., or Th., 2–4:30. In addition it is neccessary to have one free Saturday in fall and spring for an all day excursion. Professor TARR, and Mr. ———.

Open to all elective students.

[3. **The Geography of North America.** Two hours. A consideration of the physiographic features of North America and their influence upon the history and industrial development of the several nations. The principal sub-topics are: (1) the physiography of the continent and its development; (2) the climate, from standpoint of cause and effect; (3) the natural resources; (4) the influence of these various physiographic features upon the aborigines, early settlements, occupations of the people, location of cities, etc. The lectures are illustrated by lantern slides, maps and models. Lectures, T., Th., 10, *Geological Lecture Room.* Professor TARR.

Courses 3 and 4 are given in alternate years. Course 3 is omitted in 1903–4.]

4 **The Geography of Europe.** Two hours. A consideration of the physiographic features of Europe and their influence upon the history and industrial development of the several nations. The principal sub-topics are: (1) the physiography of the continent and

its development; (2) the climate from the standpoint of cause and effect; (3) the natural resources; (4) the influence of these various physiographic features upon race characteristics, early movements of people, development of navigation, modern national development, location of leading cities, both in the past and the present, etc. Illustrated by lantern slides, maps and models. Lectures T., Th., 10, *Geological Lecture Room.* Professor TARR.

Courses 3 and 4 are given in alternate years.

[5. **Elementary Climatology.** Two hours, first half-year. Lectures and recitations. A consideration of the causes for differences in climate in various parts of the world and their influence on life. Also some laboratory work in the study of weather bureau instruments and weather maps, for which special arrangement will be made. Lectures M., W., 11, *Geological Lecture Room.*]

6. **Advanced Physiography.** Four hours. A study of special topics of physiography in the field and laboratory. In addition to discussions, conferences, review of literature, and directed excursions each student will be required to do independent field and laboratory work. Admission to this course by undergraduates requires special permission, and in all cases courses 1 and 2 or their equivalent are prerequisite. W., 2–5, *Physical Geography Laboratory.* Also long excursions on certain Fridays and Saturdays in fall and spring. Professor TARR and Mr. ——.

7. **Experimental Geology.** Original investigation by experiment in dynamic and physiographic geology. Each student will take a line of work for experiment, for example, mountain folding, sedimentation, glacial action, river erosion, river deposit, etc. The amount of credit depends upon the nature of the problem selected, but in no case will registration be permitted for less than two hours for the full year or four hours for a single term. Undergraduates are admitted only by special permission, and in all cases courses 1 and 2, or their equivalent are prerequisite. This work may be made the basis for both graduate and undergraduate theses. Professor TARR.

8. **Glacial Geology.** Three hours. In the fall and spring the class investigates in detail the glacial geology of a region selected for the purpose. This gives practice in actual field investigation, and in field methods. During the winter the notes and maps are worked up, and conferences and discussions are aranged upon the results. In addition, each student is expected to prepare and deliver a lecture upon some subject in glacial geology. All day Saturday during fall and spring; Tuesday, 4:30–6 during the Winter. Open to graduate students and, by special permission, to those undergraduates who have

previously completed courses 1 and 2 or their equivalent. Professor TARR.

9. **Geological Investigation.** Field and laboratory work with readings, conferences, excursions, and the preparation of theses. Original investigation based upon field work is undertaken by each student. Primarily for graduates. Professor TARR.

10. **Geological Seminary.** Three hours. Monday, 4:30-6. Preparation and reading of theses upon special subjects, particularly upon investigations in the field. Abstracts and discussions of the current geological literature. Open to graduates and those undergraduates who are sufficienty advanced. Professor TARR.

B. Mineralogy and Petrography.

10. **Mineralogy.** First term until Christmas recess. Credit, two hours. A short course required of Civil Engineers, consisting of lectures, recitations, laboratory practice. Open only to students who have passed a year's work in Chemistry. M. and W., 10, and W. or F., 2. Assistant Professor GILL and Mr. MCCOURT.

11. **Mineralogy.** Three hours, two lectures and one laboratory hour, throughout the year. Lectures, T., Th., 8; laboratory hours to be arranged. This course is for beginners, and is designed both as a general course in the subject, and as an introduction to more advanced work. Assistant Professor GILL. Course 11 is given in alternate years with courses 14 and 15.

12. **Crystal Measurement and Drawing.** Second half-year. Two hours. Assistant Professor GILL.

13. **Determination of Minerals by the Blowpipe Method.** First half-year. One laboratory hour. Must be preceded by some course in Mineralogy. Assistant Professor GILL.

[14. **Physical Crystallography.** First half-year. Three hours, two lectures and one laboratory hour. Must be preceded by course 11 or its equivalent. Assistant Professor GILL.

15. **Petrography.** Second half-year. Three hours. This course, together with the preceding, is intended to give an elementary knowledge of the determination of minerals and rocks under the microscope. Assistant Professor GILL. Courses 14 and 15 omitted in 1903–04.]

16. **Seminary in Mineralogy and Crystallography.** One hour throughout the year. Devoted to the study of current literature and some of the more important classic writings. Assistant Professor GILL.

17. **Advanced or Special Work in Mineralogy and Petrography.** Adapted to the needs of the individual student. The work may be directed in the line of Crystallographic Measurements, Crystal

Structure, Mineral Synthesis, Microchemical Methods or Petrographic Research. Assistant Professor GILL.

C. Paleontology and Stratigraphic Geology.

Office and Laboratory, first floor McGraw Hall. Consultation hours 10–12. All courses elective.

21. **Historical Geology.** Three lectures a week (fall and spring only.) Credit, two hours. A course designed to give the beginner or general student a clear and vivid idea of the principal changes through which the earth has passed from its nebulous stage to the present day. Well illustrated by lantern views and cabinet specimens. Excursions to Union Springs in the fall; to Chemung Narrows in the spring. Two short free excursions on Cayuga Lake each term. Longer voluntary excursions to Niagara gorge and the vicinity of Lockport, Buffalo and Rochester. Hours to be arranged to suit the convenience of those concerned; generally at 10, 11, or 12, M., W., F. Assistant Professor HARRIS, and Mr. ——

22. **Stratigraphic Geology.** Six periods a week; three lectures; three laboratory hours; fall and spring only. Credit, four hours. Includes course 21, and takes the student into the field at frequent intervals, at least twice a week, generally Tuesday and Saturday afternoons. Following the precedent of the U.S. Geological Survey, field work is begun by the construction of topographic maps. Various map projections are discussed at length in the laboratory. Lines of spirit levels are run for the purpose of furnishing bench marks for further topographic and section work. Fossils are collected systematically from the different horizons in each section. They are identified, and their horizons correlated, in the laboratory. Designed for those who would thoroughly understand the methods of geological work, either for the purpose of teaching well, or of doing independent work after leaving this institution. Hours to be arranged. Assistant Professor HARRIS, Mr. —— and Mr. ——

23. **Elementary Conchology.** Three periods a week; fall and spring only. Credit, two hours. Pelecypoda and Gastropoda, fall; Brachiopoda and Trilobita, spring. Hours to be arranged.

24. **Field and Laboratory Work.** All special and advanced work is included under this heading. Hours various.

Summer Session.

The details of the summer programme are not fully made out; yet it is definitely decided that a six-weeks session of field and lecture work will be held in the Helderberg Mountains, during the summer

of 1904. To take full advantage of the opportunities offered, those intending to join the school should come to Ithaca, and proceed by boat along the Erie canal, stopping at Syracuse, Manlius, near Oriskany Falls, Trenton Falls, and other localities in the classical Mohawk Valley.

Those desiring to know exact dates, expenses, credit, etc., will do well to write to G. D. Harris, early in 1904 asking for circular of information.

D. Economic Geology.

Required Courses.

30. **General and Economic Geology for Civil Engineers.** From Christmas recess until end of second half-year. Credit, one hour first term, two hours second term. Christmas recess to Easter recess, two recitations. M., W., 10; T., Th., 10, M., W., 12, and one laboratory period. F., 11–1, F., 9–11, F., 2–4. After Easter, two lectures, M., W., 10, and one laboratory period, M., 11–1, M., 8–10, F., 2–4. *Geological Lecture Room.* Assistant Professor RIES and Mr. MCCOURT.

31. **Clay-Products and Building Stones.** Required for architects. Open to elective students only by special permission. Second half-year. Two hours. Lecture, M., 12. Laboratory, W., 2–4. *Geological Lecture Room.* Assistant Professor RIES.

32. **Origin and Nature of Soils.** Required for students in Forestry. Open to elective students. First half-year. Two hours. Lectures, T., 10, W., 10, *Geological Lecture Room.* Assistant Professor RIES.

Elective Courses.

33. **General Economic Geology.** a. Two hours lectures throughout the year, T., W., 12. b. Laboratory, M., 2–4 throughout the year. Students may take the lectures without the laboratory, but those who have the time should take both. A comprehensive course upon the origin, nature, and uses of the metallic and non-metallic products, with especial reference to those of the United States. Students taking this course should have had sufficient preparation in geology and mineralogy. *Geological Lecture Room.* Assistant Professor RIES.

Intended for students in geology, for those studying mining engineering and for students in inorganic chemistry.

34. **Clay Investigation.** Primarily for graduates. Laboratory work, field work and reading. In the laboratory are taught the different methods of testing clays for the purpose of determining their uses. Assistant Professor RIES.

35. **Advanced Economic Geology.** Primarily for graduates. This course, including laboratory work, field work and reading, will vary with the needs of the individual student. Assistant Professor RIES.

36. **Seminary in Economic Geology.** Three hours credit. Time to be arranged. Abstracts and discussions of the current literature on economic geology, and preparation of papers on special subjects. Primarily for graduates, but open to undergraduates who have had sufficient preparation. Assistant Professor RIES.

MILITARY SCIENCE AND TACTICS.

Pursuant to the act of Congress creating the land grant on which Cornell University is founded, and the act of the legislature of the State of New York assigning the land grant, instruction is provided in Military Science and Tactics.

Military Drill is required of all male Freshmen except aliens, laboring students, special students, and those physically unfitted therefor. A student deficent in a term of Military Drill is not permitted to substitute anything else for that work, or to be excused from any subsequent term until the deficiency is removed. In the case of students not taking Drill, an equivalent in hours will be added to the hours required for graduation.

Students who drill 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.

Any member of the Cornell University 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 sophomore, junior, or senior year, he is entitled, if duly registered therefor, to credit of two recitation hours a week, 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 such students.

Upon 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 be inserted in the *Official Army Register*, from Headquarters of the Army.

Students required to drill must complete the work within their Freshman year, unless duly authorized to postpone part of the work because of illness or other necessity.

The Cadet Corps is organized as follows: An infantry regiment with band, a field battery (dismounted), a signal detachment, and a hospital detachment.

The following courses are offered in 1903–1904:

1. **Infantry Drill.** School of the soldier. School of the company. School of the battalion and ceremonies. First term until Christmas recess and second term after Easter recess. Credit, 2 hours each term. M., W., F., 4:45. Major VANNESS.

2. **Artillery Drill, for Selected Detachments.** School of the Battery, dismounted. Sabre exercise. First term until Christmas recess and second term after Easter recess. Credit, 2 hours each term. M., W., F., 4:45. Major VANNESS.

3. **Military signaling** for selected detachment. First term until Christmas recess and second term after Easter recess. Credit, 2 hours each term. M., W., F., 4:45. Major VANNESS.

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

4. **Musketry and Target Practice.** For volunteers only. Theoretical instruction. Position and aiming drills and gallery practice. Christmas recess until Easter recess. M., F., 12. Armory. Range practice, 200 and 300 yards. Second term after Easter recess. Hours to be arranged.

The marksman's badge, presented by Gen. A. C. Barnes of the Board of Trustees, will be conferred on each student qualifying as marksman; a bar to be added for each subsequent qualification.

5. **Litter Drill and Instruction in First Aid to the Wounded.** A hospital detachment, composed mainly of students intending to enter the Medical profession, is attached to the infantry regiment.

Elective Courses.

6. **Military Science.** (*For students in 2d, 3d, or 4th year*). Lectures and text-book. Christmas recess until Easter recess. Credit, 1 each term. T., Th., 12. Major VANNESS.

7. **Elective Drill.** Students of the sophomore, junior and senior classes may elect drill, and, if duly registered therefor, they may receive a credit of two recitation hours per week, whatever grade they may occupy in the cadet organizations.

The military band is supported by the University. An instructor and band instruments are provided. Members of the band receive the same credit, for required or elective military work, as other cadets.

HYGIENE AND PHYSICAL CULTURE.

An introductory or general course of lectures is given each year. Advanced courses of instruction are also given each year. These take up the various problems of physical culture, and consider the auxiliary appliances for their solution. Special attention is given to the needs of students intending to teach.

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 exercise 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 is likely to be attended with risk.

Special provision has also been made for the physical training of women in the Sage College Gymnasium. The department has organized a system of exercise 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 freshmen or sophomore classes living in the college, subject to exceptions in particular cases by the Instructor in charge.

The building erected for the purpose of the GYMNASIUM AND ARMORY is situated at the extreme southern end of the campus. 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 three-storied building, having an area of seventy-four by eighty feet. The main building, with the exception of a small portion that is set apart for an office and a 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 of floor room in the gymnasium of one hundred and thirty-five by sixty feet. The Annex contains the offices of

the Department of Physical Culture, examination room, bath rooms, swimming bath, lavatory, closets, general repair room, baseball batting cage, crew practice room, and dressing-rooms which contain locker accommodations for about one thousand students.

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 student organization, 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.

The athletic ground called Percy Field, after the son of one of the donors, was secured and equipped for out-of-door sports by the joint gift 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, the Witherbee Memorial club-house, and a grand stand seating about twelve hundred persons, and is arranged for football, baseball, tennis, and general athletics.

The following courses are offered in 1903–1904.

2. **Hygiene and Physical Culture.** Open to all students. First half-year. Two hours. Lectures and recitations. Hours to be arranged. Professor HITCHCOCK.

3. **Physical Examinations, Theory and Practice.** Open to all classes but freshmen. Courses especially adapted for those who are to instruct in Physical Culture and include all details which would be expected from one not having a medical degree. First half year. Five hours. Hours to be arranged. Professor HITCHCOCK.

4. **Special Medical Advice to Indigent Students.** Gymnasium office. Daily except Saturday from 12 to 1, throughout the year. Professor HITCHCOCK.

5. **Gymnastic Exercises.** Asthenic class, consisting of men who in the judgment of the director—which judgment is founded on a physical examination,—are imperatively in need of special physical development and others who may elect. First term until Christmas recess and Easter recess until end of year. Credit, 1 hour each term. The work consists of class and squad work, indoors and out, special developing exercises, and exercises prescribed by the Director for individual deformity or immaturity. Daily ex. S., 5–6. Mr. LANNIGAN.

6. **Gymnasium Exercises.** Christmas recess until Easter recess. Elective for men of three upper classes. Freshmen 4-6. M., T., Th., F. Credit, 1 hour each term. Optional class on W., S., 5. Special exercises for individuals during the forenoon at hours to be arranged. Mr. LANNIGAN.

7. **Physical Examinations.** Required of all men entering the University this year, and at the beginning of each athletic season's training for all men who are to train for athletic competition. Make special appointments at Gymnasium office. Professor HITCHCOCK and Mr. LANNIGAN.

8. **Re-examination** of old students by appointment throughout the year. Professor HITCHCOCK.

9. **Theoretical and Practical Gymnastics** open only to juniors and seniors who expect to teach. Counting two hours. Hours to be arranged. Professor HITCHCOCK and Mr. LANNIGAN.

10. **Women's Gymnastic Exercise.** Freshmen and Sophomores. Instruction is given in class exercises, with and without apparatus, throughout the year. Gymnasium for women. Daily ex. S. Credit, 2 hours each term. Miss CANFIELD.

11. **Advanced Practical Gymnastics.** Readings and practical exercises. Open only to women who have completed course 10 or a substantial equivalent. Two hours. Hours to be arranged. Miss CANFIELD.

12. **Physical Examinations**, women of all classes, by special appointment. Office of the Gymnasium for Women. Miss CANFIELD and Dr. ELMA GRIGGS.

THE COLLEGE OF LAW.

FACULTY.

JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President.
ERNEST W HUFFCUT, B.S., LL.B., Director of the College, Dean of the Faculty, and Professor of Law.
FRANCIS M. FINCH, A.B., LL.D., Professor Emeritus, and Lecturer on the History and Evolution of Law.
CUTHBERT W. POUND, Professor of Law.
WILLIAM A. FINCH, A.B., Professor of Law.
EDWIN H. WOODRUFF. LL.B., Professor of Law.
FRANK IRVINE, B.S., LL.B., Professor of Practice and Procedure.
FREDERICK D. COLSON, B.L., LL.B., Instructor in Procedure.

JUDGE ALFRED C. COXE, A.M. (United States Circuit Judge), Lecturer on the Law of Shipping and Admiralty.
ALBERT H. WALKER, LL.B. (of the New York Bar), Lecturer on the Patent Laws of the United States.
ROYAL A. GUNNISON, LL.B. (of the Binghamton Bar), Lecturer on the United States Bankruptcy Act.

ALEXANDER H. R. FRASER, LL.B., Librarian.

[Address all communications to The College of Law, Cornell University, Ithaca, N. Y.]

THE COLLEGE YEAR

The college year for 1903–1904 begins Tuesday, September 22, 1903, and closes Thursday, June 23, 1904, and is divided into two terms, with an intermission of about two weeks at Christmas and a brief recess at Easter. Students should present themselves promptly for registration on the dates fixed for that purpose in the calendar. Permits for late registration will be granted only for the most urgent reasons.

ADMISSION TO THE COLLEGE

Admission to the First-Year Class. Applicants for admission to the first-year class as candidates for a degree must be at least eighteen years of age, and must have had a previous education at least equivalent to a high school course. The educational requirement may be satisfied by the presentation of certificates, or by examinations, as follows :

A. ADMISSION ON DIPLOMA OR CERTIFICATE. The following applicants will be admitted without examination, upon the presentation of satisfactory certificates or diplomas :

(1) Graduates of universities and colleges, or students who have met the entrance requirements and satisfactorily completed one year of study in any university or college of approved standing.

(2) Holders of an academic diploma, or any sixty-count academic certificate issued by the Regents of the State of New York.

(3) Graduates of high schools and academies of approved standing in a course of not less than four years, or, if less than four years, including the examination subjects required for admission to the College, or their substantial equivalents, and in either case, recommended by the principal of the high school or academy issuing the certificate or diploma for admission without examination.

Applications for admission on a diploma or certificate issued by a public or private high school or academy must be sent in advance to the Registrar of the University by the principal of the school issuing the diploma and not by the candidate himself, and must be accompanied by full and specific information with regard to the course of study, the time given to each subject and the amount of work covered in each subject. When a catalogue or circular is issued by the school this should also be filed with the application. Blank forms of certificate may be obtained of the Registrar.

Applicants for admission on diploma or certificate who for any reason submit themselves to examinations in any subject required for admission on examination and fail or are conditioned, will not be regarded as in full standing until such deficiency is made good.

The certificates of students who desire to take the four-year course in law must cover the examination subjects required for admission to the College of Arts and Sciences, and the requirements in English prescribed by that College must also be met.

B. ADMISSION ON EXAMINATION. All other applicants, if candidates for a degree, are required to pass a satisfactory examination in the subjects required for admission to the College of Arts and Sciences. (See page 80.)

Admission to Advanced Standing. Applicants for admission to advanced standing as members of the junior (second-year) class must be at least nineteen years of age, must meet the educational requirement specified for admission to the first-year class, and must pass a satisfactory examination in all the law work of the first year. Examinations upon all the subjects of the first year are given in the University in September, beginning Tuesday of registration week, as follows: Tuesday, 9 a. m. Contract; 3 p. m. Torts; Wednesday, 9 a. m. Criminal Law; 3 p. m. Property; Thursday, 9 a. m. Civil Procedure.

Admission as Special Students. Applicants who are twenty years of age may, in the discretion of the Faculty, be admitted to the College without examination, as special students, not candidates for a degree, and may elect such work as they desire, subject to the permission of the professors whose subjects are selected. This privilege will be granted only upon written application specifying the age of the applicant, the amount of preparatory study, or of previous law study, and accompanied if practicable by certificates from the preparatory school, law school, or attorney, under whose direction such studies have been pursued. New York students will not be admitted as special students unless they present a Regents' law student certificate. Applicants are advised to correspond with the Dean of the College before presenting themselves in person. In order to remain in the College special students must pass satisfactory examinations in at least ten hours of work (equal to two class room hours a day). Special students may be admitted as candidates for a degree if they satisfy the entrance requirements before the beginning of their second year in College.

Admission of Students from the College of Arts and Sciences. Juniors and seniors in good standing in the College of Arts and Sciences of the University, are allowed, with permission of the Faculty of Arts and Sciences and with the consent of the Faculty of Law in each case, to elect studies in the College of Law which shall count toward graduation both in the Arts course and in the College; but the sum total of hours so elected cannot exceed the number required for one year's work in the College of Law, or exceed nine hours per week in any term. Under this provision a student may complete a general course of university study and the law course in six years.

Suggestions to New York Students. It is desirable that applicants who wish to be admitted to the New York bar, and who are not graduates of colleges or universities registered with the Regents of the State as maintaining a satisfactory standard, should procure the

Regents "law student certificate" in order to comply with the rules governing admission to the bar of the State. The "law student certificate" is not accepted for entrance to the college. Inquiries as to this certificate should be addressed to the Secretary of the Regents, Albany, N. Y.

COURSE OF INSTRUCTION.

The course of instruction extends through three years of about nine months each. The object of the College is to afford a thorough training in the fundamental principles of Anglo-American law, both the substantive law and the law of procedure. Instruction is carried on by the study of selected cases, text-books, and synopses, by lectures and exposition, and by colloquy and discussion. In addition to the courses given by the resident Faculty, provision is made each year for courses of lectures by eminent specialists in the profession.

TABULAR OUTLINE.

1st Year.	No. Course.	1st Term.	2d Term.
Contract	1a	4	2
Agency	1b	–	2
Torts (including Master and Servant)	2	3	3
Criminal Law and Procedure	3	2	2
Real and Personal Property	4	3	3
Civil Procedure	5	2	2

Junior Year.	No. Course.	1st Term.	2d Term.
Property	20	2	–
Sales	21	–	2
Probate Law	22	2	2
Equity Jurisdiction and Trusts	23	3	3
Insurance	24	2	–
Domestic Relations	25	–	2
Evidence	26	2	2
Constitutional Law	27	1	1
Civil Procedure	28	2	2
College Court	29	1	1

Senior Year.	No. Course.	1st Term.	2d Term.
Property, Suretyship and Mortgage	30–30a	2	2
Partnership; Corporations	31–32	3	3
Quasi-Contracts	33	2	–
Carriers	34	–	2
Bills, Notes and Checks	35	2	–
International Law	36	–	2
Civil Procedure	37	3	3
History and Evolution of the Law. Practical Suggestions for Preparation and Trial of Causes. Legal Ethics.	39–40	2	2
Practice Court	41	1	1

First Year.

Boardman A.

1. a. **Contract.** Four hours until the Easter recess. Huffcut's Anson on Contract; Huffcut and Woodruff's American Cases on Contract (2d ed.) T., W., Th., F., 9. Professor WOODRUFF.

1. b. **Agency.** Four hours from the Easter recess. Huffcut's Agency (2d ed.), Huffcut's Cases on Agency. T., W., Th., F., 9. Professor WOODRUFF.

[Contract and Agency constitutes a continuous course and registration must be for the entire year.]

2. **Torts (including Master and Servant).** Three hours. Ames's and Smith's Cases on Torts, 2 vols.; Huffcut's Agency (2d. ed.), Book II. M., W., F., 11. Professor HUFFCUT.

3. **Criminal Law and Procedure.** Two hours. Beale's Cases on Criminal Law; Beale's Criminal Pleading and Practice; New York Penal Code and Code of Criminal Procedure. T., Th., 11. Professor POUND.

4. **Property.** Three hours. Introduction to Real and Personal Property; Brantly's Personal Property, chapters 1–3; Finch's Syllabus on the Law of Property in Land, §§ 1–10; Finch's Cases on the Law of Property in Land, pp. 1–381. The Law of Personal Property: Brantly, chapters 4–15; Gray's Cases on Property, Vol. 1, pp. 1–384. Real Property: Finch's Syllabus, §§ 11–17; Finch's Cases, pp. 483–712. M., W., F., 10. Professor W. A. FINCH.

5. **Civil Procedure.** Two hours. Introductory lectures on the relation of procedure to substantive law, and the development of the reformed procedure; New York Code of Civil Procedure, first five chapters, and selected cases on topics included therein; Perry's Common Law Pleading. T., Th., 10. Professor IRVINE.

Junior Year.

Boardman B.

20 **Property.** First term. Two hours. Real Property continued. Finch's Selected Cases on the Law of Property in Land. T., Th., 10. Professor W. A. FINCH.

21. **Sales.** Second term. Two hours. Burdick's Cases on Sales. The course also includes Gift and Assignment: Brantly's Personal Property, chapters 16 to 19 and chapter 22; selected cases. T., Th., 10. Professor W. A. FINCH.

22. **Probate Law.** Two hours. Wills and Administration and Surrogate's Practice. Statutes, codes and selected cases. Th., F., 9. Mr. COLSON.

23. **Equity Jurisdiction and Trusts.** Three hours. Synopsis and selected cases. M., 10, T., Th., 11. Professor HUFFCUT.

24. **Insurance.** First term. Two hours. Woodruff's Cases on Insurance. M., W., 11. Professor WOODRUFF.

25. **Domestic Relations and the Law of Persons.** Second term. Two hours. Woodruff's Cases on Domestic Relations and the Law of Persons. M., W., 11. Professor WOODRUFF.

26. **Evidence.** Two hours. Thayer's Cases on Evidence. M., T., 9. Professor POUND.

27. **Constitutional Law.** One hour. McClain's Cases on Constitutional Law. W., 9. Professor POUND.

28. **Civil Procedure.** Two hours. (*a*) Equity pleading and practice, with special reference to the system in use in the Federal courts. (*b*) New York Code of Civil Procedure, chapters 6 to 8 inclusive; and selected cases. The preparation of pleading and motion papers by every member of the class, on hypothetical statements of facts, is part of the required work, the form, sufficiency, etc., of the pleadings submitted being discussed in the class room. W., F., 10. Professor IRVINE and Mr. COLSON.

29. **College Court.** One hour. Arguments in Club Courts upon agreed statements of facts. A member of the Faculty presides at each argument. F., 11.

Senior Year.

Boardman C.

30. **Property.** First term. Two hours. Title to Real Property. Future estates in Real Property. Finch's Cases on Property in Land. pp. 856–1141, and other selected cases. T., Th., 11. Professor W. A. FINCH.

30. a. **Property.** Second term. Two hours. Suretyship; Mortgages; Liens; Searching and Abstract of Title. Selected cases. T., Th., 11. Professor W. A. FINCH.

31–32. **Partnership. Corporations.** Three hours. Burdick on Partnership; Burdick's Cases on Partnership. Smith's Cases on Private Corporations. M., W., 11, Th., 9. Professor POUND.

33. **Quasi-Contracts.** First term. Two hours. Synopsis and selected cases. M., 9, F., 10. Professor WOODRUFF.

34. **Carriers.** Second term. Two hours. McClain's Cases on Carriers. M., 9, F., 10. Professor WOODRUFF.

35. **Bills, Notes and Checks.** First term. Two hours. Huffcut's Statutes, Cases and Authorities on Negotiable Instruments. T., Th., 10. Professor HUFFCUT.

36. **International Law.** Second term. Two hours. Synopsis and lectures. T., Th., 10. Professor HUFFCUT.

37. **Civil Procedure.** Three hours. New York Code of Civil Procedure, chapters 9 to 17 inclusive and chapter 19, with selected cases on topics included therein. Preparation of papers, on hypothetical statements of facts, in the actions and special proceedings, the procedure in which is regulated by the chapters above mentioned, is part of the required work. T., W., F., 9. Professor IRVINE and Mr. COLSON.

38. **College Court.** One hour. This is supplementary to the course in Procedure, and is presided over by the Professor of Procedure as judge. Cases are prosecuted and defended by the members of the class as attorneys on hypothetical statements of facts. Process is served, pleadings are drawn, motion papers are prepared and motions argued, and cases are tried, all as nearly as may be in conformity with the procedure in the Supreme Court of the State of New York. F., 11.

39. **Practical Suggestions for the Preparation and Trial of Causes. Legal Ethics.** Second term after Easter. Two hours. Lectures. M., W., 10. Professor F. M. FINCH.

40. **History and Evolution of Law.** First term until Christmas. Two hours. The course at present consists of the following Lectures: 1. Introductory. 2. Rudimental Relations. 3. The Patriarchal System. 4. Possession and Tort. 5. Status and Sovereignty. 6. Transfers of Possession. 7. The Mosaic Law. 8. The Laws of Menu. 9. Lycurgus and Solon. 10. The Salic Law. 11. The Twelve Tables. 12. The Praetor and his Ethics. 13. Justinian. 14. The Coming of Contract. 15. The Roman Evolution. 16. The Anglo-Saxon Law. 17. The Feudal System. 18. Seisin. 19. Decay of Feudalism. 20. Sir Edward Coke. 21. The Common Law. M., W., 10. Professor F. M. FINCH.

Special Courses of Lectures.

The Patent Laws of the United States. *Mr. Walker.*
The Law of Shipping and Admiralty. *Judge Coxe.*
[The above two courses are given in alternate years.]
The United States Bankruptcy Act. *Mr. Gunnison.*

Special Lectures.

During the past year the following special lectures were given:

Admission to the Bar—Then what? James B. Dill, Esq., of the New York City Bar.

The Formation and Management of Business Corporations under the Laws of New Jersey. William H. Corbin, Esq., of the Jersey City Bar.

Examinations and Class Standing.

Examinations are held twice a year, at the end of each term. In order to remain in the College a student must pass each term a satisfactory examination in at least eight hours of law work, that is, work occupying eight class room hours each week. A student, in order to be registered as a junior, must have satisfied all entrance conditions and passed at least twenty hours of first-year work (equivalent to two class-room hours each day for the year), and to be registered as a senior must have passed all first-year work and at least twenty hours of junior work. Irregular attendance or neglect of work is sufficient cause for the removal of a student from the College at any time.

College Court.

The College Court of the Junior Year is divided into clubs of ten or twelve members each. At each session a case is argued by two attorneys, while the rest of the Club, presided over by a member of the Faculty, act as judges. At the conclusion of the argument the judges render oral decisions, and one or more are then designated to prepare written opinions. The briefs and opinions are filed with the Librarian. The College Court of the Senior Year is a practice court held by the Professor of Procedure before whom cases are prosecuted and defended and motions and demurrers argued, in conformity with the procedure in the Supreme Court of the State of New York.

Practice Department.

It will be observed that in the above course of study the subject of Civil Procedure extends throughout the entire three years. As most students now go directly from the law school into practice without serving a preliminary clerkship in a law office, it has become necessary for the law school to provide the instruction in pleading and practice which formerly the student obtained during his law office clerkship. To this end one professor and an instructor devote their entire time to the department of civil procedure. The instruction in common law and equity pleading and practice is followed by a careful study of the New York Code of Civil Procedure, which is taken as a type of the reformed procedure in force in most of the states. Pleadings and motion papers are prepared by the students. These papers are discussed freely in the class-room by students and professor, defects pointed out and remedied, and the essentials of a proper pleading, petition or other paper stated and emphasized. The study of the Code is accompanied throughout by its practical application in the

preparation of procedural papers. The object is to duplicate, as far as practicable, the work of a busy office, but to do it by a systematic development of the whole field of practice. Every paper passes through the hands of the professor or assistant and is carefully read and criticised before being returned to the student, while those which present an opportunity for general criticism are taken up for argument and discussion in the class-room.

It is the belief of the Faculty that this department presents on the whole a better opportunity for the systematic study of procedure than does the ordinary law office.

Electives in the College of Arts and Sciences.

Students registered in the above three-years' course may not elect work in the College of Arts and Sciences during their first year. Those who have satisfactorily completed their first year may elect not to exceed three hours during their Junior and Senior years respectively, but such electives must be regularly pursued. In the Department of Elocution and Oratory special classes are formed for the benefit of members of the College of Law who desire to elect work in Public Speaking. Electives may be taken only upon petition approved by both Faculties.

Four-Year Law Course.

Students who meet the specific requirements for admission to the College of Arts and Sciences (and no others) may take a four-year course as follows: First-year, nine hours of law and five or six hours of electives in Arts and Sciences; second-year, ten hours of law and from five to eight hours of electives; third-year, ten hours of law and from five to eight hours of electives; fourth.year, all senior law work. Students taking a four-year course must maintain a high standard of work in all law subjects and must have a satisfactory record in elective work. For the specific requirements for admission to the College of Arts and Sciences applicants for admission should consult the Registrar.

EQUIPMENT.

Boardman Hall. Boardman Hall is situated directly opposite the general library building and was erected for the exclusive use of the College of Law. It is a large three-story structure, 202 by 58 feet, built of Cleveland sandstone, with interior finish of oak, and practically fire-proof. On the first floor are three commodious lecture rooms and necessary cloak rooms. On the second floor are the offices of the several professors and rooms for the use of the club courts. On

the third floor are the library rooms with accommodations for forty thousand volumes and three hundred readers.

Law Library. The library of the College of Law numbers about 31,000 volumes, to which generous additions are made yearly. It includes the well-known library of the late Nathaniel C. Moak of Albany, N. Y., which was presented in 1893 by Mrs. A. M. Boardman and Mrs. Ellen D. Williams, as a memorial to Judge Douglass Boardman, the first Dean of the College. This addition of the Moak collection to the law library makes the facilities not only unusually adequate to the needs of undergraduate students, but also, in connection with the University library, affords extensive opportunity for scholarly research by advanced students. In reports of the Federal courts, reports of the several American State jurisdictions, and in English, Scotch, Irish, Canadian and Australian reports, the law library is practically complete to date. The other English speaking countries are largely represented. The library also possesses a full complement of text books and statutes, and complete sets of substantially all law periodicals in English.

GRADUATION FROM THE COLLEGE.

Degree of Bachelor of Laws. The degree of Bachelor of Laws (LL.B.) is conferred upon all students who have satisfactorily completed the prescribed work of the course. This course requires three years for its completion, and no student is allowed to graduate except after three years of actual residence unless in case of admission to advanced standing. In no case can a student take the degree unless he has been in residence for two years, and then only if, at the time of his admission, he passes a satisfactory examination in the work of the first year.

Certificate of Attendance. Each student who has been in regular attendance upon the college, whether entitled to a degree or not, may, on application to the Faculty, receive an official certificate of attendance, which states the time of his attendance and, if desired, the degree of his attainments. The certificate of a year's regular attendance, required by bar examiners, implies the completion of a full year's work (not less than fourteen hours per week) of which at least nine hours per week shall be in the year for which the certificate is granted.

SCHOLARSHIP PRIZE.

Boardman Senior Law Scholarship. A senior law scholarship of the value of one hundred dollars, the gift of Judge Douglass Board-

man, the first Dean of the College, is awarded annually in June to the junior who during the preceding two years has, in the judgment of the Faculty, done the most satisfactory work in the College of Law. It is available during the senior year and is payable in the same way as other University scholarships.[1]

Other Scholarships and Prizes are open to law students as well as to students in other colleges. (See pages 58–65).

FEES AND EXPENSES.

Tuition Fees. The fee for tuition for all law students, except special students, is $100 a year, payable, $55 at the beginning of the first term and $45 at the beginning of the second term. The fee for special students in law is $125 a year, payable $70 at the beginning of the first term and $55 at the beginning of the second term.

These fees must be paid at the office of the Treasurer within twenty days after registration for each term.

A fee of $5 to cover expenses of graduation, degree, etc., is charged to each person taking the baccalaureate degree. This fee must be paid at least ten days before commencement.

Tuition is free to students with State Scholarships.

Expenses. The following is a fair estimate of the yearly expenses.

Tuition	$100	to	$125
Room, board, lights, fuel and laundry	160	to	325
Text-books	25	to	35
Total	$285	to	$485

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 $4 to $10 a week. By the formation of clubs, students often materially reduce their expenses.

Further information upon points not covered by this announcement may be had by addressing THE COLLEGE OF LAW, CORNELL UNIVERSITY, ITHACA, N. Y.

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[1]Awarded for 1902-1903 to Francis Edward Swartz, who died Feb. 22, 1903. Awarded for 1903-1904 to Edward Howard Davis.

THE MEDICAL COLLEGE.

The full four-year course of the Cornell University Medical College is given in the City of New York, but the first half of it—the work of the first and second years—is also given at Ithaca, where it may be taken by men students, and where alone it can be taken by women students (for whom a home is provided in the Sage College for Women). Both men and women students must take the last two years of the course in New York City. While it is not at present required, it is highly advantageous that students entering upon the study of medicine should have had a college or university training in the liberal arts and sciences; and for the benefit of such it has been arranged that students in the College of Arts and Sciences of Cornell University may elect in the Medical College certain studies, thereby shortening the time required for taking both the A.B. and M.D. degrees to seven years. The following announcement of the Medical College except where the contrary is specifically stated refers to the course as given in New York City.

MEDICAL COLLEGE COUNCIL.

The Medical College Council consists of the President of the University; the Dean of the Medical Faculty; three members of the Board of Trustees elected by that body; and two Professors of the Medical Faculty elected by that body. The Council is charged with the business administration of the College under the supervision and direction of the Board of Trustees. For the current year it is constituted as follows:

JACOB GOULD SCHURMAN, President of the University.
WILLIAM M. POLK, Dean of the Medical Faculty.
H. W. SACKETT,
A. C. BARNES,
H. R. ICKELHEIMER, } of the Board of Trustees.
L. A. STIMSON,
R. A. WITTHAUS, } of the Faculty.

J. THORN WILLSON, Secretary.

FACULTY OF MEDICINE IN NEW YORK.

(For Faculty at Ithaca see later.)

JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President, and Chairman *ex officio* of the Council.

WILLIAM MECKLENBURG POLK, M.D., LL.D., Dean and Professor of Gynæcology and Obstetrics, Gynæcologist to Bellevue Hospital and Obstetrician to Emergency Lying-in Hospital.

LEWIS A. STIMSON, A.B., M.D., LL.D., Professor of Surgery, Consulting Surgeon to Bellevue Hospital and Surgeon to New York and Hudson Street Hospitals.

RUDOLPH A. WITTHAUS, A.M., M.D., Professor of Chemistry, Physics and Toxicology.

W. GILMAN THOMPSON, Ph.B., M.D., Professor of Medicine, physician to the Presbyterian and Bellevue Hospitals.

GEORGE WOOLSEY, A.B., M.D., Professor of Anatomy and Clinical Surgery, Surgeon to Bellevue Hospital, Associate Surgeon to the Presbyterian Hospital.

HENRY P. LOOMIS, A.B., M.D., Professor of Materia Medica, Therapeutics and Clinical Medicine, Physician to the New York and Bellevue Hospitals.

J. CLIFTON EDGAR, Ph.B., A.M., M.D., Professor of Obstetrics and Clinical Midwifery, Attending Surgeon to Maternity Hospital.

AUSTIN FLINT, M.D., LL.D., Professor of Physiology, Consulting Physician to Bellevue Hospital, President of the Consulting Medical Board of the Manhattan State Hospital for the Insane.

FREDERIC S. DENNIS, A.B., M.D., F.R.C.S., Professor of Clinical Surgery, Surgeon to Bellevue and St. Vincent Hospitals.

FREDERIC W GWYER, M.D., Professor of Operative and Clinical Surgery, Surgeon to Bellevue Hospital.

IRVING S. HAYNES, Ph.B., M.D., Professor of Practical Anatomy, Surgeon to the Harlem Hospital.

JAMES EWING, A.M., M.D., Professor of Pathology.

JOSETH E. WINTERS, M.D., Professor of Diseases of Children, Physician to Willard Parker Hospital.

CHARLES STEDMAN BULL, A.M., M.D., Professor of Ophthalmology, Surgeon to New York Eye and Ear Infirmary, Consulting Ophthalmic Surgeon to St. Luke's and Presbyterian Hospitals and St. Mary's Hospital for Children.

NEWTON M. SHAFFER, M.D., Professor of Orthopædic Surgery, Surgeon-in-Chief of the New York State Hospital for the Care of Crippled and Deformed Children, Consulting Orthopædic Surgeon to St. Luke's and the Presbyterian Hospital, Consulting Surgeon to the New York Infirmary for Women and Children.

GORHAM BABON, A.B., M.D., Professor of Otology, Aural Surgeon to New York Eye and Ear Infirmary, Consulting Otologist, Hospital for Scarlet Fever and Diphtheria.

CHARLES L. DANA, A.M., M.D., Professor of Diseases of the Nervous System, Physician to Bellevue Hospital, Neurologist to the Montefiore Home.

SAMUEL ALEXANDER, A.M., M.D., Professor of Diseases of the Genito-Urinary System, Surgeon to Bellevue Hospital and Montefiore Home.

GEORGE THOMSON ELLIOT, A.B., M.D., Professor of Dermatology, Assistant Physician and Pathologist to the Skin and Cancer Hospital, Consulting Dermatologist to St. Luke's, Columbus, and New York Lying-in Hospitals.

CHARLES H. KNIGHT, A.M., M.D., Professor of Laryngology, Surgeon to the Manhattan Eye and Ear Hospital, Throat Department.

ALEXANDER LAMBERT, A.B., Ph.B., M.D., Professor of Clinical Medicine, Instructor in Physical Diagnosis, Physician to Bellevue Hospital.

FRANCIS W. MURRAY, A.B., M.D., Professor of Clinical Surgery, Surgeon to St. Luke's and New York Hospitals.

CHARLES E. NAMMACK, Ph.B., M.D., Professor of Clinical Medicine, Physician to Bellevue Hospital.

FREDERICK KAMMERER, M.D., Professor of Clinical Surgery, Surgeon to the German and St. Francis's Hospitals.

PERCIVAL R. BOLTON, Ph.B., M.D., Professor of Clinical Surgery, Instructor in Surgery, Surgeon to the New York Hospital.

WARREN COLEMAN, A.B., M.D., Professor of Clinical Medicine, Instructor in Materia Medica, Therapeutics, and in Clinical Medicine, Assistant Attending Physician to Bellevue Hospital.

LEWIS A. CONNER, Ph.B. M.D., Professor of Clinical Medicine, Instructor in Medicine, Attending Physician to the Hudson Street Hospital, Assistant Pathologist to the New York Hospital.

ALEXANDER B. JOHNSON, Ph.B., M.D., Professor of Clinical Surgery, Surgeon to the New York Hospital.

IVIN SICKELS, M.S., M.D., Assistant Professor of Chemistry and Physics.

JOHN A. HARTWELL, Ph.B., M.D., Assistant Professor of Physiology and Instructor in Physiology.

BERTRAM H. BUXTON, A.B., M.D., Assistant Professor of Experimental Pathology.

Instructors.

HEADS OF SUB-DEPARTMENTS.

CHARLES N. BANCKER CAMAC, A.B., M.D., Instructor in Medicine.
JEREMIAH S. FERGUSON, M.S., M.D., Instructor in Histology.
THOMAS WOOD HASTINGS, A.B., M.D., Instructor in Clinlcal Pathology.
LOUIS W. RIGGS, A.M., Ph.D., Instructor in Chemistry and Physics.
EDMUND PENDLETON SHELBY, A.B., M.D., Instructor in Pharmacology and Therapeutics.
OTTO H. SCHULTZE, A.B., M.D., Instructor in Gross Pathology.
WILLIAM R. WILLIAMS, A.M., M.D., Lecturer on Hygiene and Instructor in Medicine.

Instructors and Assistants.

WALTER ARTHUR BASTEDO, Ph.G., M.D., Instructor in Pharmacology.
ALVIN W BAIRD, A B., Assistant Instructor in Physiology.
JOHN W. COE, Ph.B., M.D., Assistant Instructor in Clinical Pathology.
JOHN F CONNORS, M.D., Assistaut Demonstrator of Anatomy.
GEORGE EUGENE DODGE, B.S., M.D., Instructor in Operative Surgery.
WILLIAM A. DOWNES, M.D., Instructor in Operative Surgery and Assistant Demonstrator of Anatomy.
WILLIAM J. ELSER, M.D., Assistant Instructor in Pathology.
FRANK S. FIELDER, Ph.B., M.D., Assistant Demonstrator of Anatomy.
CHARLES L. GIBSON, A.B., M.D., Instructor in Surgery.
GEORGE D. HAMLEN, A.M., M.D., Instructor in Obstetrics and Gynæcology.
JAMES C. JOHNSTON, A.B., M.D., Instructor in Pathology and Dermatology.
FREDERICK L. KEAYS, A.B., M.D., Assistant Instructor in Physical Diagnosis.
BURTON J. LEE, M.D., Assistant Demonstrator of Anatomy.
HENRY T. LEE, M.D., Assistant Instructor in Pathology.
GUY D. LOMBARD, M.D., Assistant Instructor in Histology.
R. H. MACUMBER, A.B., Assistant in Chemistry.
ANDREW H. MONTGOMERY, A.B., M.D., Assistant Demonstrator of Anatomy.

HENRY S. PASCAL, M.D., Assistant Instructor in Histology.
JOHN METCALFE POLK, Ph.B., M.D., Instructor in Medicine and Physical Diagnosis.
JOHN ROGERS, JR., A.B., Ph.B., M.D., Instructor in Clinical Surgery.
JOSEPH C. ROPER, M.D., Assistant Instructor in Histology.
MONTGOMERY H. SICARD, B.S., M.D., Instructor in Physical Diagnosis.
MAX G. SCHLAPP, M.D., Instructor in the Histology and Pathology of the Nervous System.
LETCHWORTH SMITH, A.B., M.D., Instructor in Bacteriology.
WILLIAM F. STONE, Ph.B., M.D., Instructor in Anatomy and Assistant Demonstrator of Anatomy.
ISRAEL STRAUSS, A.B., M.D., Instructor in Embryology.
ALFRED E. THAYER, M.D., Assistant Instructor in Gross Pathology.
BENJAMIN T. TILTON, A.B., M.D., Instructor in Surgery.
GEORGE GRAY WARD, M.D, Instructor in Obstetrics and Gynæcology.
CHARLES G. L. WOLF, A.B., C.M., M.D., Instructor in Physiological Chemistry.

Clinical Instructors.

JOHN ASPELL, A.B., M.D., Clinical Instructor in Gynæcology.
CHARLES C. BARROWS, A.M., M.D., Clinical Instructor in Gynæcology.
RUSSELL BELLAMY, M.D., Clinical Instructor in Obstetrics and Gynæcology.
GEORGE SLOAN DIXON, M.D., Clinical Instructor in Otology.
ALEXANDER DUANE, A.B., M.D., Clinical Instructor in Ophthalmology.
WALTER A. DUNCKEL, M.D., Clinical Instructor in Diseases of Children.
FRANCIS C. EDGERTON, B.S,, M.D., Clinical Instructor in Diseases of the Genito-Urinary System.
P. HENRY FITZHUGH, M.D., Clinical Instructor in Orthopædic Surgery.
JOSEPH FRAENKEL, M.D., Clinical Instructor in Diseases of the Nervous System.
WILLIAM TRAVIS GIBB, M.D., Clinical Instructor in Gynæcology.
ISIDORE L. HILL, M.D., Clinical Instructor in Obstetrics.
WILLIAM HIRSCH, M.D.. Clinical Instructor in Mental Diseases.
ARCHIBALD E. ISAACS, M.D., Clinical Instructor of Surgery.
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GUSTAVE SEELIGMANN, M.D., Clinical Instructor in Obstetrics.
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FRANKLIN M. STEPHENS, M.D., Clinical Instructor in Otology.
HENRY H. WHITEHOUSE, Ph.B., M.D., Clinical Instructor in Dermatology.
JOHN McGAW WOODBURY, A.B., M.D., M.R.C.S., Clinical Instructor in Orthopædic Surgery.

Clinical Assistants.

ROBERT STAUNTON ADAMS, A.B., M.D., Clinical Assistant in Diseases of Children.
FRANK T. BURKE, M.D., Clinical Assistant in Laryngology.
GEORGE W. CRARY, M.D., Clinical Assistant in Dermatology.
ROBERT M. DALEY, M.D., Clinical Assistant in Diseases of the Nervous System.
GEORGE EUGENE DODGE, M.D., Clinical Assistant in Surgery.
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LESTER M. HUBBY, Ph.B., M.D., Clinical Assistant in Diseases of Children.
J. RAMSEY HUNT, M.D., Clinical Assistant in Diseases of the Nervous System.
WILLIAM J. JONES, M.D., Clinical Assistant in Therapeutics.
WALTER C. KLOTZ, M.D., Clinical Assistant in Diseases of the Genito-Urinary System.
CHARLES MACK, A.B., M.D., Clinical Assistant in Laryngology.
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JOHN ENGLISH McWHORTER, M.D., Clinical Assistant in Diseases of the Genito-Urinary System.
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ELISHA MATHER SILL, M.D., Clinical Assistant in Diseases of Children.
WILLIAM F. STONE, Ph.B., M.D., Clinical Assistant in Surgery.
HORACE S. STOKES, M.D., Clinical Assistant in Diseases of Children.

FRANK CLARK YEOMANS, A.B., M.D., Clinical Assistant in Diseases of the Genito-Urinary System.

Dispensary Staff.

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EDWARD W. PETERSON, M.D., Assistant Attending Gynæcologist.

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FRANK C. YEOMANS, M.D., Assistant Attending Surgeon.
D. H. BARCLEY, M.D., Assistant Attending Surgeon.

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LESLIE J. MEACHAM, M.D., Assistant Attending Physician.

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EDWARD J. CONNELL, M.D., Assistant Attending Surgeon.
WALTER C. MONTGOMERY, M.D., Assistant Attending Surgeon.

DEPARTMENT OE ORTHOPÆDICS.

P. HENRY FITZHUGH, M.D., Attending Surgeon.
JOHN McGAW WOODBURY, M.D., Attending Surgeon.
HENRY SCOTT, M.D., Assistant Attending Surgeon.
DEAS MURPHY, M.D., Assistant Attending Surgeon.
FANEUIL S. WEISSE, M.D., Assistant Attending Surgeon.

DEPARTMENT OF OPHTHALMOLOGY.

ROBERT G. REESE, M.D., Chief of Staff.
ALEXANDER DUANE, M.D., Attending Snrgeon.
G. W. VANDERGRIFT, M.D., Assistant Attending Surgeon.

Secretary of the Faculty—JOHN ROGERS, JR., M.D.
Clerk of the College—J. THORN WILLSON, First Avenue, Twenty-seventh and Twenty-eighth Streets.

GENERAL STATEMENT.

The Medical Department of Cornell University was established in 1898. This undertaking, which had been contemplated by the Trustees for several years, was made possible by the gift to the University of a commodious and fully equipped building designed for medical instruction, and by the bestowal of a sufficient "Endowment Fund" for the generous maintenance of a large and vigorous school for higher education in medicine.

The Main College Building comprises a Medical School and Dispensary, with principal entrance on First Avenue, opposite Bellevue Hospital, and occupies the entire block between Twenty-seventh and Twenty-eighth Streets on First Avenue, extending back 100 feet, thus affording an available space of nearly 20,000 feet on each floor. The building is designed in a severe style of Renaissance architecture, and is constructed of Indiana limestone and red brick.

The Loomis Laboratory (founded 1886) serves the purpose of undergraduate instruction, in connection with the laboratories in the College building, in such subjects as can best be taught in a laboratory, and it is also especially available to graduates in medicine who may desire to pursue further study or original research in the various departments of laboratory investigation.

The Metropolitan Street Railroad cars on Twenty-eighth and Twenty-ninth Streets and First Avenue connect with all the other lines of the company, by a system of transfers at Fourteenth, Twenty-third, Thirty-fourth, and Fifty-ninth Streets, and so put all the hospitals in the city within easy access of the College. A convenient station of the Manhattan Elevated Railroad is also at Twenty-eighth Street and Third Avenue.

CLINICAL FACILITIES.

The College Dispensary.—In the portion of the College Building allotted to the Dispensary ample provision has been made for the accommodation of the various clinical departments, of which there are eleven, viz. : General Surgery, General Medicine, including the diseases of the Heart and Lungs, Gynæcology and Obstetrics, Diseases of Children, of the Nervous System, of the Genito-Urinary System, of the Skin, Eye, Ear, Nose and Throat, and Orthopædic Surgery.

Each Department has been furnished with all the instruments and apparatus necessary for the examination and treatment of patients. A number of small amphitheatres are placed in the Dispensary, so that the clinical instruction provided by the curriculum can be carried on without interfering with the treatment of patients.

The attendants in the Dispensary averages 500 patients daily, and is steadily increasing, so that the clinical material is abundant and accessible.

Members of the Faculty of Cornell Medical College hold appointments in the hospitals and dispensaries of the city, and are enabled to utilize for teaching purposes the large quantity and variety of clinical material of ten of the great City Hospitals, viz. :

Bellevue Hospital.—Twenty-sixth Street and East River.

This hospital has 900 beds, and receives 24,000 patients annually. In this building is an amphitheatre capable of seating 300 students, and also a number of small, newly built operating theatres, where section demonstrations in surgery and gynæology are made before the class. Connected with the hospital is a hydropathic establishment where students are shown the practical applications of baths, douches, massage, etc.

The following clinics are held during the session :

Obstetrics and Gynæcology—Monday, 3 P. M.
Professor POLK.

Medicine—Tuesday and Friday, 3 P. M.
Professors LOOMIS and THOMPSON.

Surgery—Wednesday and Thursday, 3 P. M.
Professors STIMSON, WOOLSEY, DENNIS and GWYER.

Genito-Urinary—Wednesday, 3 P. M., for half the term.
Professor ALEXANDER.

Nervous Diseases—Friday, 4 P. M.
Professor DANA.

City Hospital (formerly Charity Hospital)—Blackwell's Island, East River. To reach this institution the steamer should be taken at the foot of East Twenty-sixth Street.

This hospital has a capacity of 1,000 beds. It offers special advantages for the study of venereal and genito-urinary diseases.

New York Hospital.—Fifteenth Street, between Fifth and Sixth Avenues.

This is one of the most thoroughly equipped hospitals in the city, and has connected with it a large Out-Patient Department.

Clinical instruction is given by Professors Stimson, Loomis, Murray, Bolton, and Johnson.

Presbyterian Hospital.—Madison Avenue and Seventieth Street.

This is a large general hospital of 350 beds, and includes extensive and varied medical and surgical service. Clinical instruction is given by Professors Thompson and Woolsey.

Willard Parker and Reception Hospitals.—Foot of East Sixteenth Street.

These hospitals are in charge of the Board of Health, New York City, and offer unrivalled opportunities for the study of contagious diseases—such as diphtheria, scarlet fever, measles, smallpox, and typhus fever. They contain 200 beds.

Professor Winters gives bedside instruction to small sections of the fourth-year class in the former hospital.

New York Skin and Cancer Hospital.—Nineteenth Street and Second Avenue.

This hospital affords accommodation for the treatment of a large number of patients afflicted with cancer and skin diseases. Section instruction in dermatology is conducted here by Professor Elliot and assistants.

St. Francis' Hospital—609 Fifth Street.

A general hospital with a capacity of 230 beds. Section instruction here is under the charge of Professor Kammerer.

St. Vincent's Hospital.—195 West Eleventh Street.

This is a general hospital containing nearly 200 beds.

Section teaching and clinics are given here by Professor Dennis and Dr. Aspell.

New York Eye and Ear Infirmary.—Second Avenue, corner Thirteenth Street.

This hospital is devoted to the treatment of eye, ear, and throat diseases.

Clinical instruction is given in this institution by Professors Bull and Bacon, aided by a corps of assistants.

Manhattan Eye and Ear Hospital.—103 Park Avenue.

This is one of the largest institutions for the treatment of this class

of diseases in the city. Professor Knight and his assistants give instruction here in laryngology.

In addition to these hospitals, the teaching corps of the Medical Faculty is represented upon the visiting staffs of many other hospitals and dispensaries in the city, where Cornell students are invited to attend clinics. Among these are : The Maternity Hospital, Gouverneur Hospital, Harlem Hospital, Almshouse and Workhouse Hospital, Emergency Hospital, Randall's Island Hospital, Columbus Hospital, German Hospital.

ADMISSION TO THE COLLEGE.

For admission to the first year class at Ithaca communications should be addressed to the Registrar, Ithaca, N. Y ; at New York City, to the Secretary, 28th St. and First Ave., New York City. See below and pages 34–53.

For admission to advanced standing from other colleges and universities, communications should be directed to Secretary of Faculty, Stimson Hall, Ithaca, N. Y.; or to the Secretary of the Faculty, 28th St. and First Ave., New York City.

Requirements for Admission.

The laws of New York State require of the prospective student of medicine a preliminary education equivalent to that obtainable in a four years' course in any of the public high schools recognized by the Regents as maintaining a satisfactory standard, before the applicant can be admitted to any class in any medical college in the State. A list of the subjects ordinarily taught in these schools is given in a handbook published by the Regents, and mailed on application to the "Regents' Office, Examination Department, Albany, N. Y." In this it will be found that each subject, according to its character and the time usually devoted to it, is assigned one or more "counts," 48 of which are needed to obtain the medical-student certificate. This official approval of the preliminary education may be granted by the Regents on presentation to them of properly attested evidence that the requisite work has been accomplished in some institution known to them. In lieu of this the applicant is required to pass the examinations conducted by the State authorities at regular intervals throughout the year. If the certificate is obtained without examinations, it is granted on "equivalents."

Hitherto the Medical Department of Cornell University has been open to all who held the 48 count certificate. As this can be obtained with little or no knowledge of the English language, and of subjects

which are absolutely essential to a proper understanding of any natural science, the Faculty has decided that (beginning with the class entering in October, 1902,) all applicants for admission must earn their medical-student certificate in part upon the following subjects, as described in the Regents' "Handbook No. 3, High School Department, Examinations":

Algebra	4	counts.
Plane Geometry	4	"
Elementary United States History and Civics	2	"
Second-Year English, or its equivalent	8	"
Second-Year Latin, or the first four books of Cæsar's "Commentaries," or First-Year Latin and First-Year German, French, or Spanish	8	"
	26	counts.

The subject-matter covered in these requirements, which must be included in the Regents' certificate, is briefly summarized as follows:

Algebra includes the elements of the subject through quadratic equations.

Plane Geometry includes the geometry of the plane, the ordinary definitions, and demonstrations of simple original theorems.

Elementary United States History and Civics includes important historical dates, the character and purpose of the different wars, the purport of the Constitution, and the relation of the Federal and State governments.

Second-Year English comprises (1) composition, including the theory of construction in prose; (2) terms of style, figures of speech, and prosody; (3) literature, *i.e.*, a knowledge of "Twice-Told Tales," "Sir Roger de Coverley" papers, "Sesame and Lilies," "Ancient Mariner," "Cotter's Saturday Night," "Vision of Sir Launfal," "Silas Marner," "Julius Cæsar," "First Bunker Hill Oration."

Second-Year Latin includes a knowledge of grammar and the ability to translate at sight simple passages from any standard author, or from the first four books of Cæsar's "Commentaries." The alternative to Second-Year Latin, namely, First-Year Latin with First-Year German, French, or Spanish, comprises under the heading First-Year Latin a knowledge of grammar, the rendering of simple prose from Latin into English, and *vice versa.* Under the heading of First-Year German, French, or Spanish, a similar knowledge is required.

The total number of counts allowed by the Regents for these required subjects aggregate 26. The Faculty recommends that the remaining 22 counts necessary to complete the certificate be made up

from the following subject-groups enumerated in the Handbook: Science; Mathematics; Language and Literature; History and Social Science.

Students who can earn a portion of these 22 counts upon Physics and Inorganic Chemistry, as is earnestly recommended, may be given credit for them, and the time thus gained will be devoted to intensive work in the medical branches.

As heretofore, those applicants who have successfully completed the first year in any academic college recognized by the Regents as maintaining a proper standard will be admitted to the first year of the medical course on presentation of the usual Regents' certificate, together with evidence of their year or years of college training. Attention is again called to the fact that the Medical College holds no entrance examinations, and therefore the applicant for admission must, except in the case of those who have had one or more years in an academic college, present the Special Cornell Medical-Student Certificate granted by the Regents to those who have fulfilled the requirements, or must have the Regents' endorsement on the certificate that the requirements have been complied with.

For details of the Regent's entrance examinations and certificates see the special announcement of the Medical College.

REGISTRATION AND MATRICULATION.

Students on entering the College must register and pay the registration fee of $5. The payment of this fee is required only once. They will receive a receipt which will be exchanged for a certificate of full matriculation when they shall have complied with the requirements stated on page 228. No conditional matriculation will be accepted. The full 48 count Regents' certificate including the 26 counts in the subjects specified must be presented.

Proposed Course for the Degree in Arts (A.B.) and in Medicine (M.D.)

As a liberal education in the arts and sciences is of great advantage to prospective students of medicine, all who can are urged to take the Freshman, Sophomore, and Junior years in the Academic Department at Ithaca. After the completion of these years in the Academic Department (in which all the work is elective) the student is permitted to elect, as the fourth year of his A.B. course and first year of his M.D. course, a year's work in the Medical Department at Ithaca. He may then take his fifth year of work—the second of the medical course—either in Ithaca or in New York; but he must take the last two

years of the medical course in New York. In this way he will obtain the A.B. degree at the end of four years, and the M.D. degree at the end of seven years of study. This is possible because the first two years of the medical course are offered in duplicate at the University in Ithaca.

Women must take the first two years in medicine in Ithaca, where special accommodations are provided for them in the Sage College. They are received at the Medical College in New York City in the third and fourth years only.

Students who have taken the A.B. degree, as above, will, if they have anticipated in the Academic Department the scientific studies prescribed in the medical course, be admitted to advanced standing in the Medical College in New York. Those who have completed all the subjects prescribed for the first two years of the course in medicine will be admitted to the third-year class. After passing the requisite examinations at the end of this and then of the fourth year, they will be advanced to practically a fifth year, consisting almost entirely of practical training. At its close, providing the work has been satisfactory, the M.D. degree will be conferred. As this fifth year gives opportunity for more than the requisite work, students who have taken the A.B. degree in the Academic Department may, even if deficient in one or more of the prescribed subjects of the medical course, still be admitted to the third-year class in New York, but only upon the recommendation of the Medical Faculty at Ithaca.

The schedule of this fifth year will be somewhat as follows :

There will be weekly recitations in the subjects of Medicine, Surgery, Anatomy, Materia, Medica and Therapeutics, and Obstetrics and Gynæcology. A competent corps of instructors is suggested by the Faculty, but the students are at liberty to make their own selection and financial arrangements in quizzing, the chief object of which is preparation for the competitive examinations for the appointment of internes held each spring by the various hospitals. The fee for such "quizzes" averages about $100, and the time will be from 5 to 6 P.M., or at any other convenient hour daily. The rest of the day is to be devoted to practical training in the College dispensary and laboratories. In the dispensary the departments of general medicine and general surgery hold, or are to hold, morning sessions. The afternoon hours are devoted to the nine specialty departments of Neurology, Gynæcology, Pediatrics, Laryngology, Orthopedic Surgery, Dermatology, Ophthalmology, Otology, and Diseases of the Genito-Urinary System.

The Ithaca students who take this fifth year will act as regularly appointed clinical assistants in these various departments for the

twelve months following the conclusion of their fourth year of medicine. Groups of five will serve during the morning hours, on alternate days, in the Departments of General Medicine and Surgery. At the end of six months those who have had the privilege of selecting in the order of standing at the end of the fourth year general medicine will change to general surgery, and *vice versa.* In the mornings of the days when not engaged in the dispensary these groups of five students will report in one of the laboratories of clinical or histological pathology or bacteriology and, as they may elect, either pursue research work upon a subject to be selected after consultation with Professor Ewing, or act as assistant (unpaid) instructors in the classroom work in these laboratories. The results of research work, if satisfactory, will be inclnded in the regular publications of the department of Pathology.

During the afternoons, groups of not more than three students will serve in rotation as clinical assistants in each of the nine specialty departments of the dispensary. The length of time spent in each department will vary somewhat with the number of students and the duration of vacation desired; but at present it is expected that about one month will be devoted to daily attendance in each specialty. It is the intention of the Faculty to allow the utmost liberty in the selection of courses consistent with the acquirement of a thorough, general and practical education. For this reason, if desired, the student will be assisted in obtaining the position of clinical assistant in any dispensary or department of a dispensary which supplies opportunities equivalent to those offered by the College. The internes in the various city hospitals are often forced to absent themselves from duty on account of sickness or other reasons. The members of the Faculty who visit such hospitals can thus frequently supply substitutes from competent students for longer or shorter periods. Such places, of course, cannot be promised in advance, but may confidently be expected by a greater or less number.

The required work of this fifth year is then briefly summarized as follows:

A quiz of at least one hour a week in each of the subjects of Medicine, Surgery, Anatomy, Materia Medica and Therapeutics, and Obstetrics and Gynæcology from October to April inclusive. At least two hours' daily service for four months each (preferably in the morning) in general medicine and general surgery in the College dispensary; at least two hours' daily service for one month (preferably in the afternoon) in each of the nine specialty departments of the College. If any of the work is elected in another dispensary or hospital,

it must be one under the supervision of some member of the Faculty.

The fees for this year will be $100, payable in advance to the College; and a graduation fee of $25, payable at the end of the fifth year; and the fee payable to the quiz masters, of not more than $100.

(1) ADMISSION TO ADVANCED STANDING.—Graduates of Cornell, Yale, Harvard, Princeton, University of Pennsylvania, Johns Hopkins, Columbia, University of Michigan and other accredited universities, who have taken either a preparatory medical course or special work in organic and inorganic chemistry, physics, or physiology, will be allowed credit for the work which they have done and may be excused from the recitations upon these subjects, and from the exercises of the chemical laboratory in the first year, provided they pass examinations before the professors of those departments, and provided they give to dissection and section work, in various departments, a full equivalent in hours to the subjects they may have passed by examination. These examinations are held at the opening of the session.

Students who have had training in microscopical technique or in histology will be given advanced work in the histological laboratory.

Students who have already attended the requisite number of courses in other accredited medical colleges may be admitted to advanced standing in any one of the years of the four years' course of the Cornell University Medical College by presenting a Regents' medical students' certificate and by passing examinations in the subjects described below as completed, in the year or years previous to that which the student desires to enter. The applicant must also present certificates of having satisfactorily completed laboratory courses equivalent to those required of the Cornell medical student in the year or years previous to that to be entered.

According to a law governing the Regents of the State of New York, no student from an unregistered Medical School may obtain a degree on less than two years of medical study in the state.

(2) HOLDERS OF SPECIAL DEGREES.—Graduates of pharmacy or of dental or veterinary or other professional schools, who can present satisfactory evidence of having completed any course of study required in any year of the Cornell Medical College, may upon passing a satisfactory examination be excused from attendance upon instruction in that subject, provided they take equivalent additional work in other branches.

(3) ADMISSION TO SPECIAL COURSES.—Graduates in medicine, or students who desire to pursue a special course without graduation, are admitted to registration as special students, after approval by the head

of the department conducting the course, without Regents' or other preliminary examination. Such special courses do not count in any way as part of the four-years' course, required of candidates for the degree of doctor in medicine. Further information regarding such courses, fees, etc., may be obtained by addressing the Secretary of the Cornell University Medical College, Twenty-eighth Street and First Avenue, New York City.

For scholarships see pages 58–61.

Charges for Instruction in New York City.

First Year.

Registration*	$5 00	
Tuition		$150 00
Laboratory fees	$35 00	
		$190 00

Second Year.

Tuition		$150 00
Laboratory fees	$30 00	
		$180 00

Third Year.

Tuition		$150 00
Laboratory fees	$30 00	
		$180 00

Fourth Year.

Tuition		$150 00
Laboratory fees	$25 00	
Graduation fees	$25 00	
		$200 00

Each student in the first three years is required to pay to the Clerk of the College ten ($10) dollars each year to cover breakage in the laboratories. This sum, less the amount charged against it for breakage, will be returned to him at the end of each year.

Tickets must be taken out and paid for at the beginning of the session.

Special Students in New York City.

Special students, on the recommendation of the head of the department concerned, may be admitted to any of the courses of in-

* The registration fee is payable only once, on entrance.

struction especially provided, on the payment of a registration fee of five dollars aud a tuition fee of twenty-five dollars, except in dissection, where the tuition fee is fifteen dollars.

The graduation fee is payable on registering for graduation. The tuition fees for the first two years at Ithaca are identical with those of the same period in New York. All fees are payable at the beginning of the term, but in special cases they may be paid semi-annually in advance. No rebate will be made in any case.

No remission of laboratory fees will be made because of previous instruction elsewhere in the subjects.

REQUIREMENTS FOR ADVANCEMENT IN COURSE.

Students are advanced in course from one year to the next upon passing examinations in the work of that year, but examinations in major or minor subjects may, at the discretion of the Head of the Department, include all the work previously covered in the year or years preceding the examinations in question. There, however, is no unnecessary repetition of subjects taught from year to year. Students who have not succeeded in passing all their examinations will be allowed to enter upon the next year's studies, provided they pass examinations in the subjects failed in at the beginning of the session.

Examinations for advancement in course, graduation and admission to advanced standing are held at the close of the year on the work of the year. In each laboratory course extending through a part of the year only, the examination is held at the close of the course.

Examinations for conditioned students and those desiring admission to advanced standing who have not taken the spring examinations are held during the first fortnight of the fall term.

The subjects examined upon are divided into major and minor subjects, and a standing of 75 per cent. is required to pass.

The minor subjects embrace laboratory courses and those in which instruction is given by recitation only.

Subjects of Examination for Admission to the Second Year.

Major Subjects—Anatomy (except the nervous system, viscera and organs of special sense).
Physics.
Inorganic Chemistry.
Physiology (except the nervous system and organs of special sense).

Minor Subjects—Histology (except the nervous system and organs of special sense).
Laboratory Inorganic Chemistry.

Conditions allowed (at the spring examination): 1 Major and 1 Minor; or 2 Minor.

NOTE 1. In each of the laboratory courses of the first and subsequent years, students whose marks fall between 60 and 75 per cent. will be allowed one reëxamination within two weeks of the completion of the course, failing in which they must repeat the laboratory course with the next succeeding section.

Students whose marks fall below 60 per cent. in the chemical laboratory cannot be reëxamined, but must repeat the course with the next succeeding section.

NOTE 2. In each of those branches in which recitations are held throughout the year, there shall be a written review conducted by the instructor and supervised by the professor in charge of the department, and also a final written review conducted by the professor himself at the close of the year. The written review, conducted by the Instructor, shall be held as soon as possible after the return from the Christmas vacation and shall count as a single recitation, the object being to ascertain the knowledge acquired by the student.

NOTE 3. All conditions must be successfully passed before entrance into the next succeeding year will be allowed.

Subjects for Examination for Admission to the Third Year.

Major Subjects—Anatomy.
Organic Chemistry.
Physiology
Minor Subjects—Medicine.
Surgery.
Obstetrics.
Bacteriology.
Normal Histology (central nervous system and organs of special sense).
Pathology.
Pharmacology.
Laboratory Organic Chemistry.

Conditions allowed: 1 Major and 1 Minor; or 2 Minor subjects.
(See Notes 1, 2 and 3).

Subjects of Examination for Admission to the Fourth Year.

Major Subjects—Materia Medica.
Toxicology.
Pathology.

Minor Subjects—Obstetrics and Gynæcology.
Medicine.
Surgery.
Gross Pathology.
Clinical Pathology.
Pediatrics.
Neurology. } Clinical Paper.

Conditions allowed : 1 Major and 1 Minor ; or 2 Minor.
(See Notes 1, 2 and 3).

Subjects for Examination for Graduation at the end of the Fourth Year.

Medicine.
Surgery.
Obstetrics and Gynæcology.
Therapeutics.

Special Subjects —
- Hygiene. } Clinical Paper.
- Ophthalmology.
- Neurology.
- Larynology and Rhinology. } Clinical Paper.
- Orthopædics.
- Pediatrics.
- Pathology (general). } Clinical Paper.
- Mental Diseases.
- Otology.
- Dermatology.
- Genito-Urinary Diseases.

Students conditioned in only one subject at the end of the fourth year will be given an opportunity to make up the condition within two weeks. If the second examination is satisfactory, the degree may be received at the Commencement at Ithaca.

Those conditioned in more than one subject, or who fail to pass in the second examination just mentioned, must repeat the work of the fourth year.

REQUIREMENTS FOR THE DEGREE OF M.D.

1. Candidates for the degree of doctor of medicine must have studied medicine for four full years in an accredited and registered medical college, and the fourth year at least must have been spent in the Cornell University Medical College.

2. Candidates must present satisfactory evidence of good moral character and of being not less than twenty-one years of age.

3. Candidates must file with the Secretary of the Faculty the Cornell Regents' Medical Students' certificate as evidence of having complied with the requirements for admission. (See pages 228, 229).

4. Candidates must have dissected at least seven parts in anatomy. They must further have taken the regular course of two weeks in practical obstetrical work.

5. In addition to the yearly examinations above specified for advancement in course, candidates must pass, at the end of the fourth year, examinations in medicine, therapeutics, surgery, obstetrics, and gynæcology, and the special branches as specified.

6. Candidates rejected at the final examination will not be reëxamined until after having completed their fourth year of study.

Before being re-admitted to the fourth year the candidate must pass a satisfactory examination in anatomy, physiology, chemistry and physics, and materia medica.

7. The degree will not be conferred upon any candidate who absents himself from the Public Commencement without the special permission of the Faculty.

8. The Faculty reserves the right to terminate the connection of any student with the institution *at any time* on the ground of what they may deem moral or mental unfitness for the profession, or improper conduct while connected with the College.

Diplomas of Licentiate of the Royal College of Physicians of London and Membership of the Royal College of Surgeons of England.

Graduates of the Cornell University Medical College are admitted to the final examination for the diploma of Licentiate of the Royal College of Physicians of London and Membership of the Royal College of Surgeons of England, upon presenting proper certificates that certain conditions applicable to the foreign universities and colleges which are recognized by the examining board have been complied with.

Further information may be obtained from the Secretary of the Board (Mr. F. G. Hallet) at the Examination Hall, Victoria Embankment, London, W. C.

Prizes.

The Harriet Crocker Alexander prizes, the first of $150, the second of $50, are awarded, the first to the student having the highest record, the second to the student having the next highest record in the Graduating Class. A friend of the college whose name is withheld by re-

quest, has entrusted to the Dean enough money to increase this second prize to $100 and to add a third prize of $50. The prizes were awarded this year as follows: Murdoch Douglas MacLeod, First Prize; Clark Sumner Gould, Second Prize; Dwight Fenn Johnson, Third Prize.

A prize consisting of a case of instruments was presented by Prof. Bacon to the student with the best record in the subject of otology. The recipient was Benjamin Haff Searing.

HOSPITAL APPOINTMENTS.

The students and graduates of the Cornell University Medical College are entitled to compete on equal terms with those of other colleges for positions on the resident staff of Bellevue Hospital and the other hospitals of the city.

Some of these hospitals are: The City, Harlem, Gouverneur, New York, St. Luke's, Presbyterian, St. Vincent's, St. Francis's, Mount Sinai, German, and Hudson Street hospitals, New York Eye and Ear Infirmary, and the hospitals in Brooklyn and Jersey City, Newark, Paterson, etc.

The requirements, the times of examination, and the period of service differ. The details can be learned by application, written or in person to the superintendents or the secretaries of the medical boards of the various hospitals.

GENERAL STATEMENT OF THE PLAN OF INSTRUCTION.

The chief features in the scheme of instruction are thorough laboratory training in all the subsidiary branches, daily recitations from standard text-books, clinical teaching in dispensaries and at the bedside in hospitals, and enough didactic lectures to make clear the general principles and conflicting theories in the practice of medicine and surgery. All students in any one class advance simultaneously in the various subjects, and no section or group works apart from any other, thereby losing the opportunity to appreciate the relationship of the different subjects which at any given time may be under discussion. Allowance, however, has been made for those who through natural endowments or superior energy or previous education can outstrip their less fortunate fellows. A careful record is kept of the attendance and character of the work of every student, and by this means at the end of the year each is placed in the section to which this record entitles him. A system of electives in clinical, laboratory, and recitation work is also provided, which it is the aim of the Faculty to

enlarge as opportunities arise. A student is required to master all the subjects taught in any given year before being allowed to advance to the next, as the knowledge acquired in each year is necessary for a proper understanding of that which follows. Examinations are held at the end of each session ; a failure to pass not more than two subjects, one of which at least must be a laboratory subject, is allowed in the spring, but every subject must be satisfactorily passed at the beginning of the next ensuing college year, or the applicant will be compelled to repeat the work of the preceding year.

The essential feature of the entire system is the division of the classes of the several years into small sections for recitations, demonstrations, laboratory exercises, and for clinical instruction in the college dispensary, and in the wards of the numerous hospitals attended by the members of the faculty.

The following is a statement of the curriculum in each of the four annual sessions necessary to obtain the degree of M.D., and attention is called to the careful arrangement of the instruction in time and correlation in subject-matter so as to provide for a proper understanding and assimilation of the knowledge imparted in the different departments.

If a student, without neglecting his required schedule work, desires to take advanced work and can make an opportunity to do this, without interfering with the work of other students, he shall be permitted to do so and shall receive credit for it.

The first year is devoted to anatomy, several consecutive uninterrupted hours being provided for dissection—embryology, normal histology, chemistry and physics. The gross anatomy of the thoracic, abdominal, and pelvic viscera is demonstrated in outline in the early weeks of the session in anticipation of the examination of these organs in the histological laboratory and a consideration of their physiology in the second half of the session.

The general principles of mechanics, hydrostatics, optics, electricity, heat and acoustics, and their application to medicine are taught in lectures illustrated by experiments. Inorganic chemistry is studied in the laboratory throughout the year. The class is divided into small sections, each of which must attend daily one or more recitation exercises in anatomy, histology, physiology and chemistry. These follow as closely as possible the practical work.

Students who have had the advantage of a thorough preliminary education in physics and chemistry before entering the medical school, after satisfactorily demonstrating to the professor in charge of this department, by examination or otherwise, that they are familiar

with the work of the first year, may be excused from attendance upon physics and chemistry. In place of these subjects they must elect at least one of the following courses given in the second year—namely, laboratory pharmacology, or physiological chemistry, or bacteriology.

During the second year anatomy, physiology and chemistry are completed, and the study in text-books of medicine, surgery, obstetrics and pathology is begun. The gross anatomy of the organs of special sense, and then that of the nervous system, are taught at the outset of the year by demonstrations to small groups of students. The demonstration of these organs is followed as closely as possible by the study of them in the histological laboratory during the first half of the session. The lectures and recitations in physiology follow the same course and in connection with the study of the gross and histological aspects of the parts under discussion are more fully comprehended. Organic and physiological chemistry is studied in the laboratory and by lectures and recitations throughout the year. At the same time a laboratory course in pharmacology is pursued, familiarizing the student with the physical and chemical properties of drugs. Bacteriology is begun, the student commencing with the preparation and care of media and the recognition of the gross and microscopical characteristics of micro-organisms.

During the first few weeks of the term, lectures are delivered upon the general principles of pathology, with particular reference to the elucidation and classification of the various forms of inflammation. The substance of these lectures will form the basis of the subsequent instruction in this subject in all the departments, and thus insure uniformity in the teaching and understanding of the causes of disease. These lectures are supplemented by autopsies before small sections to demonstrate gross lesions. Having obtained some knowledge of pathology, the student by means of recitations is made familiar with the principles of surgery, medicine and obstetrics.

Students who have completed elsewhere courses tn physiological chemistry or pharmacology equivalent to those of the second year, may by passing examinations at the beginning of the term be excused from further attendance upon them.

Students thus excused from part of the second-year work and those who have been allowed electives in their first year, may take one or more of the following elective courses during their second year—namely: 1. Bacteriology in its practical relation to disease. 2. Materia medica recitations in the third year. 3. Manikin course in obstetrics. 4. Obstetrical clinic. The two latter elective courses are in

preparation for the required work in practical obstetrics, which, usually taken in the third, can thus be taken during the second summer if desired. Students are allowed to take the State Board licensing examinations in the primary subjects at the end of the second year. Those intending to reside in this State are encouraged to avail themselves of this opportunity.

In the third year medicine, surgery, materia medica, therapeutics and obstetrics are studied systematically from text-books, and practically at the bedside, in the dispensary, and in general clinics. A sufficient number of didactic lectures are given by the Professors of Medicine and Surgery at the beginning of the session to explain general principles in symptomology and diagnosis. Throughout the year the class must attend in small sections one or more daily recitations from standard text-books upon the subjects previously assigned and learned. Pathology is studied in greater detail than previously, both in the laboratory and the dead house, and as far as possible, morbid processes are demonstrated in advance of the study of the disease in the text-book or its clinical presentation.

In conjunction with the bedside teaching, instruction is given in all of the modern laboratory aids in diagnosis classified under the term of clinical pathology.

Students in groups of ten or twelve are taught the methods of examining patients for the detection of abnormal physical signs, and at the close of the session are expected to be familiar with the recognition and treatment of the common diseases and be conversant with the fundamental subjects of a medical education. The specialties taken up in this year are neurology, pediatrics, toxicology, genito-urinary diseases and gynæcology. They are taught by clinical lectures as part of the general subjects of the practice of medicine, surgery and obstetrics.

To meet the requirements of hospital and other boards of examinations, such as those of the civil service or the army and navy, students who wish to compete in these examinations may elect in their third and fourth years to have all the recitation exercises with special instructors appointed by the faculty. A separate fee is required for this service.

The fourth year is devoted chiefly to the study of diagnosis and treatment of disease at the bedside, in the dispensary and in clinics. The extent of this may be inferred from the present arrangement of the schedule, which contemplates about fifty hours of hospital-ward work in medicine, and nearly the same number in surgery for every student. There are as few lectures as are consistent with the proper

exposition of the chief problems confronting the profession, and these are delivered at the outset of the term in order that the student may become familiar as soon as possible with the facts which are to be taught practically. For example, to the professor of medicine twelve didactic lectures are assigned. This proportion has to be exceeded somewhat in therapeutics, obstetrics and the specialties, but many of these lectures are illustrated by the presentation of typical cases and are really clinics. The clinical instruction in surgery is supplemented by an operative course in which the student performs upon the cadaver all the common operations. Particular attention is also given to the methods of making medical and surgical diagnoses, and in this connection constant use is made of the bacteriological and chemical laboratories, where the student examines specimens taken at the bedside during one exercise and reports the results to the class at the next.

Hygiene and its application in the province of the physician and public health officer is taught by lectures supplemented by demonstration of the plans and methods of the city health board.

The major part of the theoretical instruction, as in the previous years, is given by recitations in the subjects of medicine (including neurology), surgery (including orthopædic surgery and genito urinary diseases), therapeutics, obstetrics, gynæcology and pathology.

The instruction in the specialties, which is made the distinguishing feature of this final year, is begun with a few clinical lectures and is continued by a course in the examination and treatment of dispensary patients by each student. Every one receives from fourteen to twenty-one hours of this training (the number varies somewhat with the subject), and should become reasonably proficient in the use of instruments, the ability to make diagnoses and give relief. There is no attempt made to produce experts, but each one before graduation must know enough about the specialized branches of medicine to be competent general practitioners. The lectures upon the physiology of the organs of special sense delivered in the fall to the second-year class, must also be attended by the seniors. These lectures serve as an introductory review of facts necessary for a proper knowledge of the specialties and obviate unnecessary repetitions by the different professors.

Every student must personally attend a definite number of cases of labor, and for this purpose the maternity service connected with the college offers excellent opportunities. The faculty earnestly recommend that this work be accomplished in the summer preferably of the third year; by the proper choice of electives it is possible in the sec-

ond summer, but this is not as desirable or profitable. If taken during the regular winter session much loss in other work would result. Those who for any proper reason cannot take this course as advised in the summer might, however, succeed in obtaining the necessary cases during the winter by selecting odd hours when not engaged in section work, and by arrangement with the office to receive telephone calls.

As in the previous year there are the same electives in recitations for those who wish particularly to fit themselves for hospital and other competitive examinations. There is also offered an advanced course in neurology in a hospital devoted largely to the care of this class of patients. There will in addition be elective practical courses in the dispensary as opportunity arises.

DETAILS OF THE PLAN OF INSTRUCTION.

Anatomy.

GEORGE WOOLSEY, M.D., Professor of Anatomy.
IRVING S. HAYNES, M.D., Professor of Practical Anatomy.
DR. WILLIAM F. STONE, Instructor and Assistant Demonstrator.
DR FRANK S. FIELDER, Assistant Demonstrator.
DR. ANDREW H. MONTGOMERY, Assistant Demonstrator.
DR. JOHN A. HARTWELL, Assistant Demonstrator.
DR. JOHN F. CONNORS, Assistant Demonstrator.
DR. WILLIAM A. DOWNES, Assistant Demonstrator.
DR. BURTON J. LEE, Assistant Demonstrator.

Anatomy is taught in the first and second years by lectures, recitations, section demonstrations and laboratory courses, and by dissection. The course in anatomy is arranged to correspond as far as possible with the courses in physiology and histology.

Lectures in the first year are confined to the practical applied anatomy of the bones and joints, and follow the recitations on these subjects. In the second year the lectures are devoted to regional surgical anatomy, the students being already well grounded in descriptive anatomy.

One lecture a week is given during the first half of the second year by the Professor of Practical Anatomy on the development and gross anatomy of the nervous system, and the topographical anatomy of one of the extremities.

Descriptive Anatomy is taught by recitations, section demonstration, and laboratory courses and by dissection.

Recitations, from standard text-books, are held by the Instructor in Anatomy twice a week for each section of the first-year class and once a week for each section of the second-year class. During the first year the recitations are upon the bones, joints, muscles, arteries, veins, and a preliminary study of the central nervous system ; during the second year upon the nervous system and the viscera.

Practical Anatomy.

Section Demonstrations will hereafter be conducted as laboratory courses in which a given region is not only demonstrated, but each member of the group is required to identify the structures on the part, specimen or model. They are conducted by the Professor and Assistant Demonstrators of Practical Anatomy twice a week for each section during the first half of the first year and the last half of the second year, and once a week during the rest of the first and second years. During the first three months of the first year the students are taught by section demonstrations on that part of the cadaver they are next to dissect ; how to dissect, what to find, and where to find it. In addition, one preliminary demonstration is given weekly from October to January on the thoracic, abdominal, and pelvic viscera, to prepare students, for the courses in physiology and histology by demonstrating the organs whose function and structure they are to study. In the last half of the first year the joints are demonstrated. In the second year the brain and nervous system, the organs of sense, the thoracic and abdominal viscera, and the perineum are demonstrated.

Dissection.—The course in dissection is arranged on a laboratory basis—that is, the students are required to dissect during certain specified hours each day while the demonstrators are in attendance. Twelve hours a week are assigned in the schedule for this anatomical laboratory course during the first and second year, and dissection is permitted at any time after 10 A.M. that the students are at leisure.

Two courses of dissection are required. The first course for first-year students comprises the dissection of three parts—the head and neck, and upper and lower extremities, including the joints. This course is begun after the recitations and section demonstrations have prepared each student for the part assigned to him.

The second course consists of the dissection of four parts and is designed for second-year students and those first-year students who have completed the first course. This course includes a review of the first course, with more particular attention paid to the minuter parts and, in addition, the dissection of the brain, the trunk, with the thoracic and abdominal viscera and the perineum. A considerable part of the

second course may be finished during the first year. This will afford time in the second year for additional and advanced work after completing the required parts. Students are examined and marked on the dissection of each part required. Prepared bones are loaned to students during the session from a large collection kept for this purpose.

Examination.—A practical, in addition to written, examination is held by the Professor of Anatomy at the end of the second year. At the end of the first year there is a written review or examination on the work of the year.

Advanced, Special, and Post-Graduate Courses.—Facilities are offered to students and the medical profession for pursuing advanced, special, and post-graduate courses in practical anatomy.

SUMMARY.

	First Year.	*Second Year.*
Lectures	30 hours.	75 hours.
Demonstrations	45 hours.	45 hours.
Recitations	60 hours.	30 hours.
Dissection	288 hours.	240 hours.

EMBRYOLOGY.

Lectures	6 hours.
Laboratory	30 hours.

Physiology.

AUSTIN FLINT, M.D., LL.D., Professor of Physiology.
DR. JOHN A. HARTWELL, Assistant Professor.
MR. ALVIN W BAIRD, Instructor.

Instruction in this branch is given by systematic lectures and recitations, with practical demonstrations and exercises, to first-year students during the second half of the session, and to second-year students during the first half of the session. During the second half of the session, review recitations, covering the entire first-year and second-year courses, are held once a week for the second-year class by the instructor, as a preparation for the final college and the State examinations.

As a preparation for the study of physiology proper, first-year students, during the first half of the session, receive instructions in the gross anatomy of the thoracic and abdominal viscera, by section demonstrations in the department of Practical Anatomy. The his-

tology of the heart and blood-vessels, respiratory organs, alimentary canal and glandular organs is taught in the laboratory and by recitations.

The regular second-year work in physiology is given during the first half of the session. Second-year students receive laboratory instruction in physiological chemistry in the department of Chemistry, Physics, and Toxicology. The same department gives instruction in optics and acoustics to first-year students, which serves as a preparation for the study of vision and audition in the second year. Second-year students receive laboratory instruction from the department of Histology in the histology of the nervous system and the organs of special sense. They also receive instruction from the department of Anatomy in the anatomy of the encephalon and cranial nerves.

Lectures. The regular lectures for the first-year class begin about the middle of January, and are continued three times weekly until the close of the session, on the following subjects and in the order named: The cell, blood, circulation, respiration, digestion and absorption, secretion and excretion, general metabolism, and animal heat and force. The regular lectures for the second-year class begin at the opening of the session, and are continued three times weekly until about the middle of January, on the following subjects and in the order named: The special senses, the nervous system, and embryology. Five lectures on embryology, given in January by Professor Flint, are devoted to the development of the ovum up to and including the formation of the membranes. Professor Gage, of Ithaca, gives six lectures in the middle of the term, profusely illustrated, on the development of systems and organs in the embryo and fœtus. The first nine lectures of the course devoted to the special senses are given to the second-year class and the fourth-year class together. Fourth-year students are thus enabled to review the physiology of the special senses as a preparation for the study of ophthalmology and otology.

Throughout the entire course, while the subject of human physiology proper is fully covered, special attention is paid to its applications to the practice of medicine and surgery, much time being devoted to what may be called applied physiology.

Recitations, Section Work, etc. Certain of the work in the histological laboratory is practically a part of the instruction in physiology. For first-year students, this includes laboratory work aud recitations on the cell and karyokinesis, ciliary movements, blood, the histology of the simple tissues, heart, and vessels, respiratory system, digestive system, glandular organs, and the cellular mechanism of

secretion. For second-year students the instruction includes a study, in the same manner, of the nervous system, organs of special sense, and the genito-urinary system. The instruction in physiological chemistry is given in the department of Chemistry to second-year students. It includes lectures upon physiological chemistry, laboratory work, and recitations on the carbohydrates and fats, proteins and albuminoids, food-stuffs, and the digestive secretions, endosmosis and exosmosis, and the chemistry of blood, bile, urine, and the simple tissues.

In addition to the work in histology and physiological chemistry and in close connection with the lectures on physiology proper, the Assistants give, three hours weekly, recitations, with frequent demonstrations and practical exercises, to each class, divided into sections of convenient size, for first-year students during the second half of the session, and for second-year students during the first half of the session. One additional hour is devoted weekly to demonstrations to each entire class of the subjects considered in the regular lectures for each week.

In the section-teaching many demonstrations, by means of specimens, models, and apparatus, will be given, which cannot, with advantage be made before the entire class, such as blood-counting, the capillary circulation, blood-pressure, the use of the sphygmograph, the general physiology of nerve and muscle, etc.

In the course of the section-work, students who prove themselves capable may be permitted to aid in the preparation and giving of the demonstrations when this does not interfere with other exercises, this corps of student-assistants being changed from time to time so that the privilege may be extended to as many as possible.

SUMMARY.

	First Year.	*Second Year.*	*Fourth Year.*
Lectures	45 hours.	45 hours.	6 hours.
Demonstrations	30 hours.	30 hours.	
Recitations	45 hours.	45 hours.	

Chemistry, Physics, and Toxicology.

RUDOLPH A. WITTHAUS, M.D., Professor of Chemistry.
DR. IVIN SICKELS, Assistant Professor.
DR. LOUIS W. RIGGS, Instructor.
DR. CHARLES G. L. WOLF, Instructor.
R. H. MACUMBER, Assistant.

Lectures.—Students of the first year will receive three lectures each week on physics, the divisions of the subject being considered in the following order: General properties of matter and force, mechanics, hydrostatics, pneumatics, optics, electricity, heat and acoustics. The lectures will be abundantly illustrated, and the relations of physics to surgery and medicine will be particularly considered.

During the second year students will attend two lectures weekly. Organic chemistry will be considered in the earlier part of the term to an extent sufficient to impart a knowledge of the principles of combination of the carbon compounds and the properties and relationships of those which are of physiological, toxicological, or therapeutical interest. The lectures during the latter part of the second year will be upon physiological chemistry.

During the third year one lecture will be given weekly on toxicology for twenty weeks. In these lectures the medical and medico-legal bearings of the subjects will be chiefly considered.

Recitation.—Students of the first year will recite twice each week on the principles of chemistry and mineral chemistry. Those of the second year will recite once weekly on organic and physiological chemistry.

Laboratory Work.—Laboratory instruction will be given students of the first year four hours weekly during the entire session. This course will consist of an experimental study of the commoner elements and compounds in illustration of the recitation course, and of training in the processes of qualitative analysis of inorganic substances and mineral poisons.

Students of the second year will receive laboratory instruction two hours weekly until February 14th, and four hours weekly after that date in physiological and clinical chemistry and organic toxicology.

Each student is fully supplied with all apparatus and chemicals required, except urinometers, which are carefully corrected for the student that they may serve for future use.

These courses are conducted by the Assistant Professor, and by the instructors under the direction of the Professor of Chemistry and Physics.

First-year students presenting satisfactory evidence of having performed equivalent work in chemistry and physics will be excused from first-year work in this department, and be given advanced laboratory work equivalent in hours to that omitted.

SUMMARY.

	First Year.	*Second Year.*	*Third Year.*
Lectures	90 hours.	60 hours.	18 hours.
Recitations	60 hours.	60 hours.	
Laboratory	96 hours.	84 hours.	

Materia Medica and Therapeutics.

HENRY P. LOOMIS, M.D., Professor of Materia Medica and Therapeutics.
DR. WARREN COLEMAN, Instructor.
DR. EDMUND P. SHELBY, Instructor.
DR. WALTER ARTHUR BASTEDO, Ph.G., Instructor.
DR. WILLIAM J. JONES, Clinical Assistant.

Instruction is given in this department during the second, third and fourth years by means of: 1. Lectures. 2. Clinical instruction. 3. Recitations. 4. Laboratory work.

Lectures.—These are given by the Professor twice a week to the third-year students and once a week to the fourth-year students. They are confined almost exclusively to therapeutics, as it is believed that materia medica can best be taught by recitations and by laboratory work.

The lectures to the third-year students will consider the therapeutic uses of the most important drugs from the standpoint of the drug itself, such as the methods of prescribing the drug and the conditions for which it is given; only so much of the physiological action of the drug will receive attention as will explain its therapeutic value.

The lectures to the fourth-year students will be confined almost exclusively to a consideration of the systematic treatment of the different diseases. The plan of treatment will be given in detail, with definite instruction as to the drugs to be used and the preparations which are most reliable.

Lectures will be given on remedial agents other than drugs, such as massage, dietetics, climatology, mineral waters, and hydrotherapy.

Clinical Instruction.—A new departure in the teaching of therapeutics will be made by affording the students of the third and fourth years opportunity to observe the effects of the different remedies on the natural course of diseases. To accomplish this the classes will be divided into small sections and taken by the Professor into the wards of Bellevue Hospital. Actual practice is given in the employment and application of the various therapeutic agents used in medicine, such as the aspirator, leeches, cups, cautery, stomach-tube and stupes. The

hydropathic establishment connected with this hospital is one of the most complete in the country. Here to small sections will be demonstrated the various applications of water to the treatment of disease—such as baths, packs, douches, etc. A professional masseur will show the technique of massage and the Swedish movements. The treatment of the different diseased conditions observed will be systematically studied, and opportunities will be given to the members of the class to make personal examination of the patient and to watch the modification of disease produced by the remedies prescribed. The clinical work of the third and fourth years affords abundant opportunities for further training in practical therapeutics. A general medical clinic will be held by the Professor once a week in the amphitheatre of Bellevue Hospital, at which special attention will be given to the treatment of the diseases under consideration.

Recitations.—Students of the third year will recite to the instructor twice a week from a standard text-book. During the fourth year a recitation will be held once a week on therapeutics. The recitations will embrace a study of the action of all the more valuable remedial agents in connection with the description of the drugs themselves.

Each student will be thoroughly drilled in prescription writing and in the doses of the more important drugs.

Examinations will be held at stated times during the session by the Professor to enable him to judge of each student's progress.

Laboratory Work.—The laboratory of Materia Medica occupies two floors of the Loomis Laboratory building ; it is provided with a complete assortment of crude drugs and with all the various preparations of the Materia Medica ; also with appliances for instruction in the methods of manufacturing pharmaceutical preparations. The laboratory is equipped with instruments and appliances for special research in the physiological action of drugs. The large class room is supplied with sixty tables, equipped with gas, electric lights, water connections, and full apparatus, enabling each student to work separately under the supervision of the instructors.

The course of laboratory instruction is taken during the second year, and consists of six hours each week for half the year. The class is divided into small sections, which are under the personal supervision of the instructors. The method of teaching is distinctly practical. The student is made familiar by the laboratory work with the physical and chemical properties of drugs. This course includes such subjects as the forms of drugs, their weight and bulk, the measurement of solid and fluid drugs, methods of administering medicines, particularly with reference to appropriate combinations, and the study

of solubilities. The subject of incompatibilities is clearly demonstrated.

Prescription writing is taught throughout the course, and test prescriptions are compounded by members of the class.

SUMMARY.

	Second Year.	*Third Year.*	*Fourth Year.*
Lectures		47 hours.	30 hours.
Recitations		60 hours.	30 hours.
Laboratory	90 hours.		
Clinics		30 hours.	30 hours.
Sections		5 hours.	5 hours.

Medicine.

W. GILMAN THOMPSON, M.D., Professor of Medicine.
ALEXANDER LAMBERT, M.D., Professor of Clinical Medicine.
WARREN COLEMAN, M.D., Professor of Clinical Medicine.
CHARLES E. NAMMACK, M.D., Professor of Clinical Medicine.
LEWIS A. CONNER, M.D., Professor of Clinical Medicine.
DR. C. N. BANCKER CAMAC, Instructor.
DR. MONTGOMERY H. SICARD, Instructor.
DR. JOHN METCALFE POLK, Instructor.
DR. THOMAS WOOD HASTINGS, Instructor.
DR. JOHN W. COE, Instructor.
DR. FREDERICK L. KEAYS, Instructor.
DR. WILLIAM R. WILLIAMS, Instructor.

The Course of Medicine comprises a graded plan of study extending throughout three years. General didactic lectures upon the practice of medicine are wholly supplanted by bedside and dispensary instruction and recitations. The course includes the following subdivisions:

Second Year:

Recitations upon elementary medicine.

Third Year:

1. Recitations from an advanced text-book, with written reviews.
2. Physical diagnosis of the heart and lungs.
3. History-recording.
4. Bedside course in symptomatology.
5. Dispensary course in general medicine.
6. Clinical pathology.
7. Eighteen lectures on symptomatology.
8. Hospital medical clinics.

Fourth Year :

1. Advanced bedside study in symptomatology and diagnosis.
2. Demonstrations of patients by the student before the class in the out-patient clinic.
3. Physical diagnosis.
4. Hospital medical diagnosis clinics.
5. Medical conferences.
6. Twelve lectures upon diatheses, toxæmias, etc.
7. Elective advanced work in clinical diagnosis (clinical pathology, history-recording, etc.).
8. Recitations in medicine.

The details of the methods of instruction in medicine for each year of the curriculum are as follows :

SECOND-YEAR STUDENTS.

Recitations. Second-year students begin the study of medicine with systematic recitations each week from an elementary text-book, in which the subjects of nomenclature, etiology, morbid anatomy, and typical symptoms only are dwelt upon.

THIRD-YEAR STUDENTS.

Recitations. Third-year students recite twice each week from an advanced text-book on Practice of Medicine, special emphasis being given to symptomatology, complications, diagnosis, and treatment.

Written reviews are held at intervals to familiarize the student with examinations. All recitations are obligatory, and the recitation marks received form an important component of the final examination marks of the year.

Ward Work. Systematic and obligatory ward work is begun in classes not exceeding fifteen students each, who accompany the Professors of Clinical Medicine on rounds through the hospital wards. Examples of all the common diseases are studied, and the student has opportunity to personally examine many cases of disease in different stages of development, and of following their daily progress. A special course in general medical diagnosis is given at the bedside, in which the student observes cases illustrating all the important physical examinations.

Clinical Laboratory Courses are conducted in immediate connection with the study of hospital and dispensary cases.

The laboratory is designed to meet the three requirements of :

(1) *Teaching ;* (2) *Original Research, and* (3) *Diagnosis.*

(1) *Teaching.* The third-year class is divided into small sections, so that each member receives the personal assistance of the demonstrator. At the conclusion of the course a written and practical examination is held, and the result of this, as well as the character of the work done by each student, is included in the general average received by him in medicine. When assigned to cases at the general medical clinic the fourth-year student is required to report the result of his examination of the sputum, blood, urine, etc.

The apparatus employed may readily be transported to the bedside, the work being thus essentially practical, and the student *himself* uses it so that he may become familiar with its care and applicantion.

The course comprises the thorough study of the sputum, blood, gastric contents, fæces, urine, exudates and transudates.

Each student is furnished typical specimens which he stains and studies at the demonstrations.

2. *Original Research.* Facilities are offered to graduate and undergraduate special students for the undertaking and publication of original investigations.

(3) *Dispensary, Hospital and Clinical Laboratory Examinations.* The laboratory is a working part of the Cornell dispensary. The visiting staff of this dispensary, as well as that of the adjacent hospital, use the laboratory extensively for completing the data of their cases. Students who have completed their third year, and whose standing is good, may, under the supervision of the instructors, employ their summer months in following this work in the laboratory.

Physical Diagnosis.—Physical diagnosis of the chest is taught in classes not exceeding a dozeu students each. This course of thirty lessons for each class is very comprehensive, owing to the large number of patients in the class of heart and lung diseases at the college dispensary and in the wards of Bellevue Hospital.

General Medical Clinics.—Students of the the third year are required to attend a clinic in general medicine conducted by Professor Lambert (commencing in December), and also the clinic in medical diagnosis conducted by Professor Thompson, and the clinic in general therapeutics by Professor Loomis, as described for the fourth year. These clinics are held weekly in the amphitheatre of Bellevue Hospital.

Lectures.—A course of eighteen lectures upon general symptomatology is given by the Professor of Medicine, which is designed as introductory to the systematic bedside teaching which he conducts upon hospital rounds.

FOURTH-YEAR STUDENTS.

Bedside Instruction is given by the Professor of Medicine to sections not exceeding fifteen students in the wards of the Presbyterian Hospital until January 1st, and in those of Bellevue Hospital thereafter, throughout the year. In these sections each student is assigned in turn to special cases for thorough study. Ward classes are also conducted by Dr. Conner at the Hudson Street Hospital and by Dr. Nammack in Bellevue Hospital.

Clinics.—Medical clinics are held weekly in the amphitheatre of Bellevue Hospital by the Professor of Medicine. At these clinics students read written histories of cases which they have studied on the previous day. They are required to demonstrate their findings upon the patient, and are questioned before the entire class in regard to diagnosis, etc. These clinics are also utilized by the Professor of Medicine to exhibit cases of exceptional rarity or difficult diagnosis. A second general medical clinic is held weekly in the Bellevue amphitheatre by the Professor of Therapeutics, at which the effects of treatment are made the prominent feature.

An out-patient clinic is also held weekly by the Professor of Medicine in the dispensary of the college, at which students are given ample opportunity to examine patients, study minor ailments, as well as all the forms of disease in the ambulatory cases of a large and varied clinical service. More than 5,000 cases were treated during the past year in this department alone of the dispensary.

Lectures.—A course of twelve lectures is given by the Professor of Medicine upon such general topics as the diatheses, toxæmias, immunity, autointoxication, cachexias, etc.

Medical Conferences.—Under Dr. Coleman's direction students are assigned to special cases which they study in detail for several weeks, reviewing the literature of the subject, and which they then report in writing at a medical conference, at which their fellow-students are called upon to offer criticisms and general discussion.

An elective course in advanced clinical pathology and diagnosis is offered in the fourth year.

SUMMARY.

	Second Year.	*Third Year.*	*Fourth Year.*
Lectures		18 hours.	12 hours.
Recitations	30 hours.	60 hours.	30 hours.
Clinics		46 hours.	66 hours.
Sections		35 hours.	48 hours.

CLINICAL PATHOLOGY.

Laboratory ----	60 hours.
Recitations----	6 hours.

Surgery.

LEWIS A. STIMSON, M.D., Professor of Surgery.
FREDERIC S. DENNIS, M.D., Professor of Clinical Surgery.
GEORGE WOOLSEY, M.D., Professor of Clinical Surgery.
FREDERICK KAMMERER, M.D., Professor of Clinical Surgery.
FREDERICK W. GWYER, M.D., Professor of Clinical Surgery.
FRANCIS W. MURRAY, M.D., Professor of Clinical Surgery.
PERCIVAL R. BOLTON, M.D., Professor of Clinical Surgery.
ALEXANDER B. JOHNSON, M.D., Professor of Clinical Surgery.
DR. JOHN ROGERS, JR., Instructor.
DR. ARCHIBALD E. ISAACS, Instructor.
DR. BENJAMIN TILTON, Instructor.
DR. CHARLES L. GIBSON, Instructor.
DR. GEORGE E. DODGE, Assistant.
DR. WILLIAM F. STONE, Assistant.
DR. WILLIAM A. DOWNES, Assistant.

Surgery will be taught in the recitation room, at the bedside, at hospital clinics, and by lectures.

In the second year the students are required to attend recitations on the principles of surgery two hours a week throughout the term. For this purpose the class is divided into small sections to insure thorough work; so far as time permits instruction will be given in the dispensary.

In the third year recitations are continued upon regional surgery; the class is instructed in sections in Bellevue Hospital in history-taking and methods of surgical examination and diagnosis, three hours a week for part of the term; and also two hours a week bedside instruction. Formal clinics are held in Bellevue, New York, and other hospitals; about thirty lectures will be given by the Professor of Surgery, and a clinic for diagnosis is held once a week for the first half of the term, and twice a week for the second half, at which the students are required personally to examine and report upon the cases.

In the fourth year the students will receive clinical instruction in small groups in several hospitals and dispensaries upon general surgery and the special branches—eye, ear, nose and throat, genito-urinary diseases, dermatology and orthopædics; may attend the lect-

ures and clinics, and will have a review quiz in preparation for examination.

The members of the sections are trained in the examination of patients, the dressing of wounds and fractures, the administration of ether and assisting at operations.

The opportunities for the instruction in the special branches are exceptionally ample. There will be several clinical teachers in each subject, each with hospital and dispensary services. The student will be enabled directly to examine and study cases, and will have a certain choice as to the time given to each branch.

In addition to the clinics at Bellevue and the New York hospitals specified above, Professors Murray and Gibson will give clinics at St. Luke's and the General Memorial hospitals at dates to be announced during the session.

Operative Surgery will be taught to small sections of the class in the fourth year. The course consists of recitations, work upon the cadaver, and bandaging. As the material is abundant, each member of the class will perform the principal surgical operations.

Special instruction in operative surgery is offered to graduates in medicine. A circular giving particulars may be had on application to the Secretary.

SUMMARY.

	Second Year.	*Third Year.*	*Fourth Year.*
Lectures		30 hours.	30 hours.
Recitations	60 hours.	60 hours.	30 hours.
Clinics		104 hours.	104 hours.
Sections		25 hours.	25 hours.
Operative Surgery			60 hours.

Obstetrics.

J. CLIFTON EDGAR, M.D., Professor of Obstetrics and Clinical Midwifery.
DR. RUSSELL BELLAMY, Instructor.
DR. GEORGE D. HAMLEN, Instructor.
DR. GUSTAVE SEELIGMANN, Instructor.
DR. GEORGE G. WARD, Instructor.
DR. ALBERTUS A. MOORE, Instructor.
DR. I. L. HILL, Instructor.

Instruction in obstetrics will be given during the second, third and fourth years by—

1. Recitations. 2. Illustrative lectures. 3. Obstetric clinics and conferences. 4. Attendance upon cases of confinement. 5. Manikin

practice and section work. 6. Obstetric histology, pathology and bacteriology.

1. **Recitations** from a standard text-book will be held by an instructor in obstetrics during the second year upon the physiology, and during the third upon the pathology, of obstetrics, the latter including obstetric surgery.

These recitations are so scheduled as to cover the entire field of the subject laid out for the college year, are supplementary to the work of the Professor of Obstetrics during each of these two years, and prepare the student for an intelligent appreciation of his subsequent illustrative lectures, obstetric conferences, attendance upon cases of confinement, clinics and manikin practice.

2. **The Illustrative Lectures** comprise a systematic course, running through the third year, upon the physiology and pathology of obstetrics.

These lectures are theoretical to a limited extent only, being mainly demonstrative and illustrative in character. To this end ample blackboard space is used, as well as an abundant collection of pelves, entire, normal and deformed, mesial sections of the same, and in addition a supply of diagrams, charts, carefully selected plaster, composition, and metal models, wet and dry preparations, and instruments.

In conjunction with these lectures additional recitations are held by the Professor of Obstetrics upon the subject-matter of the college year and for final review.

3. **Obstetric Clinics and Conferences.**—A weekly obstetric clinic is held a portion of the year for both the third- and fourth-year classes. At this clinic abnormal cases of pregnancy, labor, and the puerperium are demonstrated, and the major and minor obstetric operations performed.

In addition, infant feeding and the care of mother and child during the lying-in period and early infancy are taught. During both the third and the fourth year members of the class will be called upon in rotation to examine patients and discuss etiology, diagnosis, prognosis and treatment. These "obstetric conferences" will review the illustrative lectures, manikin work and the student's work in his attendance upon confinement cases. By this means each individual student's standing in the department of obstetrics is ascertained. During the latter half of the second year six obstetric clinics are given at the hospital. Attendance upon these clinics is optional.

4. **Attendance upon Cases of Confinement.**—Each candidate for the degree of M.D. is required to present satisfactory evidence to the effect that he has attended a definite number of cases of confinement.

During the student's attendance upon his practical maternity course he may be excused from the exercises of the College during the fourth college year, otherwise he shall take his practical obstetric course during vacation time. Students will attend confinement cases under the supervision of the clinical instructors, and may obtain further information concerning their practical obstetric work by applying at the Secretary's office.

5. **Manikin Practice and Section Work.**—Manikin practice is given to sections of the class during the fourth or senior year, and consists of work by individual students upon the manikins, under the supervision and criticism of an instructor.

The mechanical phenomena of labor ; modes of delivery ; abnormal presentations and positions, with methods of delivery of each ; version ; application of the forceps, and other manipulations, will be demonstrated by the instructor and performed by the student.

Diagrams, models, casts, wet and dried specimens, will be used in the demonstrations.

The sections will also be instructed at the bedside in the management of pregnant and parturient women, the care of the newborn child, abdominal palpitation and pelvic mensuration.

6. **Obstetric Histology, Pathology and Bacteriology.**—Laboratory instruction is given during the third year by the Professor of Pathology upon the histology of the vulva, vagina, uterus, ligaments, Fallopian tubes, and ovaries in the pregnant and non-pregnant conditions, and upon the histology and pathology of the decidua, chorion, placenta and umbilical cord.

SUMMARY.

	Second Year.	*Third Year.*	*Fourth Year.*
Lectures		25 hours.	25 hours.
Recitations	30 hours.	30 hours.	
Clinics		30 hours.	
Sections		15 hours.	

Gynæcology.

WILLIAM M. POLK, M.D., Professor of Obstetrics and Gynæcology.
DR. GEORGE D. HAMLEN, Instructor.
DR. GEORGE G. WARD, JR., Instructor.
DR. CHARLES C. BARROWS, Instructor.
DR. JOHN ASPELL, Instructor.
DR. WILLIAM TRAVIS GIBB, Instructor.

Instruction in gynæcology is given by recitations, lectures, ward- and class-room demonstrations, clinics and laboratory demonstrations.

Six Lectures upon topics selected for their special interest and importance to the subject as a whole, will be given at the beginning of the fourth year.

Recitations are planned to cover the entire subject, and are held one hour a week during the third year of the course. In order that the instruction throughout the department may be as nearly in unison as possible, a synopsis of the subject-matter of each lesson is prepared by the instructor and amended and revised by the head of the department. This is presented to the student for comparison with his text-book, to which it is an addendum. This method insures the coöperation of the head of the department in the groundwork of his subject and enables him to keep in touch with each student until his graduation.

Class-room and Ward Demonstrations are given to sections of the fourth-year class twice a week throughout the year. This instruction includes the examination of patients by the students, who are thereby drilled in the methods of physical diagnosis as applied to the pelvis. When necessary the patients are anæsthetized.

The routine of treatment appropriate to the various conditions found is demonstrated, the students assisting when possible. In this way, not only is familiarity acquired with normal conditions within the pelvis and the various departures from this state induced by disease, but opportunity is afforded to see and put in actual practice measures of relief and to watch the subsequent course and treatment of these cases.

Operations are performed three days every week at which the several sections are enabled to study the detail of every operation peculiar to this department.

A General Clinic is held once a week at which students selected in rotation are required to examine the patient, make a diagnosis, and suggest treatment. They are questioned before the class upon all these topics, as they relate to the case in hand, so as to determine the correctness of their conclusions. Should operation be called for, it is then performed.

Laboratory Demonstrations of secretions, discharges, and specimens obtained from patients who come under observation during this course are made to sections of the third-year class as a part of the course in clinical pathology.

SUMMARY.

	Third Year.	*Fourth Year.*
Lectures	6 hours.	6 hours.
Recitations		30 hours.
Clinics	30 hours.	30 hours.
Sections		10 hours.

Department of Pathology.

[INCLUDING HISTOLOGY, GROSS AND MICROSCOPICAL PATHOLOGY, AND BACTERIOLOGY.]

JAMES EWING, M.D., Professor of Pathology.
DR. BERTRAM H. BUXTON, Associate Professsor of Experimental Pathology.
DR. JEREMIAH S. FERGUSON, Instructor in Histology.
DR. OTTO H. SCHULTZE, Instructor in Gross Pathology.
DR. MAX G SCHLAPP, Instructor in the Histology and Pathology of the Nervous System.
DR. LETCHWORTH SMITH, Instructory in Bacteriology.
DR. JAMES C. JOHNSTON, Instructor in Pathology.
DR. ALFRED E. THAYER, Assistant Instructor in Gross Pathology.
DR. WILLIAM J. ELSER, Assistant Instructor in Pathology.
DR. ISRAEL STRAUSS, Instructor in Embryology.
DR. HENRY T. LEE, Assistant Instructor in Pathology.
DR. GUY D. LOMBARD, Assistant Instructor in Histology.
DR. HENRY S. PASCAL, Assistant Instructor in Histology.
DR. J. C. ROPER, Assistant Instructor in Histology.
DR. EDGAR DINKELSPIEL, Fellow in Experimental Pathology.

Histology.

The work in this subject is conducted throughout the first and during a portion of the second year by laboratory exercises and by recitations. Laboratory exercises, in two two-hour sessions weekly during the first year, and one two-hour session weekly during the second year, occupy in all about 150 hours for each student. The work covers the construction and use of the microscope, the methods of preparing microscopical sections of tissues, and the normal histology of the various tissues and organs of the human body. Attention is constantly directed to the application of the knowledge to physiological phenomena, and to further this end the courses in physiology and histology proceed as far as possible in unison. When desirable the

structure of human tissues and organs is illustrated by sections of embryonal and lower vertebrate tissues.

In the first year the blood and simple tissues, the gastro-intestinal tract and adnexa, and the respiratory, circulatory and genito-urinary organs are studied. In the second year the organs of the special senses and the nervous system are considered.

Recitations.—Two recitations weekly for each student are held during the first year, and the first half of the second year, on subjects assigned from the text-book on histology. These recitations are designed to completely familiarize the student with the structure of the tissues considered during the previous week in the laboratory exercises.

An examination is held at the end of each year. The standing of the student in this, as in the other subjects, is determined equally from the work in the laboratory exercises and in the recitations.

Embryology.

In the latter half of the second year a series of topics in embryology, which have special importance in medicine and pathology, are presented in a laboratory course, occupying about forty hours for each student. These topics embrace the fertilization and maturation of the ovum, formation of germ layers, and the main facts regarding the development of the different systems and viscera. These topics are illustrated by microscopical sections, charts, lantern slides and models.

Pathology.

The course of instruction in pathology in the second year comprises a preliminary course of lectures on the theory and classification of inflammations, which is designed to acquaint the student with the main facts in this field, to prepare him for preliminary studies in medicine and surgery, and to establish a uniform system of nomenclature to be used in this and other departments. During one half the second year, also, attendance is required at one weekly demonstration in gross pathology, at which the more common visceral lesions are exhibited. This course is designed to accompany the preliminary recitations in medicine and surgery of the second year.

The main branches of the subject are grouped in the third year in order to secure the simultaneous study of the gross and microscopical changes in diseased tissues. In the fourth year the students perform autopsies and attend one recitation weekly in review of the entire subject.

Microscopical Demonstrations in Pathology.—The microscopical demonstrations occupy three two-hour sessions weekly throughout the year, in all about 175 hours. The specimens studied illustrate the topics of inflammation, tumors, autointoxications, infectious diseases and diseases of the nervous system, and are supplemented by lectures and special demonstrations by means of sections, charts, lantern slides and photo-micrographs.

Demonstrations in Gross Pathology.—On the days alternating with the microscopical studies demonstrations of gross pathological specimens are given to the students of the third year, with the material collected from autopsies. With the viscera of each case is presented an epitome of the clinical history, and, when necessary, frozen sections of the organs, and the clinical symptoms are explained from the gross and microscopical changes in the altered tissues. The student here sees the viscera of many of the fatal cases which he has studied in the wards of the hospital.

Gross pathological diagnosis is taught as a separate branch of this subject, not bearing directly on the clinical aspect of the case.

These demonstrations occupy three two-hour sessions weekly, each section of the class attending one exercise weekly throughout the year.

Post-Mortem Examinations.—Students of the fourth year are required to perform autopsies under the direction of the instructor in gross pathology, when they are made familiar with the technical procedures required in ordinary and in medico-legal cases.

Recitations.—One recitation weekly is required of each student throughout the third and fourth years. In the third year they cover the work of each preceding week. In the fourth year they cover the entire work of the department.

Experimental Pathology.—During the past year definite plans have been formed to facilitate experimental studies in the Department of Pathology. The direct object of the plans is to associate together a number of competent workers whose time shall be entirely devoted to the study of new problems in medical science.

Abundant space and modern facilities have been provided for experimental work in cellular pathology, bacteriology and physiological chemistry, and are available to approved applicants who desire to engage in this work under the immediate direction of Professor Buxton. Dr. Dinkelspiel has been appointed a member of this staff, and further appointments in the several branches involved will be made according to the requirements of the work undertaken.

It is the ultimate object of the present plans to increase the number

of these workers and enlarge their facilities until they shall form a fully equipped institution of experimental medicine.

Bacteriology.

The laboratory course in bacteriology occupies three two-hour sessions each week for one-half of the second year—in all, ninety hours for each student. The student is first made familiar with the methods of disinfection, and is required to prepare the ordinary culture media. The work then proceeds to the methods of staining and examining bacteria; their artificial cultivation and the study of biological characters; the methods employed in the separation of species; the general relation of pathogenic bacteria to disease; and concludes with the biological analysis of air, water, soil, and milk. Cultures are made from the viscera of cases of the various infectious diseases, and the student is required to cultivate and identify the important pathogenic micro-organisms. The work is supplemented when necessary by the use of pure cultures, by the exhibition of anærobic cultures, and to a limited extent by inoculation in animals.

An Advanced Course in bacteriology is offered to those students who have been able in the first year to attend the course required in the second year.

This course includes the cultivation of other pathogenic micro-organisms, the separation of species, and the bacteriological examination of viscera secured at autopsies.

Advanced Courses and Original Research. The abundant facilities of the laboratory on the fourth floor of the new building can be offered to properly qualify students and practitioners of medicine who wish to pursue advanced courses of study on lines of original research, under the direction of special instructors.

SUMMARY.

	First Yr.	*Second Yr.*	*Third Yr.*	*Fourth Yr.*
Histology:				
Recitations	60 hours.	30 hours.		
Laboratory	120 hours.	60 hours.		
Pathology:				
Lectures		10 hours.		
Laboratory			180 hours.	
Recitations			30 hours.	30 hours.
Gross Pathology:				
Laboratory		30 hours.	60 hours.	30 hours.
Bacteriology:				
Laboratory		90 hours.		

SPECIAL DEPARTMENTS OF MEDICINE AND SURGERY

Diseases of Children.

JOSEPH E. WINTERS, M.D., Professor of Diseases of Children.
DR. WALTER A. DUNCKEL, Instructor.
DR. WILLIAM SHANNON, Instructor.
DR. ROBERT S. ADAMS, Assistant.
DR. SAMUEL M. EVANS, Assistant.
DR. HORACE S. STOKES, Assistant.
DR. LESTER M. HUBBY, Assistant.
DR. ELISHA M. SILL, Assistant.

This department will embrace clinical instruction and section teaching in all the important diseases of infancy and childhood.

There will be one clinical lecture each week in the college building, and clinical lectures in the Willard-Parker Hospital on scarlet fever and diphtheria.

In connection with the dispensary of the Children's Department in the college building there is an amphitheatre for section teaching, and isolation rooms for contagious diseases, so that students have ample opportunity for the personal study of disease.

Two hours each week will be devoted to section teaching in the dispensary to the students of the fourth year.

Students will be required to examine sick children and discuss the diagnosis and treatment of patients assigned to them.

Special attention is given to the hygiene and feeding of infants; the digestive disorders of infants; the dietetics of childhood and the food disorders of infancy and childhood; the anatomical and physiological peculiarities of infancy and childhood; and the influence these peculiarities have on the manifestations of disease in children.

One of the distinguishing features of this department will be the instruction of each student in the art of diagnosis by the professor in charge.

There will be practical bedside illustrations of the management, care and therapeutics of all the acute diseases of infancy and childhood.

In the clinical laboratory microscopical examinations will be made of secretions and excretions, of lesions of the mouth and throat, and of sections of anatomical lesions of the important diseases of childhood.

SUMMARY.

	Third Year.	*Fourth Year.*
Clinics	30 hours.	30 hours.
Sections		10 hours.

Surgical Diseases of the Genito-Urinary Organs.

SAMUEL ALEXANDER, M.D., Professor of Genito-Urinary Surgery.
DR. FRANCIS C. EDGERTON, Instructor.

The course is required of students during the third and fourth years, and is designed to give instruction in diagnosis and treatment of the surgical diseases of the male genital and urinary organs and in syphilis. It consists in recitations, lectures, clinics and section work in the dispensary of the college and in the wards of Bellevue Hospital.

Recitations.—Recitations are held during the third and fourth years by the instructors in the department of general surgery.

Lectures.—One lecture a week from the opening of the term to the first of December will be given by Professor Alexander at the college. These lectures will be principally devoted to the subject of syphilis. A syllabus of these lectures will be furnished to each member of the class.

Clinic.—A clinic will be given in the amphitheatre of Bellevue Hospital once each week after the first of January by Professor Alexander. At this clinic the principal operations upon the male urinary and genital organs will be performed before the class, and special attention will be given to the subject of diagnosis and post-operative management of cases. Attendance upon these clinics is required by students during the third and fourth years.

Section Teaching at the College Dispensary and at Bellevue Hospital.—The third-year class will be divided into sections of small size, and instruction will be given by the Chief of Clinic and the instructors in the college dispensary. Special attention will be given in this course to the diagnosis and treatment of the venereal diseases and the use of special instruments.

The fourth-year class will be divided into sections of small size, and instruction will be given in the wards of Bellevue Hospital or in the college dispensary by Professor Alexander or the Chief of Clinic. This course will be devoted principally to the diseases of the urinary organs and to instruction in the use of special instruments and apparatus and the post-operative treatment of cases.

SUMMARY.

	Third Year.	*Fourth Year.*
Clinics	18 hours.	18 hours.
Sections	15 hours.	10 hours.
Lectures		6 hours.

Nervous Diseases.

CHARLES L. DANA, M.D., Professor of Diseases of the Nervous System.
DR. JOSEPH FRAENKEL, Instructor.
DR. ROBERT M. DALEY, Assistant.
DR. J. RAMSAY HUNT, Assistant.
DR. LESLIE J. MEACHAM, Assistant.

The regular work consists of a preliminary series of lectures by Professor Dana, in which the general outline of the work for the year is given, with demonstrations of the general anatomy, general symptomatology, and methods of examination of the nervous system. During the rest of the term clinical lectures on nervous diseases are held weekly in the amphitheatre of Bellevue Hospital or at the college. Section work is given weekly to classes in the wards of Bellevue Hospital, and three times a week in the dispensary of the college. In this dispensary, section-work instruction is given in history-taking in the examination of patients, and in electro-therapeutics.

It is considered of the greatest importance that the student of nervous diseases be thoroughly grounded in the anatomy and physiology of the nervous system, therefore courses in gross and microscopical anatomy of the nervous system are provided in the histological laboratory. Special students can also take courses on the pathology of the nervous system.

Thus the course of instruction aims to provide the student before he graduates with instruction in the microscopical anatomy of the nervous system, in its physiology and pathology, and also that he shall receive practical clinical instruction in the amphitheatre, at the bedside, and in the dispensary.

SUMMARY.

	Third Year.	*Fourth Year.*
Lectures	5 hours.	
Clinics	20 hours.	20 hours.
Sections	15 hours.	5 hours.

Mental Diseases.

——— ———, Professor of Mental Diseases.
DR. WILLIAM HIRSCH, Instructor.

The Professor of Mental Diseases and Dr. Hirsch will give a series of clinical and didactic lectures once a week for two months, fully

illustrated. Clinics will also be given at the Manhattan State Hospital on Ward's Island during the course.

Instruction will also be given in diagnosis, the legal commitment of the insane, and the relations of insanity to medical jurisprudence.

SUMMARY.

	Fourth Year.
Lectures	5 hours.
Clinics	10 hours.

Dermatology.

GEORGE T. ELLIOT, M.D., Professor of Dermatology.
DR. JAMES C. JOHNSTON, Instructor.

Instruction in Dermatology will be given by the Clinical Professor and his assistants. No teaching will be given didactically, but the cutaneous diseases will be demoustrated on the living subject. Abundance of material for such instruction is obtainable, and the student can thoroughly familiarize himself with the more common as well as with the rarer diseases of the skin by actual personal contact and observation. Attention is particularly paid to the diagnosis and the etiology of skin diseases, but their therapeutics also receive due consideration.

SUMMARY.

	Fourth Year.
Sections	25 hours.

Laryngology and Rhinology.

CHARLES H. KNIGHT, M.D., Professor of Laryngology.
DR. JAMES E. NEWCOMB, Instructor.
DR. FRANK T. BURKE, Assistant.
DR. CHARLES MACK, Assistant.
DR. WALTER C. MONTGOMERY, Assistant.
DR. EDWARD J. CONNELL, Assistant.

Instruction in Laryngology and Rhinology is given by clinical lectures at the college by the Professor of the department. The subjects then considered are demonstrated to the fourth-year students by the instructor and by the assistants. The class is divided into sections, and each member is expected to examine patients and perform manipulations. The clinics are fully illustrated by plates and models, and, as far as possible, by clinical material.

SUMMARY.

	Fourth Year.
Lectures	18 hours.
Sections	15 hours.

Ophthalmology.

CHARLES STEDMAN BULL, M.D., Professor of Ophthalmology.
DR. ROBERT G. REESE, Instructor.
DR. ALEXANDER DUANE, Instructor.

Instruction in Ophthalmology consists in lectures at the college building once a week during the months of October, November and December, and in sectional teaching two hours a week ot the college dispensary throughout the year. The weekly lectures at the college are didactic, and consider the subjects of the theory of the ophthalmoscope, refraction and accommodation, the anomalies of the ocular muscles, and the deep lesions of the eye which are not susceptible of clinical demonstration. Thus the entire field ophthalmology is covered. The sectional teaching at the college dispensary is devoted partly to clinical ophthalmology and the use of the ophthalmoscope, and partly to instruction in the errors of refraction and the rudiments of the fitting of lenses.

SUMMARY.

	Fourth Year.
Clinics	10 hours.
Sections	20 hours.

Otology.

GORHAM BACON, M.D., Professor of Otology.
DR. FRANKLIN M. STEPHENS, Instructor.
DR. GEORGE SLOAN DIXON, Instructor.

During the first third of the fourth year a systematic course of weekly lectures is given. These lectures are practical in character, including a consideration of the anatomy and physiology of the ear and the various methods of examination. Patients are shown to the class in order to familiarize the students with the symptoms and character of the more important diseases.

For clinical instruction in the dispensary, the fourth-year class is divided into sections. Each student receives practical instruction from Professor Bacon and his assistants in the examination of patients, the use of the otoscope, and the various methods of testing the hear-

ing. The student is permitted to examine patients and, after a probationary period, to prescribe for them, and thus gradually assume the duties of a clinical assistant. The students also have an opportunity of witnessing the more important operations in aural surgery, including intracranial complications.

SUMMARY.

	Fourth Year.
Clinics	8 hours.
Sections	15 hours.

Orthopædic Surgery.

NEWTON M. SHAFFER, M.D., Professor of Orthopædic Surgery.
DR. P. HENRY FITZHUGH, Instructor.
DR. JOHN McGRAW WOODBURY, Instructor.
DR. HENRY SCOTT, Assistant.
DR. DEAS MURPHY, Assistant.
DR. FANEUIL S. WEISSE, Assistant.

The course of study in the Orthopædic Department includes a stated clinical lecture once a week, with detailed demonstrations in sectional work twice a week during two months of the year.

During the regular clinical course especial attention is given to the early recognition of the deforming diseases of childhood, also to the symptomatology, pathology, and differential diagnosis of chronic and progressive deformities, including the mechanical and operative treatment.

In detail, the course consists of practical illustrations of methods of treatment, the apparatus used being thoroughly explained both in construction and in principle, attention being called to even minute points of construction and use. The operative side is fully dwelt upon, the indications for operative interference as an adjunct to the mechanical work being demonstrated. Ample clinical material is provided, and models of conventional forms of apparatus are placed at the disposal of students.

In the section and laboratory work the student is required to assist in the management of selected cases, to familiarize himself with the various methods of treatment, to construct the simpler forms of apparatus, to secure a practical knowledge of the details of construction of the more complicated instruments, and to familiarize himself with the pathological conditions existing in the deformities of childhood.

SUMMARY.

	Fourth Year.
Clinics	10 hours.
Sections	10 hours.

Department of Hygiene.

WILLIAM R. WILLIAMS, M.D., Lecturer.

Instruction is given in this course to fourth-year students by lectures, demonstrations and conferences, to supplement a text-book, one hour a week for half of the year.

The course is designed to help physicians in a practical way in their efforts to cope with preventable disease.

The hygienic relations of foods, water, clothing, schools, dwellings, climate, and especially of youth and the transmissible diseases are studied from the viewpoint of the practical physician.

SUMMARY.

	Fourth Year.
Lectures	15 hours.

SUMMER SCHOOL.

The Medical College conducts a Summer Course in New York chiefly in laboratory work for post-graduates. A syllabus can be obtained on application to the Secretary.

Undergraduate students are taught in the General Medical and Surgical Departments of the Dispensary in classes of six for periods of four weeks from June until October.

This work is optional and no fee is required. The dates are arranged in the order of application and after consultation with the Secretary. The practical training thus acquired is a valuable supplement to the work of the regular session. The Surgical Dispensary is open to the first and second year classes. The Medical Dispensary, however, requires some knowledge of prescription writing and the ability to make a physical diagnosis, and is therefore limited to those who have completed their third year.

FACULTY OF MEDICINE AT ITHACA.

(For Faculty in New York see page 218.)

BURT GREEN WILDER, B.S., M.D., Professor of Neurology, Vertebrate Zoölogy and Physiology.

EDWARD LEAMINGTON NICHOLS, B.S., Ph.D., Professor of Physics.

SIMON HENRY GAGE, B.S., Professor of Histology and Embryology.

VERANUS ALVA MOORE, B.S., M.D., Professor of Comparative Pathology and Bacteriology.

LOUIS MUNROE DENNIS, Ph.B., B.S., Professor of Inorganic Chemistry.

WILLIAM RIDGELY ORNDORF, A.B., Ph.D., Professor of Organic and Physiological Chemistry.

ERNEST GEORGE MERRITT, M.E., Professor of Physics.

GEORGE SYLVANUS MOLER, A.B., B.M.E., Assistant Professor of Physics.

BENJAMIN FREEMAN KINGSBURY, Ph.D., M.D., Assistant Professor of Physiology.

ABRAM TUCKER KERR, B.S., M.D., Assistant Professor of Anatomy.

EMILE MONNIN CHAMOT, B.S., Ph.D., Assistant Professor of Sanitary Chemistry and Toxicology.

JOHN SANDFORD SHEARER, B.S., Ph.D., Assistant Professor of Physics.

EUGENE BAKER, B.S., M.D., Lecturer on Medicine and Obstetrics.

MARTIN BUEL TINKER, B.S., M.D., Lecturer on Surgery.

HENRY ROSE JESSEL, B.S., Ph.D., Instructor in Chemistry.

SAMUEL HOWARD BURNETT, A.B., M.S., D.V.M., Instructor in Comparative Pathology and Bacteriology.

JOHN EDGAR TEEPLE, B.S., Instructor in Chemistry.

BENSON A. COHOE, B.A., M.B., Instructor in Anatomy.

HUGH DANIEL REED, B.S., Instructor in Systematic and Economic Zoölogy.

WILLIAM CROOKS THRO, A.M., Instructor in Histology and Embryology.

MERVIN TUBMAN SUDLER, Ph.D., M.D., Instructor in Anatomy.
[*Absent on leave.*]

LAWRENCE HENDEE, A.B., M.D., Instructor in Anatomy.
[*Absent on leave.*]

GERSHOM FRANKLIN WHITE, B.S., Instructor in Bacteriology.

ARTHUR WESLEY BROWNE, M.S., Ph.D., Instructor in Chemistry.

JOSEPH HEYWOOD RUSSELL, A.B., Assistant in Chemistry.

JAY EMERY ROOT, A.B., Assistant in Chemistry.

LEE FRED HAWLEY, A.B., Assistant in Chemistry.

RAXLEY F WEBER, A.B., Assistant in Chemistry.

WILLIAM ATWOOD HILTON, Ph.D., Assistant in Histology and Embryology.

EARL BLOUGH, A.B., Assistant in Chemistry.

HAROLD ROLLIN WADE, A.B., Assistant in Chemistry.

JAMES MUNSIE BELL, B.A., Assistant in Chemistry.

CASSIUS WAY, B.AGR Assistant in Medical Bacteriology and Pathology.

WALTER EDWARDS KING, A.B., Assistant in Bacteriology.

WALTER SCHON LENK, B.S., Assistant in Chemistry.

GEORGE CANBY ROBINSON, A.B., M.D., Assistant Demonstrator of Anatomy.

EDWARD A. GRAY, A.B., M.B., Assistant Demonstrator of Anatomy.

SAMUEL GUY WINTER, A.M., Assistant in Histology and Embryology.

GEORGE W. PARTRIDGE, A.B., Assistant in Histology and Embryology.

W A LAWRENCE, M.D., C.M., Assistant Demonstrator of Anatomy.

ROSCOE CONKLIN WILSON, M.D., Assistant in Materia Medica.

ABRAM T. KERR, B.S., M.D., Secretary of the Faculty at Ithaca.

INSTRUCTION AT ITHACA.

During the First Two Years of the Course--General Statement.

Upon the establishment of the Medical Department of Cornell University in 1898, in New York City, by action of the Board of Trustees, it was resolved that the work of the first two years, consisting as it does mainly of fundamental scientific subjects, should also be given in Ithaca, where the opportunities offered by the long established departments of Botany, Zoölogy, Physics, Chemistry, Physiology, Histology, Embryology and Bacteriology afford unusual advantages for thorough study. The remaining subjects of the first two years were also fully provided for.

Among the facilities of the University of special value to the Medi-

cal College may be mentioned the museums of Vertebrate and Invertebrate Zoölogy, including Entomology, Comparative Anatomy, of Agriculture, of Botany, and of Geology. The University Library, with its 250,000 bound volumes, 40,000 pamphlets, and 600 current periodicals and transactions, is likewise as freely open to medical students as to other University students.

Through the generosity of the late Dean Sage, of Albany, the University has been enabled to erect a building especially designed for anatomy, histology, embryology and physiology. The building is constructed of Ohio sandstone similar to the library and law school. The general form is that of an E, 157 feet long and 50 feet wide, with wings 40 feet square.

In the cellar are situated the cold-storage, embalming and cremating rooms, a large room 40 feet square for aquaria, projection, etc., and store rooms.

In the basement is a room for the ventilating and cold-storage machinery, a recitation room, a large lecture room and the office of the departments of surgery, medicine and obstetrics, besides the lower part of the large amphitheatre.

On the first floor are located the cloak rooms for men and women, college office, library, faculty room, office and private laboratory of the Professor of Histology, two recitation rooms, upper part of the large amphitheatre and assembly room.

The second floor is devoted to the departments of histology and physiology, each with a large general laboratory, a research laboratory, preparation rooms and private laboratories for the staff of instruction.

The third floor consists of the general and special dissecting rooms, study rooms and amphitheatre, besides rooms for the staff.

The attic is utilized for photography, macerating the skeletons, and for storage.

The greatest pains have been taken for ventilation. The lighting, is almost perfect in all the rooms.

DEPARTMENTS, METHODS, AND FACILITIES.

Anatomy.

ABRAM T. KERR, B.S., M.D., Assistant Professor of Anatomy.
BENSON A. COHOE, B.A., M.B., Instructor.
MERVIN T. SUDLER, Ph.D., M.D., Instructor.
LAWRENCE HENDEE, A.B., M.D., Instructor.
GEORGE C. ROBINSON, A.B., M.D., Assistant Demonstrator.
ELGIN A. GRAY, A.B., M.B., Assistant Demonstrator.
W A LAWRENCE, M.D., C.M., Assistant Demonstrator.

The anatomy is given in both the first and second years. The work consists of section demonstrations and dissection, special attention being given to practical work in the laboratory. All the laboratory work is concentrated in the first half year, thus enabling the student to devote a large amount of time continuously to the work.

During the first year, first half, thirty-two and a half hours per week are devoted to laboratory work. The class is divided into three groups; one assigned to the dissection of head and neck, one to the upper extremity, and one to the lower extremity. These, starting simultaneously in September, study the bones of their parts before taking up the dissection. Upon the satisfactory completion of one part, the bones and dissection of another part are taken up in a similar way.

During the second year, first half, twenty-five hours per week are devoted to laboratory work. The student is expected to dissect the thoracic and abdominal viscera; assigned regions and special parts. As the laboratory work is osteology and in dissection advances, the students are called from the laboratory in small groups for demonstrations.

In the first year a complete skeleton is loaned to each two students. During the two years the student is required to make at least one complete dissection of the human body. The dissecting material is sufficient, thoroughly embalmed, and is kept in cold storage, so as to be ready for use when needed. The work is personal and practical, each student being independent of the others, so that those with special training or ability are in no way retarded by the slower members of the class. The object of the course is not only to teach the structure, connections and relations of the parts of the body, but also to train the student in methods of scientific work, observation and thought. The students are encouraged to make careful notes and drawings, and to record all variations from their text-book descriptions. For this purpose they are furnished with outline record charts.

In addition to the laboratory work there will be, during the second half year, two demonstrations per week to small sections of the class on Topographical and Regional Anatomy. In these special dissections will be shown to the students, and their attention called to the practical application of Anatomy to Medicine and Surgery. The structure, connections and relations of the thoracic and abdominal viscera will be also demonstrated twice a week to small sections.

Those who have satisfactorily completed the required work, and others properly qualified, will be given opportunity to do advanced and original work.

1. **Anatomy.** Laboratory work with section practicums and recitations, thirty-two and a half actual hours weekly from September to February. The whole of Course I is required of first-year students in Medicine ; for students in Arts the course may be divided. Assistant Professor KERR, Instructor COHOE, Assistant Demonstrators ROBINSON and GRAY.

2. **Anatomy.** Laboratory work with section practicums and recitations twenty-five actual hours weekly. September to February. Assistant Professor KERR, Instructor COHOE, Assistant Demonstrators ROBINSON and GRAY. The whole of Course 2 is required of second-year students in Medicine ; for students in Arts the course may be divided.

3. **Topographical and Regional Anatomy.** Section demonstrations two and a half hours weekly. February to June. Dr. COHOE. (Required of second-year students in medicine. Open to those students in Arts who have had Course 1.)

4. **Thoracic and Abdominal Viscera.** Section demonstrations two and a half hours weekly required of second-year students in medicine. February to June. Assistant Professor KERR.

6. **Advanced and Research Work.** Laboratory work, elective. Eight or more actual hours per week. Assistant Professor KERR and Instructors.

Microscopy, Histology and Embryology.

SIMON H. GAGE, B.S., Professor of Histology and Embryology.
WILLIAM C. THRO, A.M., Instructor.
WILLIAM A. HILTON, Ph.D., Assistant.
SAMUEL G. WINTERS, A.B., A M., Assistant.
GEORGE W. PARTRIDGE, A.B , Assistant.

As indicated by the following courses, this department offers elementary and advanced instruction in the theory and use of the microscope and its accessories, in photo-micrography, in vertebrate histology, and vertebrate embryology ; and opportunities for research in all of these subjects.

The material equipment consists of a good supply of modern microscopes, camera lucidas, polariscopes, micro-spectroscopes, photo-micrographic cameras, and other special apparatus are in sufficient numbers to give each student opportunity for personally learning to use them, and for applying them to any special study in which they are called for. Two projection microscopes are available for class demonstrations and for wax-plate reconstructions. The general and research laboratories are large and are equipped with microtomes, incubators,

aquaria, etc. The collection of histologic and embryologic specimens is extensive and constantly increasing. Sets of typical specimens are available for study and comparison by the students.

The aim of the department is to bring the student into direct contact with the truths of nature, and hence, while there are lectures to give broad and general views, there is a large amount of laboratory work in which the facts are learned at first hand, and the methods and manipulations necessary for acquiring the facts are practiced by each student. It is recognized that less ground can be covered in a given time in this way, but it is believed, and experience has confirmed the belief, that the intellectual independence and power to acquire knowledge direct from nature which is gained by this personal work is of far higher value than the facts and theories that might be learned in the same time from books and lectures alone, or from specimens prepared by some other individual.

This lake region with its rich and varied fauna is especially favorable for investigations in the histology and embryology of all the main groups of vertebrates; and the proximity of the abattoirs to the city makes it possible to obtain material for the study of the development of the sheep, cow, and pig. The veterinary clinic and department of anatomy supply material for the embryology of the cat and dog, so that the opportunities for research upon the development of the domestic animals are excellent. Every encouragement is given for the fullest utilization of these opportunities.

1. **Microscopy. Histology and Embryology.**—Second half-year. Credits 8. Two lectures M. and W 8, two demonstrations and two recitations by appointment, and twelve hours of laboratory work weekly during the second half-year. Required of medical students in the first year. Professor GAGE, Instructor THRO, and Assistants HILTON, WINTERS, and PARTRIDGE.

Microscopy.—The first two weeks of the course are given to a study of the theory and manipulation of the modern microscope and its accessories, the underlying principles involved in the preparation, mounting and study of microscopic objects.

Histology.—This part of the course includes the study of the fine anatomy of man and of the domestic animals, and also the fundamental methods of histologic investigation and demonstration with the microscope.

Embryology. This deals with the elements of the development of man and of the domestic animals. For ease of demonstrating segmentation, the formation of the germ layers and the organs, the amphibian egg is studied. Then follows a short study of the developing

hen's egg to illustrate meroblastic segmentation and to make intelligible some of the phases of mammalian embryology. The main part of the course, however, is devoted to mammalian development. Gravid uteri are obtained from the abattoirs, and each student has the opportunity to dissect the placenta, fetal membranes, umbilical cord, and the fetus itself, demonstrating among other things the main features of the fetal circulation. For the microscopic study the department is well supplied with complete series of embryos of the chick, pig, cat, calf, etc., and each student has for study six complete series representing the principal steps in histogenesis and the development of the organs.

4. **Research in Histology and Embryology.** Laboratory work eight or more actual hours per week with seminary throughout the year. This course is designed for those preparing theses for the baccalaureate or advanced degrees and for those wishing to undertake special investigations in histology and embryology. Professor GAGE and Mr. THRO.

Course 4 is open only to those who have taken course 1, or its equivalent in some other university. Drawing, (course 1, in Industrial Drawing and Art, or its equivalent) and a reading knowledge of French and German are indispensable for the most successful work in this course.

Subjects for theses should be decided upon as early as possible so that material is suitable stages of development and physiologic activity may be prepared.

6. **Microscopy Advanced.** First half-year. Credit, 1,—requiring 40 actual hours. All the work will be completed during the first eight weeks of the term. This course consists of laboratory work with occasional lectures and demonstrations. Special instruction will be given in the theory and manipulation of the more important and difficult accessories of the microscope, *e. g.*, the micro-spectroscope, the micro-polariscope and the apertometer. The use and application of the projection microscope and of photo-micrographic apparatus will be learned by each student, in abundant practical experiments. Professor GAGE.

7. **Seminary.** Hours to be arranged. At the seminary, there will be presented reports of special methods and the results of advanced work. Professor GAGE.

NOTE.—For the work of this department the student will find a knowledge of Latin and Greek of the greatest advantage. A year's study of Latin, three to five recitations per week, and of Greek, Goodell's Greek in English, or Coy's Greek for beginners, would rep-

resent the minimum amount needed. For all courses, the ability to draw well freehand, and a good reading knowledge of French and German are desirable, and for research work almost indispensable.

Physiology and Neurology.

BURT G. WILDER, B.S., M.D., Professor of Neurology, Vertebrate Zoology, and Physiology.
HUGH D. REED, B.S., Instructor.

Of the three general courses given in this department, Physiology, Vertebrate Zoölogy, and Neurology, each covering about one-third of the first year, medical students take only the lectures of the first and third.

Physiology, Course 1. Two lectures per week until the Christmas recess. The title of this course is employed in the absence of any single word fully indicating its scope. It really constitutes an introduction to the study of the structure, functions, and relationships of man and other vertebrates.

Since a large part of physiology is based upon experiments upon animals, there is given first an outline of the animal kingdom, with special reference to the forms commonly used by physiologists. The anthropoid apes (gorilla chimpanzee, orang, and gibbons) are considered somewhat fully on account of their numerous resemblances to man, *e.g.*, the arrangement of the cerebral fissures and the possession of cecal appendix.

The study of function is begun with the biceps, the several uses of which are demonstrated upon apparatus and the living muscle. Special attention is paid to points not infrequently neglected, the combinations and counteractions of muscles and the economics of levers in body. At least one lecture is devoted to each of the following topics: Human locomotion, ciliary action, and the mechanics of circulation and respiration. About one-half of the course is given to the development, structure, and functions of the nervous system and sense organs. Among the experiments are the action of the phrenic nerve, the relations of the vagus to respiration and cardiac inhibition, the behavior of the decerebrized frog, and the demonstration of the motor areas of the cerebral cortex.

The means of illustrating this course include a full-sized manikin, a complete set of the Auzoux models, a "phantom brain," other models, and apparatus and charts.

Neurology, Course 3. Two lectures per week after the Easter recess. There are considered (a) the various modifications of the vertebrate brain; (b) the structure and peculiarities of the human brain;

(c) the human cerebral fissures as criteria of zoölogical or racial affinity, as indexes of physical or mental quality or power, and as boundaries of the cortical areas recognized by Flechsig and others. During this course is given a demonstration of the methods of removing and preparing the human brain for the elucidation of morphologic points. For the illustration of this course there are numerous diagrams representing actual preparations of the brains of man and other vertebrates. The neurologic division of the museum comprises about 1,500 preparations distributed as follows, in round numbers: Human adults and children, 420; human embryo, fetal and at birth, 213; apes and monkeys, 282; other mammals, 400; other vertebrates, 185.

In both courses the members of the class have at all times free access to the lecture room, where are kept standard manuals, treatises, and monographs.

Opportunities for research are offered especially in respect to the heart and the brain.

1. **Physiology.** Two lectures weekly until the Christmas recess. Professor WILDER.

2. **Neurology.** Two lectures weekly after Easter recess. Professor WILDER.

For other courses in the department of Physiology, Vertebrate Zoology, and Neurology, see p. 187.

Human Physiology.

BENJAMIN F KINGSBURY, Ph.D., M.D., Assistant Professor of Physiology.
——— ———, Instructor.
——— ———, Assistant.

The instruction in this department is carried on by means of lectures, recitations and practical work in the laboratory.

The lectures are illustrated by numerous lantern slides, practical demonstrations form a component part of the exercises wherever possible, and the relationship of physiology to practical medicine is thoroughly emphasized.

In the laboratory a few exercises are devoted to the physiology of the digestive processes and of the blood; the remainder of the work being devoted to the physiology of the nervous, muscular and circulatory systems. The equipment includes kymographs, sphygmographs, sphygometers, cardiographs, tambours, centrifuges, microscopes and other apparatus essential for complete and satisfactory work.

Students are required to take notes, and to hand in their reports accompanied with the tracings and other data obtained from their experiments for inspection and correction.

1. **Physiology Lectures.** The physiology of nutrition. Four lectures each week second half-year. Assistant Professor KINGSBURY.

2. **Recitations in Physiology.**—Three hours each week. Second half-year. In assigned sections. Instructors —— and ——.

3. **Physiology Lectures.** The Functions of the Muscular and Nervous Systems and the Sense Organs. One lecture each week. Assistant Professor KINGSBURY.

4. **Recitations in Physiology.** Two hours each week. Second half-year. In assigned sections. Instructors —— and ——.

5. **Physiological Laboratory.** Five hours each week. Second half-year. In assigned sections. Assistant Professor KINGSBURY and Instructor ——.

Courses 1 and 2 are required of first-year and courses 3, 4 and 5 of second-year students in medicine.

6. **Structure and Physiology of the Cell.** First half-year. Two lectures per week at hours to be arranged. This course is designed for students of biology and medicine, and gives the fundamental facts and principles relating to cell structure and activity, especially in their bearing on general prolems of biology and theories of evolution and heredity. Open to students who have had satisfactory courses in zoology, botany or physiology, or course 1 in Histology and Embryology. Assistant Professor KINGSBURY.

7. **Research and Advanced Work in Physiology.** Assistant Professor KINGSBURY.

For the courses in Comparative Physiology see page 189.

Materia Medica.

BENJAMIN FREEMAN KINGSBURY, Ph.D., M.D., Assistant Professor.

—— ——, Instructor.

—— ——, Assistant.

In this department the work required of medical students consists of a laboratory course only, to serve as an introduction to the lecture and clinical courses given in New York during the third and fourth years. The student is made familiar in this course with the physical and chemical properties of a selected number of drugs; incompatibilities are demonstrated, and the essentials of prescription-writing explained. A large assortment of crude drugs and many of their variou preparations are available for examination.

The work in this course consists of the study of a selected group of inorganic drugs; the study of certain crude organic drugs and their official preparations; in making pharmaceutical preparations, such as syrups, emulsions, spirits, liniments, tinctures, fluid extracts, extracts, ointments, pills, and others. Some exercises will also be devoted to the study of the direct physiological action of a few selected drugs upon some of the lower animals.

In their study the students are required to write concise notes of the physiological action of the drugs examined and to make tests of their incompatibility. In addition to this each student will have practical experience in writing and compounding prescriptions. The importance of a discriminating and accurate system for dispensing medicines is thoroughly emphasized.

1. **Materia Medica, Laboratory.** Five hours each week. First half-year. Assistant Professor KINGSBURY and Dr. WILSON.

Required of second-year students in medicine.

2. **Advanced and Research Work in Materia Medica and Pharmacology.** Assistant Professor KINGSBURY.

For courses in Comparative Materia Medica and Pharmacology, see pages 301 and 302.

Physics.

EDWARD L. NICHOLS, B.S., Ph.D., Professor.
GEORGE S MOLER, A.B., B.M.E., Assistant Professor.
JOHN S. SHEARER, B.S., Ph.D., Assistant Professor.

The instruction in physics is by means of lectures throughout the year. In these lectures the general laws of mechanics and heat, electricity and magnetism, and sound and light 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 arrangements for experimental work are most complete. Ordinary illuminating gas, acetylene, oxygen and hydrogen, compressed air, water and steam, blast and vacuum are within easy reach, and electric currents from alternating and direct current dynamos and from storage batteries are available. A masonry pier 4 × 12 feet permits the use in the lecture room of delicate apparatus that could otherwise be used only in the laboratory. A small turbine on the lecture table furnishes power for a variety of experiments. Lanterns with lime or electric light are always ready for use when they can in any way aid a demonstration.

The required course (7) in physics for medical students consists of two lectures a week throughout the first year, and the reading of a

text-book. Note-books prepared by members of the class are read and graded at frequent intervals. A longer course (*2b*), consisting of two lectures a week, two recitations a week, and one afternoon in the laboratory, is likewise open to medical students, and all those who can find the time to do so, are urged to take this course in place of the required work mentioned above. It should be chosen in preference to the latter by all who wish to prepare themselves for advanced work in the biological sciences. The lectures in this course are supplemented by thorough drill upon the principles of the science, and this, together with the laboratory practice, affords opportunity for a much more adequate knowledge than can be obtained from any course that consists solely of lectures.

During the second term the department offers a course in practical photography (Physics, 9; 2 hours), consisting of lectures and laboratory practice. This course is open to students of medicine under the conditions stated upon page 160.

7. **Elementary Physics.** Two lectures, with demonstrations, weekly throughout the year. Required of first-year students in Medicine, M., W., 9., Assistant Professor Shearer.

For additional courses in Physics see page 155.

Chemistry.

LOUIS M. DENNIS, Ph.B., B.S., Professor of Inorganic Chemistry.
WILLIAM R. ORNDORFF. A.B., Ph.D., Professor of Organic and Physiological Chemistry.
EMILE M. CHAMOT, B.S., Ph.D., Assistant Professor of Sanitary Chemistry and Toxicology.
HENRY R. JESSEL, B.S., Ph.D., Instructor in Chemistry.
JOHN E. TEEPLE, B.S., Instructor in Chemistry.
ARTHUR W BROWNE, M.S., Ph.D., Instructor in Chemistry.
RAXLEY F. WEBER, A.B., Assistant in Chemistry.
JAY E. ROOT, A.B., Assistant in Chemistry.
HAROLD R. WADE, A.B., Assistant in Chemistry.
JAMES M. BELL, B.A., Assistant in Chemistry.
LEE F. HAWLEY, A.B., Assistant in Chemistry.
EARL BLOUGH, A.B., Assistant in Chemistry.
WALTER S. LENK, B.S., Assistant in Chemistry.
JOSEPH H. RUSSELL, A.B., Assistant in Chemistry.

Inorganic Chemistry. The elements of Inorganic Chemistry are taught by lectures, laboratory work, and recitations. The lectures are profusely illustrated by experiments and lantern projection, and while presenting the fundamental concepts of chemical theory are also largely descriptive in character. Experiments illustrating the

principles discussed in the text-book are performed in the laboratory by each student.

Qualitative Analysis. The qualitative analysis begins with the study of such reactions of the commoner elements and their compounds as are used in their detection. This is followed by the practical application of the knowledge thus gained to the analysis of unknown substances, both in the solid form and in solution. The work is accompanied by thorough drill in the writing of chemical equations.

Organic Chemistry, or the Chemistry of the Compounds of Carbon. In this course the study of the typical compounds of carbon, their properties, reactions, and relations to one another, is taken up, especial attention being given to those organic substance that are of physiological importance. The course consists of lectures and recitations, supplemented by frequent written examinations. The lectures are fully illustrated by experiments, specimens of the compounds considered, and charts.

Toxicological Chemistry. This course is intended to serve as an introduction to the methods employed for the separation and identification of the common poisons, inorganic and organic. Special attention is given to the identification of poisons when present in organic matter, such as animal excretions and tissues, medicines, etc. This course also includes the identity tests for a few synthetic remedies.

Physiological Chemistry. The work in this course comprises the study of the chemistry of the proteids, carbohydrates, and fats, and of the compounds found in the animal body which are of physiological and pathological importance. The method of instruction is by lectures, recitations, and laboratory work, with frequent written reviews. In the laboratory the student separates from the various animal fluids and organs the chemical compounds which they contain, studies their properties, reactions, and products of decomposition, and thus familiarizes himself with the methods of isolation and identification of these products.

The above courses in Chemistry are required of all students in medicine. Other advanced courses are open to properly qualified students in medicine, and especial facilities for research work in chemistry are at their disposal.

1. **Introductory Inorganic Chemistry.** Three lectures, one recitation and five hours of laboratory work, weekly. First half-year. Professor DENNIS and Dr. JESSEL: Messrs. ROOT, WADE and BELL.

8. **Qualitative Analysis.** One lecture and five hours of laboratory, weekly. Second half-year till April 23rd. Messrs. HAWLEY, BLOUGH, LENK and WEBER.

68. **Toxicology.** One lecture, and five hours laboratory work weekly. Second half-year after April 27. Assistant Professor CHAMOT and assistant.

32. **Elementary Organic Chemistry.** Two lectures and one recitation weekly. Firsthalf-year. Professor ORNDORFF, Dr. TEEPLE, and Assistant RUSSELL.

40. **Physiological Chemistry.** Two lectures or recitations weekly. Second half-year. Professor ORNDORF, Dr. TEEPLE, and Assistant RUSSELL.

41. **Physiological Chemistry.** Ten hours laboratory work weekly. Second half-year. Professor ORNDORFF, Dr. TEEPLE, and Assistant RUSSELL.

Courses 1, 8 and 68 are required in the first year and courses 32, 40 and 41 in the second year of the medical course.

For additional courses in Chemistry see page 169.

Bacteriology.

VERANUS ALVA MOORE, B.S., M.D., Professor.
SAMUEL HOWARD BURNETT, A.B., M.S., Instructor.
GERSHOM FRANKLIN WHITE, B.S., Instructor.
WALTER EDMONDS KING, B.A., Assistant.
CASSIUS WAY, B. Agr., Assistant.

The instruction in Bacteriology is given by means of lectures, recitations, and laboratory work. The bacteriological laboratories are well supplied with the best modern apparatus. The student will, under proper supervision, prepare culture media, make cultures, and study the morphology of bacteria in both the fresh (living) condition and in stained cover-glass preparations. In fact, all of the technique necessary for a practical working knowledge in bacteriology will be carefully covered. The more important species of pathogenic bacteria will be studied. The special methods which are necessary for diagnosing such diseases as tuberculosis, anthrax, glanders and diphtheria will receive careful attention. Disinfection, sterilization, the means by which pathogenic bacteria are disseminated, protective inoculation, and other kindred subjects will be considered.

43. **Bacteriology.** Two lectures and ten hours laboratory work each week. Second half year. Required of second year medical students. Professor MOORE ; Instructor WHITE and Mr. KING.

44. **Research in Bacteriology.** Laboratory work with lectures and seminary throughout the year. Professor MOORE and Mr. WHITE. The course is designed for those wishing to undertake original investigation in Bacteriology preparatory to practical work in bacteriologi-

cal lines, such as exists in health department laboratories. This course is open to students who have taken Course 43 or its equivalent in some other university. Elementary chemistry and a reading knowledge of French and German are indispensable for successful work in this course.

General Pathology.

VERANUS ALVA MOORE, B.S., M.D., Professor.
SAMUEL HOWARD BURNETT, A.B., M.S., D. V. M., Instructor.
GERSHOM FRANKLIN WHITE, B.S., Instructor.
WALTER EDMONDS KING, B.A., Assistant.
CASSIUS WAY, B.Agr., Assistant.

The course in pathology consists of lectures, recitations, and laboratory work. The student will be given gross pathological specimens to study and describe, but much of the work in the laboratory will consist in studying microscopic sections of diseased tissue and making drawings from the same. In this course it is expected that the student will become familiar with the terms used in morbid anatomy, together with a definite knowledge of the more important changes found in inflammation and the various forms of infiltrations and degenerations.

40. **Pathology.** Two lectures or recitations and six hours laboratory work each week. First half-year. Professor MOORE, Instructors BURNETT and WHITE. This course is required of second year medical students and is open to students who have had or are taking the courses in Microscopy and Histology.

45. **Research in Pathology.** Laboratory work throughout the year. Professor MOORE and Instructor BURNETT. This course is open to students who have taken Course 40 and have taken or are taking Course 43, or the equivalent in some other university.

Surgery.

MARTIN B. TINKER, B.S., M.D., Lecturer on Surgery.

Two hours weekly, throughout the year, lectures and recitations. The course is given to small sections, and is intended to familiarize the student with the principles of General Surgery and Pathology, and to ground him in the surgical diseases, tumors, and fractures, and the technique of operative asepsis and antisepsis, and of operations, dressings, and methods.

1. **Surgery.**—One lecture or one recitation weekly throughout the year required of second year medical students. Dr. TINKER.

Medicine.

EUGENE BAKER, B.S., M.D., Lecturer on Medicine.

No didactic lectures are delivered, their place being taken by recitations from a standard text-book.

Recitations.—The study of medicine proper is begun with systematic recitations from Thompson's *Practice of Medicine.* In these recitations the nomenclature, etiology, pathology, and symptomatology of typical cases of diseases are considered, the question of treatment not being taken up until the junior year in New York.

1. **Medicine.**—Two recitations weekly. Second half-year. Required of second year students in medicine. Dr. BAKER.

Obstetrics.

EUGENE BAKER, B.S., M.D., Lecturer on Obstetrics.

Instruction in obstetrics consists mainly of recitations from a standard text-book, these recitations covering the anatomy of the internal genitalia and pelvis, ovulation, menstruation, signs of pregnancy, the physiology, mechanism, and clinical course of normal labor, and the care of mother and child during the puerperium. Whenever necessary, these recitations will be illustrated by plates, casts and demonstrations upon the obstetric manikin, etc.

1. **Obstetrics.** Two recitations weekly. First half-year. Required of second year students in medicine. Dr. BAKER.

SCHEDULE AND SUMMARIZED STATEMENT.

In this schedule the Counts or University hours are given on the following basis : One recitation or lecture weekly for one term or half-year gives a credit of one ; for laboratory work it requires two and one-half actual hours weekly for a term or half a year to secure a credit of one. In the courses of instruction following the schedule, the actual time required each week of the student at lectures, recitations, and laboratory work is stated.

First Year.

Subject.	No. of Courses.	Credits. 1st Term.	Credits. 2d Term.	Actual Hours per Week.
Anatomy	1	13	–	32½
Physiology	1	1⅓	–	2
Chemistry	1	6	–	9
Physics	7	2	2	2
Histology	1	–	8	18
Neurology	3	–	1¼	2
Physiology Lectures	1	–	4	4
Physiology Recitations	2	–	3	3
Qualitative Chemical Analysis	8	–	2	6
Toxicology	68	–	1	6

Second Year.

Anatomy	2	----	10	----	–	----	25
Organic Chemistry	32	----	3	----	–	----	3
Pathology	1	----	4	----	–	----	8
Materia Medica	40	----	2	----	–	----	5
Obstetrics	1	----	2	----	–	----	2
Surgery	1	----	2	----	2	----	2
Anatomy	3	----	–	----	1	----	2½
Anatomy	4	----	–	----	1	----	2½
Physiology Lectures	3	----	–	----	1	----	1
Physiology Recitations	4	----	–	----	2	----	2
Physiology Laboratory	5	----	–	----	2	----	5
Physiological Chemistry	40	----	–	----	2	----	2
Physiological Chemistry	41	----	–	----	3	----	8
Bacteriology	43	----	–	----	6	----	12
Medicine	1	----	–	----	2	----	2

Junior Year.—For subjects, see pages 242 to 244, as given in New York City.

Senior Year.—For subjects, see pages 242 to 244, as given in New York City.

SUMMARY OF REQUIRED COURSES.

First Year.

1. **Anatomy.** Laboratory work with section practicums and recitotions, thirty-two and a half actual hours weekly from September to February. The whole of Course 1 is required of first-year students in Medicine; for students in Arts the course may be divided. Assistant Professor KERR, Instructor COHOE, Assistant Demonstrators GRAY, ROBINSON, LAWRENCE, ———, and ———.

1. **Microscopy, Histology, and Embryology.** Two lectures, two recitations, two demonstrations and twelve hours of laboratory work weekly for the second half-year. Professor GAGE and Instructors THRO, Assistants HILTON, WINTERS, and PARTRIDGE.

(The work in Microscopy begins February 1, and continues till February 13; the Histology begins February 15, and continues till April 24; the Embryology begins April 26, and continues till June 4.)

1. **Physiology.** First half-year until the Christmas recess. Two lectures, T., Th., 11. Professor WILDER.

3. **Neurology.** Easter recess until the end of the year. Two lectures, T., Th., 11. Professor WILDER.

1. **Physiology Lectures.** The physiology of nutrition. Four lectures each week, second half-year, M., T., Th., 10, F., 12. Assistant Professor KINGSBURY.

2. **Recitations in Physiology.** Three hours each week in assigned sections. Second half-year. Instructors —— and ——.

7. **Elementary Physics.** Two lectures, with demonstrations, weekly throughout the year, M., W., 9. Assistant Professor SHEARER.

1. **Introductory Inorganic Chemistry.** Three lectures, M., W., F., 11, one recitation, F., 12, and five hours of laboratory work, W., 10–1, Th., 8–10, weekly. First half-year. Professor DENNIS and Dr. JESSEL; Messrs. ROOT, WADE and BELL.

∞ **Qualitative Analysis.** One lecture, S., 12, and five hours of laboratory, W., 10, Th., 8–10, weekly. Second half-year till April 23d. Dr. BROWNE.

68. **Toxicology.** One lecture, F., 8, and five hours laboratory work, W., 10–1, Th., 8–10, weekly. Second half-year after April 27. Assistant Professor CHAMOT and assistant.

Second Year.

2. **Anatomy.** Laboratory work with section practicums and recitations twenty-five actual hours weekly. September to February. Assistant Professor KERR, Instructor COHOE, Assistant Demonstrators GRAY, ROBINSON, LAWRENCE, —— and ——. The whole of course 2 is required of second-year students in Medicine; for students in Arts the course may be divided.

3. **Topographical and Regional Anatomy.** Section demonstrations two and a half hours weekly. February to June. Dr. COHOE. (Open to students in Arts who have had course 1).

4. **Thoracic and Abdominal Viscera.** Section demonstrations two and a half hours weekly. February to June. Dr. KERR.

3. **Physiology Lectures.** The Functions of the Muscular and Nervous Systems and the Sense Organs. One lecture each week. S., 10. Assistant Professor KINGSBURY.

4. **Recitations in Physiology.** Two hours each week. Second half-year in assigned sections. Instructors, —— and ——.

5. **Physiological Laboratory.** Five hours each week. Second half-year in assigned sections, T., 10–1, F., 8–10, or W., 8–11, F., 2–4. Assistant Professor KINGSBURY and Instructors, ——.

32. **Elementary Organic Chemistry.** Two lectures, M., W., 12, and one recitation weekly, F., 9 or 12. First half-year. Professor ORNDORFF, Dr. TEEPLE, and Assistant RUSSELL.

40. **Physiological Chemistry.** Two lectures or recitations to assigned sections weekly. Second half-year. Professor ORNDORFF, Dr. TEEPLE, and Assistant RUSSELL.

41. **Physiological Chemistry.** Ten hours laboratory work weekly, M., T., W. and Th., 2–6. Second half-year. Professor ORNDORFF, Dr. TEEPLE, and Assistant RUSSELL.

1. **Materia Medica and Pharmacy, Laboratory.** Five hours each week, M., 3–6, S., 11–1. First half-year. Assistant Professor KINGSBURY and Instructors, ——.

40. **Pathology.** Two lectures or recitations, M., T., 9, and six hours laboratory work each week. First half-year. Professor MOORE, Instructors BURNETT and WHITE. This course is open to students who have had or are taking Course 1 in Microscopy.

43. **Bacteriology.** Two lectures, M., T., 9, and ten hours laboratory work each week. Second half-year. Professor MOORE; Instructor WHITE and Mr. KING.

1. **Medicine.** Two recitations weekly. Second half-year. Dr. BAKER.

1. **Surgery.** One lecture and one recitation weekly throughout the year. Dr. TINKER.

1. **Obstetrics.** Two recitations weekly. First half-year. Dr. BAKER.

THE A.B. AND M.D. DEGREES.

As a liberal education in the arts and sciences is of great advantage to prospective students of medicine, all who can are urged to take the freshman, sophomore, and junior years in the Academic Department at Ithaca. After the completion of these years in the Academic Department (in which all the work is elective), the student is permitted to elect, as the fourth year of his A.B. course, a year's work in the Medical Department at Ithaca. He may then take his fifth year of work—the second of the medical course—either in Ithaca or in New York, but he must take the last two years of the medical course in New York. In this way he will obtain the A.B. degree at the end of four years, and the M.D. at the end of seven years of study. This is possible, because the first two years of the medical course in New York are offered in duplicate at the University in Ithaca.

Students who have taken the A.B. degree, as above, will, if they have anticipated in the Academic Department scientific studies prescribed in the medical course, be admitted to advanced standing in the Medical College in New York (see p. 233).

REQUIREMENTS FOR ADMISSION.

For admission to the Ithaca division of the Cornell University Medical College, a medical-student certificate issued by the Regents is required. (For details, see pages 228–233.) No student is admitted except at the beginning of the college year in September.

RESIDENCE AND REGISTRATION.

The college year is nine months long, extending from the last of September till about the middle of June, and is divided into two nearly equal terms. For exact dates, see calendar.

Residence in Ithaca is required of all students For leave of absence during the session, application should be made to the Secretary, Dr. KERR.

At the beginning of the term (September 22-24, 1903, and February 1, 1904) students must register with the University Registrar, Room 9a, Morrill Hall. After registration with the University Registrar, they must register with the Secretary of the Medical Faculty in Stimson Hall.

SCHOLARSHIPS. (See pages 58–65.)

EXAMINATIONS.

Students are advanced in course from one year to the next upon passing examinations upon the work of that year. As in the academic department, the work of each year is considered final of itself. There is no unnecessary repetition of subjects taught from year to year. According to the usage of other departments, the university student found to be markedly deficient will be dropped from the college.

ADVANCEMENT FROM SECOND TO THIRD YEAR.

Upon the completion of the two years in Ithaca, the student must obtain from the Faculty a statement of all the work which he has done; and accompanying this statement must be a recommendation that he be allowed to register in the New York division. As a student is not advanced from one year to another in the New York division until all the work of the year is completed, a student from Ithaca cannot enter the third-year class in New York until the entire schedule of the first two years has been successfully completed. For removing any conditions, examinations are held at the beginning of the fall term, both in Ithaca and in New York City. The student is at liberty to take these examinations in Ithaca or in New York City. The examination on a subject in either place is final for that year. That is, the student will not be permitted to try an examination on a subject in Ithaca, and take advantage of the later date for the examination in New York to have a second examination on the same subject in the same autumn.

If a student is deficient in two or more subjects there is no objection

to his taking the examination in one or more subjects in Ithaca, and the remaining ones in New York, the same autumn.

MEDICAL SOCIETY.

The Cornell Medical Society is a student organization. Meetings are held on Wednesday evenings of alternate weeks. At these papers prepared by the members are read, followed by general discussion. The aim is to give mutual aid in gaining general and special medical knowledge, facility in conducting the exercises of the meetings, and in presenting papers and discussions in a clear and forcible manner before an audience.

TUITION AND LABORATORY FEES. (See page 55).

BOARD AND ROOMS. (See page 55).

NEW YORK STATE VETERINARY COLLEGE.

VETERINARY COLLEGE COUNCIL.

For the purpose of making recommendations to the Board of Trustees in regard to the business administration of the New York State Veterinary College, there has been established a Veterinary College Council, consisting of the President of the University (who shall be *ex officio* chairman); one Trustee elected by the Board; the Treasurer; Director of the College; and two Professors elected by the Faculty. The council at present is constituted as follows:

JACOB GOULD SCHURMAN, President of the University.
JAMES LAW, Director of the Veterinary College.
MYNDERSE VAN CLEEF, of the Board of Trustees.
EMMONS L. WILLIAMS, Treasurer of the University.
WALTER L. WILLIAMS, } of the Faculty.
VERANUS A. MOORE, }

CHARLES EZRA CORNELL, Secretary.

FACULTY.

JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President.
JAMES LAW. F.R.C.V.S., Professor of Principles and Practice of Veterinary Medicine, Veterinary Sanitary Science and Parasitism.
SIMON HENRY GAGE, B.S., Professor of Microscopy, Histology and Embryology.
VERANUS ALVA MOORE, B.S., M.D., Professor of Comparative Pathology and Bacteriology, and of Meat Inspection.
WALTER L. WILLIAMS, V.S., Professor of Principles and Practice of Veterinary Surgery, Obstetrics, Zootechny, and Jurisprudence.
PIERRE AUGUSTINE FISH, D.Sc., D.V.M., Professor of Comparative Physiology, Pharmacology, and Therapeutics.
GRANT SHERMAN HOPKINS, D.Sc., D.V.M., Professor of Veterinary Anatomy and Anatomical Methods.
SAMUEL HOWARD BURNETT, A.B., M.S., D.V.M., Instructor in Comparative Pathology and Bacteriology.

OSCAR PERCY JOHNSTON, Ph.B., M.S., Assistant in Comparative Physiology and Pharmacology.
GERSHOM FRANKLIN WHITE, B.S., Assistant in Bacteriology,
WALTER EDWARD KING, A.B., Assistant in Bacteriology.
FREDERICK FRANK FEHR, D.V.M., Assistant in Clinical Surgery.
——— ———, Demonstrator in Anatomy.
——— ———. Demonstrator in Anatomy.

CHARLES EZRA CORNELL, A.B., LL.B., Clerk of the College.
——— ———, Librarian of the Roswell P Flower Library.

Professors and Teachers in Cornell University who furnish Instruction to Veterinary Students.

ISAAC PHILLIPS ROBERTS, M.Agr., Professor of Agrculture, Emeritus.
LOUIS MONROE DENNIS, Ph.B., B.S., Professor of Inorganic and Analytical Chemistry.
JOSEPH ELLIS TREVOR, Ph.D., Professor of General Chemistry and Physical Chemistry.
HENRY HIRAM WING, M.S., Professor of Animal Industry and Dairy Husbandry.
EMIL MONIN CHAMOT, B.S., Ph.D., Assistant Professor of Analytical and Sanitary Chemistry and Toxicology.
WILLIAM CROOKS THRO, A.M., Instructor in Microscopy, Histology and Embryology.
WILLIAM ATWOOD HILTON, Ph.D., Assistant in Microscopy, Histology and Embryology.
——— ———, Assistant in Miscrocopy, Histology and Embryology.
——— ———, Assistant in Miscrocopy, Histology and Embryology.
——— ———, Assistant in Miscrocopy, Histology and Embryology.

FOUNDATION.

The New York State Veterinary College was established by an act of the Legislature of March 21, 1894, supplemented by acts of May 10, 1895, and March 4, 1896. By these acts the sum of $150,000 was appropriated for buildings and equipment and provision made for maintenance. While a state institution, it is administered by the Trustees of Cornell University, and its students profit by courses of study in the University classes and laboratories, and by the University Library.

OBJECTS OF THE INSTITUTION.

The New York State Veterinary College was founded to raise the standard of veterinary instruction and investigation to the level of the most recent advances in biology and medicine. The number of farm animals in this State (9,450,000) and their value ($131,200,000) with a yearly product in milk alone of over 5,000,000,000 gallons, give some idea of the great interest at stake in the matter of live stock. For the United States a value in live stock of approximately $3,200-000,000 and a yearly sale in Chicago alone of over $250,000,000 worth, bespeak the need of all that learning and skill can do for the fostering of this great industry. Another consideration is that the normal permanent fertilization of the soil is dependent upon the live stock kept, and that where there is a deficiency of animals, the productiveness of the land is steadily exhausted; so that the health and improvement of animals and the fostering of animal industry, lie at the very foundation of our national wealth. Another, and no less potent argument, for the highest standard of veterinary education, is its influence upon the health of the human race. With a long list of communicable diseases, which are common to man and beast, and with the most fatal of all human maladies—tuberculosis—also the most prevalent affection in our farm herds in many districts, it is to the last degree important that measures for the extinction of such a contagion in our live stock should receive the best attention of the most highly trained experts.

To justify the liberality of the State in creating this seat of learning, it will be the aim of the College to thoroughly train a class of veterinarians for dealing with all diseases and defects that depreciate the value of our live stock, and with the causes which give rise to them; to recognize and suppress animal plagues, which rob the stock owner of his profits and cause widespread ruin; to protect our flocks and herds against pestilence of foreign origin, and to protect human health and life against diseases of animal origin. It will further aim, so far as it has the means and opportunity, at establishing a center of investigation, looking toward such improvements in the breeding, care and management of animals, as may enhance their market value and make returns more speedy and profitable; toward discoveries in therapeutics, and the immunization of animals and men from contagion; and toward the production of organic compounds to be employed in diagnosis, treatment and immunizing. So much has been recently discovered in these directions and present knowledge points so unmistakably to coming discovery, that to neglect this field at the present time would be decidedly reprehensible. Apart from discovery, the mere production of reliable articles of these organic products

which are coming into increasing demand by the State and the private practitioner, for prevention, diagnosis, and treatment, is an object not to be lightly set aside. The combination, in one institution, of educational facilities with scientific investigation, and the production of the organic extracts to be employed in modern medical methods, is a feature calculated to insure the best work in all departments, and the most exceptional advantages for the diligent student.

BUILDINGS.

The buildings of the State Veterinary College are seven in number, as follows :

The Main Building, 142 feet by 42 feet and three stories high, overlooks East Avenue and an intervening park 220 feet by 300 feet. The walls are of dull yellowish buff pressed brick, on a base of Gouverneur marble, window and door facings of Indiana limestone and terra cotta ornamentation. On the first floor are the museum and rooms of the director, clerk and professor of surgery. The second floor is devoted to the laboratories of physiology and pharmacology, a lecture room, reading room, library, and rooms for professors. The third floor is devoted to laboratories of pathology and bacteriology and the necessary subsidiary offices.

Connected with the main building and forming its east wing is a structure of 90 feet by 40, and one story high. This contains the laboratories and lecture room of anatomy, physiology, surgery, and medicine. Its floors are of impermeable cement, the walls lined by enamelled white brick, and the ceilings covered with sheet steel.

The second extension from the main building is the boiler and engine room, where power is generated for heating and ventilation.

The Surgical Operating Theatre is a separate building in the rear of the main building, and is furnished with room for instruments, water heater, etc. The lighting and equipment and the facilities for demonstration have received special attention.

The General Patients' Ward, 100 feet by 31, is furnished with box and other stalls, heating apparatus, baths, and all necessary appliances. The floor is of impermeable cement, and the ceilings of painted sheet steel. There is also a fodder room of 20 by 30 feet.

The Isolation Ward, 54 feet by 15, has its stalls absolutely separated from one another, and each opening by its own outer door. It has an impermeable floor, with walls of vitrified brick, and painted sheet steel ceilings.

The Mortuary Building has impermeable floor, wall of enamelled brick, and painted steel plate ceilings, and is fitted with every conven-

ience for conducting post-mortem examinations and preparing pathological specimens.

Another building of 51 feet by 20 is devoted to clinical uses.

These, with a cottage for the stud groom, complete the list of State buildings erected for the Veterinary College. The equipment has been made as complete as possible for both educational uses and original research.

VETERINARY COLLEGE YEAR.

The Veterinary College year for 1903-1904 begins Friday, September 25, 1903, and closes Thursday, June 23, 1904, being divided into two terms, with one intermission of twelve days at Christmas, and one of ten days in the spring. Students must present themselves for registration in the days fixed for that purpose.

ENTRANCE EXAMINATION.

[*All inquiries should be addressed to the Director of the State Veterinary College, Ithaca, N. Y.*]

Candidates for admission to the State Veterinary College, except those specified below, must pass satisfactory examinations in the following subjects:

1. English. 2. American History and Civil Government. 3. Plane Geometry. 4 Algebra, as much as is contained in the larger American and English text-books, and any three of the following:

5. Elementary French. 6. Elementary German. 7. Latin Grammar and Cæsar. 8. Vergil, Cicero, and Latin Composition. 9. Entrance Greek. 10. An amount of any group of the following making the equivalent of two years of high school work: Physics, Botany, Geology, Vertebrate Zoology, Invertebrate Zoology, Advanced French, Advanced German.

For details as to subjects and methods of admission, see pp. 33-53.

ADMISSION ON "REGENTS' VETERINARY STUDENTS CERTIFICATE."

Students are admitted without further examination on the Regents' *Veterinary Student Certificate.*

Full information may be obtained by addressing "Examination Department, University of the State of New York, Albany.

ADMISSION TO ADVANCED STANDING.

Admission to Advanced Standing.—Applicants for admission to advanced standing as members of the 2d or 3d year class must present

the necessary educational qualifications for admission to the first year class (see p. 277), and must pass a satisfactory examination in all the work gone over, or offer satisfactory certificates of the completion of such work in other schools whose entrance requirements and courses of study are equivalent to those of this college. No person will be admitted to any advanced class except at the beginning of the college year in September.

Applicants for advanced standing from other colleges must send or present letters of honorable dismissal, and furnish the Director, Dr. James Law, with a catolog containing the courses of instruction in the institution from which they come with a duly certified statement of the studies pursued and their proficiency therein, and also a statement of the entrance requirements with the rank gained. To avoid delay these credentials should be forwarded at an early date in order that the status of applicants may be determined and information furnished concerning the class to which they are likely to be admitted.

Graduates of veterinary colleges whose requirements for graduation are not equal to those of the New York State Veterinary College may be admitted provisionally upon such terms as the faculty may deem equitable in such case, regard being had to the applicant's previous course of study and attainments. In this connection, attention is called to the legal requirements of academic and professional education for the practice of Veterinary Medicine in the State of New York.

Admission to Advanced and Special Work.—The ample facilities for advanced and special work in the New York State Veterinary College, with allied departments in Cornell University, are open to graduates of this institution and of other colleges whose entrance requirements and undergraduate courses are equivalent.

COURSES IN VETERINARY MEDICINE.

With the view of raising the standard of veterinary instruction, it is intended to establish a graded course extending over four years, as in the various departments of Cornell University, and in the best veterinary schools abroad. As a step toward this a three year course has been laid out. This is a decided advance upon any Veterinary College in America, as the majority of even the three year schools give only five months' instruction per year, amounting to but fifteen months in all ; while with an academic year of nine months, the New York State Veterinary College furnishes a total instruction period of twenty-seven months. Add to this that the Veterinary Practice Statute, prescribing two years of successful high school work as the condition of entering on veterinary studies in 1896, and four years of high shcool work for

admission in 1905, adds more than an additional year to anything demanded on the part of American Veterinary schools, and insures that a student with a mind already trained to mental processes, will acquire much more in the same length of time than the untrained mind can possibly do.

THE COURSE LEADING TO THE DEGREE OF DOCTOR OF VETERINARY MEDICINE.

First Year.	No. Course.	1st Term.	2d Term.
Inorganic Chemistry	1	6	–
Microscopy, Histology and Embryology	1	–	8
Anatomy	10	8	5
Comparative Physiology Recitations	20	2	–
" " Lectures	21	–	3
" " Laboratory	22	–	2
Urine Analysis	23	–	1
Breeds and Breeding	11, 21	2	3
Second Year.	No. Course.	1st Term.	2d Term.
Anatomy	11	10	–
Comparative Physiology Recitations	20a	–	1
Pharmacology	25	2	–
Materia Medica and Pharmacy	26	2	–
General Surgery	30	1⅓	–
Surgical Exercises	31	⅔	–
Obstetrics and Zootechnics	36	–	4
Medical and Surgical Clinics	34–53	–	6
General Pathology	40	4	–
Bacteriology	43	–	6
Medicine	50	3	3
Sanitary Science or Parasitism	51 or 52	2	2
Third Year.	No. Course.	1st Term.	2d Term.
Diagnosis and Therapeutics	27	2	–
Materia Medica Recitations	28	–	2
Surgical Exercises	31	⅔	–
Surgery (Head, etc.)	32	2	–
Surgery (Limbs, etc.)	33	–	4
Jurisprudence	35	⅓	–
Medical and Surgical Clinics	34–53	12	12
Infectious Diseases and Meat Inspection	41	2	–
Medicine	50	3	3
Parasitism or Sanitary Science	52 or 51	2	2
Toxicology	67	–	1½
Research and Thesis	—	3	3

Microscopy, Histology and Embryology.

1. **Microscopy, Histology and Embryology.** Two lectures, M., W., at 8; two recitations, T., Th., at 8, two demonstrations and 12 hours of laboratory work weekly during the second half-year. Professor GAGE, Instructor THRO, and Assistants HILTON and ———.

Microscopy.—The aim is to give a working knowledge of the theory and use of the microscope and its accessories, methods of mounting microscopical specimens, etc. It serves as a basis for all the subsequent work of the department. The work begins February 1 and extends until February 13.

Histology.—This includes the study of the fine anatomy of the domestic animals and of man, and also the fundamental methods of histologic investigation and demonstration. The work begins February 15 and extends until April 23.

Embryology.—This deals with the elements and methods of embryology in the amphibia, in the domestic animals, especially the chick and the pig, and in man. It begins April 25 and extends until June 9.

4. **Research in Histology and Embryology.** Laboratory work 8 or more hours per week with Seminary throughout the year. This course is designed for those preparing theses for the bacalaureate or advanced degrees and for those wishing to undertake special investigations in histology and embryology. Professor GAGE and Instructor THRO.

Course 4 is open only to those who have taken course 1, or its equivalent in some other University. Drawing, (course 1, in Industrial Drawing and Art, or its eqivalent) and a reading knowledge of French and German are indispensable for the most successful work in this course.

Subjects for theses should be decided upon as early as possible so that material in suitable stages of development and physiologic activity may be prepared.

5. **Seminary.** At hours to be arranged. At the seminary, there will be presented reports of special methods and the results of advanced work. Professor GAGE.

Anatomy.

10. **Comparative Osteology.** Three hours. First term. Two lectures, T., Th., 9. From September to February there will be five periods of laboratory work. M., W., Th., F., P. M., S., A. M, From February to June there will be three periods, Th., F., P. M. ; S., A. M. Dr. HOPKINS and Demonstrators.

11. **Arthrology and Myology.** Five hours. First term. This course immediately follows course 10. Lectures and laboratory work the same as in course 10. Dr. HOPKINS and Demonstrators.

12. **Myology, Thoracic and Abdominal Viscera.** Five hours. Second term. Lectures, T., Th., 9. One weekly recitation. Laboratory work Th., F., P. M., S., A. M. Dr. HOPKINS and Demonstrators.

13. **The Vascular System.** Four hours. First term. Lecture F., 9. One weekly recitation. Laboratory work 20 hours, or more, per week. M., T., Th., F., P.M.; S., A.M. Dr. HOPKINS and Demonstrators.

14. **The Nervous System and Organs of Special Sense.** Six hours. First term, Lecture, recitation and laboratory work the same as in course 13. Dr. HOPKINS and Demonstrators.

15. **Research and Thesis or Special Regional Anatomy.** Seven and one-half hours weekly throughout the year. Dr. HOPKINS.

Comparative Physiology.

20. **Physiology Recitations.** Two hours weekly. First Term. T., W., 10. Dr. FISH.

20. a. **Physiology Recitations.** One hour weekly. Second term. S., 10. Dr. FISH.

21. **Physiology Lectures.** Three hours weekly. Second term. T., Th., F., 10. Dr. FISH.

22. **Physiological Laboratory.** A portion of the course is devoted to chemical physiology. Artificial digestive juices are tested upon the various kinds of foodstuffs by the students and careful notes kept of the various changes. Milk, Bile and Blood are also studied, including a spectroscopic examination of the latter. A larger proportion of the work is devoted to a study of the phenomena associated with the circulatory, respiratory, muscular and nervous systems. Students are to obtain and preserve graphic records of these phenomena, wherever possible. Certain experiments requiring special apparatus and care are performed by the instructors as demonstrations, students assisting when possible. Five hours each week. Second term. W., 2–5, Th., 11–1. Dr. FISH and Assistant JOHNSTON.

23. **Course in Urine Analysis.** Laboratory work devoted to the comparative study of urine. Examinations are made of human urine and that of the domestic animals, especially the horse. In addition to the chemical examination, some time will be devoted to a microscopic study of urinary deposits. So far as possible each student is expected to prepare and preserve a series of "typical slides." Three hours weekly. Second term. T., 11–1, F., 11–12. Dr. FISH and Assistant JOHNSTON.

24. **Research and Thesis.** Seven and one-half hours per week throughout the year. Dr. FISH.

Pharmacology.

25. **Materials of Medicine.** A study of the actions and uses of the various drugs and their preparation. A varied collection of the crude drugs and their official preparations is available and examined

at the lectures. The course is conducted in the form of lectures with short weekly examinations. First term. Th., F., 10. Dr. FISH.

26. **Materia Medica and Pharmacy Laboratory.** The work in this course consists of the study of a selected group of inorganic drugs; the study of certain crude organic drugs and their official preparations; in making pharmaceutical preparations, such as syrups, emulsions, spirits, liniments, tinctures, fluid extracts, extracts, ointments, pills, and others. Some exercises will also be devoted to the study of the direct physiological action of a few selected drugs upon some of the lower animals.

In their study the students are required to write concise notes of the physiological action of the drugs examined and to make tests of their incompatibility. In addition to this each student will have practical experience in writing and compounding prescriptions. The importance of a discriminating and accurate system for dispensing medicines is thoroughly emphasized. Five hours each week. First term. W., 2–5, Th., 11–1. Dr. FISH and Assistant JOHNSTON.

27. **Clinical Diagnosis and Therapeutics.** Two recitations per week in Diagnosis for the first half of the first term. S., M., 10. Dr. FISH. The recitations will be supplemented by practical experience in the medical clinics.

Therapeutics. The treatment and cure of disease. This subject, standing along with pathology, unites physiology, anatomy, chemistry and botany with medicine and surgery. It is therefore necessary to have some knowledge of these branches in order to obtain a full appreciation of the means employed in the restoration of health.

This course must be preceded by the first and second years course in physiology and pharmacology, or their equivalents. Two lectures each week. Second half of the first term. S. and M., 10. Dr. FISH.

28. **Recitations in Materia Medica.** Second term. M., W., 10. Dr. FISH.

29. **Research and Thesis.** Seven and one-half hours weekly throughout the year. Dr. FISH.

Surgery.

30. **General Surgery.** Two lectures per week, September 25, to December 23, W., 9, F., 11. Professor W. L. WILLIAMS.

For admission to this course, students must have passed courses 10, 11 and 12 in Anatomy, course 21 in Physiology, and course 1 in Histology and Embryology.

31. **Surgical Exercises.** Three hours per week of laboratory

work from September 25 to December 23. W (2d year) 10 to 1., F. (3rd year), 9 to 12. Professor W. L. WILLIAMS and Dr. FEHR.

Requirements for admission as in course 30.

This course is given each year, and is pursued by second and third year students, that is, each student takes the course twice.

32. **Surgery of the Head, Neck and Chest.** Two lectures or recitations per week. First term, M., T., 11. Professor W. L. WILLIAMS.

For admission students must have passed courses 30 and 31.

33. **Surgery of the Limbs, Skin, Abdominal Organs, Genito-Urinary System and Castration.** Four lectures or recitations weekly. Second term, M., W., Th., F., 11. Professor W. L. WILLIAMS.

The requirements for admission is the same as for course 32. This course will be given to second and third year students in 1903 and 1904. See course 36 with which it alternates.

34. **Surgical Clinics.** Twelve hours or more per week throughout the year. M., T., W., Th., F., S., 2–4 P. M. Professor W. L. WILLIAMS and Dr. FEHR.

For second year students attendance is required during the second term, for third year students attendance is required throughout the year.

For admission students must have passed courses 30 and 31. The time given above includes the medical clinics, conducted by Professor LAW. See course 53, under medicine.

35. **Jurisprudence.** Two lectures per week during the month of January. W., Th., 11. Professor W. L. WILLIAMS.

36. **Obstetrics and Zootechnics.** Four lectures or recitations per week, second term. M., W., Th., F., 11. Professor W. L. WILLIAMS.

For admission students must have passed courses 30 and 31.

Thus course alternates with course 33. It will be given to second and third year students in 1904–5.

37. **Research and Thesis.** Seven and one-half hours weekly throughout the year. Professor W. L. WILLIAMS and Dr. FEHR.

Comparative Pathology, Bacteriology and Meat Inspection.

40. **General Pathology.** First term. This course is open to students who have had Normal Histology and at least one year's work in Anatomy and Physiology. Two recitations and six hours laboratory work each week. Recitations M. and T. 9. Lab. M. and T. 10–1. Professor MOORE, Instructor BURNETT.

41. **Pathology of Infectious Diseases and Meat Inspection.** First term. Open to students who have taken Course 40, and have taken or are taking Course 43. Two hours. Lectures W and Th. 9. Professor MOORE.

42. **Experimental Pathology.** This course is optional. It consists in laboratory work designed especially for aiding the students in the diagnosis of infectious diseases. It is open to students who have taken courses 40 and 43, and have taken or are taking Course 41. Professor MOORE and Instructor BURNETT.

43. **Bacteriology.** Second term. This course is open to students, who have had, or are taking Course 1 in Microscopy. Two lectures and ten hours laboratory work each week. Lectures M. and T. 9. Lab. work T., W., F. and S. Professor MOORE, Assistants WHITE and KING.

44. **Research in Bacteriology.** Laboratory work throughout the year. Professor MOORE and Assistant WHITE.

The course is designed for those preparing theses for the baccalaureate or advanced degrees and for those wishing to undertake original investigation in Bacteriology. This course is open to students who have taken Course 43, or its equivalent in some other university. Elementary Chemistry and a reading knowledge of French and German are indispensable for successful work in this course.

45. **Research in Pathology.** Laboratory work throughout the year. This course is open to students who have taken Course 40 and have taken or are taking Course 43, or the equivalent in some other university. Professor MOORE and Instructor BURNETT.

46. **Clinical Examination of the Blood.** Second term. Lectures and Laboratory work. Two hours. Open to students who have taken Course 40. Instructor BURNETT.

Veterinary Medicine; Zymotic Diseases, Veterinary Sanitary Science; Parasites and Parasitism.

50. **Veterinary Medicine, Principles and Practice.** Three lectures or recitations per week throughout two years. M., W., F., 8. Professor LAW.

51. **Contagious Diseases: Veterinary Sanitary Science.** Two lectures or recitations per week throughout the year. T., Th., 8. Professor LAW.

[This course will be given to second and third year students in 1904-1905. See course 52.]

52. **Parasites and Parasitisms.** Two lectures or recitations per week throughout the year. T., Th., 8. Professor LAW.

Course 52 alternates with 51. It will be given to second and third year students in 1903–1904.

53. **Clinical Veterinary Medicine.** Twelve hours or more per week throughout the year. M., T., W., Th., F., S., 2–4 P.M. Professors LAW and FISH.

For second year students attendance is required during the second term, for third year students attendance is required throughout the year.

The clinical work in Medicine and in Surgery is combined. For the amount of time required see under Surgery, Course 34.

54. **Research and Thesis.** Seven and one-half hours weekly throughout the year (see the College Seminary, p. 34). Professor LAW.

COLLEGE OF AGRICULTURE.

THE AGRICULTURAL COLLEGE AND STATION COUNCIL.

JACOB GOULD SCHURMAN, President of the University.
FRANKLIN C. CORNELL, Trustee of the University.
LIBERTY H. BAILEY, Director of the College.
EMMONS L. WILLIAMS, Treasurer of the University.
JOHN H. COMSTOCK, Professor of Entomology.

FACULTY.

JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President.
LIBERTY HYDE BAILEY, M.S., Director of the College ot Agriculture, Dean of the Faculty and Professor of Rural Economy.
GEORGE CHAPMAN CALDWELL, B.S., Ph.D., Professor of Chemistry, Emeritus, and Lecturer on Chemistry.
ISAAC PHILLIPS ROBERTS, M.Agr., Professor of Agriculture, Emeritus.
JOHN HENRY COMSTOCK, B.S., Professor of Entomology and General Invertebrate Zoology.
HENRY HIRAM WING, M.S., Professor of Animal Industry.
JOHN CRAIG, M.S., Professor of Horticulture.
RAYMOND ALLEN PEARSON, M.S. in Agr., Professor of Dairying.
THOMAS FORSYTH HUNT, M.S., D.Agr., Professor of Agronomy and Manager of the University Farms.
MARK VERNON SLINGERLAND, B S., M.Agr., Assistant Professor of Economic Entomology.
GEORGE WALTER CAVANAUGH, B.S., Assistant Professor of Chemistry in its Relations with Agriculture.
JAY ALLAN BONSTEEL, Ph.D., Professor of Soil Investigation (detailed from Bureau of Soils, United States Department of Agriculture).
GEORGE NIEMAN LAUMAN, B.S.A., Instructor in Rural Economy and Secretary to the Faculty of the College of Agriculture.
ALEXANDER DYER McGILLIVRAY, Ph.B., Instructor in Entomology.
WILLIAM ALBERT RILEY, Ph.D,, Instructor in Entomology.

SAMUEL FRASER, Instructor in Agronomy and Superintendent of the Farms.
ROBERT S. NORTHROP, B.S., Instructor in Horticulture.

Other Officers of Instruction and Administration.

HUGH CHARLES TROY, B.S., M.Agr., Assistant in Dairy Laboratory.
JOHN WALTON SPENCER, Supervisor in Extension Department.
JOHN LEMUEL STONE, B.Agr., in Charge of Extension Experiments.
WALTER W. HALL, Assistant in Cheese-Making.
WEBSTER EVERETT GRIFFITH, Assistant in Butter-Making.
ANNA BOTSFORD COMSTOCK, B.S., Lecturer in Nature-Study.
ALICE GERTRUDE McCLOSKEY, Assistant in Extension Department.
MARTHA VAN RENSSELAER, Supervisor Farmers' Wives' Reading Course.
JAMES M. VAN HOOK, A.M., Assistant in Plant Pathology in the Extension Department.
HERBERT HICE WHETZEL, A.B., Assistant in Plant Pathology in the Extension Department.
JOHN WASHINGTON GILMORE, B.S.A., Assistant Agronomist.
JAMES ADRIAN BIZZELL, Ph.D., Assistant Chemist to the Experiment Station.
STEVENSON WHITCOMB FLETCHER, Ph.D., Supervisor of Extension Teaching in Agriculture.
JOHN MAIN TRUEMAN, B.S.A., Assistant in Animal Industry and Dairying.
——— In Charge of Poultry Investigations.
GEORGE WALTER TAILBY, Farm Foreman.
CHARLES EDWARD HUNN, Gardener.

Other officers of instruction in the several faculties of the University give instruction in the fundamental branches preparatory to the agricultural electives.

The College of Agriculture is founded on the Land Grant Act of 1862, whereby Congress appropriated the proceeds of the sales of certain lands to the maintenance of a college in each State to give instruction in agriculture and the mechanic arts. This grant marks an epoch in the history of education, because it provides for a system of education that shall have direct and definite relations with the daily work of persons who must earn their own living in the arts and industries. The College of Agriculture, therefore, seeks to interest the

farm boy and the farm girl in the very things with which they live day by day,—the soil, the weather, the plant, the animal, the farm home, the school, and all the customary rural affairs. It seeks both to give them power to make the most of the farm, and to inspire contentment with the daily life. The aim of the College, in other words, is to elevate the ideals of country living. This it attempts to do in three general ways: by giving instruction to those who come to the University for two years or more; by giving instruction by means of correspondence and other extension methods to those persons, young or old, who cannot come to the University or who can come but for a very limited time; by experimenting for the discovery of new truth in agricultural fields.

The College is provided with land, stock, orchards, gardens, libraries, and other equipments. The farm comprises nearly 275 acres. The buildings comprise a dairy, two barns, poultry quarters and forcing-houses. There are herds of cattle, sheep and swine, flocks of poultry, various farm horses. In the horticultural department is a good collection of fruit trees in orchards, and many kinds of specimen plants. Farm machinery and implements are also represented. The library facilities are ample, comprising a very large collection of rural books in the general university library, a practically complete series of Experimental Station publications in the Director's office, and small reference libraries in the Dairy Building and in the rooms of the Horticulturists' Lazy-Club.

Students entering the College of Agriculture are on an equal footing with students in any other college or department. They become a part of the general student body. They are under the special supervision of the Director of the College. Two special societies or clubs are organized and maintained by the students in the College of Agriculture—the Agricultural Association meeting every Tuesday night, and the Horticulturists' Lazy-Club, meeting every Monday night. In addition to these, the Winter-course students maintain an organization of their own. Recently there has been organized an "Agricultural Experimenters' League," to which all students are eligible, and which is designed for the furthering of experimental investigation and of arousing closer friendship amongst the farmers of the State.

Tuition is free in the College of Agriculture.

Some of the details of the permanent equipment are as follows:

1. **A four-story barn** provides for housing the animals, machinery, tools, hay, grain and manures. The stationary thresher, feed-cutter, chaffer and other machinery are driven by steam power. The barn also furnishes many facilities for carrying on investigations in feeding and rearing all classes of domestic animals. The barn is also furnished with a piggery aud tool house. Not far from the main barn

have been constructed five buildings, with suitable yards and appliances for incubating eggs and rearing domestic fowls, and also a comfortable heated building in which the judging of stock is done. There are also buildings on the remoter parts of the farm.

The agricultural rooms are provided with a collection of grains and grasses, implements of horse and hand culture, and various appliances for carrying on instruction and conducting investigation.

2. **The Dairy Building,** a two-story stone structure 45x90 feet, was built from an appropriation of $50,000 by the Legislature of 1893. It provides lecture rooms, laboratories, and offices, besides two large rooms for butter and cheese making, both of which are equipped with modern machinery and appliances. Automatic electrical apparatus for controlling the temperature in cheese-curing rooms, refrigerator room, lockers and bath rooms are also provided. The whole building is thoroughly heated and ventilated, and power is furnished by a sixty horse-power boiler and a twenty-five horse-power Westinghouse engine.

3. **The Agricultural Library** contains files of bulletins and reports from the experiment stations of the United States and Canada; it has also a file of the publications of the U. S. Department of Agriculture. The leading works on agriculture are on the shelves. The exchange list includes the principal agricultural periodicals published in this country.

4. **The Horticultural Department Equipment** comprises about ten acres of land variously planted, forcing-houses and a museum.

The gardens and orchards contain the fruits which thrive in the north in considerable variety, and in sufficient quantity to illustrate methods of cultivation. Nursery grounds are also attached, in which are growing many species of economic plants from various parts of the world. The fruits comprise something more than sixty varieties of grapes, over fifty of apples, fifty of plums, and other fruits in proportion. A dwarf pear orchard of 300 trees, and other representative orchards, comprise the remainder of the field space, excepting such as is set aside for vegetable gardening and floriculture.

The forcing-houses are five in number and cover nearly 6,000 square feet of ground. These, in connection with store-rooms and pits, afford excellent opportunities for nursery practice, for the study of the forcing of vegetables and for some kinds of floriculture. A laboratory with space for forty students, is used for instruction in propagation of plants, pollination, and the commoner green-house operations. There is also a mushroom house 14x80 feet and a reading-room for horticultural students.

The museum comprises two main features—the garden herbarium

and the collection of photographs. The herbarium, containing at present over 12,000 sheets, is designed to comprise all varieties of all cultivated species of plants, and it is an indispensable aid to the study of garden botany and the variation of plants. The collection of photographs comprises over 5,000 negatives with prints representing fruits, flowers, vegetables, illustrative landscapes, glass houses, and horticultural operations. A collection of machinery and devices for the spraying of plants is at the disposal of students. Charts and specimens in some variety complete the museum and collection.

The library has files of many of the important horticultural and botanical periodicals and a good collection of general horticultural literature.

5. **The Entomological Cabinet** contains, in addition to many exotic insects, specimens of a large portion of the more common species of the United States. These have been determined by specialists, and are accessible for comparison. The collection includes many sets of specimens illustrative of the metamorphoses and habits of insects. The laboratory is also supplied with a large collection of duplicates for the use of students and is equipped with microscopes and other apparatus necessary for practical work in entomology.

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.

6. **The Chemical Department** is housed in a three-story brick building 126 feet in length and of an average width of 60 feet. The Department is liberally equipped with varied appliances necessary to give instruction to several hundred students in General and Agricultural Chemistry.

The regular instruction in the College of Agriculture is comprised in a four-year course leading to the degree of Bachelor of the Science of Agriculture. Aside from this there are special two-year courses and short winter-courses, the latter not leading to credits in the University. Students may also pursue agricultural subjects in the Graduate Department of the University, leading to the degrees M.S.A. and Ph.D.

Aside from the regular instructional work, outlined in these pages, the College of Agriculture also comprises an Experiment Station maintained by funds derived from the federal government and an Extension Department maintained by the State. The Extension Department comprises the nature-study work, farmers' reading courses, winter-courses, coöperative experiments about the State, and other enterprises. A special circular gives details of this organization.

I. THE FOUR-YEAR COURSE.

The work in the four-year course is prescribed and elective. The prescribed or required work is as follows :

Required of Fundamental Subjects.

Freshman year	No. Course	Hours First Term	Hours Second Term
English	1	3	3
Drawing	D 1	2	2
Botany	1, 2	3	3
Geology	2	3	3
Invertebrate Zoölogy	1	2	–
Entomology	3	–	2
Vertebrate Zoölogy	2	1	1

In addition to the above the required Drill and Gymnasium must be taken.

Sophomore year	No. Course	Hours First Term	Hours Second Term
English	2	3	3
Physics	2 a	2	2
Chemistry	1, 81	6	6
Physiology of Domestic Animals	20	–	3
Soils	1	3	–

Junior year	No. Course	Hours First Term	Hours Second Term
Political Economy	51	3	3
Agronomy	11, 12	4	4

The Director of the College of Agriculture will meet the students every other Monday at 4:30 P. M. beginning Sept. 28, 1903.

Agricultural Electives.

The opportunity to take the elective work falls chiefly in the Junior and Senior years. The required work in the Freshman and Sophomore years, however, comprises only 14 hours, whereas the normal amount of work for each term is 15 hours ; this allows opportunity for a small number of electives in these years. All students who have not been reared on a farm are requested to take the Farm Practice work (Course No. 14) in the Freshman and Sophomore years. At least one-half the entire elective work of the Junior and Senior years must be chosen from subjects given in the College of Agriculture, as specified in the list below :

(1) THESIS, counting a credit of two hours in each term of the Senior year, to be taken by arrangement, under a professor in the College of Agriculture with whom the student has pursued advanced work. The subject of the thesis must receive the written approval of the Director of the College of Agriculture and must thereafter be filed

with the Registrar of the University not later than the second Friday after the Christmas recess. An accepted thesis becomes the property of the University. It must be bound in the standard size, 8 x 10½ inches.

(2) CHEMISTRY AND SOIL GROUP.

Chemistry 82, 2 hours.
" 83, 3 hours.
" 84, 3 hours.
" 85, 2 hours.
Soils 2, 2 hours.
" 3, 1 hour.

(3) PLANT PRODUCTION GROUP.

Agronomy, 13, 4 hours.
" 14, 1 hour.
Horticulture, 20, 3 hours.
" 21, 1 hour.
" 22, 1 hour.
" 23, 3 hours.
" 24, 2 hours.
" 25, 2 hours.
" 26, 1 hour.
" 27, 1 or 2 hours.
" 28, 2 hours.
" 29, 1 hour.
" 30, 1, – hours.
Economic entomology, 8, 2 hours.
" " 9, 1 hour.
(Also Entomology, 4, 5, 6, 7 and summer.)

(4) ANIMAL INDUSTRY GROUP.

Animal Husbandry, 31, 4 hours.
" " 32, 1–3 hours.
" " 33, 2–3 hours.
" " 34, 4 hours.
" " 35, 2 hours.
Dairy Industry, 41, 3 hours.
" " 42, 2 hours.
" " 43, 2 hours.
" " 44, 1–3 hours.
Certain courses in State Veterinary College.

(5) MECHANICS AND ENGINEERING GROUP.

Farm mechanics and rural engineering, 51, 3 hours.
Farm buildings, 52, 1 hour.

(6) FARM HOME GROUP.

Homestead, 61, 2 hours.
Domestic Science, 62, 2 hours.
Home Life, 63, 2 hours.

(7) RURAL ECONOMY GROUP.

Professor Roberts, 71, 3 hours.
Evolution 72, 3 hours.
Meteorology 73, 3 hours.
Accounting 74, 1 hour.
Economics 75, 2 hours.
" 76, 1 hour.
History 77, 2 hours.
German Reading 78, 2 hours.

(8) OUTDOOR ART GROUP.

This group is intended to afford a full course for the Junior and Senior years. It is to comprise special instruction in landscape art, aiming to train students for the profession of landscape gardening or landscape architecture in its broadest sense. The course will be reinforced by the necessary corollary subjects, as soil studies, horticulture, tree-growing, surveying, topography and charting, road-making, architectural styles, applications of sanitary engineering. Full announcement of the course will be made later, but students will be accepted in the year 1903–1904.

Admission to four-year course.

Candidates for admission to the regular or four-year course 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. Students are admitted on examination, or on presenting credentials of the Regents of the University of the State of New York, or on acceptable school certificates.

Candidates for admission must file their credentials and obtain permits for examination at the Registrar's office. The results of examinations may be ascertained from the Registrar.

The following subjects are required for admission : English, History [the student must offer one of the four following divisions in history (a) American, including Civil Government, (b) English, (c) Ancient, to 814 A.D., (d) Mediæval and Modern European, from 814 A.D.]. Plane Geometry, Elementary Algebra, and either A, B, or C, as below.

A. Greek and Latin.
B. Latin and either Advanced French or Advanced German.

C. Advanced French, Advanced German, and Advanced Mathematics.

An equivalent of any one of the three groups, A, B, and C, may be offered, provided five counts are offered. Latin counts 3, Greek, French and German, 2 each. Advanced Mathematics (Solid Geometry, Advanced Algebra, Plane and Spherical Trigonometry) counts 1, provided, however, that the student before graduation must have passed in one modern language if it was not offered for entrance.

An alternate requirement instead of Advanced Mathematics may be offered in Physics, Chemistry, Botany, Geology or Zoology.

For other details as to subjects and methods of admission, see pages 33–54.

For admission to the Freshman class, communication should be addressed to the Registrar. *See pages 33–54.*

For admission to advanced standing from other colleges and universities, all communications should be addressed to the Director of the College of Agriculture. *See pages 53–54.*

For admission to graduate work and candidacy for advanced degrees, communications should be addressed to the Dean of the University Faculty. *See page 70.*

II. SPECIAL COURSES (TWO YEARS).

These courses are designed to meet the needs of those who desire to secure some training in agricultural or rural subjects but who cannot take a full four-year course. The work leads to regular credit in the University, thereby applying towards graduation if the student later enters the four-year course. On the completion of the special two-year course, a certificate is given to those who desire it. Special students are admitted to classes upon the recommendation of the Director, without examination. They must be at least 18 years of age upon making application. The special courses are two.

1. Agricultural Special.

The student in this course takes such regular subjects as may be arranged with the various professors. At least two-thirds of all the work must be chosen from the agricultural electives.

2. Nature Study Special.

This course is now opened for teachers who desire to prepare themselves in nature-study and country-life subjects. It is open to all actual teachers, and to such students in any college or department of the University as signify their intention to teach in the schools. Ad-

mission to the course is made upon the recommendation of the Director of the College of Agriculture.

The course comprises two categories of work—subject-matter studies, and pedagogical practice. The subject-matter is to be secured in the regular classes of the University, under the direction of the Director of the College of Agriculture, in such branches as plant-subjects, insect-subjects, bird subjects, physiography, agronomy, particular attention being given to the needs of each student. The pedagogical practice is to be had with children in regular nature-study classes and clubs in the public schools of Ithaca, and in school-garden work with children. The children's classes will be in actual or advisory charge of teachers in the College of Agriculture. The vicinity of Ithaca is rich and varied in its fauna, flora and physical features. Fuller announcements will be made later.

III. DESCRIPTION OF THE AGRICULTURAL SUBJECTS.

A. Chemistry and Soils.

(*Morse Hall.*)

81. **Agricultural Chemistry.** General course. Second half-year. Six hours. Three lectures, M., W., F., 11. *Ch. L. R. 3.* Two laboratory periods and one recitation. Assistant Professor CAVANAUGH.

This course treats of the fertility of the land, and deals with such subjects as the composition of plants, the sources of their food, the chemical and physical properties of soils, and the composition and behavior of fertilizers and manures.

This course is open only to those who have had course 1 in chemistry.

[82. **Agricultural Chemistry.** Advanced course. Lectures, two hours. First half-year. Assistant Professor CAVANAUGH.]

83. **Agricultural Analysis.** Laboratory practice. Three hours. Foods and feeding stuffs, sugar beets and sugar house products, and dairy products. Assistant Professor CAVANAUGH.

This course is open only to those who have had courses 1 and 6 in chemistry.

84. **Agricultural Analysis.** Laboratory practice. Three hours. Second half-year, Soils, fertilizers, insecticides and fungicides. Assistant Professor CAVANAUGH.

This course is open only to those who have had courses 1 and 6 in chemistry.

85. **Dairy Chemistry.** First half-year. Lectures. Two hours. At hours to be arranged. Laboratory practice in Dairy Chemistry is given in course 83. Assistant Professor CAVANAUGH.

1. **Agricultural Soils.** Lecture, recitation and laboratory work, one university hour, each. The course will discuss the nature, origin and classification of soils with the principles of field mapping. The laboratory work will include field excursions for the determination of soil types, and the collection of soil samples for mechanical analysis in the laboratory. First half-year. Three hours. Morse Hall. T., Th., S., 10. Professor BONSTEEL.

2. **Soils of the United States.** A lecture course on the soils of the United States with special reference to the adaptation of crop to soil, and a discussion of the physical properties of tobacco, truck, fruit, beet soils, etc. Second half-year. Two hours. T., Th , 10. Professor BONSTEEL.

3. **Soil Mapping.** A field course, including the preparation by each student of a map of a selected field or area on the University farm. Must be preceded by course 1 (in soils). Second half year. One hour. Professor BONSTEEL.

B. Agronomy.

11. **Field Crops.** Lectures and recitations on the history, production, cultivation and marketing of farm crops. Practice with growing and dried specimens, including cereals, grasses, clovers and other forage crops. First half-year. Three lectures per week ; practice one afternoon per week. Four hours. Required of Juniors. *Morrill 19 and 20.* M., W., F., 9. Th., 2–4:30. Professor HUNT.

This course must be preceded or accompanied by Soils Course 1.

12. **Farm Management.** Lectures and recitations on present agricultural methods in various countries : cost and relative profit of various farm operations and systems. Second half-year. Three lecures per week ; practice one afternoon per week. Four hours. Required of Juniors. *Morrill 19 and 20.* M., W., F., 9. Th., 2–4:30. Professor HUNT.

13. **Advanced Agronomy.** Lectures and recitations on the methods and character of Experiment Station work and the results in plant-breeding as relates to field crops. Seminars on the best methods of crop production, including a detailed study of experimental results with one or more field crops. Second half-year. One lecture per week ; practice three afternoons per week. Four hours. *Morrill 20.* F., 11. M., W., F., 2–4:30. Professor HUNT.

This course must be preceded by Course 11.

14. **Farm Practice.** An elective course throughout the Freshman and Sophomore years especially designed for students who are not familiar with ordinary farm methods and practices. One afternoon per week by appointment. One hour. Mr. FRASER.

C. Horticulture.

Courses 1 and 2 in Botany are prerequisites to all courses in Horticulture, except Course 27.

20. **Nursery and Orchard Practice.** Deals with the multiplication and subsequent care of plants, grafting, budding, making cuttings, pollination, pruning, spraying, garden tools, etc. Two hours with laboratory. First half-year. Two hours. *Morrill 20.* T., Th., 11, W., or F., 2–4:30. Professor CRAIG and Mr. NORTHROP.

The classes in Nursery and Orchard Practice and Pomology (20 and 23) participate in such excursions as may be arranged from time to time through the fruit-growing regions of the state.

21. **Olericulture.** Lectures and text book on the cultivation of vegetables. Second half-year. One hour. *Morrill 20.* T., Th., 11, for half of term. Mr. NORTHROP

22. **The Literature of Horticulture and Landscape Gardening.** An examination of the writings of European and American authors, with special reference to the evolution of horticultural methods. Second half-year. One hour. *Morrill 20.* T., Th., 11, for half of term. Professor CRAIG.

23. **Pomology.** Lectures, text-book and other class exercises on the cultivation of fruits. Three hours. Second half-year. *Morrill 20.* M., W., F., 11–12. Course 20 a prerequisite. Professor CRAIG.

24. **Pomology.** Advanced course in classification and systematic study of fruits. Two hours. First half-year. Hours by arrangement.

25. **Greenhouse Construction and Management.** Lectures and text-book, with afternoon laboratory at forcing-houses. First half-year. Two hours. *Morrill 20*, W., 8, M., or T., 2–4:30. Professor CRAIG and Mr. NORTHROP.

26. **Plant-Breeding,** with special reference to the improvement of orchard fruits. Second half-year. One hour. *Morrill 20*, S., 11. Professor CRAIG.

27. **Handicraft.** Practical work in the forcing-houses and gardens, with familiar talks. One or two hours by appointment. Throughout the year. Mr. NORTHROP and Mr. HUNN.

28. **German or French Horticultural Reading.** Open to students who have had German or French 1 and 2 or the equivalent. Two hours by appointment. Mr. LAUMAN.

29. **Seminary Work** for advanced students. One hour. By appointment. Professor CRAIG and Mr. NORTHROP.

30. **Investigation** incident to previous courses. For graduates and advanced students. Hours by appointment. Professor CRAIG.

D. Animal Husbandry.

31. **Animal Husbandry.** The principles of breeding, including the history, development, creation and improvement of the various races and breeds of farm animals; the principles of feeding, care, selection and management of dairy and beef cattle, horses, sheep and swine. Lectures, M., W., F., 12. Practice one hour by appointment. Four hours through the year. *Dairy Building and Judging Pavilion.* Professor WING.

32. **Advanced and Seminary Work in Animal Technology.** Lectures, conferences and reports. Tuesday 4:30, one to three hours. Must be preceded by Course 31. The work will be largely individual, and will afford opportunity for intimate and close study of the various breeds of improved stock. *Dairy Building.* Professor WING.

33. **Practice in Feeding and Stable Management.** The stuent will be put in charge of a certain number of animals and will be required to prepare the food and keep records of consumption and production. Must be preceded or accompanied by Course 31. The ability to milk well is required. Daily, 7:30–9. Two or three hours. *Barns and Stables.* Professor WING.

34. **Animal Mechanics and Exterior.** Lectures and recitations on animal mechanics, proportions and the relation of the latter to specific uses. Practice in measuring animals and testing the value of given measurements for given purposes. First half-year. Three lectures or recitations per week. Practice one afternoon per week. Four hours. *Judging Pavilion.* Professor HUNT.

35. **Poultry.** Origin, history and classification of the domestic breeds of poultry; breeding, feeding and management; construction of buildings, incubators and brooders. Lectures, T., Th., 12. Practice in running incubators and brooders and in judging and selecting fowls, by appointment. Two hours. First half-year. *Dairy Building.* Professor WING and Mr. ——.

E. Dairy Industry.

41. **Milk and Butter.** Lectures, text book and practice. First half-year before Christmas. The character of milk, methods of handling for different commercial purposes, pasteurization, tests for purity, butter-making and marketing. T., Th., 10. *Dairy Building.* Professor PEARSON and Mr. GRIFFITH.

42. **Cheese.** Lectures, text book and practice. Second half-year after Easter. Cheddar cheese, its manufacture and marketing, W., 10. Practice by appointment. Two hours. *Dairy Building.* Professor PEARSON and Mr. HALL.

43. **Milk Inspection.** Lectures and practice. Last half year,

after Easter. The production and control of market milk with special reference to its improvement. T., 10. Practice by appointment. Open only to those who have had Course 41. Two hours. *Dairy Building*. Professor PEARSON.

44. **Laboratory and seminary work on special problems.** Throughout the year. By appointment, one to three hours. Open only to those who have had Course 1. Professor PEARSON.

F. Farm Mechanics and Engineering.

51. **Farm Mechanics and Engineering.** Lectures and recitations on selecting, planning and equipping farms: building roads; farm vehicles and machinery; power, water and drainage. Practice in leveling and laying drains; dynamometer and other tests of wagons and farm implements. Second half-year. Two lectures per week: practice one afternoon per week. Three hours. *Horticultural Barn.* M., W., 11–12, T., 2–4:30. Professor HUNT and Mr. FRASER. Special instruction will be given on rural roads, and it is expected that a piece of actual road will be constructed each year.

52. **Farm Buildings.** Study and designing of farm buildings. Open to seniors and to others by special permission. M., 2–4:30. One hour throughout the year. Forcing-houses. Limited to fifteen students. Mr. LAUMAN.

G. The Farm Home.

61. **The Homestead.** The externals of a farm home—layout, buildings, landscape gardening, ornamenting, lawn-making, the home garden, water supplies, rural architecture, sanitation. First half-year. Two hours. *Morrill 20.* T., Th., 10. Professors BAILEY, CRAIG, MARTIN, OGDEN and others.

62. **Woman's Work and Domestic Science.** First half-year. Two hours. *Morrill 20.* W., F., 10. Miss VAN RENSSELAER.

63. **The Home Life and Home Literature.** Second half-year. Two hours. *Morrill 20.* W., F., 10. Mrs. COMSTOCK.

H. Rural Economy.

71. [**Lectures in General Agriculture.** First half-year. Three hours. Professor ROBERTS. Not given in 1903–1904.]

72. [**Evolution and the Principles of Breeding.** Three hours. Professor BAILEY. Not given in 1903–1904.]

73. **Agricultural Meteorology and Climatology.** Second half-year. Three hours. Lectures and laboratory. Mr. R. G. ALLEN.

74. **Farm Accounting.** Practice and occasional lectures. Second half-year. One hour. F., 9. *Morrill 19.* Mr. LAUMAN.

75. **Economics of Agriculture.** Lectures, discussions and reports. Designed to introduce the student to the methods and results of the application of agricultural and economic principles to agricultural practice. Open to Seniors and graduates. Second half-year. T., Th., 9. Two hours. *Morrill.* Mr. LAUMAN.

76. [**Economics of Agriculture.** Seminary. The subject for 1904–05 will be a study of coöperation in agriculture. Open to those who have had Course 75. Second half-year. One hour. Mr. LAUMAN. Not given in 1903–1904.]

77. **History of Agriculture.** Lectures and reports. Open to Seniors and graduates, and to others by special permission. First half-year. T., Th., 9. Two hours. *Morrill.* Mr. LAUMAN.

78. **German Agricultural Reading.** Open to students who have taken or are taking other courses in agriculture and who have a knowledge of German equivalent to courses 1 and 2 in that language, M., W., 9. Two hours. *Morrill.* Mr. LAUMAN.

I. Entomology.

8. **Economic Entomology.** Lectures and field work. Discussion of the more important insect pests and of the methods of combating them. At opportune times, the class will be taken into the field in sections to observe insect pests at work. Second half-year. Two hours. T., Th., 10. *White 12.* Assistant Professor SLINGERLAND.

9. **Economic Entomology.** Lectures, seminary and field work. Economic problems connected with applied entomology discussed, reported upon, and field observations made. Experimental methods in breeding, photographing, investigating and combating insects discussed and studied. Second half-year. One hour. One afternoon a week by appointment. *Insectary.* Assistant Professor SLINGERLAND.

Course 9 is designed for advanced students who desire to fit themselves for Experiment Station work. The course is open only to students who have taken Courses 1, 3 and 8 in Invertebrate Zoology and Entomology.

Entomology, Courses 4, 5, 6, 7, and the Summer term, are also allowed as agricultural electives.

J. Winter-Courses.

Two Winter-Courses open Jan. 4, 1904. One is the "General Winter-Course," and one the "Dairy-Course." They continue eleven weeks. These are a part of the Extension Department work, maintained by the State. A special circular gives full information concerning them.

COLLEGE OF ARCHITECTURE.

FACULTY.

JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President.
CHARLES BABCOCK, A.M., Professor of Architecture, Emeritus.
JOHN V. VAN PELT, A.D.G., Professor of Architecture in charge of the College of Architecture.
CLARENCE A. MARTIN, Assistant Professor of Architecture.
OLAF M. BRAUNER, Assistant Professor of Drawing and Painting.
WALTER DABNEY BLAIR, A.M., B.Arch., A.D.G., Assistant Professor of Architecture.
ALBERT C. PHELPS, B.S., M.Arch., Assistant Professor of Architecture.
R. HAROLD SHREVE, B.Arch., Instructor in Architecture.

Non-Resident Lecturers, 1902-1903.

ALBERT KELSEY, Architect, Phila., Pa., The City of the Future.
GEORGE WALTER DAWSON, Painter, Phila., Pa., Italian Gardens.

Fellows 1903-1904.

R. IRVING DODGE, B.Arch., Traveling Fellow.
J. ANDRE SMITH, B.Arch., Resident Fellow.

THE COURSES IN ARCHITECTURE.

A good course in Architecture may be divided into four main parts: 1. Construction, both theoretical and practical; 2. Expression, or the technical representation of architectural and decorative ideas on paper; 3. Composition, which includes the science of convenient and effective planning and the art of architectural and decorative design; 4. That broad field which the literature of architecture covers and in which are included History of Architecture and the many interesting and important question which arise in connection with the practice of architecture and which often belong to the allied professions, such as Engineering and Law. The following course has been based upon this frame work. Minor changes and additions may be made from

time to time, but the scheme of teaching will, in general, be carried on as described below in detail.

Construction and Practice.

Under this head are grouped all of those courses bearing on the purely practical work of the profession as distinguised from the aesthetic. The aim is to give the student a thorough grounding in the principles underlying sound construction, sanitation, and the best practice in the installation of all modern conveniences. After the pure mathematics, the technical work begins with a course in Mechanics of Materials in which the theory of mechanics is taught and the strength of materials discussed. This is followed by the work in Structural Details which makes direct application in a special way of the principles taught in the preceding course.

The ordinary problems relating to materials and construction are taken up in the Masonry Construction, Specifications, and Working Drawings. This work consists of lectures, recitations, general discussions, and drawing. In the lectures, recitations, etc., the work of the various trades is taken up and materials, methods, and workmanship thoroughly discussed, ending with a careful and systematic study of specifications. Heating and ventilation are studied in a separate course and under a specialist. Plumbing and sanitary engineering of buildings, and the discussion of building contracts are subjects for special work in the seminaries. The drawing in connection with the above work is made to conform as closely as possible to the work done in the preparation of working drawings in an office, with the advantage that it can be arranged in a consecutive and progressive order. In conjunction with the lectures on the planning of domestic buildings the student makes sketch plans and designs for a series of buildings ranging from the simple laborer's cottage to the most elaborate mansions built without the hamper of a cost limit. Following this special drill in planning and design, he is required to design a building of moderate cost—usually a dwelling house—under such limiting conditions as might be imposed by a client, prepare the complete scale working drawings, and make typical full size details for its construction.

Throughout all of his work the student is required to construct scientifically rather than by "rule o' thumb." By the middle of the junior year he is prepared to take up the course in advanced construction which is devoted to the consideration of steel and fireproof construction, and consists of a series of fully illustrated lectures and the working out of steel framing plans, foundations for heavy buildings, and the details of steel columns, girders and trusses.

Expression.

This includes free-hand drawing, drawing from the antique and from life, modeling, sketching from nature, elements of architecture, shades and shadows and perspective. The aim of this work is to train the eye to a sense of form and color, the hand to steadiness and delicacy of touch, and the judgment to a nice distinction between values. In all of this work the attitude of the architectural student is precisely that of the sincere art student. False, exaggerated effects for the sake of attracting attention are discountenanced, but vigorous, effective presentation of architectural ideas, in harmonious tones inspired from nature, are heartily encouraged.

Composition.

The subject is taught by means of a succession of problems throughout the second, third and fourth years. Programs of competition are issued upon pre-arranged dates, and each student is required to hand in a set of drawings showing his own interpretation of the problem as governed by the conditions. These drawings are judged by a jury composed of the entire faculty of architecture, the acceptable drawings being graded mention, first mention, second medal, and first medal, according to the excellence of solutions. In the judgment each member of the faculty pays particular attention to that part of the work which is the result of his special teaching. For example, the Professor of Construction studies the designs to determine whether or not they admit of direct and rational construction, while the Professor of Freehand Drawing criticises the sculptural details and the general color schemes of the designs. Thus not only do the drawings receive careful criticism, but the Professors are able to follow the results of their teaching, while all in the faculty maintain a lively interest in the progress of architectural design, which is conceded to be the chief aim of architectural schools. In order to avoid the danger of becoming too theoretical, the course in working drawings, described under construction, is introduced after the students have spent their sophomore year in design. Experience has shown that this work has a wholesome influence upon the students, rendering more practical and sensible their work in the latter part of the course

History of Architecture, etc.

Ancient Greece, in her philosophy, her literature and her art, has affected to an incalculable degree the civilization of modern times. The architectural influence percolating through Rome and the Renaissance has brought down to to-day traditions and architectural motives

which serve admirably as sources of inspiration. Imitation, however, of decorative forms which serve to describe the kind of civilization that existed in ancient times, is hardly more justifiable than would be the use to-day of Egyptian hieroglyphics as wall decorations in our buildings. They belong to the past and should be considered as possessing only historical and archæological interest. The broad principles, however, of proportion and scale, and the subtleties of line and silhouette are matters which will always deeply concern the student of architecture and should be carefully studied in the monuments of all ages. The reserve of the Greeks contrasted with the wonderful daring of the Gothic builders presents an illustration of the qualities that are needed in our own building architects. The study of the History of Architecture is regarded in this course as a source of inspiration rather than as a means of acquiring materials and motives for use after leaving the University. While it is true that the work in design shows throughout the three years a good deal of absolute imitation of historic forms, this wholesale adaptation is encouraged in the belief that the students will recognize in this way the true relation of historic motives to modern work; in other words it is believed that the students will see that historic motives are useful and necessary as helps in the study of the broad principles of composition, but that they should be only considered necessary *during student days*. History of Architecture is taught through lectures illustrated by means of models, photographs and lantern slides.

The subjects cared for by the Seminary, such as legal questions, professional practice, special engineering problems, etc., are practically only touched upon. With all the work that belongs to the technical training of an architect, it would be unwise to use the time necessary for a more exhaustive treatment of these allied subjects. The students become familiar with the breadth of field in these directions and are advised to employ experts for the solution of all problems that do not come properly within the scope of an architect's practice. Eminent specialists are invited each year to talk before the students on subjects allied to architecture but which cannot be specially taught in a College of Architecture. Stained glass, mosaics, furniture, mural painting, etc., are some of the topics that come under this head.

EQUIPMENT.

The rooms of the College are located on the second and third floors of Lincoln Hall, and consist of the offices, library, lecture rooms, drafting rooms, rooms for freehand drawing, water color, etc. The material equipment is especially complete along those particular lines wherein the student needs most help and guidance. The library, of

course, takes first place, and is one of the best working libraries of its kind in this country. It comprises nearly all works of any note that have been published during the last century on the subject of architecture or architectural construction; a vast number of photographs and plates mounted and arranged for ready reference; and the bound volumes and current numbers of the leading architectural periodicals both foreign and American. Not only is the library most complete, but above all, it is accessible at all times, and the students have free and unhampered access to books, plates and photographs, and are encouraged and urged to use the best of the material for direct reference in the drafting rooms.

Next to the library in direct helpfulness to the students in design is the constantly increasing collection of drawings made by advanced students and graduates of the École des Beaux Arts. Aside from any question of style, these are easily among the best architectural drawings ever made, and as they hang about the halls and drafting rooms of the College, their value as examples of drawing, rendering and expression can hardly be over estimated.

A collection of plaster casts both large and small, furnishes subjects for freehand drawing in pencil and charcoal; and choice pieces of pottery, faience, terra cotta, etc., are used as studies for such of the water color work as is taken indoors.

Through the patient and untiring efforts of Professor Babcock over a period of twenty-five years, the College now has in its possession a large and valuable collection of wood, stone and plaster models illustrating the historical development of architectural form and construction.

For the work in construction there is, in addition to the library and models, a fine collection of working drawings of well known modern buildings which is being constantly added to by contributions from the offices of many of the leading architects from all parts of the country; and as large a collection of samples of building materials as can be handled within the limits of space available.

An important part of the equipment for lecture work and illustrations is an electric lantern and a large collection of lantern slides (several thousand) that is revised and enlarged each year.

FELLOWSHIPS.

The College of Architecture possesses a Traveling Fellowship and a Resident Fellowship. The Traveling Fellowship of the value of $2,000 is awarded in alternate years to the winner of an architectural competition. The first competition was held in October, 1898, and the fourth will occur during the summer or fall of 1904. Candidates

must be under the age of thirty, and must be either graduates of the College of Architecture or those who have satisfactorily completed the two year special course. Details of the competition will be sent to all qualified candidates several weeks in advance of the issue of the programs of competition. For further information address the Professor in charge of the College of Architecture, Ithaca, N. Y.

A Resident Fellowship of the annual value of $500 is open to all graduates of schools of architecture of approved standing in the world. The award is made in June for the following year, and each candidate must submit drawings and other credentials and file a formal application with the Registrar of the University on or before April 15th. Application forms may be obtained of The Registrar, Ithaca, N. Y.

MEDALS AND PRIZES.

The Clifton Beckwith Brown Memorial Medal was founded by Mr. John Hartness Brown in memory of his brother Clifton Beckwith Brown, killed on the field of battle at San Juan Hill. A silver replica is awarded to the senior attaining the highest standing in design during his senior year, and a bronze replica to the senior holding second place. These medals, however, are not awarded for order of merit only, and unless the standard reached in design is considerably higher than that required for mere graduation the award is withheld.

The **Charles Goodwin Sands Memorial Medal**, founded by the family of the late Charles Goodwin Sands of the class of '90, is awarded for all designs of exceptional merit presented in the regular competitions. The medal drawings are ranked as first and second medal drawings, according to merit. The author of a first medal drawing is awarded a silver replica and the author of a second medal drawing a bronze replica of the medal. The award is for merit alone, and while the medal has occasionally been won by a fourth year student the standard is such that the honor is usually reserved for the graduate students.

The Central N. Y. Chapter A. I. A. Prize is a prize of $20 given annually by the Central New York Chapter of the American Institute of Architects to the winner of first place in a competition in senior design. The award conveys with it an election to Junior Membership in the Chapter.

Other Prizes of money are frequently offered for competition in the regular problems or special problems in design. The Hon. Andrew D. White has a number of times offered such prizes and in the year 1901-02 his gifts for this purpose amounted to $100. In 1902-03 Messrs. G. E. and R. F. Chatillon gave $25 to be awarded to the winner of a special competition i[illegible]g

REQUIREMENTS FOR ADMISSION.

The following subjects are required for admission: English, History, [the student must offer one of the four following divisions in History: (a) American including Civil Government, (b) English, (c) Ancient, (d) Mediæval and Modern European], Plane Geometry, Elementary Algebra.

In addition to the above primary entrance subjects, the applicant must offer as below:—

1. **In Solid Geometry, Advanced Algebra, and in Plane and Spherical Trigonometry,** as much as is contained in the standard American and English text booxs. See page 38.

2. **In Advanced French or Advanced German** (French preferred) as given on pages 41, and 40.

3. The applicant must present a Regent's diploma (see page 49), or a certificate of graduation from an approved school (see page 50). Otherwise he must, in addition to the requirements mentioned in 1 and 2, pass examinations or present acceptable certificates representative of an amount of work equivalent to three year's time in a single subject in preparatory schools of approved standing. This additional requirement is equivalent to 12 counts on the Regents scale in the State of New York.

For the above work a free choice among the various subjects not otherwise counted, that are taught in the preparatory schools of approved standing, will usually be accepted; while at the same time, combinations of the following subjects are recommended as the most suitable for entrance to the course in the College of Architecture: Physics, Chemistry, Geology, Freehand Drawing, and the alternative Modern Language.

DRAWING. The entrance examination in drawing for admission to the Two Year Course in Painting shall consist of drawing in charcoal from a bust, the drawing to be done in 6 hours.

The preparation for satisfactorily passing the examination should consist of: (a) Drawing from geometric models until the principles of massing-in a drawing and the principles of freehand perspective are fully mastered; and (b) Drawing in charcoal from plaster casts of animals, ornament, heads, busts, etc. Nine hours a week covering a period of about thirty-five weeks under a good teacher might be considered a minimum time within which a good student could reasonably expect to accomplish this preparation.

[*For details as to subjects and methods of admission, see pages 33–54.*

For admission to the freshman class communications should be addressed to the Registrar. See pages 33–54.

For admission to advanced standing from other colleges and uni-

versities, and as specials, communications should be addressed to the College of Architecture. See pages 53 and 330.

For admission to graduate work and candidacy for advanced degrees, communications should be addressed to the Dean of the University Faculty. See page 70.]

COURSES LEADING TO THE DEGREE OF BACHELOR OF ARCHITECTURE.*

Course A.

Freshman Year.	No. Course.	1st Term.	2nd Term
History of Architecture	10	3	3
Analytic Geometry	2	4	–
Dif. Calculus	2	1	2
Int. Calculus	2	–	3
Elements of Architecture	11a	3	3
Freehand Drawing	12a	3	3
Descriptive Geometry (Civil Eng.)	8	3	–
Shades and Shadows	13	–	1
Perspective	14	–	2

In addition to the above the required Drill and Gymnasium must be taken.

Sophomore Year.	No. Course.	1st Term.	2nd Term
History of Architecture	20	3	–
Mechanics (Civil Eng.)	21	3	–
Design	21	8	8
Drawing from the Antique	22	3	3
Masonry Construction	23	–	2
Clay Products and Build. Stones (Geol.)	31	–	2
Composition	24	–	1

Junior Year.	No. Course.	1st Term.	2nd Term
History of Painting and Sculpture	30	1	1
Structural Details (Civil Eng.)	71	3	–
Design	31	–	10
Modeling	32	–	2
Planning of Domestic Buildings	34	2	–
Specifications	34a	1	–
Working Drawings	34b	5	–
Steel Construction and Fireproofing	35	3	–
Heating and Ventilating	36	–	1
Water Color Painting	37	–	2
Timber Physics	38	1	–
Physics	2a	2	2

*The degree of Bachelor of Architecture is given upon the completion of either Course A or Course B, or for the completion of Course A modified for students specializing in construction. The essential difference between these two courses is that in Course B the mathematics are omitted and the drawing advanced so that one extra half year is given to Architectural Design. It should be noted, however, that in Design the standard for graduation from Course B is much higher than from Course A, 14 values in First Class Design being required in the former as against 7 in the latter These courses have been arranged with the expectation that students of average powers will complete them in four years ; nevertheless as Architectual ability is largely a result of artistic development and can not be gauged by time spent in study, some students may find it necessary to spend four and a half or five years in obtaining the degree.

Senior Year.	No. Course.	1st Term.	2nd Term
Modern Architecture	40	–	2
Stereotomy and the Masonry Arch (C.E.)	72	2	–
Design	41	12	12
Life Class	42	2	–
Seminary	43	1	1

Course B.

Freshman Year.	No. Course.	1st Term.	2nd Term
History of Architecture	10	3	3
Elements of Architecture	11b	6	–
Design	21	–	8
Freehand Drawing	12b	6	–
Descriptive Geometry (Civil Eng.)	8	3	–
Shades and Shadows	13	–	1
Perspective	14	–	2
Clay Products and Build. Stones (Geol.)	31	–	2
Composition	24	–	1

In addition to the above the required Drill and Gymnasium must be taken.

Sophomore Year.	No. Course.	1st Term.	2nd Term
History of Architecture	20	3	–
Mechanics (Civil Eng.)	21	3	–
Design	21	8	–
Design	31	–	10
Drawing from the Antique	22	3	3
Modeling	32	–	2
Masonry Construction	23	–	2

Junior Year.	No. Course.	1st Term.	2nd Term
History of Painting and Sculpture	30	1	1
Structural Details (Civil Eng.)	71	3	–
Design	41	–	12
Planning of Domestic Buildings	34	2	–
Specifications	34a	1	–
Working Drawings	34b	5	–
Steel Construction and Fireproofing	35	3	–
Heating and Ventilating	36	–	1
Water Color Painting	37	–	2
Timber Physics	38	1	–
Physics	2a	2	2

Senior Year.	No. Course.	1st Term.	2nd Term
Modern Architecture	40	–	2
Stereotomy and the Masonry Arch (C.E.)	72	2	–
Pen and Ink Drawing	47	–	2
Design	41	12	12
Life Class	42	2	–
Seminary	43	1	1

One registered hour means about three hours of actual work per week. In subjects given by means of lectures or recitations, each registered hour means one hour for the lecture or recitation plus an

average of two hours for study or work in connection with the subject. In design, twelve registered hours would require thirty-six hours per week (more or less according to the ability of the student) of actual work in the drafting rooms.

ARCHITECTURAL ENGINEERING.

Students in Architecture wishing to specialize in Construction, or Architectural Engineering, may do so by taking all of the first three years of Course A, except the Mechanics of the sophomore year for which should be substituted Mechanics Course 20 in the College of Civil Engineering; and by taking special work during the senior year arranged to suit individual cases. For this special work are offered advanced work in the College of Architecture and any or all of the following subjects--for description see under College of Civil Engineering:

	No. Course.	1st Term.	2nd Term.
Engineering Laboratory	22	2	2
Materials of Construction	25	-	5
Testing Materials	57	3	-
Structural Design	71	4	5
Stereotomy and the Masonry Arch	72	3	3
Masonry Foundations	74	-	5

A TWO YEAR SPECIAL COURSE IN ARCHITECTURE.

Special students are admitted to the College of Architecture without formal examination, provided they give evidence of ability to do creditable special work in the College and have not already been admitted to the University, nor, having applied for admission, been rejected.

A special student must be at least twenty-one (21) years of age; he must have had a good high school training or its equivalent, including particularly a good working knowledge of geometry and algebra; and should be familiar with the details and proportions of the classic orders of architecture as given in the Vignola. He shall have had at least three (3) years of experience in some good architect's office, or its equivalent; and shall submit with his application examples of architectural drawing done by himself and examples of drawing—if he have such—from the cast or from life.

Should a special student desire to graduate in the College, he may do so on condition of passing all the entrance examinations and doing the required work of the regular course. He will not, however, be permitted to make up deficiencies in entrance subjects by attending university instruction in such subjects, but must take the necessary instruction outside of the University.

The following course has been arranged for special students. It does not lead to a degree, but a certificate will be issued upon its satisfactory completion. Candidates proficient in any of the subjects herein scheduled will be allowed to substitute other architectural subjects in their stead. For further information address the Professor in Charge of the College of Architecture.

First Year.

	No. Course.	1st Term.	2nd Term.
History of Architecture	10	3	3
Design	21	8	8
Freehand Drawing	12a	3	3
Descriptive Geometry (Civil Eng.)	8	3	–
Shades and Shadows	13	–	1
Perspective	14	–	2
Modeling	32	–	2

Second Year.

	No. Course	1st Term.	2nd Term.
History of Architecture	20	3	–
Design	41	12	12
Drawing from the Antique	22	3	3
Modern Architecture	40	–	2

A TWO YEAR COURSE IN PAINTING.

When students in different branches of the Fine Arts work and live together, each is broadened and strengthened in his art. As bonds between artist, scholar, and scientist become closer, each loses the narrowness of his individual point of view and sees the world and his own work in a truer perspective.

Feeling the truth of this, the College of Architecture has opened a course of drawing and painting. The present aim of the course is to train students who have had some preliminary instruction in drawing, and to fit them for that further training which may be advanced by work abroad under one of the greater masters, but must finally depend on the individual initiative and talent of the student.

The course is not designed for students of the literature or history of painting, but for those who intend to be painters; nevertheless it will present opportunities for technical study which would prove of advantage to the critic and writer upon art, and it can, in turn, draw upon other departments of the University for instruction in history, languages, anatomy, the sister arts of architecture and sculpture, and similar subjects needful to the painter.

Thus it should form a more solid foundation for an artist than were the student merely to draw "academies."

In addition to the very fine collection of casts in the University museum, the College of Architecture has its own collection for drawing in ampitheatre. The libraries of both University and College are exceptionally well equipped with works on all branches of art, and offer valuable opportunities for study which may be supplemented by reference to the collections of photographs. Cornell is situated in one of the most beautiful portions of New York State, Cayuga Lake and its encircling hills being famed for their charm. Moreover, excellent railroad facilities place the annual art exhibitions of Philadelphia, New York, or Boston within easy reach. Thus the University seems especially well placed, in the heart of nature, yet within calling distance of the cities which form art centres of America.

The Courses in Painting consist of: (a) A two-year's course leading to no degree; but for which certificate will be issued upon satisfactory completion. The course may be extended. (b) Special courses arranged to suit special needs.

Entrance Requirements. English, History [the student must offer one of the four following divisions in History: (a) American, including Civil Government; (b) English; (c) Ancient; (d) Mediaeval and Modern European], Plane Geometry, Elementary Algebra.

In addition to these the applicant must offer as below:

1. Drawing. The applicant must pass an examination in Drawing from the Antique, or present satisfactory drawings in charcoal from the head and bust. The preparation for satisfactorily passing the examination should consist of: (a) Drawing from geometric models until the principles of massing-in a drawing and the principles of freehand perspective are fully mastered; and (b) Drawing in charcoal from plaster casts of animals, ornament, heads, busts, etc. Nine hours a week covering a period of about thirty-five weeks under a good teacher might be considered a minimum time within which a good student could reasonably expect to accomplish this preparation.

2. Advanced French or Advanced German (French preferred) as given on pages 41 and 40.

In place of the advanced language, advanced drawing equivalent to the work of courses 52 and 52a of the course in Painting may be substituted; but in case of such substitution, the language must be taken in regular University course.

3. The applicant must present a Regents' diploma (see p. 49) or a certificate of graduation from an approved high school (see p. 50). Otherwise he must, in addition to the requirements mentioned in 1 and 2, pass examinations or present acceptable certificates representative of an amount of work equivalent to three years' time in a single

subject in preparatory schools of approved standing. This additional requirement is equivalent to twelve counts on the Regents' scale in the State of New York. Candidates for admission must be at least sixteen years of age, or, if women, seventeen.

The two year course consists of the following subjects: [In draughting sections, a university hour means three hours of drawing. For instance, 6 hours of drawing from the antique, means 18 hours of work per week, or work from 9-12 every morning.]

First Year.

	No. Course.	1st Term.	2nd Term
Drawing from the Antique	52	6	–
Drawing from Life	52a	–	6
Modeling from the Cast	53	4	–
Modeling from Life	53a	–	6
History of Painting and Sculpture	30	1	1
History of Architecture	50	1	1
History of Ornament	50a	–	2
Elements of Architecture	11	3	–
Perspective	54	–	2

Second Year.

	No. Course.	1st Term.	2nd Term
Painting from Still Life	62	3	–
Painting from the Nude	62a	–	6
Painting of Portraits	62b	6	6
Composition (lectures)	24	1	–
Composition (criticism)	64	2	3
Artistic Anatomy	—	3	–

Summary of Courses of Instruction.

10. **History of Architecture.** First half-year: Egyptian, Greek, and Roman Architecture. Second half-year: Romanesque, Byzantine and Gothic Architecture. Three lectures per week throughout the year. T., Th., S., 9. Assistant Professor PHELPS.

11a. **Elements of Architecture.** The classic orders of architecture drawn and rendered in India ink and in color. Nine draughting hours per week throughout the year. Mr. SHREVE.

11b. **Elements of Architecture.** The same as 11a, but requiring 18 drafting hours per week. First half-year. Mr. SHREVE.

12a. **Freehand Drawing.** Charcoal drawing from plaster casts of animals, ornament, heads, busts, etc. 9 hours per week throughout the year. Assistant Professor BRAUNER.

12b. **Freehand Drawing.** The same as 12a, but requiring 18 hours per week. First half-year. Assistant Professor BRAUNER.

13. **Shades and Shadows.** One lecture and six hours of drafting per week. Second half-year until Easter recess. Mr. SHREVE.

14. **Perspective.** One lecture and six hours of drafting per week. Second half-year after the Easter recess. Assistant Professor MARTIN.

20. **History of Architecture.** First half-year : Renaissance Architecture. Three lectures per week. M., W., F., 9. Assistant Professor PHELPS.

21. **Design.** Periodical problems arranged to occupy about twenty-four drafting hours per week throughout the year. Professor VAN PELT and Assistant Professor BLAIR.

22. **Drawing from the Antique.** Charcoal and pastel work in the Museum of Casts. Nine hours per week throughout the year. Assistant Professor BRAUNER.

23. **Masonry Construction.** Second half-year. Lectures and recitations. Two hours per week, supplemented by drawing and by inspection of actual work. The course is preparatory to courses 34 to 35. Assistant Professor MARTIN.

24. **Composition.** One lecture per week. Second half-year. Professor VANPELT.

Clay Products and Building Stones. Second half-year. Two lectures per week. This is an eminently practical course for the study of bricks, tiles, terra cotta, cements, aud building stones with reference to composition, color, methods of production, strength, durability, weathering, etc. Assistant Professor RIES.

30. **History of Painting and Sculpture.** One lecture per week throughout the year on Tuesday afternoons at 4 o'clock. Assistant Professor BRAUNER.

31. **Design.** Periodical problems arranged to occupy about thirty hours per week. Second half-year. Professor VANPELT and Assistant Professor BLAIR.

32. **Modeling.** Second half-year. Six hours per week in clay modeling from busts, architectural ornaments, animals' heads, etc. Mr. GUTSELL.

*34. **Planning of Domestic Buildings.** First half-year. Five lectures and thirty hours drafting per week during the early part of the term. The work contemplates a systematic and analytical study of house planning, with special reference to American conditions. Assistant Professor MARTIN.

*34a. **Specifications ;** *34b. **Working Drawings.** First half-year. Five lectures and thirty hours drafting per week during the intermediate part of the term. These courses continue the work of course 34 by the study of specifications and ordinary methods and details of

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*Since Courses 34, 34a, and 34b, are but the successive steps in a single scheme, they should be taken consecutively and in one term.

construction in connection with the preparation of one-quarter inch scale working drawings and full size details for a house designed by the student himself, under such limiting conditions as a client would be likely to impose. Assistant Professor MARTIN.

35. **Steel Construction and Fireproofing.** First half-year. Five lectures and thirty hours drafting per week during the latter part of the term. This course follows course 34b with a study of special foundations, steel construction, and fireproofing of high or heavy buildings; the fireproofing being studied with reference to its application to the cheaper domestic buildings as well as to the larger steel buildings. Assistant Professor MARTIN.

36. **Heating and Ventilating.** Two lectures per week during one-half of the second half-year, supplemented by practical problems. Professor CARPENTER.

37. **Water Color Painting.** Second half-year. Six hours per week in painting from still life groups and from nature. Assistant Professor BRAUNER.

Timber Physics. First half year. Two hours per week lectures and laboratory work. A short course devoted to the study of timber, its physical structure, diseases, characteristics of the different kinds of wood, methods of treatment and behavior under different conditions, etc.

40. **Modern Architecture.** Second half-year. Two lectures per week. Assistant Professor PHELPS.

41. **Design.** Periodical problems arranged to occupy about thirty-six drafting hours per week throughout the year. Professor VAN PELT and Assistant Professor BLAIR.

42. **Life Class.** First half-year. Two afternoons per week in drawing from the nude model. Assistant Professor BRAUNER.

N. B.—The Life Class is held throughout the year. During the second half-year the work is optional for architects.

43. **Seminary.** Reviews of current technical journals. Papers and discussions upon subjects of professional interest not covered by other courses. One hour per week throughout the year. Assistant Professor MARTIN.

47. **Pen and Ink Drawing.** Second half-year. Work in pen and ink rendering, sketching and illustration. Six hours per week.

50. **History of Architecture.** A brief general survey of ancient, mediaeval and modern architecture. One lecture per week throughout the year. M., 12. Assistant Professor PHELPS.

50a. **History of Ornament.** Historic motives employed in architecture and decoration, their origin, evolution and application. Two

lectures per week during the second half-year. T., F., 12. Assistant Professor PHELPS.

52. **Drawing from the Antique.** First half-year. Eighteen hours per week. This work is done at the College of Architecture from the collection of casts which belongs to the college. Assistant Professor BRAUNER.

52a. **Drawing from Life.** Second half-year. Eighteen hours per week of drawing from the nude in charcoal, pencil, crayon, or red chalk. Assistant Professor BRAUNER.

53. **Modeling from the Cast.** First half-year. Twelve hours per week. Mr. GUTSELL.

53a. **Modeling from Life.** Second half-year. Eighteen hours per week. Mr. GUTSELL.

54. **Perspective for Painters.** Second half-year. Two lectures per week followed by experimental problems. Professor VAN PELT.

62. **Painting from Still Life.** First half-year. Nine hours per week. Assistant Professor BRAUNER.

62a. **Painting from the Nude.** Second half-year. Eighteen hours per week. Assistant Professor BRAUNER.

62b. **Painting of Portraits.** Eighteen hours per week throughout the year. Assistant Professor BRAUNER.

64. **Composition (Criticism).** One composition per week will be required throughout the year and these compositions will be criticized in class. Assistant Professor BRAUNER.

COLLEGE OF CIVIL ENGINEERING.

FACULTY.

JACOB GOULD SCHURMAN, A.M., D.Sc., LL D., President.

CHARLES LEE CRANDALL, C.E., M.C.E., Professor in charge, and Professor of Railway Engineering and Geodesy.

IRVING PORTER CHURCH, C.E., M.C.E., Professor of Applied Mechanics and Hydraulics, in charge of the College Library.

HENRY SYLVESTER JACOBY, C.E., Professor of Bridge Engineering. (Absent on leave for first term.)

GARDNER STEWART WILLIAMS, C.E., Professor of Experimental Hydraulics, in charge of the Hydraulic Laboratory.

HENRY NEELY OGDEN, C.E., Assistant Professor of Sanitary Engineering, in charge of Descriptive Geometry, and Secretary of the College Faculty.

WILLIAM ELTON MOTT, S.B., Assistant Professor of Hydraulic Engineering, in charge of the General Laboratory, and Registrar of the College. (Absent on leave for 1903–04.)

ELMER JAMES McCAUSTLAND, C.E., M.C.E., Assistant Professor of Civil Engineering, in charge of the Laboratory for Testing Materials.

JOHN THOMAS PARSON, Assistant Professor of Drawing, in charge of the Photographic and Drawing Collections.

OSCAR AUGUSTUS JOHANNSEN, B.S., A.M., Instructor in Civil Engineering, and in Structural Design.

FRED ASA BARNES, C.E., M.C.E., Instructor in Civil Engineering and in Railroad Engineering.

GEORGE GATES SMITH, C.E., M.C.E., Instructor in Civil Engineering and in the Laboratories.

MILES ALBION POND, Ph.B., Instructor in Civil Engineering and in Descriptive Geometry.

ORA MINER LELAND, B.S., Instructor in Civil Engineering and in Astronomy.

CHARLES R. WYCKOFF. Jr., B.S., C.E., A.M., Instructor in Civil Engineering and in the Laboratories.

CHARLES JOSEPH TILDEN, C.E., Instructor in Civil Engineering and in Descriptive Geometry.

CLAUDE BERRY, A.B., B.S., Instructor in Civil Engineering and in the Laboratories.

ALBIN H BEYER, C.E., Instructor in Civil Engineering and in the Laboratories.

FRANK W. SKINNER, C.E., Associate Editor, *Engineering Record*. Lecturer iu Field Engineering.

WILLIAM ORLANDO STUBBS, Mechanician to the College of Civil Engineering.

CLINTON D. CASS, Assistant Mechanician to the College of Civil Engineering.

Members of the Faculty of Arts and Sciences who are heads of departments giving outside instruction to the students of this College. Arranged in the order of senority of University appointments :

THOMAS FREDERICK CRANE, A.M., LL.D., Professor of Romance Literature.

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

EDWARD LEAMINGTON NICHOLS, B.S., Ph.D., Professor of Physics.

EDWARD HITCHCOCK, JR., A.M., M.D., Professor of Physical Culture.

JAMES MORGAN HART, A.M., J.U.D., L.H.D., Professor of Rhetoric and English Philology.

JEREMIAH WHIPPLE JENKS, A.M., Ph.D., Professor of Political Economy, etc.

LUCIEN AUGUSTUS WAIT, A.B., Professor of Mathematics.

GEORGE FRANCIS ATKINSON, Ph.B., Professor of Botany.

RALPH STOCKMAN TARR, B.S., Professor of Geology.

WILLIAM PERCY VAN NESS, Major U. S. A., Professor of Military Science.

LOUIS MUNROE DENNIS, Ph.B., B S., Professor of Chemistry.

Special Lecturers for 1902-1903.

PROFESSOR EDWIN HAMLIN WOODRUFF, LL.B., "Contracts."

PROFESSOR CLARENCE AUGUSTINE MARTIN, "Fireproofing."

PROFESSOR VERANUS ALVA MOORE, B.S., M.D., "Bacteriology."

GEORGE FILLMORE SWAIN, S.B., Professor of Civil Engineering, Massachusetts Institute of Technology, "The Boston Subway."

ELWOOD MEAD, Chief of Irrigation Investigations, U. S. Dept. of Agriculture, "Rights to Water."

PROFESSOR BERNARD EDUARD FERNOW, LL.D., "Wood as an Engineering Material."

JOHN EDWIN GREINER, B.S., C.E., Engineer, Bridges and Buildings, Baltimore & Ohio R. R. Co., "Bridge Engineering."

KENNETH ALLEN, C.E., Engineer of the Water Department of Atlantic City, "Investigations of the Baltimore Sewerage Commission."

GENERAL PLAN OF STUDIES.

The 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 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, botany and civil engineering; for which purpose in addition to the special library and laboratories of the College, all the libraries, collections and laboratories of the University are open to the students of this College.

The work of the undergraduate student is based upon an extended course in the mechanics, and the graphics and economics of engineering. The object aimed at is to give as thorough a preparation as posible for the general purposes of the profession in the following subjects: the survey, location and construction of roads, railroads, canals, and water works; the construction of foundations in water and on land, and of superstructures and tunnels; the survey, improvement, and defense of coasts, and the regulation of rivers, harbors and lakes; the astronomical determination of geographical coördinates for geodetic and other purposes; the application of mechanics, graphical statics, and descriptive geometry to the construction of the various kinds of arches, bridges, roofs, trusses, suspension and cantilever bridges; the drainage of districts, sewerage of towns, and the irrigation and reclaiming of land; the design, construction, application and tests of wind and hydraulic motors, electrical and heat engines, and pneumatic works; the preparation of detail drawings, of plans and specifications, and the proper inspection, selection, and tests of the materials used in construction. Instruction is given in engineering and mining economy, finance and engineering 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. A course in political economy, of

three lectures per week, extending over one year, is given for the purpose of elucidating the economic value of the civil engineer as a director of industrial enterprises, and his rôle in the industrial development of the country.

To the fundamental instruction of a general undergraduate course, many special courses are added for graduates desiring advanced study in the separate branches of their profession. Admission to these courses is open to graduates of this college or of other institutions having undergraduate courses similar to our own. Advanced and special instruction is offered in the following subjects: bridge engineering, railroad engineering, sanitary, municipal, hydraulic mining and geodetic engineering. The object of this instruction 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. The same courses are open to teachers and professional men in a more advanced form and with larger liberty in the use of laboratory equipment. 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 colleges of this University; 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 College of Civil Engineering is quartered in a substantial brown stone structure, two hundred feet long and seventy feet wide, specially designed for the purposes of the College. In addition to the laboratories and museums, the building contains the working library of the College, aggregating about three thousand volumes, reading-rooms, class-rooms, and draughting rooms. The building contains also the offices of the U. S. Weather Bureau for the State of New York. The astronomical and portions of the geodetic equipment of this College are housed in the Barnes Observatory containing all the instruments required to find time, latitude, longitude and azimuth. The instruments are duplicates, in the main, of similar ones in use by the U. S. Coast and Geodetic Survey. The large hydraulic laboratory with its buildings and equipment is located at the Fall Creek gorge, within a short distance of the College buildings.

LABORATORIES.

The Civil Engineering Laboratories within the College building, cover a floor area of about fifteen thousand square feet. They 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 special laboratories.

2. **An Hydraulic Laboratory** with complete appliances, piping, mouth-pieces, and special castings for the determination of co-efficients; weirs provided with different forms and heights of notches and orifices; venturi and other water meters ; gauges of various kinds with electrical clock work or other automatic devices for the most accurate measurements either of weights, velocities, pressures, equilibrium, viscosity or heights of heads ; various machines or contrivances for determining the flow of liquids in closed and open conduits ; several models of water wheels ; dynamometers of various kinds ; a considerable variety of current meters, some of which record the speed automatically ; in others, the revolutions are determined by sound ; and still others record, by electrical devices, both the velocity and the direction of the current. On the south bank of Fall Creek a curved concrete masonry dam 200 feet long has been built, which stores up a large amount of water, forming the Beebe Lake, and the dam is provided with an ample spill-way capable of delivering with safety any flood from the 120 square miles which constitute the water shed of the stream.

A canal also built of concrete masonry, and 450 feet long, is located south of the south anchorage of the dam. Its up-stream end is provided with six gates, baffle boarding, and a standard weir to which various devices are attachable for measuring heads, and regulating the amount of air imprisoned under the water sheet. The canal is sixteen feet wide and ten feet in depth of water ; but the head of water, in some of the experiments, can be made to reach 225 feet. Heads of twenty feet may be utilized within the canal ; of eighty feet in the lower part of one of the laboratory buildings ; and, for special experiments, a ten-inch pipe supplies water from the reservoir of the Universlty water works, which is one hundred and forty-five feet above the canal. This head can be utilized through a stand pipe at the bottom of the gorge, below the canal in the large laboratory building. The canal is provided with an electric motor placed on a steel truck running upon rails fastened to the top of its walls, and the speed of the truck can be regulated at pleasure, marking its speed and position on various chronographs.

The water waste of the canal can be regulated by means of valves and terminal weirs until required water velocities are obtained within the canal. At the west end of the canal there is a vertical six foot steel pipe to which water can be admitted either by a lateral channel

from the main canal or through a forty-eight inch pipe which taps the dam and Beebe Lake. This subdivision of heads and water volumus enables the performing, simultaneously, class work and experiments, without interfering with the regular conditions of each experiment. The lateral canal is also provided with weirs and gages upon the removable portion of the walls of this sub-canal. The lower laboratory building is a sightly, solid structure eighty feet long and about eighty feet high, and contains a fifty thousand pound scale and tank. This building shelters and hides from view the steel stand pipe to the north of which a suitable staircase carries within its well-hole all the necessary piping of iron and glass manometers.

It may be desirable to add that further improvement of devices is in contemplation for the measurement of large volumes of water, beyond the capacity of the canal, stand pipe and the present weighing scales.

Although the laboratory needs still further additions to its very expensive equipment, and its work has hardly begun, the utility of this plant has been demonstrated by calls from all parts of the country, and from abroad, for the performance of experiments of great importance. Among these may be mentioned the valuable results obtained for the U. S. Deep Waterways Commission, the Michigan Lake Superior Power Company, the work done for the City of New York in connection with its water supply, and for the U. S. Geological Survey. It now seems assured that this hydraulic laboratory will soon become the center of information and reference for the solution of the numberless hydraulic questions awaiting just such opportunities as the conditions of this laboratory offer and which exist nowhere else in this country or in Europe.

3. **A Cement Laboratory** provided with automatic machines for the establishment of standard tests. The apparatus of this laboratory has been designed by specialists in view of its needs. Standard conditions are aimed at in all tests. The sifting of cements, moulding, condensing and testing are performed mechanically. The laboratory contains: Three machines for tension tests, three machines for crushing tests ranging from two to two hundred tons, one impact machine, one ratler cylinder of the dimensions recommended by the National Association of Brick Manufacturers, one abrasion machine, and a special machine for determining, automatically, the rate of setting and hardening of cements.

There are also, a large number of briquette moulds, scales, plate glass mixing tables, thermometers for cement test purposes, a Bunsen pump and apparatus for testing the permeability of cements, several sets of apparatus for measuring linear and volume changes during the setting of cements, their specific gravity, and fineness; a large

number of scales for various purposes, varying from the most delicate chemical balances to a 400,000 pound machine. This laboratory has a water tank capacity for the storage of three thousand briquettes, and many of its appliances are utilized for tests of building materials, such as paving and other bricks, building stone, masonry arches, walls and piers up to twelve feet in height; in addition there are many smaller machines, appliances and tools that are used in common with the equipment of other laboratories. The apparatus designed by the Massachusetts Highway Commission for testing the cementing qualities of roadway materials is now in use.

4. **A Geodetic Laboratory** for the study of instruments of precision. This room contains a sidereal chronometer by Negus, and an accurately compensated mean time Howard astronomical clock, which furnishes the standard of time for the University. There are a large number of surveying and portable astronomical instruments for the study of instrumental errors and their constants, and this laboratory is provided with callimators, micrometric level testers, and a reversible Kater pendulum to which noddies may be attached. Also a Kew magnetometer and Barrows circle; the manipulation of these instruments, and some of their constants, are obtained in the laboratory, but the magnetic constants and results relating to the earth's magnetism are determined, each year in the field, in connection with the systematic surveys of the Lake region of Central New York, which began in 1874. This room has also several meterological instruments devised for special purposes, like the study of wind gusts in violent storms. A Richards three-cylinder machine gives the direction of the wind, and its horizontal and vertical velocity; but when the velocity exceeds twenty miles per hour, another specially devised machine, modified by E. T. Turner, is then started automatically, and describes upon a rotary cylinder, a curve whose ordinates are proportioned to the wind's velocity for each meter of travel. This machine works so long as the velocity exeeeds twenty miles per hour: and an ingenious contrivance prints the time, at intervals of five minutes, upon the endless paper band carried by the revolving cylinder. There are also in this laboratory standard and other mercury barometers, a Draper self-recording barometer, and several other minor instruments bearing upon the studies carried on in this laboratory.

5. **A Metric Laboratory** for the comparison of lengths, provided with a line and end measure comparator and a small Geneva dividing engine. This room is built with hollow, double walls, and the daily range of temperature is less than one degree F. In this laboratory are placed other machines and apparatus for experimentation in such portion of optics, thermodynamics, etc., as form special parts of the edu-

cational equipment of the engineer. The four meter line comparator rests on two independent piers, with two micrometer microscopes sliding on a beam, also mounted on independent piers, and the whole comparator is properly covered by a substantial tight case. Projecting handles give motion to the cradle under the microscopes without disturbing the internal temperature of the case. A Geneva steel meter bar of the international type forms the standard of length ; it has been compared at the U. S. Coast Survey Office with the International Standard. There is also a Rogers speculum metal decimeter and four-inch scale, accurately divided and compared, and a brass yard, used as subsidiary length standards. Tonnelot and Bodin thermometers, standardized at the Paris International Bureau, form the basis for temperatures. The room also contains a four foot comparator for the study of leveling rods, while an iron standard rod, fifty feet long, inlaid on the floor of the main museum, is used as the standard for steel tapes. A Mendenhall half-seconds pendulum, constructed in this College, is mounted upon a pier for determinations of the force of gravity. This pendulum is a reproduction, from patterns loaned by the Coast Survey Office, of the instruments used for the above purposes by the International Association of Geodesists, and contains improvements suggested by the experience with older instruments.

6. **A Testing Laboratory for Materials of Construction** and for full sized members, joints and structures. The 400,000-pouud testing machiue has a clear width of 19 inches between standards and an effective length of 12 feet for specimens in both tension and compression, the tension grips taking widths up to 8 inches for plates and 4-inch legs for angles. The capacity for beams and girders is up to 19 inches in width and to 18 feet in length, the center load at the latter limit being only 100,000 pounds.

The standard rattler with cast iron shot for paving brick and the Deval abrasion machine and Page impact machine for macadam material furnish excellent facilities for the study of roadway materials, while the stone saw and grinding wheel allow of preparing stone specimens with smooth plane beds for the testing machine without danger of injury from the hammer and chisel.

The one-fourth scale steel bridge model furnishes an excellent opportunity for comparing computed stresses with those actually existing in different members of the structure due to various loadings, the stress being found from the measured change in length of the member.

7. **A Bacteriological Laboratory** in which students may become acquainted with bacterial forms and such portions of bacteriology as bear upon sanitary engineering. The optical apparatus has been expressly manufactured for us by Richert 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. Rhorbeck of Berlin. With these exceptions the equipment contains apparatus specially manufactured by the mechanicians of the College.

8. **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 photographs of engineering structures owned by this College. A revolving transit camera has been added to the collection of photographic appliances; its inventor, Mr. G. W. Parsons, having generously permitted its duplication by the mechanician of the College. This machine is capable of photographing with accuracy through an angle of 360° upon a flexible film 6 inches wide and 60 inches long.

9. **The A. S. Barnes Astronomical Laboratory and Training Observatory** which contains an astronomical transit by Troughton and Sims and one by Fauth; two sidereal clocks and a mean time clock; a four-and-a-half-inch Clark equatorial; two large altzamuths reading to seconds by levels and micrometers; and two three-and-three-eighths inch zenith telescopes by Fauth, but modified by the mechanician of the College, besides sextants, chronograph, chronometers, etc.

Students become here familiar with methods of observing, adjusting instruments, and making reductions and computations for the determination of time, latitude, azimuth and longitude.

The building of the College of Civil Engineering contains the offices and observatory of the U. S. Weather Bureau, being the cenral office for the reception of climate and other data for the State of New York, and for the dissemination of weather forecasts to the region tributary to this center.

The 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 and geognosy. 3. The Schroeder models in descriptive geometry and stereotomy with over fifty brass and silk transformable models made in this College after the Oliver models. 4. The M. Grund collection of bridge and roof details, trusses and masonry structures, such as right, oblique and annular arches and domes, and several intricate models in stone cutting, supplemented by similar models by Schroeder and other makers. 5. A model railroad bridge of one hundred foot span, one fourth natural size, and a numerous collection of models of track details. 6. The Digeon col-

lection of movable dams, artificial harbors 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 progress photographs of engineering works showing the progress 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, two large zenith telescopes of improved construction for latitude work, by the eye and photographic methods; spherometers and other instruments, like pier collimators, etc., necessary to complete a most efficient equipment of a training observatory. 10. A geodesic collection, consisting of a four meter comparator, built at this College of the University; a set of improved pendulums for gravimetric investigations; 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 and heliotropes. 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, eliptographs, arithmometers, computing machines, altazimuths, sextants, telemeters, and altmeters, hypsometers, and self-recording meteorological instruments of all descriptions. 12. A very complete set of all appliances and instruments for making reconnaissance in topographical, hydrographical and mining surveys, in addition to the instrumental equipment which is common to the museums and the nine engineering laboratories of this College, as described above.

REQUIREMENTS FOR ADMISSION.

The following subjects are required for admission: English, History, [the student must offer one of the four following divisions in History: (a) American, including Civil Government, (b) English, (c) Mediæval and Modern European, (d) Ancient], Plane Geometry, Elementary Algebra. See pp. 33–37.

In addition to the above primary entrance subjects, the applicant must offer as below:—

1. **In Solid Geometry, Advanced Algebra, and in Plane and**

Spherical Trigonometry, as much as is contained in the standard American and English text-books. See page 38.

2. **In Advanced French** or **Advanced German** as given on pages 41 and 40.

NOTE:—For admission without examination the applicant must present a regent's diploma (page 49), or a certificate of graduation from an approved school (page 50); otherwise the certificate covering the requirements mentioned above in 1 and 2 must be supplemented by passing examinations showing that the applicant has done an amount of work equivalent to a course of three years' duration in a single subject in preparatory schools of approved standing,* or he must present additional acceptable certificates showing that he has completed the courses covered by the above examinations. For the above amount of equivalent work, a free choice among the various subjects taught in the preparatory schools of approved standing, and not otherwise counted, will usually be accepted; but combinations of the following subjects, equivalent to three years' time under instruction, are recommended as most suitable for entrance to the courses in the College of Civil Engineering:

(a) History, or additional English language and literature.

(b) Additional modern languages or literature.

(c) Freehand or linear drawing.

(d) Physics, chemistry, botany, zoology, geology, descriptive astronomy, or aditional physiology.

(e) Latin or Greek.

This college admits as *Special Students* only graduates of other institutions pursuing advanced work, when the applicants are not candidates for a degree. See page 53.

[*For details as to subjects and methods of admission see pages 33–54.*

For admission to the Freshmen class communications should be addressed to the Registrar. See pages 33–54.

For admission to advanced standing from other colleges and universities and as specials, communications should be addressed to the Director of the College of Civil Engineering. See pages 53, 54.

For admission to the graduate work, communications should be addressed to the Dean of the University Faculty. See pages 66–74.]

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* For students from the State of New York, this requirement is equivalent to 12 counts on the Regents' scale.

A FOUR-YEAR COURSE LEADING TO THE DEGREE OF CIVIL ENGINEER.

Freshman Year.	No. Course.	1st Term.	2d Term.
Analytics	2	4	–
Differential Calculus	2	1	2
Integral Calculus	2	–	3
Chemistry or Linear and Freehand Drawing, Lettering and Topography	1 or 1, 2, 6	6	–
Linear and Freehand Drawing, Lettering and Topography or Chemistry	1, 2, 6 or 1	–	6
Physics	2	5	5
Land Surveying	10	–	3

In addition to the above the required Drill and Gymnasium must be taken.

Sophomore Year.	No. Course.	1st Term.	2d Term.
Dendrology	3	2	–
Geology	10	2	–
Geology	30	1	3
Descriptive Geometry	8	5	–
Mechanics	20	5	5
Engineering Laboratory	22	2	2
Materials of Construction	25	–	5
Lettering, Tinting and Shading	4	1	1
City Surveying	11	–	2

Junior Year.	No. Course.	1st Term.	2d Term.
Political Economy	51	3	3
Railroad Engineering	60	4	4
Structural Design	71	4	5
Hydraulics	23	5	–
Hydraulic Laboratory	40	–	1
Municipal Engineering	52	2	5
Field Construction (in alternate years)	75	–	1
		During vacation.	
Geodetic and Topographic Surveys	Course 15, 4 hours.		

Senior Year.	No. Course.	1st Term.	2d Term.
Stereotomy and the Masonry Arch	72	(or 3)	3
Geodesy and Astronomy	13	5	–
Geodetic Laboratory	14	–	1
Cartography	16	–	2
Electrical Engineering (E.E.)	11	4	–
Steam Machinery (M.E.)	11	4	–
Engineering Problems	59	–	3
Engineering Jurisprudence	—	–	2
Field Construction (in alternate years)	75	–	1
*Elective	—	5 or 3	3 or 5
Thesis	—	–	–

Thesis.

The thesis is intended to demonstrate the ability of the student for independent investigation, or his capacity to apply the fundamental principles acquired in his course to the study of some special problem related to Civil Engineering. The latest date for announcing the subject, which is to be approved by the Director of the College, is December 1. The plan of work should be submitted for approval to the professor having charge of the subject, to whom also regular reports are to be made showing the progress of the investigation. The latest date for presenting the completed thesis is June 1.

A Six-Year Course Leading to the Two Degrees A.B. and C.E.

Juniors and seniors in good standing in the Academic Department are allowed, with the permission of the Faculty of Arts and Sciences and with the consent of the Faculty concerned in each case, to elect studies in other colleges, which shall count towards graduation in the Academic Department, but the sum total of hours so elected must not exceed the number required for one year's work in the respective colleges, nor exceed nine hours per week in any term.

In accordance with this provision the following suggestion is given for a six-year course leading to the degrees of A.B. and C.E. Subjects in italics are those common to the courses for both degrees.

Freshman Year.	No. Course.	1st Term.	2d Term.
Analytical Geometry	2	4	–
Differential Calculus	2	1	2
Integral Calculus	2	–	3
Botany	3	3	–
Chemistry or Drawing	–	6	–
Drawing or Chemistry	–	–	6
Elective in Arts and Sciences (Maximum)		4	7
Drill	–	2	2
Sophomore Year.	No. Course.	1st Term.	2d Term.
Physics	1	4	4
Geology	10	2	–
Geology	30	1	3
Descriptive Geometry C.E.	8	5	–
Elective in Arts and Sciences (Maximum)		6	11

*All electives must be chosen by the student at the beginning of the year with the previous approval of the Director. The College reserves the right to withdraw any elective course which is not chosen by a sufficient number of students. The electives include Courses 17, 18, 24, 31, 32, 41, 42, 43, 54, 55, 57, 61, 73, 74, 80 and 81. Students in this College desiring to take work in the Dynamo Laboratory (Physics, 4) are first required to take certain preparatory experiments in the Junior Laboratory (Physics, 3), for which a credit of 2 hours will be given, after which they will be permitted to register in Physics 4 for any number of hours that may be desired. The work in Physics 3 consists of the same class of electrical experiments as is required in electrical engineering. In Chemistry, Courses 18 and 66 are recommended; and in Mediciue, Course 43.

Junior Year.	No. Course.	1st Term.	2d Term.
Political Economy	51	3	3
Mechanics	20	5	5
Engineering Laboratory	22	2	1
Land Surveying	10	–	3
Elective in Arts and Sciences (Maximum)		8	6

Senior Year.	No. Course.	1st Term.	2d Term.
Materials of Construction	25	–	5
Engineering Laboratory	22	–	1
Lettering, Tinting and Shading	4	1	1
City Surveying	11	–	2
Elective in Arts and Sciences	—	17	9

The completion of the above courses will lead to the degree of A.B.

Fifth Year.	No. Course.	1st Term.	2d Term.
Railroad Engineering	60	4	4
Structural Design	71	4	5
Hydraulics	23	5	–
Hydraulic Laboratory	40	–	1
Municipal Engineering	52	2	5
Field Construction (in alternate years)	75	–	1
Elective	—	3	3
		During vacation.	
Geodetic and Topographic Surveys	Course 15, 4 hours.		

Sixth Year.	No. Course.	1st Term.	2d Term.
Stereotomy and the Masonry Arch	72	(or 3)	3
Geodesy and Astronomy	13	5	–
Geodetic Laboratory	14	–	1
Cartography	16	–	2
Electrical Engineering E.E.	11	4	–
Steam Machinery M.E.	11	4	–
Engineering Problems	59	–	3
Engineering Jurisprudence	—	–	2
Field Construction (in alternate years)	75	–	1
Elective	—	5 or 3	3 5
Thesis	—	–	–

The completion of the above additional courses will lead to the degree of C.E.

Students desiring to take both degrees of A.B. and C. E. are recommended to complete the plans of their courses with the advice of the Deans of the Faculties concerned.

The student must satisfy the entrance to the Course in Arts (see page 81), provided he wishes to register in the above six-year course leading to the degrees of Bachelor of Arts and Civil Engineering.

Courses of Instruction.

The number following the names of instructors refer to the rooms in Lincoln Hall.

Drawing.

1. **Linear and Freehand Drawing.** Elementary exercises to develop facility in the use of the instruments. Selected geometrical problems. Cross-sectioning. Shading with the right line pen and the bow pen. Isometric drawings. Tracing. Sketching from models. Six hours per week. Courses 1, 2 and 6 will be given in each half-year. First half-year. M., T., W., Th., 10-1; F., 9-12; S., 10-1. Second half-year. M., 2-4½; T., 10-1; W., 2-4½; Th., 10-1; F., 9-1, 2-4½. Assistant Professor PARSON, 23.

2. **Lettering.** The form and proportions of standard letters. Details of construction. Methods of spacing. Laying out titles. Drawing, six hours per week. Assistant Professor PARSON, 23.

4. **Lettering, Tinting and Shading.** Freehand lettering for working drawings, and for general office work. Rendering in water color, sepia, and charcoal. Drawing three hours per week throughout the year. T., Th., 2-5. Assistant Professor PARSON, 23.

6. **Pen and Colored Topography.** Topographical signs. Hill shading by different methods. Representation of surface forms by contours, and in color, pencil and charcoal. Topographic maps. Copying, enlarging, and reducing maps. Drawing, six hours per week. Assistant Professor PARSON, 23.

8. **Descriptive Geometry.** For students in Civil Engineering. A study of the representation of lines, planes, surfaces, and solids, and of their relations; tangencies, intersections and developments; warped surfaces; shades, shadows, and perspective. The text-books are MacCord's Descriptive Geometry and Hill's Shades, Shadows, and Perspective. The original problems are intended to be illustrations and applications of the principles given in the text-books. First half-year. Lectures, three hours per week. M., W., F., 8. Assistant Professor OGDEN, 10. Original problems, six hours per week. T., Th., S., 8-10. Assistant Professor OGDEN, 23. T., Th., 2-5. Assistant Professor PARSON, 23.

9. **Descriptive Geometry.** For students in Mechanical and Electrical Engineering and in Architecture. Lectures, one hour per week throughout the year. Sections A, B, and C, F., 9; sections D, E, and F. S., 10. Assistant Professor OGDEN, Library lecture room. Original problems, three exercises of one hour each per week. Section A, M., W., F., 11. Mr. POND, 31. Section B 1-2, M., W., F., 11; Section B 3-6, M., W., F., 10; section C, M., W., F., 12. Mr. TILDEN, 42. Section D 1-2, M., W., F., 12; section D 3-6, T., Th., S., 9. Mr. POND, 31. Section E 1-2, M., W., F., 10. Mr. TILDEN, 42. Section E 3-6, T., Th., S., 11. Mr. POND, 31. Section F. M., W., F., 9. Mr. TILDEN, 42. Architects, M., W., 9; S., 8. Mr. POND, 31.

Surveying and Geodesy.

10. **Land Surveying.** An elementary study of surveying methods and instruments. The recitations are supplemented by lectures. The field work affords practice in the use of the chain and tape, in making farm surveys with the compass and transit, and in leveling. The field practice is preceded by exercises devoted to a careful study of each instrument. Second half-year. Lectures and recitations, two hours per week. T., Th., 10, 12. Assistant Professor McCAUSTLAND, 45. M., W., 10, 12. Mr. LELAND, 45. Examination of surveying instruments, two hours per week. T., Th., 2–4. Assistant Professor McCAUSTLAND, 10. S., 9–11, 11–1. Mr. DUNCAN, 10. Field work, six hours per week. T., Th., 2–5. Mr. DUNCAN and Mr. POND. S., 8–5. Assistant Professor McCAUSTLAND, Mr. SMITH, and Mr. TILDEN.

11. **City Surveying.** Accurate methods of measuring distances and angles; grading and contouring; street grading; city surveys and monuments; mining survey methods. Reference books: Pence and Ketchum's Surveying Manual, Raymond's Plane Surveyiug, and Johnson's Theory and Practice of Surveying. Second half year. Recitations, one hour per week. F., 10, 12. Assistant Professor McCAUSTLAND, 24, 34. Field work, six hours per week for the latter half of the second half-year. M., W., 2–5. Assistant Professor McCAUSTLAND and Mr. BARNES.

13. **Geodesy and Astronomy.** The lectures and recitations cover the description and theory of the adjustments and methods of use of the field and observatory instruments of the college, including transits, zenith telescopes, altazimuths, and sextants, together with the auxiliary apparatus needed, such as clocks, chronographs, collimators, etc. Observations and computations are made to determine time, latitude, longitude and azimuth, by different methods. Lectures, night observations and computations.

Geodesy. Historic development. Construction and use of instruments with special reference to the elimination of instrumental errors. Field work of the triangulation, including reconnaissance, signals, methods of observing, etc. Precise leveling. Methods of sounding. Figure of the earth, with the development of the formulas required in the reduction of surveys, "L.M,Z." work, map projections and the location of geodetic lines. Development of the method of least squares, with application to survey problems, to the adjustment of a triangulation, and to astronomical work. Mimeograph notes are employed. First half-year. Recitations and lectures, daily. Professor CRANDALL and Mr. LELAND, 34, 43. Observations and

computations. Hours to be arranged. Professor CRANDALL, Mr. LELAND and Mr. SMITH, 24, 43.

14. **Geodetic Laboratory.** Determination of instrumental errors and constants, and of observation errors. The following are examples of the problems given : Determination of the error of the zero point of a compass ; graduation errors of a precise leveling rod, with a diagram for corrections according to the French system ; the temperature at which the 50 foot tape standard has its normal length ; comparison of results for azimuth by the solar compass and by direct observations, etc. Second half-year. Two and one-half hours per week. M., W., 2–4½. Professor CRANDALL and Mr. LELAND.

15. **Geodetic and Topographic Surveys.** The work will be conducted from a camp near Dryden, N. Y., in continuation of a survey of the Fall Creek watershed, begun in 1898. A triangulation is extended over the area as a tertiary system connected with the primary and secondary stations of the New York Survey. Latitude and azimuth observations are taken at one of the stations. A line of precise levels, referred to mean sea level by the Erie Canal bench marks and those of the U. S. Geological Survey, is carried along the valley. Transit stadia lines, connected with the triangulation stations, form the basis for the topography, and some plane-table practice is given in filling in the details. The maps are plotted to a scale of 400 feet to an inch from the coördinates of the stadia lines, adjusted to the triangulation, and 10-foot contours are drawn. Field work, computations and drawing, daily, for four and one-half weeks in the summer vacation, beginning June 10. Professor CRANDALL, Assistant Professor MCCAUSTLAND, Mr. ——— and Mr. ———.

16. **Cartography.** Computations and reductions of the astronomical and geodetic data obtained on the Fall Creek survey in June, 1903, together with a map of the triangulation and topography, using 20-foot contours. Second half-year. Computations and drawing, six hours per week. Th., F., 8–11. Professor CRANDALL and Mr. LELAND, 26.

17. **Advanced Geodesy and Astronomy.** A special course of reading as may be arranged : *e. g.*, Helmert's Higher Geodesy, Chauvenet's Astronomy. First half-year. Five hours per week. Daily, except S., 11. Professor CRANDALL.

18. **Geodetic and Astronomical Laboratory.** The laboratories and observatory are well equipped for the study of standards of length, dividing engines, micrometer microscopes, standard thermometers, pendulum observations, investigations of instruments, and astronomical observations with portable instruments. Second half-year. Seven

and one-half hours per week. T., Th., 2–5¾. Professor CRANDALL and Mr. LELAND, 9, 24.

Applied Mechanics and Hydraulics.

20. **Mechanics of Engineering.** A study of the principles, and applications to engineering, of the mechanics of solids; as relating to the mutual actions, motions, pressures, strength, stiffness, and resilience of the members of structures and machines. Original problems form a prominent feature. Statics of a material point and of rigid bodies. Centers of gravity. Chains and cords. Dynamics (kinetics) of a material point. Impact. Virtual velocities. Centrifugal and centripetal forces. Pendulums. Moments of inertia of plane figures and of rigid bodies. Dynamics (kinetics) of rigid bodies. Work. Power. Energy. Fly-wheels. Friction. Graphical statics of mechanism. Dynamometers. General theorem of work and energy applied to machines. Stresses and strains. Tension. Shearing. Compression. Torsion. Flexure. Elastic curves. Safe loads. Columns. Text-books: Church's Mechanics of Engineering, and Notes and Examples in Mechanics. (At the end of the year nearly three weeks are devoted by students in Sibley College courses to topics in Hydrostatics and Hydraulics.) Lectures and recitations, daily except S., throughout the year. 9, Professor CHURCH, 34; 8, 10, 11, Mr. BEYER, 32; 8, 9, Mr. BARNES, 32; 10, 11, Mr. SMITH, 43; 11, Mr. LELAND, 34; 8, 9, 11, Mr. BERRY, 24; 8, 9, 11, Mr. WYCKOFF, 45.

21. **Mechanics.** (Resistance and elasticity of materials. For students in Architecture.) Tension, compression, and shearing. Riveted joints. Cantilevers and simple beams. Restrained beams. Safe loads. Elastic curves. Deflections. Beams of uniform strength. Columns. Combined stresses. Temperature stresses. Horizontal shear in beams. Text book: Merriman's Mechanics of Materials. First half-year. Lectures and recitations, three hours per week. M., W., F., 9. Assistant Professor MCCAUSTLAND, 46.

22. **Engineering Laboratory.** Use of engineers' computing devices, viz.: the common slide rule, the Fuller spiral slide rule, Thacher calculating instrument, and Goodchild chart. Use of the planimeter, adjustments and use of the cathetometer. Experiments involving the parallelogram of forces (funicular polygons.) Determination of specific gravity with the Jolly balance. Centers of gravity of plates and prismoids (models.) Efficiency of the inclined plane. Systems of levers. Harmonic motion of masses, etc. Experiments in testing materials. Use of the 50,000-lb. Olsen machine in tensile tests of bars of iron and steel. The Thurston and Riehlé torsion machines; determination of constants and tests of specimens. Flexure of steel

bars ; deflections and modulus of elasticity. Elongation of steel wires with observations by cathetometer. Breaking tests of wooden columns. Moments of inertia of beam sections by graphic and analytical methods. Use of the Kew magnetometer. Determination of specific gravity, fineness, soundness, expansion, activity, time of set and strength, of cements. Study of sands. Studies of proportions and kinds of materials to be used in structures when cement is employed. First half year. Five hours per week. (Seven hours in January.) Professor CHURCH and Assistant Professor MCCAUSTLAND. T., Th., 2–4:30. Mr. BEYER, 8, 14, 15. M., W., 2–4:30. Mr. BERRY, 8, 14, 15. F., 2-4:30 ; S., 10–12:30. Mr. WYCKOFF, 8, 14, 15. Second half-year. Seven hours per week for eight weeks, and an average of two hours per week for the remainder of the half-year. M., T., 2–5:30. Mr. SMITH. W., Th., 2–5:30. Mr. BERRY. F., 2–5:30 ; S., 9–12-30. Mr. WYCKOFF.

23. **Hydraulics.** (With topics in hydrostatics and pneumatics.) Fluids at rest. Hydrostatic pressure. Manometers. Strength of pipes. Pressure of water against walls and dams. Earth pressure. Immersion and flotation. Compressed air motors. Air compressors. Gas engines. Barometric leveling. Steady flow of liquids through pipes and orifices, and over weirs. Fluid friction. Losses of head. Time of emptying vessels. Steady flow of water in open channels. Kutter's formula. Steady flow of gases through pipes and orifices. Impulse and resistances of fluids. The Pelton water motor. Back-water. Overshot, breast, and undershot water wheels. Theorem for flow in a revolving pipe. Turbines and reaction wheels. Theory of turbine testing. Text-books : Church's Mechanics of Engineering ; and Hydraulic Motors. First half-year. Lectures and recitations, daily except S., 12. Professor CHURCH, 34. 12, Professor WILLIAMS, 45. 12, Mr. SMITH, 32.

24. **Advanced Mechanics.** Continuous beams. Curved beams. Special cases of flexure. Problems in the mathematical theory of elasticity. Thick hollow cylinders and spheres. Plates. Castigliano's Theorem of least work. Elastic potential and its derivatives. Numerous special problems in the mechanics of fluids. Special theories of hydraulic motors. Centrifugal pumps. Hydraulic brakes. Accumulators. Pressure engines, etc. Recitations. First half-year. Daily except S., 11. Professor CHURCH, 14.

25. **Materials of Construction.** This course embodies the study of the methods of manufacture of iron and steel, and of cement ; the study of the physical and mechanical properties of all of the more important materials of construction and the methods of testing ; an examination and comparison of the results of actual tests. The ques-

tion of the determination of safe unit stresses for each class of material, and the data necessary for such determination will be constantly urged upon the attention of the student. Second half-year. Five hours per week. During 1903–04, two hours per week. M., W., 12. Assistant Professor McCAUSTLAND, 45. M., W., 10, 11. Mr. JOHANNSEN, 44, 10.

[31. **Hydraulic Constructions.** The study of modern hydraulic constructions : Dams, reservoirs, canals, levees, wharves, docks, etc. Structures relating to water power and irrigation. River and harbor works. Second half year. Lectures with collateral reading and reports, five hours per week. Daily except S., 11. Assistant Professor MOTT.]

32. **Water Works.** The design, construction, operation and management of municipal water supply systems. Lectures and recitations, four hours per week for twelve weeks, beginning after Thanksgiving recess. Hours to be arranged. Professor G. S. WILLIAMS, 46.

[This course may be substituted for an equivalent portion of course 41.]

Experimental Hydraulics.

40. **Hydraulic Laboratory.** Testing of water motors. Experiments on the flow of water over weirs, and through orifices and pipes. Rating of current meters. Second half-year. Two and one-half hours per week. M., W., 2½–5. S., 8–1. Professor G. S. WILLIAMS, 3.

41. **Experimental Hydraulics.** Tests of water meters, including the Venturi, and meters of the disc, rotary, and piston types. Determination of losses of head due to valves, elbows, etc., in pipes. Current water meter guagings of flow in open channels. Tests of water motors of various types, turbines, reaction wheels, etc. Determination of coefficients of fluid friction in pipes. Tests of hydraulic rams, and other pumping devices. Special forms of weirs. Tests of flow in open channels ; effect of form of section and of roughness of sides and bottom. Second half-year. T., Th., 2–5¾. Professor G. S. WILLIAMS, 3.

42. **Experimental Hydraulic Motors and Pumps.** The determination of efficiency, horse power, and capacity of hydraulic machinery. First half-year. Ten hours per week during the first half of the term. Hours to be arranged. Professor G. S. WILLIAMS.

43. **Advanced Experimental Hydraulics.** Advanced work on a large scale upon the flow and measurement of water. Second half-year. Work limited to the open season. Professor G. S. WILLIAMS.

Municipal and Sanitary Engineering.

52. **Municipal Engineering.** Sewerage and sewage disposal. First half-year. Lectures and recitations, two hours per week. M., W., 10. Assistant Professor OGDEN, 45. Water works, including the computation of rainfall, run-off and storage, the amount of water necessary for domestic and municipal purposes, sources of supply, methods of collection, storage and distribution. Second half-year. Lectures, five hours per week for first half of term. Daily, except S., 12. Assistant Professor MOTT, 24. (During 1903–04, these lectures will be given by Professor Williams). Street pavements. Street cleaning. Garbage collection and disposal. Second half-year. Lectures, five hours per week for second half of term. Daily, except S., 12. Assistant Professor OGDEN, 24.

54. **Design of Sewerage Works.** This course gives a detailed view of the field of sewerage design and construction, and of sewage disposal. Twenty-four lectures are devoted to sewage disposal, describing the most modern plants of Europe and of this country with the principles involved and a comparison of their relative efficacy of treatment. Twenty-two lectures relate to the question of design, considering the rainfall, run-off and all matters involved in the separate system. Fourteen lectures treat of construction, with details of manholes, siphons, gate screens, and all topics relating to foundations, piers, brick, concrete or other construction. The rest of the course deals with the general questions relating to municipal engineering. Second half-year. Lectures, five hours per week. Daily, except S., 11. Assistant Professor OGDEN, 44.

55. **Sanitary Laboratory.** This course offers a practical demonstration of some of the topics considered in courses 52 and 54. Reports are required on sand analyses, on coefficients of friction of water in sand, on the examination of plumbing installations, and on the study of ventilating plants. Preparation of culture media and of cultures of typical bacteria. Measurements of velocities and grades in the city sewers, and a study of their inter-relation with sizes of pipe and depths of flow. Second half-year. Seven and one-half hours per week. T., Th., 2–5:45 Assistant Professor OGDEN, 2.

57. **Testing Materials.** Special work will be arranged for students electing this course, upon consultation with the professor in charge. Tests may be made upon full-sized sections in iron and steel; upon wooden columns, beams, and trusses; standard tests of paving brick and blocks; tests of road metal according to the standards of the Massachusetts Highway Commission; extended series of tests upon cements, cement mixtures and concrete, with and without steel

reinforcement; tests of brick piers. Marten's Testing of Materials and Johnson's Materials of Construction are used as reference works. First half-year. Seven and one-half hours per week. T., Th., 2-5:45. Assistant Professor McCAUSTLAND and Mr. JOHANNSEN, 4, 10, 15.

59. **Engineering Problems.** The object of this course is to provide additional practice in using the principles and methods of Applied Mechanics, both of solids and fluids. A series of problems, such as occur in ordinary engineering practice, and covering a wide range of topics, is given out for solution. Second half-year. Computations and reports, nine hours per week. M., 8-11; T., 8-10; W., 8-11. Professor CHURCH and Mr. SMITH, 23.

Railroad Engineering.

60 **Railroad Engineering.** The field work includes the laying out of curves, turnouts, etc., and the staking out of structures, in addition to making the reconnaissance, preliminary and location surveys for about five miles of railway in the Inlet Valley. The work is cross-sectioned and the positions of the structures determined. The drawing includes a map and a profile of the located line and a plan for one or more of the structures. The earthwork is computed from the cross-sections, and complete estimates are made of quantities and costs, including all structures. The recitations and lectures take up the field problems, the computation of earthwork, the cost of earthwork, sub-grade and track structures, track work, and the economics of railroad location and operation. Searle's Field Engineering; Crandall's Transition Curve, Earthwork Tables, and Mimeograph Notes on Railroad Engineering; and Wellington's Economic Theory of Railway Location, form the basis of the work. First half-year. Recitations, lectures, field work and drawing, ten hours per week. T., Th., 2-5; S., 8-6. Professor CRANDALL, Mr. BARNES and Mr. LELAND. Second half-year. Lectures and recitations, three hours per week. M., T., W., 10. Professor CRANDALL, 24. T., Th., S., 11. Mr. BARNES, 10, 24. Drawing, six hours per week for six weeks. M., W., 2-5. Mr. BARNES, 26. T., Th., 2-5. Mr. LELAND, 26.

61. **Advanced Railroad Engineering.** This course is mainly along the line of operation and maintenance. The subjects treated are: Trackwork and accessory structures; improvement in gradients and aliuement; sorting yards; terminals; block signaling and interlocking; street and electric roads; rapid transit; and railroad management. Second half-year. Reading, lectures, and recitations, five hours per week. Daily, except S., 11. Professor CRANDALL, 46.

Bridge Engineering.

71. **Structural Design.** Structural Details. The lectures treat of the forms and strength of joints and fastenings used in heavy framing; of the design and construction of beams, columns, roof trusses, and other wooden or combination structures, including some cast and wrought-iron details; and of the results of timber tests and the determination of safe unit stresses. The recitations cover the graphic analysis of simple beams and roof trusses in Chapters I and II of Merriman and Jacoby's Roofs and Bridges, Part II. The computations and drawing include complete detail designs and working drawings of two joints to resist large tensile stresses, of a deepened beam, and of a wooden roof truss for given specifications. First term for eleven weeks. Lectures and recitations two hours per week. T., Th., 10. Mr. JOHANNSEN, 24. Computation and drawing, six hours per week. M., W., 2–5. Assistant Professor MCCAUSTLAND, 23. M., W., 2–5. Mr. JOHANNSEN, 26.

Bridge Stresses. Analytic and graphic methods. Principal modern forms of simple trusses. Dead, live, snow and wind loads. Counter bracing. Uniform panel loads. Excess panel loads. Text-book; Merriman and Jacoby's Roofs and Bridges, Parts I and II. First half-year. Recitations and lectures, four hours per week for four weeks. M., T., W., F., 8, 9. Assistant Professor MCCAUSTLAND, 34, 44. M., T., W., F., 9, 10. Mr. JOHANNSEN, 43, 34.

Bridge Stresses, continued. Locomotive Wheel Loads. Construction and use of load and moment diagrams. Multiple systems. Long span trusses. Plate girders. Evolutiou of bridge trusses. Classification. Solution of assigned problems. Second half-year. Recitations and lectures, five hours per week for six weeks. Daily, except S., 9, 10. Professor Jacoby, 43, 34. 8, 9. Mr. JOHANNSEN, 34, 44.

Bridge Design. Lectures and recitations on the design of plate girders, riveted and pin bridges. Details. Economic proportions. Analysis of weights. Complete computations and drawings for the design of a steel railroad bridge of short span. Text-book: Merriman and Jacoby's Roofs and Bridges, Part III. Second half-year. (Following Bridge Stresses). Lectures and recitations, one hour per week. Th., 9. Professor JACOBY, 43. Mr. JOHANNSEN, 44. Computations and drawing, twelve hours per week. M., 2–5; T., 8–11, 2–5. Professor JACOBY, 26. M., 8–11; W., 8–11, 2–5; Th., 2–5; S., 8–11. Mr. JOHANNSEN 26.

72. **Stereotomy and the Masonry Arch.** Two problems in stereotomy, all templet dimensions to be checked by computation; a review or the complete design of a right arch, either of masonry or steel-

concrete construction, including stability of arch and foundations, architectural features, falsework, bill of materials and cost. First half-year. Drawing and computations, seven hours per week. Th., 9–12; S., 9–1. Assistant Professor McCAUSTLAND, 26. Second half-year. W., 2–5; S., 9–1. Professor JACOBY, 36, 26.

73. **Bridge Engineering.** Determination of the loading and stresses in continuous girders and trusses, draw-bridges, cantilever bridges, suspension bridges, and metallic arches. The metallic arches include arched ribs and trussed arches of three, two and no hinges, respectively, both for roofs and bridges. Analytic and graphic methods. Study of the designs of typical examples of these classes of structures; Text-book: Merriman and Jacoby's Roofs and Bridges, Part IV. First half-year. Recitations, five hours per week. Daily, except S., 11. Mr. JOHANNSEN, 46.

74. **Masonry and Foundations.** Coffer dams, cribs, sheet piling, metal cylinder piers, pumping and dredging, the foundation, and the location and design of piers. Text-book for the preceding topics: Fowler's Coffer-Dam Process for piers. Piles and pile driving. Pneumatic caissons. Open caissons. Caisson sinking. Deep and difficult foundations. Foundations of buildings; pile, caisson, steel, concrete. Underpinning. Examination of selected modern examples described and illustrated in the Engineering periodicals and transactions. Building stone. Second half-year. Recitations and written reports, five hours per week. Daily, except S., 11. Professor JACOBY, 14.

[75. **Field Construction.** The erection of girder bridges and viaducts; of bridges on trestle falsework and on special supports; of cantilever bridges; of movably erected and suspension bridges; of steel buildings and of long-span roof trusses. The framing and details of steel buildings. Equipment of tall buildings. Underpinning and reconstructing buildings. Moving and razing buildings and other structures. Foundations of buildings and of engineering structures. Second half-year. To be given in 1904–05. Lectures, one hour per week. Hours to be arranged. Non-resident lecturer, FRANK W. SKINNER.]

Testing Materials. See Municipal and Sanitary Engineering.

Mining.

80. **Mining.** A general course, introductory to the subject of mining engineering, covering methods of working various mines. General problems of ventilation, lighting, drainage, haulage and hoisting, timbering, etc., specifically,

Anthracite and Bituminous Coal Mining. Occurence of coal, place of attacking seam, determination of character and extent of coal seams

or beds. Coal cutters, conveyors, breakers, washers, and tipples. Visits are made to the mines in the Wilkes-Barre region, to inspect the actual operations of mining and of preparing the coal for the market. First half-year. Lectures and recitations, five hours per week. Daily, except S., 11. Assistant Professor McCAUSTLAND, 44.

81. **Metal Mining and Milling.** Brief sketch of mining law. Location of mineral claims. Methods of opening veins. Shaft sinking and timbering. Mine timbering. Drills, drilling, blasting and explosives. Hydraulic mining of placer deposits. Dredge mining. Milling and concentrating machinery. Crushers, stamp mills, amalgamators, vanners, jigs, concentrators, etc. Some laboratory practice is given in the use and adjustment of drills, air compressors, etc., Special problems in the design of mine plant are made a prominent feature of the work. The library contains most, if not all, the standard works on mining and mine engineering, and all the leading mining periodicals. These are largely drawn on for the regular class work. Second half-year. Lectures and recitations, five hours per week. Daily, except S., 11. Assistant Professor McCAUSTLAND, 29.

Special and Graduate Courses.

Special Courses. All of the elective courses are suitable for graduate and advanced students, and may be taken by them in the regular classes. Other special courses will be arranged to suit the requirements of graduate students. These courses are intended to be pursued under the immediate direction of the professor in charge, the student being usually free from the restrictions of the class room and working either independently or in conjunction with others taking the same course.

DEGREES.

First Degree.

The degree of *Civil Engineer* (*C.E.*), is conferred upon such candidates as may successfully complete the four-year undergraduate course (see page 348) and present a satisfactory thesis, upon the recommendation of the faculty of the *College of Civil Engineering* to the *Board of Trustees.*

Graduate Courses and Advanced Degrees.

Graduate courses may be pursued by resident and non-resident graduates under the regulations mentioned on pages 66–74. Such courses are also open to graduates of any institution having an equivalent curriculum, when such graduates are accepted as candidates by the Fac-

ulty of this College. All graduate students are under the jurisdiction of the University Faculty.

The degrees of Master of Civil Engineering (M.C.E.), and Doctor of Philosophy (Ph.D.), are conferred after the conditions are fulfilled which are detailed on pages 73, 74.

For fellowships and scholarships see pages 58–69.

PRIZES.

The Fuertes Medals, founded by Professor E. A. Fuertes and consisting of two gold medals, each of the value of one-half the amount of the income provided by the endowment fund will be awarded under the following conditions :

One of these medals will be awarded annually by the University Faculty to that student of the College of Civil Engineering who may be found, at the time of graduation, to have maintained the highest degree of scholarship in the courses of his college, provided he has been in attendance in the University for at least two years ; and the other medal will be awarded annually by the Faculty to that graduate of the College of Civil Engineering who may write a meritorious paper upon some engineering subject tending to advance the scientific or practical interests of the profession of the civil engineer. It is desired that papers be presented on or before April 15th. If a paper is submitted in printed form, it will not be received if it has been printed earlier than the next preceding April 15th.

Neither medal shall be awarded unless it appears to the Faculty of the College of Civil Engineering that there is a candidate of sufficient merit to entitle him to such distinction. Candidates will be nominated to the University Faculty by the College of Civil Engineering annually.

When no medal is awarded, the money thus left unexpended shall be added to the principal of the Fuertes fund ; or it may, at the discretion of the Board of Trustees, be given to aid needy and meritorious students of any college or department of the University.

SIBLEY COLLEGE

OF MECHANICAL ENGINEERING AND THE MECHANIC ARTS.

FACULTY.

JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President.

ROBERT HENRY THURSTON, LL.D., Dr.Eng'g., A.M., Director of the College, Dean of the Faculty, and Professor of Mechanical Engineering.

JOHN LEWIS MORRIS, A.M., C.E., Sibley Professor, Emeritus. In charge of Department of Practical Mechanics and Machine Construction.

ROLLA CLINTON CARPENTER, M.S., C.E., M.M.E., Professor of Experimental Engineering.

HARRIS JOSEPH RYAN, M.E., Professor of Electrical Engineering.

WILLIAM FREDERICK DURAND, Ph.D., Professor of Marine Engineering, and Principal of the Graduate School of Marine Engineering and Naval Architecture.

HERBERT WADE HIBBARD, A.B., A.M., M.E., Professor of Mechanical Engineering of Railways and Principal of the Graduate School of Railway Mechanical Engineering.

FOREST ROBERT JONES, M.E., Professor of Machine Design.

EDWIN CHASE CLEAVES, B.S., Assistant Professor of Freehand and Mechanical Drawing.

GEORGE ROBERT McDERMOTT, Assistant Professor of Naval Architecture.

CLARENCE EDWIN COOLIDGE, Ph.B., Assistant Professor of Machine Design.

HENRY HUTCHINSON NORRIS, M.E., Assistant Professor of Electrical Engineering.

HERMAN DIEDERICHS, M.E., Assistant Professor of Experimental Engineering.

WILLIAM NICHOLS BARNARD, M.E., Assistant Professor of Machine Design.

HIRAM SAMUEL GUTSELL, B.P., A.M., Instructor in Industrial Drawing and Art.

JOHN S. REID, Instructor in Machine Drawing and Design.

DAVID REID, Instructor in Machine Drawing and Design.

CHARLES WELLINGTON FURLONG, Instructor in Industrial Drawing and Art.

EDGAR HARPER WOOD, M.E., Instructor in Drawing.

WILLIAM CHARLES BAKER, B.S,A., Instructor in Drawing.

ROBERT LEE SHIPMAN, B.E., M.E., Instructor in Experimental Engineering.

ALDEN KITTREDGE DAWSON, Instructor in Drawing.

GEORGE STANLEY MACOMBER, M.E., Instructor in Electrical Engineering.

THOMAS MOONEY GARDNER, M.M.E., Instructor in Mechanical Engineering.

RALPH GOLDSMITH YOUNG, M.E., Assistant in Experimental Engineering.

JOHN M. YOUNG, M.E., Instructor in Experimental Engineering.

GEORGE RAY CHAMBERLAIN, M.E., Instructor in Drawing.

IRVING AXWELL COLBY, B.S., Instructor in Machine Design.

HENRY L. FREEMAN, B.S., Instructor in Machine Design.

JOHN A. WHEELER, M.E., Instructor in Experimental Engineering.

WALTER RAUTENSTRAUCH, M.S., Instructor in Machine Design.

JAMES WISEMAN, Foreman of Machine Shop, and Instructor in Machine Construction.

WILLIAM HENRY WOOD, Foreman of Woodshop.

JAMES EUGENE VANDERHOEF, Foreman in Foundry.

WILLIAM FREDERICK HEAD, Foreman in Forging.

GEORGE CONGER POLLAY, Assistant in Woodshop

ROBERT VANDERHOEF, Assistant in Foundry.

FRANK STARKINS, Assistant in Machine Shop.

ARTHUR HENRY SWEET, Mechanician in Sibley College.

RAYNOR EGBERT SEAMAN, Assistant in Woodshop.

WALTER LISTON HEAD, Assistant in Forging.

M. C. KLEIN, Assistant in Machine Shop.

Fellows—1902-1903.

SIDNEY GRAVES KOON, M.E.

EDWARD FRANKLIN SCHAEFER, M.E.

NON-RESIDENT LECTURERS, 1902-1903.

A. E. KENNELLY, Ph.D., Harvard University, Laying of Mexican Gulf Cable.
W. B. SMITH WHALEY, M.E., Columbia, S. C., Mechanical Applications of Electricity.
W. M. McFARLAND, (ex-U. S. N.,) Pittsburg, The Commercial Side of Engineering.
ALBERT KINGSBURY, M.E., Problems in Lubrication.

DEPARTMENT OF LIGHT AND POWER.

JOHN LEWIS MORRIS, A.M., C.E., Head of Department.
HARRIS JOSEPH RYAN, M.E., Consulting Engineer.
HENRY HUTCHINSON NORRIS, M.E., Electrician.
RUD BRYANT HAYES, M.E., Superintendent of Electric Service.
RICHARD HISCOCK, Chief Engineer and Assistant in Steam Engineering.
HORACE MARSHALL, Engineer of Light and Power Station.
ALONZO WHITLOCK, Lineman.
ALBERT TUCKER, First Assistant Engineer.
JOHN WILLIAM BRUCE, Second Assistant Engineer.
TRACEY HISCOCK, Assistant in charge of Boilers.

The Sibley College of Mechanical Engineering and the Mechanic Arts, as its name implies, is organized as a technical and professional college in Cornell University. Its courses are planned and conducted with a view, primarily, to the promotion of the fundamental ideas of the law establishing that institution and the most cherished plans of its Founders—the advantage of the "industrial classes," through training in the industrial arts and professions, as supplementary to so much of academic education as its students may have found it practicable to secure. Before preparing for or entering upon such courses of instruction as are here offered, it is presumed that the student has secured as complete a general education as time and means permit, and that he is ready to give all his thought and energy to business. For him, these courses constitute the first step in his business career and it may be expected that they will be so regarded, both by him and by his instructors. The methods of the college will be, as far as practicable, those of the business establishment or engineer's office, and admission and discharge will be governed as far as possible by business rules. Men of ambition and holding to business principles and methods will be given every assistance in their endeavors to obtain a professional training; others will be directed into other departments of study or into other lines of business.

Candidates for admission are reminded that these courses are intended solely for the student proposing to enter the professional work into which these lines of study lead, and that it is assumed that his general academic education has been completed to the full extent of his available time and means. He is advised, in all cases, to secure, before entering Sibley College, a good academic education, including, if practicable, a liberal college course. His success in the practice of his profession will be found to depend more and more, in the future and always in large degree, upon the position which he may be able to asume among men of education and culture. The courses here offered are not intended to give him more than a technical preparation for the special professional work of his business life. Even the entire devotion of four years to this specific and limited purpose will be found none too much, and the courses are therefore organized to meet the demands, solely, of engineering as a profession. Education and culture should precede it ; notwithstanding the fact that technical studies must always constitute a very effective line of education of the faculties and of the mind. Failures are as commonly due to immaturity as to lack of scholarship.

The Sibley College of Mechanical Engineering and the Mechanic Arts receives its name from the late Hiram Sibley, of Rochester, who between the years of 1870 and 1887, gave one hundred and eighty thousand dollars towards its equipment and endowment. Mr. Hiram W. Sibley has added above one hundred and thirty thousand dollars for later constructions. It now includes eight departments : Mechanical Engineering, Experimental Engineering, Electrical Engineering, Machine Design, Mechanic Arts or Shop Work, Industrial Drawing and Art, Graduate Schools of Marine Engineering and Naval Architecture, and of Railway Mechanical Engineering.

Departments.

1. **Department of Mechanical Engineering.**—The work of this department is conducted in connection with the several other departments to be presently described. The full course of instruction consists of the study, by text-book, or lectures, 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 accompanied by instruction in the science of pure mechanical kinematics, which traces

motions of connected parts, without reference to the causes of such motion, or to the work done, or the energy transmitted. The study is conducted largely in 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 kinematics models known as the Reuleaux models, a complete collection of which is found in the museum of Sibley College.

The study of machine design succeeds that of pure mechanism, just described, and it is also largely conducted in the drawing rooms.

The closing work of the course consists of the study, by text-book and lectures, of the theory of complete machines, as 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.

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

2. **Department of Experimental Engineering, or Mechanical Laboratory Instruction.**—The work in this department comprises 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. Its courses of instruction include the theory and use of machines for testing the strength and determining other valuable properties, of the materials of construction, of lubricants, and of fuels, etc., the processes of belt-testing, and of power measurement, and the standard system of gas and steam-engine and of steam-boiler test-trials. All students take part in this work and, when sufficiently expert, in commercial work of this kind at the University, and sometimes extensively in the large cities throughout the state and elsewhere.

3. **Department of Electrical Engineering.** The student at the end of the third year of the course in Mechanical Engineering may, if he chooses, substitute the special work in electrical engineering for the prescribed work of the regular course. The special 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 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, power plants, telephone and telegraph lines and cables, and to the general purposes of inves-

tigation. A large amount of work in the laboratories of the Department of Physics is also given with special reference to the needs of the practical electrician.

Graduates in the course of Electrical Engineering are given the degree of Mechanical Engineer, as in the regular course, with a statement in the diploma that the student has elected the special work offered in this department.

Students entering the undergraduate courses for the purposes of the electrician, rather than those of the electrical engineer, should take the course leading to the degree of A.B., and should take its electives in physics. No student deficient in talent for either mathematics, physics, or the mechanic arts should attempt electrical engineering.

4. **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. The courses are as follows:

Wood-working, Turning and Pattern-making. This course begins with a series of exercises in wood-working, 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 student to perform any ordinary operations 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 is paid to the details of pattern-making.

Forging, Moulding and Foundry-work. 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.

Iron-working. 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 wood-working course, beginning with 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.

5. **Department of Industrial Drawing and Art, (excluding Machine Design).** Freehand Drawing and Art: the instruction begins with freehand drawing, which is taught by means of lectures and general exercises from the blackboard, from flat copies, and from models. For engineering students 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, aud, later, of working machines. For students of industrial drawing and art further courses are offered 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 decorative art, in designing for textiles and ceramics, in modeling, and in other advanced studies introductory to the study of fine art.

Industrial Art. Instruction in industrial aud fine art, continuing through four years, is arranged for students having a talent for such work, and desiring to devote their time mainly to this subject. Modeling and landscape drawing and painting occupy the spring term. No degree is conferred, but certificates of proficiency may be given at the end of the course. Occasional general and public lectures on the history of art and the work of great artists are given.

6. **Department of Machine Design.**—The work begins with the elements of mechanical drawing. The use of drawing instruments is first 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 section-lining and colors, geometrical construction, projections and other important details of the draughtsman's work are practiced until the student has acquired proficiency. The advanced instruction is developed directly out of the preceding courses and includes the tracing of curves and cams, the study of kinematics on the drawing board, tracing the motion 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 his 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 mechanics. 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 plans relating to their own inventions.

Besides the preceding undergraduate courses, graduate courses are arranged for students in mechanical or electrical engineering who desire further instruction and advanced work in engineering.

7. **The Graduate School of Marine Engineering and Naval Architecture**, which was established by the Board of Trustees in 1890, has for its object to provide courses of instruction and opportunities for research in such special branches of engineering as relate to the design, building, powering, and propulsion of vessels of any and all types. Such courses naturally fall under two heads:

(a) Marine Engineering. (b) Naval Architecture.

These two sub-divisions are closely inter-related, and of the courses of study offered, many are common to both. Outside of these each branch is specialized in its own direction, the naval architect being more especially interested with the design and construction of the ship, and the marine engineer with the design, construction and maintenance of the motive power.

As a foundation for the work in Marine Engineering the student follows for the first three years, with only slight change, the regular Sibley College course in Mechanical Engineering. During the fourth year special work in Marine Engineering and Shipbuilding is introduced, occupying about one-half of the time for this year. The remainder of the time is occupied with a portion of the regular senior work in the courses in Mechanical Engineering.

The study of Naval Architecture and Shipbuilding being somewhat further removed from the regular course in Mechanical Engineering, the special work of the course is necessarily somewhat wider in extent. As a foundation for this course the student follows for the first two years with no change the regular Sibley College course in Mechanical Engineering. During the Junior year special work in Naval Architecture and Shipbuilding is introduced to the extent of about one-third the time for the year. This is followed in the Senior year with further work in the same lines to the extent of about one-half the time of the year. The remainder of the time in each year is occupied with studies in the regular course in Mechanical Engineering.

The undergraduate course, as above outlined, is intended to acquaint the student, in as thorough a manner as the time will permit, with the general principles involved in the science of Marine Construction and with the development and actual condition of the art as it is represented by the widest range of present-day practice. The student is thus fitted to take up intelligently the practical study of his profession as found in the routine office work connected with marine design.

With the start thus obtained and the broad training in fundamental principles which the undergraduate course seeks to give, the attainments of the student in this field will be limited only by his industry, continuity of purpose, and the special direction in which his efforts are expended.

The purpose of the work offered in the graduate courses is to give opportunity for advanced study and research along special lines of work, at the same time broadening, rounding out and strengthening the work of the undergraduate course.

The methods of work in the graduate year are to a large extent individual and vary with the subject involved. They include directed courses of reading and study, special conferences with the professor, or courses of lectures dealing with the topics under examination, together with special research and investigation in such manner as may be most suitable to the subject in hand.

8. **The Graduate School of Railway Mechanical Engineering** was authorized by the Board of Trustees, June 1896, and was organized in February, 1898. Its purpose is to concentrate and systematize the work in the mechanical engineering of railway machinery previously constituting a subordinate part of the existing courses, and to offer special instruction to students who have completed a general course in technical institutions of high rank, and, furthermore, to members of the engineering profession desiring special knowledge in this field. For all such, in addition to instruction in this department of engineering of immediate practical value, courses of work are also available in other associated departments of the College and of the University, in such form and in such amount as will be best adapted to their necessities.

The courses in the school have special relation to the designing, manufacture, service in operation, repairing, and the test trials of locomotives and other rolling stock and their equipment; and with the problems connected with the other kinds of machinery employed in railway operation. They are particularly adapted to the needs of the young engineer seeking to find his way into the mechanical departments of railways and into the positions, ultimately, of superintendents of shops and of motive power. These courses are also suitable for those who desire to become locomotive or car builders, as managers eventually of so-called "contract shops"; and for those whose interests lean towards the railway supply business, as the mechanical engineer, superintendent of works, or traveling representatives of firms furnishing equipment, supplies and tools for locomotives, cars, and shops.

In addition to the courses offered in Sibley College, as purely professional, there will be found in the scheme of the special courses leading to advanced degrees, opportunities for pursuing work in economics, in law, and in allied professional and scientific departments, in all that great variety characteristic of the University.

The School so arranges its work, also, as to connect closely with the undergraduate work of Sibley College. Students in the undergraduate courses may begin to specialize in their sophomore year by electing problems relating to locomotive details in course M.D. 5, Mechanical Drawing. In the Junior year the Railway Club becomes available. Juniors who are ahead of their course and have the proper preparation and time, may still further specialize by elections from the senior courses in the Railway School. In the senior railway year, about half the student's time is devoted to railway subjects. The graduate year carries the specialized instruction to far greater thoroughness, handling the various problems with the strictly engineering completeness of the actual railway motive power department. Railway seniors, who have the available time, may elect some of this advanced graduate work. In general, with the above additions, the railway course is identical with the regular course in mechanical engineering for the first three years.

Graduates of engineering schools who have had the equivalent of the senior year in the regular course, can take a special graduate year, made up of the senior railway subjects and such electives from the graduate subjects as may be desired.

Particular attention is called to the opportunity offered for practical experience in railway and locomotive shops during the summer vacation. From 1899 there have been about thirty shops open each summer to the students for this three months of work, at wages more than covering expenses, of which from sixty to eighty students of all classes have annually availed themselves, some for three successive seasons. The importance of this work, as preparatory to the courses of the Railway School, for developing character and self reliance, and for a better standing at the later entrance into permanent positions after graduation, cannot be overestimated.

Inspection trips, accompanied by the Principal of the School as field lecturer, are made to important railway and manufacturing centers during the year, with a long tour covering the spring recess, at reduced rates.

[Circulars of Special Schools will be sent on application.]

Opportunities for Chemical Engineering.

Excellent opportunities are opening in increasing numbers for men trained as mechanical engineers and familiar with the processes and methods of industrial chemistry. Students interested in this specialty may profitably supplement the work in mechanical engineering by the various courses in analytical and industrial chemistry, as specified under Chemistry in the Academic Department. The elective time of the regular course in mechanical engineering may be given to these subjects, and, in special cases, permission may be obtained to substitute work in applied chemistry for a certain part of the work of the regular course. See Chemistry pp. 161 to 169.

Special Students.—Special students are sometimes admitted who are expected to follow as closely as possible a course of instruction planned with reference to their needs and approved by the Director of the College. This instruction does not lead to a degree and is only intended for students who are unable to pursue a complete college course, or who desire special instruction in advanced and graduate work.

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. Extended "Inspection Tours" are made to the great cities and manufacturing establishments during the spring vacation, when sufficient numbers are enrolled.

Persons desiring more information in regard to any subject connected with Sibley College should address "The Director of Sibley College."

BUILDINGS AND EQUIPMENT OF SIBLEY COLLEGE.

The buildings of **Sibley College** occupy a ground enclosed between East and Central Avenues, at the north end of the Campus, leased from the University for the purposes of the College, under an agreement with the late Hiram Sibley.

The main building of **Sibley College** is three hundred and seventy feet long, fifty feet in width, and three stories in height. It contains museums, the reading room, drawing-rooms, lecture-rooms, large and well-lighted auditorium, and the class-rooms and offices of the different professors. The workshops are placed in separate buildings and consist of a machine shop, a foundry, a blacksmith shop, and a wood-working shop, and include rooms devoted to the storage of tools. Besides these there is an additional building, one hundred and fifty feet by forty in dimensions, and two stories in height, occupied by

the laboratories of the department of experimental engineering. At the bottom of Fall Creek Gorge is the house protecting the turbines which supply the power ordinarily required for driving the machinery of the College, and the electric apparatus for lighting the campus and the buildings, and, near it, a steam pumping station used as a reserve when the power of the hydraulic station is unequal to the demand for water supply. 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 200 H.P boilers furnishing steam to these and the experimental engines.

The Collections of Sibley College are of exceptional extent, value, and interest. A principlal room on the first floor of the main building is 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 this museum is placed a large Reuleaux collection of models of kinematic movements. Besides these are the Schroeder and other models exhibiting parts of machinery, the construction of steam engines and other machines, and a large number of samples of machines constructed to illustrate special forms and methods of manufacture. Many of these machines and tools have been made in the University shops. 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. The course of instruction in mechanical engineering is illustrated by a fine collection of steam engines, gas and vapor engines, water-wheels and other motors, models and drawings of every standard or historical form of prime mover, or parts of machines, and of completed machinery.

The collections of the Department of Drawing and Art include a large variety of studies of natural and conventional forms, shaded and in outline, geometrical models, casts and illustrations of historical ornament, and remarkably fine collections of casts, of pattern and other art work.

A special museum building, 35 by 75 feet, has been erected for the School of Railway Mechanical Engineering, in which is an important and growing collection of railway appliances, either new, or showing failures in service, or tested in Sibley laboratories.

The workshops are supplied with every needed kind of machine or tool, including lathes, and hand and bench tools sufficient to meet the wants of two hundred and fifty students of the first year, in woodworking; in the foundry and forge, all needed tools for a class of two

hundred in the second year; in the machine shop, machine tools from the best builders, and a great variety of special and hand tools, which are sufficient for a class of one hundred and fifty in the third year, and as many seniors and graduate students. Many of the machine and hand tools are the product of the College workshops.

The Sibley College Mechanical Laboratories in charge of the department of experimental engineering contain the apparatus for demonstration and experimental research of Sibley College, in which instruction is given and investigation is conducted. They are supplied with the apparatus for testing materials and for experimental work in the determination of the power and efficiency of heat and hydraulic motors, and have facilities for operating and testing the steam and hydraulic power plant employed in driving the machinery of the establishment, boiler testing plant and instruments; and with over twenty machines of the various standard types for testing the strength of metals, including machines of 50, 100, and 150 tons capacity; and one 60,000 and one 200,000 pound Emery machine, of extraordinary accuracy and delicacy. About thirty steam engines, air, oil, and gas engines, fourteen dynamometers, ten lubricant-testing machines, about fifty standard pressure guages and an equally numerous collection of steam engine indicators, together with other apparatus and instruments of precision employed by the engineer in such researches as he is, in practice, called upon to make, are collected here. A large hydraulic "plant" is employed for experimental purposes and for research. All the motors of the University, and its boilers, amounting to 1000 horse-power, are available for test trials. The steam engines are set up, with the heavy lighting dynamos, adjacent to the boilers; among them a 200 H.P. "experimental engine," and several of smaller power, including 150 H.P steam-turbine with dynamo attached, and a 20 H.P. quadruple expansion experimental engine and steam boiler, designed and built by students, and arranged to use with steam at 500 pounds pressure, exhibiting an efficiency without precedent at its date.

The laboratories have a total floor space exceeding 25,000 square feet and are divided into several departments for instruction and investigation. The department of steam engineering possesses one triple expansion Corliss engine, one triple expansion slide valve engine of 60 horse power, one quadruple expansion engine and numerous examples of simple and compound engines and pumps; one Parsons steam turbine of 200 horse power and one De Laval turbine of 25 horse power capacity, it also contains two Babcock and Wilcox water tube boilers fitted with superheating apparatus, one Heine water tube boiler, one Roberts water tube boiler, one special

water tube boiler for 1000 pounds steam pressure and several examples of shell boilers; it also contains several surfacc condensers, heaters, traps and other accessories of a steam power plant; it also contains all apparatus necessary for the complete tests of steam engines and other motors, including about eighty indicators, and a large collection of gauges, thermometers, reducing motions, etc. The department of internal combustion motors includes a very complete collection of hot air engines, gas and oil engines of various types, which are sufficient to illustrate all the principal improvements in this art which have been made since the earliest use of a successful gas engine; altogether, the department has thirteen working motors of this type, with all the facilities required for testing. The department of refrigeration and air compression includes one complete refrigerating plant of small size with all apparatus for testing, several air compressors of both the single and two-stage type; several fans and blowers with apparatus for testing; one complete set of air brake apparatus, a rock drill, and a number of compressed air tools, also a meter for the measurement of compressed air. The department of lubrication and friction contains a complete assortment of apparatus for the measurement of the friction, and the testing of lubricants, including eight oil testing machines; and apparatus for the measurement of viscosity, and other physical properties of oil. It also contains a large collection of transmission and absorption dynamometers for the measurement of power. The department of hydraulic machinery possesses a number of hydraulic motors, pumps, hydraulic rams, and apparatus for testing the same; it also contains a number of small weirs, nozzles, and other apparatus for measuring the flow of water. The department for testing strength of materials, is well equipped for this purpose, containing one Emery testing machine of extraordinary accuracy and delicacy of 200,000 pounds capacity, and some twenty other machines ranging in capacity from 300,000 pounds to 50,000 pounds and adapted for testing by transverse, tension, compression and torsion. The department of engineering chemistry possesses apparatus for making the approximate analysis and determining the heating value of coals; for analyzing flue gasses and products of combustion; for the manufacture of small samples of Portland cement, and for testing the strength and other properties of cement.

The Laboratories of Electrical Engineering, including the electrical apparatus of the Departments of Electrical Engineering and Experimental Engineering of Sibley College, and also that available in the Departments of Physics and Chemistry, comprehend many special collections of apparatus and equipment. This equipment is adapted to the giving of experimental lectures, to laboratory practice,

to complete plant testing, to standardization and to original investigation. In addition to the usual complement of apparatus for demonstration, the lecture equipment includes an air-insulated, high-pressure transformer with necessary regulators for subjecting insulators and insulating material to alternating pressures up to 80,000 volts. This may be supplemented by additional transformers for raising the pressure still higher. A 30,000 volt inductorium provides current for wireless telegraphy. Large cathode ray tubes, supplied from a special multiple plate, power driven static machine, are used for the demonstration of alternating current phenomena. All the standard equipment, as well as many pieces of specially designed apparatus are employed to show to the classes the operation of the principal laws applied in electrical engineering. Exhibits of apparatus, such as street railway car controllers, rail sections, insulating and line material, etc., are provided in profusion. This list includes a complete outfit for exhibiting in actual operation the multiple unit system of electric car control. The laboratory apparatus comprises a full complement of alternating and direct current machinery of all kinds. Recent additions include a two-phase generator of excellent design, single and polyphase induction motors, a rotary convertor and transformers, switchboards and auxiliaries necessary for exercises in polyphase practice. There are, in addition, many single phase machines suitable for operation as generators or as synchronous motors. A large variety of direct current dynamos and motors suitably mounted for testing, cover the field of direct current machinery. Arc lamps, a welding machine, photometers and many other special devices are included in the equipment. A De Laval steam turbine, geared to a double current generator, a direct-connected marine set and circuit-breakers, switches, water rheostats, and other auxiliaries are in use for plant test experiments. The plant testing is done largely outside of the College buildings, and for this purpose a large variety of ammeters, voltmeters, wattmeters, and other instruments are maintained in adjustment at a high standard of accuracy. These instruments have capacity great enough for testing the largest power plants. Special facilities are provided for the standardization of all electrical apparatus. Board of Trade and Reichanstalt standards of resistance with large current carrying capacity, potentiometers and galvanometers, and reference standards of electro-motive force are among the facilities provided for this purpose. The College possesses a Parsons steam turbo-alternator of 150 kilowatt capacity, provided with all the apparatus necessary for complete study and investigation of this class of machinery. A number of lighting alternators, and direct current power and lighting generators are available for the same purpose. A remarkable set of generators

recently installed produces a pressure of 14,000 volts direct current by connecting in series, and most carefully insulating twenty-four 550 volt dynamos. The pressure thus available opens up a wide field of investigation. In addition to the apparatus at the University, the students may observe in operation a modern three-phase power transmission in the local power and lighting service. Large direct connected generators, rotaries, constant current regulators and induction motors, as well as the lighting and railway system are convenient for inspection.

Scholarship and Prizes.

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 Sibley College work.

The Frank William Padgham Scholarship will be assigned to the best competing candidate in the scholarship examinations in the studies required for entrance to the regular course in Mechanical Engineering, who shall have had his preparatory education in the public schools of Syracuse, New York. For particulars see pp. 59 and 60.

REQUIREMENTS FOR ADMISSION.

The following subjects are required for admission : English, History [the student must offer one of the four following divisions in History : (a) American including Civil Government ; (b) Mediæval and Modern European ; (c) English ; (d) Ancient] ; Plane Geometry, Elementary Algebra. See pages 35 to 37.

In addition to the above primary entrance subjects, the applicant must offer as below.

1. In *Solid Geometry*, *Advanced Algebra*, and in *Plane and Spherical Trigonometry*, as much as is contained in the standard American and English text-books. See page 38.

2. In *Advanced French and Advanced German*, see pages 40, 41.

An equivalent of any *two* of the following entrance subjects or groups of subjects (a–k), may be offered in place of *either* Advanced French, or Advanced German. Advanced Spanish counts as two of the equivalent subjects below : (a) Elementary Spanish, (b) Latin Grammar and Caesar, (c) Latin Composition and Cicero, (d) Virgil, (e) Greek Grammar and Xenophon, (f) Greek Composition and Homer, (g) Physics, (h) Chemistry, (i) Geology, (j) Botany, (k) Drawing.

The candidate is advised not to limit his preparation to the above formal requirements, but to secure before entering upon his profes-

sional course, the most comprehensive general and liberal education which his circumstances will allow.

[*For details as to subjects and methods of admission see pages 33-54.*

For admission to the freshman class, communications should be addressed to the Registrar. See pages 33-52.

For admission to advanced standing from other colleges and Universities, and as specials, communications should be addressed to the Director or the Secretary of Sibley College. See pages 53 and 54.

For admission to graduate work and candidacy for advanced degrees, communications should be addressed to the Dean of the University Faculty. See pages 66 and 70.]

COURSES IN MECHANICAL ENGINEERING LEADING TO THE DEGREE OF MECHANICAL ENGINEER.

In addition to the general requirement of a passing grade of 60 measured on a scale of 100, the Faculty of Mechanical Engineering has adopted the policy that no student should be recommended for the degree of M.E. who has not maintained for all the essential professional work of his course a general average of scholarship measured by 70 on a scale of 100.

The provisions of this action will for the present be restricted to the work done in Sibley College.

Regular Course.

The letters and figures relate to the departments and courses in Sibley College as described on pp. 384 to 390.

Freshman Year.	No. Course.	1st Term.	2nd Term.
German or French	1 or 2	3	3
Analytic Geometry	2	4	–
Differential Calculus	2	1	2
Integral Calculus	2	–	3
Chemistry or Drawing	1	6	–
Drawing or Chemistry	2 or 1	–	6
Shopwork	1	3	3

In addition to the above the required Drill must be taken.

Sophomore Year.	No. Course.	1st Term.	2d Term.
Mechanics of Engineering	20	5	5
Descriptive Geometry	9	2	2
Physics	1	4	4
Chemistry or Drawing	6 or 5	5	–
Drawing or Chemistry	5 or 6a	–	5
Shopwork	5	3	3

Junior Year.	No. Course.	1st Term.	2d Term.
Steam Machinery	M.E. 11	–	4
Electrical Engineering	E.E. 11	4	–
Drawing and Design	M.D. 10	2	2
Kinematics and Kinetics	M.D. 11a	3	–
General Machine Design	M.D. 12	–	3
Materials of Engineering	X.E. 10	2	–
Physical Laboratory	Physics 3	2	2
Mechanical Laboratory	X.E. 11	3	3
Shopwork	M.A. 10	3	3

Senior Year.	No. Course.	1st Term.	2d Term.
Steam Engines and other Motors	M.E. 20	5	2
Physical Laboratory	Physics 5	3	–
Mechanical Laboratory	X.E. 20	2	1
Mechanical Laboratory	X.E. 20a	1	–
Engine Design (or 22)	M.D. 20	4	–
Designing (or 23)	M.D. 21	2	3
Thesis: Designing and Drawing, Mechanical Laboratory Investigations, Shopwork, time divided optionally, but subject to approval of the Director		–	8
Elective		2	3–5

Course in Electrical Engineering.

The freshman, sophomore, and junior years are identical with the course in Mechanical Engineering; in the senior year, laboratory work is increased, and advanced electrical engineering work introduced.

Junior Year.	No. Course.	1st Term.	2d Term.
Steam Machinery	M.E. 11	4	–
Electrical Machinery	E.E. 10	–	4
Drawing and Design	M.D. 10	2	2
Kinematics and Kinetics	M.D. 11a	3	–
General Machine Design	M.D. 12	–	3
Materials of Engineering	X.E. 10	2	–
Physical Laboratory	Physics 3	2	2
Mechanical Laboratory	X.E. 11	3	3
Shopwork	M.A. 10	3	3

Senior Year.	No. Course.	1st Term.	2d Term.
Physics, Laboratory work and	4	4	4
Lectures	8	1	1
Steam Engine and other Motors	M.E. 20	5	2
Mechanical Laboratory	X.E. 20	2	1
Mechanical Laboratory	X.E. 20a	1	–
Electrical Engineering	E.E. 20	5	–
Electrical Engineering	E.E. 21	–	3
Electrical Machinery	E.E. 24	2	–
Thesis, including laboratory, drawing and shop		–	8

Courses in Marine Engineering and Naval Architecture.

The freshman and sophomore years are identical with the course in Mechanical Engineering. In the junior year slight changes are made in order to begin introductory courses in Naval Architecture and Shipbuilding. In the senior year a still larger proportion of marine work is introduced as shown below. Special circulars relating to this work will be sent on application.

Course for Marine Engineers.

Junior Year.	No. Course.	1st Term.	2d Term.
Steam Machinery	M.E. 11	–	4
Electrical Engineering	E.E. 11	4	–
General Machine Design	M.D. 12	–	3
Kinematics and Kinetics	M.D. 11a	3	–
Materials of Engineering	X.E. 10	2	–
Physical Laboratory	Physics 3	2	2
Mechanical Laboratory	X.E. 11	3	3
Shopwork	M.A. 10	3	3
Naval Architecture	M.C. 10	3	3
Senior Year.	No. Course.	1st Term.	2d Term.
Naval Architecture	M.C. 20	–	3
Shipbuilding	M.C. 11	–	3
Marine Engineering	M.C. 22	5	3
Steam Engines and other Motors	M.E. 20	5	2
Physical Laboratory	Physics 5	3	–
Mechanical Laboratory	X.E. 20	2	1
Mechanical Laboratory	X.E. 20a	1	–
Thesis		–	8

Course for Naval Architects.

Junior Year.	No. Course.	1st Term.	2d Term.
Steam Machinery	M.E. 11	–	4
General Machine Design	M.D. 12	–	3
Kinematics and Kinetics	M.D. 11a	3	–
Materials of Engineering	X.E. 10	2	–
Mechanical Laboratory	X.E. 11	3	3
Naval Architecture	M.C. 10	3	3
Shipbuilding	M.C. 11	3	3
Shopwork	M.A. 10	3	3
Senior Year.	No. Course.	1st Term.	2d Term.
Steam Engines and other Motors	M.E. 20	5	2
Physical Laboratory	Physics 3	2	2
Electrical Engineering	E.E. 11	4	–
Naval Architecture	M C. 20	4	3
Ship Construction and Design	M.C. 21	5	2
Thesis		–	8

Courses in Railway Mechanical Engineering.

The freshman, sophomore and junior years may be identical with the regular course in mechanical engineering; but, preferably, sophomores, are advised to make request for locomotive details in their Mechanical Drawing, M.D. 5; and juniors, in order to obtain time for graduate railway courses in their senior year, are also advised to begin the Railway Club, R. 22, in their first term, and Electric Railways, E.E. 25, in their second term.

The railway senior year is arranged to take the place of the senior year in the regular course. The graduate year is arranged for those who have taken the senior railway year.

For graduate students who have not taken any of the railway subjects of the senior railway year, but have had the equivalent of M.E. 20, X.E. 20, X.E. 20a and Physics 5, a special graduate year is provided, consisting of R. 20, R. 21, R. 22, R. 23, two hours of R. 30, E.E. 25, and sufficient electives to make a total of fifteen hours per week.

The senior railway courses may be elected separately by seniors in other departments or by juniors who may have the proper preparation and time.

Further information will be sent on application to the Principal of the School of Railway Mechanical Engineering.

Summer Vacation.	No. Course.	Time.
Locomotive Shopwork (advised)	R. 10	3 months

Senior Year.	No. Course.	1st Term.	2d Term.
Railway Machinery	R. 20	4	4
Designing	R. 21	3	(1)
Locomotive Testing (elective in place of R. 21, 2d term, 1 hour)	R. 23	(1)	–
Railway Club	R. 22	1	1
Electric Railways	E.E. 25	1	1
Steam Engines and other Motors	M.E. 20	5	2
Mechanical Laboratory	X.E. 20	2	1
Mechanical Laboratory	X.E. 20a	1	–
Physical Laboratory	Physics 5	1	2
Thesis		–	8

Graduate Year.	No. Course.	1st Term.	2d Term.
Advanced Railway Mech. Eng.	R. 30	5	5
Plant Designing	R. 31	3	3
Railway Club	R. 22	1	1
Elective		6	6

A Six Year Course Leading to the Two Degrees A.B. and M.E.

Juniors and seniors in good standing in the Academic Department are allowed, with the permission of the Faculty of Arts and Sciences, and with the consent of the Faculty concerned in each case, to elect

studies in other Colleges which shall count toward graduation in the Academic Department, but the sum total of hours elected cannot exceed the number required for one year's work in such Colleges, nor exceed nine hours per week in any term.

In accordance with this provision the following suggestion is given for a six year course leading to the degrees of A.B. and M.E. Subjects in italics are those common to the courses for both degrees. With this end in view Descriptive Geometry may be taken in the sophomore year of the course for A.B.

Freshman Year.	No. Course.	1st Term.	2d Term.
Analytic Geometry	2	4	–
Differential Calculus	2	1	2
Integral Calculus	2	–	3
French or German	1 or 2	3	3
Chemistry or Drawing		6	–
Drawing or Chemistry		–	6
Elective in Arts and Sciences	(Maximum)	4	4
Drill	1	2	2
Gymnasium	6	1	1

Sophomore Year.	No. Course.	1st Term.	2d Term.
Physics	1	4	4
Chemistry	6	6	–
Descriptive Geometry	C.E. 8	2	2
Elective in Arts and Sciences	(Maximum)	6	12

Junior Year.	No. Course.	1st Term.	2d Term.
Mechanics	C.E. 20	5	5
Shopwork		3	3
Physics	3 and 5	4	4
Elective in Arts and Sciences	(Maximum)	6	6

Senior Year.	No. Course.	1st Term.	2d Term.
Drawing	D. 2	3	2
Shopwork		3	3
Steam Machinery	M.E. 11	–	4
Electrical Engineering	E.E. 11	4	–
Elective in Arts and Sciences	(Maximum)	9	10

The completion of the above courses will lead to the degree of A.B.

5th Year.	No. Course.	1st Term.	2d Term.
Kinematics and Kinetics	M.D. 11a	3	–
General Machine Design	M.D. 12	–	3
Drawing and Design	M.D. 10	2	2
Materials of Engineering	X.E. 10	2	–
Mechanical Laboratory	X.E. 11	3	3
Shopwork		3	3
Elective		5	4

6th Year.	No. Course.	1st Term.	2d Term.
Steam Engines and other Motors	M.E. 20	5	2
Mechanical Laboratory	X.E. 20	2	1
Mechanical Laboratory	X.E. 20a	1	–
Designing, M.D., 20, 21 or 22, 23		6	3
Thesis		–	8
Elective		5	5

The completion of the above additional courses will lead to the degree of M.E.

For those taking the course of electrical engineering, or who may wish to specialize in the undergraduate course of the graduate schools, the arrangement of a six-year course for both degrees would be slightly different, as indicated by the details of these various courses of study.

Courses of Instruction.

The courses in each department are numbered in accordance with the following plan :

Numbers	1 to 4	inclusive	denote	Freshman	subjects
"	5 to 9	"	"	Sophomore	"
"	10 to 19	"	"	Junior	"
"	20 to 29	"	"	Senior	"
"	30 to 35	"	"	Graduate	"

Three hours in the shops or drawing rooms count as one hour in the schedule.

Unless otherwise noted the courses run continuously throughout the year.

THESIS.

The thesis is intended to represent the results of some special study or investigation, either theoretical or experimental, or preferably both. It is furthermore intended to enable the student to show the results of his training as an engineer, and his capacity for the intelligent study of special or original problems.

The subject of the thesis must be submitted for the approval of the Director of the College not later than the Christmas recess, and the thesis in complete form must be handed in not later than the 15th of May following. In special cases, and upon the recommendation of the professor having immediate oversight of the work, the time limit for the submission of the completed thesis may be extended.

Department of Mechanical Engineering. [M.E.]

10. **Steam Machinery.** First term for Electrical Engineers. Second term for all others. Requires course 1 Physics, and 20 C.E. Juniors. Recitations. Credit, 4 hours. Mr. GARDNER.

20. **Steam Engines and other Motors.** Thermodynamics and the theory of steam and other heat engines. Lectures. Five hours per week from the beginning of the year to the Easter recess. Credit, 5 hours first term, 2 hours second term. Daily except S., 11. Professor THURSTON.

21. **Applied Theory of Steam and other Engines.** Elective. Finance of Design and Operation. Two hours per week from the Easter recess to the close of the year. Credit, 1 hour second term. T., Th., 11. Professor THURSTON.

30. **Advanced Work in Special Courses and Graduate Work in Mechanical Engineering.** As may be assigned by Professor THURSTON.

31. **Finance of Engineering and Economics of Manufacturing Establishments.** Elective. Three hours per week from the Easter recess to the close of the year. Credit, 2 hours second term. M., W., F., 11. Professor THURSTON.

Department of Experimental Engineering. [X.E.]

10. **Materials of Engineering.** Juniors. Two hours. First term. Lectures. M., W., 10. Professor CARPENTER aud Assistant Professor DIEDERICHS.

11. **Mechanical Laboratory.** Three hours. Credit made up as follows: one hour for lecture or recitation, one hour for three hour laboratory period, and one hour for written report. Juniors. Strength of materials, tension, transverse testing, compression, torsion, impact testing, strength of large specimens, and special research; calibrating dynamometers, steam guages, weirs, and meters; oil testing, flue gas analysis, calorimetry, thermometer calibration, valve setting and indicator practice; test of durability of lubricants, efficiency tests, water motors, centrifugal pumps, gas engines, injectors, steam-pumps, and indicator practice. One hour of class-room work. Daily 2-5. Professor CARPENTER, Assistant Professor DIEDERICHS, and Messrs. SHIPMAN, YOUNG, R. G., YOUNG, J. M., WHEELER and OLDBERG.

20. **Mechanical Laboratory.** Two hours. Credit made up as follows: One hour for three hour laboratory period and one hour for written report. Course runs from the beginning of the year to the Easter recess. Credit, 2 hours first term, one hour second term. Seniors. Lectures and recitations. Efficiency tests, steam boilers, steam engines, turbine water-wheels, air compressor, hot air engines, blowing fans, transmission of power by belting and gearing. Test of steam engine and application of Hirn's analysis, power required to drive machine tools, test of a steam heating plant, test of power plants not at the University. Efficiency test of injectors, refrigerating ma-

chinery, electric power stations. Daily 2–5. Professor CARPENTER, Assistant Professor Diederichs, and Messrs. SHIPMAN, YOUNG, HIRSHFELD and BUCKINGHAM.

20a. **Recitations on Laboratory Practice and Problems.** Seniors. One hour per week for the same period as course 20.

21. **Elementary Problems in Consulting Practice.** Power Plant Installation. Engine Handling. Seniors. Lectures. M., T., 5–6. Mechanical Laboratory practice and research. Daily 2–5. Professor CARPENTER, Assistant Professor DIEDERICHS and Mr. R. G. YOUNG.

30. **Special Research; Commercial Tests.** Graduates and advanced students. Professor CARPENTER.

Department of Electrical Engineering. [E.E.]

10. **Electrical Machinery.** Juniors in Electrical Engineering. Four hours, second term. Recitations in three sections as follows, M., 8, W., 8, Th., 11, F., 8; M., 9, T., 11, Th., 12, F., 9; M., 11, W., 11, Th., 10, F., 11. Assistant Professor NORRIS and Mr. MACOMBER.

11. **Electrical Engineering.** Juniors in Mechanical Engineering. Marine Engineering, and seniors in Naval Architecture and in Civil Engineering. Four hours, first term. Lectures. M., W., Th., F., 8. One recitation per week on topics in this Course will be held on M., W., Th., F., at 9 Attendance is voluntary. Assistant Professor NORRIS and Mr. MACOMBER.

20. **Electrical Engineering.** Requires course E.E. 10, C.E. 20, and Junior Physics. Seniors. Five hours, first term. Lectures. M., T., W., Th., F., 9. Professor RYAN and Mr. MACOMBER.

21. **Designing and Drawing.** Seniors. Three hours, second term. M., T., W., Th., F., 8–11. Mr. MACOMBER.

22. **History of the Development of Electrical Engineering.** Seniors and graduates. One hour, second term. Lectures. T., 12. Professor RYAN.

23. **Finance of the Production and Utilization of Electrical Energy.** Seniors and graduates. One hour, second term. Lectures. Th., 12. Professor RYAN.

24. **Electrical Machinery.** Seniors. Continuation of course 10, which is required for admission. Two hours, first term. Recitations. M., W., Th., F., 10. Assistant Professor NORRIS and Mr. MACOMBER.

25. **Electric Railways.** Advanced work. Required of seniors in railway mechanical engineering. Seniors and graduates. The second term is open to juniors who have had course 11. One hour, first and second terms. Lectures. S., 9. Assistant Professor NORRIS.

26. **Telephone Engineering.** Advanced work. Seniors and graduates. One hour, First Term. Lectures. S., 8. Mr. MACOMBER.

30. **Electrical Engineering.** Study of University equipment, local plants, etc. Seniors and graduates. Two hours, second term. Lectures. S., 8. Inspection sections as arranged. Assistant Professor NORRIS and Mr. MACOMBER.

31. **Electrical Engineering.** Graduates. Special work. Professor RYAN.

Department of Mechanic Arts. [M.A.]

1. **Shopwork.** Woodworking: use of tools; carpentry; joinery; turning; pattern-making.

5. **Shopwork.** Blacksmithing; use of tools, forging, welding, tool-dressing, etc.

10. **Shopwork.** Foundry work; moulding, casting, mixing metals, brass work, etc.

20. **Shopwork.** Machinist work; use of hand and machine tools; working to form and to gauge; finishing; construction: assemblage; erection.

Each of the above courses three hours. Daily as assigned, 8–11, 11–2, 2–5. Professor MORRIS, Messrs. WISEMAN, WOOD, VANDERHOEF, POLLAY, VANDERHOEF, STARKINS, HEAD, W. F., HEAD, W. L., SEAMAN and KLEIN.

Department of Industrial Drawing and Art. [D.]

[Bracketed courses will not be given—1903–1904.]

1. **Freehand Drawing.** (a) Freshmen in Sibley College. Six hours per week for one term. Daily, 8–11, 2–5 as assigned. For other students, three hours per week for the year. T., Th., 2–5; S., 8–11. (b) Advanced work comprising charcoal drawing, pen and ink drawing, decoration, modelling, water-colors, etc.; hours as assigned. Assistant Professor CLEAVES, Messrs. GUTSELL, FURLONG, CHAMBERLAIN, BAKER, WOOD, and DAWSON.

20. **History of Art in Italy.** The condition of the arts on the decline of Roman civilization. The revival of the arts of design in the thirteenth century. The development of painting and sculpture until the sixteenth century and a brief review of their decline. Lectures, T., Th., 12. Mr. GUTSELL.

21. **Art North of the Alps.** A survey of the beginnings of art in the Germanic communities. Painting, engraving, and wood cutting. The Flemish and Dutch masters of the sixteenth and seventeenth centuries. Lectures, W., F., 12. Mr. GUTSELL.

22. [**The Modern Period.** A survey of modern art, beginning with English and French masters of the eighteenth century. T., Th., 12. Mr. GUTSELL.]

Department of Machine Design. [M.D.]

5. **Machine Drawing.** Sophomores. Five hours per week for one term. Daily, 2–5 as assigned. Assistant Professor COOLIDGE, Messrs. J. S. and D. REID and H. L. FREEMAN.

10. **Drawing and Designing.** Requires course 8 C.E., and should be taken in connection with courses M.D. 11a and 12. Juniors. Drawing (two hours credit). M., W., F., 11–1; T., Th., S., 9–11; or T., Th., S., 11–1. Messrs. COLBY, RAUTENSTRAUCH and FREEMAN.

11a. **Kinematics and Kinetics.** Requires 20 C.E. Juniors. Three recitations per week, first term. Graphical methods of machine design, mechanics of machinery, problems in transmission of motion and energy, strength of machine members, etc. Recitations. M., W., F., 8, 9, 11; M., W., 12; F., 10; T., Th., S., 10, 11, 12. Messrs. COLBY and RAUTENSTRAUCH.

12. **Machine Design.** Requires course M.D. 11a. Juniors. Three hours, second term. Lectures, M., W., F., 10. Professor JONES.

20. **Steam Engine Design.** Requires courses 11a, 12, and M.E. 10. Seniors. Four hours, first term. Lectures, T., W., Th., F., 10. Assistant Professor BARNARD.

NOTE. — Seniors in mechanical engineering have an option of courses 20 and 21, or 22 and 23.

21. **Designing and Drawing.** Requires courses 11a, 12, and M.E. 10. Seniors. Credit, 2 hours first term, 3 hours second term. Designing of engines, boilers, steam plants, etc., and intended to accompany course 20. Drawing T., W., Th, 2–5. Professor JONES and Assistant Professor BARNARD.

22. **Machinery and Millwork.** Requires courses 10, 11a, and 12. Seniors. Three hours, first term. Lectures, M., W., F., 12. Assistant Professor COOLIDGE.

See note under course 20.

23. **Designing and Drawing.** Requires courses 10 11a and 12. Seniors. Three hours, first term, three hours, second term. Designing of machine tools, transmission and hoisting machinery, etc.; intended to accompany course 22. Drawing daily except S., 8–11. Professor JONES and Assistant Professor COOLIDGE.

24. **Gas Engine Design.** Requires courses 11a, 12 and M.E. 10. Elective for seniors. Two hours per week first term. Lectures, T., Th., 9. Mr. ———.

25. **Mining Machinery.** Requires courses 11a, 12 and M.E. 10. Elective for seniors. Two hours per week first term. Lectures, M., W., 9. Professor JONES.

30. **Advanced Designing.** Requires courses 20 and 21; 22 and 23; 24; or 25. Professor JONES, Assistant Professors COOLIDGE and BARNARD.

NOTE.—Students who have not taken courses 20 and 21 or 22 and 23 in first term will not be registered for the courses in the second term.

School of Marine Construction. [M.C.]

10. **Naval Architecture.** Elementary theory of a floating body. Computation of various geometrical quantities. Lectures and exercises in computation. Three hours per week. Professor DURAND.

11. **Shipbuilding and Design.** Methods of ship construction. Laying down and fairing lines. Drawing general arrangement plans and various structural elements. Three hours, lectures aud drawing. Assistant Professor MCDERMOTT.

20. **Naval Architecture.** More advanced theory of a floating-body with applications to special problems. Strength of ships. Resistance, propulsion, and powering. Lectures and exercises in computations. Credit, 4 hours first term. Lectures, T., Th., 9. Credit. 3 hours second term. Lectures, T., Th., and S., 9. Professor DURAND.

21. **Shipbuilding and Design.** Scantlings of vessel construction according to rules of Registration Bureaus, etc. Drawing of scantling sections. Discussion of the design of vessels of various services, including selection of suitable forms, speed and power, stability, trim, strength of completed structure, etc., embodying also the application of the subjects considered in courses 10 and 20. Three hours. Lectures, M., W., F., 9. Assistant Professor MCDERMOTT.

22. **Marine Machinery.** Descriptive study of marine boilers, engines, and auxiliary machinery. Design of characteristics and of structural details. Operation and care when under way. Lectures and drawing. Five hours. Lectures M., W., F., 10. Professor DURAND.

30. **Naval Architecture.** Advanced work. As assigned. Professor DURAND.

31. **Ship Design.** Advanced work. As assigned. Assistant Professor MCDERMOTT.

32. **Marine Machinery.** Advanced work. As assigned. Professor DURAND.

33. **Seminary.** One hour. Professor DURAND and Assistant Professor MCDERMOTT.

34. **Specifications, Contracts, Estimates.** As assigned. Assistant Professor MCDERMOTT.

35. **Marine Auxiliaries.** As assigned. Professor DURAND and Assistant Professor MCDERMOTT.

School of Railway Mechanical Engineering. [R.]

Locomotive Drafting. Sophomores expecting to enter the Railway School should make request for locomotive details in Mechanical Drawing course M.D. 5.

Electric Railways. It is advised that course 25 of the Department of Electrical Engineering be commenced in the middle of the Junior year.

10. **Locomotive Shopwork.** At least one summer's work in constructing or repairing locomotives or cars is very emphatically advised and considered necessary previous to the railway senior year. Shops for the above are situated in all sections of the country. Wages are paid to the inexperienced, up to $1.50 per day. Three and one-half months can usually be obtained, though three will be entirely satisfactory. Arrangements can be made through Professor HIBBARD.

20. **Railway Machinery.** The designing, manufacture, service in operation, and repairing of locomotives, tenders and cars. Lectures, reading and shop visits. Seniors and graduates. Credit, 4 hours each term. M., T., Th.,, F., 10. Professor HIBBARD.

21. **Designing.** Problems arranged to suit the class of work expected to be undertaken by the student after graduation. Juniors, seniors, and graduates. Three hours (nine hours in drafting room) per week from the beginning of the year to the Easter recess. Credit, 3 hours first term, 1 hour second term. The 1 hour may be replaced by Locomotive Testing, R. 23. Daily, 8 to 12, or afternoons, as may be arranged. Professor HIBBARD.

22. **Railway Club.** Discussion upon previously assigned railway journals. Special papers and reports. Forming of the individual Card Index. Training in addressing an audience. Juniors, seniors and graduates. One hour. W., 9, Professor HIBBARD.

23. **Locomotive Testing.** "Instruction Tests" of boiler and engine, including traction dynamometer, by courtesy of the Delaware, Lackawanna and Western R. R., giving acquaintance with the instruments, locomotive connections, and methods of commercial road tests. Open only to railway seniors and graduates, and to juniors who may wish for a preliminary experience without credit. Elective in place of R. 21, 2d term. 1 hour first term. Professor HIBBARD and Mr. ———.

30. **Advanced Railway Mechanical Engineering.** Lectures, directed reading, investigations, and Seminary discussions in amplifi-

cation of course 20, taking up Shop and Round House arrangement, equipment and methods, Drafting Room Management, Compound Locomotives, Freight Car Design, Railway Testing and Test Department, Motive power supplies, Organization, methods and records of Motive Power Department, Discipline and Management of Men, Wage Systems, Foreign Railway Engineering, Outlines of Railway Operation and Management. Seniors 2d term, and graduates. Afternoons, five hours or as assigned. Professor HIBBARD.

31. **Plant Designing**. Rolling equipment, Round Houses and Shops. Advanced work. Seniors 2d term, and graduates. Three hours or as assigned. Professor HIBBARD.

Suggested Electives : Political Economy ; elementary, transportation, (2d term, F. 11, *Morrill 12.* Professor FETTER,) labor, wages, corporations. Law ; contracts and agency, carriers, injuries. Advanced railway quantitative analysis ; anti-friction metals, iron and steel, boiler coverings, feed water and compounds, coal and its sulphur, waste, oils, paints and varnishes for wood and for steel. M.E. 21, 31. Experimental Engineering ; 21, 30 in railway rolling stock, motive power equipment and supplies. E.E. 23, 26, 31. M.D. 22, 20. C.E. ; Advanced Railroad Engineering, Structural Details, Masonry Foundations.

THE UNIVERSITY LIBRARY.

LIBRARY COUNCIL.

For the purpose of making recommendations to the Board of Trustees in regard to the business administration of the Library, there has been established a Library Council consisting of the President of the University (who is *ex officio* chairman); the Librarian; one Trustee elected by the Board; and four professors elected by the University Faculty. The Council at present is constituted as follows:

JACOB GOULD SCHURMAN, President of the University.
CHARLES H. BLOOD, of the Board of Trustees.
GEORGE W HARRIS, Librarian.
CHARLES H. HULL,
LOUIS M. DENNIS,
GEORGE P. BRISTOL,
EDWARD L. NICHOLS,
} of the University Faculty.

GEORGE W. HARRIS, Secretary.

LIBRARY STAFF.

GEORGE WILLIAM HARRIS, Ph.B., Librarian.
ANDREW CURTIS WHITE, Ph.D., Assistant Librarian in charge of Classification.
WILLARD HENRY AUSTEN, Assistant Librarian in charge of Reference Library.
KATHARINE DAME, A.B., Assistant Librarian in charge of Catalogue.
MARY FOWLER, B.S., Cataloguer.
JENNIE THORNBURG, B.L., Cataloguer.
PHILENA REBECCA SHELDON, A.B., Assistant in Accession Department.
ELIZABETH SAGE INGERSOLL, Assistant in Order Department.
WILLARD WALDO ELLIS, A.B., LL.B., Assistant in Reference Library.
EDITH ANNA ELLIS, B.L., Assistant in Circulation Department.
GEORGE LINCOLN BURR, A.B., Librarian of the President White Library.
ALEXANDER HUGH ROSS FRASER, LL.B., Librarian of the Law Library.

HARRY VERNON CLEMENTS, Assistant in the Law Library.
CLINTON WATKINS JOHNSON, Assistant in the Law Library.
WILLIAM HUGH SNOWDEN, Assistant in the Law Library.
JULIA WHITON MACK, A.B., Librarian in charge of Architectural Library.

The University Library comprises the General Library of the University, the seven Seminary Libraries, the Law Library, the Flower Veterinary Library, and the Library of the State College of Forestry. The total number of bound volumes in the University Library is now two hundred and seventy-two thousand eight hundred and ninety-nine distributed as follows :

General Library	234,013
Seminary Libraries	4,071
Law Library	31,709
Flower Veterinary Library	2,151
Forestry Library	955
	272,899

The General Library of the University, the Seminary Libraries, and the Forestry Library are all grouped under one roof in the Library Building, while the Law Library has separate quarters in Boardman Hall and the Flower Veterinary Library in the State Veterinary College.

The University Library Building, the gift of the late Hon. Henry W. Sage, stands at the southwest corner of the quadrangle formed by the principal University buildings. It is built of light grey Ohio sandstone, and its construction is fireproof throughout. It is heated by steam from the central heating station, is provided with a thorough system of artificial ventilation, and fully equipped with incandescent electric lights. The extreme dimensions of the building are one hundred and seventy by one hundred and fifty-three feet, and it has a storage capacity of four hundred and seventy-five thousand octavo volumes. The general outlines of the ground plan are somewhat in the form of a cross, the book-stacks occupying the southern and western arms, the reading room and periodical room, the eastern, the White Historical library, the seminary rooms, and the offices of administration, the northern. The abundantly lighted and handsomely furnished reading room contains ample accommodations for two hundred and twenty readers, and the open book-cases around its walls provide shelf-room for a carefully selected reference library of eight thousand volumes. In the basement, beneath the reading room, are to be stacks for the newspaper and patent collections, the circulating library, and a lecture room, with seating capacity for three hundred auditors. In the tower are placed the great bell of the University,

the gift of Mrs. Mary White, the chime of bells, the gift of Mrs. Jennie McGraw Fiske, and the University clock.

The income of an endowment fund of three hundred thousand dollars, the gift of the late Hon. Henry W. Sage, devoted to the purchase of books and periodicals, provides for a large and constant increase of the General Library, the average annual additions being now about twelve thousand volumes. The number of periodicals, transactions, and other serials, historical, literary, scientific and technical, currently received, is over two thousand, and of many of these complete sets are on the shelves.

Among the more important special collections which from time to time have been incorporated in the General Library, may be mentioned: 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 late Hon. Ezra Cornell, chiefly IN 1868; THE SPARKS LIBRARY, being the library of Jared Sparks, late president of Harvard University, consisting of upward 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 folk-lore, Russian history and literature, presented by the late Hon. Eugene Schuyler in 1884; THE RHÆTO-ROMANIC COLLECTION, containing about one thousand volumes, presented by Willard Fiske in 1891; THE PRESIDENT WHITE HISTORICAL LIBRARY, of about twenty thousand volumes (including

bound collections of pamphlets) and some three thousand unbound pamphlets, the gift of ex-president White, received in 1891, especially rich in the primary sources of history, and containing notable collections on the period of the Reformation, on the English and French Revolutions, on the American Civil War, and on the history of superstition ; THE ZARNCKE LIBRARY, containing about thirteen thousand volumes and pamphlets, especially rich in Germanic philology and literature, including large collections on Lessing, Goethe, and Christian Reuter, purchased and presented in 1893 by William H. Sage ; THE DANTE COLLECTION, containing at present over six thousand volumes, presented in 1893–9 by Willard Fiske ; THE HERBERT H. SMITH COLLECTION of books relating to South America, purchased in 1896 ; a valuable collection of books on French and Italian society in the 16th and 17th centuries, presented by Professor T. F Crane in 1896 ; THE FLOWER VETERINARY LIBRARY, the gift of ex-Governor Flower to Cornell University, for the use of the State Veterinary College, in 1897 ; THE EISENLOHR LIBRARY, containing about one thousand volumes on Egyptology and Assyriology, purchased and presented in 1902 by A. Abraham.

The library is primarily a reference library, but officers of the University have the privilege of taking books from the library for home use, and this privilege, to a limited extent, is granted to graduate students and to seniors designated by their professors. Supplementing the reference library is a separate circulating library from which books may be taken for home use by any member of the University. The library is open on week days, during term time, from 8 A. M. till 11 P. M., except on Saturdays, when it is closed at 5 P. M. In vacation it is open on week days from 9 A. M. till 5 P. M.

All students of the University have free access to the shelves of the Reference Library of eight thousand volumes in the main reading room, but apply at the delivery desk for other works they may desire. This Reference Library comprises encyclopædias, dictionaries, and standard works in all departments of study, together with books designated by professors for collateral reading in the various courses of instruction. In the same room, and accessible to all readers, is the card catalogue of the general library, including also the books in the seminary libraries. The catalogue is one of authors and subjects, arranged under one alphabet on the dictionary plan. Cards of admission to the shelves in the stack-rooms, and to the White Historical Library, will be issued by the librarian to graduate students for purposes of consultation and research, and also to undergraduate students, engaged in advanced work, upon the recommendation of the professor n charge of the work.

Since its incorporation with the general library in 1891, the valuable historical collections of the PRESIDENT WHITE LIBRARY are displayed in a spacious room, in the north wing of the Library Building communicating directly with the historical seminary rooms. The White Library is open only to officers of the University, members of the seminaries, and others holding cards of admission. The SEMINARY ROOMS in the Library Building contain the seminary libraries proper, supplemented by collections of works and periodicals from the general library deposited in these rooms for use in seminary work. Books so deposited in the seminary rooms are available for the use of students in the general reading room, except when in actual use in the seminaries. The books forming the seminary libraries proper are subject to such regulations as may be made for each seminary room by the professor in charge, to whom application for admission to the room must be made. In several of the scientific and technical departments similar collections of reference books have been formed, access to which may be obtained upon application to the department concerned.

The Law Library occupies the third floor of Boardman Hall. It includes the well known library of the late Nathaniel C. Moak, which was presented in 1893, by Mrs. A. M. Boardman and Mrs. Ellen D. Williams, as a memorial to Judge Douglas Boardman, the first Dean of the College of Law. In reports of the Federal Courts, reports of the several American state jurisdictions, and in English, Scotch, Irish, and Canadian reports, the law library is practically complete to date. The other English-speaking countries are largely represented. The library also possesses a full complement of text-books and statutes, and complete sets of all the leading law periodicals in English, thus offering facilities for scholarly research second to none in the country.

BIBLIOGRAPHY.

The following courses are offered for 1903–04 :

1. **Introductory Course to the Use of the Library,** including classification and arrangement of materials, principles of cataloguing, indexing, making bibliographies and preparation of materials for printing. First half-year. T., 4 p. m. Open to all students. Assistant Librarian AUSTEN.

2. **General Bibliography.** The material and form of books in ancient times ; books in the middle ages, block books, early printed books, illustrated by examples of manuscripts and incunabula ; book-illustration, book-binding ; form-notation ; systems of classification and cataloguing ; general bibliographical aids. Second half-year. Lectures. T., 12. Mr. HARRIS.

THE SAGE CHAPEL AND BARNES HALL.

By the terms of the charter of the University 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." Religious services, provided for by the Dean Sage Preachership Endowment, are conducted in Sage Chapel by eminent clergymen selected, in the spirit of the charter, from the various religious denominations. These services are supplemented by the Christian Association, a voluntary organization of students and professors formed for their own religious culture, and the promotion of Christian living in the University. It has a permanent secretary and a carefully selected biblical library. Bible study courses are carried on throughout the year. A committee of the Association, in attendance at Barnes Hall during the first week of each year, assists new students in the matter of rooms, board, examination schedule, etc

The Sage Chapel was given to the University in 1873 by the Hon. Henry W. Sage. In 1884 the University and estate of Jennie McGraw Fiske joined in erecting, upon the north of the original chapel, the Memorial Chapel, in memory of Ezra Cornell, John McGraw, and Jennie McGraw Fiske, whose remains there repose. In 1898 the University reconstructed the auditorium, or chapel proper, doubling the seating capacity, previously four hundred, and added the Memorial Apse, in memory of the original donor, the late Henry W. Sage, and as a repository of his remains and those of his wife, Susan Linn Sage, at whose suggestion the original gift was made; and during the past year an additional wing for the organ and choir loft has been supplied on the north side, while a new stone pulpit has taken the place of the former wooden structure, the aisles and exposed portions of the floor have been inlaid with figured mosaics, and the whole interior has been subjected to an elaborate scheme of redecoration, the work of Cottier & Co. of New York, which have made the Chapel one of the most beautiful places of worship in America.

The Sage Chapel proper, or auditorium, is in the Gothic style, built of red brick, with elaborately carved stone trimmings. There

are two north and two south gables, each containing a rose window of ten feet diameter, with stone tracery. In the west gable, which, with half the nave, is all that now remains of the old chapel, is a wheel window. The arched window formerly in the east end of the nave is now in the Memorial Apse. The place of the old tower, south transept, and east half of the nave is now included in two parallel transepts, covering a space 64 x 66 feet.

The Memorial Chapel, built in the Gothic style of the second or decorated period has exterior walls of red brick with stone trimmings, and interior walls of Ohio stone and yellow brick. It contains rich memorial windows by Clayton and Bell of London, designed to commemorate the connection of Mr. Cornell, Mr. McGraw, and Mrs. Jennie McGraw Fiske with the University and to associate their names with other great benefactors of education in older times. Directly beneath the north window is a recumbent figure of Ezra Cornell, in white marble, of heroic size, by William W. Story, of Rome; near the entrance a smaller recumbent figure, that of Mrs. Andrew D. White, also in white marble, by Ezekiel, of Rome.

The Memorial Apse is a semi-octagon, opening into the auditorium by a massive cut stone arch. The interior walls from window sills upward are of stone. The oaken ribs of the ceiling are carried on stone columns with carved capitals, supported by corbels. Below the line of the windows the wall of the Apse is covered with a scheme of Venetian mosaic, the work of Messrs. J. & R. Lamb, of New York, which forms one of the most extensive schemes of figure mosaic yet attempted in this country. Processions of the sciences flanked by figures of young manhood and of beauty, and of the arts flanked by young womanhood and truth, lead up through beauty and truth respectively to a cowled, seated figure of philosophy in the central space, who lifts his eyes from the completed scroll of human wisdom to the mysteries of the Cross, symbolized on the ceiling, where it is surrounded by angels and archangels. The heroic figures of the ceiling are carried against a dark blue background. In the lower portion, the figures, which are all life-size, stand before a green hedge, with their faces displayed against a sky of gold.

Barnes Hall, the gift of the late Alfred S. Barnes, Esq., of New York, is the home of the 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 University trophy and lounging room, which has been recently fitted up on the first floor, and a spacious auditorium, which occupies a large 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 rooms are open daily from 8 A. M. to 8 P. M. to all students.

THE CORNELL INFIRMARY.

In 1897 the mansion of the late Hon. Henry W. Sage was presented to the University to be known and used as the Cornell Infirmary, by his sons, Dean Sage and William H. Sage, who in the following year refitted the building for use and endowed it with $100,000 that it might at no time be an item of expense to the University. These facts are duly recorded in the tablet placed in the hall of the Infirmary under a portrait of Mr. Sage by Eastman Johnson, the inscription reading "This house built by Henry Williams Sage and occupied by him for seventeen years, was at his death in 1897 endowed and given to Cornell University for a students' infirmary, by his sons, Dean and William Henry Sage."

This building is at all times available as a home for students suffering from any except contagious diseases. Room, nursing, and food as prescribed are all furnished to such students in the general ward for $1.00 per day, with an extra price for special rooms and special nursing. During the three years the Infirmary has been in operation several hundreds of students have been cared for, suffering from troubles varying from a severe cold to the last stages of Bright's disease. In the course of the year 1902–1903 over 300 students were admitted.

The building is a structure of Medina browustone, 96 x 88 feet, including verandas and porches, and three stories in height besides basement and a high attic. Through the first floor from south to north runs a wide hall having on the right a sitting room for young women, dining room, pantry, and kitchen, and on the left the library, used as a sitting room for young men, the Matron's office, bathroom, lavatory, telephone closet, and Matron's room. The height of these rooms is 12½ feet in the clear. On the second floor are six large rooms for the sick, two large bathrooms, a small nurses' kitchen, linen closets, a large room for surgical work, with an instrument room containing sink, cold and hot water, and a slop closet not connected with the bathrooms. The rooms on this floor are eleven feet high in the clear. The third floor contains the smoking room, three large rooms for patients, two nurses' rooms, two servants' rooms, a bathroom, nurses' kitchen, and slop closet. These rooms are 10½ feet in the clear. There is a balcony opening from one third-story sick-room, upon which a bed can be rolled. The basement contains a laundry, servants' bathroom, and the heating apparatus. The house is supplied throughout with gas and electric lighting, and heated by a system of hot water.

ATHLETIC ASSOCIATION.

The Cornell Athletic Association is an independent organization incorporated under the laws of the State of New York. Its board of trustees is composed of one representative from the Executive Committee of the Board of Trustees, and four from the Faculties of the University, with one member at large, who together with representatives of the alumni, and eight students representing officially the different branches of athletics, besides the representative of the undergraduate wearers of the "C," and the president of the interscholastic league, constitute the Athletic Council. The Association owns Percy Field, the boats and boat houses, a steam lauch and other athletic equipment. The Association issues an annual membership ticket on the payment of $10.00. The holders of these membership tickets are entitled to free admission to every athletic contest under the management of the Association, which includes all games of baseball, football, track, and lacrosse. Members are also entitled to first choice of reserved seats, no reserved seat tickets for games or boat races being sold until the members of the Association have been supplied with the seats they require. No further subscription toward the support of athletics is solicited from holders of membership tickets. The Athletic Council is charged with the active management of the athletic interests of the University. The graduate treasurer is custodian of the funds belonging to the Association and to the various branches.

Fifty-five acres of land adjoining the University campus have been set aside by the trustees of the University for a new University Playground and Athletic Field, the construction of which has been undertaken by the Alumni.

Officers.

WILLIAM FREDERICK DURAND	President
CHARLES HAZEN BLOOD	Graduate Treasurer
JOHN LAWSON SENIOR	Graduate Manager-Secretary

Members.

CHARLES HAZEN BLOOD	Executive Committee
WILLIAM FREDERICK DURAND	Faculty
EDWARD LEAMINGTON NICHOLS	Faculty
DAVID FLETCHER HOY	At large
BLIN SILL CUSHMAN	Faculty
FRANK IRVINE	Faculty
JOHN LAWSON SENIOR	Graduate Manager
FRANK MARTIN SEARS	"C" Representative
ALBERT REESE COFFIN	Crew Captain
WICKHAM HURD ALDRICH	Navy Manager
ALFRED ALEXANDER BREWSTER,	Baseball Captain
HARRY FOWLER VINCENT	Baseball Manager
SANFORD BEEBE HUNT	Football Captain
CHARLES PHILIP BRADY	Football Manager
LAWRENCE TEMPLE KETCHAM	Athletic Team Captain
CHRISTIAN MCKEE DRAVO	Athletic Team Manager
EVERETT WILLIAMS JAMESON	Interscholastic League President

SUMMER SESSION.

JULY 7TH TO AUGUST 19TH, 1904.

FACULTY.

JACOB GOULD SCHURMAN, A.M., D Sc., LL.D., President.
CHARLES DE GARMO, Ph.D., Dean of the Faculty, Professor of the Science and Art of Education.
JOHN LEWIS MORRIS, A.M., B.E., Sibley Professor of Practical Mechanics and Machine Construction.
WATERMAN THOMAS HEWETT, A.B., Ph.D., Professor of the German Language and Literature.
LIBERTY HYDE BAILEY, M.S., Professor of Rural Economy.
JAMES MORGAN HART, A.M., J.U.D., L.H.D., Professor of Rhetoric and English Philology.
LUCIEN AUGUSTUS WAIT, A.B., Professor of Mathematics.
CHARLES EDWIN BENNETT, A.B., Professor of Latin.
GEORGE WILLIAM JONES, A.M., Professor of Mathematics.
JAMES EDWIN CREIGHTON, A.B., Ph.D., Sage Professor of Logic and Metaphysics.
GEORGE FRANCIS ATKINSON, Ph.B., Professor of Botany.
RALPH STOCKMAN TARR, B.S., Professor of Dynamic Geology and Physical Geography.
GEORGE PRENTICE BRISTOL, A.M., Professor of Greek.
FRANK ALBERT FETTER, A.B., Ph.D., Professor of Political Economy and Finance.
ALBERT PERRY BRIGHAM, A.M., (Professor of Geology and Natural History, Colgate University, Hamilton, N. Y.) Dynamic Geology and the Geography of the United States.
CHARLES ALEXANDER McMURRY, Ph.D., (Director of Practice Department, Northern Illinois Normal School, DeKalb, Ill.), Home and Grammar Grade Geography.
STANLEY COULTER, Ph.D., (Professor of Biology, Purdue University), Botany.
GEORGE SYLVANUS MOLER, A.B., B.M.,E., Assistant Professor of Physics.
EVERETT WARD OLMSTED, Ph.B., Ph.D., Assistant Professor of the Romance Languages.

HENRY NEELY OGDEN, C.E., Assistant Professor of Civil Engineering.

WILLIAM STRUNK, Jr., Ph.D., Assistant Prosessor of Rhetoric and English Philology.

BENJAMIN FREEMAN KINGSBURY, A.B., Ph.D., Assistant Professor of Physiology.

CHARLES LOVE DURHAM, M.A.. Ph.D., Assistant Professor of Latin.

ISAAC MADISON BENTLEY, B.S., Ph.D., Assistant Professor of Psychology.

HENRY AUGUSTUS SILL, Ph.D., Assistant Professor of History.

RALPH CHARLES HENRY CATTERALL, Ph.D., Assistant Professor of History.

ERNEST BLAKER, Ph.D., Assistant Professor of Physics.

JOHN SANDFORD SHEARER, Ph.D., Assistant Professor of Physics.

CLARK SUTHERLAND NORTHUP, A.B., Ph.D., Assistant Professor of the English Language and Literature.

JOHN IRWIN HUTCHINSON, A.B., Ph.D., Assistant Professor of Mathematics.

PHILIP EMERSON, Principal of Cobbett School, Lynn, Mass., Commercial Geography.

GUY MONTROSE WHIPPLE, Ph.D., Lecturer in the Science and Art of Education.

HIRAM SAMUEL GUTSELL, B.P., A.M., Instructor in Drawing and Industrial Art.

JOHN SIMPSON REID, Instructor in Mechanical Drawing and Designing.

BLIN SILL CUSHMAN, B.S., Instructor in Chemistry.

PAUL RUSSEL POPE, B.A., Ph.D., Instructor in German.

OSKAR AUGUSTUS JOHANNSEN, B.S., A.M., Instructor in Civil Engineering.

OTHON GOEPP GUERLAC, Licencié ès lettres, Instructor in Romance Languages.

BENTON SULLIVAN MONROE, A.M., Ph.D., Instructor in English.

HENRY ROSE JESSEL, B.S., Ph.D., Instructor in Chemistry.

WILLIAM BENJAMIN FITE, Ph.D., Instructor in Mathematics.

HUGH DANIEL REED, B.S., Ph.D., Instructor in Vertebrate Zoology.

——— ———, Instructor in Psychology.

ARTHUR WESLEY BROWNE, B.S., M.S., Ph.D., Instructor in Chemistry.

FRED ASA BARNES, M.C.E., Instructor in Civil Engineering.

FRANK CARNEY, A.B., (Assistant Principal of High School, Ithaca, N. Y.), Physical Geography and Geology.
RAY HUGHES WHITBECK, A.B., (Supervisor in New Jersey State Normal School, Trenton, N. J.), Physical Geography and Geography Methods.
MARGARET CLAY FERGUSON, Ph.D., (Instructor in Botany in Wellesley College), Botany.
ANNA BOTSFORD COMSTOCK, B.S., Instructor in Nature Study.
MABEL BURNHAM PEIRSON, B.S., Instructor in Nature Study.
GUSTAF E KARSTEN, Ph.D., Instructor in German.
JAMES WISEMAN, Foreman of the Machine Shop.
WILLIAM HENRY WOOD, Foreman of the Wood Shop.
WILLIAM FREDERICK HEAD, Foreman in Forging.
JAMES EUGENE VANDERHOEF, Foreman of Foundry.
ROBERT EDWARD GABY, B.A., Assistant in Physiology.
———— ————, Assistant in Psychology.
———— ————, Assistant in Psychology.
———— ————. Assistant in Botany.
———— ————. Assistant in Botany.
GEORGE DAVID HUBBARD, M.S., A.M., Assistant in Geology and Physical Geography.
BURT S BUTLER, Assistant in Geology and Physical Geography.
———— ————. Assistant in Physics.
———— ————. Assistant in Physics.
FREDERICK VALENTINE EMERSON, A.B., Assistant in Geology and Physical Geography.
———— ————. Assistant in Nature Study.
———— ————, Assistant in Nature Study.
———— ————, Assistant in Nature Study.

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DAVID FLETCHER HOY, B.S., M.S., Registrar.

GENERAL STATEMENT.

The principal object of the Summer Session is to furnish instruction to teachers in high schools and academies; but provision is at the same time made for the instruction of college professors, university students, and others who are qualified to join the classes. No entrance examinations are required for the Summer Session.

Instruction is offered in all subjects which are embraced in the high school curriculum, including manual training; also in a number of subjects taught in elementary schools. Some courses suitable for graduate students are also provided.

Applications for admission to the graduate department of the University, and to candidacy for advanced degrees, are to be addressed primarily to the Dean of the University Faculty. Full details should be forwarded of the candidate's previous course of study, the degree desired, and the special preparation already had in the major and minor subjects to be pursued.

The applicant would naturally communicate also with the professors in whose departments he intends to study, as they must ultimately approve of his application.

Applicants who are duly admitted to candidacy for advanced degrees under the regular rules of the University Faculty, may receive such credit in time for graduate work done in the Summer Session, as may be determined by the appropriate committees of the University Faculty.

This credit in time is to cover only the actual period of residence and attendance, and is not to exceed one University year's allowance for the total amount of work so accomplished during various sessions.

CALENDAR—1904.

July 7—Registration. July 8—Instruction begins.
August 19—Term ends.

TUITION.

The single tuition fee for the entire Summer Session, whether one course or more be taken, is $25, and must be paid at the office of the Treasurer within ten days after registration day. No student is admitted without the payment of this fee.

ADDITIONAL FEES FOR LABORATORY WORK.

In chemistry, a fee is charged for material actually consumed, and the student must make such deposit with the Treasurer as the Instructor may prescribe.

In physics, botany, and physiology, the fee is at the rate of $1 for every five hours per week per term (or part thereof) of work in the laboratory; the entire fee to be paid to the Treasurer at the beginning of the term.

In shopwork the fee is $10 to be paid to the Treasurer at the beginning of the term.

BOARD AND ROOMS.

The cost of living in Ithaca, including board, room and lights, varies from $5 to $8 per week. Accommodations may be secured as follows:

1. At Sage College; cost $4 per week for table board, and from $1 to $2.50 per week for room, according to location. Ladies, also gentlemen accompanied by their wives, may find accommodation here, and a few rooms are reserved for single gentlemen. Every application for a room to be reserved must be accompanied by a deposit of $5, otherwise the application is not registered. The amount of this deposit is deducted from the rent if the room assigned be occupied by the applicant; it is refunded if the applicant give formal notice to the manager on or before June 15th that it is desired to withdraw the application altogether.

Those desiring to secure rooms at Sage College or the Cottage should address the Manager, Mr. George Franklin Foote. (See page 57).

2. At private houses in the city; costs $5 to $8 per week.

3. Accommodations along the shores of Cayuga Lake may also be secured either by boarding at the hotel at Glenwood or by renting a furnished cottage for the summer.

CREDIT FOR WORK.

Regularly matriculated students of the University may receive credit to the extent of seven university hours for work done during the Summer Session.

Students of the Summer Session not matriculated in the University may receive certificates of attendance and satisfactory work done.

SPECIAL RAILROAD RATES.

A special railroad rate on "certificate" plan was granted students for the Summer Sessions of 1901, 1902 and 1903. An application will be made at the proper time for a similar reduction for 1904. Apply to Registrar, Cornell University, for fuller information after May 15, 1904.

COURSES OF INSTRUCTION.

GREEK.

A. Course for Teachers.

The following topics are treated in lectures and practical exercises :

a. The sounds of Greek in theory and in actual pronunciation. The development of the Greek alphabet. The relation of Greek to Latin and to English.

b. The teaching of Homer. Special consideration will be given to these points : The language, the metre, the principles of interpretation, the aim and method in translating, the English translations from Chapman to the present. The most helpful editions of the Iliad and other auxiliary works will be examined, with special attention to recent school editions. Selected portions of books I–VI will be studied.

Daily except Sat. 8. *White 3 B.* Professor BRISTOL.

B. Lyric Poetry. Reading of selections from Hiller-Crusius's *Anthologia Lyrica.* Discussion of literary questions, and of the aspects of Greek social life thus presented. Daily except S., 9. *White 3 B.* Professor BRISTOL.

Prospective students are advised to procure a copy of this text before coming to Ithaca. It is published by Teubner, Leipzic, and may be had of G. E. Stechert, 9 E. 16th St., New York, or of any importer of German books.

LATIN.

Office of the Department, Morrill 14, daily, 9–11 a. m.

A. **Grammar Course.** (a) *Pronunciation.* Evidences in support of the Roman method. Sources of knowledge. Testimony of the Roman grammarians. Evidence from philological investigation.

(b) *Hidden Quantity.* Should we pronounce *fēstus* or *fĕstus? mīssus* or *mĭssus? cīnctus* or *cĭnctus, etc?* Methods of determining the quantity of hidden vowels.

(c) *Orthography.* What should be the standard in spelling? Should we write *volnus* or *vulnus; aequos, aequus* or *aecus; optumus* or *optimus; adsequor* or *assequor; inrideo* or *irrideo, etc.?*

(d) *Syntax of the Subjunctive.* The subjunctive in independent sentences. Origin of the different varieties of the subjunctive appearing in subordinate clauses. Development of the thesis that all subordinate uses of the subjunctive are an outgrowth of originally independent sentences.

(e) *Syntax of the Cases.* Fundamental force of the several cases. Explanation of the different uses that have developed from each of them.

(f) *Discussion of the Purposes and Methods of Preparatory Study in Latin*, as follows: Why is Latin of value to the secondary student? The elementary work. What author should be read first? Reading at sight. Unseen translation. Theory of Latin versification. What was ictus? How to read poetry. Latin composition. How to teach it.

This course will be conducted mainly by lectures. Daily ex. S., 9. *Morrill 3.* Professor BENNETT.

B. **Reading Course.** Translation of Plautus's Captivi and Terence's Andria. Lectures on the history of Roman comedy. Daily ex. S., 10. *Morrill 3.* Professor BENNETT.

C. **Cicero.** An interpretation of the Catilinarian orations, with particular reference to their political signification as well as to style of translation and syntactical difficulties. The purpose of the course is to give to teachers of Cicero a broader historical knowledge of the content of the orations against Catiline, and at the same time to prepare them to secure from their students a more accurate and adequate interpretation on the literary side. Daily except Sat., 11, *Morrill 3.* Assistant Professor DURHAM.

D. **Latin Composition.** This course is primarily intended for those teachers of preparatory Latin composition whose training in the subject has been limited. Exercises on dictated English idioms, with particular reference to sentences in which a given word or construction in English has several distinctly different Latin equivalents. The English word 'as,' for example, will be studied in such sentences as the following: a) As you sow so shall you reap. b) I saw him as he was passing by. c) He is as tall as his brother. d) As there was no more to see, I departed. e) He acted as if his was the supreme authority. f) As a man of honor, give me your advice, etc., etc. Daily except Sat., 12, *Morrill 3.* Assistant Professor Durham.

GERMAN.

A. **Historical German.** Course for teachers and advanced students. a. **Elementary Middle High German.** The period of the formation of the New High German language. The contribution of dialects to modern speech in phonetic forms, vocabulary and inflexions. Luther's writings, translation of the Bible, early poetic forms, hymns. The Reformation drama. Rise of Humanism. Lectures and translations.

b. **Discussions of Recent Theories and Methods of Instruction in the Modern Languages.** Moot points in pronunciation

and syntax will be explained. The teacher's equipment will be considered, including representative works in linguistic study, histories of literature, biographies, dictionaries, grammars, annotated texts and maps. Special attention will be paid to etymology, word-formation, the forces of prefixes and suffixes, the history of moods and the use of the subjunctive in dependent clauses. Daily except S., 8. *Morrill 13.* Professor HEWETT.

B. **The Classical Literature of the Eighteenth Century.** Lectures and readings from Lessing, Goethe and Schiller. The First Part of Faust will be read and its relation to the Second Part discussed. The origin of the Faust Legend, the Faust Book, Marlowe's Faust, the puppet plays, and the time of Faust will be considered. The Storm and Stress period and its influence, as well as its relation to the Romantic School will receive attention. Daily except S., 9. *Morrill 13.* Professor HEWETT.

C. **Lectures in German upon Modern German Literature.** This course will require the reading of special representative works by the students, with reports and examinations at stated intervals. Daily except S., 10. *Morrill 5.* Dr. KARSTEN.

Courses A, B and C, may, upon application, be counted as graduate work.

D. **The rapid reading** with comment of the advanced requirements for admission in German. Werner's Heimatklang, Freytag's Die Journalisten and Goethe's Hermann und Dorothea. Sight translation will be practiced on certain days of the week, and there will be special credit for reading done outside the class upon which examination is passed. Two hours daily : 8, *Morrill 6* ; 12, *Morrill 13.* Dr. POPE.

Students who desire to receive university credit for German 2 will be required to have the equivalent of courses D and Ea.

Dr. Pope will be in attendance in Room 13, Morrill Hall, M., W., F., 10, to afford special assistance to such students as desire it.

E. **Practical Exercises in German Composition and Conversation.** Course Db will be conducted entirely in German in order to familiarize the student with the spoken language.

a. Elementary course, M., W., F., 9. *Morrill 5.* Dr. KARSTEN.

b. Advanced course, T., Th., S., 11. *Morrill 5.* Dr. KARSTEN.

ROMANCE LANGUAGES.

A. **French Grammar and Reading** for beginners. The grammar used will be that of *Fraser and Squair.* The object of the course is to give to those who have had no French the opportunity of learn-

ing the essentials of grammar and reading, which require, as a rule, almost a whole year's study. To accomplish this end very intensive work must be done. Two recitations a day will be held, with sufficient time between the two for the preparation of the second lesson, and the student is expected to devote his entire time to this subject. M., T., W., Th., F., S., 8 and 12 o'clock, *White 11*. Assistant Professor OLMSTED.

B. **French conversation and composition,** conducted in French. The course, which is intended for students having had at least two years of French, consists of daily drill work in conversation and composition, of frequent themes, short talks by the students on French literature, and a rapid course in French history. M., T., W., Th., F., 9. *White 2*. Mr. GUERLAC.

C. **Lectures in French** on the great prose writers of the XIXth century, critics, historians, philosophers, essayists and political writers. T., Th., 11. *White 2*. Mr. GUERLAC.

D. **Readings from modern French drama.** A rapid reading course of French comedies with comments and explanations in French. M., W., F., 11. *White 2*. Mr. GUERLAC.

ENGLISH.

The following courses, open to all persons of maturity, are especially adapted to teachers of English. Not open to Cornell undergraduates.

The aim of the summer work is, partly, to promote a clearer understanding between the University and the schools; partly, to enhance the efficiency of English instruction in the schools.

The course in Composition is planned to reproduce the essential features of the regular undergraduate courses 1, 2, 3, and 9. The course in Literature resembles in method the undergraduate courses 21–28. The course in the History of the English Language is designed to review the most general and most readily apprehended features of the undergraduate courses 11, 12, 13. The study, which will not be technical, will on the one hand correct certain errors now prevalent, and will on the other hand serve to facilitate the teaching of modern English grammar.

A. **Composition.** Daily ex. S., 8. *White 2*. Assistant Professor STRUNK and Instructor MONROE.

Exercises in the interpretation and criticism of illustrative specimens in Narration, Description, and Exposition. Each member of the class will write five short themes every week and also—during the last five weeks of the session—one long theme, with outline, every week. These papers will be criticized, by the professor or the instructor, in

personal conferences at hours to be announced at the opening of the session.

Inasmuch as the criticism both of the reading and of the writing will follow closely the principles laid down in Hart's Essentials of Prose Composition, intending members are advised to acquaint themselves with the features of the book before the opening of the session.

B. **Literature.** Daily ex. S., 9. *White 2.* Professor HART.

Lectures upon Scott, Wordsworth, Coleridge, Byron, Hawthorne, Longfellow, and upon the methods of studying and teaching their writings. Each member of the class will be required to pursue a course of collateral reading in the University library and to submit the results in a weekly paper of considerable length.

In addition to the regular lecture hour, Professor Hart will be in attendance daily, 2–3, ex. Saturday, *22 Morrill*, for conference upon the papers submitted and upon other questions of direct interest to the students.

C. **History of the English Language.** Daily ex. S., 11. *White 2.* Assistant Professor NORTHUP.

A study of Emerson's Brief History of the English Language, with supplementary lectures and practical exercises in the history of English sounds and forms.

In addition to the regular hour, Professor Northup will be in attendance daily, 2–3, ex. Saturday, *22 Morrill*, for conference upon special points.

PHILOSOPHY.

A. **The History of Philosophy in the Eighteenth and Nineteenth Centuries.** Daily, ex. S., 8. *White 9.* Professor CREIGHTON.

In this course it is proposed to deal topically rather than biographically with the development of philosophical ideas during the last two centuries. The principles and conceptions underlying the rationalistic thought of the 18th century will be analyzed and explained, and their practical consequences traced in the resulting theories of knowledge and of morality, and in the fields of politics and literature. The growth and development of modern historical and evolutionary modes of thought will then occupy attention, and the course will conclude with an outline of the standpoint and attitude of philosophy at the present day.

B. **Logic.** Daily, ex. S., 10. *White 9.* Professor CREIGHTON.

This class will cover the same ground as the elementary course in logic that is given during the regular session of the University. It

will include the more essential and practical parts of Deductive Logic, the logic of the Inductive Methods, and an outline of the modern theories of the nature of Judgment and the Evolution of Thought.

PSYCHOLOGY.

A. **General Psychology: Elementary Course.** 1. Lectures and exercises. M., W., F., 9. Text-book: Titchener's *Primer of Psychology*. If only the lectures and examination are taken, this course counts as three hours; if the prescribed exercises are done, it counts as five hours.

2. Laboratory Practice. M., W., F., 2:30–5, with prescribed work on literature and record-books. Text-book: Titchener's *Experimental Psychology*, Qualitative. This course counts as five hours.

B. **Abnormal and Genetic Psychology.** M., W., F., 8. Nine lectures on abnormal psychology (dreams, hypnosis, insanity), and nine on genetic (animal and child) psychology, with collateral reading and a weekly essay. This course may be taken along with Course A, and counts as five hours.

C. **General Psychology: Advanced Course.** 1. The psychology of the simpler mental complexes. Lectures and prescribed reading. T., Th., 9. This course counts as three hours.

2. Experimental problems: advanced laboratory work. Hours to be arranged. These courses are open only to students who have already taken Course A, 1 and 2, or its equivalent.

All lecture courses are given in the Laboratory Lecture Room. *Morrill 16*. These courses and the laboratory work will be conducted by Professor TITCHENER or Assistant Professor BENTLEY, with the help of assistants. Students who wish to take Course C, and those who desire to combine Courses A or B and C, are requested to correspond as early as possible with Assistant Professor BENTLEY.

SCIENCE AND ART OF EDUCATION.

A. **The Philosophy of Education.** Lectures, discussions and readings. Daily, ex. Sat., 10. *White 10*. Professor DEGARMO.

This course will present the general theory of education, laying especial emphasis upon the doctrines of interest and apperception and their application to school work.

B. **History of Education.** Lectures, discussions and prescribed readings. Daily, ex. Sat., 11. *White 10*. Professor DEGARMO. This course will embrace leading topics in the history of modern education, with especial reference to their bearing upon education as it is

now, as follows: 1. The history of humanism from the Renaissance to the present. 2. Individualism and Democracy in Education, beginning with Rousseau. 3. System in Education, beginning with Herbart.

C. **Mental Development.** Lectures and prescribed reading. Daily ex., S., 9. *White 9.* Dr. WHIPPLE. A survey of the more important periods in the development of the individual, with special emphasis upon childhood and adolescence. A general knowlege of psychology is advisable.

D. **Educational Aspects of Psychology.** Lectures and prescribed reading. T., Th., 8. *White 9.* Dr. WHIPPLE. A consideration of attention, memory, apperception, ideational type and other selected phases of psychology which have special bearing upon educational theory and practice. It is recommended that James' *Psychology, Briefer Course*, Stout's *Manual of Psychology*, or Titchener's *Primer of Psychology* be read before the beginning of the work.

E. **School Hygiene.** Lectures, laboratory demonstrations and prescribed reading. M., W., F., 8. *White 7 A.* Dr. WHIPPLE.

This course will deal entirely with mental hygiene and the hygiene of instruction, with such topics as fatigue, the period of study, school diseases, defects of sight and hearing, scientific tests, and, so far as time allows, with the hygiene of reading writing and other studies. It is not intended to present the hygiene of school buildings, heating, ventilation, sanitation, etc. This course can be combined desirably with Course D.

HISTORY.

A. **Roman History from Augustus to Marcus Aurelius.** A course of lectures intended primarily for teachers, with discussions and reports. After reviewing the latter part of the revolutionary period, the lectures will treat of the Augustan settlement of the constitution, the development of the powers of the Princeps especially under Tiberius, Claudius, Vespasian, Domitian, Trajan and Hadrian, the organization and government of the provinces, the protection of the frontier under the early emperors, the conquests of Trajan, the defensive policies of Hadrian and Marcus, the economic condition of the Roman world, and the development of jurisprudence, art and literature. Daily ex. S., 10. *Morrill 12.* Assistant Professor SILL.

B. **English Historical Biography.** A course of lectures on the lives and political careers of English statesmen from Alfred the Great and William the Conqueror to Disraeli and Gladstone. The attempt will be made to indicate in each case the sources of our information and materials for further study. The members of the class will pre-

pare papers on historical characters not treated in the lectures. Daily ex. S., 11. *Morrill 11.* Assistant Professor SILL.

C. **European History.** The Revolutionary and Napoleonic Era (1789-1815). Lectures and discussions on the history of France and other continental states. Daily except S., 9. *Morrill 11.* Assistant Professor CATTERALL.

D. **American History.** The United States from the adoption of the constitution to the present. Lectures, discussions and reports. Daily except S., 8. *Morrill 11.* Assistant Professor CATTERALL.

CIVICS, POLITICAL AND SOCIAL SCIENCE.

A. **Economic Problems of the Day.** A selected group of questions, including wages, organized labor, money and banking, monopoly and trusts, will be discussed informally, with reference to the welfare of the citizen. Text-books and methods of instruction for political economy in high schools will receive special consideration. Several visits will be made to factories and other places of economic interest in the neighborhood. Daily, except Sat., 8. *Morrill 12.* Professor FETTER.

B. **Recent Forms of Benevolence.** To acquaint the student with some of the current tendencies in charitable, juvenile reformatory and other social effort, and to suggest their relations to educational and other civic problems. Class work consists mainly of lectures, a number of the subjects being illustrated with lantern slides. Volunteer excursions will be given for those wishing to go to the George Junior Republic and the Elmira Reformatory. M., W., F., 9. *Morrill 12.* Professor FETTER.

C. **Financial Questions in American Politics.** A few of the principal phases of the monetary and financial history of the United States since 1860 will be studied with reference to the political history and social development of the period. The students will be made acquainted with the bountiful resources of the University library in this field, and assisted to collect bibliographies and other data for use later in study or teaching. (In the revised announcement of the Summer Session this subject may be replaced by "the study of typical American industries.) T., Th., 9, *Political Economy Seminary.* Professor FETTER.

MATHEMATICS.

A course may not be given if not more than two persons call for it.

A. **Elementary and Advanced Algebra.** An advanced course on the elementary principles of algebra, covering parts of Jones'

Drill book in Algebra, supplemented by lectures. Daily ex. Sat., 8. *White 21.* Professor JONES.

B. **Plane and Solid Geometry.** A review in which about one-third of the time is devoted to plane geometry and the rest to solid geometry. Daily ex. S., at 10. *White 17.* Dr. FITE.

C. **Higher Algebra.** An advanced course including the theory of imaginaries and the theory of equations. Lectures. Daily ex. Sat., 10. *White 21.* Professor JONES.

D. **Trigonometry.** An elementary course covering parts of Jones' Drill book in Trigonometry. Daily ex. S., at 9. *White 21.* Professor JONES.

E. **Analytic Geometry.** An elementary course covering parts of Tanner and Allen's Analytic Geometry. Daily ex. Sat., 8. *White 22.* Professor WAIT.

F. **Analytic Geometry.** An advanced course based on Salmon's Conic Sections. M., W., F., 10. *White 22.* Professor WAIT.

G. **Differential Calculus.** An elementary course covering Snyder and Hutchinson's Differential Calculus. Daily ex. Sat., 9. *White 22.* Professor WAIT.

H. **Integral Calculus.** An elementary course covering Snyder and Hutchinson's Integral Calculus. Two sections. Daily ex. Sat., 8, 11. *White 17.* Assistant Professor HUTCHINSON.

I. **Differential Calculus.** An advanced course, based on Todhunter's and Williamson's Differential Calculus. T., Th., 10. *White 22.* Professor WAIT.

J. **Integral Calculus.** Lectures, accompanied by mimeographed notes. A short drill on the integration of various forms will be followed by a discussion of the conditions and criteria for integrability of any given function. Definite integrals, and methods for their evaluation. The gamma function. Curvilinear and multiple integrals. T., Th , 9. *White 17.* Assistant Professor HUTCHINSON.

K. **Differential Equations.** An elementary course covering parts of Murray's Differential Equations. Daily ex. Sat., 8. *White 18A.* Dr. FITE.

L. **Theory of Numbers.** T., Th., 11. *White 18A.* Dr. FITE.

M. **Theory of Functions of a Complex Variable.** The elements of the theories of Cauchy, Riemann and Weierstrass. M., W., F., 9. *White 18A.* Assistant Professor HUTCHINSON.

N. **Introduction to the Theory of Groups.** M., W., F., 11. *White 18A.* Dr. FITE.

PHYSICS.

(*For University credit in Summer School Physics see end of announcment in Physics.*)

A. **Lectures in General Physics.** A course of lectures and demonstrations in General Physics corresponding to those given in Courses 1, 2a or 7 during the University year. No previous knowledge of Physics is required. The extensive equipment in lecture room apparatus possessed by the department greatly enhances the value of this mode of presentation. Subjects for 1904: Mechanics, Heat and Magnetism. Daily ex. Sat., 12. Assistant Professor SHEARER.

AA. **Recitations in General Physics.** Two five-hour recitation courses in Physics will be given. The work covered will correspond to Courses 1 and 2b of the regular year. The topics for 1904 will be Mechanics, Heat and Magnetism in parallel with the lectures of Course A. Daily ex. Sat. at 8. Assistant Professor SHEARER and Messrs. ——— and ———.

B. **Physical Laboratory.** This course is primarily offered for teachers of elementary physics in high schools and preparatory schools, and for those students who have had an elementary textbook training, but no laboratory work in general physics. The equipment of the laboratory is such as to afford elementary experimental work in physical units and their relations, statics, kinetics, dynamics, heat, light, sound, electricity and magnetism.

A course may be arranged at the beginning of the session for each individual, covering as many or as few of the subjects outlined above as seems advisable. Occasional discussions of general interest may be held covering methods of observation, errors, curve drawing as a means of representing results, and the theory of particular experiments. In all other cases individual instruction is given.

University students having the requisite requirements of admission to course Physics 2c as given on page 158, may elect this course, following the schedule prescribed for regular work during the University year. Daily ex. S., 9–12. Assistant Professor BLAKER and Mr. ——.

C. **Physical Experiments.** This course comprises the work offered in the regular junior year in general physical laboratory practice, to those having had the requisite elementary training in physics and mathematics. The course is recommended for those students desiring to advance their knowledge of the underlying principles of general physics and to gain laboratory experience. The work in the laboratory is supplemented by written reports in which the general

theory and results obtained are discussed. These reports form a basis for the criticism of the work.

The equipment of the laboratory is such as to allow great latitude in the work. In connection with the laboratory is a reading room containing many works of reference. The instruction is entirely individual and a course may be arranged to meet the needs of each student.

Regular University students may elect work in this laboratory, subject to the regular requirements, for which see the end of this announcement. Sibley students will follow the regular order of the work for the college year. Daily ex. S., 9–12. Assistant Professor BLAKER and Mr. ———.

D. **Advanced Laboratory Work in General Physics.** Intended for those who have already completed routine courses and wish to take up special work. May be taken as preparation for research by students able to work largely independent of direct instruction. In special cases short investigations may be undertaken. Further details may be secured by correspondence. Daily ex. Sat., 8–12. Assistant Professor SHEARER.

E. **Advanced Laboratory Work in Electrical Measurements.** Tests and calibration of electrical instruments. Experimental study of dynamo machines, including tests of efficiency. Alternating and polyphase currents. Photometric and electrical tests of electric lamps. (Equivalent to work in course 4, page 159.) Assistant Professor MOLER.

UNIVERSITY CREDIT.

Regular University students may receive credit toward graduation for summer work as follows :

Course 1. Required in M.E. and E.E. take A and AA.

Course 2a. Required in M.D., Ag., Ar.. elective A take A.

Course 2. Required in C.E. elective A take A, AA and B.

Course 3. Required in M.E. and E.E. take C.

(One term of Physics 1 or 2 is required for entrance in Course 3.)

Course 4. Required in M.E. and E.E. Take Course E.

In Course E one University hour of credit is given for each 30 hours of completed laboratory work. Students intending to secure University credit for this work must *complete* course C (regular course 3) before starting this course. Others must satisfy the department that they are competent to undertake work of this nature.

CHEMISTRY.

A. **General Inorganic Chemistry.** Lectures, recitations and laboratory work. The lectures, which are fully illustrated by experiments and by specimens from the chemical museum, are devoted to a discussion of the facts and theories of chemistry, and in connection therewith careful attention is given to the writing of chemical equations, and the solving of chemical problems. The laboratory work furnishes an opportunity for gaining a practical knowledge of the chemical compounds and reactions discussed in the lectures. Daily ex. S , 8–12. Dr. JESSEL.

C. **Qualitative Analysis**. Elementary course for those who have had the equivalent of course A. A study in laboratory and class-room of the methods for detecting and separating the principal bases and inorganic acids. This is followed by the analysis of various substances, either in solution or in solid form, the composition of which is unknown to the student. Considerable emphasis is laid upon the writing of equations expressing the reactions involved in the work. Lectures and recitations. M., W., F., 11. Laboratory, daily ex. S., 1.30 to 4.30. Dr. BROWNE.

D. **Qualitative Analysis.** A more advanced course for those who have had the equivalent of course C. This course will include :

1. Experimental lectures on the analytical reactions involving oxidation and reduction. with a discussion of the expression of such reactions in the form of equations.

2. A study in laboratory and class-room of the methods for detecting each of the important acids in the presence of the others, together with the reactions involved, followed by the analysis of more complex mixtures than those assigned in course C.

3. A comparative study in the laboratory of different methods for detecting and separating the bases. 1 and 2 may be taken together if desired. 3 is open only to those who have had the equivalent of 2. Lectures and recitations. T., Th., 11. Laboratory, daily ex. S., 1.30 to 4.30. Dr. BROWNE.

In connection with course D students with sufficient preliminary training may be afforded opportunity for original research, either upon appropriate subjects of their own selection, or along some line assigned by the instructor.

E. **Quantitative Analysis.** Elementary. An introduction to quantitative methods and the chemistry upon which these methods are based. Lectures, explanatory of the methods used, are first given: each student then performs simple analyses which involve the use of

the apparatus ordinarily employed in analytical work. Two lectures, and ten hours in the laboratory per week. Mr. CUSHMAN.

Advanced work (see course F) may be taken by students who complete this course before the close of the session.

F. **Quantitative Analysis.** Advanced Special methods of Quantitative Analysis, both gravimetric and volumetric, such as are of sanitary and technical importance. Laboratory hours elective. Mr. CUSHMAN.

G. **Gas Analysis.** Instruction is given in the analysis of gas mixtures with the apparatus of Honigmann, Bunte, Orsat, Lunge and Hempel; in the complete analysis of illuminating gas, generator gas, acetylene and air; in the determination of the heating power of fuels, and in the evaluation of nitrates with the nitrometers of Hempel, Lunge and Bodländer. Lectures M., W., 9. Laboratory, mornings, at hours to be arranged. Dr. BROWNE.

BOTANY.

General Announcement. Courses A, B, C, D, E and F are especially designed to suggest topics and methods for teaching Botany in the high schools and in the grades. These courses are offered to those who have not had work in these subjects, and for teachers who wish to review them. Course D is recommended to teachers who have had the preliminary work in A and B, for the purpose of furnishing a more independent basis for their work in instruction, or to those who desire to prepare for research. Students in course D can do independent work on Friday and on Saturday if desired. No scheduled work is offered for Saturday, but the laboratory is open to all students, and it is recommended that the day be used for excursions or for the purpose of finishing up the work of the week, either in the care of material, finishing of notes and illustrations, or in the reference library.

Because of the short period of time given to the summer session, students of Botany will find it to their advantage to arrange to devote all their time to this subject, where circumstances will permit.

ADVANCED COURSES.

G. **Methods of Research.** *Morphology and Embryology.* Lectures, M., W., 11–12. Laboratory practice, M., T., W., Th. The lectures will deal with the morphology and development of the bryophytes, pteridophytes, gymnosperms and angiosperms. In the laboratory work studies in the structure of the organs of reproduction will

be made the basis for acquiring familiarity with methods in fixing tissues, infiltrating with paraffine, sectioning, staining, etc. During the afternoon the laboratory work is to be carried on independently. Dr. FERGUSON.

H. **Research Work.** (a) Those already familiar with the preliminary methods may begin some piece of investigation in morphology or embryology. (b) *Methods of Research in Mycology.* Those who are sufficiently familiar with the fungi may take up some line of research work. (c) Research in Plant Physiology. Professor ATKINSON, Dr. FERGUSON, Mr. ——— and Mr. ———.

For description of the botanical laboratory, conservatory, the general equipment, etc., see p. 169. A small fee will be charged for the use of apparatus, material, etc., in the laboratory courses and students are expected to bear their share of the expense of the excursions.

Students who are prepared to take up graduate work can do so upon application.

(*These courses are open to all students.*)

A. **Elementary Plant Morphology.** A comparative study of the form and reproduction of representative species in all the great groups of plants. (Algae, Fungi, Liverworts, Mosses, Ferns, Gymnosperms, Angiosperms). Lectures, M., 9. Laboratory practice, M., W., F., 2–5. Professor ATKINSON and Mr. ———.

B. **Elementary Plant Physiology.** A study of the general principles underlying the processes of nutrition, growth, etc. Lectures, T., 9. Laboratory practice, T., Th., 11–1. Professor ATKINSON and Mr. ———.

C. **Mycology.** Studies of the fleshy fungi, with special reference to methods of distinguishing the commoner edible and poisonous species, and the genera of the basidiomycetes. The following periods are suggested, but can be changed upon consultation. M., W., F., 2–5; T., Th., forenoon. On the first few days a lecture will be given at 8 o'clock, and thereafter at such times as is convenient and as material collected suggests. For those who wish to devote all their time to this subject, work will be arranged for Monday and Wednesday forenoons and independent work on Friday and Saturday. Students who have taken this course in former summers can continue the same subject, or take work in the parasitic fungi, devoting the entire week to the work if desirable. Lectures, laboratory practice, and field excursions. Professor ATKINSON and Mr. ———.

NATURE STUDY COURSES.

(*See also Nature Study, page 428.*)

(Either of these courses can be taken independently of any of the Introductory work; open to all students)·

D. **The Plant in relation to its environment.** The lectures will deal with the plant as a living organism in its relation to environment, and an attempt will be made to outline the *principles* of *plant ecology*. Lectures only. W., F., 9. Professor ATKINSON.

E. **First Studies on Plant Life.** Lectures, studies, observations, and simple experiments, to illustrate and interpret plant life. Emphasis will be laid on the form of the plant and its parts and on the work of the plant in order to interpret the more obvious characters and activities, the relation to environment, etc. The work is intended to outline courses of instruction of an elementary kind for teachers of Nature Study. M., W., F., 11–1; T., Th., 2–5. Instructor ———.

F. **Excursions.** A few excursions for field work will be arranged by appointment on Saturdays, either for the forenoon, or more extended ones all day.

GEOGRAPHY AND GEOLOGY

For special circular of School of Geography and Geology, apply to Registrar of Cornell University.

The object of this school of geography and geology is two-fold; first, to give instruction on subject matter and method in physical geography and geology for teachers in the high schools, normal schools, and colleges; and secondly, to offer, in connection with these courses, others on method for geography teachers in the grades. For the latter purposes the courses in physical geography and dynamic geology are intended to give the necessary physiographic basis upon which the modern scientific teaching of geography is founded. The work embraces lectures, conferences, field work, laboratory work, and supplementary reading. The laboratory is equipped with an excellent teaching collection of maps, specimens, and models, besides fully 5,000 lantern slides on geographical and geological subjects. Much attention is given to field work, short excursions being frequently made to places near the University where there are clear illustrations of geologic, physiographic, and industrial features. There are also longer voluntary excursions each week to more distant points, as the anthracite coal mines at Wilkes-Barre, Niagara Falls, the shore of Lake Ontario, Watkins Glen, and other places of special interest. The long excursions are made on Friday and Saturday.

Those expecting to take field or laboratory courses in Geography and Geology (Courses A (2), A (3), B (2), C (2), C (3), H (2), or K, are requested to notify Professor Tarr (Cornell University, Ithaca, N. Y.), by June 1st. This notification will not be considered bind-

ing; but in order to make necessary arrangements it is desirable to know in advance the approximate number who expect to take these courses.

University Credit. Upon handing in the required reports and passing examinations, regularly matriculated students may receive University credit as follows: A (1), A (2), A (3), together with three full day excursions, 3 hours; C (1), C (2), C (3), the same; D or E, with required reading, 1 hour; L, with reading and report, 2 hours. No University credit is given for work in courses M or N. To receive credit in any of the other courses requires special permission of the instructor in charge.

A (1). **Physical Geography of the Lands.** A lecture course upon modern physical geography, or physiography, of the lands. In the lectures special stress is placed, where possible, upon the origin and life history of land forms and their influence on man. The lectures are fully illustrated by lantern views. For laboratory and field work see Courses A (2) and A (3). *Geological Lecture Room.* M., T., W and Th., 9. Professor TARR.

A (2). **Laboratory Course in Physical Geography.** A course to illustrate the methods and materials available for laboratory work in high schools. Much attention is given to the possibilities open to the teacher in schools having limited laboratory equipment. Among the specific topics treated are the following: Methods of determining latitude and longitude; the interpretation and use of topographic maps; study of topographic maps illustrating type land forms; the use of photographs; the use and interpretation of models; physiographic influences. Where desired by a teacher, personal suggestions will be made regarding the local field work he may carry on with his classes. *Physical Geography Laboratory*, T. and Th., 2–4. Assistant Principal CARNEY and Mr. HUBBARD.

A (3). **Field Course in Physical Geography.** One afternoon each week is devoted to the study of physiographic phenomena in the field, and three days at the end of the week are given to all-day excursions. In this field work a study is made of river valley forms, both young and mature; waterfalls; lakes; and typical glacial deposits, including moraines, drumlins, kames, eskers, and overwash plains. An excursion to Niagara is also offered in connection with this course, but attendance upon it is voluntary. The excursion to the anthracite coal fields Course C (3), is also open to students in this class. Monday afternoon. Professor TARR, Assistant Principal CARNEY, Supervisor WHITBECK, and Mr. HUBBARD.

B (1). **Elementary Meteorology.** (To be correlated with Course

A (1)). The object of this course is to offer enough information to render the subject of Meteorology and Climatology more practical to teachers. The course considers the development and importance of the science; man and climate; the air and general atmospheric circulation; dew, frost, clouds, general and local winds; a study of the relation of weather elements and weather prediction, noting in particular the association of cyclones and anticyclones, with wind direction and velocity, and atmospheric pressure; the wind and the weather; movements of cyclonic and anticyclonic centers. Lectures with slides, recitations, and assigned readings. *Physical Geography Laboratory*, M., T., W., 8. Assistant Principal CARNEY.

B (2). **Laboratory Course in Meteorology.** (To accompany Course B (1). This course combines both subject matter and methods, and is planned for both grammar and high school teachers. Observations with and without instruments are made and recorded by students taking the course. Weather Bureau instruments are studied. Blank weather maps are used in plotting isobars, isotherms, and studying the movements of high and low pressure areas. Some of the topics considered, discussed, and illustrated are: Non-instrumental observations,—when to begin, over how long a period to continue the more simple observations, record-tables and methods of using them; instrumental observations,—tabulation of records, averages; use of weather maps; filing of these maps and of newspaper clippings of notable meteorological phenomena; the making of a meteorological laboratory. *Physical Geography Laboratory.* T., 4–6. Assistant Principal CARNEY.

C (1). **Dynamic Geology.** A lecture course on the principles of dynamic geology, including such topics as weathering, rivers, lakes, glaciers, oceans, nature and origin of rocks, mountain formation, volcanoes, earthquakes, etc. Also the application of the principles of dynamic geology to an interpretation of the past history of the earth. Each phase of the subject is fully illustrated by lantern views. For laboratory and field work, see Courses C (2) and C (3). *Geological Lecture Room*, M., T., W., 11. Professor BRIGHAM.

C (2). **Laboratory Course in Geology.** This course is intended to furnish an opportunity for the study of such geological phenomena as are capable of illustration by specimens, maps, and models. The topics included are: the common rock-forming minerals; characteristics, origin, mode of occurrence, and classification of common rocks; the study of hand specimens, illustrating such geological phenomena as weathering, joint planes, concretions, mineral veins, metamorphism, etc.; the meaning and interpretation of geological maps and models. *Geological Laboratory*, T. and Th., 2–4. Mr. EMERSON.

C (3). **Field Course in Geology.** One afternoon each week, and three days at the end of the week are devoted to excursions in the neighborhood of Ithaca, studying such phenomena as stratification, folding, faulting, joint planes, erosion, deposition, etc. A voluntary excursion to the anthracite coal fields of Pennsylvania is also offered, and students of this course are permitted to go on the Niagara excursion Course A (3). Wednesday afternoon. Professor BRIGHAM, Assistant Principal CARNEY, Mr. EMERSON, and Mr. HUBBARD.

D. **The Geography of the United States.** A summary study is given of the evolution of the North American continent. The lectures are then mainly devoted to the several physiographic regions of the United States. The origin of the land forms is explained, and especial attention is given to the control exercised by geographic conditions upon the colonization, social life, commerce, and military history of the United States. Under the last head military movements in the Revolution and selected campaigns of the Civil War will be studied. Forestry and forest reserves, the arid lands and irrigation, and the development of lines of travel and communication are among the topics treated. The course is suited to students both of geography and history.

Four lectures each week, with lantern illustrations. *Geological Lecture Room*, M., T., W., Th., 8. Professor BRIGHAM.

E. **The Geography of Europe.** A consideration of the physiographic features of Europe and their influence upon the history and industrial development of the several nations. The principal subtopics are: (1) Physiography of the continent and its development; (2) climate; (3) natural resources; (4) influence of these various physiographic features upon race characteristics, early movements of people, development of navigation, modern national development, and location of leading cities. The lectures are illustrated by lantern slides, maps, and models. *Geological Lecture Room*, M., T., W., Th., 10. Professor TARR.

F. **Geographic Influences and Relations.** Lectures and discussions designed to show the influence of physiographic and climatic conditions upon human activities; the influence of soil, coast line, mountains and valleys, plains and plateaus, winds, rainfall, ocean currents, altitude and latitude, navigable inland waters; geographical causes leading to the location and growth of cities; to the location and migration of industries; to the establishment of transportation routes; man's reaction upon his environment and his conquest of natural obstacles. *Physical Geography Laboratory*, M., T., 12. Supervisor WHITBECK.

G. **The Geography of Tropical Countries.** A course designed to meet the demand for a better knowledge of tropical lands; a demand made by their growing importance as markets, and as sources of raw materials in the industrial development of temperate lands. It will be introduced by a study of tropical climate, physiography and natural resources. Influence of these factors upon man, his occupations and development. The importance of the tropics in the advancement of extra-tropical countries. The geographic aspect of tropical colonization, acclimitization, and the future of the tropics. *Geological Lecture Room*, T., W., Th., 12. Mr. HUBBARD.

H. (1) **Commercial Geography.** A general study of the subject, with special relation to the position held by the United States in the commercial struggle of the present period. Instead of briefly cataloging facts as to all countries and commodities, a number of the important groups of commercial staples with the related industries, and some of the commercial nations that constitute our markets and competitors will be considered as typical of the entire field of commerce. Present commercial conditions will be presented in their relations to physical environment, and as a stage in a gradual development of industrial life, whose course may suggest the lines of future progress. A few lectures on the history of commerce and industry will prepare for such treatment. *Physical Geography Laboratory.* M., T., W., Th., 9. Principal EMERSON.

H. (2) **Laboratory and Field Work in Commercial Geography.** A consideration of the best methods of studying and teaching commercial geography. The class meets for work in factories and stores, on the college farm and in the gardens and conservatories, in the commercial laboratory, and in the University Library. On the longer excursions in geology and physical geography, opportunities are provided for the study of mines, mills, and other industrial plants by students in this class. T., Th., 2–5. Principal EMERSON.

I. **Home Geography.** The concrete elements of geography in the home neighborhood: local surface features; commerce and industries; food, clothing and building materials; local weather conditions; local government. Excursions with classes of children are discussed. List of typical excursions. Local geography, as related to the larger world beyond. Application of field work in courses A (3) and C (3) to the teaching of Home Geography. *Physical Geography Laboratory*, M., T., W., Th., 10. Professor MCMURRY.

J. **Type Studies in Geography for Grammar Grades.** The selection of important topics as types in geography. Illustrations of type studies on North America, Europe, and other lands. The prin-

ciples of method, illustrated by such type studies. Relation of such studies to text books in geography. The course of study in geography. The method of oral treatment of some topics. Reviews and comparisons. *Physical Geography Laboratory*, M., T., Th., 11. Professor McMURRY.

K. **Aims and Problems in Geography.** Designed more particularly for Grammar School teachers. The course consists of lectures, discussions and laboratory exercises, dealing with the actual problems of the class room. Some of the topics treated are the chief aims in teaching geography; the relative value of different kinds of geographical knowledge; methods of conducting the recitation; the proper use of the text book by pupils and by teachers; the use and misuse of supplementary books; the value of studying things instead of about things; map modeling, map drawing, and the use of outline maps; written aud oral exercises, reviews, tests, and examinations; the proper scope and limitations of geography.

The chief aim in the laboratory and field work will be to illustrate the use of laboratory methods in geography in the grades and to show teachers what inexpensive materials are available; the use of relief maps and models, contour maps, United States Geological Survey folios, pictures, outline maps, etc.; illustrative materials, such as various kinds of soil, rock and mineral specimens, will be collected and their use in geography teaching discussed. *Physical Geography Laboratory*, W., Th., 12, and Th., 3-5. Supervisor WHITBECK.

L. **Five-Day Field Excursion.** This excursion is planned to leave Ithaca Monday evening, returning Saturday night. Its object is to study the physiography of a large area of country, interpreting the phenomena observed and noting the influence of physiography on the industries. Among the places and physiographic features included are the following: The Palisades of the Hudson; New York Bay; Navesink Highlands; Sandy Hook; the Beach at Long Branch; the New Jersey coastal plain; the Triassic belt at Newark; the trap ridges at Orange; the terminal moraine in New Jersey; the Archean Highlands; the Kittatinny valley; Delaware Water Gap; Wind Gap; the Appalachian ridges; slate; soapstone, and limestone quarries; exhibiting also excellent illustrations of folding; the steel works at Bethlehem, Pa.; transverse valley crossing Appalachian ridges, anthracite fields and open pit mines at Hazleton, Pa.; the great synclinal trough of the Wyoming valley; underground coal mines at Wilkes-Barre and Scranton; surface works, including coal breakers.

This excursion, conducted by Professor Tarr, will be made by rail, steamboat and wagon; there will be little walking, but frequent stops

will be made at points of interest. The estimated expense is $40.00.

Unless twenty-five persons register the excursion will not be undertaken. Therefore *all who desire to go are expected to notify Professor Tarr by June 1st.* Soon after that date those who have sent notice of their desire to take part in the excursion will be informed whether it will be made.

M. **Map Mounting.** Instruction in methods employed in backing maps with cloth and in mounting maps on rollers for use in geography laboratory work. For this purpose, and for mounting maps for use in the field work, the laboratory will be open T. and Th. from 4–6, and at other periods by special arrangement. This course cannot be counted for University credit. Mr. BUTLER.

N. **Round Table Conference.** One evening each week the several instructors in the department will meet with the students for the discussion of important general topics in connection with geography, such as the course of study in the grades and in high and normal schools, the relation of geography to other studies, the training of teachers, etc. In 1903 the following topics were discussed: The Nature and Scope of Geography; Physical Geography in the High School; Geography in the Normal School: Principles Determining the Course of Study in Geography.

Attendance on this course is purely voluntary and cannot be counted for University credit; but such free interchange of views among teachers and students is expected to throw much light on problems of teaching, and also lead to greater harmony throughout the summer work.

O. **Advanced Course in Dynamic Geology and Physiography.** Students desiring to do advanced field, laboratory, or library, work in dynamic geology or physiography will be provided with facilities for such work under the supervision of the instructors. This work will vary with the needs of the individual students. The region in the neighborhood of Ithaca offers numerous interesting problems for advanced study. Professors TARR and BRIGHAM, with asistants.

PHYSIOLOGY.

A. **Physiology of Circulation, Respiration, Digestion and Excretion.** This course will also include a discussion of General Metabolism and Blood. M., W., F., 10. *Stimson Hall.* Assistant Professor KINGSBURY and Mr. GABY.

B. **Physiology of the Muscular and Nervous Systems,** including that of the special sense organs. T., Th., 9. *Stimson Hall.* Assistant Professor KINGSBURY and Mr. GABY.

C. **Laboratory Practice and Experimental Physiology.** This course is intended to correllate as closely as possible with the lecture courses A and B. In the laboratory, exercises will be devoted to the physiology of the digestive processes and of blood, the remainder of the work being devoted to nerve and muscle phenomena. T., Th., 10–1. *Stimson Hall.* Assistant Professor KINGSBURY and Mr. GABY.

The lectures are illustrated with lantern slides, charts, etc.

VERTEBRATE ZOOLOGY.

A. **Elementary Vertebrate Zoology.** Lectures. M., W., F., 9–10. *McGraw 5.* Laboratory, M., W., F., 10–1 and 2–4. Dr. REED. The lectures will treat of the structure, development, systematic relationship, life-histories and habits of vertebrate animals and their relation to the environment. In the laboratory will be dissected and studied representative forms. Credit 3 hours.

B. **Systematic and Economic Vertebrate Zoology.** Lectures. T., Th., Sat., 8–9. *McGraw 5.* Laboratory and field-work, T. and Th., 9–1 and 2–4, and S., 9–1. Dr. REED. The lectures will treat of the principles of classification, the structures or parts employed in classification, the life-histories and habits in detail, and the economic value of the more common vertebrates of the Eastern United States. In the laboratory representative species will be identified. For the laboratory work upon birds, Chapman's "Handbook of the Birds of Eastern North America," 6th edition, will be used as a manual. For the other groups, Fishes, Batrachians, Reptiles and Mammals, Jordan's "Manual of the Vertebrates," 8th edition, will be employed. As field-work, typical localities will be visited and the vertebrate fauna studied. In connection with the field-work, practice will be given in making, preserving and labeling scientific collections. Individual collections may be made if desired. Credit 3 hours.

NOTE.—Persons intending to take either of the above courses should notify the Instructor in charge before June 1, in order that material may be provided.

NATURE-STUDY.

Nature-study instruction will be given in the summer of 1904, under the general direction of Professor Bailey, aided by Mrs. Comstock, Professor Stanley Coulter of Purdue University, and others. The work will be so arranged as to coördinate closely with physiography and other outdoor subjects. The purpose of the instruction will be to enable teachers to prepare themselves for the practical handling of

nature-study subjects in the schools; and the object of nature-study is understood to be to put the teacher and pupil into sympathetic attitude towards their common and natural environment. The instruction will be pedagogical rather than informational, using plants, animals, weather, fields, as educational means. Full announcement of the instruction will be made separately.

DESCRIPTIVE GEOMETRY.

A. **Descriptive Geometry.** This course is equivalent to courses 8 or 9, Register, page 351. A study of the representation of lines, planes, surfaces, and solids; and of their inter-relation; tangents, intersections, and developments; warped surfaces; shades and shadows; perspective. The subject is presented by lectures, and the student is expected to establish the principles and methods presented by graphical solution of original problems, worked out in the drawing hours. Lectures, daily ex. S., 8. Drawing, daily ex. S., 9–12. *Lincoln Hall.* Assistant Professor OGDEN.

MECHANICS OF ENGINEERING.

A. **Mechanics.** This course is the equivalent of the first term of course 20, College of Civil Engineering. Admission to this course is restricted to those already having a fair knowledge of the subject. Students in Cornell University Engineering courses are not admitted to this course, unless they have taken the first term of course 20 in University classes during the regular University year and received a mark of at least 41. Those taking it are not, in the main, permitted to take other work in the University. Problems form the basis of this work; a rapid review of parts of Church's "Mechanics of Engineering" is also involved. A study of the principles and applications to engineering of the mechanics of solids. Statics. Centers of gravity. Chains and cords. Dynamics of a material point. Impact. Virtual velocities. Centripetal and centrifugal forces. Moments of inertia of plane figures. Elementary principles of work and energy. Stresses and strains. Tension. Shearing. Compression. Torsion. Elementary problems in flexure. Lectures, recitations and problems, daily, except Saturday, 9, 10. *Lincoln Hall 32.* Messrs. JOHANNSEN and BARNES.

B. **Mechanics.** This course is the equivalent to the second term of course 20, College of Civil Engineering. The restrictions in this course are the same as in Mechanics A above. Advanced problems in flexure. Elastic curves. Safe loads. Continuous girders. Moments of inertia of solids. Dynamics of rigid bodies. General principles of

work and energy. Power. Fly-wheels. Friction. Dynamometers. Belting. Graphic statics of mechanism. Elementary principles of hydraulics. Recitations, lectures, aud problems, daily, except Saturday, 10, 11. *Lincoln Hall 32.* Messrs. JOHANNSEN and BARNES.

DRAWING AND ART.

A. **Drawing.** The use of the lead pencil, pen and ink, or charcoal. The grouping and lighting of models. Also blackboard and other methods available in nature study and primary work. Daily, except Saturday, 9–12. Mr. GUTSELL.

B, **History of Art.** Lectures. Painting, sculpture and allied arts in the Italian communities during the Mediæval and Renaissance periods. The guilds, masters and apprentices. Municipal and ecclesiastical patronage and the influence of the nobility. Elements of decadence. The culmination of culture in the early 16th century, and a brief review of the decline. References and readings in the Library. Illustrated with lantern slides, prints and photographs. Daily except Saturday, 11. Mr. GUTSELL.

C. Special arrangement may be made for work in water colors, pen and ink, or perspective, elementary or advanced, according to the needs of individual students. Daily except Sat., 9. Mr. GUTSELL.

D. **Drawing from Nature.** Work out of doors for advanced students. Afternoons. The instructor will be in attendance two afternoons. Mr. GUTSELL.

MECHANICAL DRAWING AND DESIGNING.

A. **Mechanical Drawing.** Use of instruments, geometrical problems, orthographic projection, inking and tinting, shading and shade lines, lettering, isometrical drawing, working drawings and conventions. 2 to 5 P. M. daily except Saturday. *Sibley, 303.* Mr. J. S. REID.

B. **Elementary Designing.** Problems in machine drawing and designing. 2 to 5 P. M. daily except Saturday. *Sibley 303.* Mr. J. S. REID.

C. **Kinematic Drawing and Machine Design,** including special course in locomotive design. 2 to 5 P. M. daily except Saturday. *Sibley, 303.* Mr. J. S. REID.

These courses can be arranged to suit individual needs; they are especially suitable for teachers of manual training.

Course A is designed for beginners or those who desire to obtain a more perfect knowledge of approved methods in modern practice.

In course B the principles, methods, and conventions of course A are applied to the drawing and designing of general machine and engine details and small machines.

Many valuable samples and models of machines and details of machines and engines are used to illustrate the problems in this course.

Course C consists of problems in irregular curves, cams, gears, chamber wheels, chain wheels, linkages and original designing of complete machines and locomotive details.

MECHANICS ARTS: BASIS FOR MANUAL TRAINING.

A. **Shopwork.** Woodworking; use of tools; joinery; turning; pattern-making.

B. **Shopwork.** Blacksmithing; use of tools; forging, welding; tool-dressing, etc.

C. **Shopwork.** Foundry work; moulding, casting, mixing metals, brass work, etc.

D. **Shopwork.** Machinist work; use of hand and machine tools; working to form and to guage; finishing; construction; assemblage; erection.

Each of the above courses, four hours. Daily as assigned, 8–12, 1–5. by Professor MORRIS, (Messrs. WISEMAN, WOOD, VANDERHOEF, and HEAD, Foremen of shops). No assignment of less than four hours.

The foregoing courses are designed especially for the needs of teachers of manual training. Frequent consultations are provided for, and special attention is given to individual needs.

ASSOCIATE ALUMNI.

By the charter of the University the graduates are entitled to elect two 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 of (1) 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 such hour as the executive committee shall determine.

VI. Any proposition to alter or amend these articles of association must be made at a regular meeting aud 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 Treasurer of the University is required to keep "a registry of the signature and address of each alumnus." It is therefore important that each alum-

nus keep the Treasurer of the University 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 1903-1904.

President—O. F Williams, '69.

Vice-Presidents—E. O. Randall, '74; F. H. Servance, '79; H. P. DeForest, '84; Mrs. R. A. Maynard, '89; J. L. Ahern, '94; C. V. P. Young, '99; R. S. Kent, '02.

Corresponding Secretary—C. H. Hull, '86.

Recording Secretary—G. W Harris, '73.

Treasurer—S, E. Banks, '95.

Directors—O. F Williams, '69; S. E. Banks, '95; G. W Harris, '73; M. Van Cleef, '74; E. W Huffcut, '84; C. D. Bostwick, '92.

Auditing Committee—I. P Church, '73; C. H. Hull, '86; A. T. Kerr, '95.

Canvassing Board for Trustees Election—C. L. Craudall, '72; W W. Rowlee, '88; remaining members to be appointed as directed in the By-Laws, after the nominations of candidates for alumni trustees have been announced.

Officers of Local Alumni Associations.

(As last reported.)

CENTRAL NEW YORK ASSOCIATION.

President—

Secretary—E. F. McKinley, '93, Freeport, N. Y.

ITHACA ASSOCIATION.

Secretary—D. F. Van Vleet, '77.

NORTHWESTERN ASSOCIATION.

President—O. L. Taylor, '81.

Secretary—E. H. Crooker, '83, N. Y Life Bldg., Minneapolis, Minn.

NEBRASKA ASSOCIATION.

President—A. C. Wakely, '78, Omaha, Neb.

Secretary—J. W Battin, '90, Omaha, Neb.

NEW ENGLAND CORNELL CLUB.

President—H. J. Messenger, '80.
Secretary—L. E. Ware, '92, 108 Austin St., Worcester, Mass.

CORNELL UNIVERSITY CLUB OF NEW YORK CITY.

President—C. J. Shearn, '90, 56 Wall St., New York City.
Secretary—J. R. Lewis, '95, 31 Nassau St., New York City.

NORTHEASTERN PENNSYLVANIA ASSOCIATION.

President—G. B. Davidson, '84, Scranton, Pa.
Secretary—F L. Brown, '82, Scranton, Pa.

PHILADELPHIA ASSOCIATION.

President—J. M. Dodge, '72.
Secretary—A. Wood, '91, West Philadelphia, Pa.

WASHINGTON ASSOCIATION.

President—J. B. Foraker, '69.
Secretary—H. H. Burroughs, '94, 513 7th St., Washington, D. C.

CORNELL ALUMNI ASSOCIATION OF BUFFALO.

President—Eugene Cary, '78.
Secretary—R. M. Codd, Jr., '97, Buffalo, N. Y.

ROCKY MOUNTAIN ASSOCIATION.

President—R. W. Corwin.
Secretary—A. S. Proctor, 1640 Arapahoe, Denver, Col.

CHICAGO ASSOCIATION.

President—D. F. Flannery, '76.
Secretary—C. M. Howe, 815 Grove St., Evanston, Ill.

PACIFIC NORTHWEST ASSOCIATION.

President—J. A. Rea, '69, Olympia, Wash.
Secretary—Frank D. Nash, '72, Tacoma, Wash.

EASTERN NEW YORK ASSOCIATION.

President—R. G. Scherer.
Secretary—R. J. LeBoeuf, '92, Municipal Gas Co. Bldg., Albany, N. Y.

ROCHESTER ASSOCIATION.

President—J. R. Davy, '94.
Secretary—C. A. Simmons, 32 City Hall, Rochester, N. Y.

SOUTHERN TIER ASSOCIATION.

President—John Bull, Jr., '85, 114 Lake St., Elmira, N. Y.
Secretary—D. N. Heller, '88, Elmira, N. Y.

CORNELL CLUB OF WESTERN PENNSYLVANIA.

President—G. Dusinberre, '86.
Secretary—H. M. Bostwick, '01, Edgewood Park, Pa.

CORNELL CLUB OF BINGHAMTON.

President—C. G. Wagner, '77.
Secretary—J. Marcy, Jr., '01.

CORNELL CLUB OF CALIFORNIA.

President—D. S. Jordan, '72.
Secretary—C. L. Cory, '91, Berkeley Calif.

CORNELL CLUB OF LONDON.

President—O. Shiras, '97.
Secretary—S. B. Fortenbaugh, '90.

JAMESTOWN ASSOCIATION.

President—C. D. Eckler, '99.
Secretary—Miss R. Bentley, '02.

THE CORNELL WOMEN GRADUATES' ASSOCIATION.

President—Mrs. S. H. Gage, '80.
Secretary—Miss K. Connor, '98.
Meetings at Ithaca annually on afternoon of Alumni Day

TOLEDO ALUMNI ASSOCIATION.

President—W. J. Sherman, '77.
Secretary—W. A. Clarke, 16th and Jefferson Sts., Toledo, O.

SEATTLE ALUMNI ASSOCIATION.

President—F. J. Barnard.
Secretary—M. M. Odell, '97.

DETROIT ALUMNI ASSOCIATION.

President—M. T. Conklin, '72.
Secretary—E. E. Haskell, '79, Detroit, Mich.

NIAGARA FALLS ALUMNI ASSOCIATION.

President—Engene Cary, '78.
Secretary—F. L. Lovelace, '80, Niagara Falls, N. Y.

THE CORNELL CLUB OF ST. LOUIS.

President—W. Trelease, '80.
Secretary—M. A. Seward, '97, 700 Carleton Bldg., St. Louis, Mo.

THE CORNELL UNIVERSITY ASSOCIATION OF DELAWARE.

President—G. R. Thompson, '75, Wilmington, Del.
Secretary—A. D. Warner, 1900, Wilmington, Del.

CORNELL ALUMNI ASSOCIATION OF THE PHILIPPINE ISLANDS.

President—A. G. Heppert, '93.
Secretary—Clara Donaldson, '01, Dept. of Education, Manila, P I.

Alumni Bureau.

The Alumni Association voted at its meeting in June, 1890, to establish in the University an Alumni Bureau, and at the annual meeting in June, 1896, incorporated in the By-Laws of the Association the following provision: "There is established an Alumni Bureau for the promotion of the interests of graduates or other ex-students of the University in securing positions. The Alumni Bureau shall be under the general oversight of the executive committee of the Association and in the special charge of the Registrar of the University." In accordance with this resolution, a permanent Bureau has been constituted where names are registered with a record of the position desired and of the study 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 the Registrar of the University 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. Blank forms will be furnished on application to the Registrar.

In accordance with the vote of the Alumni Association, the annual report of the Alumni Trustees, 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. Any alumnus who shall pay to the Treasurer ten dollars at one time is thereafter exempt from the payment of annual dues. Remittances may be made to the order of the Corresponding Secretary. The last report is now ready for distribution.

The Corresponding Secretary is required to keep a list of all addresses of graduates, and it is requested that he may be notified of changes in the address of any member.

Class Memorials.

(As reported.)

CLASS OF 1872 :—Seventy-two Elm Trees bordering President's Avenue and northern half of East Avenue.

CLASS OF 1873 :—Drinking Fountain in front of McGraw Hall.

CLASS OF 1878 :—The Class Pipe.

CLASS OF 1879 :—Bronze Tablet containing bust of Bayard Taylor in Sage Chapel.

CLASS OF 1883 :—Portrait of Professor William Dexter Wilson, D.D., LL.D., in University Library.

CLASS OF 1884 :—Portrait of Professor Charles Chauncey Shackford, A.M., in University Library.

CLASS OF 1885 :—Statue of Augustus Caesar in the Museum of Casts.

CLASS OF 1886 :—The '86 Memorial Prize in Declamation. *See University Register, p. 62.*

CLASS OF 1890 :—Cornell Boat House.

CLASS OF 1891 :—The '91 Memorial Fund for Sick Students.

CLASS OF 1892 :—Witherbee Memorial Club House at Percy Field.

CLASS OF 1893 :—Interscholastic League Prizes in Athletics.

CLASS OF 1894 :—The '94 Memorial Prize in Debate. *See University Register, p. 63.*

CLASS OF 1895 :—The Henly Shell.

CLASS OF 1896 :—Gift toward the establishment of an Alumni Hall.

CLASS OF 1897 :—Gift toward the establishment of an Alumni Hall.

CLASS OF 1898 :—Gift toward the establishment of an Alumni Hall.

CLASS OF 1898 (College of Law) :—Carved oak seat in Boardman Hall.

CLASS OF 1899 :—Gift toward the establishment of an Alumni Hall.

CLASS OF 1900 :—Gift toward the establishment of an Alumni Hall.

CLASS OF 1901 :—Gift toward the establishment of an Alumni Hall.

CLASS OF 1892 :—Gift toward the establishment of an Athletic Field.

CLASS OF 1903 :—Gift toward the establishment of an Athletic Field.

CLASS OF 1903 (College of Law) :—Portraits of Justice Rufus W. Peckham and Joseph H. Choate.

THIRTY-FIFTH ANNUAL COMMENCEMENT.

June 18, 1903.

DEGREES CONFERRED.

FIRST DEGREES.

Bachelors of Arts.

Thomas Dickinson Adams,
Elizabeth Mary Anderson Aitken,
Mary Allen,
Grace Andrews,
William Thomas Andrews,
Grace Mead Andrus,
Margaret Lewis Bailey,
Bessie Emmons Beardsley,
Bessie Eugenia Beckwith,
Alletta Landgon Bedford,
Harriet Kilbourue Bishop,
Frank Ross Blair,
Henry Fitch Blount, Jr.,
Emily Stella Boardman,
Camilla Warner Bolles,
Herbert Stanley Boone,
Guernsey John Borst,
George Edward Drullard Brady,
Howard Solomon Braucher,
Louise Fargo Brown,
Olivine Brown,
Raymond Elliott Brown,
Mary Doddridge Burton,
Alice Short Butler,
Francis Joseph Cahill,
Floyd Leslie Carlisle,
Vera Katharine Charles,
Elma Dorothy Chase,
Jerome Babcock Chase,
Elsie Christie,
Charles Sprague Clark,
Harry Carney Colborn,
Joseph Kinsey Cole,
Charles Leroy Cool,
Esther Marie Simonds Crockett,
Juliet Sarah Crossett,
Glenmore Whitney Davis,
Charles Lemuel Dibble,
Herbert Darius Augustine Donovan,
Bernice Ednah Doubleday,
Arthur Garfield Dove,
Eugene Albert Drey,
Arthur Taylor Dunn,
Lillian Cecilia Dunn,
Kate Gay Eells,
Lucy Alicia Ellis,
Isabel Dolbier Emerson,
Euphemia Birnie Engle,
Harry Day Everett,
Harvey Clark Fairbank,
John Gifford Fairchild,
Earle Edwin Farnsworth,
Theodore Edmund Faxon,
Edwin Nelson Ferdon,
Franklin Lee Ferdon,
Wenona Atwater Fessenden,

Katharine Elizabeth Flynn,
William Alley Frayer,
John Peter Frenzel, Jr.,
William Hayes Fries,
Helena Geer,
Marie Paula Geiss,
Irving Goldsmith,
Edith Regina Graves,
Willis Ray Gregg,
Daniel George Griffin,
John Martin Griffith,
Ruby Helen Halsey,
Isa Belle Hanford,
Roland Rathbun Harrison,
Harold Leslie Hart,
Flora Annette Harwick,
Lee Fred Hawley,
Francis Hemperley Hiller,
Elsie Henrietta Hirsch,
Mary Lathrop Holden,
Arline Burma Hooker,
Wyckoff Hoxie,
Eva Frances Humphreys,
Robert Leroy Hutton,
Grace Edith Inman,
Helen Isham,
Frederica Christiana Kees,
Lena Marguerite Kellar,
Charles Everett Kelsey,
Carl Garfield Kinney,
Philip Alexander Kluepfel,
Porter Raymond Lee,
Florence Daisy Lefferts,
Carrie May Lewis,
Edith Loeber,
Benjamin Franklin Longnecker,
Gustave Ernest Fred Lundell,
Beatrice Clark Macbride,
George Lewis McCracken, M.E., B.P.,
Morgan Lane McKoon,
Isabel Martin,
Eugene Merritt,
Joseph Henry Middleton,
Chester Lee Mills,
Truman Jessie Moon,
Olive Butler Morrison,
Susan Williams Moses,
Lucia Birdsall Musson,
William Neff,
Edwin Brydon Nell,
Harry Yorke Norwood,
Ouiga Edith Okerstrom,
James George O'Neill,
Robert Wayne Palmer,
Mary Beeler Park,
Robert Rhoode Patterson,
John Calder Pearson,
Ben Perley Poor,
Edna Louise Proseus,
William Cool Pruyn,
Henry Purcell, Jr.,
John Randolph,
Effie Alberta Read,
Helen Clara Riedel,
Allen Bradford Ripley,
John Watkins Robb,
Thomas Burroughs Roberts,
Willis Warren Roe,
Martin John Roess,
Harvey Griffin Rogers,
Jerome Davis Rosenberg,
Maida Rossiter,
Robert Ryon,
George Holland Sabine,
William Henry Scranton,
Carlton Heald Sears,
Robert Bartlett Sears,
Herbert Carpenter Shattuck,
Bessie Louise Sheldon,
Mary Shimmell,
Grace Sitler,
John Bell Smallwood,
Burr LaMonte Smith,
Jacob George Smith,

Roger Green Smith, B.S.,
Percy Allis Winans Smithe,
Mary Louise Snow,
Harry Frank Sommer,
Imogen Stone,
Cora Strong,
Agnes Getty Sweeton,
Claud Paul Tallmadge,
Henry Delano Tefft,
Ransford Clark Thompson,
Frederick Henry Thro,
Arthur Jerrold Tietje,
Leona Estelle Todd,
Lucy Neiley Tomkins,
Eliza Tonks,
Anne B Townsend,
Edna Gertrude Tree,
Andrew Charles Francis Troy,
Elizabeth McJimsey Tyng, B.S.,
Russell Sage Underwood,
Frank Arnold Urner,
Joseph Hasbrouck Vanderlyn,
Leonard Holden Vaughan,
Daisy Florence Wallin,
Vera Wandling,
Joseph DeWitt Warner,
William Jay Warner,
Walter Garfield Warren,
Charlotte Cornelia Waterman,
Raxley F Weber,
George Morgan Welch,
John Elwood Wentworth,
William Truesdale Wheeler,
Elbert Cook Wixom,
Edith May Wolfe,
George Milton Wood, Jr.,
Grace Maude Woods,
Arthur Mullin Wright,
Lynn George Wright,
Carrie Van Patten Young,
William Bernard Zimmer.

Bachelors of Laws.

John Herbert Agate,
Benjamin Rosell Akin,
Frank Coy Allis,
Isaac Allison, Jr.,
Ernest William Bischoff,
Felix Renick Caldwell,
James Joseph Clark,
George Davis Crofts, A.B.,
Frank George Curtis,
Felix Jorge Vidal Dominguez, A.B.,
Linda Dows,
Williard Waldo Ellis, A.B.,
Oscar Ford Fanning,
Peter Fisher, Jr.,
Charles Grant Fryer,
Harry Goldsmith,
Richard Alvarez Gomez, A.B.,
George William Grattan,
Grant Hugh Halsey,
Arthur DeWitt Harnden,
Alfred Huger,
Everest Amasa Judd,
Sydney Hovey Kelleran,
Lyman Annise Kilburn,
John Wiltsie Knapp,
Clarence Blyler Kugler, Jr.,
Richard Killen McGonigal,
Eugene Hall McLachlen,
George Cahill Meade,
Egbert Vernon Nelson,
Frank Rheiner Pennock,
John Redmond Pidgeon,
Francis Wilbur Quaife,
Edgar Delos Sebring,
Arthur Hale Smith,
John Thomson Sturdevant,
John Bradford Tallman,
Arthur Smith Tennant,

Martin Travieso, A.B.,
George Harbottle Turner,
George Arthur Utting,
Abraham Weil,
Frank Elihu Wood,
Edmond Leon Worden,
Manton Marble Wyvell, A.B.

Bachelors of the Science of Agriculture.

Gustave John Bruns,
Arthur Westcott Cowell,
Edwin James Glasson,
Herbert Andrew Hopper,
George Enoch Merrill, B S.,
William James Ward,
George Frederiek Warren, Jr., B.Sc.,
Josh Wood, B.S.

Doctors of Veterinary Medicine.

Miles Leroy Davenport, B.S.,
Frederic Frank Fehr,
David Arthur Hughes, M.L., Ph.D.,
Daniel DuBoise LeFevre,
Frank James Loomis,
Charles Millen,
George Harry Miner, B.Agr.,
Fred Bertrand Simons,
Ernest Ireland J Smith,
Bert Brenette Stroud, B.S., D.Sc.,
Bert Raymond Wilbur,
Ludo Little Zimmer.

Arthur Manly Farrington, B.V.S.

Forest Engineers.

Roland D Craig, B.S.,
Asa Starkweather Williams.

Bachelors of Architecture.

Herbert Parkhurst Atherton,
George Feick, Jr.,
Frank Spencer Forster,
William Mark Kennedy,
William Gray Purcell,
Harry Irwin Schenck.

Civil Engineers.

Henry Franklin Badger, Jr.,
Charles Albert Blakeslee,
Ernest Brooks, Ph.B.,
Nathaniel Adelbert Brown,
Joseph Edwin Craig, B.S.,
Walter Smith Edge,
Frederick William Fisher,
Daniel Fraser Fulton,
Herbert August Gehring,
Charles Sumner Gelser,
George Edward Gibson,
Robert John Harding,
Ernest Demarest Hendricks,
Howard Corwin Hopkins,
Lucius Sanford Hulburd,
Arthur Ripont Keller,
Edward Maurice Lara,
John Howard Lewis,
Justin Wyman Ludlow, M.E.,
George Edward Malone,
Ralph Erwin Marvin,
Bruce McCutcheon Miller,
James Joseph Montgomery,
Thomas S Newman,

Alfred Barber Osborne,
Charles Nathaniel Pinco,
Hugh Redmond,
Donald McGregor Rounds,
Joseph Nelson Slater,
Royden Johnston, Taylor, B.E.,
William Richard Taylor,
Howard Campbell Tompkins,
Kenneth Bertrand Turner,
Charles Reeve Vanneman,
J Hynds Weidman,
Arthur Sidney Whitbeck,
Tudor Rosser Williams,
George Creighton Wright.

Mechanical Engineers.

Alan Emerson Ashcraft,
Carl Hoff Beach, B.S.,
William Chambers Beatty,
Henry Clay Beckwith,
Louis Allen Beecher,
Joseph Arthur Beidler, Jr.,
Maxwell Rufus Berry, Jr., M.E.,
Norman DeWitt Betts,
Wilbur Bunnell Blakeslee,
Judson Hartwell Boughton,
Fred Isaac Brown, B.M.E.,
Bruce Sedgwick Burlingame,
Edward Burns, Jr.,
Harry Clarence Carroll,
John O'Fallon Clark, Jr.,
Ronald Gilbert Coolbaugh,
Ralph Stewart Cooper,
George Justin Costello,
Henry Gaylord Daboll,
Francis Jenkins Danforth, A.B.,
John Percival Davies, B.S.,
John MacEwan Ellis,
Henry Ernst Epley,
Arad Ward Evans,
Hugh McKnight Ferguson,
John Scott Fowler, B.S.,
Edgar Griffith France,
Walter Augustus Frederick,
Edward Reinhold deGrain,
Louis Gross,
James Dennison Hartman,
Harley Howard Heller,
Frederick H P Howard,
Frank Clarence Howland,
Raymond Dudley Hoyt,
Andrew James Hudson, B.S.,
John Donald Hull,
Lewis Roscoe James,
William Katzenstein, B.S.,
Harry Lee Koenig, B.E.,
Henry Cleaveland Lamb,
Henry Leland Lowe,
Henry Hume McPherson,
Edward Arthur Maginnis,
August Marx,
George Bartges Merrill,
Whitney Merrill,
Harry Powell Moran, B.S.,
James Morrison,
Raymond Parmelee Morse,
John Leland Mothershead, Jr.,
Rudolf Eduard Mueden,
Charles Edward Murray,
Curtis Clark Myers,
Thorsten Yhlen Olsen,
Paul Henry Quackenbush,
Thomas Spencer Ramsdell,
Chester Turner Reed,
Charles Foster Rhodes,
George Whitmore Rice,
Walter Edward Sanders, A.B.,
Edmund Schlemmer,
Yaekichi Sekiguchi,
Charles Kinne Seymour,
James Joseph Shirley,
Horace Evans Sibson,

John Jacob Springer,
Harry Frost Stratton,
Byron Lyman Thompson,
William Alfred Tydeman,
John Herbert Van Deventer,
Robert Emory Vose,
Edgar Calvert Welborn, A.B.,
John Wheeler,
Audenried Whittemore,
Frank Davol Williams,
Fred Silas Yale.

Mechanical Engineers (in Electrical Engineering.)

Ike Baum,
Edward Duncan Beals,
Miles Bicklehaupt,
Roy Harry Black,
Cornelius DuBois Bloomer,
Albert Beeber Boynton,
Louis Fred Bruce,
Henry Hine Buckingham, A.B.,
Milo Robinson Clarke,
Harry Marshall Diemer,
Frank Stillman Dix,
Edward Allen Duffy, B.A.,
Stanley Richard Edwards,
Wesley Rose Ellis,
Philip Feigin,
John Robert Ferguson,
Joseph Fishman,
Hannibal Choate Ford,
John Cornwall Fox,
Clarence Lester Gillespie,
Frank Conant Gobel,
Selden Hamlyn Hall,
Seth Evans Hodge,
Charles Burton Howe,
Edwin Murray Kephart, B.S.,
Cornelius Starlyn Newell Ketcham,
Bradley Thomas McCormick,
David McMeeken, Jr.,
William Lowry Mann, B.S. in E.E.,
Charles Mercer Marsh,
John Culver Musgrove,
Curtis Ralph Osborne,
Roy Stuart Pattison,
Irving Coles Pettit,
Fred Lawrence Pomeroy, Jr.,
Rollin Von Ritter,
Florance Joseph Schwab, M.A.,
Thomas Hill Sidley,
John B Smith, Jr.,
Walter Edward Stockwell,
George Tatum Street, A.B.,
Thomas Richard Torian, A.B., B.S.,
Stephen Hewlett Townsend,
Henry Tracy Van Wagenen,
Lucius Otto Veser, B.A.,
Herman Bierce Waters,
Carl Leopold Wernicke, B.E.,
Cyrus Avery Whipple, A.B., B.Pd.,
Lee Williams, B.E.E.,
Charles Evans Wingo, Jr.,
Alfred Vincent Youens.

Mechanical Engineers (in Marine Construction.)

Harry Griffith Bartlett,
James Lawrence Bates,
Russell Lanson Boyer,
David Eugene Burr,
Rollin Kimball Cheney,
Robert Campbell Denny,
Horace Warren De Ved,
Roderick David Grant,
Stuart Hazlewood,
William Augustus Heitshu,
Hugh Montgomery Krumbhaar, B.E.,
Ira June Owen,

William Alphonso Rowe,
Leonard Griffin Shepard,
Joseph Dickenson Clair Smith,
Ellis Johnson Stearns, B.E.,
Roland Elbert Titcomb,
Lea Pusey Warner,
John Hilbish Wells.

Mechanical Engineers (in Railway Mechanical Engineering.)

Edward Stephen Choate, M.E.,
John Barrie Ferguson,
Harold Frederick Jewett,
John McClellan Lee,
John Thomas McGinity,
Oran Whitman Ott,
Milton Jonathan Phillips,
Henry Albert Rogers,
Alan Gillespie Williams,
John Horner Wisner, Jr.

ADVANCED DEGREES.

Masters of Arts.

Benjamin Richard Andrews, A.B. : Auditory Tests.

Arthur Malcolm Bean, A.B. : The Structure and Development of the Nephros in Fishes.

Annie Sophia Clark, A.B. : English in the Schools.

William Dodge Gray, A.B. : Recent Excavations in the Roman Forum.

Mabel Hale, A.B. : Subjunctive Substantive Clauses in the Phormio and the Heautontimorumenos of Tereuce, not including Indirect Questions.

Clarence Atkins Hebb, A.B. : Egoism and Altruism in Hume.

James Bryant Hopkins, A.B. : Miracle de l'evesque à qui Nostre Dame s'apparut.

Willard Eugene Hotchkiss, Ph.B. : The Judicial Work of the Comptroller of the Treasury : A Study in Administrative Law.

Sydney Edward Lang, A.B. : The Normal School.

Frederick William Charles Lieder, A.B. : Friedrich Spe : His Worth as Humanitarian and Poet.

Paul Blakeslee Mann, A.B. : The Spiracle of the Ganoid Fishes.

James Otis Martin, B.S.A. : A Study of the Drumlin Area of New York State.

George Charlton Matson, B.S. : A Contribution to the Study of the Interglacial Gorge Problem.

Elizabeth Mitchell, A.B. : Concerning the generalized Beltrami Problem as related to certain Systems of plane cubic Curves.

Albert Ten Eyck Olmstead, A.B. : Sargon.

James William Putnam, B.S., Ph.B., A.M. : Attempts to apply the Principle of Home Rule to the Question of Slavery in the Territories before the Enunciation of the Doctrine of Popular Sovereignty.

James Irving Reynolds, A.B.: Delbrück's Theory of the Difference of Tenses in the Latin Prohibitive.

Theophilus H Scheffer, B.S.: Cocooning Habits and Maternal Instincts of Spiders.

Charles Herschel Sisam, A.B.: On the Asymptotic Lines of Quintic Scrolls.

Caroline Lambert Sparrow, A.B.: Browning's Dramatic Genius.

Imogen Stone: Political Ideas of Bacon's Essays.

Roy Sherman Stowell, A.B.: The English Opponents of the Witch Persecution.

Masters of Science in Agriculture.

Alvin Casey Beal, B.S.A.: The Influence of Chemicals, applied to the Soil, upon the Color of Flowers.

John William Lloyd, B.S., B S.A.: Study of Variation in the Quality of Melons.

John Pogue Stewart, A.B.: The Winter Buds of Willows, Poplars, Maples, and Oaks.

Master of Science in Architecture.

Herman Dercum, B.Arch. (No thesis required.)

Masters of Civil Engineering.

Sherman Isaac Kehler, C.E.: Street Railways.

Richard Roswell Lyman, B.S. in C.E.: The Flow of Water over Weirs.

Clarence William Meyers, C.E.: The Design and Construction of Steel Work and Foundations in a Modern High Building.

Masters of Mechanical Engineering.

Louis Albert Cazenove, Jr., M.E.: Temperature Investigation in the Priestman Oil Engine.

Sidney Graves Koon, M.E.: On the Longitudinal Strength of Steel Ships.

Thomas Lee Brent Lyster, B.S. (E.E.): The Selection of the Electrical Equipment for an Electric Interurban Railway.

Helon Brooks MacFarland, B.S. in E.E.: Application of Gas-Engine Heat Wastes to Secondary Engines

Herbert Fisher Moore, B.S., M.E.: Constants and Formulæ for Lubrication.

Edward Franklin Schaefer, B.S., M.E.: Temperature Investigation in Gas Engine Cycle.

Numa Reid Stansel, B.S., E.E.: Electric Railway Engineering.

Doctors of Philosophy.

Georgia Benedict, A.B.: La nouvelle monadologie.

James Adrian Bizzell, B.S., M.S.: Behavior of Phosphoric Acid in the Soil.

Robert Clarkson Brooks, A.B.: The History of the Street and Rapid Transit Railways of New York City.

Arthur Wesley Browne, B.S., M.S.: Contribution to the Chemistry of Hydronitric Acid and the Trinitrides.

William Weber Coblentz, B.S., A.M.: Some Optical Properties of Iodine.

Elmer Reginald Drew, B.S.: The Radiant Efficiency of the Electric Discharge through Gases at Low Pressures.

George Matthew Dutcher, A.B.: The Deputies on Mission during the Reign of Terror.

Christabel Forsythe Fiske, Ph.B., M.A.: English Chroniclers and Playwrights: A Study of the Political and Domestic Life of England as treated in the Drama.

Elfrieda Hochbaum, Ph.B., Ph.M.: The Conception and Treatment of Nature in the Minnesang and in the German Popular Love Poetry of the 15th and 16th Centuries.

Edwin Walter Kemmerer, A.B.: Money and Credit Instruments in their Relation to General Prices.

Jacob Goodale Lipman, B.S., A.M.: Nitrogen-Fixing Bacteria.

Sanford Alexander Moss, B.S., M.S.: The Gas Turbine.

Perley Gilman Nutting, A.B., M.S.: Ultra Violet Rotary Dispersion.

Hugh Daniel Reed, B.S.: The Cranial Osteology and Relationships of the Family Percopsidae.

William Albert Riley, B.S.: The Embryological Development of the Skeleton of the Head of Blatta.

Emil Peter Sandsten, B.Agr., M.S.: Conditions which affect the Fertility of Pollen.

Ernest William Schoder, B.S.: An Experimental Study of the Resistances to the Flow of Water in Pipes.

John Edgar Teeple, B.S.: On Bilirubin, the Red Coloring Matter of the Bile.

Nathan Elbert Truman, A.B., A.M.: Maine de Biran's Philosophy of Will.

George Washington Tapley Whitney, Ph.B., A.M.: Recent Theories of Psychical Causality.

CERTIFICATES AND PRIZES PRESENTED.

Certificates for Proficiency in Military Science

Clarence Lester Gillespie, Fred Lawrence Pomeroy, Jr.,
William Alfonso Rowe, George Morgan Welch,
George Edward Gibson, William Bernard Zimmer,
Kenneth Bertrand Turner.

The Sibley Prizes in Mechanic Arts:

First Prize.....John Hurlbut
Second Prize.....Alan Gillespie Williams
Third Prize.....John Percival Davies, B.S.
Fourth Prize.....Sidney Coombe Vincent
Fifth Prize.....John William Todd

The H. K. White Prizes in Veterinary Science:

First Prize.....Bert Raymond Wilbur
Second Prize..... Charles Millen, David Arthur Hughes, M.L., Ph.D.

The Woodford Prize in Oratory:

Alfred Huger

The Eighty-Six Memorial Prize in Declamation:

Elias Heathman Kelley

The Ninety-Four Memorial Prize in Debate

George Davis Crofts, A.B.

The Fuertes Medals:

William Kendrick Hatt, C.E., Ph.D.
Justin Wyman Ludlow, M.E.

The Sands Medals in Architecture:

Herman Dercum, B.Arch.
Robert Irving Dodge, B.Arch.

The Brown Memorial Medal in Architecture:

George Feick, Jr.

The Guilford Essay Prize

Philena Belle Fletcher

The Hiram Corson Browning Prize:

Gertrude Vernon Kahn, A.B.

DOCTORS OF MEDICINE.

[Conferred June 3, 1903, at the Fifth Annual Commencement of the Medical College in New York City.]

Harold Capron Bailey,
Ernest Ensign Banker,
Carl Boettiger,
Alice Gates Bugbee, A.B.,
Geoffrey Charles Henry Burns,
Charles Willard Chapin,
Clarence Catlin Coryell,
Edward Rutherford Cunniffe,
Louis Leopold Davidson,
Ruth Demarest,
Paul Dolan, A.B.,
Louis Philippe Dosh,
Sigmund Epstein,
John Wesley Faust, B.S.,
Harry Stark Fincke, Ph.G.,
Archie Max Fisher,
Louis Freedman,
Joseph Herman Gettinger,
Clark Sumner Gould,
Arthur Randolph Green,
Anthony Hans Hansen, A.B.,
Julius Jacob Hertz,
Horace Poinier Hoerle,
Frank McElroy Huntoon,
Maurice Arthur Jachnowitz,
Dwight Fenn Johnson,
Louis Moses Kommel,
Elliot Wagstaff Lawrance,
Abraham Aaron Levy,
Louis Frederick Licht, Ph.G.,
Thomas Charles Lippman, Ph.G.,
Robert Francis Ludwig, A.B.,
Murdock Douglas MacLeod,
William Henry Magill,
John Francis Mohan,
Abraham Moskowitz,
William Hailes Palmer,
Henry Pearson, B.S.,
William Pfeiffer,
James Knight Quigley,
Benjamin Romansky,
Herman Rosenberg,
Valentine Ruch, Jr.,
Samuel Schwartzman,
Benjamin Haff Searing, A.B.,
Keith Sears,
Hobart Parker Shattuck,
Benjamin Sheitlis,
Abraham Strachstein,
Isaac Stiefel,
Isaac Streep,
George Nelson Tompkins,
Harry William Vickers,
Walter Eugene Vogt,
Otto Wagner,
Edward William Weber,
Floyd Robins Wright, A.B.,
Eugene Jerome Zeiner, Ph.G.,
William Jerome Ziporkes,
Morris Zucker, Ph.G.

FELLOWS AND SCHOLARS.

UNIVERSITY FELLOWS.

The Cornell Fellowship,
Alfred Diehl Schoch, B.S., (Pacific Univ.), *English*

The McGraw Fellowship,
Richard Roswell Lyman, B.S. in C.E., (Univ. of Michigan), M.C.E., (Cornell Univ.), *Civil Engineering*

The Sage Fellowship,
William Chauncey Geer, A.B., *Chemistry*

The Schuyler Fellowship,
Charles Edward Lewis, A.B., A.M., (Univ. of Ind.), *Botany*

The Sibley Fellowship,
Wilbur M Wilson, B.M.E., (Iowa State Coll.), *Mechanical Engineering*

The Goldwin Smith Fellowship,
Ralph Vary Chamberlain, B.S., (Univ. of Utah), *Entomology*

The President White Fellowship,
Walter Porter White, A.B., A.M., (Amherst Coll.), *Physics*

The Erastus Brooks Fellowship,
Charles Herschel Sisam, A.B., (Univ. of Mich.), A.M., (Cornell Univ.), *Mathematics*

Julius André Smith, B.Arch., *Architecture*

Emil Alfred Ekern, B.S., (Univ. of Wisconsin), *Mechanical Engineering*

James Bryant Hopkins, A.B., (Hamilton), A.M., (Cornell Univ.), *Romance Languages*

Frederick William Charles Lieder, A.B., A.M., *Germanic Languages*

George Frederick Warren, Jr., B.Sc., (Univ. of Neb.), B.S.A., (Cornell Univ.), *Agriculture*

PRESIDENT WHITE FELLOWS IN HISTORY AND POLITICAL SCIENCE.

Willard Eugene Hotchkiss, Ph.B., A.M.

Daniel Chauncey Knowlton, A.B.

FELLOWS IN POLITICAL ECONOMY.

Albert Charles Muhse, A.M., (Indiana Univ.).
George Pendleton Watkins, A.B.

FELLOWS IN LATIN AND GREEK.

Clyde Ray Jeffords, A.B., A.M., (Univ. of Nebraska).
George Reeves Throop, A.B., A.M., (De Pauw Univ.).

FELLOW IN AMERICAN HISTORY.

Ruth Bentley, A.B.

SUSAN LINN SAGE FELLOWS IN PHILOSOPHY AND ETHICS.

Edmund Howard Hollands, Ph.B., A.M.
Murdock Stewart Macdonald, B.A., M.A., (Dalhousie Coll.).
Charles Edwin Galloway, A.B., (Univ. of Michigan).

FELLOW IN ARCHITECTURE.

Robert Irving Dodge, B.Arch.

HONORARY FELLOWS.

John Wallace Baird, B.A., (Univ. of Toronto), Ph.D., (Cornell Univ.), *Psychology*
William Weber Coblentz, B.S., (Case School), A.M., Ph.D., (Cornell Univ.), *Physics*
Theodore de Leo de Laguna, A.B., A.M., (Univ. of California), Ph.D., (Cornell Univ.), *Philosophy and Ethics*

GRADUATE SCHOLARS IN THE SCHOOL OF PHILOSOPHY.

Grace Mead Andrus, A.B.
Frank Pores Bussell, A.B., (Colgate Univ.).
Annie Dawson Montgomery, A.B., (Penn. Coll. for Women).
George Holland Sabine, A.B.
Arthur Jerrold Tietje, A.B.
Emil Carl Hunnibert Wilm, A.B., A.M., (Southwestern Univ.).

UNIVERSITY GRADUATE SCHOLARS.

Hiram Douthitt Ayres, B.S., (De Pauw Univ.), *Physics*
Joseph Quincy Adams, Jr., A.M., (Wake Forest Coll.), *English*
Lynn Boal Mitchell, A.B., (Ohio State Univ.), *Greek and Latin*
Clarence Owen Harris, A.B., *Comparative Philology and Archaeology*
Henry Higgins Lane, Ph.B., (De Pauw Univ.),
Histology and Embryology
Thomas Jacob Rodhouse, B.S. in C.E., (Univ. of Missouri),
Civil Engineering
James Munsie Bell, B.A., (Univ. of Toronto), *Chemistry*
Oscar Perry Akers, A.B., (Avalon Coll.), A.B., (Univ. of Colo.), A.M., (same), *Mathematics*
Albert Ten Eyck Olmstead, A.B., *History*
[Richard Morris, B.Sc., M.Sc., (Rutgers Coll.), *Mathematics*]
Elmer Clifford Colpitts, A. B., (Mount Allison Univ.), *Mathematics*
Lawrence Martin, *Geology*

UNIVERSITY UNDERGRADUATE SCHOLARSHIPS.

SOPHOMORE CLASS.

THE CORNELL SCHOLARSHIPS,

Olive Ruth Edwards, *Course in Arts*
Ithaca High School—F. D. Boynton, A.M., Principal.
Helen Mae Dennett, *Course in Arts*
Girls' High School, Brooklyn, N. Y.—Dr. William Felter, Principal.

THE H. B. LORD SCHOLARSHIPS,

Mabel Eleanor Fuller, *Course in Arts*
Homer Academy—L. H. Tuthill, A.M., Principal.

THE MCGRAW SCHOLARSHIPS,

George Gleason Bogert, *Course in Arts*
Gouverneur High School—H. De W. De Groat, A.B , Principal.
Charles Ferguson Cook, *Course in Civil Engineering*
Utica Free Academy—A. L. Goodrich, A.M., Principal.

THE SAGE SCHOLARSHIPS,

Margaret May Allen, *Course in Arts*
Ithaca High School—F. D. Boynton, A.M., Principal.
Charlotte Holmes Crawford, *Course in Arts*
Nyack High School—Ira H. Lawton, Ph.D., Principal.

THE SIBLEY SCHOLARSHIPS,

William Daniel Allen, *Course in Electrical Engineering*

Buffalo Central High School—Frederick W. Vogt, Principal.

John Warner Desbecker, *Course in Mechanical Engineering*

Masten Park High School—F. S. Fosdick, Principal.

THE PRESIDENT WHITE SCHOLARSHIP,

Herbert Hechheimer, *Course in Mechanical Engineering*

Baltimore City College—President Soper.

THE HORACE GREELEY SCHOLARSHIP,

Grover Charles Brown, *Course in Civil Engineering*

Ithaca High School—F. D. Boynton, A.M., Principal.

THE JOHN STANTON GOULD SCHOLARSHIP,

Eugene Casson Crittenden, *Course in Arts*

Mansfield State Normal—Andrew Thomas Smith, Ph.D., Principal.

THE STEWART L. WOODFORD SCHOLARSHIP,

Carl Winter Boegehold, *Course in Mechanical Engiueering*

Mt. Vernon High School—A. B. Davis, A.M., Principal.

Ruth May Weed, *Course in Arts*

Ithaca High School—F. D. Boynton, A.M., Principal.

FRESHMAN CLASS

THE CORNELL SCHOLARSHIPS,

George William Nasmyth, *Course in Arts*

Buffalo Central High School—Frederick W. Vogt, Principal.

Roswell Clifton Gibbs, *Course in Arts*

Buffalo State Normal School—James M. Cassety, Ph.D., Principal.

THE H. B. LORD SCHOLARSHIPS,

Francis Harper, *Course in Arts*

Flushing High School—John Holley Clark, Principal.

Victor John Guenther, *Course in Mechanical Engineering*

Masten Park High School—F. S Fosdick, M.A., Principal.

THE MCGRAW SCHOLARSHIPS,

Thomas Willett Rolph, *Course in Mechanical Engineering*

Fredonia Normal School—F. B. Palmer, Ph.D., Principal.

Paul Halliday Underwood, *Course in Civil Engineering*

Ithaca High School—F. D. Boynton, D.Pd., Principal.

THE SAGE SCHOLARSHIPS,

Henry Walker Alexander, *Course in Civil Engineering*

University School, Montgomery, Ala.—J. M. Starke, Principal.

Ford Kurtz, *Course in Civil Engineering*

State Normal School, East Stroudsburg, Pa.—E. L. Kemp, A.M. Principal.

THE SIBLEY SCHOLARSHIPS,

William Gorton Taylor, *Course in Electrical Engineering*
Middletown High School—J. F. Tuthill, A.B., Principal.

Pemberton Reno Swift, *Course in Electrical Engineering*
Ridgeway, Pa., High School—Prof. W. M. Pierce, Principal.

THE PRESIDENT WHITE SCHOLARSHIPS,

George Masters Seymour, Jr., *Course in Mechanical Engineering*
De Witt Clinton High School—J. T. Buchanan, Principal.

Joshua Ferris Darling, *Course in Arts*
Masten Park High School—F. S. Fosdick, M.A., Principal.

THE HORACE GREELEY SCHOLARSHIP,

Joseph Gallagher, *Course in Civil Engineering*
Ithaca High School—F. D. Boynton, D.Pd., Principal.

JOHN STANTON GOULD SCHOLARSHIP,

Benjamin Knowlton Boyce, *Course in Electrical Engineering*
Salamanca High School—Miss Edith Rutherford, Principal.

THE STEWART L. WOODFORD SCHOLARSHIP,

Clarence George Hadley, *Course in Electrical Engineering*
Ithaca High School—F. D. Boynton, D.Pd., Principal.

ASSOCIATE ALUMNAE SCHOLAR.

Edna Wensley, *Course in Arts*

FRANK WILLIAM PADGHAM SCHOLAR.

William Kalwrisky, *Course in Mechanical Engineering*

BOARDMAN SENIOR LAW PRIZE.

Edward Howard Davis, *Course in Law*

CATALOGUE OF STUDENTS.

GRADUATES.

Candidates for Advanced Degrees.

* *In absentia.*

Adams, Joseph Quincy, Jr., A.B., (*Wake Forest College*), A.M., (*same*), *Charlotte, N. C.*
English, Romance Languages. *Ph.D.*
[English, French Literature, Italian Literature.]

Akers, Oscar Perry, A.B., (*Univ. of Colo.*), 1898, M.A., (*same*), 1900, *Berthoud, Colo.*
Mathematics, Physics. *Ph.D.*
[Pure Mathematics, Applied Mathematics, Physics.]

Alexander, James Waddell, A.B., (*Princeton*), 1902, *Candor*
Greek, Latin. *A.M.*

Almy, Mabel Clare, Ph.B., 1900, *Ithaca*
Romance Languages, History and Political Science. *A.M.*
[Romance Languages, American History.]

Andrus, Grace Mead, A.B., 1903, *Tacoma, Wash.*
Philosophy, History and Political Science. *Ph.D.*
[Logic and Metaphysics, Ethics, Political Economy.]

Ashburner, Elizabeth Atkins, *Media, Pa.*
Philosophy. *A.M.*
[History of Philosophy, Psychology.]

Ayres, Hiram Douthitt, B.S., (*DePauw Univ.*), 1902, *Greencastle, Ind.*
Physics, Mathematics. *A.M.*

Baum, Ike, M.E., 1903, *Uniontown, Pa.*
Chemistry, Mechanical Engineering. *M.M.E.*
[Electrochemistry, Electrical Engineering.]

Bean, Arthur Malcolm, A.B., (*Iowa College*), 1897, A.M., (*Cornell Univ.*), 1903, *Pekin, Iowa.*
Vertebrate Zoology, Histology and Embryology, Neurology. *Ph.D.*

Bell, James Munsie, B.A., (*Univ. of Toronto*), 1902, *Toronto, Canada*
Chemistry, Physics. *Ph.D.*
[Physical Chemistry, Inorganic Chemistry, Physics.]

Bentley, Ruth, A.B. 1902, *Fluvanna*
History and Political Science. *Ph.D.*
[American History, Medieval History, Modern European History.]

Berry, Herman Claude, A.B., (*Indiana Univ.*), 1897, B.S. in C.E., (*Purdue*), 1902, *New Augusta, Ind.*
Civil Engineering. *M.C.E.*
[Experimental and Theoretical Hydraulics, Testing of Materials.]

Betten, Cornelius, B.A. (*Lake Forest Coll.*), 1900, M.A., (*same*), 1901, *Orange City, Iowa*
Entomology, Botany, Histology. *Ph.D.*
[Entomology, Botany, Histology and Embryology.]

Beyer, Albin Hermann, Jr., C.E., (*Columbia Univ.*), 1903, *Brooklyn*
Civil Engineering. *M.C.E.*
[Experimental Hydraulics, Bridges.]

Bird, Paul Percy, M.E., 1900, *Rochester*
Mechanical Engineering. *M.M.E.*
[Marine Engineering, Experimental Engineering.]

Blough, Earl, A.B. (*Univ. of Indiana*), 1899, *LaGrange, Ind.*
Chemistry, Mineralogy. *A.M.*
[Inorganic Chemistry, Mineralogy.]

Boedeker, John, B.S., (*Mass. Inst. of Tech.*), 1895, *Springfield, Mass.*
Mechanical Engineering. *M.M.E.*
[Naval Architecture, Marine Steam Engineering.]

Boswell, Maitland Crease, B.A.Sc., (*Toronto Univ.*), 1902, *Peterboro, Ont., Canada*
Chemistry. *A.M.*
[Analytical Chemistry, Inorganic Chemistry, Organic Chemistry.]

Buckingham, Henry Hine, A.B., 1902, M.E., 1903, *New York City*
Mechanical Engineering. *M.M.E.*
[Mechanical Engineering, Chemical Engineering.]

Burnett, Samuel Howard, A.B., 1892, M.S., 1896, D.V.M., 1902, *Webster*
Veterinary Medicine, Bacteriology, Histology. *Ph.D.*
[Pathology, Bacteriology, Histology.]

Bussell, Frank P, A.B., (*Colgate Univ.*), 1901, *Lacon, Ill.*
Philosophy, Education. *Ph.D.*
[Ethics, History of Philosophy, Education.]

Butler, Anne Browning, A.B., 1902, *Indianapolis, Ind.*
Greek, Latin, Comparative Philology. *Ph.D.*

Carney, Frank, A.B., 1902, *Ithaca*
Geology, Education. *Ph.D.*
[Physical Geography, Dynamic Geology, Education.]

Chamberlain, Ralph Vary, B.S., (*Univ. of Utah.*), 1898, *Salt Lake City, Utah*
Entomology, Vertebrate Embryology. *Ph.D.*
[Arachnida, Vertebrate Embryology, Myriopoda.]

Colby, Irving Atwell, B.S., (*N. H. Coll. of A. and M. A*), 1899, *Exeter, N. H.*
Mechanical Engineering. *M.M.E.*
[Machine Design, Experimental Engineering.]

Collier, Theodore Frelinghuysen, A.B., (*Hamilton*), 1894, A.M., (*same*), 1897, *Buffalo*
History and Political Science. *Ph.D.*
[Modern Europern, Mediaeval History, American History.]

Colpitts, Elmer Clifford, A.B., (*Mount Allison Univ.*), 1902, *Point de Bute, New Brunswick, Canada*
Mathematics, Physics. *Ph.D.*
[Pure Mathematics, Applied Mathematics, Physics.]

Coons, Frances Lazelle, A.B., 1902, *Kingston*
Latin, Philosophy. *A.M.*
[Latin, History of Philosophy.]

Cox, Edward Godfrey, A.B., (*Wabash Coll.*), 1899, A.M., (*Cornell Univ.*), 1901, *Cleveland, O.*
English, History and Political Science. *Ph.D.*
[English Philology, Medieval History, The English Novel.]

Curtis, Ralph Wright, B.S.A., 1901, *Ithaca*
Agriculture. *M.S. in Agr.*
[Nature Study, Entomology.]

Delbridge, Thomas G, A.B., (*Union Coll.*), 1903, *Batavia*
Chemistry, Physics. *A.M.*

Dodge, Robert Irving, B.S. in Arch., 1901, *Brooklyn*
Architecture. *M.S. in Arch.*
[Architectural Design, Drawing from Life.]

Duffy, Edward Allen, A.B., (*Univ. of Washington*), 1902, M.E., (*Cornell Univ.*), 1903, *Seattle, Wash.*
Mechanical and Civil Engineering, Chemistry. *M.M.E.*
[Electrical Engineering, Electrochemistry, Experimental Hydraulics.]

Edminster, Frank Custer, A.B., 1902, *Brooklyn*
Mathematics. *A.M.*
[Pure and Applied Mathematics.]

Ekern, Emil Alfred, B.S., (*Univ. of Wis.*), 1903, *Madison, Wis.*
Mechanical Engineering, Civil Engineering. *M.M.E.*
[Electrical Engineering, Experimental Hydraulics.]

Emerson, Frederick V, A.B., (*Colgate Univ.*), 1898, *Union City, Pa.*
Geology. *A.M.*
[Dynamic Geology, Mineralogy.]

Engle, Elsie Ross, A.B., 1899, *Ithaca*
Latin, Greek. *A.M.*

Engle, Maurice Cope, B.Sc., (*Rutgers Coll.*), 1903, *Medford, N. J.*
Agriculture, Entomology. *M.S. in Agr.*
[Fruit Growing, Economic Entomology.]

Ferree, Clarence Errol, B.S., (*Ohio Wesleyan Univ.*), 1900, A.M., (*same*), 1901, M.S., (*same*), 1902, *Delaware, Ohio*
Philosophy, Physics. *Ph.D.*
[Psychology, Physics, History of Philosophy.]

Fisher, Willard James, A.B., (*Amherst*), 1892, *Woods Hole, Mass.*
Physics, Mathematics. *Ph.D.*
[Experimental Physics, Theoretical Physics, Mathematics.]

Fletcher, Philena Bell, *Bainbridge*
Entomology, Botany. *Ph.D.*
[Economic Entomology, Mycology, Plant Histology.]

Foxworthy, Fred William, B.S., (*De Pauw Univ.*), 1899, A.M., (*Cornell University*), 1902, *Greencastle, Ind.*
Botany, Entomology. *Ph.D.*
[Botany (Systematic), Entomology, Botany (Histology).]

Fraser, Samuel, (*Agr. and Hort. Coll., Holmes Chapel, England*), *Ithaca*
Horticulture. *M.S. in Agr.*
[Root systems of Grasses, Drafts of Tillage Implements.]

Freeman, Henry Livingston, B.S. in E.E., (*Ga. School of Technology*), 1900, *Atlanta, Ga.*
Mechanical Engineering. *M.M.E.*
[Electrical Engineering, Mechanical Engineering.]

Gaby, Robert Edward, B.A., (*Toronto Univ.*) 1903, *Toronto, Can.*
Physiology, Histology and Embryology, Pathology. *Ph.D.*
[Physiology, Histology and Embryology, Bacteriology and Pathology.]

Gage, Otis Amsden, Ph.B., (*Univ. of Rochester*), 1899, *Bellona*
Physics, Mathematics. *Ph.D.*
[Experimental and Theoretical Physics, Mathematics.]

Gaehr, Paul Frederick, A.B., 1902, *Ithaca*
Physics, Mathematics. *A.M.*

Galloway, Charles Edwin, A.B., (*Univ. of Michigan*), 1902, *Fond du Lac, Wis.*
Philosophy, Physiology. *Ph.D.*
[Psychology, History of Philosophy, Physiology.]

Gardner, Thomas Mooney, B.M.E , (*Purdue Univ.*), 1892, M.M.E., (*Cornell Univ.*), 1896, *Ithaca*
Mechanical Engineering, Mathematics. *Ph.D.*
[Mechanical Engineering, Electrical Engineering, Mathematics.]

Geer, William Chauncey, A.B., 1902, *Ithaca*
Chemistry, Physics. *Ph.D.*
[Inorganic Chemistry, Physics, Physical Chemistry.]

Gilmore, John Washington, B.S.A., 1898, *Ithaca*
Agriculture. *M.S. in Agr.*
[Improvement of Field Beans by Selection and Breeding, Botanical Description of Varieties of Field Beans]

Harris, Clarence Owen A.B., 1898, *Ithaca*
Greek, Latin, Comparative Philology. *Ph.D.*

Harris, Joseph Porter, A.B., 1901, *Ithaca*
Latin, Greek, History and Political Science. *Ph D.*
[Latin, Greek, Mediæval History.]

Hawley, Lee Fred, A.B., 1903, *East Randolph*
Chemistry, Geology. *A.M*
[Inorganic Chemistry, Mineralogy.]

Hirshfield, Clarence Floyd, B.S., (*Univ. of California*), 1902, *San Francisco, Cal.*
Mechanical Engineering. *M.M.E.*
[Experimental Engineering, Mechanical Engineering, Finance and Economics of Engineering.]

Hollands, Edmund Howard, Ph.B., 1899, A.M., 1901, *Watervliet*
Philosophy. *Ph.D.*
[Logic and Metaphysics, Ethics, Psychology.]

Hoover, Clarence Boal, B.S. in Agr., (*Ohio State Uuiv.*), 1903, *Columbus, O.*
Agriculture. *M.S. in Agr.*
[Soil Physics, Agronomy.]

*Hosford, George Wheeler, B.S.A., 1902, *Hampton, Va.*
Agriculture. *M.S. in Agr.*
[A study of the strawberry plant, A study of knot grass.]

Hubbard, George David, B.S., (*Univ. of Illinois*), 1896, M.S., (*same*), 1898, A.M., (*Harvard*), 1901, *Ithaca*
Geology, Greek, Political Economy. *Ph.D.*
[Physiography, Physical and Historical Geography of Greece, Commercial Geography.]

Jeffords, Clyde Ray, A.B., (*Univ. of Neb.*), 1898, A.M., (*same*), 1900, *St. Paul, Neb.*
Latin, Greek, Archaeology. *Ph.D.*

Jennings, Fred Huntington, A.B., 1902, *Moravia*
Chemistry, Geology. *Ph.D.*
[Inorganic Chemistry, Sanitary Chemistry, Economic Geology.]

Johannsen, Oskar Augustus, B.S., (*Univ. of Illinois*), 1894, A.M., (*Cornell Univ.*), 1902, *Ithaca*
Entomology, Bacteriology. *Ph.D.*
[Systematic Entomology, Insect Morphology, Bacteriology.]

Johnson, Thomas Carskadon, B.S. in Agr., (*West Va. Univ.*), 1896, A.M., (*same*), 1900, *Morgantown. W Va.*
Horticulture, Entomology. *Ph.D.*
[Horticulture, Entomology, Landscape Gardening.]

Kauffman, Calvin Henry, A B., (*Harvard*), 1896, *Lebanon, Pa.*
Botany, Chemistry. *Ph.D.*
[Botany (Plant Physiology), Botany (Mycology), Organic Chemistry.]

Kazmann, Boris, Ingenieur Agricole (*Montpellier, France*), 1898, *Ithaca*
Agriculture, Chemistry. *M.S. in Agr.*
[Agricultural Chemistry, Agriculture Descriptive.]

King, Walter Edward, B.A., (*Wabash Coll.*), 1900, *Kinsman, O.*
Bacteriology, Pathology. *A.M.*

Krauskopf, Francis Craig, *Maywood, Ill.*
Chemistry. *A.M.*
[Inorganic Chemistry, Physical Chemistry.]

*Kunze, Edward J, B.S., (*Cooper Union*), 1899, M.E., (*Cornell University*), 1901, *New York City*
Mechanical Engineering. *M.M.E.*
[Mechanical Engineering, Machine Design, Thermodynamics.]

Lane, Henry Higgins, Ph.B., (*De Pauw Univ.*), 1899, A.M., (*Indiana Univ.*), 1903, *Lebanon, Ind.*
Histology and Embryology, Entomology, Physiology. *Ph.D.*

Lauder, Andrew Gilbert, B.S.A., 1902, *Binghamton*
Chemistry. *Ph.D.*
[Sanitary Chemistry, Physical Chemistry, Toxicology.]

Lauman, George Nieman, B S.A., 1897, *Allegheny, Pa.*
Horticulture, Agriculture. *A.M.*

Lenk, Walter Schon, B.S., 1897, *Toledo, O.*
Chemistry. *Ph.D.*

Lewis, Charles Edward, A.B., (*Indiana Univ.*), 1902, A.M., (*same*), 1903, *Rensselaer, Ind.*
Botany. *Ph.D.*
[Embryology, Mycology, Taxonomy of Angiosperms.]

Lieder, Frederick William Charles, A.B., 1902, A.M., 1903, *Brooklyn*
Germanic Languages, History and Political Science. *Ph.D.*
[German Languages, German Literature, Medieval History.]

Long, William Henry, Jr., A.B., (*Baylor Univ.*), 1888, A.M., (*Univ. of Texas*), 1900, *Waco, Texas*
Botany. *Ph.D.*
[Botany (Fungi), Botany (Algae), Botany (Systematic).]

Lyman, Richard Roswell, B.S. in C.E., (*Univ. of Mich.*), 1895, M.C.E., (*Cornell Univ.*), 1903, *Salt Lake City, Utah*
Civil Engineering. *Ph.D.*
[Experimental Hydraulics, Mechanics, Bridges.]

Lyon, Thomas Lyttleton, B.S. in Agr., 1891, *Lincoln, Nebr.*
Agriculture, Chemistry, Botany. *Ph.D.*
[Agriculture, Agricultural Chemistry, Plant Breeding]

McAllister, Addams Stratton, B.S. in E.E., (*Penn. State Coll.*), 1898, M.M.E., (*Cornell Univ.*), 1901, *Covington, Va.*
Mechanical Engineering, Physics, *Ph.D.*
[Electrical Engineering, Mechanical Engineering, Physics.]

McCracken, George Lewis, A.B., 1903, *Twin Oaks, Pa.*
Mathematics, Physics. *A.M.*
[Pure Mathematics, Theoretical Physics.]

Macdonald, Murdock Stewart, B.A., (*Dalhousie*), 1900, M.A., (*same*), 1901, *Whycocomagh, N. S., Canada*
Philosophy. *Ph.D.*
[Logic and Metaphysics, Ethics, Psychology.]

Macomber, George Stanley, M.E., 1900, *Ithaca*
Mechanical Engineering, Chemistry. *M.M.E.*
[Electrical Engineering, Electrochemistry.]

MacGillivray, Alexander Dyer, Ph.B., 1900, *Ithaca*
Embryology, Entomology and Invertebrate Zoology. *Ph.D.*
[Insect Embryology, Systematic Entomology, Insect Morphology.]

MacRae, Donald A., A.B., (*Dalhousie*), 1898, *Ithaca*
Greek, Latin, Comparative Philology. *Ph.D.*

Martin, Lawrence, *Adams, Mass.*
Geology. *A.M.*
[Physical Geography, Mineralogy, Petrography.]

Maxwell, Annie Allison, A.B., (*Mt. Allison Univ.*), 1900,
St. John, New Brunswick, Can.
English. *A.M.*
[English Literature Seminary, Old English Philology.]

Miller, Frederick Robert, B.A., (*Toronto Univ.*), 1903, *Toronto, Can.*
Physiology, Anatomy, Histology. *Ph.D.*

Mitchell, Lynn Boal, B.A., (*Ohio State Univ.*), 1903, *Piqua, O.*
Latin, Greek, Comparative Indo-European Philology. *Ph.D.*

Montgomery, Annie Dawson, B.A., (*Penna. Coll. for Women*), 1902,
Pittsburg, Pa.
Philosophy. *Ph.D.*
[Psychology, History of Philosophy, Ethics.]

Moore, Alfred Austin, A.B., (*Hamilton Coll.*), 1890, *Clinton*
Romance and Germanic Languages. *Ph.D.*
[Romance Philology, Spanish, Middle High German.]

Moore, Clarence Lemuel Elisha, B.Sc., (*Ohio State Univ.*), 1901,
A.M., (*Cornell Univ.*), 1902, *Washington C. H., Ohio*
Mathematics, Physics. *Ph.D.*
[Pure Mathematics, Applied Mathematics, Theoretical Physics.]

Morris, Richard, B.S., (*Rutgers*), 1899, M.S., (*same*), 1902,
New Brunswick, N. J.
Mathematics, Physics. *A.M.*
[Pure Mathematics, Physics.]

Moses, Susan Williams, A.B., 1903, *Raleigh, N.C.*
Latin, French. *A.M.*

Mott, William Roy, B S., (*Univ. of Wisconsin*), 1903, *Ithaca*
Chemistry. *A.M.*
[Physical Chemistry, Inorganic Chemistry.]

Muhse, Albert Charles, A.B., (*Indiana Univ.*), 1901, A.M., (*same*),
1902, *Hebron, Ind.*
History and Political Science, Philosophy. *Ph.D.*
[Political Economy, Medieval History, Psychology.]

Muhse, Effa Funk, A.B., (*Indiana Univ.*), 1903, *Ithaca*
Embryology and Histology, Physiology, History and Political Science.
Ph.D.
[Embryology and Histology, Physiology, Sociology.]

Murray, Chester, Ph.B., 1899, *Tottenville*
Romance Languages, Comparative Philology, Germanic Languages.
Ph.D.
[Romance Languages, Comparative Philology, German.]

Myers, Curtis Clark, M.E., 1903, *Buffalo*
Mechanical Engineering, Chemistry. *M.M.E.*
[Experimental and Electrical Engineering, Chemistry.]

Northrop, Robert S, B.S., (*Mich. Agr. Coll.*), 1901, *Ithaca*
Agriculture, Botany. *M.S. in Agr.*
[Horticulture, Mycology.]

Olmstead, Albert Ten Eyck, A.B., 1902, A.M., 1903, *Troy*
History and Political Science, *Ph.D.*
[Oriental History, Classical History, Medieval History.]

Pattison, Roy Stuart, M.E., 1903, *Mayville*
Mechanical and Civil Engineering, *M.M.E.*
[Electrical Engineering, Civil Engineering.]

Pumpelly, Lawrence, B.A., (*Williams*), 1902, *Owego*
Chemistry. *Ph D.*
[Organic, Analytical, and Inorganic Chemistry.]

Quiroga, Modesto, *San Luis, Arg. Rep.*
Agriculture. *M.S. in Agr.*
[Soils, Agronomy.]

Rautenstrauch, Walter, B.S., (*Univ. of Mo.*), 1902, M.S., (*Univ. of Me.*), 1903, *Ithaca*
Mechanical Engineering. *M.M.E.*
[Mechanical and Electrical Engineering.]

Read, Effie Alberta, A.B., 1903, *Haverhill, Mass.*
Histology and Embryology, Entomology. *A.M.*

Reinecke, Leopold, A.B., (*Univ. of the Cape of Good Hope*), 1902, *Languedoc, Cape Colony*
Geology. *Ph.D.*
[Paleontology, Mineralogy, Stratigraphic Geology.]

Rice, George Whitmore, M.E., 1903, *Ithaca*
Mechanical Engineering. *M.M.E.*
[Mechanical and Experimental Engineering.]

Roberts, Thomas Burroughs, A.B., 1903, *Ithaca*
History and Political Science. *A.M.*
[Medieval History, History of Political Ideas.]

Robinson, Frank Crowl, *Wellsboro, Pa.*
Chemistry. *A.M.*
[Organic and Physical Chemistry.]

Rodhouse, Thomas Jacob, B.S. in C.E., (*Univ. of Mo.*), 1897, *Columbia, Mo.*
Civil Engineering. *M.C.E.*
[Experimental Hydraulics, Bridges.]

Root, Jay Emery, A.B (*Harvard Univ.*), 1901, *Somerville, Mass.*
Chemistry, Geology. *Ph.D.*
[Physical Chemistry, Inorganic Chemistry, Mineralogy.]

Ruby, Jesse Loring, B.S., (*Purdue Univ.*), 1903, *Carthage, Ind.*
Physics, Mathematics. *A.M.*
[Theoretical Physics, Mathematics.]

Ruggles, Arthur Gordon, B.S.A., 1901, *Annapolis, N. S.*
Entomology, Histology. *A.M*

Ryder, Edward Kirke, *Worcester*
History and Political Science. *A.M.*
[Modern European History, Political Economy.]

Sabine, George Holland, A.B., 1903, *Dayton, Ohio*
Philosophy. *Ph.D.*
[Logic and Metaphysics, Psychology, Ethics.]

*Sanderson, Ezra Dwight, B.S., (*Mich. Agr. Coll.*), 1897, B.S.A., (*Cornell Univ.*), 1898, *College Station, Tex.*
Entomology, Agriculture. *M.S. in Agr.*
[Economic Entomology, Agricultural Economics.]

Schoch, Alfred Diehl, B.S., (*Pacific Univ.*), 1900, *Forestgrove, Ore.*
English, French, German. *Ph.D.*
[English, French and German Philology.]

Seaton, Sara, A.B., (*Wellesley Coll.*), 1896, *Cleveland, Ohio*
Botany. *A.M.*
[Botany (Morphology and Embryology), Botany (Mycology.)]

Scott, Wilfred W, A.B., (*Ohio Wesleyan Univ.*), 1897, A.M., (*same*), 1902, *Bareilly, U. P. India*
Chemistry, Physics. *Ph.D.*
[Inorganic and Agricultural Chemistry, Physics.]

Shepherd, Earnest Stanley, A.B., 1902, *Remington, Ind.*
Chemistry, Geology. *Ph.D.*
[Physical Chemistry, Inorganic Chemistry, Mineralogy.]

Shipman, Robert Lee, E.E., (*Mo. State Univ.*), 1896, M.E., (*Cornell Univ.*), 1899, *Kansas City, Mo.*
Mechanical Engineering, *M.M.E.*
[Steam Superheating, Finance and Economics of Engineering.]

Shreve, Richmond Harold, B.Arch., 1902, *Ithaca*
Architecture, Civil Engineering. *M.S. in Arch.*
[Investigation of Steel Concrete Beams, Building Foundations.]

Sisam, Charles Herschel, A.B., (*Univ. of Mich.*), 1902, A.M., (*Cornell Univ.*), 1903, *Sloan, Iowa*
Mathematics, Physics. *Ph.D.*
[Mathematics, Applied Mathematics, Theoretical Physics.]

Smith, Julius André, B.Arch., 1902, *New York City*
Architecture, *M.S. in Arch.*
[Architectural Design, Drawing from Life.]

Smith, Lillian Scoresby, A.B., (*Syracuse Univ.*), 1891, *Auburn*
Latin, Greek, Comparative Philology. *Ph.D.*

Smith, Mary Helen, S.B., (*Oberlin Coll.*), 1887, M.A., (*same*), 1894, *Farmington, Conn.*
Botany. *A.M.*
[Botany (Morphology and Embryology).]

Stevens, Herman Campbell, A.B., (*Univ. of Mich.*), 1901, *Elyria, O.*
Philosophy, Physiology. *Ph.D.*
[Psychology, Physiology, History of Philosophy.]

Stevenson, Louisa Stone, A.B., (*Vassar Coll.*), 1901, *Lowell, Mass.*
Chemistry, Physics. *Ph.D.*
[Physical and Organic Chemistry, Physics.]

Stevenson, Reston, A.B., (*U. of N. C.*), 1902, A.M., (*same*), 1903, *Wilmington, N. C.*
Chemistry, Physics. *Ph.D.*
[Inorganic and Sanitary Chemistry, Experimental Physics.]

Sprague, Mary Winifred, *New Berlin*
Philosophy, History and Political Science. *Ph.D.*
[Logic and Metaphysics, Ethics, European History.]

*Stocking, William Alonzo, B.Agr., (*Storrs Agr. Coll.*), 1895, B.S.A., (*Cornell Univ.*), 1898, *Storrs, Conn.*
Agriculture. *M.S. in Agr.*
[The Bacteria of Milk, Sanitary Milk Production.]

Thom, Charles, A.B., (*Lake Forest Coll.*), 1895, A.M., (*same*), 1897, Ph.D., (*Mo. State Univ.*), 1899, *Minonk, Ill.*
Botany, Horticulture. *Ph.D.*
[Botany, (Mycology), Horticulture, Botany, (Physiology)]

Thorpe, Walter Franklin, B.Agr., (*Conn. Agr. Coll.*), 1901, *North Haven, Conn.*
Agriculture. *M.S. in Agr.*
[Horticulture, Agronomy.]

Throop, George Reeves, A.B., (*De Pauw Univ.*), 1901, A.M., (*same*), 1903, *Bolton, Miss.*
Latin, Greek, Comparative Philology. *Ph.D.*

Tietje, Arthur Jerrold, A.B., 1903, *Dayton, O.*
Philosophy. *A.M.*
[History of Philosophy, Ethics.]

*Towl, Forest Milton, C.E., 1886, *Brooklyn*
Civil Engineering. *M.C.E.*
[Hydraulics and Pneumatics, Hydraulic Machinery.]

Turner, Kenneth Bertrand, C.E., 1903, *Scriba*
Civil Engineering. *M.C.E.*
[Hydraulic Engineering and Experimental Hydraulics, Municipal Engineering.]

Van Hook, James M, A.B., (*Indiana Univ.*), 1899, A.M., (*same*), 1900, *Borden, Ind.*
Botany. *Ph.D.*
[Botany (Mycology), Botany (Comparative Morphology and Embryology), Botany (Physiology.)].

Wade, Harold Rollins, A.B., (*Harvard*), 1902, *Salem Depot, N. H.*
Chemistry. *Ph.D.*
[Physical Chemistry, Organic Chemistry, Analytical Chemistry.]

Wallin, Daisy Florence, A.B., 1903, *Gilbertsville*
Latin, German. *A.M.*

Warren, George Frederick, Jr., B.Sc., (*Univ. of Neb.*), 1897, B.S.A., (*Cornell Univ.*), 1903, *Harvard, Neb.*
Agriculture. *M.S. in Agr*
[Agricultural Soils, Horticulture.]

Watkins, George Pendleton, A.B., 1899, *King Ferry*
History and Political Science. *Ph.D.*
[Political Economy, Statistics, Politics.]

Weber, Raxley F, A.B., 1903, *Salamanca*
Chemistry, Geology. *A.M.*
[Inorganic Chemistry, Economic Geology.]

Weld, Lewis Hart, A.B., (*Univ. of Rochester*), 1900, A.M., (*Univ. of Mich.*), 1902, *Medina*
Agriculture, Entomology. *Ph.D.*
[Horticulture, Entomology, Agronomy.]

Wernicke, Carl Leopold, M.E., 1903, *New Orleans. La.*
Chemistry, Mechanical Engineering. *M.M.E.*
[Electrochemistry, Street Railway Engineering.]

Wheeler, John, M.E., 1903, *Ithaca*
Electrical Engineering, Civil Engineering. *M.M.E.*

Whetzel, Herbert Hice, A.B., (*Wabash Coll.*), 1902, *Avilla, Ind.*
Botany. *Ph.D.*
[Botany (Mycology), Botany (Systematic), Botany (Physiology).]

White, Gersham Franklin, B.S., (*Ohio Univ.*), 1901, *Malta, O.*
Bacteriology, Histology and Embryology, Pathological Histology. *Ph.D.*

White, Walter Porter, A.B., (*Amherst*), 1887, A.M., (*same*), 1894, *Ithaca*
Physics, Mathematics. *Ph.D.*
[Experimental Physics, Theoretical Physics, Mathematics (Potential Function and Spherical Harmonics).]

Whitham, William Henry, B.S., (*West Va. Univ.*), 1899, A.M., (*same*), 1900, A.M., (*Cornell Univ.*), 1901, *Morgantown, W. Va.*
Physics, Mathematics. *Ph.D.*
[Experimental and Theoretical Physics, Mathematics.]

Williams, Florence Louise, A.B., 1898, *Le Roy*
German, Science and Art of Education. *A.M.*

Wilm, Emil Carl, A.B., (*Southwestern Univ.*), 1902, A.M., (*Vanderbilt Univ.*), 1903, *Georgetown, Texas*
Philosophy, German. *Ph.D.*
[Logic and Metaphysics, Ethics, German literature and Philology.]

Wilson, Wilbur M, B.M.E., (*Iowa State Coll.*), 1900, *West Liberty, Ia.*
Mechanical Engineering. *M.M.E.*
[Power Plant Design and Construction, Electrical Engineering.]

Winter, Samuel Guy, A.B., (*Ohio Univ.*), 1902, A.M., (*same*), 1903, *Crooksville, O.*
Histology and Embryology, Pathology. *Ph.D.*

Wright, Albert Hazen, *Hilton*
Vertebrate Zoology, Entomology. *A.M.*

Wright, Henry Wilkes, Ph.B., 1899, *Harbor Springs, Mich.*
Philosophy. *Ph.D.*
[Logic and Metaphysics, Ethics, Greek Philosophy.]

Wyckoff, Charles Rapelyea, Jr., B.S., (*Polytechnic Int. of Brooklyn*), 1899, C.E., A.M., (*Columbia Univ.*), 1902, *Brooklyn*
Civil Engineering. *Ph.D.*
[Experimental Hydraulics, Hydraulics, Bridges (Foundations).]

Young, John M, B.S. in M.E., (*Fla. A. and M. Coll.*), 1898, M.E., (*Cornell Univ.*), 1902, *Ithaca*
Mechanical Engineering, Civil Engineering. *M.M.E.*
[Electrical Engineering, Civil Engineering.]

Young, Ralph G, M.E., 1901, *Ithaca*
Mechanical Engineering. *M.M.E.*
[Experimental Engineering, Mechanical Engineering, Finance and Economics of Engineering.]

Graduate Students not in Residence for 1903–1904.

Austin, Blanche Tudor, B.S., (*Wells Coll.*), 1895, *Cincinnati, O.*
Entomology. *A.M.*

Borden, Garrick Mallory, B.S., 1899, A.M., 1902, *Tunkhannock, Pa.*
History and Political Science. *Ph.D.*
[Modern European History, Medieval History, American History.]

Ferry, Erwin Sidney, B.S., 1889, *Lafayette, Ind.*
Physics, Mechanical Engineering, Mathematics. *D.Sc.*

Filkins, Claude William Leroy, C.E., 1893, M.C.E., 1894, *Golden, Col.*
Civil Engineering, Mathematics. *Ph.D.*
[Astronomy and Geodesy, Mathematics, Mechanics.]

Foord, James Alfred, B.S., (*New Hampshire Coll.*), 1898, M.S. in Agr., (*Cornell University*), 1902, *Newark. Del.*
Agriculture, Veterinary Medicine. *Ph.D.*
[Thremmatology, Dairy Husbandry, Agricultural Bacteriology.]

Gaston, Charles Robert, Ph.B., 1896, *Ithaca*
English, History and Political Science. *Ph.D.*
[English Philology, Medieval History, Rhetoric.]

Hopkins, James Bryant, A.B., (*Hamilton Coll.*), 1899, A.M., (*Cornell Univ.*), 1903, *Bath*
Romance Languages. *Ph.D.*
[Romance Philology, Romance Literature.]

Hotchkiss, Willard Eugene, Ph.B., 1897, A.M., 1903, *Ithaca*
History and Political Science *Ph.D.*
[Politics, Political Economy, American History.]

Hulme, Edwin Maslin, A.B., (*Stanford Univ.*), 1897, A.M., (*Cornell Univ.*), 1902, *Portland, Ore.*
History and Political Science. *A.M.*
[American History, Modern European History.]

Knowlton, Daniel Chauncey, A.B., 1898, *Ithaca*
History and Political Science. *Ph.D.*
[Modern European History, Medieval History, American History.]

Manfred, Maud Ethel, A.B., 1900, *Cincinnati, O.*
Germanic and Romance Languages. *A.M.*
[German, French.]

Middleton, Arthur Renwick, A.B., (*Univ. of Rochester*), 1891, *Ithaca*
Chemistry, Geology. *Ph.D.*
[Inorganic Chemistry, Analytical Chemistry, Mineralogy.]

Orvis, Julia Swift, A.B., (*Vassar Coll.*), 1895, *Wellesley, Mass.*
History and Political Science. *Ph.D.*
[Modern European History, American History, English History.]

Powell, Benjamin, A.B., 1896, A.M., 1898, *Seneca Falls*
Greek, Latin, Archaeology. *Ph.D.*

Ray, Perley Orman, A.B., (*Univ. of Vermont*), 1898, A.M., (*same*), 1902, *Burlington, Vt.*
History and Political Science. *Ph.D.*
[American History, English Constitutional History, Medieval History.]

Rowell, Lucy Agnes, A.B., (*Wellesley Coll.*), 1892, *Waterville*
Latin, Philosophy. *A.M.*
[Latin, History of Philosophy.]

Spinney, Louis Bevier, B.M.E., (*Iowa Agr. Coll.*), 1892, B.S., (*same*). 1893, *Ames, Iowa.*
Physics, Mathematics. *D.Sc.*
[Experimental Physics, Mathematical Physics, Mathematics.]

Stewart, Fred Carlton, B.S., (*Iowa Agr. Coll.*), 1892, M.S., (*same*), 1894, *Geneva*
Botany. *Ph.D.*
[Mycology, Physiology, Histology of Plants.]

Waugh, Robert Benjamin, A.B., (*Hobart Coll.*) 1902, *Phelps*
Philosophy. *Ph.D.*
[Logic and Metaphysics, Greek Philosophy, Moral Philosophy.]

Young, John Wesley, Ph.B., (*Ohio State Univ.*), 1899, A.M., (*Cornell Univ.*), 1901, *Evanston, Ill.*
Mathematics, Physics. *Ph.D.*
[Pure Mathematics, Applied Mathematics, Theoretical Physics.]

Not Candidates for Degrees.

Barlow, John, A.M., (*Brown Univ.*), 1896, *Kingston, R. I.*
Entomology.

Beardsley, Bess Emmons, A.B., 1903, *Ithaca*
Latin, German.

Darling, Frederic Warren, A.B., 1902, *Buffalo*
Entomology.

Fairchild, John Gifford, A.B., 1903, *Monticello*
Chemistry, Mechanical Engineering.

Goehle, Otto Louis, A.B., 1902, *Buffalo*
Entomology.

Hackley, William Arthur, B.L., (*Univ. of Calif.*), 1899, *Berkeley, Calif.*
History and Political Science.
[American History, Medieval History.]

Heidenheim, Zillah, A.B., 1902, *Brooklyn*
Entomology.

Hoxie, Lucy Bennett, A.B., (*Univ. of Chicago*), 1900, *Ithaca*
History, Political Science, Philosophy.

Mereness, Newton Dennison, A.B., (*Univ. of Mich.*), 1892, A.M., (*same*), 1894, Ph.D., (*Columbia Univ.*), 1901, *Sharon, Wisc.*
History and Political Science, Philosophy.
[American History, Philosophy.]

Northrop, Anna Louella, A.B., 1901, *Forest Home*
Mathematics, Education.

Robinson, George Canby, A.B., (*Johns Hopkins*), 1899, M.D., (*same*), 1903, *Baltimore, Md.*
Anatomy, German.

Sargent, Carla Fern, A.B., (*Northwestern Univ.*), 1895, *Evanston, Ill.*
History.

Seaton, Frances, A.B., (*Wellesley*), 1888, A.M., (*Cornell Univ.*), 1902, *Cleveland, O.*
Entomology.

Tissington, Richard Andrews, B.Arch., 1900, *Montclair, N. J.*
Architecture.

Honorary Fellows.

Baird, John Wallace, A.B., (*Toronto*), 1897, Ph.D., (*Cornell Univ.*) 1902, *Motherwell, Ont.*
Philosophy.
[Psychology.]

Coblentz, William Weber, B.S., (*Case School*), 1900, A.M., (*Cornell Univ.*), 1901, Ph.D., (*same*), 1903, *Poland, O.*
Physics.

de Laguna, Theodore de Leo, Ph.D., 1901, *Oakland, Calif.*
Philosophy.
[Ethics, History of Philosophy, Psychology.]

Graduates in the New York State Veterinary College.

Fehr, Frederick Frank, D.V.M., 1903, *Ithaca*
Zimmer, Ludo Little, D.V.M., 1903, *Weedsport*

Graduate Students in Undergraduate Courses.

Abrahams, Morris Landa, B.S. in M.E., (*A. and M. Coll. of Texas*) 1903, *M.E.*
Ackart, Everett Gunner, Ph.B., (*Wesleyan Univ.*), 1902, *E.E.*
Acker, Lamar, B.S., (*A. and M. Coll. of Texas*), 1902, *C.E.*
Adams, Thomas Dickinson, A.B., 1903, *M.E.*

Adye, Elton Merville, Ph.B., (*Brown Univ.*), 1902, *M.E.*
Allison, William Franklin, B.S., (*So. Dak. Agr. Coll.*), 1895, B.S in C.E., (*Purdue*), 1897, *C.E.*
Ames, Harry Lee, A.B., (*Randolph-Macon*), 1901, *E.E.*
Anderson, Peter, M.B., (*Univ. of Toronto*), 1903, *A.B.*
Armstrong, Arthur Soper, A.B., 1902, *M.D.*
Aronovici, Charles, B.L., (*Gym. of Roumania*), 1898, *Sp. B.S.A.*
Bailey, Hervey S., A.B., (*Westminster Coll.*), 1903, *M.E.*
Baird, Alvin Walter, A.B., (*Stanford Univ.*), 1901, *M.D.*
Baker, Linnaeus Earl, B S. in M.E., (*Purdue Univ.*), 1897, *E.E.*
Baker, Norman Lockyer, A.B., (*Rollins Coll.*), 1900, *E.E.*
Baker, William Charles, B.S.A., 1898, *Painting*
Baugh, William Edward, A.B., (*Howard Univ.*), 1902, *Sp. B.S.A.*
Baum, John Albert, B.S. in C.E., (*A. and M. Coll. of Texas*), 1903, *C.E.*
Beckett, Bergie Barrie, B.A., (*Univ. of Miss.*), 1902, *E.E.*
Bedford, Alletta Langdon, A.B., 1903, *M.D.*
Bein, Felix Washington, B.S., (*City Coll. of N. Y.*), 1902, *M.E.*
Bilyeu, Thomas, B.S., (*Ore. Agr. Coll.*), 1902, *M.E.*
Bliss, George Ripley, B.A., (*Bucknell Univ.*), 1903, *M.E.*
Bliss, Russell Joseph, Ph.B., 1885, *Sp. LL.B.*
Bliss, Theodore, A.B., 1901, *M.D.*
Boorstein, Joseph Aaron, A.B., (*City Coll. of N. Y.*), 1902, *C.E.*
Bremer, Karl, B.A., (*Univ. of Cape of Good Hope*), 1903, *A.B.*
Brewrink, John Edward, Ph.B., (*North Western Univ.*), 1902, *M.E.*
Broadhurst, William George, M.E., (*Stevens Inst.*), 1902, *C.E.*
Brogan, John Ernest, B.S., (*La. State Univ.*), 1902, *E.E.*
Brown, Harry Sanford, B.M.E., (*Univ. of Ark.*), 1901, *M.E.*
Brown, Walter Sheldon, A.B., (*Alfred Univ.*), 1899, *B.S.A.*
Bullard, Marguerite Jane, A.B., 1902, *M.D.*
Bunker, Charles Orville Waite, B. Sc., (*Univ. of Nebr.*), 1901, *M.D.*
Cahill, Francis Joseph, A.B., 1903, *M.D.*
Canaga, Gordon, Byron, B.A., (*Scio College*), 1902, *C.E.*
Card, Ernest Mason, A.B., (*Stanford Univ.*), 1901, *LL.B.*
del Carril, Pedro Leon, D.V.M., (*Ohio State Univ.*), 1903, *Sp. B.S.A.*
Cassidy, Elizabeth, B.S., (*Ky. State Coll.*), 1900, *A.B.*
Castle, Samuel Northup, A.B., (*Harvard*), 1901, *M.E.*
Chase, Arthur Reynolds, A.B., (*Iowa Coll.*), 1895, *C.E.*
Clapp, John Henry, B.S., (*Princeton Univ.*), 1902, *LL.B.*
Clark, Ellen Stout, B.P., (*West Chester Normal*), 1903, *A.B.*
Clark, Zella Marie, B.A., (*Acadia Coll.*), 1899, *M.D.*
Cleveland, John Augustus, A.B., (*Williams Coll.*), 1901, *E.E.*

Close, John Campbell, B.Sc., (*Univ. of Sydney*), 1903, *M.E.*
Cochrane, Harry Hamilton, B.S., (*Trinity Coll.*), 1901, *M.E.*
Cocke, Charles Hartwell, B.A., (*Univ. of Va.*), 1902, *M.D.*
Cohen, Rose, M.E., (*Bloomsburg State Nor.*), 1885, B.E., (*same*), 1887, *M.D.*
Coit, John Eliot, B.Agr., (*A.and M.College of N.C.*), 1903, *Sp.B.S.A.*
Coolbaugh, Kenneth McPherson, A.B., (*Princeton Univ.*), 1903, *LL.B.*
Crawford, Thomas Frew, B.S., (*Phil. Cent. H. S.*), 1899, *M.E.*
Cross, Emily Redmond, B.A., (*Bryn Mawr*), 1901, *Sp.M.D.*
Dalton, Charles Francis, M.D., (*Univ. of Vt.*), 1903, *Sp.M.D.*
Day, Rodney Dean, B.A., (*Yale Univ.*), 1903, *M.E.*
Dean, George Warren, B.S., (*Simpson Coll.*), 1901, *C.E.*
Denenholz, Aaron, M.D., (*New York Univ.*), 1897, *Sp. M.D.*
Dewey, George Steele, B.S., (*Va. Mil. Inst.*), 1903, *M.E.*
Dickinson, William Elmore, A.B., (*William and Mary Coll.*), 1901, *E.E.*
Dimock, William Wallace, B.Agr., (*Conn. Agr. Coll.*), 1901, *D.V.M.*
Dodson, Martha Ethel, B.E., (*Bloomsburg State Normal*), 1903, *A.B.*
Dove, Orville Holmes, M.D., (*Med. Coll. Indiana*), 1893, *Sp. M.D.*
Drake, Bertrand Francis, B.S., (*Princeton Univ.*), 1898, *M.D.*
Drake, William Allen, B.S., (*Purdue Univ.*), 1899, *M.E.*
Dudley, Gerry Brown, A.B., (*Swarthmore*), 1897, *M.D.*
Dunbar, Marion Elizabeth, B.S., (*Middlebury Coll.*), 1897, *LL.B.*
Dunbar, Robert C, A.B., (*Monmouth Coll.*), 1899, *B.Arch.*
Durham, Glen Giffen, B.Sc., (*Bucknell Univ.*), 1900, M.S., (*same*), 1902, *E.E.*
Elliott, John Earle, A.B., (*William and Mary Coll.*), 1899, *C.E.*
Emelin, Michael Joseph, LL.B., (*N. Y Univ.*), 1900, *Sp.B.S.A.*
Estill, George Castleman, A.B., (*Ky. Univ.*), 1902, *M.E.*
Fairbank, Harvey Clark, A.B., 1903, *M.E.*
Faxon, Theodore Edmund, A.B., 1903, *LL.B.*
Fenner, Robert Coyner, B.S., (*Phila. Cent. H. S.*), 1899, *M.E.*
Fernández, Alberto Carmelo, V.S., (*Ontario Vet. Coll.*), 1903, *D.V.M.*
Fetzer, Morrison, B.S., (*Davidson*), 1901, *M.E.*
Finkelstein, Morris Robert, A.B., (*City Coll. of N. Y.*), *M.D.*
Fleck, Anthony George, A.B., (*St. Francis Xavier*), 1902, *E.E.*
Fleming, Thomas, Jr., B.S., (*Columbian Univ.*), 1903, *C.E.*
Fountain, Thomas Lilly, B.S. in C.E., (*A. and M. Coll. of Texas*), 1901, *C.E.*
Fukala, Charlemagne Vincent, M.D., (*Univ. of Ill.*), 1902, *M.D.*
Gannon, John Francis, A.B., (*Manhattan Coll.*), 1889, *M.D.*
Gaston, Edwards Pablo, A.B., (*Univ. of Habana*), 1900, *E.E.*
Gatlin, Fourney F, B.S., (*La. State Univ.*), 1903, *C.E.*

Gehr, Ray Stewart, Ph.B., (*Adelbert Coll.*), 1899, *M.E.*
Genung, Lewell T, A.B., 1897, *M.D.*
George, Emma Louise, Ped.B., (*Albany Normal Coll.*), 1897, *Sp.A.B.*
Gignoux, Elise Messenger, B.A., (*Bryn Mawr*), 1902, *Sp.M.D.*
Gilchrist, Jessie Lewis, M.P., (*Bloomsburg Normal*), 1898, *A.B.*
Ginorio, Francisco Ricardo, A.B., (*Inst. de Puerto Rico*), 1899, *E.E.*
Goettsch, Julius, A.B., 1902, *M.E.*
Goldenweiser, Emanuel, A.B., (*Columbia Univ.*), 1903, *LL.B.*
Goldwater, Sidney James, B.S., (*City Coll. of N. Y.*), 1900, *E.E.*
Goray, James Philip, M.D., (*Harvard*), 1891, *Sp. M.D.*
Gordon, George Huntly, B.Sc., (*Dalhousie*), 1903, *M.E.*
Green, Mary Emily, M.D., (*Univ. of Ills.*), 1902, *Sp. A.B.*
Gregson, Edward Jene, B.A., (*Univ. of Sydney*), 1903, *M.E.*
Grossman, William, A.B., (*City Coll. of N. Y.*), 1900, *M.D.*
Guilbeau, Braxton Honore, B.S., (*La. State Univ.*), 1901, *Sp. A.B.*
Guildford, Charles Thomas, B.S., (*Wesleyan Univ.*), 1897, *M.E.*
Hamblet, Mary Louise, B.A., (*Wellesley*), 1898, *M.D.*
Hart, Harold Leslie, A.B., 1903, *LL.B.*
Helm, Harold, LL.B., 1902, *A.B.*
Herrick, John Rutherford, A.B., (*Amherst Coll.*), 1901, *M.D.*
Hewetson, Adam Sproat, B.Ph., (*Gallaudet*), 1903, *Sp. B.S.A.*
Hinckley, George Stevens, B.S., (*Pomona Coll.*), 1903, *C.E.*
Holmes, Andrew Allgood, B.S., (*Univ. of N. C.*), 1901, *M.E.*
Hoobler, Bert Raymond, B.S., (*Wabash Coll.*), 1901, *M.D.*
Hooker, George Haines, A.B., 1902, *LL.B.*
Hoshino, Yuzo, Agr., (*Sapporo Agr. Coll.*), 1901, *Sp.B.S.A.*
Hu, Tung Chao, B.S., (*Imperial Tientsin Univ., China*), 1899, *Sp. C.E.*
Hueston, Jessie Elliott, B.S., (*Nat. Nor. Univ.*), 1883, *Sp. A.B.*
Hume, Fred, B.A., (*Vanderbilt Univ.*), 1902, *M.E.*
Hutson, Arthur Cary, B.S., (*A. and M. Coll. of Texas*), 1900, *C.E.*
Hutton, Robert Leroy, A.B., 1903, *M.D.*
Jacobs, Julius Lilien, B.Sc., (*Univ. of Texas*), 1899, *C.E.*
Joshi, Lemuel Lucas, B.Sc., (*Univ. of Bombay*), 1902, *M.D.*
Kearns, Thomas Joseph, B.A., (*Manhattan Coll.*), 1902, *M.D.*
Kent, Ralph Sherlock, A.B., 1903, *LL.B.*
Kernan, Nicholas Edward, A.B., (*Georgetown*), 1903, *LL.B.*
Kernan, Warwick Joseph, A.B., (*Georgetown*), 1901, *LL.B.*
Kieb, Raymond Francis Charles, A.B., 1902, *M.D.*
King, Clifford Marshall, A.B., (*Adelbert Coll.*), 1901, *C.E.*
Kratzenstein, Hugo, A.B., (*Harvard Univ.*), 1902, *C.E.*
Kuschke, Maude Louise, B.E., (*West Chester Nor.*), 1897, M.E., (*same*), 1899, *A.B.*

Law, Cecilia Agnes, B.L., 1892, *Painting*
Lee, William Ross, A.B., (*Hamilton Coll.*), 1900, A.M., (*same*), 1901, *LL.B.*
Lefebvre, Emile Joseph, M.A., (*St. Stanislaus Coll.*), 1900, *M.E.*
Lewis, Ora Mabelle, A.B., (*Smith Coll.*), 1900, *M.D.*
Lisle, Leslie Mac, Ph.B., (*Ohio State Univ.*), 1899, M.D., (*Starling Med. Coll.*), 1902, *Sp.M.D.*
Loeber, Edith, A.B., 1903, *M.D.*
Lowell Ellen Louise, A.B., (*Stanford Univ.*), 1896, M.D., (*Johns Hopkins*), 1900, *Sp.M.D.*
Luke, Harry Cliff, Ph.G., (*Univ. of Buffalo*), 1897, *M.D.*
Lyon, Charles Albert, A.B., (*Princeton Univ.*), 1901, *E.E.*
Lytle, John Lee, B.S., (*Biddle Univ.*), 1902, *B.S.A.*
McDonald, Alan, B.A., (*Univ. of Louisville*), 1901, *M.E.*
McGonegal, George, A.B., 1902, *LL.B.*
McIntosh, Robert, Ph.B., (*Iowa Coll.*), 1901, *M.E.*
Mackenzie, David Wallace, B.A., (*Dalhousie Univ.*), 1900, *M.D.*
McKoon, Morgan Lane, A.B., 1903, *LL.B.*
McLaury, Walker Gailey, Ph.B., (*Univ. of Chicago*), 1903, *E.E.*
McMurtrie, Wm. Anderson, Ph.B., (*Lafayette Coll.*), 1901, *M.D.*
McNitt, Robert Joseph, A.B., 1902, *E.E.*
Mansfield, Edward Raymond, B.S., (*Univ. of Maine*), 1899, *M.D.*
Martinez, Carlos Alfonso, B.S., (*St. Louis Coll.*), 1901, *E.E.*
Mason, Morris Arthur, Grad. Chem., (*Cooper Inst.*), 1901, *Sp.M.D.*
Masters, Frank Harris, A.B., (*Indiana Univ.*), 1902, *C.E.*
Merritt, Eugene, A.B., 1903, *B.S.A.*
Miller, Frederick Robert, B.A., (*Toronto Univ.*), 1903, *M.D.*
Mittmann, Egmond Felix, B.S. in C.E., (*A. and M. Coll. of Texas*), 1902, *C.E.*
Moreno, Regino Teodoro, D.V.M., (*Ohio State Univ.*), 1903, *Sp.B.S.A.*
Morris, Garfield Trumholm, B.C.E., (*Mont. State Coll.*), 1903, *C.E.*
Moulson, Charles Edward, A.B., (*Univ. of Rochester*), 1901, *M.E.*
Mount, Louis Burgh, A.B., 1902, *M.D.*
Muenz, Sigmund, B.S., (*City Coll. of N. Y.*), 1901, *C.E.*
Muller, James Frederick, B.M.E., (*Univ. of Ark.*), 1903, *M.E.*
Neff, William, A.B., 1903, *LL.B.*
Ocampo, Vincente, V.S., (*Ont. Vet. Coll.*), 1903, *D.V.M.*
O'Day, Sylvester Francis, A.B., 1902, *M.D.*
Oppenheimer, Adèle, A.B., (*Radcliffe*), 1897, A.M., (*Columbia*), 1901, *Sp.M.D.*
Packard, Daniel Berry, A.B., (*Thiel College*), 1900, *C.E.*
Parker, James Heber, P.D., (*Phila. Coll. of Pharmacy*), 1902, *A.B.*

Parker, Lina Maud, A.B., (*Univ. of Wash.*), 1892, *M.D.*
Parodi, Flaviano Eugenio, M.D., (*Genoa*), 1891, *Sp.M.D.*
Parsons, George, A.B., 1902, *E.E.*
Partridge, George William, B.A., (*Univ. of Rochester*), 1903, *M.D.*
Patterson, Lucius Lamar, A.B., (*Miss. Coll.*), 1898, A.M., (*same*), 1899, *E.E.*
Patterson, Robert Rhoode, A.B., 1903, *M.D.*
Patton, William Fearn, Jr., A.B., (*Hampden-Sidney*), 1903, *E.E.*
Peck, Ellery Newell, A.B., 1902, *M.D.*
Perry, Charles Frederick, S.B., (*Worcester Poly. Inst.*), 1894, *M.E.*
Perry, John Westley, B.S., (*Biddle Univ.*). 1901, *D.V.M.*
Pierce, Paul Leon, B.S., (*Chattanooga Normal Univ.*), 1901, *C.E.*
Poor, Ben Perley, A.B., 1903, *LL.B.*
Pope, Abner Stevenson, B.S., (*Richmond Coll.*), 1903, *M.E.*
Ray, Anna Elizabeth, A.B., (*N. Y Normal Coll.*), 1899, A.M. (*same*), 1902, *M.D.*
Renner, Roland Borman, B.S.,(*Purdue*), 1902, *M.E.*
Robertson, Ralph Noyes, B.S., (*Colo. Coll.*), 1901, *M.E.*
Roe, Willis Warren, A.B., 1903, *LL.B.*
Rolston, Margaret, B.S., (*Chattanooga Normal Univ.*), 1899, *A.B.*
Rosenthal, Isidor, Ph.G., (*N. Y Coll. of Phar.*), 1899, *M.D.*
Saulsbury, Henry Wilson, A.B., (*Western Md. College*), 1902, *M.E.*
Savory, Gerald, B.A., (*Cambridge*), 1900, *M.E.*
Schwartz, Samuel Robert, A.B., (*City Coll. of N. Y.*), 1903, *M.E.*
Scranton, William Henry, A.B., 1903, *M.E.*
Shalders, Roberto James, C.E., (*Mackenzie Coll.*), 1902, *E.E.*
Shane, Bernard, B.S.,(*N. Y City Coll.*), 1902, *C.E.*
Shattuck, Herbert Carpenter, A.B., 1903, *LL.B.*
Shaw, Joseph Duty, B.S., (*Univ. of Texas*), 1901, *E.E.*
Shaw, William Francis, B.S., (*Univ. of Texas*), 1902, *M.E*
Shedden, John Stephen, B.S., (*Univ. of Wyoming*), 1900, *M.E.*
Sieling, Mary Cecilia, A.B., (*Penna. Coll.*), 1903, *A.B.*
Simonton, Ira Boyce, B S., (*Univ. of Fla.*), 1903, *M.E.*
Smithe, Percy Allis Winans, A.B., 1903, *M.D.*
Sneckenberger, Earl Miner, Ph.B., (*Heidelberg Univ.*), 1902, *C.E.*
Specht, William Henry, D.D.S., (*N. Y C. D.*), 1902, *M.D.*
Squires, Charles Anthony, A.B., (*Williams Coll.*), 1900, *M.D.*
Stanley, Grant, B.S., (*Redfield Coll.*), 1900, *M.D.*
Stella, John, Licenza Liceale, (*Eorquata Easso*), 1902, *M.D.*
Stigner, Pehr, A.B., (*Lund Univ., Sweden*), 1889, *M.D.*
Stubblefield, Garfield, B.C.E., (*Univ. of Ark.*), 1902, *C.E.*
Sweet, Earl Vincent, A.B., (*Colgate*), 1901, *M.D.*
Tavenner, Frank Lucius, B.C.E., (*Mont. Agr. Coll.*), 1903, *M.E.*

Thompson, Hoxie Harry, B.S., (*Austin Coll.*),1901, *C.E.*
Thro, William Crooke, B.S.A., 1900, A.M., 1901, *M.D.*
Tiffany, John Blakeslee, B.S.A., 1901, *D.V.M.*
Todd, Leona Estelle, A.B., 1903, *M.D.*
Troy, Andrew Charles Francis, A.B., 1903, *LL.B.*
Turner, William Joel, B.A., (*Wash. and Lee Univ.*), 1903, *C.E.*
Viertels, Ephraim, B.S., (*Cooper Union Inst.*), 1902, *C.E.*
Vincent, William Germain, Jr., B.E., (*Tulane Univ.*), 1902, *M.E.*
Von der Lippe, Ernest Carl Frederick, B.S.C.E., (*Univ. of Ill.*), 1902, *M.E.*
Walker, Fernando Murray, B.A., (*National Coll. of Cordoba*), 1900, *E.E.*
Warner, Austin McRaven, A.B., (*S. W. Presbyterian Univ.*), 1901, *M.E.*
Warner, Earle Spear, B.L., (*Hobart Coll.*), 1902, *LL.B.*
Warner, William Jay, A.B., 1903, *LL.B.*
Waterman, Charlotte Cornelia, A.B., 1903, *D.V.M*
Way, Cassius, B.Agr., (*Conn. Agr. Coll.*), 1899, *D.V.M.*
Welch, George Morgan, A.B., 1903, *LL.B.*
Welch, Stewart Henry, A.B., (*Southern Univ.*), 1902, *M.D.*
Wight, Herbert, A.B., (*Union Coll.*), 1901, *LL.B.*
Williams, Arthur Shaler, A.B., (*Yale*), 1901, *M.E.*
Wills, John Gordon, B.S.A., (*Univ. of Vermont*), 1903, *D.V.M.*
Wilson, John Bailey, B.S., (*Phila. Cent. H. S.*), 1902, *C.E.*
Wilson, Roscoe Conkling, Phar. Chem., 1890, *A.B.*
Winans, James Albert, A.B., (*Hamilton Coll.*), 1897, A.M., (*same*), 1900, *LL.B.*
Wineburgh, Charles, B.S., (*City Coll. of N. Y.*), 1902, *M.E.*
Wismar, William Frederic, A.B., (*Univ. of Rochester*), 1901, *M.D.*
Wolheim, Louis Robert, B.S., (*City Coll. of N. Y*), 1903, *M.E.*
Wood, Charles Montgomery, A.B., (*Princeton*), 1903, *M.E.*
Woodward, Charles Stebbins, B.E., (*West Chester Normal*), 1893, M.E., (*same*), 1895, *A.B.*
Wortman, Otto, B.S., (*City Coll. of N. Y.*), 1903, *M.E.*
Wright, Arthur Mullin, A.B., 1903, *M.D.*
Ycasiano-Roxas, Francisco, B.A., (*Atenco de Manila*), 1903, *A.B.*
Yothers, William Walter, B.S., (*Univ of Idaho*), 1903, *A.B.*

UNDERGRADUATES.

The figures 1, 2, 3, 4, indicate Freshman, Sophomore, Junior, and Senior years, respectively, in the four year courses. In the three year course in Law, 1, Jr., and Sr., indicates first year, Junior, and Senior respectively. In the three year course in Veterinary Medicine, 1, 2, and 3, indicate first, second, and third year, respectively. Special Students are not classified by years.

Abrahams, Morris Landa, B.S. in M.E.,	*New Brunfels, Tex.*,	1 Mech. Eng.
Abrams, Joseph Addison,	*Philadelphia, Pa.*,	1 Arts
Ackart, Everett Gunner, Ph.B.,	*Schaghticoke*,	2 Elect. Eng.
Acker, Lamar, B.S.,	*Lampasas, Tex.*,	3 Civil Eng.
Acker, William Lewis,	*Scranton, Pa.*,	3 Mech. Eng.
Acklin, James Montgomery,	*Toledo, O.*,	2 Mech. Eng.
Adair, Craig,	*Wilmington, Del.*,	1 Mech. Eng.
Adams, Arthur Garfield,	*Ithaca*,	1 Law
Adams, Clarence Smith,	*Warsaw*,	4 Mech. Eng.
Adams, Cuyler Culver,	*Duluth, Minn.*,	3 Mech. Eng.
Adams, Francis Salisbury,	*Durwood, Minn.*,	1 Mech. Eng.
Adams, Francis Spearman,	*Sharon, Pa.*,	2 Mech. Eng.
Adams, Frank Avery,	*Coxsackie*,	1 Law
Adams, Thomas Dickinson, A.B.,	*New Orleans, La.*,	3 Mech. Eng.
Adendorff, John,	*Johannesburg, Transvaal, So. Africa*,	1 Mech. Eng.
Adye, Elton Merville, Ph.B.,	*Forestville*,	1 Mech. Eng.
Ainslie, James Stuart, Jr.,	*Chicago, Ill.*,	Sp. Agriculture
Akin, Ransom Wallace,	*Carlisle, Ind.*,	1 Law
Albones, Arthur William,	*Frankfort*,	4 Med. (N. Y. C.)
Albrecht, Maximilian Claude,	*Lowville*,	2 Arts
Alcott, Arthur David,	*North End*,	1 Elect. Eng.
Alderman, William Horace,	*Albion*,	1 Agriculture
Aldrich, Wickham Hurd,	*Cleveland, O.*,	4 Mech. Eng.
Alexander, Henry Walker,	*Montgomery, Ala.*,	1 Civil Eng.
Alexander, Katharine,	*Ithaca*,	4 Arts
Allan, Edwin Phipps,	*Montclair, N. J.*,	2 Mech. Eng.
Allen, Amos Green,	*Chicago, Ill.*,	1 Mech. Eng.
Allen, Carl George,	*Williamsport, Pa.*,	1 Mech. Eng.
Allen, Carrie Louise,	*Buffalo*,	4 Arts

Allen, Flora Keppel,	*Ithaca*,	4 Arts
Allen, Francis Ramsey,	*Worcester, Mass.*,	4 Mech. Eng.
Allen, George Norwood,	*Easton*,	Sp. Agriculture
Allen, Harris Calvin,	*Lima*,	4 Arts
Allen, Margaret May,	*Ithaca*,	2 Arts
Allen, William Daniel,	*Buffalo*,	2 Elect. Eng.
Allen, William Gordon,	*Ithaca*,	4 Mech. Eng.
Allen, William Paul,	*Brooklyn*,	4 Arts
Aller, Howard Lewis,	*Richmond Hill*,	2 Mech. Eng.
Alliaume, Curtis Franklin,	*Oriskany*,	1 Law
Allison, William Franklin, B.S.,	B.S. in C.E., *Brookings, S. D.*,	1 Civil Eng.
Almgren, Ebba Elizabeth,	*Stockholm, Sweden*,	1 Medicine
Althaus, Edward, Jr.,	*New York City*,	3 Arts
Amerman, Ralph Alonzo,	*Scranton, Pa.*,	1 Arts
Ames, Harry Lee, A.B.,	*Painter, Va.*,	1 Elect. Eng.
Anderson, Clark Taggart,	*Wooster, Ohio*,	2 Elect. Eng.
Anderson, Frank Gibbs,	*Auburn*,	2 Mech. Eng.
Anderson, Hale,	*Montclair, N.J.*,	Jr. Law
Anderson, Harry O,	*Washington, Pa.*,	1 Elect. Eng.
Anderson, Peter, M.B.,	*Cornwall, Ont., Can.*,	2 Arts
Andrews, Don Ethelbert,	*Puzzler, Col.*,	1 Civil Eng.
Andrews, Frederick Willment,	*Millbrook*,	2 Veterinary
Andrews, Harry Isaac, Jr.,	*Ithaca*,	3 Med. (N. Y. C.)
Andrews, Josephine Adair,	*Seneca Falls*,	3 Arts
Andrews, Nathaniel Reeve,	*Norwich*,	4 Elect. Eng.
Apgar, Clara Selkreg,	*Ithaca*,	3 Arts
Aranow, Harry,	*New York City*,	4 Med. (N.Y.C.)
Argetsinger, James Cameron,	*Burdett*,	1 Arts
Armitage, Aaron Anthony,	*Troy*,	Jr. Law
Armstrong, Arthur Soper, A.B.,	*Rome*,	4 Med. (N. Y. C.)
Armstrong, Ervin Scott,	*Lock Haven, Pa.*,	1 Law
Armstrong, Marion,	*Pittsburg, Pa.*,	1 Arts
Armstrong, Thomas Andrew,	*Hamilton, Ont., Can.*,	1 Civil Eng.
Armstrong, Walter Jonas,	*Rome*,	3 Mech. Eng.
Arnold, Lawrence,	*Brooklyn*,	1 Law
Arnold, Percy Linden,	*Bergen*,	1 Elect. Eng.
Aronovici, Charles, B.L.,	*Philadelphia, Pa.*,	Sp. Agriculture
Aronson, Harry,	*Brooklyn*,	2 Med. (N. Y. C.)
Arosemena, Charles,	*Guayaquil, Ecuador*,	1 Med. (N. Y. C.)
Arthur, Leon Leroy,	*East Steuben*,	Jr. Law
Arthur, William Morris,	*East Steuben*,	Jr. Law

Ash, Marion Jennie,	*Orange, Mass.*,	1 Arts
Ashburner, Lesley,	*Media, Pa.*,	2 Civil Eng.
Ashe, Tom Jefferys,	*Yorkville, So. Car.*,	4 Elect. Eng.
Ashley, Frederick Carl,	*Honeoye*,	3 Civil Eng.
Atkin, Ernest George,	*Patchogue*,	4 Arts
Atwater, Fred Halsey,	*Ithaca*,	1 Agriculture
Atwater, Henry,	*East Orange, N. J.*,	2 Mech. Eng.
Atwater, Ralph Willis,	*Atwater*,	4 Med. (N. Y. C.)
Atwood, William Bartlett,	*Beaver, Pa.*,	1 Civil Eng.
Auerbach, Frederic Stanley,	*Boston, Mass.*,	4 Arts
Austell, Erle Lochrane,	*Baltimore, Md.*,	Sr. Law
Austin, Herbert Sidney,	*Poughkeepsie*,	1 Civil Eng.
Averell, Chester Dewey,	*Ogdensburg*,	Sp. Agriculture
Avery, Harold Field,	*Syracuse*,	4 Arts
Avery, Harry Bain,	*West Taghkanic*,	3 Med. (N. Y. C.)
Axtell, Percy J,	*Deposit*,	2 Veterinary
Ayer, Lynn Francis,	*Angola*,	Sp. Agriculture
Babcock, Richard Elmer,	*West Seneca*,	1 Law
Babson, Rea Edwin,	*South Orange, N. J.*,	2 Mech. Eng.
Backus, Lee Seldon,	*Derby*,	1 Veterinary
Backus, Newell D,	*Union Springs*,	2 Veterinary
Backus, Robert Erle,	*Jamestown*,	1 Arch.
Backus, Stanley Solomon,	*Morris*,	1 Veterinary
Bacon, Claude Benoni,	*North Lansing*,	3 Civil Eng.
Bagg, Egbert, Jr.,	*Utica*,	1 Arch.
Baggerly, Herman Douglas,	*Clifton Springs*,	2 Elect. Eng.
Baggs, Martha,	*Fulton*,	1 Arts
Bailey, Edith Anna,	*Wellsboro, Pa.*,	1 Arts
Bailey, Frederick Engene,	*Deposit*,	Sp. Agr.
Bailey, Hervey S, A.B.,	*Xenia, O.*,	3 Mech. Eng.
Baird, Alvin Walter, A.B.,	*Portland, Ore.*,	4 Med. (N. Y. C.)
Baker, Clarence Prichard,	*Lockport*,	Jr. Law
Baker, Edgar Renoud,	*Ithaca*,	1 Veterinary
Baker, Edward Stuart,	*Staunton, Va.*,	1 Mech. Eng.
Baker, Frank James,	*Brasher Falls*,	3 Veterinary
Baker, James Harvey,	*Philadelphia, Pa.*,	1 Mech. Eng.
Baker, James Nelson,	*Owego*,	3 Elect. Eng.
Baker, Linnaeus Earl, B.S. in M.E.,	*Otterbein, Ind.*,	4 Elect. Eng.
Baker, Norman Lockyer, A.B.,	*Winter Park, Fla.*,	3 Elect. Eng.
Baker, Ross Lee,	*Greenwood*,	1 Elect. Eng.
Baker, William Charles, B.S.A.,	*Ithaca*,	1 Painting
Baldwin, Francis William,	*New York City*,	1 Med. (N. Y. C.)

Baldwin, Harry Clark,	*Ithaca*,	Jr. Law
Baldwin, Mabel Cornelia,	*Fort Erie, Ont., Can.*,	1 Arts
Baldwin, Wesley Manning,	*Brooklyn*,	4 Med. (N. Y. C.)
Baldwin, Winfred Montgomery,	*Springfield, Mo.*,	2 Mech. Eng.
Baldwin, William Wright, Jr.	*Burlington, Ia.*,	3 Arts
Ball, Sylvia Ernestine,	*Warren, Pa.*,	2 Arts
Ballance, Willis Henry, Jr.,	*Peoria, Ill.*	2 Mech. Eng.
Ballard, John Carlos,	*West Falls Church, Va.*,	1 Mech. Eng.
Ballinger, Philippi Fazio,	*Washington, D. C.*,	3 Elect. Eng.
Ballou, Clarence Maturin,	*No. Adams, Mass.*,	1 Mech. Eng.
Banning, Archibald Tanner, Jr.,	*Mt. Vernon*,	4 Arts
Barber, George Lynn,	*West Chazy*,	Sp. Agr.
Barbour, Anna Violet,	*Indianapolis, Ind.*,	2 Arts
Barbour, Louise Blanche,	*Indianapolis, Ind.*,	4 Arts
Bard, Francis Norwood,	*Chicago, Ill.*,	4 Mech. Eng.
Barie, Charles Edward,	*Erie, Pa.*,	4 Arts
Barker, Alden Frank,	*Clayton*,	1 Mech. Eng.
Barker, Ellen Morgan,	*Auburn*,	Sp. Agr.
Barkhorn, Henry Charles,	*Newark, N. J.*,	1 Med. (N. Y. C.)
Barlow, Warren Stanley,	*Syracuse*,	1 Law
Barnes, Caroline Frances,	*Phoenix*,	Sp. Arts
Barney, Charles Ray,	*Bennington, Vt.*,	4 Elect. Eng.
Barnhart, Clarence Davis,	*Washington, D. C.*,	3 Elect. Eng.
Barnum, Victor Bayard,	*Centreville*,	1 Mech. Eng.
Barroll, Henry Edward,	*Chicago, Ill.*,	2 Mech. Eng.
Barron, John Hall,	*Nunda*,	1 Agriculture
Barrows, Lee Earl,	*Olean*,	Sp. Mech. Eng.
Barsky, Michael Halpern,	*New York City*,	2 Med. (N. Y. C.)
Barth, Ira Steiner,	*Atchison, Kans.*,	4 Mech. Eng.
Batchelar, Eugene Croker,	*Jersey City, N. J.*,	3 Mech. Eng.
Baxter, Milton Edwin,	*Elizabeth, N. J.*,	1 Med. (N. Y. C.)
Bartholomay, Herman,	*Rochester*,	1 Mech. Eng.
Barton, Robert Charles,	*Seattle, Wash.*,	2 Mech. Eng.
Barvian, Eugene John,	*Cowlesville*,	1 Law
Bascome, George Lightbourne,	*Elmira*,	1 Mech. Eng.
Bassett, Deane Hendrick,	*Carbondale, Pa.*,	1 Mech. Eng.
Bassett, Robert Van Rensselaer,	*Owego*,	1 Law
Bateman, Warner Mifflin,	*Glendale, O.*,	1 Arts
Bates, Ellis Abram,	*Ithaca*,	3 Arts
Bates, Harry H,	*Joliet, Ill.*,	2 Mech. Eng.
Baugh, William Edward, A.B.,	*Tuscaloosa, Ala.*,	Sp. Agriculture
Baum, John Albert, B.S. in C.E.,	*Corsicana, Texas*,	3 Civil Eng.

Baumgardner, John Andrew,	*Lancaster, Pa.*,	3 Mech. Eng.
Bayne, George Henry, Jr.,	*Nutley, N. J.*,	4 Mech. Eng.
Beardslee, Kenneth Phelps,	*Syracuse*,	3 Mech. Eng.
Beck, Alga May,	*New York City*,	Sp. Arts
Beckary, Albert,	*New York City*,	3 Med. (N.Y.C.)
Becker, Damas Brough,	*West Berne*,	3 Med. (N. Y. C.)
Becker, Henry Clinton, Jr.,	*Clinton, Mass.*,	4 Med. (N.Y.C.)
Becker, Neal Dow,	*Jamestown*,	Jr. Law
Becker, Otto Edward,	*Buffalo*,	1 Arts
Beckett, Bergie Barrie, B.A.,	*West Point, Miss.*,	4 Elect. Eng.
Bedford, Alletta Langdon, A.B.,	*Haddonfield, N. J.*,	3 Med. (N.Y.C.)
Beebe, Charles Nelson,	*Hammondsport*,	3 Elect. Eng.
Beebe, Ward Losee,	*Ithaca*,	3 Veterinary
Beebee, Lewis,	*Sherwood*,	2 Mech. Eng.
Beesley, Frank Mills,	*Chicopee, Mass.*,	2 Civil Eng.
Behnken, Henry Emile,	*Brooklyn*,	4 Arts
Bein, Felix Washington, B.S.,	*New York City*,	3 Mech. Eng.
Bell, Frances Louise,	*Binghamton*,	3 Arts
Bell, George Arthur,	*Rome*,	4 Agriculture
Bell, Harold I,	*West Bay, Mich.*,	3 Civil Eng.
Bell, Nelson John,	*Dayton, O.*,	4 Civil Eng.
Bellinger, Daniel Lawrence,	*Ithaca*,	3 Elect. Eng.
Bellows, Brian Chandler,	*Richmond*,	2 Elect. Eng.
Beman, Myron Clark,	*Binghamton*,	2 Mech. Eng.
Bender, Oswald Lewis,	*Martinsburg, W. Va.*,	1 Mech. Eng.
Benedict, Albert Newell,	*Yonkers*,	3 Med. (N. Y. C.)
Bendheim, Berthold Herbert,	*Houston, Texas*,	1 Elect. Eng.
Benjamin, Marion,	*Cleveland, O.*,	3 Architecture
Bennet, Orville Green, Jr.,	*New York City*,	4 Mech. Eng.
Bennett, Harold William,	*Chatham, Eng.*,	1 Mech. Eng.
Bennett, Ray,	*Geneva*,	1 Arts
Bentley, Alexander Norton,	*Rochester*,	4 Elect. Eng.
Bentley, Harry Seymour,	*Ithaca*,	Jr. Law
Bergen, Madeline Estelle,	*Ithaca*,	1 Arts
Berkeley, Landon Robinson,	*Locust Dale, Va.*,	1 Elect. Eng.
Berkowitz, Samuel Simpson,	*Brooklyn*,	1 Arts
Berliner, Leopold Henry,	*New York City*,	3 Med. (N.Y.C.)
Bernfeld, Samuel Joachim,	*New York City*,	4 Med. (N.Y.C.)
Berry, Morphy Edison,	*Beechmont, Ky.*,	4 Mech. Eng.
Berry, Romeyn,	*Hudson*,	4 Arts
Berryman, Wilson Garfield,	*New York City*,	4 Mech. Eng.
Berson, Arthur Joseph,	*Rochester*,	1 Arts
Bessey, Mabelle Abbot,	*Brooklyn*,	2 Arts

Best, Ernest Peter,	*Kinderhook*,	Sp. Agriculture
Betts, Benjamin Harrison,	*Tonawanda*,	1 Arts
Bigelow, Artwell Hugh,	*Waterloo*,	1 Elect. Eng.
Bigler, William, Jr.,	*Clearfield, Pa.*,	1 Civil Eng.
Bilderbeck, George Leslie,	*Hartwick*,	2 Civil Eng.
Billwiller, Charles James, Jr.,	*Brooklyn*,	2 Mech. Eng.
Bilyeu, Thomas, B.S.,	*Corvallis, Ore.*,	2 Mech. Eng.
Bingham, Nellie Holmes,	*Santa Clara*,	2 Arts
Bingham, Samuel Almeron,	*Chicago, Ill.*,	3 Mech. Eng.
Binkley, Ethelyn Felice,	*Spokane, Wash.*,	4 Arts
Birchenough, Harry,	*Paterson, N. J.*,	3 Arts
Bird, Edward James,	*Ironton, O.*,	1 Mech. Eng.
Bishop, Roberts Huntington,	*Norwich, Conn.*,	1 Mech. Eng.
Bishop, Wheeler Scott,	*Ithaca*,	3 Arts
Bishop, William Smart,	*Savannah*,	2 Elect. Eng.
Black, Charles Willard,	*Cincinnati, O.*,	3 Mech. Eng.
Black, Hampton,	*Montgomery, Ala.*,	2 Mech. Eng.
Blackwell, Howard Clayton,	*Brooklyn*,	2 Elect. Eng.
Blahd, Mose Emmet,	*Cleveland, O.*,	2 Medicine
Blair, Edward Johnson,	*Chicago, Ill.*,	3 Mech. Eng.
Blair, John Cust,	*New Castle, Pa.*,	2 Civil Eng.
Blake, Alfred DeGroat,	*Stapleton*,	1 Mech. Eng.
Blakeslee, Edward Levi,	*Menands*,	3 Mech. Eng.
Blakeslee, Irvin,	*Coal Glen, Pa.*,	2 Elect. Eng.
Blankenhorn, George Stevens,	*Pasadena, Cal.*,	1 Mech. Eng.
Blatch, Nora Stanton,	*Ithaca*,	2 Civil Eng.
Blauvelt, Jessie Amelia,	*Fort Plain*,	4 Arts
Bleakley, Francis William,	*Peekskill*,	Sr. Law
Bliss, George Ripley, B.A.,	*Washington, D. C.*,	1 Mech. Eng.
Bliss, Russell Joseph, Ph.B.,	*Peterboro*,	1 Law
Bliss, Theodore, A.B.,	*Troy*,	4 Med. (N. Y. C.)
Block, Alexander,	*New York City*,	1 Med. (N. Y. C.)
Block, Arthur Joseph,	*Buffalo*,	2 Arts
Bloomingdale, Gertrude,	*Alabama*,	4 Arts
Blount, Walter Eames,	*Washington, D. C.*,	2 Arts
Blum, Charlotte,	*New York City*,	1 Medicine
Blunt, Albert Church, Jr.,	*Cheyenne, Wyo.*,	1 Mech. Eng.
Boardman, Mary Amanda,	*Trumansburg*,	1 Arts
Boden, Dorothy Anne,	*Syracuse*,	1 Arts
Boegehold, Carl Winter,	*Mt. Vernon*,	2 Mech. Eng.
Boesch, Clarence Edwin,	*Washington, D. C.*,	3 Civil Eng.
Bogert, Clinton Lathrop,	*Binghamton*,	3 Civil Eng.

Bogert, George Gleason,	*Ithaca*,	2 Arts
Bohrer, Walter,	*Cincinnati, O.*,	3 Mech. Eng.
Boldt, George Charles, Jr.,	*New York City*,	3 Arts
Bolger, Elizabeth May,	*Philadelphia, Pa.*,	1 Arts
Bond, Grace Bigelow,	*Brooklyn*,	1 Arts
Bonner, John Richard Worthington,	*Cooperstown*,	4 Arts
Boorstein, Joseph Aaron, A.B.,	*New York City*,	3 Civil Eng.
Bope, Harold Spencer,	*Pittsburg, Pa.*,	4 Mech. Eng.
Borden, John Francis,	*Tunkhannock, Pa.*,	4 Mech. Eng.
Bosche, Frederick Darlington,	*Buffalo*,	1 Mech. Eng.
Bosler, Harlan Gibson,	*Indianapolis, Ind.*,	1 Law
Bossinger, Ernest Lafayette,	*Huntington, W. Va.*,	4 Mech. Eng.
Bourne, Ralph Hinckley,	*Cleveland, O.*,	3 Mech. Eng.
Bower, John Gosh, Jr.,	*Hagerstown, Md.*,	2 Arts
Bowes, Thomas David, Jr.,	*Philadelphia, Pa.*,	1 Mech. Eng.
Bowman, Elizabeth,	*Pittston, Pa.*,	1 Arts
Bowman, William Law,	*Pittston, Pa.*,	4 Civil Eng.
Bowser, Wilfred,	*Anchorage, Ky.*,	1 Elect. Eng.
Boyce, Benjamin Knowlton,	*Salamanca*,	1 Elect. Eng.
Boyce, Ivan Albert	*Hubbardsville*,	2 Elect. Eng.
Boyd, Darnall Leggo,	*Richmond, Va.*,	4 Mech. Eng.
Bozenhardt, William Frederick,	*New York City*,	3 Med. (N. Y. C.)
Bradford, Baury DeBellerire,	*Portsmouth, N. H.*,	2 Elect. Eng.
Bradley, Alva,	*Cleveland, O.*,	1 Mech. Eng.
Bradley, James Chester,	*New York City*,	2 Arts
Bradley, Joseph Ruskin,	*King Ferry*,	1 Medicine
Brady, Charles Philip,	*Buffalo*,	3 Arts
Brainard, Albert Sereno,	*East Hartford, Conn.*,	3 Civil Eng.
Brainerd, Harold Affleck,	*Westfield, N. J.*,	1 Civil Eng.
Braman, James Lloyd,	*Plattsburg*,	Jr. Law
Brandow, Emory Elmer,	*Catskill*,	2 Civil Eng.
Branley, Helen Elizabeth,	*Brooklyn*,	1 Arts
Braun, Arthur Peter,	*Toledo, O.*,	2 Civil Eng.
Brauner, Julius Frederick, Jr.,	*Ithaca*,	3 Civil Eng.
Braunworth, Percy Lewis,	*Brooklyn*,	2 Civil Eng.
Brayer, Nelson Garfield,	*Rochester*,	3 Mech. Eng.
Braymer, Daniel Harvey,	*Hebron*,	2 Arts
Brazil, Augusto Cardoso de Moura,	*Rio de Janeiro, Brazil*,	1 El. Eng.
Breed, Ernest,	*Lyndonville*,	Sr. Law
Breen, Maurice Francis,	*Ithaca*,	1 Veterinary
Breen, Thomas Alfred,	*Ithaca*,	1 Veterinary
Breger, Coppy Levinthal,	*Brooklyn*,	2 Arts

Bremer, Karl, B.A.,	*Stellenbosch, Cape Colony,*	4 Arts
Brennan, Russell Henry,	*Utica,*	1 Law
Brewrink, John Edward, Ph.B.,	*Pullman, Wash.,*	1 Mech. Eng.
Brewster, Alfred Alexander, Jr.,	*Akron, O.,*	4 Mech. Eng.
Brewster, Ethelyn,	*Marion,*	2 Arts
Brewster, Leo Allie,	*Wolcott,*	1 Arts
Brierley, Wilfrid Gordon,	*Dover, N. H.,*	1 Agriculture
Briggs, Andrew Gordon,	*Locust Dale, Va.,*	1 Civil Eng.
Brinckerhoff, Horace Everett,	*Mt. Vernon,*	1 Agriculture
Brinkerhoff, Albert David,	*Springfield, Ill.,*	2 Elect. Eng.
Brinley, Henry DeNyse,	*Long Branch, N. J.,*	4 Arts
Britten, Edwin Franklin, Jr.,	*Jersey City, N. J.,*	1 Mech.Eng.
Britton, Karl Beckwith,	*Glenville, O.,*	2 Mech. Eng.
Britton, Josephine,	*Camden, N. J.,*	Sp. Arts
Broadhurst, William George, M.E.,	*New York City,*	3 Civil Eng.
Brockett, Arthur Andrew,	*Little Falls,*	2 Veterinary
Broder, Charles,	*New York City,*	3 Med. (N. Y. C.)
Brodie, Ralph Earle,	*Bergen,*	4 Med. (N. Y. C.)
Brogan, John Ernest, B.S.,	*New Orleans, La.,*	1 Elect. Eng.
Brooks, Seabury John,	*Hayts Corners,*	Sr. Law
Brough, Charles Young,	*Hanover, Pa.,*	3 Elect. Eng.
Brown, Aaron,	*New York City,*	2 Med. (N. Y. C.)
Brown, Alice Fargo,	*Buffalo,*	1 Arts
Brown, Clyde Channing,	*New Hampton, N. H.,*	1 Law
Brown, Charles Macdonald, Jr.,	*Ithaca,*	4 Arts
Brown, Edmond Swain,	*Winsted, Conn.,*	1 Mech. Eng.
Brown, George Anthony,	*Hannibal, Mo.,*	3 Civil Eng.
Brown, Edwin George,	*Brooklyn,*	1 Med. (N. Y. C.)
Brown, George Teall,	*New York City,*	2 Mech. Eng.
Brown, Grover Charles,	*Ithaca,*	2 Civil Eng.
Brown, Harry Sanford, B.M.E.,	*Tyler, Texas,*	4 Mech. Eng.
Brown, Herbert Childs,	*Ithaca,*	3 Mech. Eng.
Brown, Kenneth Doty,	*New York City,*	3 Arts
Brown, Stanley Doty,	*New York City,*	3 Arts
Brown, Walter Sheldon, A.B.,	*Richburg,*	4 Agriculture
Brown, William Niver,	*Cortland,*	3 Mech. Eng.
Browne, William Henry, Jr.,	*Great Barrington, Mass.,*	2 Mech. Eng.
Bruce, Harry Alexander,	*Joliet, Ill.,*	1 Mech. Eng.
Brundage, Edward Fosgate,	*Chester,*	4 Arts
Brundage, Floyd Collins,	*Andover,*	2 Elect. Eng.
Bryant, Frank Alva Mitchell,	*New York City,*	1 Med. (N. Y. C.)
Bryde, Edward Dudley,	*New York City,*	4 Arts

Buchanan, Isaac Victor,	*Pittsburg, Pa.*,	3 Arts
Buck, Alonzo Morris, Jr.,	*Hyattsville, Md.*,	4 Elect. Eng.
Buck, Ashael J,	*Ithaca*,	Sr. Law
Buck, Irwin,	*Albany*,	4 Mech. Eng.
Buckbee, Blanche,	*French Mountain*,	3 Arts
Buckley, Daniel Martin,	*Millbrook*,	Sr. Law
Bües, Christian Rudolph August,	*Burlington, N. J.*,	2 Agr.
Buffington, Ralph Maurice,	*Berkshire*,	2 Veterinary
Bullard, Marguerite Jane, A.B.,	*Willimantic, Conn.*,	4 Med. (N.Y.C.)
Bunker, Charles Orville Waite, B.Sc.,	*Hebron, Neb.*,	3 Med. (N. Y. C.)
Burd, Merritt Coleman,	*Dundee*,	3 Arts
Burdett, William Edgar, Jr.,	*Keene, N. H.*,	1 Law
Burger, Frank Gustave,	*Port Richmond*,	1 Mech. Eng.
Burgweger, Henry,	*Buffalo*,	2 Arts
Burke, Walter Francis,	*Oneonta*,	1 Law
Burley, Arthur James,	*Angola*,	2 Veterinary
Burlingame, Geoffrey Gorton,	*Syracuse*,	1 Agriculture
Burlingame, Roderick Sedgwick,	*Syracuse*,	2 Arts
Burnell, Eugene Dickinson,	*Mobile, Ala.*,	2 Civil Eng.
Burnett, Russell,	*Fort Plain*,	2 Arts
Burnham, Henry Gordon,	*Glens Falls*,	1 Arts
Burnham, Trumbull Griswold,	*Willimantic, Conn.*,	1 Arts
Burns, Eleanor Irene,	*Philadelphia, Pa.*,	4 Arts
Burns, John Robert,	*Ithaca*,	1 Veterinary
Burns, Robert,	*Brooklyn*,	1 Law
Burns, Walter William,	*Greenport*,	2 Mech. Eng.
Burr, George Houston,	*Natick, Mass.*,	1 Architecture
Burrows, Earle Nelson,	*Deposit*,	1 Civil Eng.
Burton, Howard Blaine,	*Brocton*,	3 Architecture
Bush, George Wendell,	*Berkshire*,	1 Agriculture
Butchman, Abraham,	*New York City*,	1 Med. (N.Y.C.)
Butler, Bert S,	*Hermitage*,	2 Arts
Butler, Robert Paul,	*Cedar Rapids, Ia.*,	3 Arts
Butters, George Francis,	*Ottawa, Ill.*,	1 Law
Buttolph, Roy Burnham,	*Chicago, Ill.*,	4 Arts
Button, Harry Freeman,	*Canastota*,	Sp. Agriculture
Cady, Bert James,	*Addison*,	3 Veterinary
Cagwin, Clara Joslyn,	*Denver, Colo.*,	1 Arts
Cahill, Francis Joseph, A.B.,	*Hoosick Falls*,	2 Medicine
Cairns, Edward,	*Montclair, N. J.*,	2 Mech. Eng.
Calderón, George Alvarez,	*Washington, D. C.*,	3 Elect. Eng.

Caldwell, Franklin Woods,	*Meadville, Pa.*,	1 Law
Caldwell, Isabel,	*Brooklyn*,	4 Arts, 2 Medicine
Caldwell, James Guthrie, Jr.,	*St. Louis, Mo.*,	1 Civil Eng.
Callister, John Henry,	*Poughkeepsie*,	Sr. Law
Cameron, Francis Michael,	*Hornellsville*,	Sr. Law
Cameron, William Edward,	*Ithaca*,	Jr. Law
Camp, Arthur Dutton,	*Montclair, N. J.*,	3 Arts
Campbell, Donald Argyll,	*Brooklyn*,	1 Civil Eng.
Campbell, James Archibald,	*Brooklyn*,	3 Elect. Eng.
Campion, Edward Winslow,	*Troy*,	2 Mech. Eng.
Canaga, Gordon Byron, B.A.,	*Scio, O.*,	1 Civil Eng.
Candee, Allan Harry,	*Hinsdale, Ill.*,	2 Mech. Eng.
Card, Ernest Mason, A.B.,	*Tacoma, Wash.*,	Sr. Law
Carden, William Henry,	*Chicago, Ill.*,	1 Mech. Eng.
Cardozo, Francis Henry,	*Orangeburg, S. C.*,	Sp. Agriculture
Carley, Dwight Ebenezer,	*Lisle*,	Sp. Agriculture
Carnes, Samuel Cliff,	*Cambridge, O.*,	3 Arts
Carpender, Sydney Blucker,	*New Brunswick, N. J.*,	1 Mech. Eng.
Carpenter, Charles Ketchum,	*Ithaca*,	1 Mech. Eng.
Carpenter, Clinton Arthur,	*Chicago, Ill.*,	3 Elect. Eng.
Carpenter, George,	*Ithaca*,	2 Mech. Eng.
Carpenter, John Condict,	*Washington, D. C.*,	1 Mech. Eng.
Carpenter, Naomi Jennette,	*Ithaca*,	1 Arts
Carr, Anna Myrtle,	*Rochester*,	4 Arts
Carr, Hugh Holmes,	*New York City*,	4 Med. (N. Y C.)
del Carril, Pedro Leon, D.V.M.,	*San Juan, Arg. Rep.*,	Sp. Agr.
Carter, Charles Edward,	*Geneva, O.*,	2 Mech. Eng.
Carter, Donald Pershing,	*Pottsville, Pa.*,	4 Mech. Eng.
Carter, Helen Louise,	*Newark, N. J.*,	4 Med. (N. Y. C.)
Carver, Harry Eugene,	*Skaneateles*,	2 Mech. Eng.
Cary, David Drysdale,	*Patchin*,	1 Law
Cary, Richard,	*Niagara Falls*,	1 Law
Cary, William Paxton,	*New York City*,	4 Arts
Case, Donald Greggs,	*Cortland*,	2 Elect. Eng.
Casper, Le Roy,	*Howes Cave*,	3 Mech. Eng.
Casper, William Lee,	*Brooklyn*,	1 Arts
Cassidy, Elizabeth, B.S.,	*Lexington, Ky.*,	4 Arts
Castle, Samuel Northup, A.B.,	*Ithaca*,	3 Mech. Eng.
Castellucci, Fred Adolph,	*New York City*,	1 Med. (N. Y. C.)
Cautley, John Baskett,	*Ithaca*,	2 Mech. Eng.
Ceasar, Abraham Louis,	*New York City*,	4 Med. (N. Y. C.)
Chace, Archibald Eastwood,	*New York City*,	4 Arts, 2 Medicine

Chadovitz, Isaac,	*Brooklyn*,	2 Arts
Chadwick, Albert Angel,	*Port Jervis*,	1 Architecture
Chalmers, Thomas Stuart,	*Chicago, Ill.*,	4 Mech. Eng.
Chambers, Norman Campbell,	*Batoum, Russia*,	2 Mech. Eng.
Champaign, Leigh Marsh,	*Ithaca*,	2 Civil Eng.
Champlin, George Major,	*Ithaca*,	Sr. Law
Chandler, Horace Harry,	*Vineland, N. J.*,	3 Mech. Eng.
Chapman, Charles Frederick,	*Norwich, Conn.*,	3 Mech. Eng.
Chapman, Charles Henry,	*Washington, D.C.*,	Sp. Agriculture
Chapman, Louis Ballantine,	*Hartford, Conn.*,	1 Med. (N.Y.C.)
Chapman, Frank Carey,	*Ogdensburg*,	1 Mech. Eng.
Chapman, George Mills,	*Chicago, Ill.*,	3 Arts
Chapman, Harry L,	*Clayville*,	4 Elect. Eng.
Chapman, Milton,	*Hartland*,	3 Med. (N. Y. C.)
Charles, Benson Brush,	*Salamanca*,	3 Arts
Charters, Samuel Barclay,	*Pittsburg, Pa.*,	4 Elect. Eng.
Chase, Arthur Reynolds, A.B.,	*Sioux City, Ia.*,	2 Civil Eng.
Chase, Hopkins Cladd,	*Holcomb*,	1 Elect. Eng.
Chase, Lee Arthur,	*Gloversville*,	3 Agriculture
Chase, Le Grand,	*Union Springs*,	2 Arts
Chase, Richard Wade,	*Holyoke, Mass.*,	3 Civil Eng.
Cheney, Jane Button,	*Franklinville*,	2 Arts
Chesebrough, Edith Garfield,	*Syracuse*,	3 Arts
Childs, Lysander D,	*Columbia, S. C.*,	2 Elect. Eng.
Chormann, Irving Otto,	*Niagara Falls*,	2 Arts
Christy, Grace,	*Ford City, Pa.*,	1 Arts
Church, Elizabeth Hoyt,	*Kingston, Pa.*,	2 Arts
Cipperly, Ella Maude,	*Wynantskill*,	4 Arts
Clapp, John Henry, B.S.,	*Washington, D. C.*,	Jr. Law
Clapp, Laurence Bowman,	*Ithaca*,	4 Arts
Clapp, Percy Edwin,	*North Rush*,	1 Agriculture
Clark, Emily Anna,	*Hamilton*,	3 Arts
Clark, Ellen Stout, B.P.,	*Riegelsville, Pa.*,	1 Arts
Clark, John Powell,	*Norwood*,	2 Arts
Clark, Kathleen Bell,	*Davenport, Iowa*,	1 Arts
Clark, Sandford Riddell,	*Onondaga Valley*,	1 Agriculture
Clark, Zella Maria, B.A.,	*Bay View, P. E. Is., Can.*,	3 Med. (N. Y. C.)
Clarke, Edgar Whitney,	*Derby, Conn.*,	3 Mech. Eng.
Clarke, Philip Lancaster,	*Pittsburg, Pa.*,	1 Mech. Eng.
Cleary, John Kearney,	*Medina*,	1 Law
Clements, Harry Vernon,	*Auburn*,	Sr. Law

de Clercq, Clarence Fred,	*Lebanon*,	1 Civil Eng.
Cleveland, Fred Percy,	*Holyoke, Mass.*,	2 Mech. Eng.
Cleveland, John Augustus, A.B.,	*Rochester*,	4 Elect. Eng.
Cleveland, Lou Baker,	*Watertown*,	1 Civil Eng.
Cleveland, Milo L,	*Brockport*,	1 Civil Eng.
Clinger, Daniel, Jr.,	*Milton, Pa.*,	3 Arts
Close, Henry Brevoort,	*Yonkers*,	1 Agriculture
Close, John Campbell, B.Sc.,	*Sydney, N.S. W., Aust.*	3 Mech. Eng.
Clurman, Morris Joseph,	*New York City*,	2 Arts
Coale, Harvey Morton,	*Baltimore, Md.*,	4 Elect. Eng.
Cobb, Charles Shermau,	*Albany*,	3 Architecture
Cobb, Herbert Lawrence,	*Ithaca*,	1 Law
Coburn, Anna Maud,	*Owego*,	4 Arts
Cochran, Norris,	*Las Vegas, N. Mex.*,	1 Civil Eng.
Cochrane, Harry Hamilton, B.S.,	*Ithaca*,	1 Elect. Eng.
Cocke, Charles Hartwell, B.A.,	*Columbus, Miss.*,	3 Med. (N.Y. C.)
Coe, Benjamin Steele,	*Waterbury, Conn.*,	1 Mech. Eng.
Coe, Ralph Brewster,	*Oxford*,	1 Civil Eng.
Coelho, Afrodisio Sampaio,	*Sao Paulo, Brazil*,	1 Agr.
Coffin, Albert Reeves,	*Indianapolis, Ind.*,	4 Arts
Coffin, Helen,	*Albany*,	2 Arts
Coffin, John Dix,	*Glens Falls*,	2 Arts
Cohen, Abraham,	*Brooklyn*,	1 Arts
Cohen, Harry,	*New York City*,	1 Med. (N. Y. C.)
Cohen, Mark,	*New York City*,	1 Med. (N. Y. C.)
Cohen, Morton,	*Brooklyn*,	1 Elect. Eng.
Cohen, Rose, M.E., B.E.,	*New York City*,	3 Med. (N. Y. C.)
Coit, John Eliot, B.Agr.,	*Concord, N. C.*,	Sp. Agriculture
Coit, Robert Howland,	*Grand Rapids, Mich.*,	1 Arch.
Cole, Clifford Comstock,	*Chicago, Ill.*,	2 Mech. Eng.
Collier, George Dudley,	*Rochester*,	2 Mech. Eng.
Collin, Henry Beaumont,	*Benton Centre*,	1 Arts
Collin, John Bernhard,	*Altoona, Pa.*,	1 Mech. Eng.
Collins, John Dempsey,	*Ithaca*,	2 Arts
Collins, Lucy Jane,	*Hagaman*,	1 Arts
Coltman, Robert, 3rd,	*Denver, Colo.*,	2 Civil Eng.
Coman, Grace Elizabeth,	*Hamilton*,	3 Arts
Comstock, Jay Floyd,	*Oxford*,	2 Elect. Eng.
Conen, John Joseph, Jr.,	*Brooklyn*,	1 Mech. Eng.
Conger, George Perrigo,	*Groton*,	1 Arts
Conger, Lawrence Jerome,	*Groton*,	1 Civil Eng.
Conkling, Roscoe Peter,	*Brockport*,	1 Arts

Conlee, George Dyer,	*Ithaca*,	3 Mech. Eng.
Connor, Frederick Tuttle,	*Burlington, Ia.*,	4 Civil Eng.
Cook, Charles Ferguson,	*Utica*,	2 Civil Eng.
Cook, Elizabeth Ellsworth,	*Ithaca*,	2 Arts
Cook, Florence Margaret,	*New York City*,	Sp. Agriculture
Cook, Lleand Howard Dudley,	*Newfield*,	2 Medicine
Coolbaugh, Kenneth McPherson,	A.B., *Easton, Pa.*,	1 Law
Coons, Paul Delmont,	*Skaneateles*,	1 Civil Eng.
Cooper, Gordon Dare,	*Auburn*,	1 Arts
Cooper, Le Brun,	*East Orange, N. J.*,	2 Elect. Eng.
Coors, Adolph, Jr.,	*Golden, Colo.*,	1 Mech. Eng.
Corbon, Horace,	*Oxford*,	3 Civil Eng.
Corman, Bruce Hall,	*Tonawanda*,	2 Mech. Eng
Cornell, Clara Garfield,	*Bridgeport, Conn.*,	1 Arts
Cornell, William Bouck,	*Ithaca*,	1 Mech. Eng.
Cornwall, Andrew Raymond,	*Alexandria Bay*,	Jr. Law
Correll, Hugh,	*Canton, O.*,	1 Mech. Eng.
Cosgrove, Samuel Allison,	*Jersey City, N. J.*,	1 Med. (N.Y.C.)
Costello, Arthur Alexander,	*Syracuse*,	4 Arts
Costello, James Harry,	*Elmira*,	1 Elect. Eng.
Coston, Pitt E,	*Greenwood*,	1 Arts
Cott, Chester Charles,	*Buffalo*,	2 Arts
Cottis, George Wilbert,	*Rochester*,	4 Med. (N.Y.C.)
Cotton, Donald Reed,	*Fairmount*,	1 Mech. Eng.
Couch, George James,	*Ithaca*,	1 Law
Coughlin, James Martin, Jr.,	*Wilkes-Barre, Pa.*,	1 Mech. Eng.
Coulson, Robert Earl,	*Buffalo*,	1 Arts
Courtright, Frank,	*Aurora, Ill.*,	1 Arts
Courtright, Milton,	*Inwood, Ont., Can.*,	1 Civil Eng.
Cover, Robert DeWitt,	*Saratoga*,	1 Medicine
Covert, Earl Blunn,	*Watervliet*,	1 Law
Coville, Howard Grenville,	*Marcellus*,	4 Agriculture
Cowden, Frederick Hatton, Jr.,	*Harrisburg, Pa.*,	Sr. Law
Cox, Herbert Randolph,	*Canton, O.*,	1 Agriculture
Cox, Stanley Cullen,	*Holyoke, Mass.*,	1 Medicine
Coyle, James Francis,	*New York City*,	3 Med. (N. Y. C.)
Craig, Sam Nesbit,	*Allegheny, Pa.*,	2 Mech. Eng.
Crandall, Frank Byron,	*Wellsville*,	2 Arts
Craver, Arthur William,	*Ithaca*,	1 Arts
Crawford, Charlotte Holmes,	*Nyack*,	2 Arts
Crawford, Mary Merritt,	*Nyack*,	4 Arts, 2 Medicine
Crawford, Thomas Frew, B.S.,	*Philadelphia, Pa.*,	2 Mech. Eng.

Crawford, Willard John, Jr.,	*Cleveland, O.*,	1 Mech. Eng.
Cresswell, Howell Scott,	*Ottumwa, Ia.*,	2 Arts
Crissey, Harold Elverton,	*Jamestown*,	3 Arts
Crist, Harry Tryon,	*Middletown*,	Sr. Law
Crittenden, Eugene Casson,	*Oswayo, Pa.*,	2 Arts
Crofts, Frederick Sharer,	*Little Falls*,	3 Arts
Crosby, Cyrus Richard,	*Penn Yan*,	3 Arts
Crosby, Sara Adams,	*Kingston*,	4 Arts
Crosby, William Ernest,	*Middle Granville*,	1 Arts
Crosier, George Stanley,	*Buffalo*,	3 Mech. Eng.
Cross, Charles Maro,	*Hartford, Conn.*,	4 Elect. Eng
Cross, Charles Norman,	*Warsaw*,	2 Elect. Eng.
Cross, Emily Redmond, B.A.,	*New York City*,	Sp. Med. (N.Y.C.)
Cross, Ralph Adam,	*Neversink*,	4 Arts
Crossett, Carolyn Hawley,	*Warsaw*,	3 Arts
Crouse, Jay Lansing,	*Syracuse*,	2 Mech. Eng.
Crowe, Fred Lester,	*Truro, Nova Scotia, Can.*,	4 Agr.
Crowell, Alice Maud,	*South Yarmouth, Mass.*,	Sp. Arts
Crowley, Daniel,	*Ithaca*,	1 Veterinary
Cuddeback, Edgar Gordon,	*Port Jervis*,	4 Arts, 2 Medicine
Cuddeback, Frank Elting,	*Port Jervis*,	3 Elect. Eng.
Cudmore, John Homer,	*New York City*,	3 Med. (N. Y. C.)
Cuervo, Manuel Victorino,	*Havana, Cuba*,	1 Mech. Eng.
Cummin, Gaylord Church,	*Dayton, O.*,	4 Civil Eng.
Cunningham, Charles Webb,	*Greene*,	1 Law
Curran, James Edwin,	*Palmyra*,	Sr. Law
Curry, Charles Henry,	*Pittsburg, Pa.*,	1 Law
Curry, Rowland Ashby,	*Wooster, O.*,	1 Architecture
Curtis, Harold Bartlett,	*New Castle, Pa.*,	1 Arts
Curtis, Harry Leroy,	*New York City*,	2 Mech. Eng.
Curtis, Robert Crawford,	*Cochranton, Pa.*,	1 Mech. Eng.
Curtis, Rensselaer Leigh,	*Franklinville*,	Jr. Law
Curtiss, Edwin Stair,	*Cleveland, O.*,	2 Mech. Eng.
Curtiss, Robert Elmer,	*Richland*,	4 Civil Eng.
Cushing, Prentice,	*East Orange, N. J.*,	1 Elect. Eng.
Cushman, Robert Asa,	*Providence, R. I.*,	3 Agriculture
Cushman, Rufus Leonard,	*No. Adams, Mass.*,	Sp. Agriculture
Custer, Lewis Bayard,	*Llanwellyn, Pa.*,	1 Civil Eng.
Cutler, Charles Evlynn,	*Pembroke*,	4 Arts
Dahmen, Anton Ernest,	*Ithaca*,	2 Civil Eng.
Daley, DeWitt Hayden,	*Chatham*,	2 Civil Eng.
Dalton, Charles Francis, M. D.,	*Springfield, Mass.*,	Sp. Med. (N. Y. C.)

Daudridge, Edmund Pendleton,	*Leetown, W. Va.*,	2 Elect. Eng.
Dann, Alexander William,	*Downsville*,	1 Civil Eng.
Darbois, Edmund Otto,	*West Hoboken, N. J.*,	3 Med. (N. Y. C.)
Darby, Clifford Torrey,	*St. Louis, Mo.*,	1 Mech. Eng.
Darling, Joshua Ferris,	*Buffalo*,	1 Arts
Darling, Nelson Jarvie,	*Schenectady*,	1 Elect. Eng.
Darlow, Alfred Miltenberger,	*Indianapolis, Ind.*,	2 Mech. Eng.
Darrow, Fred L,	*New York City*,	1 Med. (N. Y. C.)
Darrow, Henry Dennisou, Jr.,	*Kingston*,	1 Civil Eng.
Darrow, Warren Edwin,	*Patchogue*,	1 Civil Eng.
Davenport, Isaac,	*Richmond, Va.*,	4 Elect. Eng.
David, Alfred,	*New York City*,	3 Arts
David, Lester Jesse,	*Rochester*,	1 Arts
Davies, Edward Livingston,	*New York City*,	1 Mech. Eng.
Davis, Arthur Councilman,	*Baltimore, Md.*,	2 Civil Eng.
Davis, Aubrey Burton,	*Newman*,	1 Medicine
Davis, Cortland Woodbury,	*Mexico*,	1 Mech. Eng.
Davis, Ethel Louisa,	*Buffalo*,	1 Medicine
Davis, Edward Howard,	*Brooklyn*,	Sr. Law
Davis, Elbert Rice,	*Rushford*,	3 Med. (N. Y. C.)
Davis, George Creswell,	*Milton, Pa.*,	3 Arts
Davis, Henry Emerson,	*Peabody, Mass.*,	1 Mech. Eng.
Davis, James Lee,	*Waco, Tex.*,	4 Arts
Davis, Oliver Henry,	*Buffalo*,	2 Mech. Eng.
Davis, Roy Bingham,	*Norwood*,	4 Arts
Davis, Robert Menees,	*Ewa, Hawaii*,	1 Civil Eng.
Davis, Tom Robert,	*Forrest City, Ark.*,	3 Mech. Eng.
Davis, Thomas George,	*New York City*,	2 Med. (N. Y. C.)
Davis, Tracy Egbert,	*Buffalo*,	1 Agriculture
Davitt, John Washington,	*Troy*,	4 Civil Eng.
Dawes, Claude Thomas,	*Johnstown*,	4 Arts
Dawley, Clarence Augustus,	*Montour Falls*,	4 Mech. Eng.
Dawson, Henry Payson,	*Greenport*,	1 Law
Dawson, Horace Lathrop,	*Evanston, Ill.*,	1 Mech. Eng.
Day, Charles Harold,	*Providence, R. I.*,	4 Mech. Eng.
Day, Charles Iven,	*Damanscotta, Me.*,	3 Mech. Eng.
Day, Clarence Finch,	*Attica*,	3 Veterinary
Day, Irvin Williams,	*Utica*,	2 Mech. Eng.
Day, Ralph Burnett,	*Vienna, Va.*,	2 Elect. Eng.
Day, Rodney Dean, B.A.,	*Catskill*,	2 Mech. Eng.
Dayton, Paul Kuykendall,	*Towanda, Pa.*,	3 Mech. Eng.
Dean, Arlton Knickerbocker,	*Ithaca*,	3 Veterinary

Dean, Elvira Dudley,	*Ithaca*,	1 Arts
Dean, George Warren, B.S.,	*Griswold, Ia.*,	4 Civil Eng.
Dean, Joel,	*Rome, Ga.*,	1 Mech. Eng.
Dean, Willard Lawrence,	*Poughkeepsie*,	1 Law
Decatur, Jay Halsey,	*Peekskill*,	1 Elect. Eng.
Decker, Frank Norton,	*Phoenix*,	Jr. Law
Dederer, Isaac Carleton,	*New York City*,	2 Arts, 2 Medicine
Deemer, Arthur Passavant,	*Greensburg, Pa.*,	3 Elect. Eng.
Deffenbaugh, Homer Crow,	*Mt. Pleasant, Pa.*,	2 Elect. Eng.
Deitz, Karl Soden,	*Gilbertsville*,	Jr. Law
De Laney, Wesley La Mont,	*Sayre, Pa.*,	1 Elect. Eng.
Delcasse, Georges,	*Buenos Aires, Arg. Rep.*,	1 Agriculture
Dempster, Robert Ledger,	*Buffalo*,	Sr. Law
Denenholz, Aaron, M.D.,	*New York City*,	Sp. Med. (N.Y.C.)
Denison, Henry Strong,	*Denver, Colo.*,	3 Arts
Dennett, Helen Mae,	*Brooklyn*,	2 Arts
Dennett, Robert Clark Ernest,	*Brooklyn*,	4 Civil Eng.
Dennett, William Alexander,	*Kittery, Me.*,	1 Mech. Eng.
Dennis, Nina A,	*Binghamton*,	4 Arts
Dennis, Samuel James,	*Dover, N. H.*,	Sp. Elect. Eng.
Dennison, Boyd Coe,	*Binghamton*,	4 Mech. Eng.
Denton, Alpheus Penn,	*Leavenworth, Kan.*,	4 Elect. Eng.
Denton, Francis Douglas,	*St. Louis, Mo.*,	3 Mech. Eng.
De Pasquale, James,	*New York City*,	1 Med. (N.Y.C.)
Derr, Olin Fell,	*Wilkes-Barre, Pa.*,	3 Mech. Eng.
Dershimer, Archibald Munro,	*Pittston, Pa.*,	Sp. Architecture
Desbecker, Joseph Lawrence,	*Buffalo*,	4 Arts
Desbecker, John Warner,	*Buffalo*,	2 Mech. Eng.
Deshon, John James,	*Chenandega, Nicaragua, C. A.*,	Sp. Agr.
DeVed, Charles McClelion,	*New Rochelle*,	2 Elect. Eng.
Dewey, George Steele, B.S.,	*Goldsboro, N. C.*,	3 Mech. Eng.
Dibrell, Louis Nelson,	*Danville, Va.*,	1 Elect. Eng.
Dickinson, Louis Tiffany,	*New York City*,	Sr. Law
Dickinson, William Elmore, A.B.,	*Williamsburg, Va.*,	4 Elect. Eng.
Dickson, Starr Konig,	*Westfield*,	1 Law
Diehl, Clifford Samuel,	*Brooklyn*,	1 Mech. Eng.
Dimock, William Wallace, B.Agr.,	*Ithaca*,	2 Veterinary
Dingle, Howard,	*Baltimore, Md.*,	3 Mech. Eng.
Di Rocco, Joseph,	*New York City*,	3 Med. (N. Y. C.)
Di Pasca, Dominick Anthony,	*New York City*,	1 Med. (N.Y.C.)
Divine, John Howard,	*Ellenville*,	2 Mech. Eng.
Dodge, Arthur Byron,	*Lancaster, Pa.*,	1 Civil Eng.

Dodge, John Orris,	*Dixon, Ill.*,	2 Mech. Eng.
Dodson, Martha Ethel, B.E.,	*Berwick, Pa.*,	1 Arts
Dominguez, Rafael,	*Vera Cruz, Mexico*,	4 Civil Eng.
Donaldson, Alexander Grosvenor,	*Detroit, Mich.*,	1 Architecture
Donk, Rose Rudolph,	*Newark*,	3 Arts, 1 Medicine
Doolittle, Harold Lukens,	*Pasadena, Calif.*,	1 Mech. Eng.
Donnellan, Mary Veronica,	*Binghamton*,	1 Arts
Doty, Euclid DeLoss,	*Findlay, O.*,	1 Law
Douglass, Howard Weddle,	*McKeesport, Pa.*,	4 Arts
Douglas, Percy Gordon,	*New York City*,	2 Civil Eng.
Dove, Orville Holmes, M.D.,	*Kansas, Mo.*,	Sp. Med. (N. Y. C.)
Dowd, Charles Bernard,	*Cortland*,	Sr. Law
Downs, Charles Lefever,	*Williamsport, Md.*,	2 Arts
Drake, Archibald Edward,	*Buffalo*,	1 Civil Eng.
Drake, Bertrand Francis, B.S.,	*St. Louis, Mo.*,	3 Med. (N.Y.C.)
Drake, Hervey John,	*Brockport*,	Jr. Law
Drake, Raymond Rogers,	*Buffalo*,	1 Elect. Eng.
Drake, William Allen, B.S.,	*Portland, Ind.*,	2 Mech. Eng.
Dravo, Christian McKee,	*Pittsburg, Pa.*,	4 Arts
Drew, John Bragg,	*Ithaca*,	1 Veterinary
Driscoll, James Timothy,	*Buffalo*,	Sr. Law
Drury, Alexander Getchell,	*Cincinnati, O.*,	1 Mech. Eng.
Dubar, Violet Agnes,	*Titusville, Pa.*,	2 Arts
DuBois, Arthur Wood,	*Hallstead, Pa.*,	1 Arts
Du Bois, Henry Pastor,	*Hallstead, Pa.*,	2 Mech. Eng.
Dubrenil, Alice Blanche,	*Normandy Heights, Md.*,	2 Arts
Duckworth, Willard Demarest,	*New York City*,	2 Elect. Eng.
Dudley, Gerry Brown, A.B.,	*Ashmore, Ill.*,	4 Med. (N. Y. C.)
Dugan, William John,	*Pueblo, Colo.*,	1 Arts
Dukarevitz, Louis,	*Brooklyn*,	1 Med. (N. Y. C.)
Duke, William, Jr.,	*Wellsville*,	Jr. Law
Dunbar, Jessie Ellen,	*Ithaca*,	2 Arts
Dunbar, Marion Elizabeth, B.S.,	*Ithaca*,	1 Law
Dunbar, Robert C, A.B.,	*Monmouth, Ill.*,	4 Architecture
Dunlap, Frederick,	*Ithaca*,	4 Arts
Dunlop, William Robert,	*Fayetteville*,	3 Agriculture
Dunn, Perry Denise,	*Webster*,	Sr. Law
Dunn, Thomas Lyteland,	*Petersburg, Va.*,	2 Elect. Eng.
Durand, William Levenworth,	*Ithaca*,	1 Arts
Durham, Glen Giffen, B.Sc., M.Sc.,	*Watsontown, Pa.*,	3 Elect. Eng.
Durkan, William James,	*Watertown*,	2 Civil Eng.
Durland, Alice Oakey,	*Jamaica*,	3 Arts

Durward, Alexander Adams David,	*Claremont, N. H.*,	2 Agriculture
Duryea, Howard,	*Craigsville*,	1 Elect. Eng.
Duschak, Ernest Adolph,	*Buffalo*,	2 Civil Eng.
Duvall, Florence Lee,	*Riverhead*,	4 Arts
Dyer, Bessie Marin,	*Ithaca*,	1 Painting
Dyer, Walter Cheney,	*Chicago, Ill.*,	1 Mech. Eng.
Eagan, George Arthur,	*Washington, D.C.*,	2 Mech. Eng.
Earle, Harold Ashbury,	*Glen Ridge, N. J.*,	2 Arts
Earle, Irving Vann,	*Syracuse*,	Jr. Law
Eberhardt, Elmer Gould,	*Newark, N. J.*,	4 Elect. Eng.
Eberhardt, Frank Edward,	*Newark, N.J.*,	Sr. Law
Ebert, Laurence Rudolph,	*Vancouver Barracks, Wash.*,	4 Mech. Eng.
Eckel, Edward Jacob,	*Syracuse*,	1 Medicine
Edge, Alfred Joshua,	*Darlington, Md.*,	2 Civil Eng.
Edgett, George Ernest,	*Titusville, Pa.*,	4 Mech. Eng.
Edgerton, Franklin, 2d,	*Washington, D. C.*,	3 Arts
Edgerton, Myra Townsend,	*Richmond Hill*,	4 Arts
Edmunds, Louis Lake,	*Fredonia*,	1 Mech. Eng.
Edson, Ray Arthur,	*Crittenden*,	1 Arts
Edwards, Ethelyu Isadora,	*Forestville*,	4 Arts
Edwards, Margaret Whitbeck,	*Ithaca*,	3 Arts
Edwards, Olive Ruth,	*Forest Home*,	2 Arts
Eells, Dan Parmelee,	*Cleveland, O.*,	1 Mech. Eng.
Efinger, Philip Charles,	*Lancaster, Pa.*,	1 Elect. Eng.
Egbert, James Byron,	*Rosebank*,	1 Civil Eng.
Egbert, Oscar Baldwin,	*Staten Island*,	3 Mech. Eng.
Eggleston, Cary,	*New York City*,	1 Med. (N.Y.C.)
Eggleston, William Seymour,	*Ithaca*,	1 Veterinary
Ehrich, Stone Howard,	*New York City*,	1 Arts
Ehrlich, Simon David,	*New York City*,	1 Med. (N.Y.C.)
Eichel, Henry,	*New York City*,	1 Med. (N.Y.C.)
Eisenberg, David,	*Long Island City*,	1 Med. (N.Y.C.)
Eisenbud, Adolph,	*New York City*,	1 Med. (N.Y.C.)
Eitel, Edmund Henry,	*Indianapolis, Ind.*,	1 Mech. Eug.
Eliasberg, Bernard,	*New York City*,	2 Med. (N. Y. C.)
Elliott, Ethel Freda,	*Etna*,	3 Arts
Elliott, John Earl, A.B.,	*Hampton, Va.*,	3 Civil Eng.
Elliot, Mary Sibyl,	*Ithaca*,	Sp. Paiuting
Elliott, Marion Winifred,	*Ithaca*,	3 Arts
Ellis, Albert Ralph,	*Pittsburg, Pa.*,	4 Civil Eng.
Ellis, Guernsey William,	*Buffalo*,	4 Civil Eng.
Ellis, Lawrence Rees,	*Clayton*,	4 Civil Eng.

Ellis, William Goodrich,	*Owego*,	Jr. Law
Ellsworth, Helen Adelaide,	*New York City*,	Sp. Agriculture
Ellyson, Douglas Walker,	*Richmond, Va.*,	2 Elect. Eng.
Elmer, Nixon Wiley,	*Cape May Court House, N. J.*,	4 Mech. Eng.
Elser, Frank Ball,	*Fort Worth, Tex.*,	1 Arts
Elwood, Frank Edwin,	*Scranton, Pa.*,	2 Civil Eng.
Elwood, James Lawrence,	*Rochester*,	1 Mech. Eng.
Embree, Clayton Jesse,	*Chicago, Ill.*,	3 Elect. Eng.
Emelin, Michael Joseph, LL.B.,	*New York City*,	Sp. Agr.
Emerson, Filip Law,	*Detroit, Mich.*,	3 Mech. Eng.
Engel, Irving Harold,	*New York City*,	2 Med. (N. Y. C.)
Engel, Joseph,	*Newport, R. I.*,	1 Med. (N. Y. C.)
English, Andrew,	*Van Etten*,	2 Veterinary
Eno, Harry,	*Belgium*,	4 Med. (N. Y. C.)
Entwisle, Edward Fussell,	*Johnstown, Pa.*,	2 Mech. Eng.
Ertz-Berger, Arthur Carson,	*Albany*,	3 Arts
Espenchied, Fred Fairfax, Jr.,	*Brooklyn*,	2 Elect. Eng.
Essex, Harry,	*Buffalo*,	1 Arts
Estill, George Castleman, A.B.,	*Lexington, Ky.*,	1 Mech. Eng.
Evans, Chester Willard,	*San Francisco, Cal.*,	3 Mech. Eng.
Evans, Edward Anthony,	*Pittsburg, Pa.*,	2 Civil Eng.
Evans, Frances Elizabeth,	*Howell's Depot*,	3 Arts
Evans, Merrill Osgood, Jr.,	*Waterbury, Vt.*,	4 Arts
Evans, Morgan William,	*Neath, Pa.*,	1 Agriculture
Evans, William Charles,	*Talcottville, Conn.*,	1 Medicine
Eveland, Frank Winsor,	*Jersey City, N. J.*,	3 Mech. Eng.
Everson, Charles Wetmore,	*New York City*,	4 Elect. Eng.
Fabian, Francis Gordon,	*Evanston, Ill.*,	3 Elect. Eng.
Fagundes, Adalberto Almada,	*Sao Paulo, Brazil*,	1 Veterinary
Fagundes, Euclides,	*Sao Paulo, Brazil*,	2 Agriculture
Fagundes, Lupercio,	*Ithaca*,	1 Agr.
Fagundes, Waldomiro,	*Sao Paulo, Brazil*,	2 Agriculture
Faile, Edward Hall,	*St. Paul, Minn.*,	2 Mech. Eng.
Failing, Brayton Earl,	*Sherburne*,	1 Medicine
Failor, Newton Cowan,	*Richmond Hill*,	2 Elect. Eng.
Fairbank, Harvey Clark, A.B.,	*Jamestown*,	3 Mech. Eng.
Falkenau, Robert Morris,	*Philadelphia, Pa.*,	3 Elect. Eng.
Fancher, Eliza A,	*Albion*,	3 Med. (N. Y. C.)
Farmer, Thomas, Jr.,	*Detroit, Mich.*,	2 Mech. Eng.
Fassett, Newton Crocker,	*Elmira*,	4 Civil Eng.
Fauset, Jessie Redmona,	*Philadelphia, Pa.*,	3 Arts
Faust, Charlotte Clementine,	*Brooklyn*,	3 Arts

Faxon, Theodore Edmund, A.B.,	*Elyria, O.*,	Jr. Law
Fay, Lawrence Bradshaw,	*Washington, D. C.*,	2 Civil Eng.
Feehan, Anna,	*Ovid*,	4 Arts
Fehr, Louis White,	*Rochester*,	1 Arts
Feinberg, Abraham Wilfred,	*Lake Placid*,	1 Law
Feinberg, Richard Joseph,	*Auburn*,	1 Arts
Feldman, Isidor,	*New York City*,	2 Med. (N. Y. C.)
Feldman, Samuel,	*New York City*,	4 Med. (N. Y. C.)
Fenger, Frederick Abildgaard,	*Winnetka, Ill.*,	1 Mech. Eng.
Fenner, Robert Coyner, B.S.,	*Philadelphia, Pa.*,	4 Mech. Eng.
Ferguson, Arthur Edward,	*Cedar Rapids, Ia.*,	3 Mech. Eng.
Ferguson, John Alfred,	*New York City*,	1 Mech. Eng.
Ferguson, Karl Shackelford,	*Louisville, Ky.*,	1 Civil Eng.
Ferguson, Lizzie May,	*Salem*,	2 Arts
Ferguson, Mary Effie Van Everen,	*Central Valley*,	Sp. Agriculture
Fernandez, Alberto Carmelo, V.S.,	*Buenos Ayres, Arg. Rep.*,	3 Vet.
Fernow, Bernard Edward, Jr.,	*Ithaca*,	4 Arts
Ferris, Ralph,	*Ithaca*,	1 Civil Eng.
Ferry, Perry Lawson,	*Preble, Ind.*,	4 Med. (N. Y. C.)
Fettis, Arthur Erskine,	*Norwich*,	4 Architecture
Fetzer, Morrison, B.S.,	*Concord, N. C.*,	4 Mech. Eng.
Filkins, Barent Latham,	*Buffalo*,	1 Elect. Eng.
Finch, Burtis J,	*Conklin*,	1 Civil Eng.
Finch, Sarah Elizabeth,	*Brooklyn*,	4 Med. (N. Y. C.)
Finkelstein, Morris Robert, A.B.,	*New York City*,	1 Med. (N. Y. C.)
Finlay, Walter Stevenson, Jr.,	*Brooklyn*,	4 Mech Eng.
Fischbein, Elias,	*New York City*,	3 Med. (N. Y. C.)
Fischer, John Edwin,	*East Orange, N. J.*,	1 Civil Eng.
Fish, Alice Armenia,	*Cooperstown*,	4 Arts
Fish, Emmett Grant,	*Ithaca*,	4 Med. (N.Y.C.)
Fisher, Edward Adelbert,	*Utica*,	3 Civil Eng.
Fisher, Jabez William,	*Fitchburg, Mass.*,	3 Mech. Eng.
Fisher, James Powell,	*Pittsburg, Pa.*,	1 Mech. Eng.
Fisk, Marion Walter,	*Portland, Ore.*,	1 Mech. Eng.
Fitch, Frances Elizabeth,	*Buffalo*,	1 Arts
Fitter, Charles Franklin,	*Brooklyn*,	4 Elect. Eng.
Fitzgerald, Thomas Edmund,	*Cortland*,	4 Med. (N. Y. C.)
Fitzhugh, Hugh,	*Washington, D. C.*,	2 Mech. Eng.
Fitzpatrick, Marion Aurelia,	*Albany*,	1 Arts
Fitz-Randolph, William Sheppard,	*New Market, N. J.*,	3 Civil Eng.
Flach, Walter Jacob,	*Cincinnati, O.*,	2 Mech. Eng.
Flather, Alice Virginia,	*Nashua, N. H.*,	Sp. Arts

Fleck, Anthony George, A.B.,	*Brooklyn*,	1 Elect. Eng.
Fleming, Thomas, Jr., B.S.,	*Washington, D. C.*,	3 Civil Eng.
Fletcher, Ernest Sylvester,	*Temple, Texas*,	3 Elect. Eng.
Fletcher, Philena Belle,	*Bainbridge*,	4 Agriculture
Fletcher, William Franklin,	*Bainbridge*,	4 Agriculture
Flynn, Charles Andrew,	*Troy*,	2 Elect. Eng.
Foard, Arthur Virdin,	*Baltimore, Md.*,	2 Civil Eng.
Folger, Paul,	*Geneva*,	2 Arts
Follett, George Alfred,	*Columbus, O.*,	1 Arts
Fonda, Cornelia Dockstader,	*Fonda*,	1 Arts
Foody, James Thomas,	*Fultonville*,	1 Law
Foote, Edward Thaddeus,	*Ithaca*,	2 Mech. Eng.
Foote, George Wilson,	*Vineland, N. J.*,	2 Mech. Eng.
Foote, Horace Burdette,	*Auburn*,	1 Elect. Eng.
Foran, James Patrick,	*Elmira*,	1 Medicine
Forbes, William Henry,	*Philadelphia, Pa.*,	1 Mech. Eng.
Ford, Edward Hyndman,	*Marshwood, Pa.*,	2 Mech. Eng.
Ford, Everett Leander,	*Brooklyn*,	1 Mech. Eng.
Ford, Robert Graham,	*Bellewood, Pa.*,	1 Civil Eng.
Fordham, Bruce Wight,	*Scranton, Pa.*,	3 Mech. Eng.
Foren, George Walter,	*Cedarhurst*,	Sr. Law
Forgy, John Edmonds,	*Dayton, O.*,	2 Mech. Eng.
Forshee, Isaac Christopher,	*Willett*,	2 Elect. Eng.
Foster, Dwight Eliot,	*South Orange, N J.*,	1 Law
Foster, Franklin Luther,	*Ithaca*,	1 Veterinary
Foster, Thomas Myron,	*Millbrook*,	4 Civil Eng.
Fountain, Thomas Lilly, B.S. in C.E.,	*College Station, Tex.*,	3 Civil Eng.
Fowler, Fred DuMont,	*Ithaca*,	1 Elect. Eng.
Fowler, Royale Hamilton,	*Brooklyn*,	1 Medicine
Fox, Albert Joseph,	*Springville*,	1 Law
Fox, Ernst Frederick,	*Wolcott*,	Jr. Law
Fox, Lester Alton,	*Buffalo*,	1 Mech. Eng.
Fox, Merritt Liddle,	*Cedar Rapids, Ia.*,	4 Elect. Eng.
Fox, Seth William, Jr.,	*Brooklyn*,	1 Mech. Eng.
Fox, Walter S,	*La Port, Ind.*,	3 Arts
Francis, Samuel Edgar,	*Wilmington, Del.*,	2 Mech. Eng.
Frank, Henry Louis,	*North Boston*,	4 Arts
Frank, Julian,	*Paris, Ky.*,	1 Mech. Eng.
Frank, Leo Max,	*Brooklyn*,	2 Mech. Eng.
Frank, Philip,	*New York City*,	1 Med. (N. Y. C.)
Frank, Walter George,	*Utica*,	1 Architecture

Frazee, Youle Townsend,	*Montclair, N. J.*,	1 Mech. Eng.
Frazer, James Stokes,	*Nashville, Tenn.*,	1 Agriculture
Free, Edward Elway,	*Du Bois, Pa.*,	2 Elect. Eng.
Freedlander, Abraham Abbey,	*Buffalo*,	3 Arts
Freeland, Emily Roberta,	*Bowmanville, Ontario, Can.*,	2 Arts
Frey, Harry Charles,	*Olean*,	4 Arts
Fried, Jake,	*Vicksburg, Miss.*,	1 Mech. Eng.
Friedland, Henry Samuel,	*Brooklyn*,	1 Med. (N. Y. C.)
Friedman, Edward Louis,	*New York City*,	2 Med. (N. Y. C.)
Friedrich, John Emil,	*Mt. Vernon*,	1 Mech. Eng.
Fringer, Samuel Hall Tagart,	*Taneytown, Md.*,	1 Elect. Eng.
Frink, Horace Westlake,	*Hillsdale*,	3 Med. (N. Y. C.)
Fritch, Robert Peter,	*Reading, Pa.*,	3 Mech. Eng.
Fritts, Ada Catharine,	*Stewartsville, N. J.*,	4 Arts
Fukala, Charlemagne Vincent, M.D.,	*Newark, N. J.*,	1 Med. (N.Y.C.)
Fuller, Arthur Levi,	*Marlboro Depot, N. H.*,	3 Mech. Eng.
Fuller, Ernest Johnson,	*Brooklyn*,	1 Civil Eng.
Fuller, Mabel Eleanor,	*Homer*,	2 Arts
Fullerton, Robert Wilson,	*St. Louis, Mo.*,	1 Arts
de Funiak, Herbert Rivers,	*Louisville, Ky.*,	1 Arts
Gaby, Robert Edward, B.A.,	*Toronto, Canada.*,	2 Medicine
Gaensslen, Carl August,	*Chicago, Ill.*,	2 Mech. Eng.
Gaertner, Maurice Charles,	*Wilkes-Barre, Pa.*,	Jr. Law
Gage, Victor Raymond,	*Wilmette, Ill.*,	1 Mech. Eng.
Gail, William Wallace,	*East Aurora*,	3 Arts
Gaither, Sara McDowell,	*New York City*,	4 Arts
Gallagher, Francis Edward,	*Salamanca*,	2 Arts
Gallagher, Francis Leo,	*Ithaca*,	1 Veterinary
Gallagher, John Joseph,	*Ithaca*,	3 Veterinary
Gallagher, Joseph,	*Myers*,	1 Civil Eng.
Gallagher, William Henry, Jr.,	*Saginaw, Mich.*,	2 Mech. Eng.
Gallaher, DeWitt Clinton, Jr.,	*Charleston, W. Va.*,	2 Mech. Eng.
Gallup, Frederick Loren,	*Norwich, Conn.*,	4 Arts
Gannett, Ray Willard,	*Clifton Springs*,	2 Veterinary
Gannon, John Francis, A.B.,	*Providence, R. I.*,	3 Med. (N.Y.C.)
Garabrant, Joseph Edwin,	*Bloomfield, N. J.*,	1 Elect. Eng.
Garbat, Abraham Leon,	*New York City*,	2 Med. (N. Y. C.)
Garbi, Louis, Jr.,	*New York City*,	2 Civil Eng.
Gardner, Robert A,	*Scranton, Pa.*,	1 Arts
Gardner, Robert Eli,	*DuBois, Pa.*,	2 Arts
Garlock, Morgan Bidleman,	*Little Falls*,	4 Arts

Garretson, Harry Douglas,	*Buffalo*,	3 Elect. Eng.
Garrett, Seymour Stanton,	*Oil City, Pa.*,	4 Civil Eng.
Gaskill, Selora Alice,	*Wilson*,	2 Arts
Gass, William Louis,	*Brooklyn*,	4 Mech. Eng.
Gaston, Edwards Pablo, A.B.,	*Habana, Cuba*,	1 Elect. Eng.
Gaston y Herrera, Luis,	*Habana, Cuba*,	1 Civil Eng.
Gates, Leroy Grant,	*Ithaca*,	1 Mech. Eng.
Gatlin, Fourney F, B.S.,	*Keachie, La.*,	3 Civil Eng.
Gauntlett, John McGraw,	*Ithaca*,	1 Mech. Eng.
Gehr, Ray Stewart, Ph.B.,	*Washington, D. C.*,	2 Mech. Eng.
Gehring, Victor Marshall,	*Bethel, Me.*,	1 Arts
Genung, George Leal,	*Waverly*,	3 Arts
Genung, Lewell T, A.B.,	*Binghamton*,	2 Med. (N.Y.C.)
George, Emma Louise, Ped.B.,	*Flushing*,	Sp. Arts
George, Gilbert Gibson,	*Rockaway Beach*,	1 Elect. Eng.
George, Sidney Gonzales,	*Fredonia*,	3 Civil Eng.
Germann, Edward Henry,	*Brooklyn*,	3 Arts
Germann, Fred William,	*Ithaca*,	1 Arts
Germann, Howard William,	*Dayton, O.*,	Sp. Architecture
Gersoni, Louis Jacob,	*Brooklyn*,	1 Elect. Eng.
Gerwig, Walter Henry,	*Parkersburg, W. Va.*,	3 Civil Eng.
Gibbs, Charles E,	*Sherman*,	3 Veterinary
Gibbs, Roswell Clifton,	*Ithaca*,	1 Arts
Giele, Walter Scott,	*Meadville, Pa.*,	2 Mech. Eng.
Giesecke, Fred Otto Leopold,	*Buffalo*,	2 Mech. Eng.
Gieske, Walter Max,	*Catonsville, Md.*,	2 Mech. Eng.
Gifford, Herbert Clyde,	*Oriskany*,	4 Med. (N. Y. C.)
Gignoux, Elise Messenger, B.A.,	*New York City*,	Sp. Med. (N. Y. C.)
Gilbert, Grace Russell,	*Brooklyn*,	1 Arts
Gilbert, Harold Addinsell,	*Brooklyn*,	2 Elect. Eng.
Gilbert, Huntley Harris,	*Chicago, Ill.*,	1 Mech. Eng.
Gilchrist, Jessie Lewis, M.P.,	*Hazleton, Pa.*,	2 Arts
Gilchrist, Thomas Byron,	*Glens Falls*,	1 Law
Gilchrist, William Bartow,	*Cleveland, O.*,	3 Elect. Eng.
Gilcreast, Webster Farnham,	*Hazleton, Pa.*,	1 Elect. Eng.
Gildner, Harry Holmes,	*Newport News, Va.*,	1 Mech. Eng.
Gildner, Laura May,	*Newport News, Va.*,	1 Arts
Giles, Irvin Kline,	*Reading, Pa.*,	2 Arts
Gilkeson, Roy Fenimore,	*Worcester, Mass.*,	Jr. Law
Gill, Calvert Burke,	*Baltimore, Md.*,	1 Elect. Eng.
Gillett, Horace Wadsworth,	*Penn Yan*,	2 Arts
Gillette, William DeWitt,	*Mt. Vernon*,	1 Mech. Eng.

Gillies, William Browne,	*Chicago, Ill.*,	4 Mech. Eng.
Gillis, Hugh Lester,	*Macedon*,	2 Arts
Gilson, Beatrice Azalea,	*Wellesley Hills, Mass.*,	4 Arts
Giltner, Leigh,	*Ithaca*,	1 Veterinary
Giltner, Ward,	*Ithaca*,	1 Veterinary
Ginorio, Francisco Ricardo, A.B.,	*Arecibo, Porto Rico*,	1 Elect. Eng.
Ginter, Morde Emmons,	*Du Bois, Pa.*,	1 Elect. Eng.
Gleason, Horatio Stilwell,	*Buffalo*,	1 Arts
Gleason, John Lawrence,	*Union Springs*,	1 Law
Gleason, Thomas Francis,	*Worcester, Mass.*,	Sp. Agr.
Godfrey, William Truitt,	*City Island*,	1 Medicine
Goehle, Otto Louis, A.B.,	*Buffalo*,	3 Med. (N. Y. C.)
Goepel, Frederick Narcis,	*New York City*,	1 Civil Eng.
Goetter, Edward Baldwin,	*New York City*,	2 Architecture
Goettsch, Julius, A.B.,	*Davenport, Ia.*,	4 Mech. Eng.
Goldberg, Isaac,	*New York City*,	1 Med. (N. Y. C.)
Goldberg, Jacob Martin,	*Brooklyn*,	4 Med. (N. Y. C.)
Goldenweiser, Emanuel, A.B.,	*Kiew, Russia*,	1 Law
Golding, Harry Newport,	*Paterson, N. J.*,	2 Med. (N. Y. C.)
Goldsmith, Gustave Mosler,	*Cincinnati, O.*,	2 Mech. Eng.
Goldstein, Isaac Montifor,	*Milford, Ill.*,	1 Mech. Eng.
Goldstein, Isidor,	*New York City*,	4 Med. (N. Y. C.)
Goldwater, Sidney James, B.S.,	*New York City*,	4 Elect. Eng.
Good, Clinton Edward,	*Springfield, Ill.*,	1 Arts
Goodier, Chester Jennings,	*Utica*,	1 Elect. Eng.
Goodrich, Charles Edward,	*Washington, D. C.*,	4 Arts
Goodrich, Clinton Raymond,	*Minonk, Ill.*,	3 Civil Eng.
Goodrich, Joseph Edwards,	*Glastonbury, Conn.*,	3 Arts
Goodwin, Frank Perry,	*Jamestown*,	2 Medicine
Goodwin, Norman,	*New York City*,	4 Arts, 1 Medicine
Goray, James Philip, M.D.,	*Boston, Mass.*,	Sp. Med. (N. Y. C.)
Gordon, Arthur,	*Caledonia*,	4 Arts
Gordon, Charles Albert,	*Brooklyn*,	3 Med. (N. Y. C.)
Gordon, George Huntley, B.Sc.,	*Kingston, Ont., Can.*,	3 Mech. E.
Gordon, Moses Burnes,	*New York City*,	1 Med. (N. Y. C.)
Gorrell, John Stacy,	*Aikin, Md.*,	1 Elect. Eng.
Gould, Carl Alvord,	*Battle Creek, Mich.*,	1 Civil Eng.
Gould, Clarence Allen,	*Seneca Falls*,	1 Arts
Gould, John Howard,	*St. Marys, Ill.*,	2 Mech. Eng.
Grady, Claude Henry,	*Cuba*,	3 Architecture
Graham, Edwin Merrill,	*New York City*,	Sp. Med. (N.Y.C.)
Graham, John Hersey,	*Woodruff, Pa.*,	1 Architecture

Graham, Leland Little,	*Pittsburg, Pa.*,	2 Civil Eng.
Graham, Susan Philippa,	*Fulton*,	4 Arts
Grant, George Richard,	*Cape Vincent*,	4 Arts
Grant, Joseph Roa,	*Atwater*,	4 Med. (N.Y.C.)
Grauman, Emma,	*Louisville, Ky.*,	4 Arts
Graves, Gaylord Willis,	*Ithaca*,	3 Arts
Graves, Ralph Ireson,	*Amesbury, Mass.*,	1 Civil Eng.
Gray, Gordon Cameron,	*Wanbuno, Ont., Can.*,	1 Medicine
Graydon, Winifred,	*Ridgewood, N. J.*,	Sp. Arts
Greeley, Dana Sanford Bernard,	*East Foxboro, Mass.*,	4 Civil Eng.
Green, Mary Emily, M.D.,	*Charlotte, Mich.*,	Sp. Arts
Greenberg, Henry,	*Brooklyn*,	2 Arts
Greenberg, Max,	*New York City*,	3 Arts
Greene, Antoinette,	*Troy*,	2 Arts
Greene, Edna Lucy,	*Fort Plain*,	2 Arts
Greene, Harry Paul,	*Brattleboro, Vt.*,	1 Med. (N. Y. C.)
Greenfield, Samuel,	*New York City*,	4 Med. (N.Y.C.)
Greenwood, Ernest Hervey,	*Williamsport, Pa.*,	4 Arts
Gregson, Edward Jesse, B.A.,	*Newcastle, N. S. W., Aust.*,	2 M. E.
Greiner, Burt Henry,	*Dayton*,	Sr. Law
Gresham, Frank Spencer,	*Galveston, Tex.*,	1 Civil Eng.
Gridley, Haines,	*Elmira*,	4 Civil Eng.
Grier, John Cowdrey,	*Goshen*,	Sr. Law
Griffin, Bessie May,	*Binghamton*,	1 Arts
Griffin, Emma Zoe,	*Binghamton*,	4 Arts
Griffith, Lester Carman,	*Lynbrook*,	3 Agriculture
Grimley, John Goodwin Joseph,	*New York City*,	1 Med. (N.Y.C.)
Griswold, Horace,	*Binghamton*,	1 Civil Eng.
Groch, Nicholas Colonel,	*Sandusky, O.*,	2 Architecture
Groesbeck, Harvey Paterson,	*Hoosick Falls*,	3 Med. (N.Y.C.)
Grossman, William, A.B.,	*New York City*,	4 Med. (N. Y. C.)
Gruner, Clarence Elbert,	*Brooklyn*,	2 Mech. Eng.
Gruner, William Philip,	*St. Louis, Mo.*,	1 Mech. Eng.
Guenther, Victor John,	*Buffalo*,	1 Mech. Eng.
Guilbeau, Braxton Honore, B.S.,	*Breaux Bridge, La.*,	Sp. Arts
Guildford, Charles Thomas, B.S.,	*Torrington, Conn.*,	3 Elect. Eng.
Gulick, Lewis Ransom,	*Lockport*,	4 Arts
Gundelfinger, Walter David,	*Fresno, Calif.*,	4 Elect. Eng.
Gundersen, May,	*Kragiro, Norway*,	4 Arts
Gunnison, Marion,	*Erie, Pa.*,	Sp. Agriculture
Gurtov, Jacob,	*New York City*,	1 Med. (N. Y. C.)
Guss, Walter Granville,	*Washington, D. C.*,	2 Civil Eng.

Gwillam, Clarence,	*Gloversville*,	1 Elect. Eng.
Gwinn, Charles Sumner,	*West Shokan*,	1 Arts
Hackett, Holland Berkeley,	*Easton, Pa.*,	1 Mech. Eng.
Hackstaff, Frederick William,	*Brooklyn*,	3 Mech. Eng.
Hadley, Clarence George,	*Mumford*,	1 Elect. Eng.
Haefner, Carl William, Jr.,	*Elmira*,	3 Civil Eng.
Haines, Robert Wade,	*Goshen*,	1 Elect. Eng.
Haire, Andrew Joseph, Jr.,	*Derby, Conn.*,	3 Elect. Eng.
Hale, Moseley,	*Glastonbury, Conn.*,	Sp. Agriculture
Hale, Rodgers,	*Towanda, Pa.*,	1 Mech. Eng.
Hall, John Mead,	*Norwich*,	4 Med. (N. Y. C.)
Hall, Ruth Marion,	*Gouverneur*,	4 Arts
Halle, Jerome Norman,	*Cleveland, O.*,	1 Mech. Eng.
Halleck, Harry Gerald,	*Chicago, Ill.*,	1 Mech. Eng.
Halliday, Morris Samuel,	*Ithaca*,	Jr. Law
Halpin, James Garfield,	*Odessa*,	2 Agriculture
Halpin, Leo Aloysius,	*New York City*,	2 Med. (N. Y. C.)
Halpin, Robert John,	*Odessa*,	4 Arts
Halsey, Hampton Howell,	*Ithaca*,	1 Law
Hamblet, Mary Lucia, B.A.,	*Salem, Mass.*,	1 Medicine
Hamilton, Melancthon,	*Cicero*,	2 Veterinary
Hamlin, Harold Franklin,	*Sharon, Conn.*,	3 Civil Eng.
Hammar, Alfredo Gottlieb,	*Killsberg, Sweden*,	1 Agriculture
Hammel, Victor Frank,	*Joliet, Ill.*,	1 Civil Eng.
Hammond, Frances Belle,	*Belfast*,	1 Arts
Hammond, Robert Bertine,	*So. Millbrook*,	2 Med. (N.Y.C.)
Hanigan, Belle,	*Alplaus*,	2 Arts
Hanley, John Patrick,	*Stafford Springs, Conn.*,	2 Med. (N.Y.C.)
Hann, Arthur Edward,	*Summit, N J.*,	4 Architecture
Hannon, William Weatherly,	*Montgomery, Ala.*,	Sp. Architecture
Harby, George Marsden,	*Delhi*,	1 Law
Harding, Harry E,	*Hume*,	1 Arts
Harger, Wilson Gardner,	*Rochester*,	1 Civil Eng.
Haring, Clarence Melvin,	*Addison*,	3 Veterinary
Harkness, Andrew Marr,	*Pittston, Pa.*,	1 Mech. Eng.
Harmon, Charles Stanford,	*Chicago, Ill.*,	1 Arts
Harmon, William Robertson,	*Portland, Me.*,	1 Civil Eng.
Harpending, Pierre,	*Dundee*,	2 Arts
Harper, Francis,	*College Point*,	1 Arts
Harrington, Arthur Melvin,	*Germantown, Phila., Pa.*,	2 Mech. Eng.
Harris, George Francis,	*Binghamton*,	4 Med. (N.Y.C.)
Harris, Jesse Eugene,	*West Upton, Mass.*,	4 Mech. Eng.

Harris, Mitchell,	*Hornellsville*,	3 Arts
Harris, Sadie,	*Ithaca*,	3 Arts
Harris, William John, Jr.,	*St. Louis, Mo.*,	3 Mech. Eng.
Harrison, Harry,	*New York City*,	1 Mech. Eng.
Harrison, Howard Griswold,	*Addison*,	1 Civil Eng.
Harrison, Russell Edwin,	*Battle Creek, Mich.*,	2 Civil Eng.
Harrison, William Taylor,	*Buffalo*,	1 Mech. Eng.
Hart, Carlos Dempster,	*Turin*,	2 Elect. Eng.
Hart, Harold Leslie, A.B.,	*Ithaca*,	1 Law
Hart Haynes Lloyd,	*Auburn*,	1 Mech. Eng.
Hartley, Chester Arthur,	*Gouverneur*,	Sp. Agriculture
Hartwig, Max,	*Buffalo*,	3 Elect. Eng.
Hartzell, Cyrus King,	*Pittsburg, Pa.*,	1 Mech. Eng.
Harwood, John Marville,	*Appleton*,	Sr. Law
Hasbrouck, Henry Crane,	*Troy*,	4 Arts
Haskell, Frank Edward,	*Holyoke, Mass.*,	2 Elect. Eng.
Haskell, Clifton Roy,	*Brooklyn*,	1 Mech. Eng.
Haslett, Charles Edwin,	*Seneca*,	1 Agriculture
Haslett, Henry Ernest,	*Seneca*,	1 Agriculture
Hassett, Thomas Joseph,	*Fishkill-on-Hudson*,	Jr. Law
Hastings, Edwin Hamilton, Jr.,	*Homer*,	1 Mech. Eng.
Hastings, Louise Parmalee,	*Homer*,	2 Arts
Hatch, Charles Collins,	*Cleveland, O.*,	1 Mech. Eng.
Hatfield, Hazel May,	*Newark, N. J.*,	3 Arts, 2 Medicine
Haupt, Max,	*Homestead, Pa.*,	2 Civil Eng.
Hawley, Ira Myron,	*Canandaigua*,	1 Civil Eng.
Haworth, Charles Verne,	*Adams, Mass.*,	1 Mech. Eng.
Hawkesworth, Darnley Iredelle,	*Washington, D.C.*,	4 Agriculture
Hayashi, Kiyonori,	*Yamagata, Japan*,	4 Mech. Eng.
Hays, Donald Symington,	*Baltimore, Md.*,	2 Mech. Eng.
Heater, Nelson Raymond,	*Waterbury, Conn.*,	1 Law
Heath, Sydney Lester,	*Shortsville*,	3 Arts
Hechheimer, Herbert,	*Baltimore, Md.*,	2 Mech. Eng.
Hecht, Jerome Montefiore,	*Rochester*,	1 Arts
Hefter, Leonard,	*Hornellsville*,	1 Elect. Eng.
Heggem, Chalmer Raymond,	*Massillon, O.*,	Sr. Law
Heim, John Alfred,	*New York City*,	3 Med. (N. Y. C.)
Heine, Henry Anton,	*Washington, D. C.*,	1 Mech. Eng.
Heist, Lee Harrar,	*Ebensburg, Pa.*,	1 Elect. Eng.
Heizmann, Lewis Joseph,	*Reading, Pa.*,	3 Elect. Eng.
Helm, Harold, LL.B.,	*Moravia*,	1 Arts
Hemingway, Gertrude Louise,	*Troy*,	1 Arts

Hemingway, John Carlisle,	*Washington, D. C.*,	1 Mech. Eng.
Hench, Jay Lyman,	*Hinsdale, Ill.*,	1 Arts
Henderer, Willard Everett,	*Wilmington, Del.*,	1 Mech. Eng.
Henderson, Thomas Richard,	*Philadelphia, Pa.*,	1 Civil Eng.
Hendricksou, Everett House,	*Brooklyn*,	2 Elect. Eng
Henrotin, Norris Bates,	*Chicago, Ill.*,	1 Law
Henry, Hugh Price,	*Eau Claire, Wis.*,	Jr. Law
Henry, John William,	*Canandaigua*,	1 Civil Eng.
Herder, Cherrie Marie,	*Brooklyn*,	2 Arts
Herdman, William James,	*Jerseyville, Ill.*,	1 Elect. Eng.
Hermes, Benjamin Post,	*Mount Vernon*,	2 Mech. Eng.
Herpel, Harry Conrad,	*Reynoldsville, Pa.*,	1 Mech. Eng.
Herr, Benjamin Musser,	*Lancaster, Pa.*,	1 Mech. Eng.
Herr, Frederick John,	*Brooklyn*,	1 Civil Eng.
Herrick, John Rutherford, B.A.,	*Peekskill*,	3 Med. (N. Y. C.)
Herrick, Seymour Morton,	*Matanzas, Cuba*,	2 Agriculture
Herron, Wallace Wood,	*Westfield*,	1 Veterinary
Hess, Walter,	*New York City*,	1 Medicine
Heuser, Gerhard William,	*Brooklyn*,	4 Med. (N. Y. C.)
Hewetson, Adam Sproat, B.Ph.,	*Riverside, Cal.*,	Sp. Agr.
Hewitt, John Marshall,	*Marianna, Ark.*,	1 Elect. Eng.
Hewson, Hugh Moore,	*Niagara Falls*,	1 Law
Heymsfeld, Nicolas Alexander,	*New York City*,	1 Law
Hickman, Spencer Eastman,	*Buffalo*,	3 Mech. Eng.
Hicks, William Edgar,	*Cedarhurst*,	1 Mech. Eng.
Hickstein, William Lux,	*Auburn*,	1 Mech. Eng.
Higgins, Max Smith,	*Cortland*,	2 Mech. Eng.
Hildebrant, Bertram Augustus,	*Ithaca*,	2 Mech. Eng.
Hilkowich, Abe Maurice,	*New York City*,	4 Med. (N.Y.C.)
Hill, Benjamin Mason,	*Petersburg, Va.*,	1 Elect. Eng.
Hill, James DeWitt, Jr.,	*Scottdale, Pa.*,	1 Mech. Eng.
Hillebrand, William Arthur,	*Washington, D. C.*,	3 Arts
Hillenbrand, Frederick Louis,	*New York City*,	Sp. Med. (N.Y.C.)
Hillman, Sidney Maurice,	*New York City*,	1 Mech. Eng.
Hills, John Vernon,	*Vernon*,	1 Veterinary
Hills, Rollin,	*Brooklyn*,	3 Med. (N. Y. C.)
Hilmer, Otto Ernst,	*Brooklyn*,	1 Mech. Eng.
Hiltebrant, Oscar Raymond,	*Kingston*,	2 Mech. Eng.
Hinckley, George Stevens, B.S.,	*Redlands, Cal.*,	1 Civil Eng.
Hine, Adah,	*Bay City, Mich.*,	1 Arts
Hine, Dora Frances,	*Bay City, Mich.*,	1 Arts
Hinton, Hammond Herbert,	*Lumberton, Miss.*,	1 Elect. Eng.

Hinz, William,	*New York City*,	3 Med. (N. Y. C.)
Hitchcock, Edward Bering,	*Decatur, Ill.*,	1 Law
Hitchcock, Joseph Fithian,	*Philadelphia, Pa.*,	1 Elect. Eng.
Hoard, Prescott Dygert,	*Ithaca*,	3 Civil Eng.
Hobart, Gladys Eliza,	*Boonville*,	4 Arts
Hobbie, Richard Hayes,	*Tonawanda*,	4 Arts
Hoch, George Francis,	*Newark, N. J.*,	1 Medicine
Hochbaum, Hans Weller,	*Chicago, Ill.*,	1 Agriculture
Hockridge, Walter Longmire,	*St. Remy*,	Sp. Agriculture
Hodge, William Washington,	*Philadelphia, Pa.*,	3 Elect. Eng.
Hoenig, Louis John,	*Lockport*,	Sr. Law
Hoffman, Albert Baldwin,	*New York City*,	1 Elect. Eng.
Hoffman, Richard,	*New York City*,	1 Med. (N. Y. C.)
Hogan, Lucy Agnes,	*Olean*,	4 Arts
Hogan, Margaret Elizabeth,	*Olean*,	4 Arts
Hogan, William Edward,	*Bridgeport, Conn.*,	2 Mech. Eng.
Hoge, Joseph Franklin Dix,	*Baltimore, Md.*,	2 Elect. Eng.
Hoge, Lewis Clark,	*Washington, D. C.*,	Sp. Agr.
Hoge, Philip Barlow,	*Washington, D. C.*,	1 Civil Eng.
Hohner, Edwin,	*Buffalo*,	2 Elect. Eng.
Holden, Ellen Greene,	*Buffalo*,	4 Arts
Hollander, Samuel,	*New York City*,	2 Med. (N.Y.C.)
Holloway, Arthur Power,	*Montclair, N. J.*,	1 Civil Eng.
Holman, Webster Palmer,	*Sergeants Bluff, Ia.*,	3 Mech. Eng.
Holmes, Andrew Allgood, B.S.,	*Atlanta, Ga.*,	4 Mech. Eng.
Holmes, Edward,	*Washington, D. C.*,	3 Civil Eng.
Holmes, Henry Everett,	*Troy*,	2 Arts
Holmes, Howard Abbott,	*Youngstown, O.*,	2Mech. Eng.
Holmes, Iva May,	*Gouverneur*,	2 Arts
Holmes, Webster Balkwill,	*Cincinnati, O.*,	1 Mech. Eng.
Holton, Edward Newton,	*Montclair, N. J.*,	2 Agriculture
Hoobler, Bert Raymond, B.S.,	*Saginaw, Mich.*,	3 Med. (N.Y.C.)
Hooker, George Haines, A.B.,	*Watertown*,	Sr. Law
Hooker, Lona Emily,	*Ithaca*,	4 Arts
Hooley, Francis George,	*Little Falls*,	Sr. Law
Hooper, Franklyn Dana,	*Brooklyn*,	1 Mech. Eng.
Hoover, Donald Dinsmore,	*Wellsville, Pa.*,	3 Arts
Hoppin, Frederick Layton,	*Buffalo*,	2 Mech. Eng.
Hoppin, John Keene,	*Buffalo*,	2 Mech. Eng.
Hopple, William Hanna,	*Cincinnati, O.*,	2 Arts
Horn, Stanley Granger,	*Brooklyn*,	3 Arts
Horstman, August George,	*Brooklyn*,	2 Med. (N.Y.C.)

Horton, Clarence George,	*Wolcott*,	1 Law
Horton, Harvey Starring,	*Silver Creek*,	2 Architecture
Horwitt, Solomon,	*New York City*,	1 Med. (N. Y. C.)
Hoshino, Junkich,	*Asaka, Japan*,	2 Elect. Eng.
Hoshino, Yuzo, Agr.,	*Sapporo, Japan*,	Sp. Agriculture
Hoskot, Ralph Elwood,	*Dayton, O.*,	Jr. Law
Howard, Charles Walter,	*Ogdensburg*,	4 Arts
Howard, Dudley Russell,	*Ogdensburg*,	1 Law
Howard, J Clare,	*Franklinville*,	4 Elect. Eng.
Howard, Nelson Webster,	*Ogdensburg*,	2 Mech. Eng.
Howe, Arthur John Perry,	*Montclair, N. J.*,	1 Med. (N. Y. C.)
Howe, Eugene Clarence,	*Brooklyn*,	4 Arts
Howe, Harry Northrop,	*Washington, D. C.*,	4 Civil Eng.
Howe, Locy,	*Memphis*,	1 Arts
Howes, Alfred Pettis, Jr.,	*Utica*,	1 Arts
Howland, Clarence Otis,	*Geneva*,	1 Mech. Eng.
Howland, Sarah Maud De Valle,	*Binghamton*,	2 Arts
Hu, Tung Chao, B.S.,	*Canton, China*,	Sp. Civil Eng.
Hubbell, Hiram Gaylord,	*Stamford*,	3 Med. (N. Y. C.)
Hubbell, Reed Hamilton,	*Saginaw, Mich.*,	1 Mech. Eng.
Huchting, William Ernest,	*Brooklyn*,	3 Arts
Hudson, Neal Morehouse,	*Weedsport*,	2 Elect. Eng.
Huestis, Edna Frances,	*Troy*,	1 Painting
Hueston, Jessie Elliott, B.S.,	*Hamilton, O.*,	Sp. Arts
Hugett, Hattie Viola,	*Batavia, Ill.*,	Sp. Arts
Hughes, Charles Reginald,	*Frederick, Md.*,	2 Civil Eng.
Hull, Anna May,	*New Paltz*,	Sp. Arts
Hume, Fred, B.A.,	*Nashville, Tenn.*,	2 Mech. Eng.
Humphrey, Fred Bemis,	*Elmira*,	Sr. Law
Humphreys, Albert Francis,	*Ludlowville*,	1 Arts
Hungerford, Jay Clark,	*Ithaca*,	3 Agriculture
Hunkins, Darius Sidney,	*St. Louis, Mo.*,	1 Mech. Eng.
Hunt, Andrew Dickson,	*New York City*,	3 Mech. Eng.
Hunt, Sanford Beebe,	*Chatham*,	2 Civil Eng.
Hunt, Sylvester Henry,	*Long Branch, N. J.*,	4 Mech. Eng.
Hunter, Charles Welsh,	*Baltimore, Md.*,	3 Mech. Eng.
Hunter, Frank,	*Cornwall-on-Hudson*,	4 Arts
Hunter, Robert Williamson,	*Norfolk, Va.*,	3 Mech. Eng.
Hurlbut, John,	*Ithaca*,	3 Mech. Eng.
Hurley, John Patrick,	*Lenox, Mass.*,	1 Civil Eng.
Hustis, Roland Ludington,	*Milwaukee, Wis.*,	1 Mech. Eng.
Hutson, Arthur Cary, B.S.,	*College Station, Tex.*,	3 Civil Eng.

Hutchison, James Hervey,	*Elkview, Pa.*,	3 Civil Eng.
Hutton, Clyde Demarest,	*Ridgewood, N. J.*,	2 Arts
Hutton, Robert Leroy, A.B.,	*Ridgewood, N. J.*,	3 Med. (N. Y. C.)
Hyatt, Bradford,	*Ithaca*,	1 Veterinary
Hyatt, Ralph Emerson,	*Auburn*,	1 Arts
Hyde, Charles William,	*Corning*,	4 Arts
Imbrie, William Morris, Jr.,	*South Orange, N. J.*,	4 Mech. Eng.
Ingall, Oswald Drew,	*Montclair, N. J.*,	1 Arts
Ingalls, John Conrad,	*Phelps*,	1 Civil Eng.
Ingham, Florence Dora,	*Ithaca*,	3 Arts
Ingham, Percy Bowman,	*Wilkes-Barre, Pa.*,	1 Arch.
Irish, Frederic Joseph,	*Patterson*,	2 Elect. Eng.
Isaacs, Harry Ezekiel,	*West Hoboken, N. J.*,	3 Med.(N.Y.C.)
Jackson, Herbert Spencer,	*Ithaca*,	3 Arts
Jacobs, Edward Clarence,	*Delhi*,	4 Arts
Jacobs, Julius Lilien, B.S.,	*Atlanta, Tex.*,	4 Civil Eng.
Jacoby, John Vincent,	*Ithaca*,	1 Arts
Jameson, Everett Williams,	*Buffalo*,	4 Arts
Janes, Edward Allyn,	*Plainfield, N. J.*,	1 Arts
Janeway, John Livingston,	*Philadelphia, Pa.*,	1 Mech. Eng.
Jansen, Edward Walter,	*New York City*,	1 Elect. Eng.
Jenkins, Alceste Roxanna,	*Brooklyn*,	4 Arts
Jenkins, Minnie,	*Walton*,	1 Agriculture
Jenkinson, Richard Dale,	*Bellevue, Pa.*,	2 Civil Eng.
Jenks, Laban Sheldon,	*Portland*,	1 Law
Jenness, Edith Samantha,	*Brooklyn*,	4 Arts
Jennings, Henry,	*Southold*,	Sp. Agr.
Jennings, Hugh,	*Moosic, Pa.*,	Sp. Law
Jewell, Charles Gordon,	*Seneca Falls*,	1 Mech. Eng.
Joachim, Henry,	*Brooklyn*,	4 Med. (N. Y. C.)
Joerger, William Pettus,	*Brooklyn*,	1 Arts
Johnson, Chesley Heath,	*Babylon*,	1 Elect. Eng.
Johnson, Carlton Perry,	*Brooklyn*,	2 Arts
Johnson, Clinton Watkins,	*Niagara Falls*,	Sr. Law
Johnson, Edith Eugenie,	*Ithaca*,	1 Medicine
Johnson, Eugene Cooper,	*Ithaca*,	1 Civil Eng.
Johnson, Elisha Martin,	*Olean*,	1 Mech. Eng.
Johnson, Frances Ethel,	*Binghamton*,	3 Arts
Johnson, Fred,	*Westfield*,	1 Agriculture
Johnson, George Friedman,	*Albany*,	1 Elect. Eng.
Johnson, George Tewksbury,	*Portsmouth, O.*,	2 Mech. Eng.
Johnson, Harry Disbrow, Jr.,	*South Bend, Ind.*,	2 Mech. Eng.

Johnson, Henry Langley,	*Boston, Mass.*,	1 Arts
Johnson, John Arthur,	*North Gage*,	1 Veterinary
Johnson, Leon Arthur,	*Walton*,	Sp. Agriculture
Johnson, Lindley Wilkeson,	*Youngstown*,	2 Agriculture
Johnson, Milton John,	*Jamestown*,	2 Medicine
Johnson, Nathan Clarke,	*Pittston, Pa.*,	2 Mech. Eng.
Johnson, Ralph William,	*Cleveland, O.*,	1 Civil Eng.
Johnson, S Albert,	*Mansfield, Pa.*,	Sp. Arts
Johnson, Mrs. S Albert,	*Mansfield, Pa.*,	Sp. Arts
Johnson, Zeb Myer Whittier,	*Ithaca*,	1 Veterinary
Johnston, Andrew Langstoff, Jr.,	*Richmond, Va.*,	4 Elect. Eng.
Johnston, Charles Watkins,	*Brooklyn*,	1 Mech. Eng.
Johnston, Robert Marsh,	*Muncie, Ind.*,	3 Mech. Eng.
Johnston, William Rendell, Jr.,	*East Orange, N. J.*,	3 Civil Eng.
Johnston, William Robert,	*Oak Park, Ill.*,	4 Arts
Jones, Annie,	*Eatonton, Ga.*,	Sp. Arts
Jones, Arthur Locke,	*Buffalo*,	2 Mech. Eng.
Jones, Arthur Lucas,	*Ithaca*,	4 Elect. Eng.
Jones, Bevan,	*New York City*,	2 Civil Eng.
Jones, Elliot Penrose,	*West Chester, Pa.*,	1 Civil Eng.
Jones, Ernest Wilbur,	*Pike*,	2 Mech. Eng.
Jones, Harold Donnell,	*Portland, Me.*,	2 Civil Eng.
Jones, Henry Roger,	*New Hartford, Conn.*,	1 Law
Jones, Ira Owen,	*Chicago, Ill.*,	2 Mech. Eng.
Jones, Isaac Seeley,	*Relay, Md.*,	2 Mech. Eng.
Jones, John Lucien,	*Buffalo*,	2 Mech. Eng.
Jones, Lloyd Balderston,	*West Grove, Pa.*,	4 Mech. Eng.
Jones, Paul Sherwood,	*Ilion*,	2 Elect. Eng.
Jones, Raymond Watson,	*Albany*,	3 Arts
Jones, Ruth Martin,	*Williamsport, Pa.*,	1 Arts
Jones, Stanley Robert,	*Ithaca*,	1 Civil Eng.
Jones, Thomas Samuel, Jr.,	*Utica*,	4 Arts
Joshi, Lemuel Lucas, B.Sc.,	*Bombay, India*,	1 Med. (N. Y. C.)
Joslyn, Raymund Elbert,	*Jersey City Heights, N. J.*,	2 Mech. Eng.
Joslyn, Royal Cuthbert,	*Jersey City Heights, N. J.*,	2 Civil Eng.
Judd, Caroline Whallon,	*Port Henry*,	2 Arts
Judd, Harold Booth,	*Bethel, Conn.*,	4 Med. (N.Y.C.)
Judd, Mark Waldo,	*Batavia*,	1 Law
Judd, Mary Douglass,	*Port Henry*,	4 Arts
Judson, David Henry,	*Oswego*,	1 Civil Eng.
Judson, Katharine Berry,	*Ithaca*,	4 Arts
Justin, Joel DeWitt,	*Rochester*,	2 Civil. Eng.

Kakanowitz, Samuel,	*Greensburg, Pa.*,	1 Mech. Eng.
Kalwrisky, William,	*Syracuse*,	2 Mech. Eng.
Kaminsky, Max,	*Ithaca*,	1 Veterinary
Kanouse, George Edward,	*Hackettstown, N. J.*,	1 Med. (N. Y. C.)
Karaline, Anna,	*New York City*,	3 Arts
Kasdorf, George Charles,	*Brooklyn*,	1 Med. (N. Y. C.)
Katsuno, Sadahaeu,	*Tokyo, Japan*,	1 Mech. Eng.
Kaufhold, Frank,	*Newark, N. J.*,	2 Medicine
Kearns, Thomas Joseph, B.A.,	*Manchester, N. H.*,	2 Med. (N.Y.C.)
Keeler, George Greene,	*Chicago, Ill.*,	1 Mech. Eng.
Keeler, John Mills, Jr.,	*Baltimore, Md.*,	4 Arts
Keener, Ashley Nixon,	*New York City*,	1 Arts
Keeney, Robert Matison,	*Belvidere*,	1 Civil Eng.
Keil, Frank Conrad,	*New York City*,	1 Med. (N. Y. C.)
Keith, Arthur Rubel,	*Rome*,	1 Medicine
Kelleran, Charles Russell,	*Buffalo*,	Jr. Law
Kelley, Charles Earl,	*Dayton, O.*,	Jr. Law
Kelley, Charles Joseph,	*Norwalk, Conn.*,	1 Civil Eng.
Kelley, Elias Heathman,	*Dayton, O.*,	Jr. Law
Kelley, Manley Spencer, Jr.,	*Jamestown*,	2 Arts
Kellogg, George Davis,	*Greenwood*,	1 Civil Eng.
Kellogg, James Gifford,	*Chicago, Ill.*,	2 Elect. Eng.
Kelly, Ernest,	*Washington, D.C.*,	Sp. Agriculture
Kelly, James Bernard,	*Scranton, Pa.*,	3 Mech. Eng.
Keet, Ernest Ellsworth,	*Saranac Lake*,	1 Medicine
Kelly, James Lewis,	*Porterville*,	1 Law
Kelly, John Francis,	*Scranton, Pa.*,	1 Arts
Kelsey, Earl Hewes,	*North Tonawanda*,	3 Arts
Kelsey, Ernest Westervelt,	*Ithaca*,	Jr. Law
Kelsey, Weston Maynard,	*Salamanca*,	1 Arts
Kemp, Maurice,	*Catasauqna, Pa.*,	1 Med. (N.Y.C.)
Kendrick, William Dixon,	*Montgomery, Ala.*,	1 Mech. Eng.
Kennedy, Alexander, Jr.,	*Pittsfield, Mass.*,	1 Mech. Eng.
Kennedy, George De Hart,	*Buffalo*,	4 Med. (N.Y.C.)
Kennedy, John Curtis,	*Buffalo*,	1 Arts
Kennedy, Walter Crichlow,	*New Brighton, Pa.*,	1 Elect. Eng.
Kenneweg, Albert Henry,	*Cumberland, Md.*,	1 Elect. Eng.
Kent, Arthur Webster,	*Swarthmore, Pa.*,	Sp. Arts
Kent, Ralph Sherlock, A.B.,	*Ithaca*,	Sr. Law
Kenyon, Otis Allen,	*Baldwinsville*,	4 Elect. Eng.
Kern, Robert Horace,	*St. Louis, Mo.*,	1 Law
Kernan, Nicholas Edward, A.B.,	*Utica*,	1 Law

Kernan, Warwick Joseph, A.B.,	*Utica*,	Jr. Law
Kerr, Edith,	*Titusville, Pa.*,	2 Arts
Kerr, Eleanor,	*Dougan Hills*,	1 Painting
Kerr, William Murray,	*New York City*,	3 Med. (N. Y. C.)
Kestner, Mark,	*New York City*,	3 Med. (N.Y.C.)
Ketcham, Harry Burton,	*Middletown*,	3 Mech. Eng.
Ketchum, Lawrence Temple,	*Elmira*,	1 Mech. Eng.
Kettle, William Walter,	*New York City*,	Sp. Med. (N.Y.C.)
Kice, Luther Holden,	*Wharton, N. J.*,	1 Med. (N.Y.C.)
Kiddie, John,	*Van Anda, B.C.*,	4 Civil Eng.
Kieb, Raymond Francis, A.B.,	*Lowville*,	4 Med. (N. Y. C.)
Kiendl, Adolph Cornelius,	*Brooklyn*,	1 Arts
Kiep, Adeline Carrie,	*Brooklyn*,	3 Arts
Kieselbach, Oswald,	*Mendota, Ill.*,	1 Arts
Kimball, Clarence,	*Passaic, N. J.*,	1 Arts
Kinavan, Josette Marie,	*Brooklyn*,	3 Arts
King, Alvin Ward,	*Takoma Park, D. C.*,	1 Civil Eng.
King, Clifford Marshall, A.B.,	*Sandusky, O.*,	4 Civil Eng.
King, Harry Swayne,	*Toledo, O.*,	2 Arts
King, Tertullus Harrison, Jr.,	*Trumansburg*,	Sp. Agriculture
King, Walter Edwards, A.B.,	*Kinsman, O.*,	2 Medicine
Kingsland, Roger Leverick,	*Nutley, N. J.*,	1 Mech. Eng.
Kinne, Hiram Earl,	*Hartwick Seminary*,	2 Agriculture
Kinnear, Eugene Carner,	*Takoma Park, D. C.*,	1 Civil Eng.
Kinney, Price Witter,	*Lyons*,	2 Mech. Eng.
Kinsman, Cyrus Hillman	*Plainfield, N. J.*,	3 Mech. Eng.
Kirchner, Anna Elsa,	*Philadelphia, Pa.*,	1 Arts
Kirchhofer, Melville Peter Lewis,	*Massillon, O.*,	1 Law
Kirk, William Andrew Anderson,	*Gouverneur*,	1 Arts
Kirkland, Bert Persons,	*Smith's Mills*,	3 Arts
Kissel, Jacob,	*Brooklyn*,	2 Med. (N. Y. C.)
Kissick, Joseph, Jr.,	*New York City*,	2 Mech. Eng.
Klaber, John James,	*New York City*,	3 Civil Eng.
Klausner, Alexander,	*New York City*,	1 Med. (N. Y. C.)
Klein, Abraham,	*Brooklyn*,	1 Med. (N. Y. C.)
Klein, John H,	*Buffalo*,	1 Law
Klein, Morris James,	*New York City*,	3 Med. (N. Y. C.)
Kleppisch, George Hugo Otto,	*New York City*,	1 Mech. Eng.
Kline, Bertha,	*Forest Home*,	4 Arts
Kline, Daniel Davold,	*Williamsport, Pa.*,	1 Law
Kling, Herbert Allen,	*Woodbine, Iowa*,	2 Mech. Eng.
Klock, Nellie Adah,	*St. Johnsville*,	1 Arts

Knapp, Arthur,	*Ardmore, Pa.*,	1 Mech. Eng.
Knapp, Leland Garfield,	*Sayre, Pa.*,	4 Mech. Eng.
Knapp, Valentine Mott,	*North Clove*,	3 Veterinary
Knibloe, Laurence,	*Buffalo*,	1 Arts
Kniskern, Walter Hamlin,	*Deposit*,	4 Mech. Eng.
Knowlson, James Somerville, 2nd,	*Western Springs, Ill.*,	2 Elect. Eng.
Knowlton, Orin Henry,	*Perrysburg*,	1 Law
Knowlton, Robert Henry,	*Utica*,	2 Civil Eng.
Koehler, Charles George, Jr.,	*Brooklyn*,	4 Arts, 2 Medicine
Koehler, Mathilda Anna,	*Springland*,	3 Arts
Koeller, Clara Ottelia,	*Hoboken, N. J.*,	1 Arts
Koenig, Louis,	*Brooklyn*,	1 Medicine
Kohan, Joseph Henry,	*Brooklyn*,	1 Law
Kohn, Arthur Hirsh,	*Philadelphia, Pa.*,	2 Civil Eng.
Kohn, Benjamin,	*Rockaway Beach*,	1 Law
Kositzky, Gustavus Adolphus,	*Yankton, S. D.*,	2 Elect. Eng.
Kosminsky, Isaac Joseph,	*Texarkana, Tex.*,	1 Mech. Eng.
Kothe, George,	*Indianapolis, Ind.*,	1 Mech. Eng.
Kouyoumdjian, Haroutinne,	*Bagdad, Asiatic Turkey*,	2 Mech. Eng.
Kramer, Edwin Weed,	*Patterson, La.*,	3 Civil Eng.
Kratzenstein, Hugo, A.B.,	*New York City*,	4 Civil Eng.
Krause, Mark Champion,	*Williamsport, Pa.*,	1 Arts
Krauter, Harold S,	*Tobyhanna, Pa.*,	2 Mech. Eng.
Kresky, Henry,	*Brooklyn*,	1 Med. (N. Y. C.)
Kruskal, Nicholas,	*New York City*,	Sp. Med. (N. Y. C.)
Kuhlmey, Walter Andrew,	*Chicago, Ill.*,	2 Elect. Eng.
Kuhn, George Wilfrid,	*Brooklyn*,	2 Elect. Eng.
Kurtz, Ford,	*E. Stroudsburg, Pa.*,	1 Civil Eng.
Kurtz, William Overton,	*Helena, Mont.*,	3 Elect. Eng.
Kuschke, Maude Louise, B.E., M.E.,	*Plymouth, Pa.*,	4 Arts
Kyser, Kathryn Belle,	*Canastota*,	1 Arts
La Breque, Henry Francis,	*Holyoke, Mass.*,	1 Civil Eng.
Ladd, Walter Manning,	*Buffalo*,	1 Mech. Eng.
Laird, Ida Marie,	*Auburn*,	4 Arts, 2 Medicine
Lake, Howard Clarence,	*Jamestown*,	Sr. Law
Lamb, Roy Dane,	*Chicago, Ill.*,	2 Elect. Eng.
Lambert, Sophia Wilhelmina,	*Brooklyn*,	3 Arts
Landa, Francisco,	*Habana, Cuba*,	3 Civil Eng.
Lande, Isaac,	*Elmira*,	1 Arts
Lander, Ralph Clinton,	*Naugatuck, Conn.*,	2 Arch.
Landers, Eugene,	*Upper Lisle*,	2 Elect. Eng.
Landmesser, Charles Frederick,	*Newark, N. J.*,	2 Arts

Lane, Richard Jenkins,	*Philadelphia, Pa.*,	2 Mech. Eng.
Lange, Carl William,	*Galveston, Tex.*,	3 Elect. Eng.
Langfeld, Clarence Meyer,	*Baltimore, Md.*,	2 Elect. Eng.
Lantz, Eleanor,	*Newark, N. J.*,	3 Med. (N.Y.C.)
Lapp, Grover William,	*Rochester*,	1 Elect. Eng.
Larkin, John Kneisley,	*Dayton, O.*,	1 Medicine
Larkin, Katherine Veronica,	*Ithaca*,	Jr. Law
Larkin, Patrick Edward,	*Ithaca*,	1 Veterinary
Larson, Archie Milton,	*Willmar, Minn.*,	4 Mech. Eng.
Lasher, Herbert,	*Griffin Corners*,	2 Arts
Lask, Frederic,	*New York City*,	4 Elect. Eng.
Lathrop, Henry Julian,	*Tottenville*,	2 Arts
Lattin, Benton,	*Walden*,	1 Civil Eng.
Lattin, Berton,	*Walden*,	1 Arts
Laurie, Thomas Forrest,	*Auburn*,	1 Medicine
Laverty, Ethel,	*Glens Falls*,	4 Arts
Law, Cecilia Agnes, B.L.,	*Ithaca*,	1 Painting
Law, Lito Willet,	*Brooklyn*,	3 Mech. Eng.
Lawrence, Frank Elmaker,	*Macon, Ga.*,	2 Civil Eng.
Lawrence, Howard Leslie,	*Syracuse*,	2 Veterinary
Lawrence, Norman Spear,	*Riverside, Ill.*,	3 Mech. Eng.
Lawrie, Rowland Hazard,	*Atlantic Highlands, N. J.*,	1 Arts
Lawsing, Julia Elsie,	*Richboro, Pa.*,	4 Arts
Lawson, George,	*New York City*,	2 Mech. Eng.
Lay, Robert Phinny,	*Franklin, Pa.*,	1 Mech. Eng.
Layhe, Francis Bernard,	*Fort Plain*,	1 Arts
Lazarus, David,	*New York City*,	4 Med. (N. Y. C.)
Lazo, Antonio, Jr.,	*Gautemala City. Gautemala, C. A.*,	1 Civil Eng.
Leatherman, Marian,	*Pittsburgh, Pa.*,	1 Arts
Leavenworth, William Herbert,	*Syracuse*,	2 Mech. Eng.
Lee, Albert Edward,	*Richmond Hill*,	1 Civil Eng.
Lee, Charles Avery, Jr.,	*Chicago, Ill.*,	2 Mech. Eng.
Lee, Cazenove Gardner, Jr.,	*Washington, D.C.*,	2 Mech. Eng.
Lee, Ora, Jr.,	*Albion*,	2 Agriculture
Lee, Walter,	*New York City*,	Sp. Painting
Lee, William Forrest,	*N. Tonawanda*,	2 Arts
Lee, William Ross, A.B., A.M.,	*Gouverneur*,	Jr. Law
Lefebvre, Emile Joseph, M.A.,	*Manchac, P. O., La.*,	2 Mech. Eng.
Lefens, Walter Conrad,	*Chicago, Ill.*,	2 Mech. Eng.
Lefferts, Edwin Boughton,	*Gloversville*,	1 Elect. Eng.
Leffler, Leo Julius,	*Brooklyn*,	1 Mech. Eng.
Lehman, Allan S,	*New York City*,	2 Arts

Lehman, Max,	*Brooklyn*,	1 Med. (N. Y. C.)
Lehmann, Otto William,	*Chicago, Ill.*,	1 Law
Leighton, Arthur,	*Brooklyn*,	1 Arts
Leighton, Frederick,	*Canandaigua*,	3 Elect. Eng.
Leighton, Henry,	*Canandaigua*,	2 Arts
Leland, Emmons William,	*Ithaca*,	1 Agriculture
Leland, Guy Hugh,	*Ithaca*,	1 Arts
de Lemoine, Luis Fanor, Jr.,	*Buenos Aires, Arg. Rep.*,	1 Mech. Eng.
León, Ricardo,	*Oaxaca, Mexico*,	3 Mech. Eng.
Leonard, Bert Caupfield,	*Seneca Falls*,	3 Arts
Lesh, Paul Edgar,	*Washington, D. C.*,	1 Law
Levin, Samuel,	*New York City*,	2 Med. (N. Y. C.)
Levison, Isaac,	*New York City*,	Sr. Law
Levy, Elsa Esther,	*Williamsport, Pa.*,	1 Arts
Levy, Samuel,	*Malone*,	Sr. Law
Lewis, Frederick,	*Ithaca*,	2 Mech. Eng.
Lewis, Lloyd Virgil,	*Vernon*,	3 Mech. Eng.
Lewis, Ora Mabelle, A.B.,	*Lancaster, Mass.*,	1 Medicine
Lewis, Philip,	*Pittsburg, Pa.*,	1 Civil Eng.
Lewis, William Henry,	*Morristown, N. J.*,	1 Mech. Eng.
Lewis, William Newton,	*Brooklyn*,	4 Arts
Libby, Luther Isaac,	*Worcester, Mass.*,	1 Agriculture
Lichtenthaeler, Frank Edward,	*Reading, Pa.*,	2 Arts
Lidgerwood, Lulu Jean,	*Putnam*,	2 Arts
Lies, Bennett Frederick,	*Buffalo*,	Jr. Law
Lilienthal, Celestin Victor,	*Albany*,	1 Arts
Linch, Charles,	*Ithaca*,	2 Veterinary
Lindman, Raymond Heald,	*Chicago, Ill.*,	1 Mech. Eng.
Lindo, Albert,	*New York City*,	1 Civil Eng.
Lindorff, Theodore Julius,	*Flushing*,	1 Law
Lines, Edwin Fuller,	*New Haven, Conn.*,	4 Arts
Linsley, Clarence Wells,	*Oswego*,	1 Civil Eng.
Linton, Orlando Hayward,	*Truro, N. S., Can.*,	2 Civil Eng.
Lintz, William,	*New York City*,	2 Med. (N. Y. C.)
Lippert, Frederick Charles,	*Phoenixville, Pa.*,	2 Mech. Eng.
Lippencott, Harvey Sharpless,	*Moorestown, N. J.*,	Sp. Agr.
Lisle, Leslie Mac, Ph.B., M.D.,	*Columbus, O.*,	Sp. Med. (N. Y. C.)
Little, Clarence Duane,	*Montclair, N. J.*,	2 Elect. Eng.
Little, Elbert Warfield,	*Ithaca*,	1 Veterinary
Lix-Klett, Ernesto,	*Buenos Aires, Arg. Rep.*,	1 Elect. Eng.
Locke, Harold Franklin,	*Ticonderoga*,	2 Mech. Eng.
Locke, Lura May,	*Wellsboro, Pa.*,	3 Arts

Locke, Mabel,	*Wellsboro, Pa.*,	3 Arts
Lockerby, Robert Archibald,	*Montreal, Canada*,	2 Civil Eng.
Loeber, Edith, A.B.,	*New Orleans, La.*,	3 Med. (N.Y.C.)
Loewe, Dietrich Carl,	*Danbury, Conn.*,	1 Civil Eng.
Loewenthal, William Herman,	*Evansville, Ind.*,	3 Elect. Eng.
London, Julius,	*New York City*,	3 Med. (N.Y.C.)
Longbothum, George Thornton,	*Fort Salonga*,	1 Medicine
Loop, Howard Scott,	*North East, Pa.*,	2 Agriculture
Lorenz, James Nicholas,	*Uhrichsville, O.*,	3 Arts
Loudon, Anna Louise,	*Upper Troy*,	1 Arts
Loughridge, Clyde Higbee,	*Pittsburg, Pa.*,	4 Elect. Eng.
Lovejoy, William Henry,	*Buffalo*,	1 Arts
Loveland, Daniel Arthur,	*Windsor*,	1 Mech. Eng.
Lowell, Ellen Louise, A.B., M.D.,	*New York City*,	Sp. Med. (N.Y.C.)
Lowndes, Andrew Jackson,	*Baltimore, Md.*,	3 Mech. Eng.
Lowry, Arthur Thompson,	*Berwick, Pa.*,	1 Mech. Eng.
Lowthian, Walter Edward,	*New York City*,	1 Med. (N.Y.C.)
Luke, Harry Cliff, Ph.G.,	*Salamanca*,	1 Medicine
Lull, Gerard Bramley,	*Delhi*,	4 Arts
Lum, Paul Bentley,	*Washington, D. C.*,	1 Civil Eng.
Luppen, Luppe Barnes,	*Pekin, Ill.*,	2 Mech. Eng.
Luther, George William,	*Olean*,	3 Mech. Eng.
Lyford, Percy Lang,	*Waverly*,	1 Agriculture
Lyle, William Frank,	*Mt. Vernon*,	1 Mech. Eng.
Lynah, James,	*Savannah, Ga.*,	3 Elect. Eng.
Lyndon, Sophie Harriet,	*Fairport*,	1 Arts
Lyon, Charles Albert, A.B.,	*East Orange, N. J.*,	2 Elect. Eng.
Lyon, Fannie Dimmick,	*Port Jervis*,	Sr. Law
Lytle, John Lee, B.S.,	*Huntersville, N.C.*,	1 Agriculture
Mabee, Cecil Watkins,	*Ithaca*,	2 Arts
Maceo, Antonio,	*Habana, Cuba*,	1 Mech. Eng.
McAllister, Patrick Edward,	*Ithaca*,	1 Veterinary
McCabe, Alexander Joseph,	*New York City*,	1 Law
McCabe, Mary Elizabeth,	*Brooklyn*,	1 Arts
McCarty, William Timothy,	*New York City*,	2 Veterinary
McCarthy, Alice Margaret,	*Addison*,	3 Arts
McCarthy, Charles Bernard,	*Ithaca*,	1 Civil Eng.
McCarthy, Ellen S,	*Cortland*,	1 Arts
McCarthy, Thomas Alfred,	*Ithaca*,	1 Veterinary
McClenahan, Le Roy Regester,	*Baltimore, Md.*,	3 Mech. Eng.
McClune, Julia Eliza,	*Ithaca*,	4 Arts
McCollum, Eugene Lawrence,	*Lockport*,	Jr. Law

McConnell, Harold Mead,	*St. Joseph, Mich.*,	1 Mech. Eng.
McCormick, Mary Gertrude,	*Monticello*,	2 Arts
McCourt, Walter Edward,	*Brooklyn*,	4 Arts
McCoy, Charles Everett,	*Smethport, Pa.*,	1 Arts
McCreary, Elsie,	*Cohoes*,	4 Arts
McCurdy, Alexander Dales,	*Philadelphia, Pa.*,	1 Mech. Eng.
McCurdy, George Earle,	*Dunbar, Pa.*,	3 Civil Eng.
McDermott, George Rolland, Jr.,	*Ithaca*,	3 Mech. Eng.
McDonald, Alan, B.A.,	*Louisville, Ky,*,	3 Mech. Eng.
Macdonald, Harold Gould,	*Austin, Manitoba, Can.*,	1 Civil Eng.
McDonald, Harry George,	*Granville*,	4 Arts
McDougall, Eric Walter,	*Montclair, N. J.*,	1 Mech. Eng.
Macfarlane, James William,	*Pittsburg, Pa.*	1 Mech. Eng.
Macfarlane, Malcolm,	*Towanda, Pa.*,	1 Civil Eng.
McFerran, Caroline Hamlin,	*Gouverneur*,	4 Arts
McGee, Walter Vaughan,	*Plainfield, N. J.*,	1 Mech. Eng.
MacGill, Caroline Elizabeth,	*Pittsburgh, Pa.*,	4 Arts
McGinnis, Bernard Benedict,	*Genesee, Pa.*,	3 Arts
McGinnis, Ralph,	*Friendship*,	1 Veterinary
McGlade, John Joseph,	*New York City*,	3 Med. (N.Y.C.)
McGonegal, George Arthur, A.B.,	*Rochester*,	Jr. Law
MacGregor, Herbert Paterson,	*New York City*,	3 Med.(N.Y.C.)
McGuire, Peter Stephen,	*Buffalo*,	4 Arts
McHenry, Roy Congdon,	*Binghamton*,	Jr. Law
Mack, Winfred Berdell,	*Ithaca*,	3 Veterinary
McKay, Charles Watson,	*Brooklyn*,	2 Mech. Eng.
McKay, Florence Lucinda,	*Ithaca*,	3 Arts, 1 Medicine
MacKellar, James Malcolm,	*Nyack*,	3 Med. (N.Y.C.)
MacKellar, Thomas,	*Philadelphia, Pa.*,	2 Civil Eng.
McKenna, James Augustine, Jr.,	*Long Island City*,	Sp. Agriculture
McKenna, Joseph Augustine,	*New York City*,	3 Arts
Mackenzie, David Wallace, B.A.,	*Flat River, P. E. I., Can.*,	4 Med. (N.Y.C.)
Mackie, Warren Alvin,	*New Orleans, La.*,	1 Civil Eng.
McKinlay, Ned Scofield,	*Denver, Colo.*,	2 Mech. Eng.
Mackintosh, Donald Chase,	*Holyoke, Mass.*,	1 Elect. Eng.
McIntosh, Mary Lucinda,	*Locke*,	1 Arts
McIntosh, Robert, Ph.B.,	*Grinnell, Ia.*,	3 Mech. Eng.
McKnight, Thomas Joseph,	*Dubuque, Ia.*,	2 Civil Eng.
McKoon, Morgan Lane, A.B.,	*Long Eddy*,	Jr. Law
McKown, William Reid,	*Pittsburgh, Pa.*,	1 Mech. Eng.
McLaren, Walter Austin,	*Brooklyn*,	2 Med. (N.Y.C.)

McLaury, Walker Gailey, Ph.B., *Chicago, Ill.*, 2 Elect. Eng.
McLeary, Samuel Harvey, *San Juan, Porto Rico*, 3 Elect. Eng.
McLellan, Elizabeth Bals, *Hyde Park, Mass.*, Sp. Arts
McLeod, Norman McCallum, *Philadelphia, Pa.*, 1 Mech. Eng.
McMahon, Edward Augustine, *New York Ctiy*, 1 Med. (N.Y.C.)
McMeekan, Walter, *Brooklyn*, Jr. Law
McMenamin, Francis Joseph, *Bath*, 2 Med. (N. Y. C.)
McMillan, Hugh Gurney, *East Aurora*, 1 Elect. Eng.
McMurtrie, William Anderson, Ph.B., *Belvidere, N. J.*, 3 Med. (N. Y. C.)
McNair, Frederick Henry, *Mt. Morris*, 2 Veterinary
McNamara, Agnes Keenan, *Binghamton*, Sr. Law
McNamara, John Aloysius, *Ithaca*, 3 Veterinary
McNevins, John Alphonsus, *New York City*, 2 Med. (N. Y. C.)
McNitt, Robert Joseph, A.B., *Logansport, Ind.*, 4 Elect. Eng.
McNitt, Willard Charles, *Logansport, Ind.*, 4 Arts
MacRae, Tom, *New York City*, 1 Med. (N.Y.C.)
McSparren, Charles Russell, *Buffalo*, Jr. Law
McTammany, Etta, *Troy*, 3 Arts
McWhorter, Hugh Brooks, *Ithaca*, 1 Mech. Eng.
Macy, George Earl, *Chicago, Ill.*, 1 Mech. Eng.
Madden, John Alden, *Ithaca*, 3 Veterinary
Madden, John Henry, *Buffalo*, 1 Mech. Eng.
Madigan, Francis William, *Centre Village*, 1 Civil Eng.
Magid, Maurice Oliver, *New York City*, 3 Med. (N. Y. C.)
Magoffin, Charles Frederick, *North Tonawanda*, 1 Mech. Eng.
Maider, Martha, *Phœnix*, 1 Arts
Main, Eugene Adams, *Brooklyn*, 1 Mech Eng.
Mainwaring, William Hamer, *Miner's Mills, Pa.*, 3 Elect. Eng.
Major, Horace Fairchild, *Ithaca*, 1 Law
Mallery, Lewis E, *Olean*, 1 Mech. Eng.
Mallison, Charles Henry, *Medina*, 1 Civil Eng.
Mallon, Richard Sandford, *Paterson, N. J.*, 3 Med. (N. Y. C.)
Mallory, Phillips Henry, *Brooklyn*, 4 Architecture
Mallouf, Nasseen, *New York City*, 1 Mech. Eng.
Malone, Allen Latta, *Baltimore, Md.*, 2 Mech. Eng.
Maloney, Alfred Joseph, *Ithaca*, 1 Veterinary
Mambert, Stephen Babcock, *Kingston*, 1 Mech. Eng.
Mann, Albert Russell, *Pittsburg, Pa.* 2 Agriculture
Mann, Charles Maitland, *New York City*, 4 Arts, 1 Med. (N.Y.C.)
Mann, Charles William, *Pittsburgh, Pa.*, 2 Civil Eng.
Mann, David Farquhar, *Washington, D. C.*, 2 Mech. Eng.

Mann, Harvey Blaine, *Lewistown, Pa.*, 2 Mech. Eng.
Mansfield, Edward Raymond, B.S., *Orono, Me.*, 1 Med. (N.Y.C.)
Mansky, Alexander, *New York City*, 1 Med. (N. Y. C.)
Manville, William Willett, *Newport News, Va.*, 1 Mech. Eng.
Mantel, Frank Alphonse, *Auburn*, 1 Arts
Manulkin, George, *Brooklyn*, 1 Med. (N. Y. C.)
Margerum, Briton Albert, *Philadelphia, Pa.*, 2 Mech. Eng.
Mariou, Henry George, *Brooklyn*, Sp. Agriculture
Markey, Edward Bond, *Eaton, O.*, 2 Medicine
Marks, Hyman Sanford, *Troy*, 1 Mech. Eng.
Marquardt, Florence Anna, *Brooklyn*, 4 Arts
Marren, Maud Louise, *Asbury Park, N. J.*, 1 Arts
Marsh, Charles Reed, *Philadelphia, Pa.*, 1 Civil Eng.
Marsh, Robert Jr., *Salt Lake City, Utah*, 1 Elect. Eng.
Marsh, Reginald Edward, *Glens Falls*, 2 Architecture
Marshall, Thomas Bayne, *Allegheny, Pa.*, 3 Arts
Marston, Sylvanus Boardman, *Pasadena, Cal.*, 1 Architecture
Martin, Arthur Chalmers, *Rockville Centre*, 1 Medicine
Martin, Arthur Harold, *Cooperstown*, 4 Arts, 2 Medicine
Martin, Caldwell, *Denver, Colo.*, 1 Law
Martin, George Winfield, *Tannersville*, Jr. Law
Martin, Harry Wheeler, *Worcester*, 2 Arts
Martin, Jennie Melissa, *Binghamton*, 1 Arts
Martin, Lawrence, *Adams, Mass.*, 4 Arts
Martinez, Carlos Alfonso, B.S., *Hornos, Coah, Mexico*, 3 Elect. Eng.
Martinez, Christobal Antonio, *Hornos, Coah, Mexico*, 1 Civil Eng.
Martinez y Martinez, Isaac Francisco, *Mayagüez, Porto Rico*, 1 Law
Mason, Allen, *Detroit, Mich.*, 4 Mech. Eng.
Mason, Alfred Lewis, *Syracuse*, 2 Veterinary
Mason, Edward Fraser, *Hornellsville*, 2 Mech. Eng.
Mason, Morris Arthur, Grad. Chem., *New York City*, Sp. Med. (N.Y.C.)
Mason, Norman Clifford, *Highland Park, Ill.*, 1 Mech. Eng.
Masters, Frank Harris, A.B., *Rossville, Ind.*, 4 Civil Eng.
Masterson, Wilmer Dallam, *Galveston, Tex.*, 2 Elect. Eng.
Matthews, Robertson, *Bolton, Ont., Can.*, 1 Mech. Eng.
Mattison, Albert Sherman, *Altmar*, 1 Mech. Eng.
Maxson, Cullen B, *Jersey City, N. J.*, 4 Med.(N. Y. C.)
Maxwell, Donald Price, *Georgetown, Colo.*, 1 Civil Eng.
Maybaum, Jacob, *New York City*, 3 Med. (N.Y.C.)
Mayo, Edward Hanson, *Indianapolis, Ind.*, 3 Mech. Eng.

Mayo, Geoffrey Wainman,	*Smethport, Pa.*,	1 Civil Eng.
Mazer, Jacob,	*Allegheny, Pa.*,	1 Civil Eng.
Mears, John Farnham,	*Scranton, Pa.*,	1 Mech. Eng.
Mechling, Benjamin Franklin, Jr.,	*Germantown, Pa.*,	1 Mech. Eng.
Meddaugh, Samuel Addison,	*Auburn*,	4 Mech. Eng.
Meek, Paul Deady,	*Columbus, O.*,	2 Civil Eng.
Meeker, Lewis Edgar, Jr.,	*Brooklyn*,	4 Mech. Eng.
Mehling, Mortimer Francis,	*Cleveland, O.*,	3 Arts
Meissner, Scott Thadeus,	*Erie, Pa.*,	2 Mech. Eng.
Meister, James Franklin,	*Kansas City, Mo.*,	3 Elect. Eng.
Mellowes, Alfred Witherman,	*Dayton, O.*,	1 Mech. Eng.
Melvin, Carroll Loomis,	*Bradford, Pa.*,	1 Elect. Eng.
Mergenthaler, Eugene George,	*Baltimore, Md.*,	1 Mech. Eng.
Mergenthaler, Fritz Lillian,	*Baltimore, Md.*,	2 Mech. Eng.
Merkin, Abraham,	*New York City*,	2 Civil Eng.
Merrill, Charles George,	*Ithaca*,	Sp. Painting
Merriman, Eugene Duette,	*Ithaca*,	2 Arts
Merritt, Eugene, A.B.,	*Millbrook*,	1 Agriculture
Merritt, Louise Harriet Flanders,	*Malone*,	4 Arts
Merrow, Pauline,	*Hartford, Conn.*,	1 Arts
Merry, Albert Edmund,	*Syracuse*,	1 Veterinary
Messer, Anna Teresa,	*Ithaca*,	2 Arts
Metzger, Harold Nuhn,	*Buffalo*,	1 Civil Eng.
Meyer, Edgar Joseph,	*New York City*,	3 Elect. Eng.
Meyer, Henry Berthold,	*Brooklyn*,	1 Med. (N. Y. C.)
Meyer, Matilda Caroline,	*Brooklyn*,	3 Arts
Middleditch, Lyman,	*South Orange, N. J.*,	2 Mech. Eng.
Midwood, Henry Hazard,	*Drownville, R. I.*,	1 Arts
Milbank, Samuel,	*New York City*,	4 Med. (N.Y.C.)
Milks, Harley H,	*Candor*,	1 Agriculture
Milks, Howard Jay,	*Candor*,	3 Veterinary
Millard, Thomas Cheever, Jr.,	*Danbury, Conn.*,	1 Elect. Eng.
Miller, Arthur Frederick,	*Buffalo*,	3 Mech. Eng.
Miller, David Deppen,	*Wooster, O.*,	2 Mech. Eng.
Miller, Emma Adams,	*Shamokin, Pa.*,	1 Arts
Miller, Frederick,	*Mt. Vernon*,	3 Elect. Eng.
Miller, Frederick Robert, B.A.,	*Toronto, Can.*,	2 Medicine
Miller, Gladys,	*Ithaca*,	4 Arts
Miller, Henry Joseph,	*Washington, D. C.*,	1 Mech. Eng.
Miller, John Fred,	*Warsaw*,	1 Veterinary
Miller, Reba Jane,	*West Brighton*,	3 Arts
Mills, Frederic Alden,	*Ithaca*,	4 Arts

Mills, Minnie Mary,	*Owego*,	1 Medicine
Minard, Edwy Le Roy,	*Boonton, N. J.*,	2 Med. (N.Y.C.)
Minott, Enos Samuel Forrester,	*New York City*,	2 Med. (N.Y.C.)
Mintz, Jay Jerome,	*Ithaca*,	2 Mech. Eng.
Mirick, Carlos Brown,	*Washington, D. C.*,	3 Elect. Eng.
Miskella, William James,	*Cass Lake, Minn.*,	3 Elect. Eng.
Mitchell, Frank Davis,	*Mt. Vernon*,	4 Arts
Mitchell, James Reid, Jr.,	*Mt. Vernon*,	2 Arts
Mitchell, William Hobart,	*Oshkosh, Wis.*,	1 Med. (N.Y.C.)
Mittmann, Egmont Felix, B.S. in C.E.,	*New Braunfels, Tex.*,	3 Civil Eng.
Mix, David Cameron,	*Ithaca*,	3 Elect. Eng.
Moeller, Henry Louis,	*Hoboken, N. J.*,	1 Civil Eng.
Molatch, Otto Allan,	*Brooklyn*,	4 Arts
Moler, Albert Daniel,	*Ithaca*,	1 Painting
Monagle, Catharine Louise,	*Norwich*,	4 Arts
Monje, Arthur,	*Sante Fé, Argentine Republic*,	4 Civil Eng.
Monrad, Karen Elise,	*New York City*,	1 Arts
Monroe, John Duncan,	*Andes*,	Jr. Law
Montgomery, Dudley,	*New York City*,	2 Elect. Eng.
Montillon, Eugene Davis,	*Buffalo*,	1 Architecture
Moore, Elbert Owen,	*Pueblo, Colo.*,	4 Mech. Eng.
Moore, Emmeline,	*Batavia*,	1 Arts
Moran, John Malcolm,	*Seattle, Wash.*,	1 Mech. Eng.
Morehouse, David Page, Jr.,	*Oswego*,	1 Law
Moreno, Regino Teodoro, D.V.M.,	*Corrientes, Arg. Rep.*,	Sp. Agriculture
Morgan, Alfred Cookman,	*Laurel, Del.*,	4 Agriculture
Morgan, Henry Harrison, Jr.,	*Bridgeville, Del.*,	Sp. Arts
Morgan, William Albery, Jr.,	*Buffalo*,	3 Mech. Eng.
Morgans, Howard K,	*Christopher, Pa.*,	1 Civil Eng.
Morgenstern, Morris,	*McKeesport, Pa.*,	1 Elect. Eng.
Morris, Garfield Trenholm, B.C.E.,	*Bozeman, Mont.*,	4 Civil Eng.
Morris, George Linn,	*Youngstown, O.*,	1 Mech. Eng.
Morse, Edwin Knox,	*Moravia*,	Sp. Agriculture
Morse, Henry New,	*Northport*,	1 Arts
Morse, William Joseph,	*Lowville*,	1 Agriculture
Morton, Neil,	*Groton*,	3 Elect. Eng.
Mosher, Evans Roy,	*Aurora*,	1 Law
Mosher, Guy Walter,	*Cold Spring*,	1 Elect. Eng.
Moss, Sherwood Conkling,	*Buffalo*,	2 Elect. Eng.
Moulson, Charles Edward, A.B.,	*Rochester*,	4 Mech. Eng.

Mount, Louis Burgh, A.B.,	*Troy*,	3 Med. (N. Y. C.)
Mourning, Garland Hubbard, Jr.,	*Louisville, Ky.*,	2 Mech. Eng.
Mowat, John Frederic,	*Peoria, Ill.*,	4 Arts
Moxley, William Francis,	*Elmira*,	2 Elect. Eng.
Moyer, Thomas Jefferson,	*Fort Plain*,	2 Arts
Mudge, Alfred Eugene,	*Brooklyn*,	4 Arts
Mudge, James Douglass,	*Harpersville*,	4 Mech. Eng.
Mueden, George Frederic,	*Washington, D. C.*,	4 Civil Eng.
Mueller, Curt Berthold,	*Cleveland, O.*,	2 Arts
Mueller, Fred Jacob,	*New Ulm, Minn.*,	2 Civil Eng.
Muenz, Sigmund, B.S.,	*New York City*,	2 Civil Eng.
Muller, James Frederick, B.M.E.,	*Little Rock, Ark.*,	4 Mech. Eng.
Mulligan, Charles Lawrence,	*Brooklyn*,	1 Arts
Mulroy, William Leo,	*Marcellus*,	3 Mech. Eng.
Mundy, Roswell Flower,	*Chicago, Ill.*,	4 Mech. Eng.
Munk, Fred,	*Rockville Centre*,	1 Civil Eng.
Munroe, Edward,	*Chicago, Ill.*,	4 Elect. Eng.
Munroe, Harold Simonds,	*Joliet, Ill.*,	1 Mech. Eng.
Munschauer, Frederick Eugene,	*Buffalo*,	1 Mech. Eng.
Munson, David Curtiss,	*Medina*,	2 Arts
Munson, William Howes,	*Medina*,	1 Arts
Murchie, Percy,	*Brooklyn*,	2 Arts
Murphy, Charles Reilly,	*Detroit, Mich.*,	1 Arts
Murphy, John Eugene,	*Haverhill, Mass.*,	1 Law
Murphy, John Harold,	*Detroit, Mich.*,	1 Arts
Murphy, Joseph Gleeson,	*Detroit, Mich.*,	2 Arts
Murphy, William Andrew,	*Joliet, Ill.*,	4 Arts
Murray, Clare D,	*De Ruyter*,	1 Civil Eng.
Murray, Elsie,	*Athens, Pa.*,	4 Arts
Murray, Katherine Francis,	*Ithaca*,	3 Arts
Murset, Charles William,	*Port Jervis*,	3 Med. (N. Y. C.)
Myers, Elizabeth Aerial,	*Frankfort*,	3 Arts
Myers, Phillip,	*Kingston, Pa.*,	1 Civil Eug.
Myers, William Beach,	*Dubuque, Ia.*,	1 Civil Eng.
Nagel, Harry Coville,	*Norwich*,	4 Elect. Eng.
Nasmyth, George William,	*Buffalo*,	1 Arts
Nathan, George Jean,	*Cleveland, O.*,	4 Arts
Nauss, George Murray,	*Harrisburg, Pa.*,	1 Mech. Eng.
Nay, George Nelson,	*Jericho, Vt.*,	Jr. Law
Neary, James Eugene,	*Schenectady*,	2 Elect. Eng.
Nebeker, Horace Greeley,	*Logan, Utah*,	1 Law
Neff, William, A.B.,	*Walton*,	Jr. Law

Neilson, George William,	*Philadelphia, Pa.*,	2 Mech. Eng.
Nelbach, George Joseph,	*Utica*,	3 Arts
Nelligan, Walter,	*Ithaca*,	1 Veterinary
Nelson, Elbert James,	*Delaware, O.*,	1 Civil Eng.
Netzorg, Sol Charles,	*Ithaca, Mich.*,	3 Elect. Eng.
Newberry, Andrew White,	*Sandusky, O.*,	3 Arts
Newbery, Carlos Alfredo,	*Belgrano, Buenos Aires, Arg. Rep.*,	1 Agr.
Newcomb, Robert Cook,	*Whitehall*,	2 Elect. Eng.
Newcomb, Robert Everett,	*Holyoke, Mass.*,	1 Mech. Eng.
Newcomb, Wallace Ranlette,	*Cherry Creek*,	2 Elect. Eng.
Newhall, John,	*Glencoe, Ill.*,	1 Arts
Newkirk, Clement Roy,	*Brooklyn*,	1 Architecture
Newman, Edmund Taylor,	*Smethport, Pa.*,	3 Arts
Newman, Frederick Jerome,	*Buffalo*,	3 Arts
Newman, William Seymour,	*Ithaca*,	1 Veterinary
Newton, George Albert,	*St. James*,	3 Med. (N.Y.C.)
Newton, Jason Howard,	*Springfield, Mass.*,	2 Mech. Eng.
Newton, James Quigg,	*Pueblo, Colo.*,	1 Arts
Newton, Wilbur W.	*Pueblo, Colo.*,	1 Arts
Nichols, Clayton Worthington, Jr.,	*Camden, N. J.*,	2 Mech. Eng.
Nichols, Carroll Leja,	*Brooklyn*,	4 Med. (N. Y. C.)
Nichols, Elizabeth,	*Ithaca*,	3 Arts
Nichols, Robert Preston,	*Ithaca*,	2 Arts
Nichols, William Holmes,	*Chicago, Ill.*,	1 Mech. Eng.
Nickerson, Charles Willis,	*Stony Point*,	1 Mech. Eng.
Nickerson, Ralph Richard,	*Holyoke, Mass.*,	1 Mech. Eng.
Nightingale, Grenelle Lionel,	*Passaic, N. J.*,	1 Elect. Eng.
Nitchie, Charles Carter,	*Evanston, Ill.*,	3 Arts
Nitchie, Francis Raymond,	*Evanston, Ill.*,	1 Civil Eng.
Norris, John Fulton,	*Anna, Ill.*,	1 Mech. Eng.
North, Harold Diodate,	*Cleveland, O.*,	1 Mech. Eng.
North, Robert,	*Batavia*,	1 Architecture
Norton, Irvin,	*Camden*,	3 Elect. Eng.
Nowak, Walter William,	*Buffalo*,	3 Elect. Eng.
Noyes, Nicholas Hartman,	*Dansville*,	2 Arts
Nuese, Harry Lawrence,	*Buffalo*,	1 Law
Nugent, Harold Arthur,	*Kingston, Pa.*,	1 Mech. Eng.
Nusbaum, Jerome,	*Newark, N. J.*,	1 Medicine
Nussbaum, Fred Louis,	*Apple Creek, O.*,	2 Arts
Nutting, Raymond,	*Brooklyn*,	1 Mech. Eng.
Oberndorf, Clarence Paul,	*New York City*,	4 Arts, 2 Medicine
Oberrender, Stanley Tellman,	*Drifton, Pa.*,	1 Mech. Eng.

Obert, Asa Joseph,	*Lehighton, Pa.*,	1 Civil Eng.
O'Brien, John Joseph,	*Buffalo*,	1 Mech. Eng.
Ocampo, Vincente, V.B.,	*Buenos Aires, Arg. Rep.*,	1 Vet.
O'Connor, Joseph,	*Oswego*,	1 Elect. Eng.
O'Day, Sylvester Francis, A.B.,	*Binghamton*,	4 Med. (N.Y.C.)
Odell, Jay Bernard,	*New York City*,	4 Arts
Odell, Letitia Rebekah,	*Erie, Pa.*,	3 Arts
Ogden, Horace Sansbury,	*Washington, D. C.*,	2 Arch.
Ogier, George Rufus,	*Baltimore, Md.*,	1 Civil Eng.
Oginz, Philip,	*Brooklyn*,	1 Med. (N.Y.C.)
Oliver, David Phillip,	*Niagara Falls*,	1 Civil Eng.
Oliver, Mark,	*Chicago, Ill.*,	Jr. Law
O'Neill, Grace,	*Albany*,	4 Arts
Oppenheimer, Adèle, A.B., A.M.,	*Central Valley*,	Sp. Med. (N.Y.C.)
Ortiz de Zevallos, Emilio,	*Lima, Peru*,	1 Agriculture
Ortiz de Zevallos, Fernando,	*Lima, Peru*,	2 Mech. Eng.
Orvis, Warner Dayton,	*New York City*,	2 Mech. Eng.
Oskamp, Howard Earle,	*Cincinnati, O.*,	2 Mech. Eng.
Ostby, Raymond Engelhart,	*Providence, R. I.*,	2 Mech. Eng.
Ostertag, Rosa Henrietta,	*Chicago, Ill.*,	Sp. Arts
Ostos, José Antonio, *Ozuluama*,	*Vera Cruz, Mexico*,	1 Mech. Eng.
Oswald, Frederick William, Jr.,	*Brooklyn*,	4 Arts
Otis, Sidney,	*Yonkers*,	2 Mech. Eng.
Ottley, Alice Maria,	*Seneca Castle*,	4 Arts
Otto, Henry Stuart,	*Montclair, N. J.*,	1 Mech. Eng.
Overbaugh, Mabel Ada,	*Amsterdam*,	4 Arts
Overman, Max Cyrus,	*Springfield, Mass.*,	3 Arts
Owens, Harold VanDyke,	*Utica*,	3 Civil Eng.
Owsley, Alice Evelyn,	*Skaneateles*,	4 Arts
Pacheco, Joviano Augusto d'Amaral,	*Sao Paulo, Brazil*,	1 Arts
Packard, Daniel Barry, A.B.,	*Greenville, Pa.*,	4 Civil Eng.
Paddock, Ormond Howland,	*Toledo, O.*,	1 Mech. Eng.
Page, Raymond Esek,	*Hornellsville*,	1 Arts
Page, Thomas Newton,	*Norfolk, Va.*,	1 Architecture
Paine, Henry Ellsworth,	*Cleveland, O.*,	3 Mech. Eng.
Palma, Tomas Estrada,	*Havana, Cuba*,	1 Civil Eng.
Palmer, Albert D Selee,	*Morristown*,	Jr. Law
Palmer, Charles Warner,	*Media, Pa.*,	2 Arts
Palmer, Elnora May,	*Ithaca*,	2 Arts
Palmer, Eugene Preston, Jr.,	*Chicago, Ill.*,	1 Elect. Eng.
Palmer, George Hollis,	*Brooklyn*,	1 Med. (N. Y. C.)
Palmer, Henry Oliver,	*Geneva*,	1 Mech. Eng.

Palmer, Lawrence Achel,	*South Hamilton*,	1 Veterinary
Palmer, Lewis Eugene,	*Seneca Falls*,	3 Arts
Palmer, T Raymond,	*Ithaca*,	1 Civil Eng.
Palmié, Marguerite Thiel,	*Brooklyn*,	4 Arts
Palmié, Therese Katherine,	*Brooklyn*,	Sp. Agriculture
Paltun, Samuel,	*New York City*,	1 Med. (N.Y.C.)
Pappe, Theodore Frankel,	*Sioux City, Ia.*,	3 Arts
Pardessus, Florian George,	*Brooklyn*,	1 Mech. Eng.
Park, David William,	*New York City*,	1 Med. (N.Y.C.)
Parker, Esther Emily,	*Matteawan*,	3 Arts, 1 Medicine
Parker, James Griswold,	*Cape Vincent*,	Jr. Law
Parker, James Heber, P.D.,	*Reading, Pa.*,	3 Arts
Parker, John Robert,	*Aqueduct*,	1 Arts
Parker, Lina Maud, A.B.,	*Seattle, Wash.*,	3 Med. (N. Y. C.)
Parker, Loncious Burnell;	*Kennedy*,	Sp. Agriculture
Parmenter, Louie Allen,	*Corinth*,	4 Med. (N.Y.C.)
Parmley, Harry Mark,	*Mahanoy City, Pa.*,	1 Mech. Eng.
Parodi, Flaviano Eugenio, M.D.,	*New York City*,	Sp. Med.(N.Y.C.)
Parsons, George, A.B.,	*Winnebago, Ill.*,	4 Elect. Eng.
Partridge, George William, B.A.,	*Hamilton, Ont., Can.*,	1 Med.
Paterson, Charles Judson,	*Thorold, Ont., Can.*,	1 Civil Eng.
Patten, Harry Allen,	*Cheyenne, Wyo.*,	1 Civil Eng.
Patterson, Graham Creighton,	*Pittsburg, Pa.*,	4 Arts
Patterson, Gus Harold,	*Mansfield, O.*,	1 Mech. Eng.
Patterson, Howard Charles, Jr.,	*Brooklyn*,	1 Elect. Eng.
Patterson, Lucius Lamar, A.B., A.M.,	*Hebron, Miss.*,	2 Elect. Eng.
Patterson, Robert Rhoode, A.B.,	*Geneseo*,	3 Med. (N.Y.C.)
Patton, William Fearn, Jr., A.B.,	*Danville, Va.*,	2 Elect. Eng.
Pavek, John Wesley,	*West Point*,	1 Civil Eng.
Pawling, Jesse Randolph,	*Watertown*,	3 Arts
Payne, Florence Belle Earle,	*Gouveneur*,	4 Arts
Peace, William Stearly,	*Philadelphia, Pa.*,	Sr. Law
Pease, George Norman,	*Portland, Ore.*,	4 Arts, 1 Medicine
Peavey, Harris Booge,	*New York City*,	1 Mech. Eng.
Pechmann, Louis August Herman,	*St. Louis, Mo.*,	1 Civil Eng.
Peck, Allen John,	*Ithaca*,	4 Mech. Eng.
Peck, Ellery Newell, A.B.,	*Ithaca*,	4 Med. (N.Y.C.)
Peck, Fred Eldred,	*Wolfville, N. S., Can.*,	Sp. Agr.
Peck, Howard,	*East Orange, N. J.*,	2 Arts
Peck, Ross Sanders,	*Brookton*,	4 Mech. Eng.
Peer, Samuel Sherman,	*Ithaca*,	Jr. Law
Peirson, Jessie Burnham,	*Brockport*,	1 Arts

Pelton, Edwin Caswell,	*Ilion*,	1 Law
Pendergast, Walter Mikael,	*Phoenix*,	2 Veterinary
Perkins, Darwin Clare,	*Alexander*,	2 Arts, 1 Medicine
Perky, Scott Hancock,	*Niagara Falls*,	Sp. Agriculture
Perrine, Henry Ivey,	*Brooklyn*,	1 Arts
Perrine, Irving,	*Wallkill*,	1 Arts
Perry, Charles Frederick, B.S.,	*Worcester, Mass.*,	4 Mech. Eng.
Perry, John Wesley, B.S.,	*Charlotte, N. C.*,	1 Veterinary
Perry, Leslie Donald,	*Carthage*,	2 Arts
Persons, James White,	*East Aurora*,	1 Law
Peters, Frederic Hallock,	*Binghamton*,	2 Arts
Peterson, Charles Gilbert,	*Lockport*,	2 Mech. Eng.
Petit, Raymond August,	*Wellsboro, Pa.*,	1 Mech. Eng.
Petrie, Samuel Leys,	*North Tonawanda*,	1 Civil Eng.
Phelps, George Harrison,	*Worcester, Mass.*,	Sp. Agriculture
Philbrick, Frank Herbert,	*Waterville, Me.*,	1 Mech. Eng.
Philips, Joseph Bond,	*Kennett Square, Pa.*,	2 Elect. Eng.
Phillips, Arthur Morton,	*New Haven, Pa.*,	4 Mech. Eng.
Phillips, Earle W,	*Savannah*,	3 Med. (N. Y. C.)
Phillips, Harold William,	*Castile*,	1 Civil Eng.
Phillips, Henry Ormsby,	*Pittsburg, Pa.*,	1 Mech. Eng.
Pierce, Eunice Martha,	*Cohocton*,	2 Arts
Pierce, Ernest William,	*Olean*,	1 Civil Eng.
Pierce, Howard Castner,	*Worcester, Mass.*,	2 Elect. Eng.
Pierce, Paul Leon, B.S.,	*Chattanooga, Tenn.*,	2 Civil Eng.
Pierce, William Edward,	*Port Chester*,	2 Elect. Eng.
Pierce, William Rust,	*Syracuse*,	1 Law
Pierson, Grace Rappleye,	*Trumansburg*,	4 Arts
Pinckard, Ryburn,	*Birmingham, Ala.*,	1 Mech. Eng.
Pinger, George, Jr.,	*Peoria, Ill.*,	3 Mech. Eng.
Pino Farrera, Francisco, Jr.,	*City of Mexico, Mexico*,	3 Civil Eng.
Piper, Clarence Brett,	*Minneapolis, Minn.*,	Jr. Law
Pitcher, Frederic Clifford,	*Brooklyn*,	3 Arts
Pitzman, Harold Wislizenus,	*St. Louis, Mo.*,	3 Civil Eng.
Placek, Louis Joseph,	*New York City*,	2 Med. (N.Y.C.)
Platt, Roger Burchard,	*Bath*,	1 Arts
Platts, George Washington Stearns,	*Troy, N. H.*,	3 Civil Eng.
Plume, Clarence Apgar,	*Coldwell, N. J.*,	2 Med. (N.Y.C.)
Plumer, Herbert Foster,	*Braintree, Mass.*,	2 Civil Eng.
Poate, Ernest Marsh,	*Rushford*,	3 Med. (N.Y.C.)
Pollak, Julian Albert,	*Cincinnati, O.*,	1 Arts
Pond, Willard Fred,	*Rochester*,	2 Civil Eng.

Poole, Ray Burrows,	*Utica*,	1 Civil Eng.
Pooley, Thomas Rickett, Jr.,	*New York City*,	1 Med. (N.Y.C.)
Poor, Ben Perley, A.B.,	*Burlington, Ia.*,	Jr. Law
Pope, Abner Stevenson, B.S.,	*Barton Heights, Va.*,	2 Mech. Eng.
Popplewell, Laura Augusta,	*Ithaca*,	1 Arts
Porter, Floyd John,	*Ithaca*,	3 Agriculture
Porter, Harry Franklin,	*Bridgeport, Conn.*,	3 Civil Eng.
Porter, Henry Joshua,	*Windsor Locks, Conn.*,	2 Elect. Eng.
Porter, Percy Wakeman,	*West Hartford, Conn.*,	1 Civil Eng.
Post, George Adams, Jr.,	*New York City*,	1 Mech. Eng.
Potosky, Walter David,	*New York City*,	4 Mech. Eng.
Potter, Arnold James Brown,	*Penn Yan*,	Sr. Law
Potter, George Howarth,	*Brooklyn*,	4 Arts
Potter, Philip Barton Key,	*Newport, R. I.*,	1 Arts
Potts, Abbie Findlay,	*Troy*,	2 Arts
Powell, Milton Charles,	*Canisteo*,	1 Law
Powers, Ray Rivington,	*Atlanta, Ga.*,	1 Mech. Eng.
Prado, Cassio da Silva,	*Sao Paulo, Brazil*,	Sp. Agriculture
Pratt, Lee Sheldon,	*Sherman*,	4 Arts
Pratt, Winslow Shipman,	*Albion*,	4 Civil Eng.
Precht, Edward,	*New York City*,	3 Med. (N. Y. C.)
Preston, Sylvester Cosgrave,	*Pittsburg, Pa.*,	2 Mech. Eng.
Price, Adelbert J,	*Dundee*,	2 Med.
Price, Philip M,	*Johnstown, Pa.*,	2 Mech. Eng.
Price, Ernest Valois,	*Jamestown*,	4 Architecture
Price, William Herbert,	*Chicago, Ill.*,	1 Mech. Eng.
Price, William Kelley,	*Kingston*,	1 Civil Eng.
Price, William Tudor,	*Buffalo*,	Sp. Mech. Eng.
Prince, Alice Louise,	*Vineland, N. J.*,	2 Arts
Prince, Horace Free,	*Bloomington, Ill.*,	Sp. Agriculture
Prince, Howard Love,	*Byron Center*,	2 Medicine
Prussing, Rudolph Ernest,	*Chicago, Ill.*,	3 Mech. Eng.
Purvis, Lillian Maude,	*Dryden*,	4 Arts
Putnam, Alice E,	*Washington, D. C.*,	Sp. Agriculture
Putuam, Henry Sibley,	*Chicago, Ill.*,	1 Mech. Eng.
Quale, Howes James,	*Silver Creek*,	1 Civil Eng.
Quick, Ray Lewis,	*Ithaca*,	1 Mech. Eng.
Quinn, Charles Emmet,	*Cohoes*,	2 Arts
Quinn, Patrick John,	*Oswego*,	1 Elect. Eng.
Rabinowitz, Meyer Alfred,	*Brooklyn*,	1 Med. (N. Y. C.)
Radcliff, Lewis,	*Savannah*,	3 Arts
Radley, Hermon Clinton,	*Lowville*,	1 Arts
Raidabaugh, John Adam,	*Sparrows Point, Md.*,	3 Mech. Eng.

Rally, Lloyd Anthony,	*Albany*,	4 Architecture
Ralph, John Joseph,	*Jamaica*,	1 Mech. Eng.
Ramel, George Regis,	*New York City*,	2 Mech. Eng.
Ramsey, Joseph Henry,	*Albany*,	3 Mech. Eng.
Rand, Charles Lyman,	*Brooklyn*,	4 Arts
Rand, Elsie Fidelia,	*Brooklyn*,	1 Arts
Randolph, Robert Isham,	*Riverside, Ill.*,	1 Civil Eng.
Rankin, George Atwater,	*Ithaca*,	1 Arts
Rankin, Robert,	*Ithaca*,	4 Elect. Eng.
Ransom, Frederic Garfield,	*Buffalo*,	1 Arts
Ransom, William Lynn,	*Jamestown*,	Jr. Law
Rassbach, Erich Carl,	*Milwaukee, Wis.*,	2 Mech. Eng.
Rastall, Walter Henry,	*Chicago, Ill.*,	4 Mech. Eng.
Ratchford, Norman,	*West Nanticoke, Pa.*,	1 Agriculture
Rath, Walter Franklin,	*Ackley, Ia.*,	3 Elect. Eng.
Ratnoff, Hyman Leon,	*New York City*,	2 Med. (N.Y.C.)
Rattle, Paul Stuart,	*Oak Park, Ill.*,	2 Mech. Eng.
Rawson, Forrest Henry,	*Glens Falls*,	1 Civil Eng.
Ray, Anna Elizabeth, A.B., A.M.,	*New York City*,	2 Medicine
Raynor, Francis Ketcham,	*Sag Harbor*,	1 Arts
Raynsford, Robert Parker,	*Montrose, Pa.*,	3 Elect. Eng.
Rea, John Lowra,	*Plattsburg*,	1 Arts
Read, Herbert John,	*Bethel, Conn.*,	3 Elect. Eng.
Reardon, Nye Bates,	*Brooklyn*,	3 Civil Eng.
Redmond, John Richard,	*Greene*,	Jr. Law
Redmond, Nicholas Gregory,	*Syracuse*,	1 Arts
Reece, William Asher,	*Christchurch, New Zealand*,	3 Elect. Eng.
Reed, James Irwin, Jr.,	*Schenectady*,	2 Med. (N.Y.C.)
Reed, Lucy Carleton,	*Southbridge, Mass.*,	4 Arts, 1 Medicine
Reese, Dale Fleming,	*Newark, N. J.*,	2 Mech. Eng
Reid, Eva Charlotte,	*New York City*,	1 Medicine
Reid, Walker,	*Greenwich*,	2 Arts
Reidy, Thomas Joseph,	*Ithaca*,	1 Law
Reidy, William Joseph,	*Ithaca*,	Sp. Agriculture
Reilly, Daniel Robert,	*Cortland*,	1 Medicine
Rein, Bernard,	*Brooklyn*,	3 Med. (N.Y.C.)
Reis, James J,	*Cincinnati, O.*,	4 Arts
Reitze, Chester Nelson,	*Seattle, Wash.*,	3 Civil Eng.
Rekate, George Herman,	*Lancaster*,	1 Civil Eng.
Remick, Frederick Ninian,	*Geneva*,	1 Mech. Eng.
Renner, Emil Arthur,	*Youngstown, O.*,	1 Law
Renner, Roland Borman, B.S.,	*Nashville, Tenn.*,	4 Mech. Eng.
Renold, Charles Garonno,	*Heaton Mersy, Manchester, England*,	2 Mech. Eng.

Renwick, Allyn King,	*Ben Avon, Pa.*,	2 Arts
Replogle, Harry Leroy,	*Johnstown, Pa.*,	1 Mech. Eng.
Reppert, Charles Miller,	*Allegheny, Pa.*,	4 Civil Eng.
Reynell, Carleton,	*New York City*,	1 Civil Eng.
Reynolds, William Warwick,	*Washington, D. C.*,	2 Civil Eng.
Rhodes, Amy Teagle,	*Brooklyn*,	1 Arts
Rice, Frederic Clinton,	*Augusta, Ga.*,	1 Elect. Eng.
Rice, Homer Cake,	*Scranton, Pa.*,	1 Law
Rice, Howard Cameron,	*Buffalo*,	3 Elect. Eng.
Rice, John Henry,	*North Adams, Mass.*,	1 Civil Eng.
Rice, Laurence Joseph,	*Elmira*,	1 Civil Eng.
Rice, Samuel Trost,	*Cincinnati, O.*,	1 Mech. Eng.
Rice, Willis Ballance,	*Peoria, Ill.*,	1 Mech. Eng.
Rich, John Lyon,	*Hobart*,	1 Arts
Rich, Melvin,	*Washington, D. C.*,	2 Civil Eng.
Richards, John Harold,	*Whitehall*,	3 Med. (N.Y.C.)
Richards, Mabel Edna,	*Little Falls*,	1 Arts
Richardson, Frank Howard,	*Brooklyn*,	4 Arts, 2 Medicine
Richardson, Harold Jay,	*Lowville*,	3 Arts
Richardson, Rufus Johnson,	*Batavia*,	1 Law
Richtmyer, Floyd Karker,	*Cobleskill*,	4 Arts
Rick, Charles Maderia,	*Reading, Pa.*,	2 Mech. Eng.
Rickard, Le Ray Sidney,	*Cobleskill*,	1 Civil Eng.
Ricketson, William Elbridge,	*Plattsburg*,	1 Mech. Eng.
Riegel, Ross Milton,	*Harrisburg, Pa.*,	4 Civil Eng.
Rindsfoos, Charles Siesel,	*Circleville, O.*,	2 Civil Eng.
Ritzwoller, Eugene Max,	*Peoria, Ill.*,	2 Mech. Eng.
Roadhouse, Chester Linwood,	*Berkeley, Cal.*,	1 Veterinary
Roat, Grover Cleveland,	*Rushville*,	2 Elect. Eng.
Roats, Oley De Wayne,	*Three Mile Bay*,	1 Law
Robbins, John Loring,	*Great Barrington, Mass.*,	1 Mech. Eng.
Roberts, Charles Alphonso,	*Lakeville, Conn.*,	4 Elect. Eng.
Roberts, LeRoy Clinton,	*Ordway, Colo.*,	2 Mech. Eng.
Robertshaw, John Clement,	*Elmira*,	4 Arts
Robertson, George Cooke,	*Buffalo*,	3 Arts
Robertson, Ralph Kenyon,	*Buffalo*,	4 Arts
Robertson, Ralph Noyes, S.B.,	*Leadville, Colo.*,	3 Mech. Eng.
Robinson, Charles Francis,	*Modeltown*,	Sp. Agriculture
Robinson, Frank Crowl,	*Wellsboro, Pa.*,	4 Arts
Robinson, George Garrett,	*Richfield Springs*,	Jr. Law
Robinson, John Alden,	*Ithaca*,	4 Med. (N.Y.C.)
Robinson, Mary Huntting,	*Ithaca*,	2 Medicine

Robinson, Ralph,	*Ithaca*,	3 Med. (N.Y.C.)
Robinson, William Alexander,	*Sterling, Ill.*,	2 Mech. Eng.
Robinson, William Christopher,	*Holland Patent*,	3 Elect. Eng.
Robitzer, John Michael,	*Pittsburg, Pa.*,	Sp. Agriculture
Rocap, Charles Clarence,	*Plainfield, N. J.*,	1 Mech. Eng.
Rockwell, James Chapman,	*Syracuse*,	2 Mech. Eng.
Rockwood, Harry Langdon,	*Olean*,	1 Medicine
Roddewig, George Washington,	*Davenport, Ia.*,	2 Mech. Eng.
Rodgers, Ralph Chapman,	*Binghamton*,	2 Mech. Eng.
Roe, Mayo Eugene,	*Elyria, O.*,	4 Mech. Eng.
Roe, Ralph Burt,	*Ithaca*,	1 Arts
Roe, Willis Warren, A.B.,	*Wolcott*,	Jr. Law
Roeder, Arthur,	*Orange, N. J.*,	1 Civil Eng.
Roesch, George William,	*Brooklyn*,	1 Arts
Rogers, Clarence Arthur,	*Bergen*,	3 Agriculture
Rogers, Clarence Ramsey,	*Corry, Pa.*,	2 Elect. Eng.
Rogers, Edgar,	*Sagaponack*,	2 Civil Eng.
Rogers, Edgar Allan,	*Salt Lake City, Utah*,	Jr. Law
Rogers, Howard Maxwell,	*Sherborn, Mass.*,	1 Elect. Eng.
Rogers, Henry Pliny, Jr.,	*Salamanca*,	2 Architecture
Rogers, Jerome Dwight,	*Penn Yan*,	1 Law
Rogers, Job Robert,	*New York City*,	4 Civil Eng.
Rogers, Robert Wilson,	*New York City*,	4 Mech. Eng.
Rogers, William Woollard,	*New York City*,	3 Arts
Rohdenburg, George Louis,	*New York City*,	3 Med. (N. Y. C.)
Roig, Harold Joseph,	*Poughkeepsie*,	1 Arts
Rolph, Thomas Willett,	*Fredonia*,	1 Mech. Eng.
Rolston, Margaret, B.S.,	*Chattanooga, Tenn.*,	2 Arts
Roney, William Wheeler,	*New York City*,	3 Mech. Eng.
Ronsheim, Joshua,	*Brooklyn*,	1 Med. (N. Y. C.)
Rope, Frederick William,	*Buffalo*,	4 Arts
Rosbrook, Fred Eugene,	*Watertown*,	1 Law
Rosbrook, Ida Belle,	*Watertown*,	1 Law
Rose, Clarence Edward,	*Little Rock, Ark.*,	2 Elect. Eng.
Rose, Charles Price,	*Friendship*,	1 Law
Rose, Evangeline Darling,	*Port Jefferson*,	4 Arts
Rose, George Stanton,	*Yonkers*,	4 Elect. Eng.
Rose, Joseph Hanson,	*Pittsburg, Pa.*,	4 Arts
Rose, William Walter,	*So. Orange, N. J.*,	4 Med. (N.Y.C.)
Rosén, Robert Rudolph,	*Bridgeport, Conn.*,	1 Civil Eng.
Rosenheim, Minna,	*Baltimore, Md.*,	3 Arts
Rosenthal, Isidor, Ph.G.,	*New York City*,	4 Med. (N.Y.C.)

Ross, George Hilliard,	*Edgewater, N. J.*,	2 Arts
Ross, Harold Ellis,	*Smithboro*,	2 Agriculture
Rossman, Allen M,	*Hudson*,	3 Arts
Rossman, Richard,	*Hudson*,	1 Arts
Rossman, Sidney,	*Brooklyn*,	3 Arts
Roth, Rodolfo,	*Buenos Aires, Argentine Rep.*,	1 Elect. Eng.
Rothkowitz, Joseph,	*New York City*,	3 Med. (N.Y.C.)
Rowe, Allie Ethel,	*Hampton, Va.*,	1 Arts
Rowe, Anson Hewitt,	*Clarksville*,	1 Agriculture
Rowland, Harry Shepard,	*Montclair, N. J.*,	2 Elect. Eng.
Rowland, Theodore Sherwood,	*Greenport*,	1 Arts
Rowland, William Samuel,	*Washington, D. C.*,	1 Civil Eng.
Rubira, Adriano Woodruff,	*Mobile, Ala.*,	1 Mech. Eng.
Rudich, Mark,	*Brooklyn*,	1 Law
Rueck, Gustav Adolph,	*South Byron*,	1 Medicine
Ruhlen, George, Jr.,	*Washington, D. C.*,	1 Mech. Eng.
Ruiz, Henry Cecil,	*Matanzas, Cuba*,	2 Civil Eng.
Ruland, Joel Alonzo,	*Center Village*,	1 Law
Runyon, Walter Clark, Jr.,	*Cleveland, O.*,	1 Mech. Eng.
Russell, Edward Henry,	*Syracuse*,	Sp. Agriculture
Russell, Irvine Justin,	*East Nichols*,	3 Med. (N.Y.C.)
Russell, Thomas Alexander,	*McKeesport, Pa.*,	1 Architecture
Russell, William McKenzie,	*Great Barrington, Mass.*,	2 Arts
Russianoff, Max Jacob,	*New York City*,	2 Med. (N.Y.C.)
Rutherford, Harry William,	*Waddington*,	2 Civil Eng.
Rutledge, Andrew, Jr.,	*Rockford, Ill.*,	Sr. Law
Ryan, Floyd Horace,	*Cortland*,	Sp. Agriculture
Ryder, Edward Kirke,	*Worcester*,	4 Arts
Ryon, Henry,	*Brooklyn*,	2 Civil Eng.
Sailor, George Raymond,	*Swissvale, Pa.*,	1 Mech. Eng.
Sailor, Horace Price,	*Chicago, Ill.*,	1 Mech. Eng.
Sailor, Robert Warren,	*Chicago, Ill.*,	1 Arts
Sakai, Yunosuke, *Kamünagori*,	*Nagano-ken, Japan*,	1 Architecture
Salisbury, Myron Davis,	*Hamburg*,	1 Elect. Eng.
Salisbury, Orange James, Jr.,	*Salt Lake City, Utah*,	2 Mech. Eng.
Salisbury, Robert Walker,	*Salt Lake City, Utah*,	2 Mech. Eng.
Sampaio, Roberto d Mesquita,	*Sao Paulo, Brazil*,	1 Elect. Eng.
Samuelsou, Aaron,	*New York City*,	3 Med. (N.Y.C.)
Sanderson, Julius Courtlon,	*Cleveland, O.*,	3 Arts
Sanford, Chester Milton,	*Ithaca*,	3 Arts
Sanford, Lester Morse,	*New York City*,	3 Civil Eng.
Sanford, Merton Jarvis,	*Center Lisle*,	4 Med. (N.Y.C.)

Sanger, George Hutchins,	*Naugatuck, Conn.*,	1 Mech. Eng.
Santee, Harold Elmore,	*Hornellsville*,	4 Arts, 2 Medicine
Sarmiento, Arturo,	*Buenos Aires, Agr. Rep.*,	1 Elect. Eng.
Saulsbury, Henry Wilson, A.B.,	*Denton, Md.*,	2 Mech. Eng.
Savacool, William Laforge,	*Stapleton*,	4 Civil Eng.
Savage, James Henry,	*Brooklyn*,	1 Arts
Savory, Gerald, B.A.,	*Banbury, Eng.*,	4 Mech. Eng.
Sawai, Zenhichi Kitagun,	*Ehime, Japan*,	3 Agriculture
Sawyer, Nelson William,	*Morris*,	4 Elect. Eng.
Saxton, Wilbur Sayre,	*Binghamton*,	1 Civil Eng.
Sayce, Archibald Herbert,	*New York City*,	2 Mech. Eng.
Scarr, John, Jr.,	*Paterson, N. J.*,	2 Mech. Eng.
Schaaf, Albert Herman,	*Fort Wayne, Ind.*,	2 Elect. Eng.
Schade, James Walter,	*Brooklyn*,	4 Arts
Schaedle, Charles Andrew,	*Pittsburg, Pa.*,	1 Elect. Eng.
Schaefer, Joseph Harvey,	*Liverpool*,	1 Elect. Eng.
Scharfmann, Pauline,	*Brooklyn*,	4 Med. (N.Y.C.)
Schaffer, John Leinbach,	*Reading, Pa.*,	1 Arts
Scheidenhelm, Fred William,	*Mendota, Ill.*,	3 Arts
Schein, Nathan,	*Pittsburg, Pa.*,	2 Civil Eng.
Schenck, Florence Marion,	*Fulton*,	2 Arts
Schenck, Paul Albert,	*Denver, Colo.*,	1 Mech. Eng.
Schiffelin, George Girard,	*Stokesdale, Pa.*,	1 Law
Schiff, Leo Francis,	*Brooklyn*,	2 Med. (N.Y.C.)
Schmid, Robert John,	*Rochester, Minn.*,	1 Civil Eng.
Schmidlapp, William Horace,	*Cincinnati, O.*,	2 Arts
Schmidt, Frederick Elmer,	*Newark, N. J.*,	1 Medicine
Schmidt, George John,	*Port Jervis*,	1 Elect. Eng.
Schmuck, Oliver LeRoy,	*Hanover, Pa.*,	1 Elect. Eng.
Schneider, Frederick,	*Bedford, O.*,	2 Mech. Eng.
Schoellkopf, Jacob Frederick,	*Buffalo*,	3 Arts
Schoellkopf, Paul Arthur,	*Niagara Falls*,	2 Arts
Schoenijahn, Robert Polk,	*Brooklyn*,	2 Mech. Eng.
Scholes, Daniel Ransom,	*Chicago, Ill.*,	4 Mech. Eng.
Schreiber, Leonard George,	*Cincinnati, O.*,	1 Civil Eug.
Schrott, John B, Jr.,	*Gowanda*,	4 Mech. Eug.
Schurman, Robert,	*Ithaca*,	1 Arts
Schutt, Warren Ellis,	*Ithaca*,	3 Arts
Schwartz, Benjamin,	*New York City*,	1 Med. (N.Y.C.)
Schwartz, Frank Herbert,	*Albany*,	2 Mech. Eng.
Schwartz, Samuel Robert, A.B.,	*New York City*,	2 Mech. Eng.
Schwarz, J Walter,	*Rochester*,	1 Elect. Eug.

Scofield, Herbert Henry,	*Bemus Point*,	3 Mech. Eng.
Scott, Frank Leslie,	*Morristown*,	Sr. Law
Scott, Mabel,	*Newark, N. J.*,	3 Med. (N.Y.C.)
Scott, Maxwell Williams,	*Dunkirk*,	4 Arts
Scovill, Jennie Belle,	*New Hartford*,	1 Arts
Scranton, William Henry, A.B.,	*Scranton, Pa.*,	2 Mech. Eng.
Seaman, Arthur M,	*Trumansburg*,	3 Veterinary
Seaman, Benjamin White,	*Rockville Centre*,	1 Medicine
Seaman, Elizabeth Allen,	*Smithville South*,	1 Arts
Sears, Frank Martin,	*Holyoke, Mass.*,	2 Mech. Eng.
Seely, Grace Alvana,	*Spencer*,	4 Arts
Seeley, Henry Arthur,	*Bridgeport, Conn.*,	1 Civil Eng.
Seely, Charles Alfred,	*Spencer*,	4 Elect. Eng.
Seelye, Blanche Eggleston,	*Ithaca*,	3 Arts
Seelye, Elwyn Eggleston,	*Ithaca*,	4 Civil Eng.
Seidell, William Charles,	*Peterboro*,	4 Civil Eng.
Seipp, Edwin Alexander,	*Chicago, Ill.*,	3 Architecture
Seitz, Fred Gallagher,	*Philadelphia, Pa.*,	2 Mech. Eng.
Seix-Rosaly, Jaime,	*Ponce, Puerto Rico*,	Jr. Law
Selden, Katharine Emily,	*Catskill*,	3 Arts
Sellstrom, Elmer Waldemar,	*Jamestown*,	1 Civil Eng.
Semon, William Hart,	*Cleveland, O.*,	2 Architecture
Serviss, Garrett Putnam, Jr.,	*Brooklyn*,	3 Civil Eng.
Seymour, Charles Mason,	*Chicago, Ill.*,	1 Mech. Eng.
Seymour, George Masters, Jr.,	*New York City*,	1 Mech. Eng.
Shafer, James C Forsythe,	*Montgomery*,	3 Civil Eng.
Shalders, Roberto James, C.E.,	*Rio de Janeiro, Brazil*,	4 Elect. Eng.
Shallcross, Warren Mims,	*Louisville, Ky.*,	1 Mech. Eng.
Shane, Bernard, B.S.,	*New York City*,	2 Civil Eng.
Shanley, John Francis, Jr.,	*Newark, N J.*,	4 Arts
Shanly, Mary Edward,	*Binghamton*,	2 Arts
Shapero, Isador,	*Syracuse*,	1 Med. (N. Y. C.)
Shattuck, Herbert Carpenter, A.B.,	*Ithaca*,	Jr. Law
Shattuck, Ralph Cushman,	*Maynard, Mass.*,	1 Arts
Shaw, Arthur Peer,	*Cherry Creek*,	Sr. Law
Shaw, Charles Frederick,	*West Henrietta*,	2 Agr.
Shaw, Charles Perrin,	*Detroit, Mich.*,	3 Mech. Eng.
Shaw, James Cicero,	*Hondo, Tex.*,	4 Mech. Eng.
Shaw, Joseph Duty, B.S.,	*Hondo, Tex.*,	4 Elect. Eng.
Shaw, Norman Lowrie,	*Glenshaw, Pa.*,	3 Mech. Eng.
Shaw, William Francis, B.S.,	*Hondo, Tex.*,	4 Mech. Eng.
Shedden, John Stephen, B.S.,	*Rock Springs, Wyo.*,	4 Mech. Eng.

Sheffer, John Wesley,	*Williamsport, Pa.*,	1 Mech. Eng.
Sheffield, Frederick Duane,	*Warsaw*,	1 Arts
Sheldon, Ralph Edward,	*Ithaca*,	4 Arts
Sheldon, William Hills,	*Auburn*,	2 Medicine
Shelton, Frank Winfred,	*Kansas City, Mo.*,	Sp. Med. (N. Y. C.)
Shepard, John Berdan,	*Buffalo*,	1 Agriculture
Shepard, Myron Sylvester,	*Ithaca*,	1 Civil Eng.
Shepherd, Alfred Willard,	*Glendale, O.*,	1 Mech. Eng.
Shepherd, Vera Louise,	*Ithaca*,	3 Arts
Sheppard, Joel Fithian, 2nd,	*Quincy, Mass.*,	1 Mech. Eng.
Shepperson, Mary Clement,	*Hagerman, New Mexico*,	Sp. Agr.
Sherman, Frederick Elias,	*Watkins*,	1 Civil Eng.
Shields, Norwood Rarason,	*Burlington, N. J.*,	4 Agriculture
Shields, William Dickinson,	*Shields, Pa.*,	1 Mech. Eng.
Shiland, Elmer James,	*Coila*,	4 Mech. Eng.
Shmauk, Leopold Hoffman,	*Montville, Conn.*,	1 Med. (N.Y.C.)
Short, Stanley,	*Clifton Springs*,	1 Mech. Eng.
Shreve, Ralph Febrey,	*Washington, D. C.*,	2 Civil Eng.
Shull, Fred Grover,	*Hammondsport*,	1 Elect. Eng.
Shumway, Arthur Keller,	*Rochester*,	4 Civil Eng.
Shute, Sarah Pierson,	*Gloversville*,	2 Arts
Sibley, Jessie Gillies,	*Cuba*,	4 Arts
Sibley, Samuel Dunham,	*North Orwell, Pa.*,	1 Mech. Eng.
Sickmon, May Christine,	*Buffalo*,	Jr. Law
Siebold, Albert Frank,	*Buffalo*,	2 Agr.
Siefke, Frederick,	*Brooklyn*,	3 Mech. Eng.
Siegel, Abram,	*New York City*,	1 Med. (N.Y.C.)
Sieling, Louis John,	*Brooklyn*,	1 Civil Eng.
Sieling, Mary Cecilia, A.B.,	*York, Pa.*,	4 Arts
Sill, William Miller,	*Jamestown*,	2 Medicine
Simmons, Alice Pendergast,	*Gloversville*,	2 Arts
Simmons, Lilla Gertrude,	*Worcester, Mass.*,	4 Arts
Simmons, Solomon,	*Cortland*,	Jr. Law
Simmons, William Howard,	*Oil City, Pa.*,	3 Arts
Simonton, Ira Boyce, B.S.,	*Jacksonville, Fla.*,	2 Mech. Eng.
Simpson, Ernest Lee,	*Troupsburg*,	1 Veterinary
Simpson, Dwight Swain,	*Minneapolis, Minn.*,	2 Mech. Eng.
Simpson, Ray Clinton,	*Vincennes, Ind.*,	3 Agriculture
Simpson, William Jacob,	*New York City*,	1 Elect. Eng.
Sindel, Benjamin,	*New York City*,	1 Med. (N.Y.C.)
Skinner, Albert Merriman,	*Albany*,	1 Architecture
Slauson, Harold Whiting,	*Middletown*,	2 Mech. Eng.

Slauson, Kinsley Wilcox,	*Middletown*,	1 Arts
Slavit, Joseph,	*Brooklyn*,	4 Med. (N. Y. C.)
Sleeth, Montgomery,	*Wilmerding, Pa.*,	1 Elect. Eng.
Sleicher, Charles Albert,	*Lansingburg*,	4 Arts
Sloan, Ben,	*Greenville, S. C.*,	1 Mech. Eng.
Sloan, Robert Shunk,	*Ithaca*,	1 Law
Sloat, Halbert Maitland,	*Mt. Vernon*,	4 Arts
Slocombe, Edwin Mitchell,	*New Haven, Conn.*,	4 Arts
Slocum, Chester Arthur,	*Long Branch, N. J.*,	2 Mech. Eng.
Slocum, Chester Colt,	*Scottsville*,	1 Mech. Eng.
Slocum, Rob Roy,	*Ithaca*,	2 Arts
Slutsky, Nathan Israel,	*Brooklyn*,	1 Med. (N.Y.C.)
Sly, Frederic Sanford,	*Fredonia*,	1 Mech. Eng.
Smiley, Arthur Rose,	*Brooklyn*,	2 Arts
Smit, Frank,	*Paterson, N. J.*,	Sr. Law
Smith, Alice Gertrude,	*Ithaca*,	3 Arts
Smith, Amos Bird,	*Cazenovia*,	1 Mech. Eng.
Smith, Anna LaVerne,	*Sidney*,	3 Arts
Smith, Barrett,	*New York City*,	4 Mech. Eng.
Smith, Chester Allan,	*Decatur, Ill.*,	1 Law
Smith, Dean Philip,	*Louisiana, Mo.*,	1 Elect. Eng.
Smith, Elizabeth Allen,	*Olean*,	1 Arts
Smith, Edwin Kennedy,	*Nashville, Tenn.*,	2 Mech. Eng.
Smith, Fletcher Eugene,	*Ithaca*,	2 Veterinary
Smith, Florence Katharine,	*Ithaca*,	1 Arts
Smith, Florence May,	*Trumansburg*,	1 Arts
Smith, Florintine Rolland,	*Jersey City, N. J.*,	2 Med. (N.Y.C.)
Smith, Harlow Duane,	*Fayetteville*,	Sp. Agriculture
Smith, Harry Coleman,	*Canisteo*,	1 Civil Eng.
Smith, Harry Edwin,	*Ithaca*,	3 Mech. Eng.
Smith, Harry George,	*Buffalo*,	2 Mech. Eng.
Smith, Helen Forsythe,	*N. Tonawanda*,	4 Arts
Smith, Henry Edmond,	*Baltimore, Md.*,	2 Civil Eng.
Smith, Howard Charles,	*Applegate*,	3 Arts
Smith, Jay Lewis,	*Port Jervis*,	4 Arts
Smith, John Homer,	*Brewster*,	3 Arts
Smith, John VanWagner,	*White Plains*,	3 Med. (N. Y. C.)
Smith, Lucy Gilson,	*Oswego*,	4 Arts
Smith, Mark Elmer,	*Erie, Pa.*,	1 Mech. Eng.
Smith, Morgan Babcock,	*Syracuse*,	3 Arts
Smith, Mary Porter,	*Adams*,	3 Arts
Smith, Robert Armstrong, Jr.,	*Brooklyn*,	3 Elect. Eng.

Smith, Ralph Brady,	*Aurora, Ill.*,	1 Elect. Eng.
Smith, Rufus Daniel,	*Richmond Hill*,	1 Arts
Smith, Samuel Newell, Jr.,	*Providence, R. I.*,	3 Med. (N.Y.C.)
Smith, Stanley Delancy,	*Springville*,	1 Law
Smith, Warren George,	*Oneonta*,	2 Med. (N.Y.C.)
Smith, William Burritt,	*Newfield*,	1 Veterinary
Smithe, Percy Allis Winans, A.B.,	*New York City*,	3 Med. (N.Y.C.)
Smutz, Laura Katharine,	*Tidioute, Pa.*,	4 Arts
Sneckenberger, Earl Miner, B.Ph.,	*Tiffin, O.*,	2 Civil Eng.
Snider, Warner Garfield,	*Cleveland, O.*,	3 Mech. Eng.
Snow, Arch Miller,	*Boonville*,	2 Civil Eng.
Snow, Edward James,	*Montclair, N. J.*,	2 Elect. Eng.
Snow, Jessie,	*Toledo, O.*,	4 Arts
Snowden, William Hugh,	*Bayonne, N. J.*,	Jr. Law
Snowdon, Ralph Cuthbert,	*Scranton, Pa.*,	4 Arts
Snyder, Alfred,	*Philadelphia, Pa.*,	1 Mech. Eng.
Snyder, Floyd Christian,	*Massillon, O.*,	3 Elect. Eng.
Snyder, Harold Jay,	*Schoharie*,	2 Veterinary
Snyder, Herbert Turner,	*Baltimore, Md.*,	4 Elect. Eng.
Snyder, John,	*Plumsteadville, Pa.*,	3 Architecture
Snyder, Leo Harter,	*Herkimer*,	1 Mech. Eng.
Snyder, William Clark,	*Binghamton*,	4 Arts, 2 Medicine
Soch, Emma Marion,	*Forestville*,	3 Agriculture
Somerville, John Snape,	*Evanston, Ill.*,	1 Mech. Eng.
Sonnenberg, Jerome,	*New York City*,	1 Med. (N.Y.C.)
Sophian, Abraham,	*New York City*,	2 Med. (N.Y.C.)
Southerland, Frederic Jewell,	*Brooklyn*,	1 Elect. Eng.
Sowles, Lewis William,	*Salt Lake City, Utah*,	2 Elect. Eng.
Spanogle, Donald Bare,	*Lewiston, Pa.*,	1 Elect. Eng.
Spears, Eldridge Anson,	*Northwood*,	1 Arts
Specht, William Henry, D.D.S.,	*New York City*,	2 Med. (N.Y.C.)
Speed, Bessie Frances,	*Ithaca*,	2 Arts
Speed, Lorenzo Dowe,	*Ithaca*,	3 Elect. Eng.
Speiden, Eben Childs,	*Marshall, Va.*,	4 Mech. Eng.
Spelman, William Angell,	*Champlain*,	1 Arts
Spencer, Clarence Garfield,	*Lee, Mass.*,	4 Elect. Eng.
Spencer, Oliver Chancy,	*Seattle, Wash.*,	1 Elect. Eng.
Sperry, Charles Louis,	*North Adams, Mass.*,	1 Civil Eng.
Speyer, Elwin Gerald,	*Buffalo*,	1 Civil Eng.
Spicer, Clarence Winfred,	*Edelstein, Ill.*,	Sp. Mech. Eng.
Spingarn, Herman,	*Brooklyn*,	1 Arts
Spooner, Charles Stockman,	*Middletown*,	1 Arts

Sprague, Mary Winifred,	*New Berlin*,	4 Arts
Sprigg, Carrollton Crawford,	*Tompkinsville*,	1 Civil Eng.
Squier, Clarence Cecil,	*Ithaca*,	Jr. Law
Squires, Charles Anthony, A.B.,	*Plainfield*,	4 Med. (N.Y.C.)
Staats, Edward Pomeroy,	*Cooperstown*,	3 Mech. Eng.
Stafford, James Prendergast,	*Jamestown*,	Jr. Law
Stafford, Rosslyn John,	*New Lisbon*,	1 Veterinary
Stanbrough, Duncan Goldsmith,	*New York City*,	2 Mech. Eng.
Stanion, D Curtis,	*Ithaca*,	Sp. Agriculture
Stanley, Grant, B.S.,	*Meriden, Conn.*,	4 Med. (N.Y.C.)
Stanley, Johnston,	*St. Johnsbury, Vt.*,	4 Arts
Stanton, Charles Weems,	*Mobile, Ala.*,	1 Mech. Eng.
Stanton, Grove Ansel,	*Auburn*,	1 Civil Eng.
Stark, George William,	*Little Falls*,	2 Medicine
Starr, Arthur,	*Sewickley, Pa.*,	1 Elect. Eng.
Starr, Albert Birdsey,	*East Hampton, Conn.*,	1 Mech. Eng.
Startz, Benjamin,	*New York City*,	2 Med. (N.Y.C.)
Stearns, David Pyott,	*Chicago, Ill.*,	2 Mech. Eng.
Stearns, John,	*Denver, Colo.*,	1 Civil Eng.
Stecker, Margaret Loomis,	*Mt. Vernon*,	2 Arts
Stechmau, Frederick William,	*New York City*,	3 Med. (N.Y.C.)
Steel, William Foster,	*Mt. Vernon*,	4 Mech. Eng.
Steele, Edward Albert,	*Philadelphia, Pa.*,	2 Mech. Eng.
Steers, Edna Louise,	*Brooklyn*,	4 Arts
Stehli, Edgar,	*Montclair, N. J.*,	1 Arts
Stein, Herbert Edward,	*New York City*,	3 Med. (N.Y.C.)
Steiner, Sydney,	*Brooklyn*,	4 Med. (N.Y.C.)
von Steinwehr, Fred,	*Cincinnati, O.*,	2 Arts
Stella, John, L.L.,	*New York City*,	2 Med. (N.Y.C.)
Stephens, Fitch Hibbard,	*Ithaca*,	Jr. Law
Stephenson, Hermann,	*Ithaca*,	1 Mech. Eng.
Stern, Harold Gross,	*Spokane, Wash.*,	2 Mech. Eng.
Stevens, Benjamin,	*New York City*,	1 Med. (N.Y.C.)
Stevens, Donald French,	*Chicago, Ill.*,	2 Civil Eng.
Stevens, Madge Arthur,	*Philadelphia, Pa.*,	1 Arts
Stevens, William Clifford,	*Portland, Me.*,	2 Mech. Eng.
Stevenson, Hector Morrison,	*Brooklyn*,	1 Med. (N. Y. C.)
Stewart, Homer Edgar, Jr.,	*Warren, O.*,	1 Mech. Eng.
Stewart, Sidney Vander Veer,	*Morrisville*,	1 Mech. Eng.
Stewart, Walter Phelps,	*Clifton Springs*,	1 Civil Eng.
Stigner, Pehr, A.B.,	*Lund, Sweden*,	4 Med. (N.Y.C.)
Stillman, Austin Frank,	*Brooklyn*,	1 Mech. Eng.

Stimpson, Earl Bristol,	*Walton*,	1 Architecture
Stinchfield, Charles, Jr.,	*Detroit, Mich.*,	Sp. Agriculture
Stirling, Vincent Reynolds,	*Oil City, Pa.*,	3 Civil Eng.
Stockdale, Thomas Ringland,	*Summit, Miss.*,	2 Civil Eng.
Stoddard, Chauncey, 3rd,	*Keosauqua, Ia.*,	2 Mech. Eng.
Stolte, Johanna Cathrine,	*Mt. Vernon*,	3 Arts
Stone, Albert Winfield,	*Binghamton*,	4 Mech. Eng.
Stone, Archibald,	*Binghamton*,	1 Agr.
Stone, Delia May,	*Ithaca*,	4 Arts
Stone, Helen Lovica,	*Ithaca*,	2 Arts
Stone, Roy Lynne,	*Potsdam*,	1 Arts
Storm, Walter Woolsey,	*Wilmington, N C.*,	1 Mech. Eng.
Storz, Joseph Frank,	*Wilkes-Barre, Pa.*,	2 Civil Eng.
Stoughton, Elisabeth Alden,	*Hartford, Conn.*,	2 Arts
Stow, William Loomis,	*Buffalo*,	Sr. Law
Stowell, William Stuart,	*Elmira*,	1 Mech. Eng.
Strane, James Albert,	*St. Paul, Minn.*,	2 Mech. Eng.
Strang, William Frederick,	*Waterloo*,	4 Arts
Stratton, Julian Arthur,	*Oxford*,	4 Elect. Eng.
Straus, Joseph Henry, Jr.,	*Baltimore, Md.*,	3 Architecture
Strickland, Harold Allison,	*Livonia*,	1 Elect. Eng.
Stuart, William Charles, Jr.,	*Irvington*,	1 Civil Eng.
Stubblefield, Garfield, B.C.E.,	*Vinita, Ind. Ter.*,	3 Civil Eng.
Stuckmann, Laura Marie,	*Bloomingdale*,	1 Arts
Stull, Charles Rodman,	*Ridley Park, Pa.*,	1 Mech. Eng.
Sturdevant, James Hiram,	*Ithaca*,	4 Civil Eng.
Stutz, Harry George,	*Albany*,	1 Law
Sullivan, Eugene Joseph,	*Saratoga Springs*,	1 Veterinary
Sullivan, John Leo,	*Stockton*,	Sr. Law
Sumner, Grover Cleveland,	*Brooklyn*,	1 Mech. Eng.
Sumner, William Bartlett,	*Buffalo*,	1 Law
Sunderbruch, Jens Frederick,	*Davenport, Ia.*,	2 Arts
Sunstein, Leon Cleveland,	*Allegheny, Pa.*,	2 Arts
Sutton, Frederick A,	*Hackettstown, N. J.*,	1 Med. (N. Y. C.)
Sutton, Reeva Alice,	*Dundee*,	4 Arts
Swan, Cecil Jarvis,	*Elmira*,	4 Arts
Swanz, Edwin Philip,	*Buffalo*,	1 Civil Eng.
Swayze, Clayton Isaac,	*Ludlowville*,	4 Arts
Sweet, Earl Vincent, A.B.,	*Phoenix*,	1 Medicine
Sweet, Richard Leigh,	*Waterloo*,	1 Mech. Eug.
Swick, Charles Humphrey,	*Livonia*,	1 Mech. Eng.
Swick, Clarence Herbert,	*Ransomville*,	1 Civil Eug.

Swift, Douglas,	*Cuba*,	4 Arts
Swift, Pemberton Reno,	*Ridgway, Pa.*,	1 Elect. Eng.
Swigert, William Edwin,	*Carbondale, Pa.*,	1 Arts
Swiggett, Edward Mansfield,	*Morrow, O.*,	2 Agriculture
Sylvester, Louis George,	*Scranton, Pa.*,	1 Arts
Sze, Soa Chiang Thomas,	*Shanghai, China*,	3 Mech. Eng.
Taber, Silas,	*Auburn*,	1 Elect. Eng.
Taggart, James,	*Frackville, Pa.*,	1 Civil Eng.
Tailby, George Walter, Jr.,	*Ithaca*,	2 Agriculture
Taintor, Archie Raymond,	*Elizabeth, N. J.*,	4 Arts
Takami, Tayohiko Campbell,	*Tuboy, Kumamoto, Japan*,	2 Med. (N.Y.C.)
Tallman, Carl Cornwell,	*Auburn*,	1 Architecture
Tappey, Howard Pomfrett,	*Liberty*,	1 Elect. Eng.
Tarbell, Clarence D,	*Ithaca*,	Sp. Law
Tavenner, Frank Lucius, B.C.E.,	*Lewiston, Mont.*,	3 Mech. Eng.
Taylor, Charles Henry,	*Camillus*,	2 Veterinary
Taylor, Earl MacNair,	*Scranton, Pa.*,	1 Arts
Taylor, Edith May,	*Andes*,	1 Arts
Taylor, Gilbert,	*Yonkers*,	1 Mech. Eng.
Taylor, Gordon McDougall,	*Scranton, Pa.*,	1 Elect. Eng.
Taylor, Hayes Clark,	*Doe Run, Pa.*,	3 Agriculture
Taylor, Nelson Vinton,	*Salisbury, N. C.*,	3 Arts
Taylor, Wickham,	*Norfolk, Va.*,	1 Architecture
Taylor, William Gorton,	*Middletown*,	1 Elect. Eng.
Taylor, Walter Jennings,	*Ithaca*,	1 Veterinary
Taylor, William Winthrop,	*Brooklyn*,	1 Law
Tefft, Hester Pardee,	*Little Falls*,	2 Arts
Tegg, Frank Gilbert,	*Rochester*,	1 Veterinary
Teller, Spencer Jay,	*Unadilla*,	2 Mech. Eng.
Temple, Herbert Asher,	*Seneca*,	2 Elect. Eng.
Tenney, Albert Seward,	*Trentsin, China*,	1 Medicine
Terry, Parker Sherley,	*Louisville, Ky.*,	1 Law
Tetley, Josiah Wilbur,	*Kingston*,	4 Arts
Thayer, Frank Garfield,	*Holyoke, Mass.*,	Sp. Agriculture
Thomas, Allen Job,	*Greenwich*,	1 Arts
Thomas, Belle,	*New York City*,	1 Medicine
Thomas, Frederick Walker,	*Bayonne, N. J.*,	1 Law
Thomas, James Blaine,	*Elyria, O.*,	4 Civil Eng.
Thomas, John Rader,	*Hokendauqua, Pa.*,	1 Mech. Eng.
Thomas, John Thomas,	*Scranton, Pa.*,	3 Mech. Eng.
Thomas, Owen Alexander,	*Oakmont, Pa.*,	1 Mech. Eng.

Thomas, Royal David,	*Oakmont, Pa.*,	2 Elect. Eng.
Thomas, William Henry,	*Elyria, O.*,	3 Mech. Eng.
Thompson, Alexander Holt,	*Sherman, Tex.*,	Jr. Law
Thompson, Charles Lewis,	*South Otselic*,	2 Elect. Eng.
Thompson, Eustis Henry,	*Baltimore, Md.*,	3 Elect. Eng.
Thompson, F Van,	*Marcellus*,	2 Arts
Thompson, Harrison Coffin,	*Daytona, Fla.*,	2 Elect. Eng.
Thompson, Hoxie Harry, B.S.,	*Sherman, Tex.*,	3 Civil Eng.
Thompson, Mulford Conklin,	*Attlebury*,	2 Veterinary
Thompson, Owen Stanley,	*New York City*,	1 Veterinary
Thomson, Ira Reed,	*Holland Patent*,	1 Elect. Eng.
Thomson, Ralph Moore,	*Brooklyn*,	2 Civil Eng.
Thomson, Walter Ira,	*Holland Patent*,	4 Agriculture
Thorne, John Kneeland,	*Skaneateles*,	1 Arts
Thrall, William Austin, Jr.,	*Chicago, Ill.*,	2 Elect. Eng.
Thro, William Crooks, B.S.A., A.M.,	*Elmira*,	1 Medicine
Throop, Henry Grosvenor,	*Lebanon*,	2 Civil Eng.
Tibbetts, Harlaud Bryant,	*Ithaca*,	4 Arts
Ticknor, William Harrison,	*Augusta, Me.*,	1 Elect. Eng.
Tiedeman, Luther,	*Charleston, S. C.*,	3 Mech. Eng.
Tietze, Samuel,	*New York City*,	2 Med. (N.Y.C.)
Tiffany, John Blakeslee, B.S.A.,	*Hop Bottom, Pa.*,	3 Veterinary
Tiffany, Nathan Newton,	*Bridge Hampton*,	3 Civil Eng.
Tiffany, Stephen Ralph,	*Occanum*,	1 Law
Tillson, Charles Burritt,	*Maple Grove*,	Sp. Agriculture
Timmerman, Ray,	*Fort Plain*,	2 Mech. Eng.
Tinkler, John, Jr.,	*Deposit*,	3 Arts, 1 Medicine
Titus, Charles Israel,	*Windsor*,	3 Med. (N.Y.C.)
Titus, Wetmore Holloway,	*Plainfield, N. J.*,	3 Mech. Eng.
Todd, Clarence Lionel,	*Beaver, Pa.*,	1 Civil Eng.
Todd, John William,	*Pittsburg, Pa.*,	2 Mech. Eng.
Todd, Leona Estelle, A.B.,	*Rochester*,	3 Med. (N.Y.C.)
Todd, Thomas Waring,	*Baltimore, Md.*,	1 Mech. Eng.
Tolin, Richard Morton,	*Indianapolis, Ind.*,	3 Arts
Tolles, Frank Clifton,	*Brooklyn*,	3 Civil Eng.
Tompkins, George Ricks,	*Buffalo*,	1 Elect. Eng.
Toms, Raymond Ezra,	*Frederick, Md.*,	1 Civil Eng.
Topp, Roger,	*New York City*,	1 Mech. Eng.
Topping, Elizabeth Russell,	*Ithaca*,	2 Arts
Tourison, Charles Edward,	*Philadelphia, Pa.*,	3 Civil Eng.
Tourison, George Bartle,	*Philadelphia, Pa.*,	4 Architecture
Tousey, Thomas Grant,	*Pittsford*,	2 Medicine

Townley, John Campbell,	*Ithaca*,	1 Mech. Eng.
Townsend, Clarence Ellsworth,	*Painted Post*,	1 Mech. Eng.
Tracy, John Cadman,	*Hudson*,	1 Arts
Tracy, Reginald Pierce,	*New York City*,	1 Mech. Eng.
Tracy, Walter Hoyt,	*Towanda, Pa.*,	3 Civil Eng.
Traum, Jacob,	*New York City*,	2 Veterinary
Trautschold, Gordon Manfred,	*Montclair, N. J.*,	1 Architecture
Travers, Henry Adelbert,	*Saratoga Springs*,	1 Elect. Eng.
Treacy, John Lear,	*Helena, Mont.*,	2 Arts
Treat, Sidney Wellington,	*Chicago, Ill.*,	1 Mech. Eng.
Treman, Walter,	*Ithaca*,	2 Veterinary
Trimbey, Edward James,	*Washington Mills*,	3 Elect. Eng.
Trorlicht, Oscar Albert,	*St. Louis, Mo.*,	1 Elect. Eng.
Trott, John Winslow,	*Niagara Falls*,	1 Mech. Eng.
Trott, Rolland Stinson,	*Ithaca*,	4 Elect. Eng.
Troy, Andrew Charles Francis, A.B.,	*Brooklyn*,	1 Law
Truckell, Henry,	*Stanbridge East, Quebec, Can.*,	Sp. Agriculture
Trumbull, James Alexander,	*Ithaca*,	1 Law
Trumbull, Roscoe Hale,	*Denver, Colo.*,	2 Civil Eng.
Tryon, William Louis,	*Syracuse*,	1 Mech. Eng.
Tubbs, Warren,	*Osceola, Pa.*,	4 Arts
Tuck, Charles Henry,	*Ogdensburg*,	2 Arts
Tudela, Gabriel,	*Lima, Peru*,	2 Mech. Eng.
Tuerk, Frederick Samuel,	*Fulton*,	1 Elect. Eng.
Turner, Benjamin Coe,	*Scriba*,	1 Law
Turner, George Follett,	*Brooklyn*,	2 Arts
Turner, Ralph Coit,	*Marietta, O.*,	1 Mech. Eng.
Turner, William Joel, B.A.,	*Lexington, Va.*,	2 Civil Eng.
Tyler, Caleb Ridgway,	*Sewell, N. J.*,	2 Elect. Eng.
Tydeman, Stephen James,	*Bloomfield, N. J.*,	2 Mech. Eng.
Uihlein, Robert August,	*Milwaukee, Wis.*,	Jr. Law
Umstad, Wilfred LeRoy,	*Norristown, Pa.*,	1 Mech. Eng.
Underhill, George Gardner,	*Albany*,	1 Civil Eng.
Underwood, Harold Barnes,	*Jamestown*,	1 Mech. Eng.
Underwood, Helen Willoughby,	*New York City*,	2 Arts
Underwood, Harry Gregory,	*New York City*,	Jr. Law
Underwood, Paul Halladay,	*Ludlowville*,	1 Civil Eng.
Unger, Max,	*New York City*,	1 Med. (N.Y.C.)
Upton, George Burr,	*Ithaca*,	4 Mech. Eng.
Urner, Jonas Paul,	*Frederick, Md.*,	3 Civil Eng.
Utley, Mildred Jeanne,	*Gloversville*,	4 Arts, 1 Medicine
Utz, Charles Phillip,	*Pittsford*,	4 Civil Eng.

Vail, Roger Sherman,	*Highland Park, Ill.*,	2 Arts
Valladares, Antenor,	*Lima, Peru*,	1 Mech. Eng.
Van Buren, William Ralph,	*Fishkill-on-Hudson*,	1 Arts
Van Dyck, Edward Spaulding,	*Valatie*,	Sr. Law
Van Fleet, Herman H,	*Canute, Kan.*,	1 Mech. Eng.
van Löben Sels, Maurits Carel Constantyn,	*Oakland, Cal.*,	4 Agriculture
Vannan, Paul Antrim,	*Coatesville, Pa.*,	1 Mech. Eng.
Van Nostrand, Leonard Green,	*Binghamton*,	2 Mech. Eng.
de Varona, Joseph Leo,	*New York City*,	3 Med. (N.Y.C.)
Van Vleet, Montgomery Sandford,	*Ovid*,	4 Elect. Eng.
Van Winkle, Walton,	*Buffalo*,	2 Mech. Eng.
Van Zile, Frank M,	*Caledonia*,	1 Mech. Eng.
Vaughan, Ernest Masters,	*Brooklyn*,	2 Med. (N.Y.C.)
Vaughan, Ralph,	*Worcester, Mass.*,	1 Architecture
Vatet, Oscar Valentine,	*Brooklyn*,	3 Architecture
Vawter, William Arthur, 2nd,	*Evanston, Ill.*,	2 Arts
Velarde y Cobian, Manuel Carlos,	*Lima, Peru*,	4 Elect. Eng.
Vencill, Albert Leander,	*Utica*,	1 Mech. Eng.
Viertels, Ephraim, B.S.,	*New York City*,	3 Civil Eng.
Viles, Lawrence Motley,	*Lake Forest, Ill.*,	4 Mech. Eng.
Vincent, Harold Blanchard,	*Lutherville, Md.*,	4 Elect. Eng.
Vincent, Harry Fowler,	*Odell, Ill.*,	4 Arts
Vincent, Sidney Coombe,	*Lutherville, Md.*,	3 Mech. Eng.
Vincent, William Germain, Jr., B.E.,	*New Orleans, La.*,	4 E. E.
Von der Lippe, Arthur,	*St. Louis, Mo.*,	1 Mech. Eng.
Von der Lippe, Ernest Carl Frederick, B.S., C.E.,	*St. Louis, Mo.*,	3 Mech. Eng.
Vonnegut, Anton,	*Indianapolis, Ind.*,	3 Mech. Eng.
Vonnegut, Arthur,	*Indianapolis, Ind.*,	2 Arts
Vonnegut, Walker,	*Indianapolis, Ind.*,	1 Arts
Voris, William Slade,	*Akron, O.*,	1 Arts
Vortriede, Henry Julius,	*Toledo, O.*,	1 Civil Eng.
Vosburgh, Chloe,	*Gowanda*,	2 Arts
Wachter, Seventus Carl Victor,	*Green Island*,	1 Arts
Wadsworth, Edward Arthur,	*Newark, N. J.*,	1 Mech. Eng.
Wagner, Effingham Buckley,	*Baltimore, Md.*,	2 Elect. Eng.
Wagner, George,	*Water Valley, Miss.*,	2 Elect. Eng.
Wait, Arthur Aristides,	*Greenville, Ill.*,	1 Law
Wait, Luther Ashton,	*Fort Edward*,	1 Law
Waite, Mary Violet,	*Hartford, Conn.*,	3 Arts
Walbran, Christopher James, Jr.,	*Brooklyn*,	1 Mech. Eng.
Waldie, Thomas Edward,	*Brooklyn*,	1 Med. (N.Y.C.)

Walker, Alexander, Jr.,	*Auburn*,	1 Medicine
Walker, Alfred Augustus,	*Birmingham, Ala.*,	3 Med. (N.Y.C.)
Walker, Archie Dean,	*Minneapolis, Minn.*,	1 Mech. Eng.
Walker, Charles Leopold,	*North Evans*,	4 Civil Eng.
Walker, Fernando Murray, B.A.,	*Cordoba, Arg. Rep.*,	3 Elect. Eng.
Walker, George Wilfred,	*Waverly*,	4 Elect. Eng.
Walker, Harry Abram,	*Ithaca*,	3 Med. (N.Y.C.)
Walker, Jessie Crockett,	*Brooklyn*,	1 Arts
Wall, Eleanor Gertrude,	*Ithaca*,	3 Arts
Wallace, Lindsay Hugh,	*Cleveland, O.*,	1 Mech. Eng.
Wallace, William Lewis, Jr.,	*Orange, N. J.*,	2 Mech. Eng.
Wallach, William Isidore,	*New York City*,	2 Med. (N.Y.C.)
Wallis, Frank Gilbert,	*Westfield, Pa.*,	1 Elect. Eng.
Walmsley, Fred Dowling,	*Brasher Falls*,	3 Veterinary
Walsh, William Edward,	*Marcellus*,	2 Med. (N.Y.C.)
Wankel, George Canning,	*Utica*,	3 Med. (N.Y.C.)
Ward, Grace Landers,	*Buckland, Mass.*,	1 Arts
Ward, Harry Jay,	*Peoria, Ill.*,	1 Civil Eng.
Wardwell, Arthur Soper,	*Rome*,	2 Mech. Eng.
Wardwell, Harold Fletcher,	*Rome*,	1 Architecture
Waring, William Wallace,	*Franklinville*,	1 Arts
Warner, Austin McRaven, A.B.,	*Vicksburg, Miss.*,	3 Mech. Eng.
Warner, Carrie Adele,	*Rochester*,	4 Arts
Warner, Earle Spear, B.L.,	*Clifton Springs*,	Jr. Law
Warner, Fred Leon,	*Fairport*,	4 Arts
Warner, Harold Saleno,	*Buffalo*,	3 Arts
Warner, Irving,	*Wilmington, Del.*,	4 Mech. Eng.
Warner, Maurice Lee,	*Beacon Falls, Conn.*,	1 Mech. Eng.
Warner, William Jay, A.B.,	*Springville*,	Jr. Law
Warren, Chester Ingersoll,	*Troy*,	3 Mech. Eng.
Warren, George Sessions,	*Worcester, Mass.*,	3 Mech. Eng.
Wasch, Milton Goodman,	*Brooklyn*,	3 Med. (N. Y. C.)
Waterbury, Warren C,	*Whitesboro*,	3 Arts
Waterman, Charlotte Cornelia, A.B.,	*Hudson*,	1 Veterinary
Waters, Ernest Joseph Hill,	*Sydney, Australia*,	1 Elect. Eng.
Watrous, Louise Electa,	*Montrose, Pa.*,	4 Arts
Watson, Edward Cassius,	*Westfield*,	Sr. Law
Watt, Avice McIntosh,	*Brooklyn*,	4 Arts
Watt, Harold Woodruff,	*Wilkes-Barre, Pa.*,	1 Mech. Eng.
Watt, Homer Andrew,	*Wilkes-Barre, Pa.*,	2 Arts
Way, Cassius, B.Agr.,	*Ithaca*,	3 Arts
Weatherlow, Hugh Edgar,	*Yorkshire*,	2 Civil Eng.

Weaver, Philip Victor,	*Brooklyn*,	2 Veterinary
Webb, Eric Hastings,	*Wellsboro, Pa.*,	4 Arts
Webb, Louis Albert,	*Pasadena, Cal.*,	4 Mech. Eng.
Webb, Seth William,	*Sugar Hill*,	1 Civil Eng.
Weber, Arthur Brothers,	*Buffalo*,	1 Law
Weber, Bernace Bensley,	*Salamanca*,	4 Civil Eng.
Weber, Rudolf Lorenz,	*Paterson, N. J.*,	3 Mech. Eng.
Webster, Blakely Rayce,	*Middletown*,	1 Medicine
Webster, Charles Henry,	*West Laurens*,	4 Med. (N.Y.C.)
Webster, George Pilsbury,	*Cazenovia*,	2 Arts
Wechsler, Joseph,	*New York City*,	1 Elect. Eng.
Wechsler, Philip,	*New York City*,	1 Med. (N.Y.C.)
Weed, Alfred Cleveland,	*New Hartford*,	4 Arts
Weed, Irene Rebecca,	*North Rose*,	1 Architecture
Weed, Ruth Sarissa,	*North Rose*,	1 Architecture
Weed, Ruth May,	*North Rose*,	2 Arts
Weedon, Wilfred Arthur,	*Brisbane, Queensland, Australia*,	1 Mech. Eng.
Wegman, Dominicus Charles,	*Jersey City, N. J.*,	1 Med. (N.Y.C.)
Weidner, Carl Robert,	*Buffalo*,	4 Civil Eng.
Weiffenbach, Norman Conrad,	*Dayton, O.*,	Sp. Architecture
Weil, Helene,	*Goldsboro, N. C.*,	3 Arts
Weinberger, Henry Harry,	*New York City*,	1 Med. (N.Y.C.)
Weiner, Edwin Morris Richard,	*Kingston*,	2 Elect. Eng.
Weinstein, Henry,	*New York City*,	1 Med. (N.Y.C.)
Weintraub, Victor,	*New York City*,	1 Civil Eng.
Welch, George Morgan, A.B.,	*Passaic, N. J.*,	Jr. Law
Welch, Leon Cowles,	*Greene*,	1 Mech. Eng.
Welch, Stewart Henry, A.B.,	*Uniontown, Ala.*,	1 Medicine
Weldgen, Nicholas John,	*Batavia*,	Jr. Law
Wellbery, Edward Montgomery,	*Seneca Falls*,	1 Medicine
Weller, Aaron Isaak,	*New York City*,	3 Med. (N.Y.C.)
Weller, Arthur Douglas,	*Ciucinnati, O.*,	2 Arts
Weller, Nellie Frances,	*Ilion*,	2 Arts
Welles, Edward Murray,	*Addison*,	3 Arts, 1 Medicine
Welles, George Edward,	*Big Flats*,	1 Mech. Eng.
Welles, Matthias Hollenbeck,	*Big Flats*,	4 Arts
Wellman, Holley Garfield,	*Cleveland, O.*,	2 Mech. Eng.
Wells, David Torrey,	*Cazenovia*,	4 Arts
Wells, Wayne Bagnley,	*Wellsville, O.*,	2 Elect. Eng.
Welsh, Everett Cartwright,	*Philadelphia, Pa.*,	3 Mech. Eng.
Wensley, Edua,	*Albany*,	4 Arts

Wentz, Alleta Mussulman,	*Kirkwood, Pa.*,	Sp. Arts
Wescott, Adelaide May,	*Knox Centre, Me.*,	3 Med. (N.Y.C.)
Wesson, Douglas Bertram,	*Springfield, Mass.*,	1 Mech. Eng.
West, Frank,	*Buffalo*,	4 Elect. Eng.
West, Isaac Smith, Jr.,	*New Orleans, La.*,	Sp. Agriculture
West, Livingston Dominick,	*Rochester*,	1 Mech. Eng.
Westover, Harvey Leroy,	*Austerlitz*,	1 Agriculture
Weter, Leo Aloysius,	*Buffalo*,	1 Law
Wheeler, Alice,	*Trumansburg*,	2 Arts
Wheeler, George Whiting,	*Buffalo*,	1 Med. (N.Y.C.)
Wheeler, Jane Maria,	*Worcester, Mass.*,	1 Arts
Wheeler, Merton Rone,	*Salt Lake City, Utah*,	1 Elect. Eng.
Wheeler, Perley Samuel,	*Plattsburg*,	4 Arts
Wheeler, Portius Rollin,	*Peoria, Ill.*,	2 Arts
Wheelock, William Dant,	*Kennedy*,	Sp. Agriculture
Whipple, John Blaine,	*Ithaca*,	1 Civil Eng.
Whitcomb, Don Salmon,	*Brooklyn*,	3 Arts
White, Alfred Winfield,	*Brooklyn*,	3 Med. (N.Y.C.)
White, Anna Maria,	*Utica*,	Sp. Agriculture
White, Carl Foster,	*Cleveland, O.*,	4 Architecture
White, Elizabeth Brett,	*Otisville*,	4 Arts
White, Gersham Franklin, B.S.,	*Malta, O.*,	1 Medicine
White, Gorrell Robert,	*Auburn*,	3 Arts
White, Howard,	*Marcellus*,	1 Medicine
White, John Jay. Jr.,	*Albany*,	2 Mech. Eng.
White, Theodore Parkman,	*New York City*,	2 Elect. Eng.
White, William Henry,	*Walton*,	1 Civil Eng.
White, William Morse,	*Bergen*,	1 Elect. Eng.
White, Zella Mildred,	*Bradford, Pa.*,	4 Med. (N.Y.C.)
Whited, Harriet,	*Rochester*,	4 Arts
Whitehead, James Harold,	*Buffalo*,	2 Mech. Eng.
Whiting, George Scott,	*Brooklyn*,	1 Arts
Whiting, Montague,	*Mobile, Ala.*,	1 Arts
Whiting, Rex,	*Patchin*,	1 Veterinary
Whiting, Wythe Lawler,	*Mobile*,	1 Mech. Eng.
Whitmore, Bertram Edward,	*Ilion*,	1 Law
Whitney, Francis Luther,	*Elmira*,	2 Arts
Whitney, William Parker,	*Dayton, O.*,	4 Architecture
Whitson, Mary,	*Ithaca*,	3 Arts
Whittaker, Elizabeth Leigh,	*Brookton*,	3 Arts
Whittlesey, William Augustus,	*Pittsfield, Mass.*,	4 Mech. Eng.
Wicks, Charles Hall,	*Cohoes*,	1 Arts

Wicks, James Monroe,	*Brooklyn*,	3 Med. (N.Y.C.)
Wicksman, Samuel,	*New York City*,	2 Med. (N.Y.C.)
Widmer, Arthur Jacob,	*Port Richmond*,	2 Mech. Eng.
Wien, Paul A,	*Mansfield, O.*,	2 Elect. Eng.
Wight, Frank Clinton,	*Washington, D. C.*,	4 Civil Eng.
Wight, Herbert, A.B.,	*Andes*,	Jr. Law
Wigley, Chester Greenhalgh,	*Yonkers*,	1 Civil Eng.
Wigley, William Roy,	*Yonkers*,	1 Arts
Wigton, Charles Benson,	*Philadelphia, Pa.*,	1 Civil Eng.
Wilcox, Guy Martin,	*Cohocton*,	Sp. Agriculture
Wilcox, Roscoe Squires,	*Bergen*,	3 Med. (N.Y.C.)
Wilder, Edward Tucker,	*Elmhurst, Ill.*,	2 Mech. Eng.
Wilder, Erskine Phelps,	*Elmhurst, Ill.*,	3 Mech. Eng.
Wilder, La Verne Arthur,	*Ithaca*,	1 Law
Wiley, Clarence Fairfax,	*Chicago, Ill,*,	1 Mech. Eng.
Wiley, Frederick Fullerton,	*Chester, Vt.*,	1 Arts
Wiley, Maxwell Harvey,	*Indianapolis, Ind.*,	1 Law
Wilkes, Stuart Ball,	*Buffalo*,	1 Arts
Wilkins, George Raymond,	*Buffalo*,	Jr. Law
Willcox, Abel Comstock,	*Smyrna*,	2 Arts
Willcox, James DeWitt,	*Montgomery, Ala.*,	1 Civil Eng.
Willets, Ray Douglas,	*Chicago, Ill.*,	2 Mech. Eng.
Willey, Wilford Bennett,	*Ithaca*,	1 Arts
Williams, Albert Blake,	*Brooklyn*,	2 Mech. Eng.
Williams, Alvin Bartlett,	*Indianapolis, Ind.*,	1 Law
Williams, Arthur Shaler, A.B.,	*New Haven, Conn.*,	4 Mech. Eng.
Williams, Benjamin Oliver,	*Denver, Colo.*,	3 Arts
Williams, Burr Fiske,	*Brockport*,	3 Arts
Williams, Charles Laurence,	*Washington, D. C.*,	3 Mech. Eng.
Williams, Donald Davol,	*Brooklyn*,	2 Mech. Eng.
Williams, David LeRoy,	*Utica*,	1 Arts
Williams, Fannie Abbie,	*Ithaca*,	1 Arts
Williams, Howard John,	*Chicago, Ill.*,	2 Arts
Williams, Rodney Ralph,	*Fredonia*,	1 Medicine
Williamson, Harry Clay,	*Willow Grove, W Va.*,	Sp. Law
Williamson, John Kennedy,	*Bethel, Conn.*,	1 Elect. Eng.
Willis, Ralph Sanderson,	*Brooklyn*,	1 Elect. Eng.
Wills, John Gordon, B.S.A.,	*Chateaugay*,	1 Veterinary
Willson, Anna Rachel,	*Ithaca*,	1 Arts
Wilmot, Floyd Harley,	*Groton*,	Sr. Law
Wilson, Charles Scoon,	*Hall's Corners*,	4 Arts
Wilson, David,	*Amsterdam*,	1 Arts

Wilson, Griswold,	*Philadelphia, Pa.*,	1 Mech. Eng.
Wilson, James Henry,	*Amsterdam*,	4 Mech. Eng.
Wilson, John Bailey, B.S.,	*Philadelphia, Pa.*,	2 Civil Eng.
Wilson, John Crosier,	*Hall's Corners*,	2 Mech. Eng.
Wilson, McLeod Campbell,	*New York City*,	4 Med. (N.Y.C.)
Wilson, Martin Luther,	*Ithaca*,	1 Arts
Wilson, Robert,	*Brooklyn*,	1 Mech. Eng.
Wilson, Roscoe Conkling, Phar. Chem.,	*Ithaca*,	1 Arts
Wilson, William Bertrand,	*Westfield*,	Sp. Agriculture
Wiltse, Chauncey Livingston,	*Fullerton, Neb.*,	1 Law
Winans, James Albert, A.B., A.M.,	*Ithaca*,	1 Law
Wincor, Henry,	*New York City*,	1 Med. (N.Y.C.)
Wineburgh, Charles, B.S.,	*New York City*,	4 Mech. Eng.
Wing, Walter Sterling,	*Detroit, Mich.*,	1 Mech. Eng.
Winship, Lef,	*Penn Yan*,	3 Civil Eng.
Winslow, Floyd Stone,	*Henrietta*,	2 Medicine
Wise, Harold Jacob,	*Wheeling, W. Va.*,	2 Mech. Eng.
Wismar, William Frederick, A.B.,	*Los Angeles, Cal.*,	3 Med. (N.Y.C.)
Woglum, Russell Sage,	*Oneida*,	4 Arts
Wolfersperger, John Jacob,	*Sterling, Ill.*,	2 Arts
Wolheim, Louis Robert, B.S.,	*New York City*,	3 Mech. Eng.
Wood, Charles Montgomery, A.B.,	*Chambersburg, Pa.*,	1 Mech. Eng.
Wood, Charles Parkinson,	*Warrenton, Va.*,	4 Elect. Eng.
Wood, Edson LeVerne,	*Savannah*,	2 Arts
Wood, Henry Millard,	*Evanston, Ill.*,	4 Mech. Eng.
Wood, James Hewitt,	*Mayfield*,	1 Law
Wood, Mabel Janette,	*Ithaca*,	3 Arts
Wood, Nancy Claflin,	*Mendon, Mass.*,	1 Arts
Wood, Rollin,	*Muncie, Ind.*,	2 Civil Eng.
Woodland, LeRoy,	*Chicago, Ill.*,	2 Elect. Eng.
Woodruff, Everett Halsey,	*Flushing*,	1 Civil Eng.
Woods, David Shelley,	*Albion*,	4 Mech. Eng.
Woods, Samuel Hamilton,	*Port Jervis*,	2 Mech. Eng.
Woodward, Charles Stebbins, B.E., M.E.,	*Norway, Pa.*,	4 Arts
Woodward, Karl Wilson,	*Montclair, N. J.*,	4 Arts
Woolf, William Buxton,	*Hyattsville, Md.*,	3 Elect. Eng.
Worden, Florence,	*Ithaca*,	4 Arts
Worden, Harold Everett,	*Ithaca*,	1 Mech. Eng.
Wortmann, Otto, B.S.,	*New York City*,	2 Mech. Eng.
Worts, Elizabeth Mannister,	*New York City*,	3 Med. (N.Y.C.)
Wosika, Leon Roudolph,	*Beatrice, Neb.*,	3 Elect. Eng.
Wray, Alfred Bussell,	*Elmira*,	3 Mech. Eng.

Wrench, Jesse Erwin,	*Afton*,	3 Arts
Wright, Albert Hazen,	*Hilton*,	4 Arts
Wright, Arthur Mullen, A.B.,	*Lyndonville*,	3 Med. (N.Y.C.)
Wright, Frank Henry,	*Rhinebeck*,	1 Veterinary
Wright, Richard Avery,	*Brooklyn*,	3 Elect. Eng.
Wright, Roy Rex,	*Saranac Lake*,	2 Architecture
Wu, Kuei Ling,	*Canton, China*,	3 Elect. Eng.
Wyeth, Ola Mae,	*Charleston, Ill.*,	4 Arts
Wylie, Arthur Gove,	*Blackinton, Mass.*,	3 Elect. Eng.
Wylie, Clarence Raymond,	*Saginaw, Mich.*,	3 Mech. Eng.
Wynkoop, George Edmund,	*Bath*,	1 Law
Wynkoop, Roy Baldwin,	*Chemung*,	1 Arts
Yarling, Thomas Eddy,	*Shelbyville, Ind.*,	1 Agriculture
Yates, William Henry,	*Negaunee, Mich.*,	1 Mech. Eng.
Ycasiano-Roxas, Francisco, B.A.,	*Bulacan, P. I.*,	1 Arts
Yenger, William Cornell,	*Elmira*,	3 Elect. Eng.
Yoemans, Mabel Ford,	*Oxford*,	1 Arts
York, Fritz Elerd,	*Varna*,	1 Veterinary
Yorkey, Charles John,	*Parish*,	Jr. Law
Yothers, William Walter, B.S.,	*Rathdrum, Idaho*,	4 Arts
Young, Andrew Dewing,	*Owego*,	3 Mech. Eng.
Young, Margaret Elizabeth,	*Marion*,	4 Arts
Zehnder, Anthony Charles,	*Newark, N. J.*,	1 Med. (N.Y.C.)
Zener, Robert Dodge,	*Indianapolis, Ind.*,	1 Mech. Eng.
Zerns, Arthur Burtis,	*Watertown*,	3 Arts
Zimmer, Wilson Briggs,	*Gallupville*,	3 Med. (N.Y.C.)
Zimmerman, Earl William,	*Fort Plain*,	1 Mech. Eng.
Ziporkes, Joseph,	*New York City*,	3 Med. (N. Y. C.)
Zipp, Philip Henry,	*Baltimore, Md.*,	3 Elect. Eng.
Zittel, Walter Wadsworth,	*Buffalo*,	Sr. Law

STUDENTS IN THE SUMMER SESSION.

Alexander, James Waddell, A.B., (*Princeton*), 1902,	*Candor*
Allen, Amos Green,	*Chicago, Ill.*
Allen, Martha Garges,	*Philadelphia, Pa.*
Anderson, Clark Taggart,	*Wooster, O.*
Andrews, Don Ethelbert,	*Puzzler, Colo.*
Ansart, Louis Loomis, B.S., (*State Coll. Pa.*), 1898,	*State College, Pa.*
Ashburner, Elizabeth Atkins,	*Media, Pa.*
Ashmun, Jennie Cordelia,	*Brooklyn*

Babson, Rea Edwin, *So. Orange, N. J.*
Backus, Newell D, *Union Springs*
Baggs, Martha, *Fulton*
Ball, Allison P, B.S., (*Worcester Poly. Inst.*), 1898, *Worcester, Mass.*
Barbour, Louise Blanche, *Indianapolis, Ind.*
Barroll, Henry Edward, *Chicago, Ill.*
Bastian, Romain Franklin, B.E., (*Central Nor. Lock Haven, Pa.*), 1902, *Liberty, Pa.*
Batchelder, Francis Joseph, *Newark, N. J.*
Bayer, Marie Louise, LL.B., (*N. Y. Univ.*), 1903, *Brooklyn*
Bayer, Minnie, *Brooklyn*
Bayne, George Henry, Jr., *Nutley, N. J.*
Beardsley, Frank James, A.B., 1892, *No. Tonawanda*
Beman, Myron Clark, *Binghamton*
Berryman, Wilson Garfield, *New York City*
Bigler, William, Jr., *Clearfield, Pa.*
Bilderbeck, George Leslie, *So. Hartwick*
Billwiller, Charles James, Jr., *Brooklyn*
Bingham, Maude Cornell, B.E., ((*Harvard*), 1883, M.E., (*same*), 1883, *Slippery Rock, Pa.*
Bingham, William Sylvester, M.E., (*Slippery Rock Normal*), 1898, B.A., (*Westminister Coll.*), 1900, *Slippery Rock, Pa.*
Bishop, Wheeler Scott, *Ithaca*
Black, Hampton, *Montgomery, Ala.*
Blackwell, Howard Clayton, *Brooklyn*
Blatch, Nora Stanton, *Ithaca*
Blauvelt, Jessie Annelia, *Fort Plain*
Bloom, Walter, *Detroit, Mich.*
Blount, Harold Bruce, *New York City*
Blount, Walter Eames, *Washington, D.C.*
Boldt, George Charles, Jr., *New York City*
Booth, Margaret Hutcheson, *Montgomery, Ala.*
Bower, John Gosh, Jr., *Hagerstown, Md.*
Boyd, Darnall Leggo, *Richmond, Va.*
Boyd, Thomas Duckett, Jr., B.S., (*Univ. of Ia.*), 1901, *Baton Rouge, La.*
Brady, Charles Phillip, *Buffalo*
Braunworth, Percy Lewis, *Brooklyn*
Brayer, Nelson Garfield, *Rochester*
Brenner, Edward Christopher, *New York City*
Brewster, Alfred Alexander, Jr., *Akron, O.*
Brown, George Teall, *New York City*

Bruce, Grace Adelle, A.B., (*Smith*), 1891, *New York City*
Brundage, Edward Fosgate, *Port Chester*
Buck, Ellard A, Ph.B., 1900, *West Groton*
Buck, Irwin, *Albany*
Burgweger, Henry, *Buffalo*
Burns, John Robert, *Ithaca*
Burns, Walter William, *Greenport*
Cairns, Edward, *Montclair, N. J.*
Campbell, Kate, *Scranton, Pa.*
Campbell, Nellie, *Sarnia, Ont., Can.*
Campion, Edward Winslow, *Troy*
Carpenter, Charles Ketchum, *Ithaca*
Carpenter, George, *Ithaca*
Carter, Charles Edward, *Geneva, O.*
Cary, William Paxton, *New York City*
Case, Donald Greggs, *Cortland*
Castle, Samuel Northup, A.B., (*Harvard*), 1901, *Ithaca*
Caufield, James Joseph, *Honesdale, Pa.*
Chadovitz, Isaac, *Brooklyn*
Chambers, Norman Campbell, *Batoum, Russia*
Chisholm, Frederick John, *Wilkinsburg, Pa.*
Churchill, May Thirza, *Buffalo*
Clapp, Laurence Bowman, *Ithaca*
Clawson, Lora Olivia, *Montour Falls*
Clay, Ame'ia, *Philadelphia, Pa.*
Clevelaud, Milo L, *Brockport*
Close, Henry Brevoort, *Yonkers*
Coulee, George Dyer, *Ithaca*
Cook, Elizabeth Studdeford, *Madison, N. J.*
Cooner, Helen Mae, *Watsontown, Pa.*
Coons, Paul Delmont, *Skaneateles*
Coray, George Quincy, B.S., (*Univ. of Utah*), 1894, *Salt Lake City, Utah*
Corcilius, Josephine, *Jamaica*
Cotton, Donald Reed, *Fairmount*
Cottrell, Royal Lu, A.M., (*Alfred*), 1899, Pd.B., (*Albany Nor. Coll.*), 1897, *Brooklyn*
Coville, Howard Grenville, *Marcellus*
Craig, Sam Nesbit, *Allegheny, Pa.*
Crawford, Thomas Frew, B.S., (*Phila. Central H. S.*), 1899, *Philadelphia, Pa.*
Crawford, Willard John, Jr., *Cleveland, O.*

Cristy, Annie, *Yonkers*
Cristy, Martha, *Yonkers*
Criswell, Nancy Jane, A.B., (*Wilson Coll.*). 1889, *Chambersburg, Pa.*
Crook, Martha Augusta Loescher, B.A., (*Denver Univ.*), 1903, *Fairplay, Colo.*
Crosby, Sara Adams, *Kingston*
Crouse, Jay Lansing, *Syracuse*
Curtis, Bertha Jane, *Addison*
Curtis, Harry Leroy, *New York City*
Cushiug, Prentice, *East Orange, N. J.*
Dandridge, Edmund Pendleton, *Leetown, W. Va.*
Dann, George Joseph, A.B., (*Union Coll.*), 1896, A.M., (*same*), 1899, *Walton*
Dargan, Frank Townes, M.S., (*Furman Univ.*), 1899, *Greenville, S. C*
Davis, Elbert Rice, *Rushford*
Davis, James Warner, A.B., (*Allegheny Coll.*), 1899, *Frewsburg*
Davis, Mary Martha, *Harrisonburg, Va.*
Dayton, Paul Kuykendall, *Towanda, Pa.*
Dederer, Isaac Carleton, *New York City*
Derr, Olin Fell, *Wilkes-Barre, Pa.*
Derr, Ruth, B.E., (*Central State Nor., Lockhaven, Pa.*), 1898, M.E., (*same*), 1898, *Lancaster, Pa.*
Divine, John Howard, *Ellenville*
Dodge, John Orris, *Dixon, Ill.*
Douglass, Gaylord William, B.A., (*Wesleyan*), 1900, *Concord, N. H.*
Douty, Daniel Ellis, B.S., (*Wash. Univ.*), 1892, *Seattle, Wash.*
Dravo, Christian McKee, *Pittsburg, Pa.*
Duckworth, Willard Demarest, *New York City*
Dunbar, Jennie Louise, *Brooklyn*
Dunbar, William Foreman, *Brooklyn*
Duncan, Arthur Chester, *Villa Nova, Pa.*
Durham, Glen Giffen, B. Sc., (*Bucknell Univ.*), 1900, M.S., (*same*), 1902, *Watsontown, Pa.*
Edelen, George Steed, B.S., (*Md. Agr. Coll.*), 1895, M. S., (*same*), 1901, *Silesia P. O., Md.*
Edgerton, Myra Townsend, *Richmond Hill*
Edwards, Alletta Coryell, *Seneca Falls*
Edwards, Gaston Alonzo, B.S., (*A. & M. Coll.*), 1901, *Raleigh, N. C.*
Efinger, Philip Charles, *Lancaster, Pa.*
Ellis, Albert Ralph, *Pittsburg, Pa.*
Ellis, Lawrence Rees, *Clayton*

Elser, Frank Ball, *Fort Worth, Texas*
Elston, Thomas Sidney, B.S., (*Johns Hopkins*), 1899, *Berkeley, Calif.*
Elwood, James Lawrence *Rochester*
Elwood, Frank Edwin, *Scranton, Pa.*
Evans, Chester Willard, *San Francisco, Calif.*
Evans, Mary Sibley, A.B., (*Univ. of Cincinnati*), 1897, *Glendale, O.*
Fairchild, John Gifford, A.B., 1903, *Monticello*
Fassett, Newton Crocker, *Elmira*
Feehan, Anna, *Ovid*
Fernandez, Alberto Carmelo, V.S., (*Ont. Vet. Coll.*), 1903, *Buenos Ayres, Arg. Rep.*
Fish, Alice Armenia, *Cooperstown*
Fisher, Mary Jones, A.B., (*West Md. Coll.*), 1890, *Denton, Md.*
Fisher, Willard James, A.B., (*Amherst*), 1892, *Woods Hole, Mass.*
Flather, Alice Virginia, *Nashua, N. H.*
Fleck, Anthony George, A.B., (*St. Francis Xavier*), 1902, *Brooklyn*
Follett, George Alfred, *Columbus, O.*
Foote, George Wilson, *Vineland, N. J.*
Ford, Agnes May, A.B., 1902, *Medina*
Fordham, Bruce Wight, *Scranton, Pa.*
Forgy, John Edmonds, *Dayton, O.*
Forsberg, William, *Salt Lake City, Utah*
Forster, Katherine Elizabeth, *Buffalo*
Fort, Henry, M.S., (*Univ. of Calif.*), 1902, *Prague, Bohemia, Europe*
Fowles, Mary Adelia, *Peekskill*
Fowler, Royale Hamilton, *Brooklyn*
Fraley, Clara Louise, *Nashville, Tenn.*
Francis, Samuel Edgar, *Wilmington, Del.*
Frank, Julian, *Paris, Ky.*
Fritch, Robert Peter, *Reading, Pa.*
Gage, Henry Phelps, *Ithaca*
Gage, Victor Raymond, *Wilmette, Ill.*
Gallup, Frederick Loren, *Norwich, Conn.*
Gantt, Frances, *Norfolk, Va.*
Garabrant, Joseph Edwin, *Bloomfield, N. J.*
Gastin, Edwards Pablo, A.B., (*Univ. of Havana*), 1900, *Havana, Cuba*
Gates, Leroy Grant, *Oshkosh, Wis.*
Gerhard, Walton, *Camden, N. J.*
George, Sidney Gonzales, *Fredonia*
Gibson, Fred D, *Delavan, Ill.*
Giesecke, Fred Otto Leopold *Buffalo*
Gilbert, Harold Addinsell, *Brooklyn*

Gilchrist, William Bartow, *Cleveland, O.*
Glazier, Harriet Endora, B.A., (*Mt. Holyoke*), 1896, *Lisbon, N. H.*
Goehle, Otto Louis, A.B., 1902, *Buffalo*
Goodwin, Abby May, *Ithaca*
Gordy, Uric Lee, A.B., (*Washington Univ.*), 1894, A.M., (*same*), 1897, *Danville, Pa.*
Gould, Lucius, A.B., (*Albion*), 1888, *Milwaukee, Wis.*
Greenwood, Ernest Hervey, *Williamsport, Pa.*
Gresham, Frank Spencer, *Galveston, Texas*
Gridley, Haines, *Elmira*
Grimm, Grace May, *Beaver Falls, Pa.*
Hackett, Holland Berkeley, *Easton, Pa.*
Haines, Lena Ormelle, *Lockport*
Haines, Robert Wade, *Goshen*
Haire, Andrew Joseph, Jr., *Derby, Conn.*
Halpin, Robert John, *Odessa*
Hann, Arthur Edward, *Summit, N. J.*
Harris, Frank Raymond, A.B., (*Ohio Wesleyan*), 1902, *Greenfield, O.*
Hastings, Robert Lee, B.S., 1900, *Phoenix*
Hawley, Everett Malcolm, *Philadelphia, Pa.*
Hayes, George Le Roy, B.E., (*Edinboro Normal*), 1898, *Cambridge Springs, Pa.*
Heidenheim, Zillah, A.B., 1902, *Brooklyn*
Heizmann, Lewis Joseph, *Reading, Pa.*
Henderer, Willard Everett, *Wilmington, Del.*
Hendren, Linville L, B.A., (*Trinity Coll.*), 1900, M.A., (*same*), 1901, *New Berne, N. C.*
Herder, Cherrie Marie, *Brooklyn*
Herr, Benjamin Musser, *Lancaster, Pa.*
Hersey, Louise Moore, Pd.B., (*State Normal Coll., Albany*), 1901, *Watertown*
Hewitt, John Marshall, *Marianna, Ark.*
Hicks, William Edgar, *Cedarhurst*
Hill, Alexander Edward, *Brooklyn*
Hill, Whiteside, 2nd, B.A., (*Williams Coll.*), 1901, *Greenwich*
Hills, Harry Clark, *Youngstown, O.*
Hiltebrant, Oscar Raymond, *Kingston*
Hilton, William Atwood, B.S., 1899, Ph.D., 1902, *Waverly*
Hinton, Hammond Herbert, *Lamberton, Miss.*
Hoage, Norma, *Brooklyn*
Hoard, Prescott Dygert, *Herkimer*
Hochbaum, Hans Weller, *Chicago, Ill.*

Hoffman, Albert Baldwin, *New York City*
Hogan, William James, *Oxford*
Holbert, Elizabeth, *Goshen*
Holmes, Howard Abbott, *Youngstown, O.*
Howard, J Clare, *Franklinville*
Howorth, John, *Wilkes-Barre, Pa.*
Hubbell, Reed Hamilton, *Saginaw, Mich.*
Huchting, William Ernest, *Brooklyn*
Hunkins, Darius Sidney, *St. Louis, Mo.*
Hunn, Myrta Eleanor, A.B., 1899, A.M., 1900, *Batavia*
Hunter, Grace Howard, B.A., (*Univ. of Toronto*), 1898, *Toronto, Can.*
Irish, Frederic Joseph, *Patterson*
Jackson, Herbert Spencer, *Ithaca*
Jenkins, Bertha Allen, *Philadelphia, Pa.*
Jephcott, Fanny, *Toronto, Can.*
Johnson, Carman Cover, B.E., (*Juniata Coll.*), 1894, A.B., (*same*), 1903, *Huntingdon, Pa.*
Johnson, Carlton Perry, *Brooklyn*
Johnston, William Robert, *Oak Park, Ill.*
Jones, Ira Owen, *Chicago, Ill.*
Jones, Paul Sherwood, *Ilion*
Joslyn, Royal Cuthbert, *Jersey City Heights, N. J.*
Kemper, Winifred, *Westport, Conn.*
Kennedy, Anna Agnes, B.S.D., (*Mo. State Normal, Warrensburg*), 1900, *Ithaca*
Kenneweg, Albert Henry, *Cumberland, Md.*
Kerby, Harriet Adelia, *Brooklyn*
Ketchum, Lawrence Temple, *Elmira*
Klepper, William Henry, *Holly Springs, Pa.*
Kling, Herbert Allen, *Woodbine, Iowa*
Knight, Arthur Octavius, *New York City*
Kniskern, Walter Hamlin, *Deposit*
Kouyoumdjian, Haroutinne, *Bagdad, Asiatic Turkey*
Krauter, Harold S,-- *Tobyhanna, Pa.*
Kraybill, Amos Engle, B.Pd., (*Pa. State Normal*), 1902, *Steelton, Pa.*
Lacy, George Stuart, *Ithaca*
Landa, Francisco, *Habana, Cuba*
Landrum, Leonidas Mell, A.B., (*Univ. of Ga.*), 1876, *Atlanta, Ga.*
Larkin, Katherine Veronica, *Ithaca*
Lask, Clara, *New York City*
Laubach, Merit Lees, *Wilkes-Barre, Pa.*

Laverty, Ethel, *Glens Falls*
Law, Grace Mary, B.L., 1893, *Ithaca*
Lawrence, Norman Spear, *Riverside, Ill.*
Lefens, Walter Conrad, *Chicago, Ill.*
de Lemoine, Luis Fanor, Jr., *Buenos Aires, Agr. Rep.*
León, Ricardo, *Oaxaca, Mexico*
Levy, Clara, *Philadelphia, Pa.*
Levy, Lilly Zerline, *Williamsport, Pa.*
Lewis, Carrie May, A.B., 1903, *Catskill*
Lewis, Charles Edward, A.B., (*Indiana Univ.*), 1902, A.M., (*same*), 1903, . *Rensselaer, Ind.*
Lewis, Effie Louise, *Brooklyn*
Lewis, Emma Massey, *Ithaca*
Lewis, Nellie Adelaide, B.A., (*Wellesley*), 1900, Pd.B., (*same*), 1902, *Catskill*
Lindman, Raymond Heald, *Chicago, Ill.*
Lines, Edwin Fuller, *New Haven, Conn.*
Little, Clarence Duane, *Montclair, N. J.*
Lix-Klett, Ernesto, *Buenos Aires, Arg. Rep.*
Loewe, Dietrich Carl, *Danbury, Conn.*
Loewenthal, William Herman, *Evansville, Ind.*
Lucey, Jeremiah Charles, *New Paltz*
Lucey, Michael Henry, *New Paltz*
Lyndon, Sophie Harriet, *Fairport*
McCarnes, Mabel Frances, M.E., (*State Normal*), 1895, *Slippery Rock, Pa.*
McCarthy, Jennie Agnes, *Brooklyn*
McClenahan, LeRoy Regester, *Baltimore, Md.*
McCloskey, Clarence Eugene, Ph.B., (*Dickinson Coll.*), 1899, A.M., (*same*), 1902, *Town Hill, Pa.*
McClune, Julia Eliza, *Ithaca*
MacElroy, Chauncey Dumond, *Washingtonville*
McHose, Edwin David, Ph.B., (*North Western Coll.*), 1901, *Reading, Pa.*
MacKellar, Thomas, *Philadelphia, Pa.*
McLeod, Donald Fraser, *Guysboro, N. S., Can.*
MacMinn, Caroline, B.E., (*West Chester Nor.*) 1899, *Williamsport, Pa.*
MacMillan, Emma, *Montgomery, Ala.*
McNary, Egbert Eugene, *Arlington, N. J.*
Maceo, Antonio, *Habana, Cuba*
Maclachlan, Annie Elton, *Brooklyn*

Mainwaring, William Hamer, *Miner's Mills, Pa.*
Makely, Metrah, Jr., A.B., (*No. Car. Univ.*), 1901, *Edenton, No. Car.*
Male, Nicholas Milton, A.B., (*E. Stroudsburg Nor.*), 1898, *Pen Orgyl, Pa.*
Mann, Harvey Blaine, *Lewistown, Pa.*
Martin, Columbus Ben, B.A., (*Furman Univ.*), 1899, *Greenville, S. C.*
Martin, Elizabeth Hare, *Adams, Mass.*
Martin, Lawrence, *Adams, Mass.*
Mason, Frederick Joseph, *Oneonta*
Masterson, Wilmer Dallam, *Galveston, Tex.*
Melvin, Carroll Loomis, *Bradford, Pa.*
Mergenthaler, Fritz Lillian, *Baltimore, Md.*
Merrill, Margaret, *Saginaw, Mich.*
Merriman, Eugene Duette, *Ithaca*
Messer, Anna Teresa, *Ithaca*
Metcalf, Anna Louise, Ph.B., (*Brown Univ.*), 1897, *West Upton, Mass.*
Miller, William Dates, *Bayport*
Mills, Minnie Mary, *Owego*
Mitchell, James Reid, Jr., *Mt. Vernon*
Molatch, Otto Allan, *Brooklyn*
Monagle, Catharine Louise, *Norwich*
Moore, Florence Isabelle, *Bayonne, N. J.*
Morgan, Alfred Cookman, *Laurel, Del.*
Morris, Richard, B.S., (*Rutgers*), 1899, M.Sc., (*same*), 1902, *Hightstown, N. J.*
Moulson, Charles Edward, A.B., (*Univ. of Rochester*), 1901, *Rochester*
Moxley, William Francis, *Elmira*
Mueller, Curt Berthold, *Cleveland, O.*
Mueller, Fred Jacob, *New Ulm, Minn.*
Munro, Harriet Bennett, *Bristol, R. I.*
Munroe, Edward, *Chicago, Ill.*
Munroe, Harold Simonds, *Joliet, Ill.*
Murphy, Joseph Gleeson, *Detroit, Mich.*
Murray, Clara D, *DeRuyter*
Myers, Howard Reichard, B.E., (*Juniata Coll.*), 1897, *Martinsburg, Pa.*
Myers, Phillip, *Kingston, Pa.*
Myers, William Beach, *Dubuque, Iowa*
Neill, Mary Anna Catharine, *Buffalo*
Neilson, George William, *Philadelphia, Pa.*

Neuman, Ida, *Baltimore, Md.*
Newcomb, Wallace Ranlette, *Cherry Creek*
Newman, Edmund Taylor, *Smethport, Pa.*
Newton, Wilbur W, *Pueblo, Colo.*
North, Robert, *Batavia*
Northrop, Frederick Kerr, *Brooklyn*
Nugent, Harold Arthur, *Kingston, Pa.*
Oberrender, Stanley Tellman, *Drifton, Pa.*
Olson, David, A.B., (*Univ. of Mich.*), 1902, *Durand, Wis.*
Opdycke, John Baker, A.M., (*Franklin & Marshall*), 1900, A.M., (*N.Y Univ.*), 1903, *Bridge Valley, Pa.*
Oskamp, Howard Earle, *Cincinnati, O.*
Overman, Edward Benton, *Springfield, Mass.*
Pacheco, Joviano Augusta d'Amaval, *S. Paulo, Brazil*
Palmie, Therese Katharine, *Brooklyn*
Pardessus, Florian George, *Brooklyn*
Payne, Florence Belle Earl, *Gouverneur*
Parson, William Gaston, A.B., (*Shaw Univ.*), 1886, A.M., (*same*), 1886, *Durham, N. C.*
Pechmann, Louis August Herman, *St. Louis, Mo.*
Peck, Ross Sanders, *Brookton*
Peirce, Paul Skeels, Ph.B., (*Cornell Univ.*), 1897, Ph. D., (*Yale*), 1900, *Iowa City, Iowa*
Pepperman, Arthur Llewellyn, *Williamsport, Pa.*
Pepperman, Ralph Edgar, *Williamsport, Pa.*
Perry, Charles Frederick, S.B., (*Worcester Poly. Inst.*), 1894, *Worcester, Mass.*
Pierce, Eunice Martha, *Cohocton*
Pierce, Howard Castner, *Worcester, Mass.*
Piercy, Anna Grace, *Brooklyn*
Pinckard, Ryburn, *Birmingham, Ala.*
Pitzman, Harold Wislizenus, *St. Louis, Mo.*
Poetzsch, Alexander James, *New York City*
Pond, Willard Fred, *Rochester*
Poole, Ray Burrows, *Utica*
Pratt, Ransom, *Elmira*
Preston, Sylvester Cosgrave, *Pittsburg, Pa.*
Prussing, Rudolph Ernst, *Chicago, Ill.*
Purtell, Thomas Stephen, *Deposit*
Purvis, Lillian Maude, *Dryden*
Quale, Howes James, *Silver Creek*
Quick; Howard Ludlow, *Brooklyn*

Quinn, Charles Emmet, *Cohoes*
Ransehousen, Lyman Arthur, *Springfield, Mass.*
Reece, William Asher, *Christchurch, New Zealand*
Richards, Ella Margaret, A.B., (*Ohio Wesleyan Univ.*), 1894, *Delaware, O.*
Rick, Charles Maderia, *Reading, Pa.*
Rickard, Le Ray Sidney, *Cobleskill*
Ridgaway, Charles Bascom, A.M., (*Dickinson*), 1883, *Laramie, Wyoming*
Roberts, Helen Adele, *Fairport*
Roberts, Lois Ellen, *North Chili*
Robertson, Isabelle Givan, *Brooklyn*
Rockwood, Frederick Hazard, *Buffalo*
Rodgers, Gilbert Edward, *Binghamton*
Rodgers, Ralph Chapman, *Binghamton*
Rogers, Robert Wilson, *New York City*
Roorbach, George Byron, A.B., (*Colgate Univ.*), 1903, *Fort Plain*
Rose, Evangeline Darling, *Jefferson*
Ross, George Hilliard, *Edgewater, N. J.*
Rossman, Sidney, *Brooklyn*
Rowell, Lucy Agnes, B.A., (*Wellesley*), 1892, *Waterville*
Rubira, Adriano Woodruff, *Mobile, Ala.*
Ruiz, Henry Cecil, *Matanzas, Cuba*
Saddler, Clara Louise, *Philadelphia, Pa.*
Sanford, Lester Morse, *New York City*
Sanger, George Hutchins, *Naugatuck, Conn.*
Sarmiento, Arturo, *Buenos Aires, Arg. Rep.*
Savacool, William Laforge, *Stapleton*
Schad, Lilian Magdalene, *Mansfield, O.*
Schneider, Frederick, *Bedford, O.*
Schoellkopf, Jacob Frederick, *Buffalo*
Scott, Wilfred Welday, M.A., (*Ohio Wesleyan Univ.*), 1902, *Philadelphia, Pa.*
Sears, Frank Martin, *Holyoke, Mass.*
Seaton, Frances, A.B., (*Wellesley*), 1888, A.M., (*Cornell Univ.*), 1902 *Cleveland, O.*
Seaton, Sara, A.B., (*Wellesley*), 1896, *Cleveland, O.*
Seidell, William Charles, *Peterboro*
Seymour, Charles Mason, *Chicago, Ill.*
Shalders, Roberto James, C.E., (*Mackenzie Coll.*), 1902, *Ithaca*
Sheetz, Kate Amelia, M.E., (*Millersville Nor. School*), 1894, *Lancaster, Pa.*

Shields, Norwood Rarason, *Burlington, N. J.*
Sibley, Jessie Gillies, *Cuba*
Simpson, Frank Morton, A.B., (*Bucknell*), 1895, M.S., (*same*), 1897, *Lewisburg, Pa.*
Sloan, Essie Booth, *Montgomery, Ala.*
Sloan, Mary Stevenson, *Bayonne, N. J.*
Sloan, Robert Shnnk, *Ithaca*
Slover, Minnie Elisabeth, *Brooklyn*
Smith, Dean Philip, *Louisiana, Mo.*
Smith, Ernest Edmund, *Kent's Hill, Me.*
Smith, Henry Edmond, *Baltimore, Md.*
Smith, Mark Elmer, *Erie, Pa.*
Smith, Mary Helen, S.B., (*Oberlin*), 1887, M.A., (*same*), 1894, *Farmington, Conn.*
Smith, Ralph Brady, *Aurora, Ill.*
Smith, Robert Franklin, M.I., (*Texas State Nor.*), 1880, *College Station, Texas*
Snider, Warner Garfield, *Cleveland, O.*
Snyder, Floyd Christian, *Massillon, O.*
Sorondo, Alejandro, *Buenos Aires, Arg. Rep.*
Spicer, Clarence Winfred, *Edelstein, Ill.*
Spicer, Chauncey Elmer, *Joliet, Ill.*
Stahl, George Gettys, A.B., (*Univ. of Wooster*), 1899, *Middletown, O.*
Standermann, Elizabeth, *Brooklyn*
Staples, Eugene Douglass, *Mexico City, Mexico*
Starr, Arthur, *Sewickley, Pa.*
Starr, George Gourley, A.B., (*Wooster Univ.*), 1901, *Wooster, O.*
Stearns, David Pyott, *Chicago, Ill.*
Stevens, Donald French, *Chicago, Ill.*
Stevens, Madge Arthur, *Philadelphia, Pa.*
Stewart, Albert Burns, A.B., (*Bucknell*), 1875, A.M., (*same*), 1878, *Hamilton*
Stewart, George Herbert, A.B., (*Colgate*), 1903, *Hamilton*
Stillman, Austin Frank, *Brooklyn*
Storz, Joseph Frank, *Wilkes-Barre, Pa.*
Strane, James Albert, *St. Paul, Minn.*
Strayer, Franklin Reese, A.B., (*Bucknell*), 1894, *West Chester, Pa.*
Sykes, George Dwight, *Stony Point*
Talboys, Henry Hauscome, *Eveleth, Minn.*
Taveira, Horace Alfred, *Havana, Cuba*
Teel, Warren Floyd, Ph.B., (*North Western Coll.*), 1900, Ph.M., (*same*), 1902, *Reading, Pa.*

Terrill, Flora Matilda, *Norwich, Conn.*
Thallimer, William Montefiore, *Richmond, Va.*
Thayer, Stella Rocelia, *Brooklyn*
Thomas, John Thomas, *Scranton, Pa.*
Thomas, William Henry, *Elyria, O.*
Thompson, Harrison Coffin, *Daytona, Fla.*
Ticknor, William Harrison, *Togus, Maine*
Toerner, Matilda Dorothy, *New York City*
Townes, Claudia Kelsall, A.B., (*Greenville Female Coll.*), 1879, *Greenville, S. C.*
Trumbull, Roscoe Hale, *Denver, Colo*
Tubbs, Warren, *Osceola, Pa.*
Tudela, Gabriel, *Lima, Peru*
Twining, Edith J, *Philadelphia, Pa.*
van Loon, Hendrik Willem, *The Hague, Holland*
Van Nostrand, Leonard Green, *Binghamton*
Van Zandt, Fanny Brice, *Haleyville, N. J.*
Veerhoff, Otto Louis, *Washington, D. C.*
Viles, Lawrence Motley, *Lake Forest, Ill.*
Vonnegut, Arthur, *Indianapolis, Ind.*
Wahlstrom, Leonard William, *New York City*
Waite, Louise Garbutt, *Hartford, Conn.*
Wallace, William Lewis, Jr., *Orange, N. J.*
Wallis, Frank Gilbert, *Westfield, Pa.*
Walter, May Louise, *Washington, D. C.*
Warren, Chester Ingersoll, *Troy*
Waterall, Howard Lehman, *Wynnewood, Pa.*
Waud, Ernest Othnel Pester, *New York City*
Webster, Frederick Volney, A.M., (*Central Univ.*), 1902, *Newfield*
Webster, Towner Keeney, Jr., *Evanston, Ill.*
Weiner, Edwin Morris Richard, *Kingston*
Wertz, Edith Barbara, B.A., (*Wilson Coll.*), 1899, *Quincy, Pa.*
Wheat, Grace Alice, *Brooklyn*
Wheat, Nina Ethel, *Brooklyn*
White, Theodore Parkman, *New York City*
Whitney, Harry Livingston, *Bay City, Mich.*
Whitson, Mary, *Ithaca*
Whittlesey, William Augustus, *Pittsfield, Mass.*
Whyte, Alice Torrey, *Jersey City, N. J.*
Wilder, Edward Tucker, *Elmhurst, Ill.*
Wilder, Erskine Phelps, *Elmhurst, Ill.*
Williams, Donald Davol, *Brooklyn*

Wilson, David, *Amsterdam*
Wilson, Lucy Langdon Williams, Ph.D., (*Univ. of Pa.*), 1897, *Philadelphia, Pa.*
Wood, Evelyn Anna, *Ithaca*
Woodcock, Madeline, *Fulton*
Woodward, Charles Stebbins, B.E., (*West Chester Normal*), 1893, M.E., (*same*), 1895, *Norway, Pa.*

STUDENTS IN SUMMER TERM IN ENTOMOLOGY.

Barlow, John, A.M., (*Brown Univ.*), 1896, *Kingston, R. I.*
Bean, Arthur Malcolm, A.B., (*Iowa Coll.*), 1897, A.M., (*Cornell Univ.*), 1903, *Pekin, Iowa*
Betten, Cornelius, M.A., (*Lake Forest Univ.*), 1901, *Orange City, Iowa*
Bües, Christian Rudolph August, *Hannover, Germany*
Chamberlin, Ralph Vary, B.S., (*Univ. of Utah*), 1898, *Salt Lake City, Utah*
Crosby, Cyrus Richard, *Penn Yan*
Curtis, Ralph Wright, B.S.A., 1901, *Beloit, Ala.*
Cushman, Robert Asa, *Providence, R. I.*
Darling, Frederick Warren, A.B., 1902, *Buffato*
Fagundes, Euclides, *Sao Paulo, Brazil*
Fagundes, Lupercio, *Ithaca*
Fagundes, Waldomiro, *Sao Paulo, Brazil*
Fletcher, Philena Belle, *Bainbridge*
Fletcher, William Franklin, *Bainbridge*
Goehle, Otto Louis, A.B., 1902, *Buffalo*
Green, Mary Emily, M.D., (*Univ. of Ills.*), 1902, *Charlotte, Mich.*
Guilbeau, Braxton Honore, B.S., (*La. State Univ. A. and M. Coll.*), 1901, *Breaux Bridge, La.*
Hammar, Alfredo Gottlieb, *Killsberg, Sweden*
Hawksworth, Darnley Iredelle, *Washington, D. C.*
Heidenheim, Zillah, A.B., 1902, *Brooklyn*
Hooker, Lona Emily, *Ithaca*
Hueston, Jessie Elliott, B.S., (*Nat. Nor. Univ.*), 1883, *Hamilton, O.*
Hull, Anna May, *New Paltz*
Johannsen, Oskar Augustus, B.S., (*Univ. of Ills.*), 1894, A.M, (*Cornell Univ.*), 1902, *Fremont, Nebr.*

Johnson, Thomas Carskadon, B.S. Agr., (*W. Va. Univ.*), 1896, A.M., (*same*), 1900, *Morgantown, West Va.*
Jones, Annie, *Eatonton, Ga.*
Lyndon, Sophie Harriet, *Fairport*
MacGillivray, Alexander Dyer, Ph.B., 1900, *Ithaca*
Morgan, Alfred Cookman, *Laurel, Del.*
Palmer, Charles Warner, *Media, Pa.*
Porter, Floyd John, *Ithaca*
Seaton, Frances, A.B., (*Wellesley*), 1888, A.M., (*Cornell Univ.*), 1902, *Cleveland, O.*
Whittaker, Elizabeth Leigh, *Caroline Center*

STUDENTS IN SHORT WINTER COURSE IN AGRICULTURE.

WINTER 1904.

Apgar, Leon Spencer, *Freeville*
Ayers, Winfred Enos, *Berne*
Ayres, Harvey Lyon, *Hunter's Land*
Bacon, Mark Balderston, *Haddonfield, N. J.*
Baker, Wilfred Seymour, *Andover*
Balmforth, Arthur Hepworth, *Holley*
Barden, Raymond Ezra, *Candor*
Becker, Albert Morrell, *North Cohocton*
Becker, Stephen Morell, *North Cohocton*
Bell, Ralph, *Ceres*
Benbow, James Richard, *Clayville*
Bliss, Joseph Hicks, *Brainard*
Bowman, Guy Willis, *Rome*
Boyce, Elmer Raymond, *New Berlin*
Bradt, Frederick, *Union Church*
Campbell, John William, *Decatur*
Clark, George Scott, *Delhi*
Clegg, David Cadwallader, *Philadelphia, Pa.*
Clough, Alfred Walker, *Greenland, N. H.*
Cole, DeWitt Haskin, *Geneseo*
Culver, Lester A, *West Laurens*
Darrow, Wilson Henry, *Waddington*
Davis, Erwin George, *Adams Centre*
Devereaux, Linneaus Lafayette, *Clyde*

Dowd, Mervyn Charles, *Louisville*
Dubuque, Joseph Philip, *Chateaugay*
Dugan, Samuel A, *South Worcester*
Eaton, Grover Cleveland. *Willet*
Edgerton, Harry George, *Morris*
Egan, Pierce Douglas, *Lewis*
Farley, Justus Charlot, *Candor*
Ferris, Fred Wallace, *Pavilion*
Ford, Robert Merton, *East Freetown*
Fowler, Frank Marion, *Youngsville*
Fox, Otis Henry, *West Pierrepont*
Gardner, Fred Foster, *Haverhill, Mass.*
Gould, Ransford Ray, *Jamestown*
Guardenier, Edgar Van Home, *East Springfield*
Halloway, Curtis Edward, *Meredith*
Harkness, Charles Merrill, *Harkness*
Haver, Will George, *Cold Brook*
Henry, Edward Wilbur, *Canandaigua*
Hevener, Fred, *Glosser, Pa.*
Hess, Patrick Burns, *Roxbury*
Higgins, George Elmer, *Glenmore*
Hill, Oliver William, *Webster*
Hinkley, Oliver Earl, *Waterville*
Hoagland, William Cady, *Marion*
Hotchkiss, Ernest William, *Walton*
Holmes, Merle Howard, *Wilson*
Howland, Ford Lavern, *Schenevus*
Jarvis, Henry Kent, *Flycreek*
Jennings, Henry, *Southold*
Kelly, John O, *Griffin Corners*
Kenyon, Amos Langworthy, B.S., (Rhode Is. State Coll.), 1900, *Kingston, R. I.*
Killough, Benjamin Franklyn, *Cincinnatus*
Kiniry, Frank, *Fort Plain*
Klein, John Jacob, *Freeville*
Lacy, Howard DeGrass, *Richville*
Lee, Leo Arza, *East Avon*
LeRoy, Fred Clinton, *Truxton*
Lewis, Howard Augustus, *New York City*
Lewis, Marshall, John, *Alfred Station*
Loveland, Truman Marvin, *Richmondville*
McMillan, William Hill, *Hermon*

Maharay, Arthur Orr,	*Newburgh*
Manchester, George,	*Oneonta*
Markham, Winfield Lyman,	*Kennedy*
Marshall, Fred Conrad,	*Ithaca*
Mason, William Riley,	*Churchville*
Meeker, Robert Levern,	*McDonough*
Miller, Elmer Peter,	*Starkville*
Miner, Paris Clark,	*Smyrna*
Morius, Hallam Leonard, A.B., (Harvard), 1902,	*New York City*
Murray, Martin Joseph,	*Geneva*
Myers, Harry William,	*South Livonia*
Newton, Maurice A,	*Lysander*
Nydam, William Arthur,	*Newburgh*
O'Neil, William James,	*Jordan*
Opperman, Louis Charles,	*Burlingham*
Osborne, Carl Colfar,	*Indianapolis, Ind.*
Osterhout, Clarence Corneilous,	*Canajoharie*
Ostertag, Rosa Henrietta,	*Chicago, Ill.*
Page, Harvey Richard,	*South Edmeston*
Palmer, Horace David,	*Westfield*
Parsons, Del Monte,	*Chenango Forks*
Pease, John A,	*Oswego*
Perce, Lawrence Ard,	*Lisle*
Peryer, Murray Lee,	*Ellenburgh Center*
Phillips, Angus Sandford,	*Oriskany Falls*
Pollock, John Eslie,	*Gouverneur*
Potter, Edson Ellsworth,	*Ellenburg*
Reeves, James Hewe,	*Newark*
Reynolds, John Harmon,	*Ellenburg Depot*
Richardson, Harry Elmer,	*East Aurora*
Rick, John,	*Reading, Pa.*
Roberts, Harry Newton,	*Mayville*
Roe, Charles Henry,	*Ithaca*
Roseboom, Peter Dana,	*Westford*
Rosecrans, Helen Marie Stevens,	*Moravia*
Rowe, Delmar S,	*East Homer*
Rurey, John Terry,	*Cohocton*
Rusho, Manly,	*Clayton*
Sawyer, Francis Burr,	*Smithville*
Seaton, Leonard Barber,	*Munnsville*
Seeley, Harvey Lee,	*Lakeville*
Senn, Alvin David,	*New London*

Senn, Harold Jay,	*New London*
Shalor, Homer Hamilton,	*Richmondville*
Shearer, Fred Vernon	*Cortland*
Sinclair, Arba Ross,	*Caledonia*
Snyder, Arthur John,	*East Springfield*
Snyder, Charles Hawes,	*Downsville*
Stillman, Edward,	*Cortland*
Sweet, Lisle,	*Borodina*
Thornton, Cleon Danforth,	*Depeyster*
Thurgood, Albert Edward,	*Bombay*
Tompkins, Raymond,	*Ashland*
Utridge, Peter Sutton,	*Orwell, Vt.*
Van Doren, Rolla,	*Three Mile Bay*
Van Nortwick, Harry Raymond,	*Corning*
Van Swall, George Henry,	*Oriskany Falls*
Wadsworth, Frank Lanning,	*Rochester*
Ware, Maskell,	*Meridale*
Washburne, Ray Douglas,	*Etna*
Waterman, Loring Delos,	*Waterville*
Way, Harvey Richmond,	*Churchville*
Way, Horace Lewis,	*Fairville, Pa.*
Whyte, Merton George,	*Moravia*
Wiese, Henry Albert,	*Wawarsing*
Winne, Harry Ernest,	*Greenville*
Winslow, Richard,	*Ticonderoga*
Wood, Page,	*Broome Center*
Worlois, Milton,	*Hilton*

STUDENTS IN SHORT COURSE IN VETERINARY SCIENCE FOR PRACTITIONERS.

WINTER, 1904.

Barradell, Alfred, V.S., (*Ont. Vet. Coll.*), 1894,	*Pawling*

GENERAL SUMMARY

Government, Teachers, and Other Officers.

TRUSTEES :—		
Ex officio	9	
Elected—By the Board	20	
By the Alumni	10	
Total		39
TEACHERS :—		
Professors	94	
Assistant Professors	51	
Lecturers	4	
Instructors	139	
Assistants, etc.	120	
Total	408	
Non-Resident Lecturers	27	
Whole number of Teachers		435
LIBRARY STAFF	16	
OTHER OFFICERS	27	
PREACHERS	30	

Students.

GRADUATE DEPARTMENT :—		
Fellows	27	
Scholars	18	
Graduates, candidates for Advanced Degrees	178	
Graduates not candidates for Degrees	19	
Total, deducting for 45 names counted twice	197	
GRADUATE STUDENTS IN UNDERGRADUATE COURSES	235	
Total Graduate Students		432
ACADEMIC DEPARTMENT :—		
Senior Class	208	
Junior Class	137	
Sophomore Class	147	
Freshman Class	222	
Special Students	20	
Total		734

COLLEGE OF LAW :—

Senior Class	49	
Junior Class	74	
First Year Class	114	
Special Students	3	
Total		240

THE MEDICAL COLLEGE :—

Senior Class, New York City	57	
Junior Class, New York City	85	
Sophomore Class, New York City	44	
Freshman Class, New York City	80	
Specials, New York City	16	
Sophomore Class, Ithaca	32	
Freshman Class, Ithaca	57	
Total		371

COLLEGE OF AGRICULTURE :—

Senior Class	10	
Junior Class	12	
Sophomore Class	17	
Freshman Class	38	
Special Students	64	
Total		141

STATE COLLEGE OF VETERINARY MEDICINE :—

Third Year Class	17	
Second Year Class	23	
First Year Class	46	
Total		86

COLLEGE OF ARCHITECTURE :—

Senior Class	9	
Junior Class	8	
Sophomore Class	9	
Freshman Class	26	
Special Students	4	
First Year Painting	6	
Special Painting	3	
Total		65

COLLEGE OF CIVIL ENGINEERING :—

Senior Class	41	
Junior Class	55	
Sophomore Class	75	
Freshman Class	154	
Special Students	1	
Total		326

SIBLEY COLLEGE OF MECHANICAL ENGINEERING:—

Senior Class	127	
Junior Class	165	
Sophomore Class	276	
Freshman Class	392	
Special Students	4	
Total		964
Total number of regular students, deducting for names counted twice		3090

ADDITIONAL ENROLLMENT.

Summer Session, 1903,	470
Summer Term in Entomology, 1903,	33
Short Winter Course in Agriculture, 1904,	134
Short Winter Course in Veterinary Science, 1904,	1

Geographical Summary.

New York	1729	Maine	10	Philippines	1
Pennsylvania	278	Mississippi	9	Canada	28
Ohio	122	Rhode Island	9	Argentine Rep.	13
Illinois	122	Utah	9	Brazil	9
New Jersey	119	West Virginia	9	Cuba	8
Massachusetts	69	Georgia	8	Japan	7
Connecticut	49	Wisconsin	8	Mexico	6
Maryland	45	Delaware	7	Peru	5
Dist. of Columbia	44	Vermont	7	Australia	4
Indiana	43	Nebraska	6	China	4
Virginia	28	Oregon	6	England	3
Iowa	25	Tennessee	6	Sweden	3
Michigan	24	South Carolina	5	South Africa	3
Texas	24	Arkansas	4	India	2
Colorado	20	Montana	4	Russia	2
Missouri	22	Florida	3	Central America	2
California	14	Wyoming	3	Ecuador	1
Alabama	13	Kansas	3	New Zealand	1
New Hampshire	12	New Mexico	2	Norway	1
Kentucky	12	South Dakota	2	Turkey	1
Washington	12	Hawaii	1		
Louisiana	11	Idaho	1	Total	3090
North Carolina	11	Indian Territory	1		
Minnesota	11	Porto Rico	4		

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