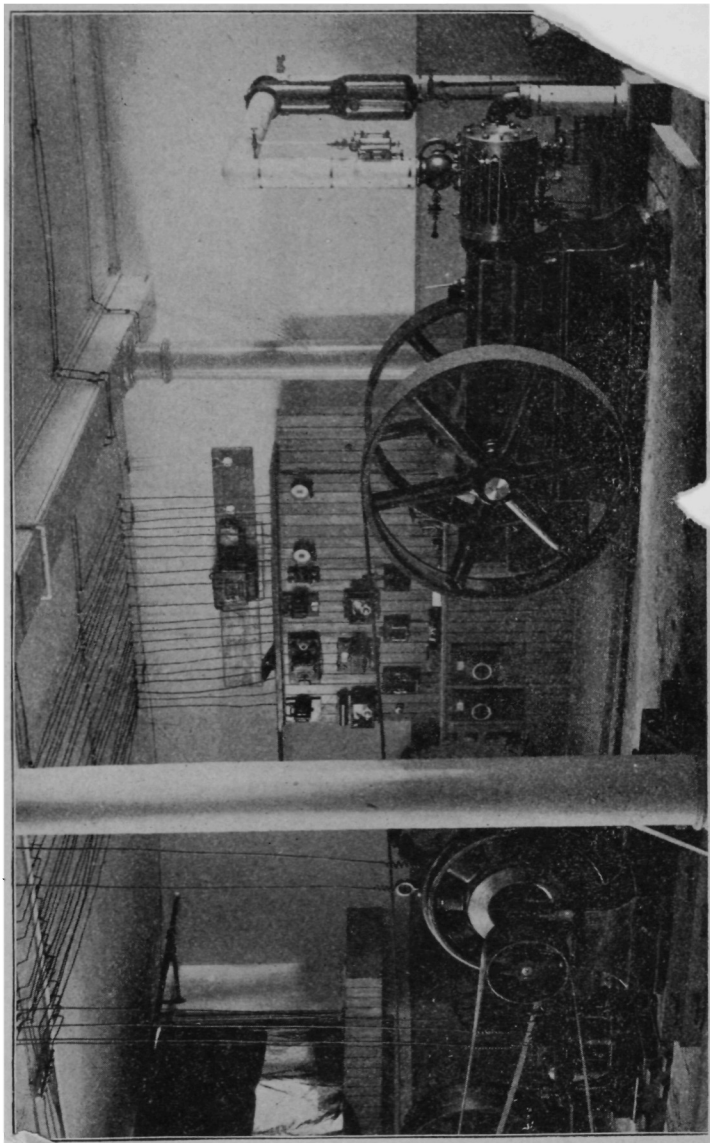


UNIVERSITY

OF ILLINOIS

1891

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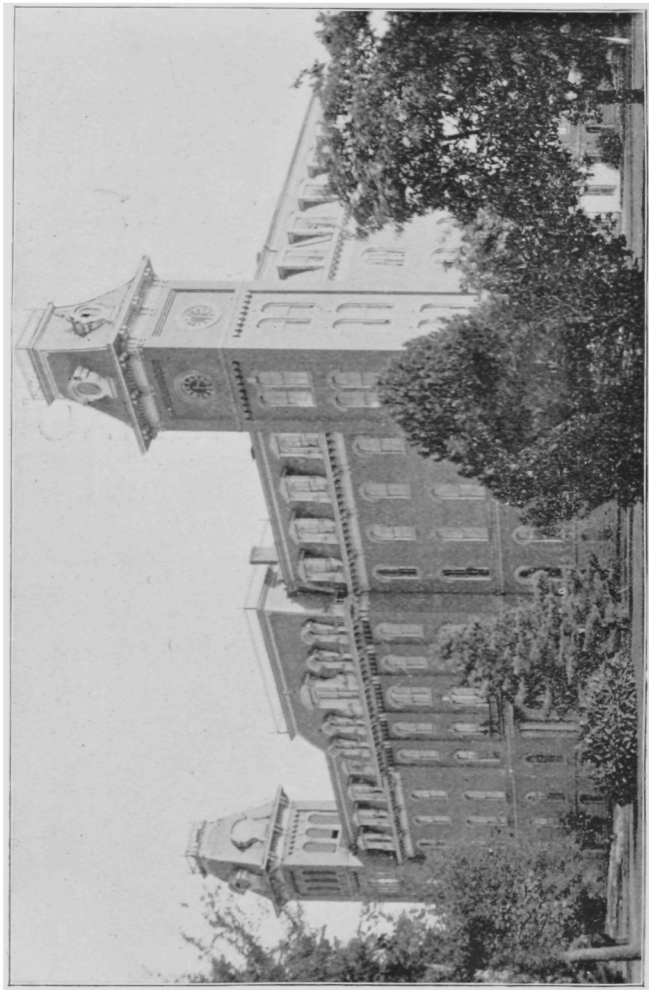
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- GEORGE WASHINGTON PARKER, Instructor in Wood Working and Foreman. *410 South Neil Street, C.*
- RUFUS ANDERSON, M.E., Instructor in Iron Working and Foreman. *1105 East Springfield Avenue, C.*

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\*Resigned September, 1891. †Appointed March, 1892.

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- HARRY SANDS GRINDLEY, B.S., First Assistant in Chemistry. *202 West Columbia Street, C.*
- HOWARD STIDHAM BRODE, Assistant in Zoölogy. *601 John Street, C.*
- JAMES McLAREN WHITE, B.S., Assistant in Architecture. *106 West University Avenue, C.*
- EDWARD SPENCER KEENE, B.S., Assistant in Machine Shop. *214 South Neil Street, C.*
- EDITH ADELAIDE SHATTUCK, Assistant in Drawing. *108 West Hill Street, C.*
- GEORGE PERKINS CLINTON, B.S., Assistant in Botany. *509 East University Avenue, C.*
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- CYRUS DANIEL McLANE, Assistant in Mathematics. *602 John Street, C.*
- PARKE TUNIS BURROWS, Assistant in Mathematics. *307 North Prairie Street, C.*
- CYRIL BALFOUR CLARK, Assistant in Machine Shop. *602 John Street, C.*

## NON-RESIDENT LECTURERS.

During the year the Board of Trustees authorized a course of lectures to students in the College of Engineering. In this course lectures upon the subjects named have been given by the following eminent specialists.

W. L. B. JENNEY, Tall Building Construction.	<i>Chicago.</i>
DAVID L. BARNES, Recent Locomotive Construction.	<i>Chicago.</i>
WILLIAM SOOY SMITH, Tall Building Construction.	<i>Chicago.</i>
J. A. C. WADDELL, Bridge Design.	<i>Kansas City, Mo.</i>
GEORGE CUTTER, Electrical Transmission of Power.	<i>Chicago.</i>
FRANCIS B. BADT, Commercial Distribution of Power.	<i>Chicago.</i>
DANKMAR ADLER, Design of Auditoriums.	<i>Chicago.</i>

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CLEAVES BENNETT, B.L., Assistant Librarian. <i>105 West University Avenue, C.</i>

## CHIEF JANITOR.

A. B. BAKER.	<i>Main University Building.</i>
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STATE LABORATORY OF NATURAL HISTORY.  

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State Laboratory and State Entomologist.

*1109 Springfield Avenue, U.*

PROFESSOR THOMAS JONATHAN BURRILL, M.A., PH.D.,  
Botanist.

*1107 West Green Street, U.*

CHARLES ARTHUR HART, Office Entomologist.

*915 West Green Street, U.*

JOHN MARTEN, Field Entomologist. *602 West Hill Street, C.*

MARY JANE SNYDER, Stenographer. *601 John Street, C.*

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AGRICULTURAL EXPERIMENT STATION.  

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*University Farm, U.*

WILLIAM LOW PILLSBURY, M.A., Secretary.

*504 West Elm Street, U.*

*Office, third story of Chemical Building.*

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*1107 West Green Street, U.*

EDWARD HOLYOKE FARRINGTON, M.S., Chemist.

*201 Randolph Street, C.*

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*1109 Springfield Avenue, U.*

PROFESSOR DONALD McINTOSH, V.S., Consulting Veterinarian.

*505 West Church Street, C.*

GEORGE WASHINGTON McCLUER, B.S., Assistant Horticulturist.  
*505 John Street, C.*

GEORGE PERKINS CLINTON, B.S., Assistant Botanist.  
*509 East University Avenue, C.*

ELNATHAN KEMPER NELSON, Assistant Chemist.  
*801 West Green Street, C.*

FRANK DUANE GARDNER, B.S., Assistant Agriculturist.  
*606 East Green Street, C.*

#### NOTICE.

The Bulletins of the Agricultural Experiment Station will be sent **FREE OF CHARGE** to any person in the State of Illinois who is engaged in agricultural pursuits, and who will send his name and postoffice.

Address:

AGRICULTURAL EXPERIMENT STATION,  
CHAMPAIGN, ILL.

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#### GEOGRAPHICAL POSITION OF THE UNIVERSITY.

The Observatory has the following position:

Latitude,  $40^{\circ} 6' 29''.66$ .

Longitude, west of Washington,  $11^{\circ} 10' 37''.5$ , or 44m. 42.5s.

Elevation above sea level, 720 feet.



# UNIVERSITY OF ILLINOIS.

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## HISTORY.

The University of Illinois had its origin in a movement for the higher education of the industrial classes, begun in Illinois in 1851, and resulting in the congressional grant of lands for this purpose, made to the several states in 1862, and amounting in this state to 480,000 acres. The University was chartered in February, 1867, and opened to students in March, 1868. In addition to the endowment from the land grant, \$100,000 in bonds, 1,000 acres of land, and the building in which the institution was opened were donated by Champaign county. The state also has made large appropriations for fitting up and stocking the farms, for library and apparatus, and for buildings, including the large main building erected in 1872 and 1873, the mechanical building, the chemical laboratory, completed in 1878, a commodious military building, finished in 1890, and a natural science building in course of erection. In 1874 a fine art gallery was established.

The whole number matriculated as students since the opening is 2,762. The number graduated from the several colleges, including the class of 1891, is 693. In 1871 the University was opened for women, on the same terms as to men.

The University has a beautiful and healthful situation on the high grounds between the cities of Champaign and Urbana, within the corporate limits of the latter. It is one hundred and twenty-eight miles south from Chicago, at the junction of the Illinois Central, the Cleveland, Cincinnati, Chicago and St. Louis, and the Wabash railways. The country is a region of beautiful rolling prairies, with large belts of timber along the streams, and is one of the richest farming districts of the state.

## BUILDINGS AND GROUNDS.

The land occupied by the University and its several departments embraces about 610 acres, including stock farm, experimental

farm, orchards, forest plantation, arboretum, ornamental grounds, and military parade grounds.

The main University building, designed wholly for public uses, occupies three sides of a quadrangle, measuring 214 feet in front and 122 feet upon the wings. The library wing contains in spacious halls the museum of natural history, the library, the art gallery, and the museum of industrial art. The chapel wing contains the chapel, the physical laboratory and lecture room, and rooms occupied by the departments of architecture, and of art and design. In the main front are convenient class-rooms, and on the upper floor, elegant halls for literary societies. The building is warmed by steam.

The mechanical building is of brick, 126 feet in length, and 88 feet in width. It contains a boiler-room, a machine shop furnished for practical use with a steam engine and lathes, and other machinery; pattern and finishing shop; testing laboratory; shops for carpentry and cabinet work, furnished with wood-working machinery. The blacksmith shop contains sixteen forges with anvils and tools, and a cupola for melting iron.

The chemical building contains five well equipped laboratories, sufficient to accommodate 250 students.

A military building, erected in 1889-90, 100 by 150 feet in one grand hall, gives ample space for company and battalion maneuvers and for large audiences upon special occasions. It is also used as a gymnasium.

There are, in addition, a veterinary hall, a small astronomical observatory, three dwellings, two large barns, and a greenhouse.

The new natural science building, under contract for \$60,000, will be open for use in September, 1892.

#### MUSEUMS AND COLLECTIONS.

The museum of zoölogy and geology occupies a hall 61 by 79 feet, with a gallery on three sides, and is completely furnished with wall, table, and alcove cases. It already contains interesting and important collections, equaled at few, if any, of the colleges of the West. They have been specially selected and prepared to illustrate the courses of study in the school of natural history, and to present a synoptical view of the zoölogy of the state.

*Zoology.*—The mounted *mammals* comprise an unusually large and instructive collection of the ruminants of our country, includ-

ing male and female moose, elk, bison, deer, antelope, etc.; and also several quadrumana, large-carnivora and fur-bearing animals, numerous rodents, good representative marsupials, cetaceans, edentates, and monotremes. Fifty species of this class are represented by eighty specimens.

The collection of mounted *birds* (about five hundred and fifty specimens of three hundred species), includes representatives of all the orders and families of North America, together with a number of characteristic tropical forms. Many of these specimens are excellent examples of artistic taxidermy. A series of several hundred unmounted skins is available for the practical study of species.

The set of *skeletons* contains examples of all the orders of mammals and birds except *proboscideæ*, together with typical representatives of the principal groups of reptiles, amphibians, and fishes.

The *cold-blooded vertebrates* are also represented by a very useful collection of alcoholic specimens, plaster casts, and mounted skins of the larger species, both terrestrial and marine.

*Embryology* is illustrated by a set of Ziegler wax models, and several series of slides, sections, and other preparations.

*Conchology* is illustrated by several thousand shells belonging to seventeen hundred species; together with alcoholic specimens of all classes and orders. The collection of Illinois shells is fair, but incomplete.

The *entomological cabinet* contains about three thousand species (principally American), named, labeled, and systematically arranged.

The *lower invertebrates* are represented by several hundred dried specimens and alcoholics, and by a large series of the famous Blaschka glass models.

*Botany*.—The herbarium contains nearly all the species of flowering plants indigenous to Illinois, including a complete set of grasses and sedges. The flora of North America is fairly well represented, and a considerable collection of foreign species has been made. A collection of fungi includes a very full set of those most injurious to other plants, causing rusts, smuts, moulds, etc. A collection of wood specimens from two hundred species of North American trees well illustrates the varieties of native wood.

Plaster casts represent fruits of many of the leading varieties, as well as interesting specimens of morphology, showing peculiarities of growth, effects of cross-fertilization, etc.

*Geology*.—The geological collection comprises many of the largest and most remarkable fossils hitherto discovered in the various

geological formations, illustrating the general progress of life in the mollusks, fishes, reptiles, and mammals, from the oldest paleozoic time to the present. A fine set of fossils from Germany, and collections suitably arranged for practical study, from this and other states, illustrate the different formations. There is a good collection of foot-prints from the Connecticut river sand-stones.

*Lithology.*—This collection embraces the principal kinds of metamorphic and volcanic rocks; examples of stratification in the limestone and fragmental kinds, with many samples of such rocks as are found most valuable for building purposes.

*Mineralogy.*—The specimens of minerals show all the groups, and all the important and typical species. All the metals are represented; also many of their most important combinations. Many of the specimens are finely crystalized; these, with a complete set of imported models, fully illustrate crystallography.

*Agriculture.*—A collection of soils from different portions of Illinois and other states; many varieties of corn, wheat, and other cereals and seeds; specimens illustrating the official state inspection of grains at Chicago, showing the quality of the different grades recognized; models of agricultural inventions; models illustrating modes and materials for drains; casts of ancient plows; engravings, lithographs, and photographs of typical animals of noted breeds.

The farms give good illustrations of farm buildings, implements, machinery, modes of culture, and of domestic animals of various classes.

*Physics.*—The cabinets of the physical laboratory contain a collection of apparatus from the most celebrated European and American makers, illustrating the subjects of mechanics, pneumatics, optics, and electricity.

A series of standard weights and measures from the office of the Coast and Geodetic Survey of the United States may be consulted at the physical laboratory.

#### ART GALLERY.

The University art gallery was the gift of citizens of Champaign and Urbana. It occupies a beautiful hall, 61 by 79 feet, and the large display of art objects has surprised and delighted all visitors. In sculpture it embraces thirteen full-size casts of celebrated statues, including the Laocoön group, the Venus of Milo, etc., forty

statues of reduced size, and a large number of busts, ancient and modern, bas reliefs, etc., making over four hundred pieces. It includes also hundreds of large autotypes, photographs, and fine engravings, representing many of the great masterpieces of painting of nearly all the modern schools. Also a gallery of historical portraits, mostly large French lithographs of peculiar fineness, copied from the great national portrait galleries of France. The value of this splendid collection, as a means of education, is shown in the work of the course of drawing and design of the University.

#### MUSEUM OF INDUSTRIAL ARTS.

A large room is devoted to a museum of practical art, the materials for which are constantly accumulating in the various scientific departments. Prominent among the agricultural specimens here exhibited is an excellent collection of the sub-species and varieties of Indian corn, including the best of their kinds, a considerable collection of small grains and of grasses, a collection of fibers in various states of manufacture, and a series of analyses of grains showing at a glance the elements and proportion of structure. The museum contains full lines of illustrations of the work of the shops; models made at the University or purchased abroad; drawings in all departments; Patent Office models, etc., samples of building materials, natural and artificial; a large collection illustrating the forestry of Illinois, Florida, and California; with whatever may be secured that will teach or illustrate in this most important phase of University work. The elegant exhibit made by the University at the Centennial and Cotton Exposition at New Orleans, finds a permanent abode in this apartment.

A notable feature of this collection is the gift of Henry Lord Gay, architect, of Chicago. It consists of a model in plaster, and a complete set of drawings of a competitive design for a monument to be erected in Rome, commemorative of Victor Emanuel, first king of Italy. The monument was to be of white marble, an elaborate gothic structure, beautifully ornamented, and 300 feet high. Its estimated cost was to have been seven and a quarter millions of francs. The design was placed by the art committee second on a list of 289 competitors; but both the first and second were set aside for political reasons. Mr. Gay's generous gift occupies the place of honor in the museum of industrial arts.

## LIBRARY.

The library, selected with reference to the literary and scientific studies required in the several courses, had March 1, 1892, 21,216 volumes, and important purchases have been made since that date.

The large library hall fitted up as a reading room, is open throughout the day for study, reading, and consulting authorities. It is intended that the use of the library shall largely supplement the class-room instruction in all departments. Constant reference is made in classes to works contained in the library, and their study is encouraged or required. The reading room is well provided with American, English, French, and German papers and periodicals, embracing some of the most important publications in science and art.

The State Laboratory of Natural History is rich in the world's best literature upon biological sciences, and affords advanced students excellent opportunities for work in this line.

The library of the Agricultural Experiment Station has 2,800 volumes, and 1,600 pamphlets. This is also accessible to students.

## LABORATORIES.

These essential facilities for modern educational work have been provided at the cost of large sums of money, and of much care to have them best suited for their various purposes. They are thoroughly well equipped.

The chemical laboratories occupy a building 75 by 120 feet, four stories high, including basement and mansard. The basement is used for storage, and for work in mining and metallurgy; the first floor has a lecture room, a laboratory for quantitative work, for one hundred and fifty students, and several subsidiary rooms; the second floor, its laboratories for qualitative analysis, private work, lecture rooms, store room, etc.; and on the uppermost floor is the laboratory of the Agricultural Experiment Station, and apartments for photography.

The new natural science building is to be occupied in September, 1892, with the laboratories and lecture rooms for the work and instruction in botany, zoölogy, physiology, mineralogy, and geology; it will also contain the office and equipments of the State Laboratory of Natural History and of the State Entomologist, as well as the office and library of the Agricultural Experiment Station. There are six laboratory rooms on each of the main floors—sufficient altogether to

accommodate readily two hundred students, besides offering abundant facilities for the private work of the instructors. The laboratory work in these departments constitutes a very large part of the instruction.

The physical laboratory and lecture room are in the main building, occupying large, well lighted, and well arranged apartments. Students have ample facilities for experimental work and opportunity to prosecute it under the guidance of the instructors.

The electrical laboratory, recently fitted up, is also in the main building. It has five rooms each especially adapted to its distinct purpose, and equipped for work in experiment and research. The laboratory has its own power from steam and gas engines.

The testing laboratory, located in the mechanical building, gives opportunity to students of the college of engineering to make various practical experiments and tests, and to prosecute original investigations in the lines of their specialities.

The mechanical laboratory occupies a large part of both floors of the mechanical building, and each of its departments is equipped for practical work by students. There is a large machine shop with hand and machine tools for all the required operations, a pattern shop, a blacksmith shop, a foundry, a boiler room, etc.

The laboratory for mining engineers, located in the chemical building, is equipped upon a large scale for the work in ore dressing, assaying, metallurgy, and surveying. Students make use of machinery, furnaces, and instruments as in practical work.

The architectural workshops, in the same building with the mechanical laboratory, are fully equipped for bench and lathe work, and are supplied with all essential machine tools. Students become familiar with the tools and the work of the carpenter and cabinet maker, as well as with the draughting operations of the architect's office.

The farms, fruit, and forestry plantations, and gardens offer abundant illustrations of the work associated with the courses of instruction in agriculture and horticulture. The varied and carefully conducted operations of the Agricultural Experiment Station afford excellent aids to students in these departments. For its specific purposes there are used about one hundred of the six hundred and ten acres comprised in the University farms and grounds.

## GENERAL LIST OF SUBJECTS.

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This list gives all the subjects and the entire number of courses of instruction offered to students of the University. Fuller information will be found under these same headings appropriately distributed under the different colleges and schools. The number of hours a week stated is the time required in the class rooms and laboratories; when more than five, laboratory practice forms a part, at least, of the exercise.

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### PHILOSOPHY—

1. Mental Science. Fall term, 5 hours a week.
2. Introduction to Philosophy. Winter term, 5 hours a week.
3. Logic. Winter term, 5 hours a week.
4. History of Philosophy. Spring term, 5 hours a week.

### PEDAGOGY—

1. Educational Psychology. Fall term, 5 hours a week.
2. Science of Instruction. Winter term, 5 hours a week.
3. Special Methods in Education. Spring term, 5 hours a week.
4. School Supervision. Fall term, 5 hours a week.
5. History of Education. Winter term, 5 hours a week.
6. Philosophy of Education. Spring term, 5 hours a week.

### POLITICAL ECONOMY—

1. Political Economy. Spring term, 5 hours a week.

### HISTORY—

1. General History. Fall, winter, and spring terms, 5 hours a week.
2. History of Civilization. Fall term, 5 hours a week.
3. Constitutional History. Winter and spring terms, 5 hours a week.
4. Constitutional History. For students who have not had course 1. Winter term, 5 hours a week.



## GREEK—

1. Herodotus. Fall term, 5 hours a week.
2. Xenophon's Hellenica. Winter term, 5 hours a week.
3. Xenophon's Memorabilia. Spring term, 5 hours a week.
4. Lysias and Demosthenes. Fall term, 5 hours a week.
5. Plato's Apology and Selections from Phædo. Winter term, 5 hours a week.
6. Aeschylus's Prometheus Bound and Euripides' Alcestis. Spring term, 5 hours a week.
7. Homer's Iliad. Fall term, 5 hours a week.
8. Aristophanes' Clouds. Winter term, 10 hours a week.
9. Lyric Poets. Spring term, 10 hours a week.

## LATIN—

1. Livy and Prose Composition. Fall term, 5 hours a week.
2. Cicero de Amicitia. Winter term, 5 hours a week.
3. Horace. Spring term, 5 hours a week.
4. Tusculan Disputations. Fall term, 5 hours a week.
5. Horace's Satires. Winter term, 5 hours a week.
6. Tacitus and Roman Archæology. Spring term, 5 hours a week.
7. Quintilian. Fall term, 5 hours a week.
8. Juvenal's Satires. Winter term, 5 hours a week.
9. Cicero de Officiis. Spring term, 5 hours a week.

## FRENCH—

1. For students in College of Literature. Fall, winter, and spring terms, 5 hours a week.
2. For students in College of Literature. Fall, winter, and spring terms, 5 hours a week.
3. For students in College of Literature. Fall, winter, and spring terms, 5 hours a week.
4. For students in Colleges of Agriculture, Engineering, and Science. Fall, winter, and spring terms, 5 hours a week.

## ITALIAN—

1. Course of one year (given in 1892-3). Fall, winter, and spring terms, 5 hours a week.

## SPANISH—

1. Course of one year (given in 1893-4). Fall, winter, and spring terms, 5 hours a week.

## GERMAN—

1. For students in College of Literature. Fall, winter, and spring terms, 5 hours a week.
2. For students in College of Literature. Fall, winter, and spring terms, 5 hours a week.
3. For students in College of Literature. Fall, winter, and spring terms, 5 hours a week.
4. For students in Colleges of Agriculture, Engineering, and Science. Fall, winter, and spring terms, 5 hours a week.

## ENGLISH LITERATURE—

1. American Authors. Fall term, 5 hours a week.
2. British Authors. Winter and spring terms, 5 hours a week.
3. English Classics (Prose). Fall term, 5 hours a week.
4. English Classics (Verse). Winter term, 5 hours a week.
5. Shakspeare. Spring term, 5 hours a week.
6. Old English (Anglo-Saxon). Fall term, 5 hours a week.
7. Middle English. Winter term, 5 hours a week.
8. Science of Language. Spring term, 5 hours a week.

## RHETORIC AND ORATORY—

1. Themes and Elocution, for students in Colleges of Agriculture, Engineering, and Science. Fall, winter, and spring terms, 3 hours a week.
2. Themes and Elocution, for students in College of Literature. First year, 2 hours a week; fourth year, 1 hour a week.
3. Elocution and Oratory. Elective course. Fall, winter, and spring terms, 2 hours a week.

## MATHEMATICS—

1. Advanced Algebra, for students in Colleges of Agriculture, Science, and Literature. Fall term, 5 hours a week.
2. Advanced Algebra, for students in College of Engineering. Fall term, 5 hours a week.
3. Trigonometry, for students in Colleges of Agriculture, Science, and Literature. Winter term, 5 hours a week.
4. Trigonometry, for students in College of Engineering. Winter term, 5 hours a week.
5. Conic Sections. Spring term, 5 hours a week.
6. Analytical Geometry. Spring term, 5 hours a week.
7. Calculus and Analytical Geometry. Fall, winter, and spring terms, 5 hours a week.

## DESCRIPTIVE ASTRONOMY—

1. For students in Colleges of Agriculture, Science, and Literature. Spring term, 5 hours a week.
2. For students in College of Engineering. Spring term, 5 hours a week.

## PHYSICS—

1. Major Course. Fall, winter, and spring terms, 6 hours a week.
2. Minor Course. Winter term, 5 hours a week.

## METEOROLOGY—

1. Atmospheric Conditions and Movements. One-half of fall term, 7 hours a week.

## CHEMISTRY—

1. General and Experimental Chemistry. Fall term, 10 hours a week.
2. Qualitative Analysis. Winter and spring terms, 15 hours a week.
3. Quantitative Analysis and Assaying. Fall, winter, spring, and fall terms, 10 hours a week.
4. Organic Chemistry. Winter and spring terms, 10 hours a week.
5. Investigations and Thesis. Fall, winter, and spring terms, 10 hours a week.
6. Qualitative Analysis. Fall, winter, and spring terms, 10 hours a week.
7. Advanced Work for Agricultural Students. Fall, winter, and spring terms, 10 hours a week.
8. Pharmaceutical Chemistry. Fall, winter, spring, and fall terms, 10 hours a week.
9. Assaying. Winter term, 10 hours a week.
10. Metallurgy. Spring term, 5 hours a week.

Arrangements may be made for special course of advanced work.

## MINERALOGY—

1. General Course. Fall term, 5 hours a week.

## GEOLOGY—

1. General and Economic Geology. For students in College of Science. Winter and spring terms, 5 hours a week; fall term, 10 hours a week.

2. Special Advanced Work. Winter and spring terms, 10 hours a week.

3. Engineering Geology. Winter term, 10 hours a week.

4. General Geology. Spring term, 10 hours a week.

#### BOTANY—

1. Histology, Morphology, and Physiology. Fall, winter, and spring terms, 10 hours a week.

2. Bacteriology. Fall term, 10 hours a week.

3. Fungi. Winter term, 10 hours a week.

4. Reproduction. Spring term, 10 hours a week.

5. Investigations and Thesis. Winter and spring terms, 10 hours a week.

6. General Botany. Spring term, 7 hours a week.

#### ZOOLOGY—

1. General Zoölogy for students in College of Science. Fall, winter, and spring terms, 10 hours a week.

2. Embryology. Fall term, 10 hours a week.

3. Investigations and Thesis. Winter and spring terms, 10 hours a week.

4. Systematic Zoölogy (including Entomology). Fall, winter, and spring terms, 10 hours a week.

5. General Zoölogy. Winter term, 10 hours a week.

#### ENTOMOLOGY—

1. General and Economic Entomology. Winter and spring terms, 10 hours a week.

#### PHYSIOLOGY—

1. Human Physiology. Fall term, 5 hours a week.

#### BIOLOGY—

1. General Advanced Study. Spring term, 10 hours a week.

#### ANTHROPOLOGY—

1. Origin and Progress of Man. Fall term, 3 hours a week.

#### AGRICULTURE—

1. Farm Equipment. Fall term, 10 hours a week.

2. Animal Husbandry. Winter term, 5 hours a week.

3. Rural Economy. Winter term, 5 hours a week.

4. History of Agriculture. Half of spring term, 5 hours a week.

5. Rural Law. Half of spring term, 5 hours a week.

## VETERINARY SCIENCE—

1. Anatomy and Physiology. Fall term, 5 hours a week.
2. Principles and Practice of Veterinary Medicine. Winter and spring terms, 5 hours a week.
3. Materia Medica. Winter and spring terms, 5 hours a week.

## HORTICULTURE—

1. Fruit Culture. Fall term, 5 hours a week.
2. Forestry. Half of winter term, 5 hours a week.
3. Plant Houses and House Plants. Half of winter term, 7 hours a week.
4. Gardens. Spring term, 5 hours a week.
5. Elements of Horticulture. Winter term, 5 hours a week.

## ART AND DESIGN—

1. For special students of Art and Design. Three years, 20 hours a week.
2. For special students of Design. Fall, winter, and spring terms, 20 hours a week.
3. For students in Architecture. Two years, 10 hours a week.
4. For students in Agriculture and Natural Science. Fall, winter, and spring terms, 10 hours a week.
5. For students in Mechanical, Electrical, Civil, and Mining Engineering, and Chemistry. Fall and winter terms, 10 hours a week.
6. For students in College of Literature. Three or six terms, 10 hours a week.
7. History of Art. Fall, winter, and spring terms, 1 hour a week.

## GENERAL ENGINEERING DRAWING—

1. Elements of Draughting. Fall term, 10 hours a week.
2. Descriptive Geometry. Half of winter term and the spring term, 10 hours a week.
3. Lettering. Half of winter term, 10 hours a week.

## THEORETICAL AND APPLIED MECHANICS—

1. Analytical Mechanics. Fall term, 5 hours a week.
2. Resistance of Materials. Winter term, 7 hours a week.
3. Hydraulics. Spring term, 7 hours a week.

## MECHANICAL ENGINEERING—

1. Shop Practice A. Fall, winter, and spring terms, 10 hours a week.

2. Mechanical Drawing and Construction. Fall, winter, and spring terms, 13 hours a week.

3. Mechanism. Fall term, 10 hours a week.

4. (a) Engineering Materials. Winter term, 4 hours a week.

(b) Steam Engineering. Winter term, 6 hours a week.

5. Mechanics of Machinery. Spring term, 5 hours a week.

6. Heat Engines. Fall term, 5 hours a week.

7. Machine Design. Fall term, 10 hours a week.

8. Hydraulic Engines and Wind Wheels. Winter term, 5 hours a week.

9. Laboratory Practice. Winter and spring terms, 10 hours a week.

10. Estimates. Spring term, 5 hours a week.

#### ELECTRICAL ENGINEERING—

1. Electrical Measurements. Spring term, 10 hours a week.

2. Primary and Secondary Batteries. Fall term, 10 hours a week.

3. Laboratory Practice. Winter term, 10 hours a week.

4. Electro-Magnetism and Dynamo-Electric Machinery. Winter term, 10 hours a week.

5. Alternating Currents and Machines. Spring term, 10 hours a week.

6. Installation of Light and Power Plants. Spring term, 6 hours a week.

7. Photometry. Spring term, 4 hours a week.

#### CIVIL ENGINEERING—

1. Land Surveying. Fall term, 10 hours a week.

2. Topographical Drawing and Surveying. Winter and spring terms, with course 3 takes 10 hours a week.

3. Transit Surveying and Leveling. Winter and spring terms, with course 2 takes 10 hours a week.

4. Railroad Engineering. Fall term, 10 hours a week.

5. Masonry Construction. Fall term, 7 hours a week.

6. Geodesy. Half of fall term, 5 hours a week.

7. Practical Astronomy. Half of fall term, 10 hours a week.

8. Bridges.

(a) Bridge Analysis. Winter term, 5 hours a week.

(b) Bridge Designing. Spring term, 5 hours a week.

9. Tunneling. Spring term, 5 hours a week.

10. Surveying. Spring term, 10 hours a week.

## MUNICIPAL AND SANITARY ENGINEERING—

1. Road Engineering. Winter term, 5 hours a week.
2. Water Supply Engineering. Fall term, 5 hours a week.
3. Sewerage. Winter term, 5 hours a week.
4. Botany. Half of winter term, 10 hours a week.
5. Bacteriology. Fall term, 10 hours a week.

## MINING ENGINEERING.

1. Mine Attack. Fall term, 5 hours a week.
2. Mine Surveying. Spring term, 5 hours a week.
3. Ore Dressing. Fall term, 10 hours a week.
4. Mine Engineering. Winter and spring terms, 10 hours a week.

## ARCHITECTURE—

1. Shop Practice B. Fall, winter, and spring terms, 10 hours a week.
2. General Architectural Construction. Fall and winter terms, 10 hours a week.
3. Sanitary Construction. Spring term, 5 hours a week.
4. Architectural Drawing. Fall and winter terms, 10 hours a week.
5. History of Architecture. Winter and spring terms, 5 hours a week.
6. Roofs. Spring term, 10 hours a week.
7. Architectural Perspective. Fall term, 10 hours a week.
8. Superintendence, Estimates, and Specifications. Fall term, 5 hours a week.
9. Advanced Graphics. Fall term, 10 hours a week.
10. Heating and Ventilation. Winter term, 5 hours a week.
11. Architectural Designing. Winter and spring terms, 10 hours a week.
12. Esthetics of Architecture. Spring term, 10 hours a week.
13. Architectural Course in Artistic Drawing and Modeling. For second year students. Fall, winter, and spring terms, 10 hours a week.
14. Architectural Course in Artistic Drawing and Modeling. For fourth year students. Fall, winter, and spring terms, 10 hours a week.

## MILITARY SCIENCE—

1. Drill Regulation for Infantry. Fall and winter terms, 1 hour a week.
2. Drill Practice. Two years, 2 hours a week.
3. For Officers of the Battalion. Six terms, 2 hours a week.

# ORGANIZATION.

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## I. THE COLLEGE OF AGRICULTURE:

- Course in Agriculture.
- Course in Veterinary Science.
- Course in Horticulture.
- Junior Course in Agriculture.

## II. THE COLLEGE OF ENGINEERING:

- Course in Mechanical Engineering.
- Course in Electrical Engineering.
- Course in Civil Engineering.
- Course in Municipal and Sanitary Engineering.
- Course in Mining Engineering.
- Course in Architecture.
- Course in Architectural Engineering.

## III. THE COLLEGE OF SCIENCE:

- School of Chemistry.
- School of Natural Science.

## IV. THE COLLEGE OF LITERATURE:

- School of English and Modern Languages.
- School of Ancient Languages.
- School of Philosophy and Pedagogy.

Additional Schools not distinctly attached to any of the colleges:

- School of Military Science.
- School of Art and Design.

## V. GRADUATE SCHOOL.

Vocal and instrumental music are also taught, but not as parts of any regular course.

*Preparatory Classes.*—To meet an urgent demand, the Trustees have temporarily provided for teaching the preparatory studies lying between the work of the elementary common schools and that of the University.



# COLLEGE OF AGRICULTURE.

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## COURSES.

AGRICULTURE; VETERINARY SCIENCE; HORTICULTURE.

## FACULTY.

THOMAS J. BURRILL, PH.D., ACTING REGENT, Botany and Horticulture.

GEORGE E. MORROW, M.A., *Dean*, Agriculture.

STEPHEN A. FORBES, PH.D., Zoölogy and Entomology.

CHARLES W. ROLFE, M.S., Geology.

DOÑALD MCINTOSH, V.S., Veterinary Science.

ARTHUR W. PALMER, SC.D., Chemistry.

SAMUEL W. PARR, M.S., Analytical Chemistry.

## MEMBERS OF OTHER FACULTIES GIVING INSTRUCTION IN THIS COLLEGE.

EDWARD SNYDER, M.A., German.

JAMES D. CRAWFORD, M.A., History.

JAMES H. BROWNLEE, M.A., Rhetoric and Oratory.

NATHANIEL BUTLER, JR., English Language and Literature.

FRANK F. FREDERICK, Industrial Art and Design.

ELBRIDGE R. HILLS, First Lieut., U.S.A., Military Science.

M. R. PARADIS, M.A., French.

SAMUEL W. STRATTON, B.S., Physics.

GEORGE W. MYERS, M.L., Mathematics.

GEORGE W. PARKER, Wood Work.

HOWARD S. BRODE, Zoölogy.

## OBJECT.

The College of Agriculture aims to give a liberal and practical education, based largely on the natural and physical sciences, but supplementing these with a list of technical or professional studies in which the application of science to the best modern practice of agriculture is carefully considered. The purpose is to prepare its

students to be intelligent and successful farmers or horticulturists; teachers of agriculture in schools or colleges, or through the agricultural press, or to be investigators in the agricultural experiment stations of the country. It also gives a good foundation in the study of veterinary science.

Shorter courses are provided for those who already have a good scientific education, and for those who desire to pursue the technical studies with special reference to their practical applications.

This college has the advantage of a close connection with the other colleges of the University, especially with the College of Science. The libraries, laboratories, museums, and collections of the University are a part of its equipment.

#### METHODS OF INSTRUCTION.

So far as is practicable, the professional studies are taught after a study of the sciences with which agriculture is most closely related. They are taught mainly by lectures, with use of text-books where suitable ones are available. Readings are prescribed in standard agricultural books and periodicals. Large use is made of the publications of agricultural experiment stations. Frequent written or oral discussion by the student of the principles taught is required. These are also illustrated by observations in the fields, stables, orchards, gardens, etc., of the University, or in the vicinity.

The constant aim is to aid the student in forming habits of careful and accurate observation and investigation; to lead him to seek the reasons for agricultural methods, as well as to learn rules of practice; to teach him how to use the sources of knowledge concerning agriculture; and to help him to become an intelligent, progressive citizen and business man.

#### EQUIPMENT.

The College has, for the illustration of practical agriculture, a stock farm of 400 acres, provided with a large stock barn fitted up with stables, pens, yards, etc.; also an experiment farm of 180 acres, furnished with all necessary apparatus to illustrate the problems of breeding and feeding. It has specimens of heavy draft, farm, and roadster horses, and herds of Shorthorn, Hereford, Holstein, and Jersey cattle, and of Poland-China swine.

The Agricultural Experiment Station, established as a department of the University, exhibits field experiments in testing the

different varieties and modes of culture of field crops, and in the comparison and treatment of soils. It carries on experiments in agriculture, horticulture, dairying, and in feeding animals of different ages and development upon the various kinds of food. In common with similar departments in the several agricultural colleges of the country, it attempts to create positive knowledge towards the development of an agricultural science. A dairy house fitted with a cream separator, apparatus for deep and shallow setting of milk, churns, etc., is used in illustration of dairy processes.

Surveying and drainage are illustrated by field practice, with instruments, and by models. Agricultural chemistry is pursued, in connection with laboratory practice, in the analysis of soils, fertilizers, foods, etc. The College has fine collections of soils, seeds, plants, implements, models, and skeletons of domestic animals, charts, and other apparatus, including a large number of models of agricultural machinery.

Upon the grounds devoted to the use of the college are: An apple orchard, containing numerous varieties, and planted in 1869; also many varieties of pears, cherries, grapes, and small fruits.

A forest tree plantation, embracing the most useful kinds of timber.

An arboretum, in which all hardy, indigenous, and exotic trees are planted as fast as they can be secured, and which now contains nearly one hundred varieties.

The ornamental grounds which surround the University buildings, contain about twenty acres, and are kept in neat and attractive style. These with all the adjuncts of trees and flowering shrubs, lawns, beds of flowers, and foliage plants, walks of different materials and styles of laying out, give illustration to the class room work in landscape gardening. A greenhouse contains a collection of plants of great value for the classes in floriculture and landscape gardening, besides furnishing students with practice in greenhouse management.

The extensive fruit plantations of the Agricultural Experiment Station give abundant opportunity for studies and illustrations in many horticultural lines, and add greatly to the effectiveness of class room work.

The cabinet contains a series of colored plaster casts of fruits prepared at the University; models of fruits and flowers by Auzoux, of Paris; collections of seeds of native and exotic plants; of specimens of native and foreign woods; of beneficial and injurious

insects, and specimens showing their work; numerous dry and alcoholic specimens and preparations; maps, charts, diagrams, drawings, etc.

The College has a supply of compound microscopes and apparatus, and students have opportunity to learn their use, and to make practical investigations with them. The herbarium is rich in specimens of useful and noxious plants, including many of the fungous parasites which cause disease to cultivated crops.

## COURSES OF INSTRUCTION.

### AGRICULTURE.

1. Farm Equipment.—Careful consideration is given to the planning and methods of construction of farm buildings: to the division of the farm into fields; to a comparison of different methods of fencing, with methods of construction and care of each; to laying out, constructing, and maintaining roads. Especial attention is given to the improvement of the farm by drainage, the reasons for drainage, laying out drains, methods of leveling, estimating size of tile, and depth of drains best adapted for different situations being fully explained. Field practice accompanies the class room work. The selection, use, and care of farm implements and machinery receive full consideration. *Lectures and Reference Reading. Fall term, 10 hours a week.* Professor MORROW.
2. Animal Husbandry.—The leading principles of breeding and the practical methods of feeding and managing farm animals, horses, cattle, sheep, and swine, are discussed. The purpose served by food, and the best methods of feeding for the economical production of meat, dairy products, wool, etc., are explained with free use of the records of practice by successful breeders and feeders in this and other countries. The history, characteristics, and adaptations of all important breeds of farm animals are studied. Students are given the opportunity of carefully studying animals and judging them with reference to breed characteristics and their adaptations to different uses. Practice is given in study of pedigrees. *Lectures and Reference Reading. Winter term, 5 hours a week.* Professor MORROW.

Rural Economy.—The relation of agriculture to other industries ; the advantages and disadvantages of different systems, as stock rearing, dairying, grain farming; of specialties and general farming, and the circumstances which make each desirable, are discussed. The culture of farm crops, cereals, roots, grasses, etc., including choice of varieties, preparation and cultivation of the soil, harvesting and utilization of each, receives as full attention as time permits. *Lectures and Reference Reading. Winter term, 5 hours a week.* Professor MORROW.

History of Agriculture.—The development of agriculture, especially in comparatively recent times and in our own country, is studied with particular reference to the effects of climate, different phases of civilization and of legislation in advancing or retarding it. The history and characteristics of agricultural organizations of various classes are considered, and a survey is taken of agricultural literature. *Lectures and Reference Reading. Half of spring term, 5 hours a week.* Professor MORROW.

5. Rural Law.—The object of this study is to enable the student to familiarize himself with some fundamental principles of law and with the special laws which most directly affect the farmer. Tenure of real estate; laws relating to roads, fences, drainage, etc., as well as the most important parts of commercial law are considered. *Lectures and Reference Reading. Half of spring term, 5 hours a week.* Professor MORROW.

#### VETERINARY SCIENCE.

1. Anatomy and Physiology.—The anatomy and physiology of the domestic animals constitute the subjects of instruction for a term. The instruction is given by lectures aided by demonstrations with use of skeletons and models illustrating the details of structure and formation of parts. This is supplemented by the study of text-books. *Strangeway's Veterinary Anatomy; Smith's Physiology of the Domestic Animals.* *Fall term, 5 hours a week.* Professor McINTOSH.
2. Principles and Practice of Veterinary Medicine.—This subject comprises veterinary medicine, surgery, and hygiene, and is taught by lectures and text-books, and illustrated by specimens of morbid anatomy, with observations and practice at the clinics. The latter are held at the veterinary infirmary where

a large number of animals are treated or operated upon once each week. Dissections and post mortems are made. *Williams's Practice of Veterinary Medicine and Surgery; Courtney's Practice of Veterinary Medicine and Surgery.* Winter and spring terms, 5 hours a week. Professor McINTOSH.

3. **Materia Medica.**—The substances and agents used for the prevention or cure of disease and for the preservation of health are studied in this course. The instruction is given by lectures and text-books. In the illustrative collections are specimens of all the drugs used. *Dun's Veterinary Materia Medica; Wood's Human Materia Medica.* Winter and spring terms, 5 hours a week. Professor McINTOSH.

#### HORTICULTURE.

1. **Fruit Culture.**—Orchards, vineyards, small fruit plantations and their products, constitute the main subjects of this term's work. Lectures are given upon propogating, planting, and cultivating trees and vines; upon identifying, classifying, and preserving fruits, and upon diseases and remedies. Studies are made upon illustrative material in the laboratory, and visits to the orchards and plantations form a part of the instruction. *Fall term, 6 hours a week.* Professor BURRILL.
2. **Forestry.**—This course embraces a study of forest trees and their uses, their natural distribution, and their artificial production. The relations of forests and climate are studied, and the general topics of forestry legislation and economy are discussed. *Lectures.* *Half of winter term, 5 hours a week.* Professor BURRILL.
3. **Plant Houses and House Plants.**—This study includes gardening and landscape architecture; the methods of construction, heating, and ventilation, and general management of greenhouses, and the study of the kinds, propagation, growth, and care of flowering plants. Each student has practice in propagating by cuttings and otherwise, in potting and shifting, and in care of plants requiring various treatment. Insects and diseases, with the remedies, are thoroughly treated, and the means of securing vigor of growth and abundance of flowers are studied and illustrated by practice. *Henderson's Practical Floriculture.* *One-half of winter term, 7 hours a week.* Professor BURRILL.

4. Gardens.—Kitchen and market gardens are made the first subjects of study, after which ornamental and landscape gardening occupies the time. *Henderson's Gardening for Profit; Long's Ornamental Gardening. Spring term, 5 hours a week.* Professor BURRILL.
5. Elements of Horticulture.—This is a minor course, intended for students who take but one term of horticultural work. The following topics are discussed: Orchard sites; the age of trees to plant; the season to plant; how to plant; what to plant; the management of the soil; pruning and care of trees; gathering and preserving fruit; diseases and injuries; the nursery; ornamental trees and shrubs; flower gardens; vegetable gardens, including propagating beds and houses; the vineyard and small fruits, and timber tree plantation. Students have instruction and practice in grafting, budding, propagation by cuttings, etc. *Lectures. Winter term, 6 hours a week.* Professor BURRILL.

The following subjects, offered to students in the College of Agriculture, are described elsewhere, as noted.

In College of Engineering—

Mathematics, 1, 3, 5; Physics, 1, or 2; Shop Practice, 1; Mineralogy, 1.

In College of Science—

Chemistry, 1, or 1, 6, 7; Botany, 1, 2, 3, 4 or 6; Zoölogy, 1, or 5; Entomology, 1; Physiology, 1; Geology, 1, or 5; General Biology, 1.

In College of Literature—

History, 3; Political Economy, 1; Philosophy, 1; Pedagogy, 2, or 5, or 2 and 3, or 5 and 6; Themes and Elocution, 1; German, 1 and 2, or 4; French, 1 and 2, or 4.

In School of Military Science—

Military Science, 1, 2.

#### CLASSIFICATION OF STUDIES.

For the degree of Bachelor of Science in the College of Agriculture 40 credits are required, each given for the satisfactory completion of the study of a required or elective subject for one term, five exercises a week. Of these credits 24 must be obtained by pursuing the required studies each for the minimum time named

below. The other 17 credits may be obtained by pursuing further required studies, or by the prosecution of elective studies.

Students who have completed a four years' course of study in the College of Science may take the professional agricultural studies in one year; and those who have followed a course for two years may take the professional studies, and other scientific or general studies in the last two years of their course.

Students especially interested in animal husbandry or veterinary science may omit some of the horticultural studies; and those preparing for horticultural work may omit veterinary specialties.

#### REQUIRED STUDIES.

Agriculture—3 to 4 terms.  
 Horticulture—1 to 3 terms.  
 Veterinary Science—1 to 4 terms.  
 Thesis—1 to 2 terms.  
 Botany—1 to 6 terms.  
 Chemistry—3 to 6 terms.  
 Physics—1 to 3 terms.  
 Mathematics—2 to 3 terms.  
 French—3 or 6 terms.  
 German—3 or 6 terms  
 Themes and Elocution—2 terms.  
 Military—2 terms.  
 Political Economy—1 term.

#### ELECTIVE STUDIES.

Bacteriology—1 term.  
 Entomology—2 terms.  
 General Biology—1 term.  
 Geology—1 to 2 terms.  
 Mineralogy—1 term.  
 Physiology—1 term.  
 Zoölogy—1 to 3 terms.  
 Meteorology— $\frac{1}{2}$  term.  
 Anthropology— $\frac{1}{2}$  term.  
 Mental Science—1 term.  
 Pedagogy—1 to 2 terms.  
 Drawing—1 to 3 terms.  
 French—3 terms.  
 German—3 terms.  
 Constitutional History—1 term.  
 Shop Practice—1 term.

#### SUGGESTED COURSES OF STUDY IN AGRICULTURE.

For the guidance of students in the selection of studies the following courses are offered. The first year's work, at least, should be taken as laid down in one of these courses, after which free selection may be made within the limits of the prescribed lists of required and elective subjects. Close correspondence exists for the first two years between these courses and those of the College of Science. The special professional subjects occur in the third and fourth years, or in the fourth alone.

Course 1 is arranged with nearly equal amounts of time given to each of the sciences, and is adapted to students who do not wish to



specialize in any one of these subjects. Courses 2 and 3 may be chosen by those who desire to give more attention to chemistry; course 4 by those who wish to make botanical studies a specialty; and course 5 by those who take a year's work in horticulture.

### COURSE 1.

#### FIRST YEAR.

1. Chemistry; Mathematics; Physiology; Military.
2. Chemistry; Mathematics; Drawing; Military.
3. Chemistry; Astronomy; Drawing; Military.

#### SECOND YEAR.

1. Botany; Physics; French; Military.
2. Botany; Physics; French; Military.
3. Botany; Physics; French; Military.

#### THIRD YEAR.

1. Zoölogy; Mineralogy; German; Themes and Elocution.
2. Entomology; Geology; German; Themes and Elocution.
3. Entomology; Geology; German; Themes and Elocution.

#### FOURTH YEAR.

1. Farm Equipment; Horticulture; Mental Science; Thesis.
2. Rural Economy; Veterinary Science; Animal Husbandry.
3. History of Agriculture and Rural Law; Veterinary Science; Political Economy.

### COURSE 2.

#### FIRST YEAR.

1. Chemistry; Mathematics; French; Military.
2. Chemistry; Mathematics; French; Military.
3. Chemistry; Mathematics; French; Military.

#### SECOND YEAR.

1. Chemistry; Physiology; German; Military.
2. Chemistry; Zoölogy; German; Military.
3. Chemistry; Botany; German; Military.

#### THIRD YEAR.

1. Physics; German; Veterinary Science; Themes and Elocution.
2. Physics; German; Veterinary Science; Themes and Elocution.
3. Physics; Geology; Veterinary Science; Themes and Elocution.

## FOURTH YEAR.

1. Farm Equipment; Mental Science; Horticulture; Thesis.
2. Rural Economy; Animal Husbandry; Constitutional History.
3. History of Agriculture and Rural Law; Vegetable Physiology; Political Economy.

## COURSE 3.

## FIRST YEAR.

1. Chemistry; Mathematics; French; Military.
2. Chemistry; Mathematics; French; Military.
3. Chemistry; Mathematics; French; Military.

## SECOND YEAR.

1. Chemistry; Physics; German; Military.
2. Chemistry; Physics; German; Military.
3. Chemistry; Physics; German; Military.

## THIRD YEAR.

1. Chemistry; Botany; Physiology; Themes and Elocution.
2. Chemistry; Botany; Zoölogy; Themes and Elocution.
3. Chemistry; Botany; Geology; Themes and Elocution.

## FOURTH YEAR.

1. Farm Equipment; Horticulture; Mental Science; Thesis.
2. Rural Economy; Veterinary Science; Animal Husbandry.
3. History of Agriculture and Rural Law; Veterinary Science; Political Economy.

## COURSE 4.

## FIRST YEAR.

1. Chemistry; Mathematics; French; Military.
2. Chemistry; Mathematics; French; Military.
3. Chemistry; Mathematics; French; Military.

## SECOND YEAR.

1. Botany; Physics; German; Military.
2. Botany; Physics; German; Military.
3. Botany; Physics; German; Military.

## THIRD YEAR.

1. Bacteriology; Zoölogy; Veterinary Science; Themes and Elocution.
2. Fungi; Zoölogy; Veterinary Science; Themes and Elocution.
3. Plant Reproduction; Zoölogy; Veterinary Science; Themes and Elocution.

## FOURTH YEAR.

1. Farm Equipment; Horticulture; Mental Science; Thesis.
2. Rural Economy; Entomology; Animal Husbandry.
3. History of Agriculture and Rural Law; Entomology; Political Economy.

## COURSE 5.

## FIRST YEAR.

1. Chemistry; Mathematics; French; Military.
2. Chemistry; Mathematics; French; Military.
3. Chemistry; Mathematics; French; Military.

## SECOND YEAR.

1. Botany; Physics; German; Military.
2. Botany; Physics; German; Military.
3. Botany; Physics; German; Military.

## THIRD YEAR.

1. Bacteriology; Zoölogy; Physiology; Themes and Elocution.
2. Fungi; Zoölogy; Entomology; Theme and Elocution.
3. Plant Reproduction; Zoölogy; Entomology; Themes and Elocution.

## FOURTH YEAR.

1. Fruit Culture; Farm Equipment; Mental Science.
2. Forestry and Plant Houses; Rural Economy; Constitutional History.
3. Gardens; History of Agriculture and Rural Law; Political Economy.

## JUNIOR COURSE IN AGRICULTURE.

A two years' course has been arranged for those who desire some knowledge of the physical and natural sciences as well as the professional agricultural studies. For admission to this course students should not be less than eighteen years of age, and should have at least a good common school education.

Students of sufficient age and attainments may take the professional studies of this course in one year. Horticultural studies may be substituted for veterinary science if desired.

Young farmers, or others, who can give but a few months to school preparation, will be admitted in the winter term without special examination, to the lectures and class exercises on farm crops, farm animals, and the more important diseases of animals.

The two years' course is arranged as follows :

JUNIOR COURSE IN AGRICULTURE.

FIRST YEAR.

1. Chemistry; Natural Philosophy; Physiology and Algebra.
2. Chemistry; Zoölogy; English, or Free Hand Drawing.
3. Chemistry; Botany; English, or Free Hand Drawing.

SECOND YEAR.

1. Farm Equipment and Management; Horticulture; Botany.
2. Animal Husbandry; Veterinary Science; Rural Economy, or Entomology.
3. History of Agriculture and Rural Law; Veterinary Science; Vegetable Physiology, or Entomology.

# COLLEGE OF ENGINEERING.

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## COURSES.

MECHANICAL ENGINEERING; ELECTRICAL ENGINEERING; CIVIL ENGINEERING; MUNICIPAL AND SANITARY ENGINEERING; MINING ENGINEERING; ARCHITECTURE; ARCHITECTURAL ENGINEERING.

## FACULTY.

THOMAS J. BURRILL, PH.D., ACTING REGENT, Botany.  
N. CLIFFORD RICKER, M.Arch., *Dean*, Architecture.  
SAMUEL W. SHATTUCK, C.E., Mathematics.  
IRA O. BAKER, C.E., Civil Engineering.  
ARTHUR N. TALBOT, C.E., Municipal Engineering and Mechanics.  
FRANK F. FREDERICK, Industrial Art and Design.  
SAMUEL W. STRATTON, B.S., Electrical Engineering and Physics.  
WALTER J. BALDWIN, B.S., Mining Engineering.  
CHARLES W. SCRIBNER, A. B., M.E., Mechanical Engineering.  
GEORGE W. MYERS, M.L., Mathematics.  
GEORGE W. PARKER, Wood Work.  
RUFUS ANDERSON, M.E., Iron Work.  
JAMES M. WHITE, B.S., Architecture.  
EDWARD S. KEENE, B.S., Mechanical Engineering.  
JOHN H. POWELL, B.S., General Engineering Drawing.  
GLEN M. HOBBS, Physical Laboratory.

## MEMBERS OF OTHER FACULTIES GIVING INSTRUCTION IN THIS COLLEGE.

EDWARD SNYDER, M.A., German.  
JAMES D. CRAWFORD, M.A., History.  
JAMES H. BROWNLEE, M.A., Rhetoric and Oratory.  
CHARLES W. ROLFE, M.S., Geology.  
NATHANIEL BUTLER, JR., M.A., English Literature.  
ARTHUR W. PALMER, Sc.D., Chemistry.  
ELBRIDGE R. HILLS, First Lieut., U.S.A., Military Science.  
SAMUEL W. PARR, M.S., Chemistry.  
M. R. PARADIS, M.A., French.

## GENERAL OBJECT OF THE COLLEGE.

The purpose of the College of Engineering is thoroughly to educate and prepare engineers and architects for their future professional courses. Its aim must therefore be two-fold—general and technical. A considerable proportion of the course of study must be devoted to general and literary work, since a graduate is expected now to arrange his ideas in clear order, and to write or speak effectively, whenever it becomes necessary. Professional success frequently depends upon this power far more than is commonly supposed.

Moreover there is an ever-increasing fund of general and scientific knowledge with which any educated man is expected to be conversant, if he desires to retain the esteem of his associates and clients. Much of the most valuable material is yet locked up in foreign languages, and their keys must be acquired by patient study and practice. Scarcely a single science is not at some time useful to the professional man, and some of them, like mathematics or physics, are so intimately interwoven with the different branches of technical knowledge, as to be practically indispensable, and so require a more thorough mastery than is necessary to the literary man. It might appear that this general training would alone be sufficient to absorb the entire attention of the student during his whole course, but not less than one-half his time must be given to purely technical training, and the acquiring of a professional capital, or stock of information and knowledge of details, which is almost limitless in its demands and possibilities.

The methods employed for embodying new ideas in drawings, intelligible to other professional men and to mechanics, must likewise be acquired.

A knowledge of the latest results of scientific experiments is likewise essential, requiring wide reading by some one, either student or professor. Engineering knowledge must be fresh, to be valuable, since ideas and methods are quickly supplanted by improved ones, and become useless except as mile-stones of progress. Consequently the most valuable part of this professional knowledge can never be crystallized in text-books, but must be drawn from the mental stores of the teacher.

## GENERAL METHODS OF INSTRUCTION.

Whenever suitable text books can be found they are employed, because saving much time in acquiring facts and data, and because

such books become doubly valuable for later reference when enriched by notes and additions. But to arouse and awaken the enthusiasm of the student, occasional or stated lectures are necessary, and these are fully illustrated by sketches, diagrams, drawings, and photographs of executed work. They are frequently used in the advanced classes, partly because the deficiency of text books is there most apparent. Additional courses of extended reading are marked out by references to the University library, so that each student may enjoy the greatest possible benefit from the course of instruction. In all courses of study offered by the College, drawing in its manifold forms and uses, is made of especial importance both in its use and its modes of execution.

#### TESTING LABORATORY.

The testing laboratory has a Riehle testing machine of 100,000 pounds capacity, a smaller apparatus for testing beams, a Riehle cement testing machine, a stone grinding machine, a rattler, for abrasion tests of stone and brick, with apparatus for making all necessary measurements and observations, molds, and standard sieves for cement, etc. The laboratory is fitted up as a working laboratory where students may acquire such practice in experimental work as engineers are called upon to perform, as well for the purpose of illustrating principles as for use in original investigation. The ordinary work includes testing metals, wooden beams, cement briquettes, and stone and brick.

The hydraulic laboratory includes elevated tank and stand-pipe, steam pumps for giving high pressure, tanks for measuring flow of water, pressure gauges, meters, water motor, turbine, and other apparatus for experiments with orifices, weirs, etc. The experiments are made in connection with the regular class instruction.

#### COMPUTING APPARATUS.

A collection of machines and apparatus for abbreviating computations and especially for use in the calculation of tables, includes the following instruments:

A Thomas's 10-place arithmometer, giving products of numbers to 20 places. This is the largest size manufactured, imported especially for the University, and is probably as convenient and accurate as any computing machine yet invented. It performs addition, subtraction, multiplication, and division, and is particularly useful

in calculating or verifying numerical tables. Two Thacher's computing scales, for performing multiplication, division, squaring, and extraction of square root. This instrument is sufficiently accurate for almost all purposes, and can be used more rapidly than the last. An Amsler's polar planimeter for measuring the area of figures of any form, and principally employed in graphic statics, or by mechanical engineers for measuring indicator diagrams. A Webb's adder for performing addition only.

## COURSES OF INSTRUCTION.

### MATHEMATICS.

The instruction offered in pure mathematics constitutes two distinct lines of study differing in extent, partially in subject matter, and in the method of presentation. The first is for students in the Colleges of Agriculture, Science, and Literature, and occupies one year, beginning in the fall. It has for its object to promote habits of mental concentration and continuity of thought, to develop the capacity, to form and combine abstract conceptions, and to cultivate the deductive reason. The second is primarily offered to students in the College of Engineering and occupies two years, also beginning in the fall. In addition to the educational object just given, the purpose is to enable the student to meet the requirements of his engineering studies. The greater part of the time is necessarily taken up with the theory and its applications to geometrical magnitudes.

The first line of study includes the courses numbered 1, 3, and 5; the second, courses 2, 4, 6, and 7.

1. Advanced Algebra.—For students in the Colleges of Agriculture, Science, and Literature. Functions and their notation; series and the theories of limits; imaginary quantities; general theory of equations. Topical reviews of all preceding algebraic processes. *Wells's University Algebra. Fall term, 5 hours a week.* Professor MYERS.
2. Advanced Algebra.—For students in the College of Engineering. Principles of small practical value are subordinated to those of higher utility. Accuracy and dispatch in the use of principles are continually emphasized. A topical review of principles of elementary algebra is made from time to time. This review is sometimes made by requiring students to solve practical prob-



lems illustrative of principles not well understood. Some of the most important subjects in which instruction is given are functions and their notation; the progressions; theory of numbers; permutations and combinations; probabilities; convergency and divergency of series; summation of series; undetermined coefficients; doctrine of limits; logarithms and general theory of equations. *Newcomb's College Algebra. Fall term, 5 hours a week.* Professor MYERS.

3. Trigonometry.—For students in the Colleges of Agriculture, Science, and Literature. Trigonometry, plane and spherical; fundamental relations between the trigonometrical functions of an angle or arc; relations between the functions of different angles or arcs; construction and use of tables; solution of triangles; angles as functions of sides, and sides as functions of angles; applications. *Wells's Trigonometry. Winter term, 5 hours a week.* Professor MYERS.

*Required:* Math., 1.

4. Trigonometry.—For students in College of Engineering. The ratio system is studied chiefly, but the necessary connection between it and the line system is carefully proved and illustrated. Students are frequently required to demonstrate the same proposition, using first the line values, then the ratio values of the functions. The subjects taught are the circular measurement of angles, general formulæ of plane and spherical trigonometry, relations between functions of multiples of  $90^\circ$  plus or minus and angle, solution of right and oblique plane triangles, of spherical right and oblique triangles, Napier's rules and analogies, and practical applications of principles to the solutions of astronomical problems. Teaching is in part by text book, and in part by assigning principles to be demonstrated and problems to be solved outside of the text book. *Wells's Essentials of Trigonometry. Winter term, 5 hours a week.* Professor MYERS.

*Required:* Math., 2.

5. Conic Sections (geometrical method).—Definitions and general properties of the ellipse, hyperbola, and parabola; curvature of the conic sections; elements of analytical geometry. Properties and relations of the point and right line in a plane; of the conic sections. *Coffin's Sections and Analytical Geometry. Spring term, 5 hours a week.* Professor MYERS.

*Required:* Math., 1, 3.

6. Analytical Geometry.—The aim is to acquaint the student with analytical methods of investigation, and to familiarize him with some of the most recent developments in synthetic geometry; to make him more skillful in the use of algebraic processes, especially as a means of demonstrating geometric properties of loci. Subjects considered are the elementary theory of the point and right line in a plane; use of abbreviated notation; elementary theory of the conic sections, their equations and properties developed analytically; poles and polars; synthetic geometry of the circle, and the discussion of the general equation of the second degree. Written work in plotting and discussing loci from their equations is required from time to time. *Newcomb's Analytic Geometry. Spring term, 5 hours a week.* Professor MYERS.

*Required:* Math., 2, 4.

7. Differential Calculus.—Rules for the differentiation of functions of a single variable; successive differentiation; development of functions; maxima and minima of functions of a single variable; differentials of an arc, plane area, surface and volume of revolution; elementary discussion of higher plane curves; the spirals, logarithmic curve, trochoid, etc.; algebraic curves.

Integral Calculus. Integration of elementary forms and rational fractions; rectification of plane curves; quadrature of plane areas and surfaces of revolution; cubature of solids of revolution.

Advanced Analytical Geometry. Loci in space; in point, right line, plane and surfaces of the second order.

Advanced Calculus. Development of the second state of functions of any number of variables; differential equations; maxima and minima of functions of two or more variables; construction and discussion of curves and surfaces; integration of irrational and transcendental differentials and of differential equations of the higher orders and degree; applications; elements of elliptic integrals. *Byerly's Differential Calculus; Byerly's Integral Calculus; Newcomb's Analytic Geometry. Fall, winter, and spring terms, 5 hours a week.* Professor SHATTUCK.

*Required:* Math., 2, 4, 5, 6.

## THEORETICAL AND APPLIED MECHANICS.

1. Analytical Mechanics.—The mechanics of engineering rather than that of astronomy and physics is here considered, with a view to the future needs of the student of engineering. In addition to fixing the fundamental concepts and demonstrating the general principles of equilibrium and motion, application of principles and methods is made to numerous and varied engineering problems in such a way that the student must discriminate in the use of data and in the statement of conditions, and so obtain a working knowledge of the subject. The methods of the calculus are used whenever preferable. As mathematical processes and forms express most readily and quickly the rules and methods of work, the training in this direction is important. This subject requires a thorough working knowledge of the mathematics preceding it in the course.

Outline of the subject: Nature and measure of force; composition and resolution of forces; moments; conditions of equilibrium; resultant of systems; of forces; center of gravity; moment of inertia; rectilinear and curvilinear motion, and the relation between such motion and the constraining and accelerating forces; dynamics of a rigid body; momentum and impact; work, energy, and power; mechanical advantage; friction. *Bowser's Analytical Mechanics*. Fall term, 5 hours a week. Professor TALBOT.

*Required:* Math., 2, 4, 5, 6, 7.

2. Resistance of Materials.—In the treatment of this subject it is the aim to give the student a thorough training in the elementary principles of the mechanics of materials, to follow with such experiments and investigations in the testing laboratory as tend to verify the experimental laws, and to add such problems in ordinary engineering practice as will train the student in the use of his knowledge.

Outline of the subject: Elasticity of materials; stresses and strains; experimental laws; working strength for different materials; resistance of pipes and riveted joints; bending and resisting moment, shear and elastic curve of cantilever, simple, restrained, and continuous beams; column formulas; torsion, and shafts; maximum internal stresses in beams; fatigue of metals; working strength for repeated stresses; resilience; reliability of the common theory of flexure as shown by actual

experiment; design and strength of rolled and built beams and columns; specifications for materials and methods of testing. *Merriman's Mechanics of Materials*. Winter term, 7 hours a week. Professor TALBOT.

*Required:* Math., 2, 4, 6, 7; Mechanics, 1.

3. Hydraulics.—In hydraulics the instruction is by text book and laboratory work.

The subject covers the following: Weight and pressure of water; head; center of pressure, velocity and discharge through orifices, weirs, tubes, pipes, conduits, canals, and rivers; measurement of pressure, velocity, and discharge; water power. *Merriman's Hydraulics*. Spring term, 7 hours a week. Professor TALBOT.

*Required:* Math., 2, 4, 6, 7; Mechanics, 1, 2.

#### GENERAL ENGINEERING DRAWING.

1. Elements of Draughting.—This term's work is designed as a general preparation for draughting in all branches. Its aim is first, to teach the accurate and intelligent use of instruments and materials; and second, to start the student upon his work with those neat and orderly habits that are invaluable to the competent draughtsman.

The instruction is given by text books, lectures, and reference to books in the University library. The problems are arranged so as to be of the most practical benefit to the student and, instead of being copies of similar problems, are designed to throw him upon his own ingenuity in applying his knowledge of principles learned. This work includes geometrical constructions; orthographic, isometric, and cabinet projections of objects from models or given data; sections, drawings finished in line shading and water colors; in all about thirty plates. *Faunce's Mechanical Drawing; Lectures and Blue Print*. Fall term, 10 hours a week. Mr. POWELL.

2. Descriptive Geometry.—The first term's work in this study includes problems on the point, line, and plane, some of the simpler geometrical solids, and shades and shadows. The second term's work takes up plane, single-curved, double-curved, and warped surfaces; the generation and development of the same;

sections, and intersections. The application of principles and methods in numerous and varied practical problems is a large part of the work in each term, comprising in all the drawing of about thirty-five plates. *Woolf's Descriptive Geometry. Half of winter term and the spring term, 10 hours a week.* Mr. POWELL.

*Required:* General Engineering Drawing, 1.

3. Lettering.—Plain and ornamental alphabets; round and stump writing; titles and title pages. *Half of winter term, 10 hours a week.* Mr. POWELL.

*Required:* General Engineering Drawing, 1.

#### PHYSICS.

The department of physics has for its quarters a large lecture room provided with conveniences for lecture illustrations, such as projecting lantern, switch board, resistances, motors, etc.; also a laboratory for experimental work, a photometry room, and a photographic dark room.

The equipment consists of a line of apparatus selected from the best makers with especial reference to lecture illustrations and quantitative laboratory work. Large additions have lately been made to the apparatus in this department. The equipment of the electrical laboratory adds greatly to the facilities for the treatment of electricity in the general physics.

1. Major Course.—This course is provided for the students in the College of Engineering and is required of them; it is also open to others wishing a more complete course in physics than course 2.

(a) Elementary Mechanics and Sound. The mechanics is made introductory to the study of general physics. The centimetre-gramme-second system is introduced and methods of accurate measurement discussed. Sound is taken up and thoroughly treated as an introduction to the study of wave motions in heat, light, and electricity.

(b) Heat and Light. The theory of heat is studied and special attention is paid to the various heat measurements and measuring apparatus, including calorimetry.

In light the ordinary phenomena are considered and explained according to the wave theory. The action of lenses and their various combinations in the different optical instruments are discussed.

(c) Electricity and Magnetism. Static electricity is first taken up and especial attention is paid to the theory of potential, the character of the electrical discharge, and the theory of instruments used in static electrical measurements. Current electricity and magnetism follow, in which the laws governing the flow of electricity, the effects of the current, and its measurement are fully considered. The more important applications of current electricity are studied and the idea of the magnetic circuit introduced with magnetism.

(d) Laboratory Exercises in Precision of Measurement are designed to acquaint the student with the various forms of accurate measuring apparatus and their use, including the vernier, micrometer, comparator, the physical balances, etc. The data taken in the laboratory are afterward to be written up and presented at the end of the term in the form of an illustrated note book.

Experiments in heat are given, including the determination of coefficients of expansion, latent and specific heats, the testing of mercurial and air thermometers, etc. Experiments in light include the simple photometric measurements, the determination of indices of refraction, and constants of lenses and mirrors.

Practice in electricity and magnetism consists of the elementary electrical measurements, and is designed to impress the student with the principles taken up in course 2. It is preparatory to the laboratory practice in electrical engineering. *Ganot's Physics. Fall, winter, and spring terms, 6 hours a week.* Professor STRATTON.

*Required:* Math., 3, or 4.

2. Minor Course.—This course is designed to cover the general subject of physics, and consists of lectures, text book and reference work. The student is required to be well prepared in elementary physics and to have had trigonometry. *Olmstead's College Philosophy. Winter term, 5 hours a week.* Professor STRATTON.

*Required:* Math., 3, or 4.

#### DESCRIPTIVE ASTRONOMY.

1. Descriptive Astronomy.—For students in Colleges of Agriculture, Science, and Literature. The aim of this course is to supply

(1) a general knowledge of the facts of astronomy, (2) a clear conception of the principles underlying them, and (3) an understanding of the methods of arriving at these facts. The subjects considered are the doctrine of the sphere, the heavenly bodies, their nature, dimensions, characteristics, and the influence they exert upon each other by their attractions, radiation, or any other ascertainable cause. The most important instruments of astronomical research are explained; and, during favorable weather, the sun, moon, and planets will be studied with the equatorial telescope. Methods of spectroscopic research are discussed and, as far as possible, illustrated. Illustrative charts and lectures are also occasionally resorted to. *Newcomb and Holden's Astronomy, Advanced Course. Spring term, 5 hours a week.* Professor MYERS.

*Required:* Math., 3.

2. Descriptive Astronomy.—For students of the College of Engineering. This course comprises the subject matter of course 1 and, in addition, some of the fundamental principles of celestial mechanics. Astronomy is here taught with a view to its utility rather than as a matter of general information. Students are required to work out problems in latitude and longitude, to deduce from the principles of mechanics formulæ for weighing the masses of the heavenly bodies against each other, to solve problems involving corrections for parallax, refraction, dip of the horizon, and to determine mathematically the distances, dimensions, and orbits of the bodies of the solar system. When favorable weather admits, the equatorial telescope is in use by students, and time is spent in the location and study of the constellations. Students are directed to make readings on astronomical subjects of value to be found in astronomical publications in the library, and are frequently required to recite upon them. Though no attempt is made to teach practical astronomy, which is taught as a specialty in civil engineering, the practical features of descriptive astronomy are kept uppermost in this course. *Young's General Astronomy. Spring term, 5 hours a week.* Professor MYERS.

*Required:* Math., 4; Physics, 1; Theoretical and Applied Mechanics, 1.

## MECHANICAL ENGINEERING.

1. Shop Practice A.—The course of elementary shop practice has been carefully arranged to familiarize the student with the forms of the parts of machines, and the mode of producing them. He is made familiar with all the ordinary cutting tools for iron or wood; with the form and condition for most effective work; with the machines and appliances by which they are put in action, and the instruments by which desired dimensions of product are obtained.

(a) Exercises preparatory to pattern making in wood, consisting of planing, chiseling, boxing, sawing, turning, etc.; pieces are combined by mortise, dovetail, and glue joints. Finally, finished patterns are made.

(b) Exercises in chipping and filing, in which true surfaces are produced with the cold chisel and file. After the hand and eye are sufficiently trained, fitting is begun, and the square, bevel, rule, compasses, and other auxiliary bench tools are used. Pieces are then fitted together by the file, with surfaces carefully finished.

(c) Blacksmithing, including such operations as drawing, upsetting, punching, welding, tempering, etc.

(d) Elementary exercises in machine tool work, in which the student becomes familiar with the various machine tools, such as engine lathes, shapers, planers, etc.

(e) Exercises in molding and casting.

(f) Machine tool work executed with especial reference to finish and sizes, using calipers, scales, gauges, etc. *Fall, winter, and spring terms, 10 hours a week.* Mr. ANDERSON.

2. Mechanical Drawing and Construction.—In this course the student is taught the methods peculiar to mechanical drawing. A complete set of drawings is made of some machine or parts of machines, and serves as working drawings for the shop work of the course. The time is divided between the drawing room and the machine shop. *Fall, winter, and spring terms, 13 hours a week.* Mr. ANDERSON.

*Required:* General Engineering Drawing, 1, 2, 3.

3. Mechanism.—In this course the student takes up the parts of machines with reference to the production of required motions. The various forms of gear wheels, cams, link work, etc., are



studied. Finished drawings are made, involving the more important problems. *Stahl and Woods's Principles of Mechanism*. *Fall term, 10 hours a week.* Professor SCRIBNER.

*Required:* Math., 2, 4, 6.

4. (a) Engineering Materials.—The work of this course includes the characteristic properties of the materials used in construction, and their preparation. The nature and value of fuels for various purposes are also considered.

(b) Steam Engineering. This subject is preparatory to the course on heat engines. The steam engine and boiler are taken up with reference to design, uses to which the different kinds are best suited, action of the parts, and general rules governing the selection and installation. *Winter term, 10 hours a week.* Professor SCRIBNER.

*Required:* Shop Practice A; Math., 2, 4, 6; General Engineering Drawing, 1, 2.

5. Mechanics of Machinery.—In this course the dimensions of the various parts of machines are computed, the problems relative to shafting, belts, etc., are also taken up. *Unwin's Machine Design*. *Spring term, 5 hours a week.* Professor SCRIBNER.

*Required:* Shop Practice A; Math., 2, 4, 6.

6. Heat Engines.—This course includes the problems of thermodynamics that arise in the consideration of steam, gas, and other heat engines. *Peabody's Thermo-Dynamics*. *Fall term, 5 hours a week.* Professor SCRIBNER.

*Required:* Math., 2, 6, 7; General Engineering Drawing, 1, 2, 3; Shop Practice A; Mechanical Engineering, 5.

7. Machine Design.—In this course the designing of a steam engine or other machine is undertaken, the parts of which are carefully computed and designed in accordance with the best scientific practice. *Fall term, 10 hours a week.* Professor SCRIBNER.

*Required:* Math., 2, 4, 6, 7; General Engineering Drawing, 1, 2, 3; Mechanical Engineering, 1, 2, 3, 4, 5.

8. Hydraulic Engines and Wind Wheels.—This is a study of the theory and practice of turbine and other water motors. Wind wheels are also considered. *Bodmer's Hydraulic Engines*. *Winter term, 5 hours a week.* Professor SCRIBNER.

*Required:* Math., 2, 4, 6, 7; General Engineering Drawing, 1, 2, 3; Mechanical Engineering, 1, 2, 3, 4, 5, 6.

9. Mechanical Laboratory.—The work of this course in the winter term is designed to give the student practical experience in the testing of steam engines and boilers. In the spring term the student takes up some special line of work as seems best suited to his needs. *Winter and spring terms, 10 hours a week.* PROFESSOR SCRIBNER.

*Required:* Math., 2, 4, 6, 7; General Engineering Drawing, 1, 2, 3; Mechanical Engineering 1, 2, 3, 4, 5, 6.

10. Estimates.—In this course estimate are made of the cost of power and heating plants, including the various forms of contracts and specifications. *Spring term, 5 hours a week.* PROFESSOR SCRIBNER.

*Required:* Math., 2, 4, 6; General Engineering Drawing, 1, 2, 3; Mechanical Engineering, 1.

#### ELECTRICAL ENGINEERING.

1. Electrical Measurements.—This course is designed to bring before the student the systems of electrical units, together with the ordinary problems of electrical measurement and measuring apparatus.

(a) Lectures twice a week upon the theory of instruments, electrical units, and theory of electricity.

(b) Laboratory work consisting of the determination of galvanometer constants, measurements of resistances by the various Wheatstone bridge methods, electro-motive force, and current measurements. *Stewart and Gee's Electricity and Magnetism; Kempe's Hand Book of Electrical Testing.* *Spring term, 10 hours a week.* PROFESSOR STRATTON.

*Required:* Physics, 1.

2. Primary and Secondary Batteries.

(a) Lectures upon the theory of primary and secondary batteries, and electrolysis.

(b) Laboratory practice. This follows 1 (b), and includes the testing and selection of primary batteries for special purposes, the measurement of the internal resistance, polarization and electro-motive force by the condenser and other accurate methods, the testing of secondary batteries for efficiency, and the changes during charge and discharge. *Carhart's Primary Batteries; Reynier's Voltaic Accumulators.* *Fall term, 10 hours a week.* PROFESSOR STRATTON.

*Required:* Physics, 1; Electrical Engineering, 1.

3. **Electrical Laboratory.**—This course is essentially a course of laboratory work, but lectures may be given or text book work assigned, as is thought best. It includes the measurement of high resistances, cable and line testing, measurements of capacity, the standardizing of ammeters and voltmeters, and electrometer work. The work of the course is taken up with special reference to accuracy and methods of precision. *Winter term, 10 hours a week.* Professor STRATTON.

*Required:* Physics, 1; Electrical Engineering, 1, 2.

4. **Electro-Magnetism and Dynamo-Electric Machinery.**—(a) Lectures and text book work. The theory, design, and classification of dynamo-electric machines and motors is considered, together with the efficiency and methods of governing constant current and constant potential machines.

(b) Laboratory work, including the testing of dynamos and motors for characteristics, efficiency, regulation, etc. *Thompson's Dynamo-Electric Machines, and Thompson's Lectures upon the Electro-Magnet.* *Winter term, 10 hours a week.* Professor STRATTON.

*Required:* Physics, 1; Electrical Engineering, 1.

5. **Alternating Currents and Machines.**—(a) Lectures and text book work upon the generation and application of alternating currents, the theory of converters, and the effect of the alternating current.

(b) Laboratory practice, consisting of the measurement of the alternating current and testing of alternating current machines. *Fleming's Alternate Current Transformer.* *Spring term, 10 hours a week.* Professor STRATTON.

*Required:* Physics, 1; Electrical Engineering, 1, 2, 3.

6. **The Installation of Light and Power Plants.**—(a) Electric Lighting. Lectures, and Notes. This includes the methods of wiring for arc and incandescent lighting, wiring, rules and regulations, and estimates on the cost of plants.

(b) Electrical Distribution of Power. The distribution of power is taken up with especial regard to the electric railway, including estimates. *Spring term, 6 hours a week.* Professor STRATTON.

*Required:* Physics, 1; Electrical Engineering, 1, 4.

7. Photometry.—Laboratory Work from Notes. This includes the problems of photometry, as found in connection with arc and incandescent electric lights. *Spring term, 4 hours a week.* Professor STRATTON.

*Required:* Physics, 1; Electrical Engineering, 1, 2, 3.

#### CIVIL ENGINEERING.

1. Land Surveying.—Areas and distances by chain, compass, and plane table; U. S. public land surveys, including legal points involved in the re-establishment of boundaries; magnetic variation and determination of true meridian. The students solve numerous problems in the field with instruments. To facilitate practice in surveying, an area has been specially prepared in which the difficulties of plane surveying are presented to the beginner as he is able to meet them, and where he is taught practical methods of overcoming them. All possible distances, directions, areas, and elevations are accurately known; and hence the instructor knows beforehand the precise result which the student should obtain. This is an incentive to the student, and enables the teacher to show him the degree of accuracy attained, and also to point out errors. *Bellows and Hodgman's Surveyor's Manual. Fall term, 10 hours a week.* Professor BAKER.

*Required:* General Engineering Drawing, 1; Math., 4.

2. Topographical Drawing and Surveying.—Topographical drawing is given during the bad weather of the winter term. The student spends about half a term making the standard topographical symbols, and in taking the data for, and making, a map. This and transit surveying and leveling making one credit.

During the spring term Topographical surveying is taught, in which students solve problems with the plane table and the stadia, and make a topographical survey and plot the notes. *Winter and spring terms, with course 3 requires 10 hours a week.* Professor BAKER.

*Required:* Math., 4; General Engineering Drawing, 1, 2, 3.

3. Transit Surveying and Leveling.—Construction, adjustment, and use of the transit and level; angles, inaccessible distances, and areas with the transit; profiles and contours with the level. The department is provided with the instruments necessary for the different branches of engineering field practice, including

chains, tapes, compasses, plane tables, stadias, transits, levels, barometers, base rods and comparing apparatus, sextants, and solar transits. These instruments are in constant use by the students whenever the weather will permit. *Baker's Engineer's Surveying Instruments.* Winter and spring terms, with course 2 requires 10 hours a week. Professor BAKER.

*Required:* Math., 4; General Engineering Drawing, 1, 2, 3.

4. Railroad Engineering.—In the field practice, the class makes preliminary and location surveys of a line of railroad of sufficient length to secure familiarity with the methods of actual practice. Each student makes a complete set of notes, maps, profiles, calculations, and estimates. In addition to the mathematical theory of curves, turnouts, crossings, and the calculations of earth work, instruction is given by means of text books and lectures on the principles of economic location, particularly the effect of distance, grade, and curve upon operation and maintenance, and of methods of construction, equipment, and maintenance of way. *Godwin's Railroad Engineers' Field-Book; Wellington's Economic Theory of Railroad Location.* Fall term, 10 hours a week; winter term, 4 weeks, 5 hours a week. Professor TALBOT.

*Required:* Math., 4; General Engineering Drawing, 1, 2; Civil Engineering, 1, 2, 3.

5. Masonry Construction.—Requirements and methods of testing stone, brick, cement, and lime; composition, preparation, and strength of mortar and concrete; classification, construction, strength, cost of stone and brick masonry; foundations under water; theory of stability; cost, etc., of dams, retaining walls, bridge piers, bridge abutments, culverts, and arches. The students have experiments in the testing laboratory, in testing cement, mortar, stone, and brick. *Baker's Masonry Construction.* Fall term, 7 hours a week. Professor BAKER.

*Required:* Math., 2, 4, 6, 7; Mechanics, 1, 2; General Engineering Drawing, 1, 2.

6. Geodesy.—Geodesy is taught by lectures and assigned reading. Studies are made of the instruments and methods employed in spirit, barometrical, and trigonometrical leveling; the apparatus and methods used in measuring base lines; the location and construction of stations; the method of measuring the angles

and reducing the triangulation; the principles of projecting maps; the methods employed in running parallels and meridians. The apparatus consists of a 12-inch alt-azimuth instrument reading to single seconds, a precise level, aneroid and mercurial barometers, three wooden base rods, a comparator, a steel tape with level, thermometer, and spring balance. Problems are solved in barometrical, trigonometrical, and precise leveling, and in reading horizontal angles. *Half of fall term, 5 hours a week.* Professor BAKER.

*Required:* Math., 4; General Engineering Drawing, 1, 2, 3; Civil Engineering, 1, 2; Descriptive Astronomy, 2.

7. Practical Astronomy.—Is given by lectures, recitations, and practice. The object is to familiarize the students with those principles of practical astronomy employed in extended surveying operations, and also to train the student in methods of exact observations. The apparatus consists of an observatory with three isolated stone piers; a 12-inch alt-azimuth instrument reading by micrometers to single seconds, both of altitude and azimuth; an astronomical transit; three chronometers; two sextants; two solar transits; and a set of meteorological instruments. The problems include the adjustments of all the instruments, and the determination of time, latitude, and azimuth by the several methods. *Loomis's Practical Astronomy.* *Half of fall term, 10 hours a week.* Professor BAKER.

*Required:* Math., 4; General Engineering Drawing, 1, 2, 3; Civil Engineering, 1, 2; Descriptive Astronomy, 2.

8. Bridges.—The instruction in bridges occupies two terms. The first—bridge analysis—is devoted to the calculations of the strains in the various forms of bridge trusses, by algebraic and graphical methods, consideration being given to weights of bridge and train, and force of wind. The second—bridge design—is devoted to designing bridges, proportioning sections, and working out of details. Each student designs and makes a full set of drawings of a bridge. The apparatus consists of a series of full size joints and connections of a modern iron railroad bridge, numerous models of bridges, a large collection of drawings, photographs and lithographs of bridges. *DuBois's Strains in Framed Structures.* *Winter and spring terms, 5 hours a week in the former and 10 in the latter.* Professor BAKER.

*Required:* Mechanics, 1, 2.

9. Tunneling.—This course, treating of methods of tunneling and mine attack, is given to students of civil engineering. The lectures treat first of the nature and use of explosives, compressed air and power drills. The methods of tunneling are then explained and discussed with their accompanying methods of timbering and walling. Attention is given to the sinking of shafts for the working of tunnels, or for the purposes of driving. The details of the duties of a tunnel engineer are made as clear and concise as possible. Some time is given in the earlier part of the course to the practice in hydraulics, boring wells, dredging, and quarrying. *Spring term, 5 hours a week.* PROFESSOR BALDWIN.

*Required:* Math., 2, 4, 6; General Engineering Drawing, 1, 2; Shop Practice A; Mechanical Engineering, 4; Chemistry, 1; Physics, 1.

10. Surveying.—For students in the courses of architecture, architectural engineering, and mechanical engineering. Areas with chain and compass; U. S. public land surveys, and principles of re-establishing corners; use of transit in finding distances, areas, and in laying out buildings; use of the level in finding profiles and contours. *Baker's Engineers' Surveying Instruments.* *Spring term, 10 hours a week.* PROFESSOR BAKER.

*Required:* Math., 4; General Engineering Drawing, 1, 3; Physics, 1.

#### MUNICIPAL ENGINEERING.

1. Road Engineering.—Instruction is given by means of text books and lectures. In country highways the value and importance of road improvement and the best means of securing it are considered, together with the principles and details of construction of earth, gravel, and macadam roads. In city streets, the methods of construction, cost, durability, and desirability of the various kinds of pavement, and the question of grades, cross sections, methods of assessment of cost, and methods of maintenance and cleaning are treated. *Gilmore's Roads, Streets, and Pavements.* *Winter term, 7 weeks, 5 hours a week.* PROFESSOR TALBOT.

*Required:* Math., 4; General Engineering Drawing, 1, 2; Civil Engineering, 1, 2, 3, 4.

2. Water Supply Engineering.—This subject is intended to cover the principal features of the construction of water-works, including the tests and standards of purity of potable water; the choice of source of supply; the designing of the distribution system, pumps and pumping machinery, reservoirs, stand-pipes, and the filtration of water. *Lectures; Fanning's Water Supply Engineering. Fall term, 5 hours a week.* Professor TALBOT.

*Required:* Mechanics, 1, 3; Chemistry, 1; Mechanical Engineering, 4; (Steam Engineering).

3. Sewerage.—The design and methods of construction of sewerage systems for cities, including the following: sanitary necessity of sewerage; water carriage systems, both separate and combined; surveys and general plans; hydraulics of sewers; relation of rainfall to storm water flow, and determination of size and capacity of sewers; house sewage and its removal; form, size, design, and construction of sewers and sewer appurtenances; modern methods of sewage disposal by filtration, chemical precipitation, irrigation, etc., with resultant changes in the sewage; estimates and specifications. *Lectures; Staley and Pierson's Separate System of Sewerage. Winter term, 5 hours a week.*

*Required:* Mechanics, 1, 3; Chemistry, 1.

4. Botany.—This is a study of the lowest orders of plants, including such species as are most commonly met with in microscopical examinations of water, and found associated with putrescent substances. Lectures or recitations and microscopical laboratory work. This is practically the same as the first part of the second term of botany 1, in College of Science. *One half of winter term, 10 hours a week.* Professor BURRILL.
5. Bacteriology.—For students in course in municipal engineering. This course includes the identification and classification of bacteria, and of allied organisms, their relations to health and to disease, the methods of separation and cultivation, and the methods of air and water analysis. The laboratory is furnished with sterilizers, culture ovens, microscopes, etc.; and students have abundant opportunity to do practical work. This is at first the same as bacteriology 1, in the College of Science, but in the latter part of the term special investigations are undertaken



by the engineering students. *Fall term, 10 hours a week.* Professor BURRILL.

*Required:* Botany, 1, first half of winter term.

#### MINING ENGINEERING.

1. Mine Attack.—This includes the means and methods of attack, and the transportation of products to the surface, as follows: (1) tools, implements, machinery, explosives, stripping, boring, sinking, drifting, etc.; (2) timbering; (3) haulage; (4) hoisting; (5) ventilation; (6) drainage. There are coal mining districts within easy reach, and the mine managers offer to students every facility for visiting and inspecting the mines.

Diagrams, charts, models, and full sized tools and machines in possession of the University, are used in illustrating the lectures. *Fall term, 5 hours a week.* Professor BALDWIN.

*Required:* Math., 4; Chemistry, 1, 6; Physics, 1.

2. Mine Surveying.—Instruction is given by lectures and recitations, and includes the use of the solar compass, solar attachments, practice of the U. S. deputy surveyors, traverse survey with inclined measurements, connection of surveys above and below ground, and the determination of the position of bore holes, drifts, and shafts from data given or acquired by the students. The field work is carried along with the lectures. The University has three transit instruments especially adapted for underground work. The field work is under the personal supervision of the instructor, and all checks are made by the students, as in regular surveys. Complete plats, maps, drawings, and calculations are required for all field work.

Surveying in the mines for two weeks at the end of the term familiarizes the students with the peculiar features and difficulties of underground practice. *Spring term, 10 hours a week.* Professor BALDWIN.

*Required:* Math., 4; General Engineering Drawing, 1, 3; Civil Engineering, 1, 2, 3.

3. Ore Dressing.—The fall term is devoted to ore dressing, and the course comprises lectures upon properties of ores in respect to subsequent treatment; theory of jigging and treatment of slimes; hand dressing; machine crushing, crushers, rolls, stamp mills, and pulverizers, etc.; sizing machinery, classifiers, and

separators, etc.; sorting machinery; comparative economy and efficiency of different methods of treatment; typical dressing works. During the entire course the students work in the laboratory, making mill and experimental tests upon the large scale. The laboratory is equipped for this purpose with a Dodge crusher, a pair of Cornish rolls, elevators with deflecting spouts, automatic sampler, sizing screens, jigs, hydraulic separator, and rotating table. There is also a chlorine generator with tanks and vats. The machines are all of regular working size, driven with gearing by a steam engine, and worked in accordance with the practice of milling and testing laboratories. A complete series of assays is made of the products from each machine, and schemes of treatment and the speeding of the machine are worked out from the data.

4. Mine Engineering.—Two terms are devoted mainly to the technical and professional branches of mining. The exploration, development, and exploitation of mines are considered at length. The complications which arise are specially brought out from the study of typical mines. Instruction in mine management and mine accounts is given. Calculations and designs from actual data are required from the students. The operation of machines and apparatus, ventilation, etc., are explained in accordance with the principles underlying them, as well as from the standpoint of practice. *Fall term, 10 hours a week; winter and spring terms, 5 hours a week.* Professor BALDWIN.

*Required:* Chemistry, 1, 6; Physics, 1; Mine Engineering, 1, 2, 3.

#### ARCHITECTURE.

1. Shop Practice B.—To give a practical knowledge of various kinds of work, three terms are devoted to a course of instruction, which all architectural students are required to pursue, unless they have previously had equivalent practice and obtained credit therefor.

*First Term.*—Carpentry and Joinery. Planing flat, square, and octagonal prisms and cylinders; framing with single, double, and oblique tenons; splices, straight and scarfed; mitre, lap, and gained joints; through and lap dovetails; mouldings, mitres, mitre-box, and panels.

*Second Term.*—Turning and cabinet making. Glue joints; mouldings; inlaying; ornamental veneering; turning cylinders, balusters, ornamental forms, capitals, rosettes, vases, etc.

*Third Term.*—Construction of portions of buildings or of complete architectural structures at a reduced scale; roof trusses, stairs, frames of wooden buildings, etc., made from drawings.

2. General Architectural Construction.—(a) Wood Construction.

Formulæ and data for computing the dimensions and strengths of columns, rods, beams, girders, etc., of wood or metal are first given and then applied in the solution of numerous examples. The kinds of wood and their uses in construction and decoration, their seasoning, shrinkage, defects, and modes of protection from decay, are next studied. The construction and design of wooden floors, walls, ceilings, and roofs are then treated, and afterwards, joinery, comprising doors, windows, bays, inside finish, cornices, wainscoting, etc. The construction and design of stairs of the various types terminate the work of the term. About twenty problems are worked out on as many plates by the student.

(b) Stone, Brick, and Metal Construction. Foundations of stone, brick, concrete, and on piles, are first studied. Then the materials employed in stone masonry, their uses, defects, qualities, and mode of preparation. Kinds of masonry and external finish. Tools and methods of stone cutting. The preparation of working drawings is illustrated by practical applications in the study of the arch, the vault, and the dome. Brick masonry is next examined, with its materials, and bonds, and several examples are drawn. The manufacture and refining of cast-iron, wrought-iron, and steel are then studied, together with the processes of pattern making, molding, casting, refining, rolling, etc., as well as the stock or standard dimensions or sections to be obtained in the market. The special properties and value of each metal in a structure, the designing of a line of columns in a tall mercantile building, and of beams and girders, together with the study of joints and connections completes the work of the term. About twelve problems are drawn on the same number of plates. *Ricker's Wood, Stone, Brick, and Metal Construction; Pierce's Mathematical Tables.* Fall and winter terms, 10 hours a week; 3 recitations and 7 hours drawing.

Mr. WHITE.

*Required:* Shop Practice B; General Engineering Drawing, 1, 2, 3.

3. Sanitary Construction.—Daily recitations or special lectures, with designs for special problems. The study of plumbing, trap ventilation, removal of wastes, construction of water closets, drains and systems of water supply; sewage disposal. Hot water supply and fixtures in dwellings. *Gerhard's Drain 'ge and Sewerage of Dwellings*; *Lectures on Sewage Disposal*; *Dye's Hot Water Supply*. Spring term, 5 hours a week. Mr. WHITE.

*Required:* Math., 4; Shop Practice B; Physics, 1.

4. Architectural Drawing.—(a) The subjects of instruction are the different methods of finishing architectural drawings in line and washes, the use of the orders, and the study of shades and shadows, these being combined to produce the greatest benefit, so far as possible. Penciling, inking, washing, and tinting drawings are practiced, as well as obtaining cast shades and shadows. The single plane method is preferred for this purpose, and is found applicable to most cases. The orders are drawn in plan and elevation, as well as superposed, and the shades and shadows are found on a capital and base, drawn at large scale. Drawings are finished in ink, ink wash, sepia, and various tints. Lectures and special instruction in shades and shadows.

(b) The second term is devoted to instruction in the office style of preparing working drawings for a given building. Rough figured sketches are furnished to the student, from which each student makes a set of general and detail drawings in pencil on opaque paper. These are then traced in ink on transparent paper or linen and colored to indicate materials. Especial care is taken to secure neat lettering and accurately figured dimensions. Personal instruction to each member of the class. *Vignola's Five Orders*; *Spiers's Agricultural Drawing*. Fall and winter terms, 10 hours a week. Mr. WHITE.

*Required:* General Engineering Drawing, 1, 2, 3; Architecture, 2.

5. History of Architecture.—Two terms' work, usually divided at the beginning of the Romanesque style. Commencing with the Egyptian and ending with the renaissance, a careful study is made of each of the more important styles, successfully examining the historical conditions, the local and inherited influences, the structural materials and system, the special ornaments, and the purposes and designs of the buildings, with an examination of a few of the most important typical

examples of the style. Especial attention is given to any ideas that might be useful or suggestive in American work, and to tracing the gradual evolution of architectural forms. This study therefore becomes a very interesting branch of the history of human civilization. References are made to numerous works, especially to Fergusson, Lubke, Durm, Reber, Gailhabaud, etc. *Ricker's Notes on History of Architecture; Good-year's History of Art.* Winter and spring terms, 5 hours a week. Professor RICKER.

*Required:* Architecture, 2, 3, 4 (a).

6. Roofs.—This term is devoted to the elements of graphic statics, and to the applications of the science in the designing of trussed roofs. The composition and resolution of forces, equilibrium, reactions, moments, bending moments and shears on beams, center of gravity and moment of inertia of any form of cross sections, are first examined. The construction of wooden and of metallic roofs are next studied, then the mode of computing permanent and temporary loads on roof trusses, of obtaining end reactions, of drawing strain diagrams, determining sectional dimensions of members, and ending with the designing of joint connections. Numerous problems are solved, five different types of trusses are usually worked out, complete designs and details being made for one of wood and another of iron or steel. *Ricker's Trussed Roofs.* Spring term, 3 hours recitation and 7 hours drawing a week. Mr. WHITE.

*Required:* Math., 2, 4, 6, 7; Theoretical and Applied Mechanics, 1, 2; Architecture, 2, 3, 5 (except for students in civil engineering course).

7. Architectural Perspective.—The theory of perspective is taught, with all labor saving methods of abbreviating the labor, and designing in perspective itself is made a special aim, this power being very useful to a draughtsman in preparing sketches for clients. Methods of diagonals, by triangles, and by coordinates are all used. Problems in angular, parallel, vertical, and curvilinear perspective, as well as in perspective shades and shadows, are solved, requiring original work as far as possible, so as thoroughly to prepare the student for any kind of work in perspective, instead of restricting him to the study and use of a single system. Six problems are worked

out on as many plates. *Ware's Modern Perspective. Fall term, 10 hours a week.* Mr. WHITE.

*Required:* Architecture, 2, 3, 5.

8. Superintendence, Estimates, and Specifications.—This study comprises several specialties in office work, not otherwise provided for, so far as they can be taught in a professional school. One-third the time is devoted to superintendence, one-half to estimates, and the remainder to specifications, contracts, etc.

Text book in superintendence is Clark's Building Superintendence, which is carefully read with daily recitations.

In estimates, the purpose of the instruction is to impart a knowledge of the usual methods of measurement of materials and work, the arrangement of computations in proper and convenient order, and an acquaintance with approximate prices of materials and labor, which vary in different localities. The methods of squaring, cubing, of units, and of quantities, are each employed and illustrated by numerous examples.

In Specifications, practice is obtained by writing out a complete set for a house, drawings for which have been previously made by the student.

Groves' Specification Blanks are employed.

The standard Contract of the American Institute of Architects is used, being first carefully studied, then filled out for the same house. Bids, certificates, etc., are also prepared. Reference to *Ricker's Notes on Estimates; Wohlgemuth's Ready Reckoner; Lloyd's Law of Building. Fall term, 5 hours a week.* Professor RICKER.

*Required:* Architecture, 2, 3, 4, 5.

9. Advanced Graphics.—This continues the study of graphic statics, commenced in roofs, with applications to metallic roofs of wide spans, roof trusses, of curved or arched form, and those supported by abutments and also jointed. Continuous girders are also examined, with the effect of moving loads on girders, the instruction ending with the graphical analysis of the arch, vault, and dome, and of the Gothic system of vault and buttress. Instruction is imparted by special lectures, and applications are made to a series of problems in designs for specified cases. *Planat's Mecanique Applique; Lavdsberg's Statik; Dubois and Clarke's Graphical Statics; Levy's Graphique Statique (Last Ed.). Fall term, 10 hours a week.* Professor RICKER.

*Required:* Math., 2, 4, 6, 7; Theoretical and Applied Mechanics, 1, 2; Architecture, 2, 5, 8.

10. Heating and Ventilation.—A full knowledge of the scientific theory and of the practice of warming and ventilating buildings is the purpose of this study. Commencing with the fuels and the production of heat, the student passes to the flow of gases through ajutages and pipes, applying these data to the calculation of the dimensions of air ducts and chimneys. The different systems of heating by furnaces, hot water, steam, etc., are next examined, with the details of each. The sources of impurity in the air and the requirements of good ventilation are then considered, with the different methods of ventilation by aspiration, by fans, etc., ending with the study of fans of different types. Numerous problems are given. *Ricker's abridged translation of Planat's Chauffage et Ventilation.* Winter term, 5 hours a week. Professor RICKER.

*Required:* Math, 4; Architecture, 2, 3, 4, 5; Physics, 1; Chemistry, 1.

11. Architectural Designing.—(a) Since students often find considerable difficulty when commencing to express their ideas in designs, several simple problems are first given, such as a tower, a store with flats over it, a small library, etc., usually five being studied during the term. Each student makes sketches at small scale, which are criticised and modified until approved, then worked out in plans, elevations, and details, one elevation being washed to show color or shade effects. The object is to obtain as much practice in original design as possible, and in the making of rapid and effective sketches, suitable for submission to a client or employer.

(b) Further practice in design and the study of the requirements of dwellings of moderate size are the objects of the study. Several typical plans are selected as bases, and numerous changes suggested, which usually produce radical changes in the design. The student is also encouraged to make working drawings for actual clients, criticisms and suggestions being freely made to him. The work is limited to residences, since this class of buildings is likely to afford the graduate his first opportunity for independent original work, and practice in satisfying their requirements is considered to be more valuable than the study of theoretical or impossible problems. The

designing of a convenient, attractive dwelling, to cost a limited amount, is really a quite difficult problem, requiring more time and thought than any other building of equal cost. *Gibson's Convenient Houses*. *Winter and spring term, 10 hours a week*. Professor RICKER.

*Required*: Architecture, 2, 3, 5.

12. Esthetics of Architecture.—Subject, the laws of correct design, so far as these may be formulated in words, illustrated by the study of numerous examples. Commences with the study of the nature and mode of working of the different materials used in structural and ornamental purposes, deducing the proper ornamental treatment for each, then taking up the proper decoration of walls, ceilings, and roofs. The general principles of ornamentation are next stated, as applied to flat surfaces and to solids of various shapes. A full study of the various materials used in furniture, art works, etc., is then made, with suggestions of their proper use in the art industries. About twenty problems in original design are worked out on as many plates. *Ricker's (abridged) translation of Redtenbacher's Architektontik; Mayeux, Decorative Composition*. *Spring term, 10 hours a week*. Professor RICKER.

*Required*: Architecture, 2, 3, 5, 6, 12(a).

13. Architect's Course in Artistic Drawing and Modeling. For second year students.

First term. Principles of free hand drawing and light and shade learned from drawing geometric solids (a) in outline; (b) in washes of water color; (c) in values of charcoal.

Second term. Principles applied by drawing (a) groups of common objects, as books, vases, chairs, tables, etc.; (b) casts of ornament; (c) interiors, as the corner of the room; (d) plants and flowers from nature. Special attention is given the work from casts and interiors.

Third term. Rendering perspectives in washes of water color (sepia). Sketching from nature.

Lectures are given throughout the year on design and the historic styles of ornament. Students are required to prepare (a) a monograph of the ancient, mediaeval, or modern styles; (b) original exercises showing principles and methods; (c) original exercises employing color.



Lectures on perspective are given the second term, and the problems then worked out are illustrated by sketches from nature and made during the third term.

Instruction in pen etching is given throughout the year, but most of the work must be done out of hours. *Gregg's Architectural Rendering in Pen and Ink. Fall, winter, and Spring terms, 10 hours a week.* Professor FREDERICK.

*Required:* Elements of Draughting.

14. Architect's Course in Artistic Drawing and Modeling. For fourth year students.

First term. Modeling in clay (*a*) details of human face; (*b*) copy of cast of ornament; (*c*) ornament from photograph. Casts are made of (*a*) at least one modeled piece; (*b*) arm, hand, or foot from nature; (*c*) foliage, fruit, or vegetable from nature. One original design required.

Second term. Study of color as a means of exterior and interior decoration, at least one color scheme to be worked out, full size, in tempera colors. In place of this a second term of modeling can be taken.

Third term. Work in water colors, groups, flowers, and perspectives, or sketching from the antique and life. Sketching from nature in color. *Full, winter, and spring terms, 10 hours a week.* Professor FREDERICK.

*Required:* Architecture, 14.

#### ADDITIONAL SUBJECTS.

The following subjects, offered to students in the College of Engineering, are described elsewhere as noted:

In College of Science—

Chemistry, 1, 2, 3, and 6; Mineralogy, 1; Geology, 1, 3; Metallurgy, 1.

In College of Literature—

French, 4; German 4; English, 1, 2; Themes and Elocution, 1; Constitutional History, 3; Political Economy, 1.

In School of Military Science—

Drill Regulations for Infantry, 1; Drill Practice, 2.

School of Art and Design—

Free Hand Drawing, 5.

## MECHANICAL ENGINEERING.

## OBJECT.

This course is designed to prepare students for the profession of mechanical engineering. It aims to fit them to invent, design, construct, and manage machinery for any branch of manufactures. There is a great demand for men who, to a thorough knowledge of the principles of machinery and of the various motors, add the practical skill necessary to design and construct the machines by which these motors are made to work.

## INSTRUCTION.

The instruction, while severely scientific, is thoroughly practical. It aims at a clear understanding and mastery of all mechanical principles and devices. Practice in the workshop is required as one of the studies of the course.

In principles instruction is imparted by lectures, illustrated plates, and text books. Examples are given, showing the application of the theories and principles taught. Experiments in the testing of machines and motors are undertaken by the student.

In practice elementary forms are produced and projects are executed, in which the student constructs machines, or parts thereof, of his own designing, and from his own working drawings.

In designing the student begins with elements and proceeds with progressive exercises till he is able to design and represent complete machines.

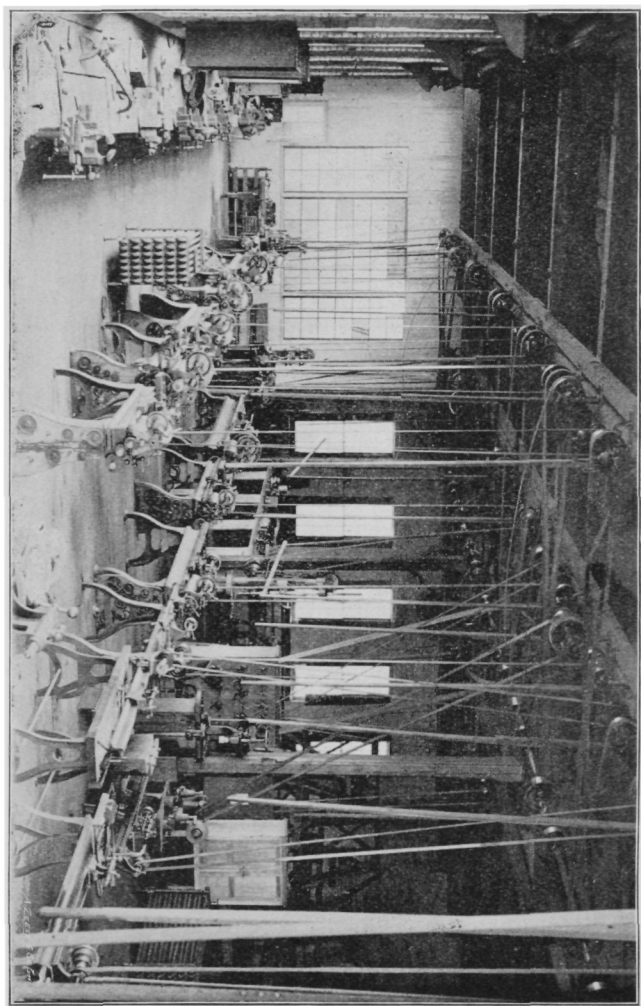
## EQUIPMENT.

The mechanical laboratory consists of a large, well lighted machine shop, a pattern shop, a blacksmith shop, and a foundry.

The machine shop is supplied with twelve first-class engine lathes, ranging from twelve- to twenty-four-inch swing, ten hand lathes, two shapers, a planer, two milling machines, three drill presses, one punching machine, a Brown & Sharpe universal grinding machine, sixteen vises and the corresponding sets of bench tools. This shop is also provided with complete sets of standard gauges, reamers, arbors, drillers, etc.

The pattern shop is provided with thirty-two benches, each supplied with a case of wood-working tools.

The blacksmith shop contains sixteen forges, fitted with power blast, sixteen anvils and sets of blacksmith tools.



The foundry is equipped with a cupola for melting iron, the necessary sand, ladles, flasks, etc., for making the castings which are afterward to be used in the machine shop.

The laboratory is also supplied with dynamometers, friction brakes, calorimeters, steam engine indicators, and other apparatus for carrying on mechanical laboratory work. A 50-horse power high speed engine, made by the students in the machine shop, furnishes power and is available for testing purposes. Three other steam engines, a gas engine, and several boilers of different makes furnish ample material for testing by the students in this department.

### COURSE IN MECHANICAL ENGINEERING.

#### FIRST YEAR.

1. Advanced Algebra; Elements of Draughting; Shop Practice; French, German, or English; Military.
2. Trigonometry; Descriptive Geometry and Lettering; Shop Practice; French, German, or English; Military.
3. Analytical Geometry; Advanced Descriptive Geometry; Shop Practice; French, German, or English; Military.

#### SECOND YEAR.

1. Differential Calculus; Mechanical Drawing and Construction; Physics; French, or German (optional); Military.
2. Advanced Analytical Geometry; Mechanical Drawing and Construction; Physics; French, or German (optional); Military.
3. Integral Calculus; Mechanical Drawing and Construction; Physics; French, or German (optional); Military.

#### THIRD YEAR.

1. Analytical Mechanics; Mechanism; Chemistry; Themes and Elocution.
2. Resistance of Materials; Engineering Materials; Chemistry; Themes and Elocution.
3. Hydraulics; Mechanism of Machines; Electrical Measurements, or Surveying; Themes and Elocution.

#### FOURTH YEAR.

1. Heat Engines; Machine Design; Masonry Construction.
2. Hydraulic Engines and Wind Wheels; Mechanical Laboratory, or Dynamo Electrical Machines; Constitutional History; Thesis.
3. Estimates; Mechanical Laboratory; Political Economy, or Astronomy; Thesis.

## ELECTRICAL ENGINEERING.

The electrical laboratory occupies a large room on the ground floor, fitted with masonry piers for the more sensitive instruments, and cases for apparatus. In this room the work relating to the measurement of current, resistance, electro-motor force, the standardizing of measurement apparatus, etc., is carried on.

In addition to this are a photometry room, intended especially for photometric work in connection with electric lighting; a battery room containing a large storage battery and a collection of all the leading primary cells which are used for current and testing purposes; a dynamo room supplied with power from a fifteen-horse power gas engine and a sixty-horse power, high speed steam engine, both of which are used exclusively for this department and experimental work. In this room are to be found the leading types of dynamos and motors with conveniences for illustrating and testing them. A complete Thomson-Houston alternating plant has lately been added to the equipment of this room.

Adjacent to the dynamo room is a workshop supplied with power from an electric motor. The shop is supplied with an engine lathe and a line of fine tools suited to the manufacture of special apparatus.

*Equipment.*—The electrical laboratory has been supplied with apparatus from the leading makers at home and abroad. There are several forms of the Wheatstone bridge, resistance boxes, including an Anthony 100,000 ohm box, and a Nalder Bros. subdivided megohm box, an assortment of switches, keys, condensers, and the leading forms of deadbeat and ballistic galvanometers, including a Thompson high resistance, and an Edelman deadbeat galvanometer; also several D'Arsonval galvanometers, and numerous others. Several reading telescopes are used in connection with the galvanometers. The laboratory is also supplied with certified standards of resistance, standard cells, Thompson's current balances, ammeters, voltmeters, and watt-meters. Current is brought to the room from the dynamo and battery rooms.

## COURSE IN ELECTRICAL ENGINEERING.

## FIRST YEAR.

1. Advanced Algebra; Elements of Draughting; Shop Practice; French, German, or English; Military.
2. Trigonometry; Descriptive Geometry and Lettering; Shop Practice; French, German, or English; Military.

3. Analytical Geometry; Advanced Descriptive Geometry; Shop Practice; French, German, or English; Military.

## SECOND YEAR.

1. Differential Calculus; Mechanical Drawing and Construction; Physics; French, or German (optional); Military.
2. Advanced Analytical Geometry; Mechanical Drawing and Construction; Physics; French, or German (optional); Military.
3. Integral Calculus; Mechanical Drawing and Construction; Physics; French, or German (optional); Military.

## THIRD YEAR.

1. Analytical Mechanics; Mechanism; Chemistry; Themes and Elocution.
2. Resistance of Materials; Engineering Materials; Chemistry; Themes and Elocution; Military.
3. Hydraulics (one-half term); Chemistry (one-half term); Mechanism of Machines; Electrical Measurements; Themes and Elocution.

## FOURTH YEAR.

1. Machine Design; Heat Engines; Primary and Secondary Batteries.
2. Hydraulic Engines and Wind Wheels; Dynamo-Electrical Machines; Electrical Laboratory; Thesis.
3. Installation of Light and Power Plants; Electrical Laboratory; Political Economy, or Astronomy; Thesis.

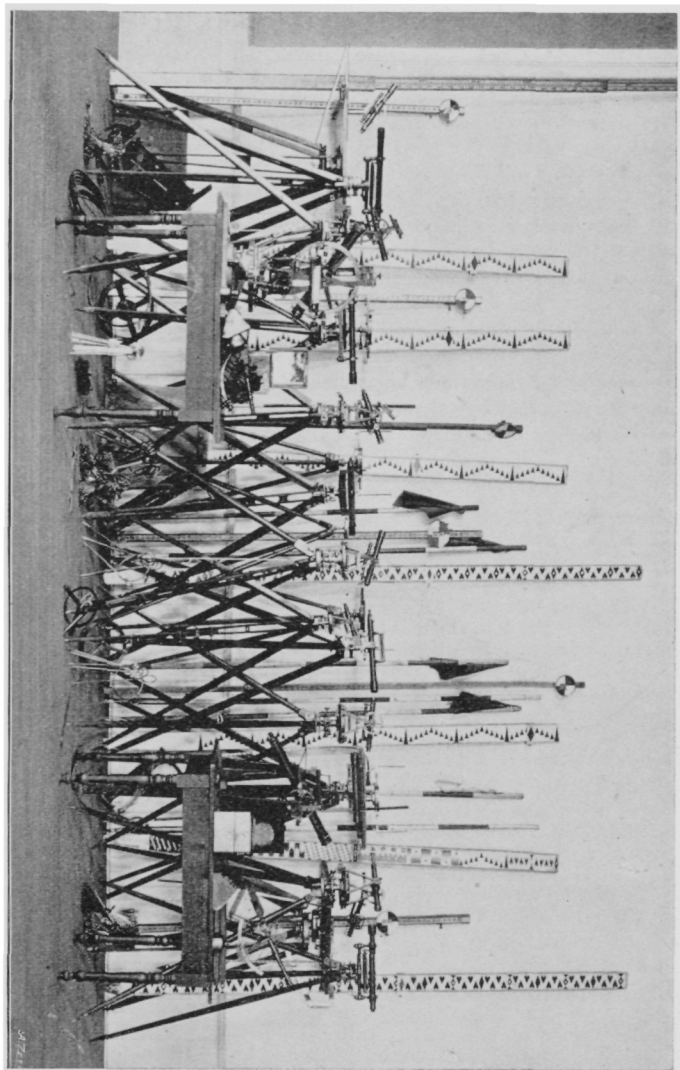
## CIVIL ENGINEERING.

## OBJECT.

The design is to furnish a course of theoretical instruction, accompanied and illustrated by a large amount of practice, which will enable the student to enter intelligently upon the various and important duties of the civil engineer.

## INSTRUCTION.

While the instruction aims to be practical by giving the student information and practice directly applicable in his future professional work, the prime object is the development of the mental faculties. The power to acquire information and the ability to use it, is held to be of far greater value than any amount of so-called practical acquirements. The method of instruction consists in coupling the development of intellectual power with the acquisition of information directly useful to the civil engineer in his profession.



The instruction is given by lectures, text books, and reading, to which are added numerous problems and practical exercises, as will serve best to explain principles completely and fix them in the mind. Models and instruments are continually used, both in lectures and by the students.

#### COURSE OF STUDY.

The complete course occupies four years. The several subjects included therein are shown in the list below. Each study requires five recitations per week, and should receive daily from three to four hours of the student's time. Some of the class exercises occupy one hour daily, while others require two hours: as a rule the latter require less time for preparation. The order of studies, as given by the year and term in the tabular view of the course, should be closely followed to avoid interference in hours of recitation, and because the studies are there given in the order which best meets the preparation of the student.

#### COURSE IN CIVIL ENGINEERING.

##### FIRST YEAR.

1. Advanced Algebra; Elements of Draughting; Shop Practice; French, German, or English; Military.
2. Trigonometry; Descriptive Geometry and Lettering; Shop Practice; French, German, or English; Military.
3. Analytical Geometry; Advanced Analytical Geometry; Shop Practice; French, German, or English; Military.

##### SECOND YEAR.

1. Differential Calculus; Land Surveying; Physics; French, or German (optional); Military.
2. Advanced Analytical Geometry; Topographical Drawing and Transit Surveying and Leveling; Physics; French, or German (optional); Military.
3. Integral Calculus; Topographical Surveying; Physics; French, or German (optional); Military.

##### THIRD YEAR.

1. Analytical Mechanics; Railroad Engineering; Chemistry; Themes and Elocution.
2. Resistance of Materials; Railroad and Road Engineering; Engineering Materials; Themes and Elocution.
3. Hydraulics; Astronomy; Roofs; Themes and Elocution.



## FOURTH YEAR.

1. Masonry Construction; Geodesy and Practical Astronomy; Water Supply Engineering.
2. Bridge Analysis; Sewerage; Geology; Thesis.
3. Bridge Designing; Tunneling; Political Economy; Thesis.

## MUNICIPAL AND SANITARY ENGINEERING.

## OBJECT.

This course is a modification of the civil engineering course and is designed for students intending to make a specialty of city engineering work. It includes the study of chemistry and bacteriology necessary to a comprehension of the questions involved in water supply and sewage disposal.

## COURSE IN MUNICIPAL AND SANITARY ENGINEERING.

## FIRST YEAR.

1. Advanced Algebra; Elements of Draughting; Shop Practice; French, German, or English; Military.
2. Trigonometry; Descriptive Geometry and Lettering; Shop Practice; French, German, or English; Military.
3. Analytical Geometry; Advanced Analytical Geometry; Shop Practice; French, German, or English; Military.

## SECOND YEAR.

1. Differential Calculus; Land Surveying; Physics; French or German (optional); Military.
2. Advanced Analytical Geometry; Topographical Drawing, and Transit Surveying and Leveling; Physics; French or German (optional); Military.
3. Integral Calculus; Topographical Surveying; Physics; French or German (optional); Military.

## THIRD YEAR.

1. Railroad Engineering; Analytical Mechanics; Chemistry: Themes and Elocution.
2. Railroad and Road Engineering; Resistance of Materials; Botany, one-half term; Steam Engineering, one-half term; Themes and Elocution.
3. Roofs; Hydraulics; Electrical Measurements; Themes and Elocution.

## FOURTH YEAR.

1. Water Supply Engineering; Masonry Construction; Bacteriology.
2. Sewerage; Bridge Construction; Chemistry.
3. Tunneling; Bridge Analysis; Chemistry.

## MINING ENGINEERING.

## OBJECT.

This course has been provided to meet the growing demand of a very important industry, the subjects of which are the discovery, opening, economical working and proper ventilation of mines; the prevention of accidents; transportation above and below ground; treatment of products; with many others which fall within the scope of the mining engineer. It is important that a broad basis be laid by way of general preparation for the more technical studies here included. Whatever of general culture the student may obtain before entering the University, will not come amiss, and, although the requirement is not made, it is advised that all who can do so should acquire a reading knowledge of French or German before beginning this course.

The course comprises the greater part of the pure and applied mathematics of the courses in mechanical and civil engineering. Much time is devoted to chemistry and geology, with the addition of metallurgy and other technical studies peculiar to mining engineering.

Students who are graduated from this course are not supposed to be familiar with all the details of mine management from actual experience; but they will have obtained such a knowledge of the principles underlying all successful practice, and such a familiarity with the science of mining in all its branches, that the art may be acquired with the minimum of practice.

## INSTRUCTION.

Lectures are given when desirable, but these are to be regarded as supplementary to other modes of instruction which are made to conform as closely as possible to the routine of the engineer in practice. In every detail the student is made to feel that he is dealing with the actual problems which he will meet in his professional work.

Plans, estimates, drawings, reports, and calculations, based upon data obtained in the student's own experience, are constantly required, and no pains is spared to familiarize each member of the class with the duties and responsibilities of every grade, from miner to manager.

## COURSE OF STUDIES.

In the first two years the work is similar to that required in the course in civil engineering, but more time is given to chemistry. In

the third year geology and mine engineering, with assaying and metallurgy, take the place of special technical studies in the other engineering courses. In the fourth year strictly technical studies are continued, with others taken with the mechanical engineers, and with some of a more general character.

### MINING ENGINEERING COURSE.

#### FIRST YEAR.

1. Advanced Algebra; Elements of Draughting; Chemistry; French, German, or English; Military.
2. Trigonometry; Descriptive Geometry and Lettering; Chemistry; French, German, or English; Military.
3. Analytical Geometry; Free Hand Drawing; Chemistry; French, German, or English; Military.

#### SECOND YEAR.

1. Differential Calculus; Land Surveying; Physics; French, German, or Free Hand Drawing (all optional); Military.
2. Advanced Analytical Geometry; Topographical Drawing and Transit Surveying and Leveling; Physics; French, German, or Free Hand Drawing (all optional); Military.
3. Integral Calculus; Topographical Surveying; Physics; French, German, or Free Hand Drawing (all optional); Military.

#### THIRD YEAR.

1. Analytical Mechanics; Mine Attack; Mineralogy; Themes and Elocution.
2. Resistance of Materials; Assaying; Geology; Themes and Elocution.
3. Hydraulics, Roofs, or Chemistry; Mine Surveying; Geology; Themes and Elocution.

#### FOURTH YEAR.

1. Mine Engineering; Ore Dressing; Heat Engines; Geology.
2. Mine Engineering; Hydraulic Engines and Wind Wheels; Chemistry.
3. Mine Engineering; Political Economy, Chemistry, or Roofs; Metallurgy.

### ARCHITECTURE.

#### OBJECT.

The object of this course of study is to prepare graduates for the profession of architecture, as architects, draughtsmen, and superintendents of construction. A thorough knowledge of scien-

tific principles applied to construction, and of drawing in its various developments, a practical acquaintance with the methods and processes of the various building trades, as well as a considerable degree of skill in the use of tools, are all essential to the fulfillment of this purpose, and are therefore made prominent in the course of instruction.

#### METHODS OF INSTRUCTION.

The principal lines of technical study take up the theory and practice of construction, the history and esthetics of architecture, architectural drawing as now practiced in offices, as well as the various modes of finishing drawings, the use of the architectural orders, and the usual routine and methods of office practice, so far as this can be successfully taught in a professional school.

This instruction is imparted by the study of text books, with recitations and the solution of numerous special problems, also by lectures, as well as by the use of syllabuses instead of text books, where suitable works do not yet exist. Engravings, photographs, models and sketches, are employed as illustrations.

Drawing is practiced during the entire course, and whenever possible, the student is required or encouraged to produce original designs. Opportunity is also afforded for two years' instruction in free hand drawing, modeling, water colors, designing, and sketching from nature.

Shop practice commences with the production of true plane surfaces in wood, and extends through joinery, cabinet work, turning, and veneering, to the making of models of architectural constructions to scale from drawings.

#### APPARATUS.

A collection of casts donated by the Spanish government, and another of casts of various architectural details from Lehr, of Berlin, belong to the departments of architecture and of design; models of ceilings, roof trusses, stairs and Schroeder's models of joints in wood work and of construction in cut stone work, in the engineering museum.

The department of architecture also possesses a large and rapidly increasing collection of engravings and photographs illustrating the history of architecture and art, and their practical applications in all ages. The collection is mounted on about 8,000 cards, 11 x 14 inches, and is classified in two parts, one for the use of the class in

history of architecture, the other for use by the various classes in designing; both series are minutely subdivided to facilitate easy reference, and are always open for free use, thus forming a most valuable working library. The plates issued by the most important American architectural journals are to be found here. This collection is placed in one of the architectural rooms.

The casts, photographs, etc., of the art gallery. In the University Library are many of the best English, German, French, and American architectural works and periodicals.

A large and well equipped carpenter and cabinet shop containing cabinet benches and sets of fine tools for classes in shop practice; foot and power lathes; machine saws, planers, moulder, tenoner, shaper, jig saw, mortiser, boring machine, etc.

An architect's level, rod, and 100-foot steel tape.

A 5x7 folding kodak of latest pattern, fitted with roll holder, plate holders, and film carriers. An 8x10 bellows camera with a Steinheil aplanatic, wide angle lens, for copying architectural views and interiors.

## ARCHITECTURAL COURSE.

### FIRST YEAR.

1. Advanced Algebra; Elements of Draughting; Shop Practice; French, German, or English; Military.
2. Trigonometry; Descriptive Geometry and Lettering; Shop Practice; French, German, or English; Military.
3. Analytic Geometry; Advanced Descriptive Geometry; Shop Practice; French, German, or English; Military.

### SECOND YEAR.

1. Differential Calculus; Wood Construction; Physics; French, German, or Free Hand Drawing (all optional); Military.
2. Advanced Analytical Geometry; Stone, Brick, and Metal Construction; Physics; French, German, or Free Hand Drawing (all optional); Military.
3. Integral Calculus; Sanitary Construction; Physics; French, German, or Free Hand (all optional); Military.

### THIRD YEAR.

1. Analytical Mechanics; Architectural Drawing; Chemistry; Themes and Elocution.
2. Resistance of Materials; History of Architecture; Architectural Drawing; Themes and Elocution.
3. Roofs; History of Architecture; Surveying; Themes and Elocution.

## FOURTH YEAR.

1. Superintendence, Estimates, and Specifications; Architectural Perspective; Free Hand Drawing, or Modeling.
2. Heating and Ventilation; Architectural Design; Free Hand Drawing, or Water Color; Thesis.
3. Esthetics of Architecture; Architectural Design; Free Hand Drawing, or Sketching; Thesis.

## ARCHITECTURAL ENGINEERING.

The especial purpose of this course of study is to qualify graduates for the profession of architecture, and particularly as architects, structural draughtsmen, and computers, as well as superintendents of construction. It is intended for those students preferring the mathematical and structural side of architecture to its artistic side, and for those who wish to acquire a thorough knowledge of iron and steel construction as it is now executed in architectural structure.

The course of study differs from that in architecture in the following particulars: Hydraulics and surveying are both required, the last being a single term study arranged for architectural students. Masonry construction, bridge analysis, and bridge designing, as taught to civil engineers, are taken instead of the second year of work in advanced free hand drawing, such as modeling, industrial design, and color design. A term of work in advanced graphics is also offered in lieu of architectural perspective. The remainder of the course of study is identical with that in architecture. The methods of imparting instruction are also similar, and are fully described elsewhere.

## ARCHITECTURAL ENGINEERING COURSE.

## FIRST YEAR.

1. Advanced Algebra; Elements of Draughting; Shop Practice; French, German, or English; Military.
2. Trigonometry; Descriptive Geometry and Lettering; Shop Practice; French, German, or English; Military.
3. Analytical Geometry; Advanced Descriptive Geometry; Shop Practice; French, German, or English; Military.

## SECOND YEAR.

1. Differential Calculus; Wood Construction; Physics; French, German, or Free Hand (all optional); Military.
2. Advanced Analytical Geometry; Stone, Brick, and Metal Construction; Physics; French, German, or Free Hand (all optional); Military.

3. Integral Calculus; Sanitary Construction; Physics; French, German, or Free Hand (all optional); Military.

## THIRD YEAR.

1. Analytical Mechanics; Architectural Drawing; Chemistry; Themes and Elocution.
2. Resistance of Materials; History of Architecture; Architectural Drawing; Themes and Elocution.
3. Roofs; History of Architecture; Hydraulics; Themes and Elocution.

## FOURTH YEAR.

1. Masonry Construction; Superintendence, Estimates, and Specifications; Architectural Perspective, or Advanced Graphics.
2. Bridge Analysis; Heating and Ventilation; Architectural Design; Thesis.
3. Bridge Design; Surveying; Architectural Design; Thesis.

# COLLEGE OF SCIENCE.

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## SCHOOLS.

CHEMISTRY; NATURAL SCIENCE.

## FACULTY.

THOMAS J. BURRILL, PH.D., ACTING REGENT, Botany.  
STEPHEN A. FORBES, PH.D., *Dean*, Zoölogy and Entomology.  
CHARLES W. ROLFE, M.S., Geology.  
ARTHUR W. PALMER, Sc.D., Chemistry.  
SAMUEL W. PARR, M.S., Chemistry.  
HOWARD S. BRODE, Assistant in Zoölogy.  
HARRY S. GRINDLEY, B.S., First Assistant in Chemistry.  
GEORGE P. CLINTON, B.S., Assistant in Botany.  
ROBERT H. FORBES, Second Assistant in Chemistry.

## MEMBERS OF OTHER FACULTIES GIVING INSTRUCTION IN THIS COLLEGE.

EDWARD SNYDER, M.A., German.  
JAMES D. CRAWFORD, M.A., History.  
JAMES H. BROWNLEE, M.A., Rhetoric and Oratory.  
NATHANIEL BUTLER, JR., M.A., English Literature.  
FRANK F. FREDERICK, Industrial Art and Design.  
ELBRIDGE R. HILLS, First Lieut., U.S.A., Military Science.  
M. R. PARADIS, M.A., French.  
HERBERT J. BARTON, M.A., Latin.  
SAMUEL W. STRATTON, B.S., Electrical Engineering and Physics.  
GEORGE W. MYERS, M.L., Mathematics.  
EDITH ADELAIDE SHATTUCK, Assistant in Industrial Art and Design.

## COLLEGE OF SCIENCE.

The College of Science affords an opportunity for the thorough study of the natural and physical sciences, either as specialties or



as the substance of a liberal education. It is possible for the student to take a year each (five exercises a week) in chemistry, physics, zoölogy, botany, and geology, with a considerable amount of language, literature, and general studies; or to concentrate his science work on one of several subjects; taking, for example, four years in chemistry or three years in either botany or zoölogy.

It is the leading object of the chemical courses to give a technical education, as a preparation for chemical pursuits. It is the main purpose of the courses in natural science, on the other hand, to give a liberal education, based essentially upon a wide acquaintance with a considerable group of related sciences, or upon a more thorough knowledge of a smaller number. Access to the elective literary and historical subjects open to the student in these courses is conditioned only by a minimum requirement with respect to subjects more important to the immediate ends of the College of Science.

## DESCRIPTION OF COURSES OF INSTRUCTION.

### CHEMISTRY.

The chemistry of the College of Science is taught in ten courses of instruction, the first five of which form the regular four years' course of study in the school of chemistry. Course 6 is arranged for students of other schools, who have taken course 1; and course 7 is offered to pharmaceutical students, in place of course 3 for regular students of chemistry.

1. General and Experimental Chemistry.—Required of all students in this department. This course is intended to serve as an introduction to the subject of chemistry, and is directed chiefly to the fundamental and general principles of the science. The work of the term consists of illustrated lectures, recitations upon the subject matter of the lectures and upon text book lessons, and of practice in the laboratory. The laboratory work, comprising a series of experiments illustrative of chemical principles and their applications, and involving a consideration of the properties of some of the more important elements and their compounds, serves in part as a preparation for the work of the class room. *Remsen's Introduction to Chemistry. Fall term, 10 hours a week.* Professor PALMER.
2. Qualitative Analysis.—This course includes a systematic study of the metallic elements, their salts and compounds, and their

chemical formulæ and reactions, together with the principles which underlie qualitative analysis. In the laboratory these subjects are experimentally studied as preliminary to the work of qualitative analysis, which occupies the latter part of the winter and the first of the spring term. Following this, further application, and to a large extent an original use, of the knowledge gained is made in the preparation and purification of typical salts and compounds from the spent material which accumulates in other lines of work throughout the laboratory. *Thorpe's Inorganic Chemistry, Metals; Volhard and Zimmerman's Experimental Chemistry.* Winter and spring terms, 15 hours a week. Professor PARR.

*Required:* Chemistry, 1.

3. Quantitative Analysis and Assaying.—The work in this course extends through the sophomore year and the fall term of the junior year. It begins with the analysis of salts of definite and known composition, the purpose being to gain facility and accuracy of manipulation together with a general knowledge of the principles involved in the best practice. The class room work is chiefly lectures and recitations upon assigned topics in Fresenius's Quantitative Analysis. In the winter term practice is given in the use of methods for special lines of work, including volumetric assays and analysis of ores and furnace products. This is followed by the electrolytic determination of copper, etc., and by the usual fire assays of lead, silver, and gold. The class room instruction in this term is mainly by lectures and special notes, the student being required to read assigned parts of the works of Kerl, Mitchell, and others.

During the spring term lectures upon the chemistry of agriculture are given accompanied by laboratory work in the quantitative analysis of some of the materials employed in agriculture and agricultural products. The laboratory practice includes the analyses of complex silicates, as feldspar, mica, or glass, and of commercial fertilizers, milk and grain.

During the fall term of the junior year advanced quantitative work is continued, to include the analysis of potable and mineral waters, with special reference to their sanitary examination; of illuminating, furnace, and natural gases, etc. Use is made of both the eudiometric and absorption methods.

The class room work in this term is chiefly devoted to special applications of chemistry to the arts, to chemical technology,

etc. The instruction is by lectures and recitations upon assigned topics in standard works of reference. *Four terms, 10 hours a week.* Professors PALMER and PARR.

*Required:* Chemistry, 1, 2.

4. Organic Chemistry.—This course consists in a consideration of the principles and the processes of organic chemistry. The instruction comprises recitations, lectures, and laboratory practice. Remsen's Organic Chemistry is employed as a text book, and is supplemented by lectures upon special topics and by references to the works of Richter, Roscoe and Schorlemmer, and Beilstein. In the laboratory the practice consists in the preparation of organic compounds, in accordance with the directions given in the text book, with selections from the manuals of Levy and Fischer. Some time is also devoted to ultimate organic analysis. *Winter and spring terms, 10 hours a week.* Professor PALMER.

*Required:* Chemistry, 1, 2.

5. Investigations and Thesis.—This course is intended as a final preparation for the practical work to which the student intends to devote himself after graduation. In the first term some time is given to the study of toxicology and urinalysis, after which the candidate for a degree is required to engage in some line of original research. The subject of the investigation must be determined by or before the Thanksgiving recess, after which time, and until the Christmas holidays, the work is of such a nature as to familiarize the student with the special methods and processes involved in the research contemplated. After the holidays the work of investigation is prosecuted and the required thesis prepared. In this research work the student is required to make full use of the various sets of chemical journals, English, French, and German, as an essential means of extending his acquaintance with chemical literature and a drill in consultation of works of reference.

Throughout the year the class instruction is by lectures, recitations, and by discussions in toxicology, in theoretical and thermo-chemistry, and in the history of chemistry. Wormley's Micro-chemistry of Poisons, Taylor on Poisons, Meyer's Modern Theories of Chemistry, and Meyer's *Geschichte der Chemie* are some of the works used during the year. *Fall, winter, and spring terms, 10 hours a week.* Professors PALMER and PARR.

*Required:* Ten terms of chemical work.

6. **Qualitative Analysis.**—This is a course of study of three terms, arranged for students in other than the regular chemical courses. The first term's work is identical with that of course 1. In the second term a short course in qualitative analysis is given, which involves a study of chemical compounds and of chemical reactions, and their application to some of the more common metallurgical and other technological processes. The analysis of numerous compounds is made, involving also tests of material and special experiments which may bear upon the student's subsequent work. The class room work is by lecture and recitation upon assigned text. The third term's work consists of advanced qualitative analysis, including the purification and preparation of inorganic salts and compounds, etc. Special lectures and experiments are arranged in this course with reference to the needs of other University departments. *Fall, winter, and spring terms, 10 hours a week.* Professor PARR.
7. **Advanced Work for Agricultural Students.**—This course comprises one term's work in quantitative analysis identical with the first term of course 3, one term in organic chemistry, the first term of course 4, and a third term of work in agricultural chemistry similar to the third term of course 3 but more distinctly technical in scope. Text books are Fresenius's Quantitative Analysis, Remsen's Organic Chemistry. The instruction in Chemistry of Agriculture is mainly given by lectures and assigned reading. *Fall, winter, and spring terms, 10 hours a week.* Professors PALMER and PARR.  
*Required:* Chemistry, 1, and either 2 or 6.
8. **Pharmaceutical Chemistry.**—For students desiring to make a specialty of pharmaceutical chemistry. The first term is identical with the corresponding term of course 3. In the second and third terms the work consists in the valuation, quantitative analysis, and assay of various pharmaceutical materials and preparations; this work being followed by the preparation of pills, suppositories, syrups, emulsions, extracts, tinctures, and other galenic preparations, during the fourth term. *Parish's Treatise on Pharmacy; Fresenius's Quantitative Analysis; Prescott's Organic Analysis; U. S. Dispensatory and Pharmacopœia.* *Fall, winter, spring, and fall terms, 10 hours a week.* Professors PALMER and PARR.  
*Required:* Chemistry, 1 and 2.

9. Assaying.—For students in mining engineering. The course in assaying consists of instruction by lectures and from text books upon the ores, fuels, fluxes, furnaces, reagents, and chargers used in the fire assay of gold, silver, and lead ores. The laboratory practice includes daily use of the crucible and muffle furnaces and the manipulations connected with fire assaying. The rapid wet assay of copper and zinc ores is given in close connection with the course in fire assaying. Same as assaying in Chemistry 3. *Winter term, 10 hours a week.*

*Required:* Chemistry, 1, 6; Mining Engineering, 1.

10. Metallurgy.—Especial attention is given to the effect of impurities in ores upon metallurgical processes and finished products. Fuels, refractory materials, and fluxes are described and their value and application explained. The known chemical reactions are expressed in equations; ore mixtures are calculated from analyses and experiments; and the size, construction, and working of furnaces are treated in accordance with modern practice. A series of models of furnaces and specimens of furnace material and products are used in illustration. The University is sufficiently near large and well conducted works smelting and refining iron, zinc, copper, silver, and lead for excursions to be made to them during the course. Instruction is given from text books when possible, but great freedom in choosing material from later publications and from the present practice of actual plants is used in the supplementary lectures. *Greenwood's Steel and Iron; Peter's Modern American Methods of Copper Smelting.* *Spring term, 5 hours a week.* Professor PARR.

*Required:* Chemistry, 1, 6; Physics, 1.

#### MINERALOGY.

1. Mineralogy.—The first three weeks are devoted to crystallography, with recitations and laboratory practice upon models of crystal forms. In the determination of minerals students work upon sets of unlabeled hand specimens. Familiarity with species and skill in applying the best and quickest methods of determination are attained by constant practice on a large number of specimens; and the lectures and other instruction acquaint students with the chemical composition and the schemes of classification. Especial attention is given to ores and rock-forming minerals. The lectures are extended to cover the whole

series of minerals, but the time for laboratory practice is not sufficient to work on all. The succeeding term an opportunity is given to those who wish it for a continuation of laboratory practice, but credit will not be allowed unless especially granted. *Dana's Text Book of Mineralogy. Fall term, 10 hours a week.*  
Professor BALDWIN.

*Required:* Mathematics, 4; Chemistry, 1, 6.

## GEOLOGY.

In the department of geology four courses are offered. For those students who wish more than a general acquaintance with the subject a major course of one year is provided, covering thirty-six weeks of class room and laboratory instruction; and a supplementary course of twenty-two weeks is offered to those who select a geological subject as a thesis. Engineers who wish an acquaintance with those portions only of the science which bear most directly on their future work are offered a minor course of eleven weeks. A minor course of eleven weeks is offered to those desiring merely an outline of the most prominent facts and theories of geology, with some ideas of the methods by which the geologist arrives at his conclusions.

### COURSE 1.

1. Geology, Major Course.—(a) Dynamic Geology. The instruction given under this head is intended to familiarize the student with the forces now at work upon and within the earth's crust, modeling its reliefs, producing changes in the structure and composition of its rock masses, and making deposits of minerals and ores. A series of localities is studied in which great surface changes have recently taken place, with a view to ascertaining the character of the forces producing such changes, and the physical evidence of the action of like forces in the past. The subject is taught by lectures, and is abundantly illustrated by maps, models, charts, and views.

(b) Petrographic Geology. The instruction under this topic is given by lectures and laboratory work. The subjects included are the classification of rocks, the methods used in their determination, the conditions governing the formation of each species, the decompositions to which they are liable, and the products of these decompositions. Each student is supplied with a set of

blow-pipe tubes and reagents, and a series of hand specimens covering all the common species of rocks.

(c) Historical Geology. The work on this subject is substantially an introduction to the history of geology as a science, and the developmental history of the leading geological doctrines. An attempt is also made to trace the history of each geological period, so far as may be done with the data in hand.

(d) Paleontology. The scheme of instruction in this subject places before the student the classification adopted for those organic forms occurring as fossils, together with the succession of the various groups that occur in the strata, with the cause, as far as known, for their appearance and disappearance. The student is required to familiarize himself with selected groups of paleozoic fossils, abundant illustrations of which are placed in his hands. The subject is presented in lectures and demonstrations, each group being considered in connection with its nearest living representative.

(e) Economic Geology. The final term of this course is devoted to a study of the uses man may make of geologic materials, the conditions under which these materials occur, and the qualities which render them valuable. The instruction is given by lectures, with references to the various state and government reports, transactions of societies, and monographs in which these subjects are treated, as well as by demonstrations with materials from the collections of the University.

In dynamic and historical geology Dana's Manual is used as a reference book. Petrography is pursued by means of a blueprint adaptation of Rosenbusch for the crystalline rocks, and various authors for the fragmental. In paleontology Nicholson and Zittel are used for descriptions of the larger groups, Miller, for general distribution, and the various state surveys for species. *Winter and spring terms, 5 hours a week; fall term, 10 hours a week.* Professor ROLFE.

*Required:* Chemistry, 1; Physics, 1, or 2; Mineralogy, 1; Botany, 1, or 6; Zoölogy, 1, or 5.

2. Investigations and Thesis.—For students who select a geological thesis guidance and facilities will be afforded for individual investigations in the field and laboratory. *Winter and spring terms, 10 hours a week.* Professor ROLFE.

*Required:* Geology, 1.

3. Engineering Geology.—It is the object of this course to bring together those parts of geology which will be of the greatest practical benefit to an engineer. The course will deal mainly with subjects connected with the origin, classification, and transformations of rocks, with the principles which govern the deposition and structure of rock masses; with the conditions under which the useful rocks and minerals occur, and the conditions which make them more or less valuable. The instruction is given by lectures and by demonstrations in the laboratory. *Winter term, 10 hours a week.* Professor ROLFE.
4. General Geology, Minor Course.—This course includes a selection of such geological facts and theories as should be known to every intelligent person, with such discussion of them as the time will permit. The subjects treated will be fully illustrated, and opportunity will be afforded for some study of rocks and fossils. *Spring term, 10 hours a week.* Professor ROLFE.

#### METEOROLOGY.

1. Meteorology.—The study of those atmospheric movements which bring our changes of weather, with their relations to heat, cold, electrical conditions, wind, cloud, barometric pressure, etc., constitutes the work of the first half of the fall term. Abercrombie's *Weather* is used as an introductory text book; but most of the instruction is given by lectures, the study of charts, and attempts by the student to forecast weather changes. *Fall term, 2 hours a week.* Professor ROLFE.  
*Required:* Chemistry, 1; Physics, 1, or 2.

#### BOTANY.

Six courses of instruction are offered in this subject—five primarily intended to meet the wants of students making botanical work more or less a specialty, and the sixth occupying a single term, complete in itself, for students whose chief attention is given to other branches. Three to eight terms' work constitute a major course; that of the single term, course 6, a minor course. To a very large extent natural objects are studied rather than books; but constant endeavor is made to introduce students to pertinent existing literature. In the laboratory much use is made of the compound microscope and special attention is given to its manipulation for best results, and to the preparation of objects.



1. Histology, Morphology, and Physiology.—This major course extends through one year, beginning in the fall. At first systematic studies are made upon specially difficult natural orders of flowering plants; as Compositæ, Cyperaceæ, and Gramineæ; with attention given to nomenclature and to the principles of classification. After vegetation has been destroyed by frost the remainder of the fall term is devoted to the histology of plants. Students make and study microscopical sections and other preparations, make micro-chemical tests, draw figures, and write descriptive notes. Lectures or text book recitations occur about twice a week.

The morphology and classification of special groups of plants, beginning with the lowest orders, constitutes the work of the winter term. Compound microscopes are constantly in use, and the laboratory work is made the basis of instruction, variously aided and extended by the study of the text book and by lectures. Special attention is given to injurious fungi.

The third term is devoted to vegetable physiology and includes: the extent and causes of the movements of fluids in the tissues, the absorption of nutrient materials, respiration, transpiration, and assimilation; the causes, peculiarities, and results of growth; the relations and effects of external agencies, as heat, light, gravitation; self- and cross-fertilization; variation and heredity; movements and sensitiveness. The instruction is given by lectures and recitations, supplemented by required observations and experimental practice. *Bessey's Botany*; *Goebel's Outlines of Classification and Special Morphology*; *Vine's Lectures on Vegetable Physiology*. Fall, winter, and spring terms, 10 hours a week. Professor BURRILL.

*Required:* Chemistry, 1; Art and Design, 4.

2. Bacteriology.—Bacteria and allied organisms are now known to play exceedingly important roles in nature, and in the daily life and well being of man. This course is an introduction to existing knowledge upon the subject, and offers instruction in the modern methods of experimentation and research. The laboratory is well equipped for a limited number of students. Only those who can give extra time when occasion demands should undertake the work. Lectures and assigned reading accompany the laboratory work. *Fall term, 10 hours a week.* Professor BURRILL.

*Required:* Botany, 1; Chemistry, 1; Art and Design, 4.

3. Fungi.—There is offered in this course an opportunity for advanced work in special groups of plants to which an introduction is made in the winter term of course 1. The determination and classification of species and studies upon life histories largely occupy the time. The methods of bacteriology are used in the cultivation of fresh material. Students who propose to take the course should give notice of the fact at the beginning of the year or earlier, and should make collections for themselves. Laboratory work constitutes the principal part of the course. *Winter term, 10 hours a week.* Professor BURRILL.  
*Required:* Botany, 1, 2; Chemistry, 1; Art and Design, 4.
4. Plant Reproduction and Development.—Studies are made upon self- and cross-fertilization, embryology, and development, and upon special topics in physiology. Laboratory work supplemented by lectures and assigned reading. *Strasburger's Practical Botany: Detmer's Pflanzenphysiologisches Prakticum.* *Spring term, 10 hours a week.* Professor BURRILL.  
*Required:* Botany, 1; Chemistry, 1; Art and Design, 4.
5. Investigations and Thesis.—Facilities are offered for original investigations upon selected subjects upon which may be based a thesis required for a degree. Special arrangements should be made with the instructor during the preceding year or at least not later than the beginning of the year in which the work is to be taken. *Laboratory work, 10 or more hours a week.* Professor BURRILL.  
*Required:* Botany, 1; Chemistry, 1; Art and Design, 4.
- 6.—General Botany.—This minor course is offered to students who have but a single term of botanical study. An endeavor is made to present a general view of the science and to provide an introduction to modern methods of work. Lectures are given and two to four hours a week of laboratory field work are required. *Spring term, 7 hours a week.* Professor BURRILL.  
*Required:* Chemistry, 1.

## ZOOLOGY.

Zoölogy is taught in five courses: (1) a major course (restricted elective) of a full year, two hours a day, primarily for students of natural science; (2) a term of embryology for those who have taken course 1; (3) two terms (senior) for those who have taken courses 1

and 2, and who select a zoölogical subject for the graduating thesis; (4) a year's work (open elective) in systematic zoölogy, for advanced students only; and (5) a general course of a single term, offered as a minor course in the school of natural science and as an elective to the students of the University at large.

1. General Zoölogy, Major Course.—It is the immediate object of this major elective course to make working zoölogists, and its secondary object to draw from zoölogical science its distinctive discipline as an element in a liberal education. It is planned with a view to giving to students a wide acquaintance with the methods of zoölogical research in field, laboratory, and library, and a sound and accurate knowledge of zoölogical theory and of the leading facts of observation and experiment upon which such theory rests. As it is presumed that all taking this course will have had a major course in botany, the laboratory work of the fall term (on the earthworm and on Hydra) is made an introduction to the special methods of the zoölogical laboratory. The remainder of the term is given to the Protozoa and Cœlenterata, the former of which are studied at length in the laboratory and lecture room in respect to their structure, physiology, and classification; their relations to plants; and their relations to the organization, embryology, and developmental history of the higher animals. These subjects are used to elucidate and illustrate the general theory of zoölogy, which is here presented in outline, to be completed and filled in as the work of the course proceeds.

The second term is devoted to the morphology, physiology, and general classification of the remaining invertebrates, with principal attention to the Arthropoda. Early in this term a course of lectures on general embryology is given, with principal reference to the development of the earthworm as a type. The laboratory work includes the thorough study, by each member of the class, of an assigned species as a semi-independent investigation, the results of which are presented at the end of the term in a paper and drawings.

The third term's work is done on vertebrates, with principal attention in the laboratory to anatomical methods for the larger animals. The work of this term includes also a series of studies made by the class together upon the smaller aquatic animals of the neighborhood, taken as a biological group.

The more important features of the method in this course are comparative dissections, descriptions, drawings, and microscopic preparations of types of the greater groups as a basis for the study of the subkingdoms and their more important divisions; lectures on the comparative physiology of selected forms, with especial reference to their relations to their environments, organic and inorganic, present and past; studies of the zoölogical classification, commonly introduced by analytical synopses, exhibiting the technical relations of groups, together with lectures and elaborate reviews directed especially to the general system of homologies by which zoölogical science is organized as a coherent whole. *One year, 10 hours a week.* Professor FORBES.

*Required:* Chemistry, 1; Botany, 1 or 6. Physiology, 1, must be taken with the first term's work of this course, if not before.

2. Embryology.—A course in practical and general embryology is given in the fall term as a sequel to course 1. It is required of all students intending to present a zoölogical thesis, except such as take course 4. It includes laboratory work upon the development of the chick, with assigned reading in general embryology for half a term, and an equal amount of reading on the evolution of animal life. *Fall term, 10 hours a week.* Professor FORBES.  
*Required:* Zoölogy, 1.
3. Investigations and Thesis.—Candidates for graduation in the College of Science who select a zoölogical subject as a thesis, are required to spend at least two hours a day for the winter and spring terms of their senior year in making an independent investigation of some selected zoölogical subject. While this work is done under the general supervision of an instructor, it is in its methods and responsibilities essentially original work.
4. Systematic Zoölogy (including Entomology).—To students who have course 1 an opportunity is offered for a year's work, two hours a day, in systematic zoölogy (including entomology), to be taken individually, under the guidance of an instructor. It may be closely adapted to the bent and ability of the student. It should consist essentially of determinative and descriptive work upon selected groups, and must be concluded with a synoptic or monographic paper upon some group of animals, based upon personal study.

For students of this course very unusual facilities are at hand in the library and collections of the State Laboratory of Natural History, which occupy rooms adjoining those of the zoölogical department of the University. *One year, 10 hours a week.* Professor FORBES.

*Required:* Zoölogy, 1.

5. General Zoölogy, Minor Course.—For the benefit of students of natural science specializing in some other direction, as well as for literary students desiring some general knowledge of zoölogy, a course of a single term is offered which contains enough laboratory and descriptive work to give a practical idea of the method of zoölogical science, and a sufficient number of lectures, with study of text, to cover the general subject in a cursory manner. Principal attention is paid to the Protozoa, to insects, and to birds. *Winter term, 10 hours a week.* Professor FORBES.

The texts most frequently used in the foregoing courses are Sedgwick's Claus, in general zoölogy, Haddon's Introduction to the Study of Embryology, and Foster and Balfour's Elements, in embryology. The dissections and other morphological studies are made with the aid of laboratory manuals prepared in the department and furnished to students in cyclostyle print. The determinative work of the course is guided by synopses, descriptive papers, and the like, also prepared in the laboratory and reproduced by the cyclostyle. A very full series of laboratory guides and manuals is at hand for reference. *Winter and spring terms, 10 hours a week.* Professor FORBES.

*Required:* Zoölogy, 1.

## ENTOMOLOGY.

1. General and Economic Entomology.—A single course for the especial benefit of the school of natural science, is offered in this subject. It is designed mainly as a preparation for economic work and investigation as a specialty; but students whose principal interest is in structural or systematic entomology, may take a special line of such work in the second term.

A large part of the time is devoted to the study of the characters, life histories, habits, and economic relations of a selected list of especially important insects. Specimens of these in their different stages, together with synopses and descriptions of the

families to which they belong, are furnished the students, and the essential facts not discoverable by direct observation, are given in lectures or acquired by study of text.

Practice in field observation is given as opportunity offers, and all are taught the ordinary methods of the collection, preparation, and care of specimens, together with the approved methods of controlling the ravages of the injurious species.

A personal study, continuous for a term, of the life history and habits of some insect species is made by each student, and is finally reported in the form of a thesis.

In both field and laboratory an extraordinary opportunity is offered to competent students of this course to observe and assist in practical entomological work and original research. *Winter and spring terms, 10 hours a week.* Professor FORBES.

*Required:* Zoölogy, 1, or Zoölogy, 5; Botany, 1.

#### PHYSIOLOGY.

1. Human Physiology.—The students admitted to this class have already passed an entrance examination in the elementary principles of anatomy and physiology.

The main objects of the course are to make the student familiar with the position, structure, and healthy action of those organs most liable to become diseased; to make plain the part which the nervous system plays in both the healthy and morbid action of the various organs, and in the problems of nutrition and energy.

The subject is taught during the fall term of the junior year. The plan embraces lectures, recitations from the text book, frequent readings from standard authors, and demonstrations from fresh dissections, alcoholic specimens, microscopical preparations, skeletons, and the manikin. *Martin's Human Body.* *Fall term, 5 hours a week.* Professor ROLFE.

*Required:* Chemistry, 1.

#### GENERAL BIOLOGY.

1. General Advanced Biology.—For those who have taken a major course in either botany or zoölogy, a single term of general biology is arranged and especially commended. It is intended

to review, extend, systematize, and unify the student's knowledge of the phenomena, the history, and the laws of life, of the relations of plant and animal, of living and not living matter, and of biology to other sciences and to philosophy. It will be taught chiefly by lectures and by assigned reading. It is properly a senior study for students of the school of natural science. *Spring term, 10 hours a week.* Professor FORBES.

*Required:* Botany, 1, or Zoölogy, 1.

### ANTHROPOLOGY.

1. Anthropology.—The objects of this course are to summarize the facts and theories relating to the origin of man; to introduce the comparative study of races with a view to ascertaining their relations to each other and to primitive man; and to study the steps by which races change from the savage to the enlightened stage. The instruction is given by lectures, reading, and recitations. *Tylor's Anthropology.* *Fall term, 3 hours a week.* Professor ROLFE.

The following subjects, offered to students in the College of Science are described elsewhere as noted—

In the College of Agriculture—

Veterinary Science, 3.

In the College of Engineering—

Mathematics, 1, 3 (and 5 elective); Astronomy, 1; Physics, 1, 2; Electrical Engineering, 1.

In College of Literature—

Philosophy, 1, 2, 3, 4; Pedagogy, 1, 2, 3; History, 1, 2, 4; French, 4, or 1 and 2; German, 1, 2; Political Economy, 1; English Literature, 1 and 2, or 6, 7, 8; Rhetoric and Oratory, 1.

In School of Military Science—

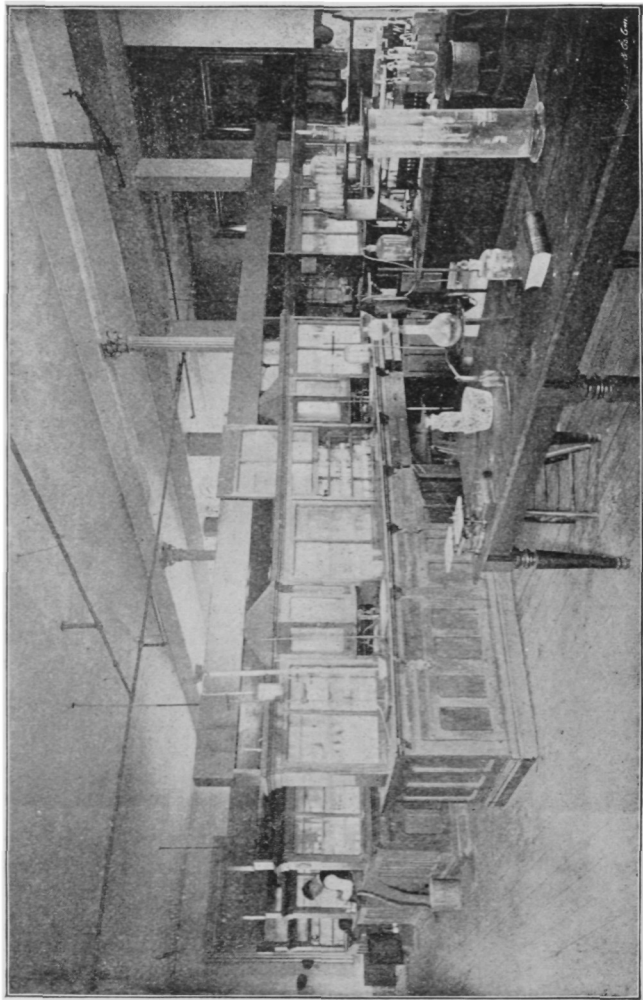
Military Science, 1, 2.

In School of Art and Design—

Art and Design, 4.

### SCHOOL OF CHEMISTRY.

The aim of the instruction in this school is to impart such a knowledge of chemistry as will enable the student to apply the principles of the science to the work of the druggist, pharmacist, and practical chemist, as well as to investigations of chemical problems



CHEMICAL LABORATORY



and to original research. The scope of the work is sufficiently broad to enable the student to specialize in the various callings open to the chemist and pharmacist. For the first three years specific courses are arranged, but much of the laboratory work of these courses may be varied to suit the purposes or the needs of the individual student. The fourth year is mainly occupied with investigation along special lines, the subject being chosen under the direction and with the advice of the professor in charge, with particular reference to the student's aims.

Students, not members of the College of Science, who desire to pursue studies in the chemistry of agriculture, or in metallurgy, may have ample opportunity for such work on consultation with the professor in charge.

#### CHEMICAL LABORATORIES.

A building 75 x 120 feet, and four stories in height is devoted to chemistry. The basement contains a furnace room for assaying provided with crucible and muffle furnaces, and a large store room for chemicals and apparatus. The first story contains a lecture room capable of seating 200 persons, and a laboratory for practice in general experimental chemistry and qualitative analysis, large enough to accommodate 152 students; 104 desks are now fitted up, each having an evaporating hood, gas, and water. There are a spectroscopy table, a blowpipe table, and a store room stocked with apparatus and chemicals. Also, a good sized room fitted for the preparation of lecture experiments, and for storing apparatus, etc. The second story, designed for the use of advanced students, has the following apartments: A lecture room, a large laboratory for quantitative analysis and general advanced work, now containing 64 desks; a large well lighted balance room, containing analytical balances of the best European and American make; a pharmacy furnished with drugs and pharmaceutical preparations; private laboratory for instructors; and a gas analysis room entirely cut off from the system of heating, in order to avoid fluctuations of temperature. The laboratories are amply supplied with stocks of chemicals and apparatus of the most approved description and quality, for the work in the various branches of the science.

#### CLASSIFICATION OF SUBJECTS AND REQUIREMENTS FOR GRADUATION.

Forty-one credits for full terms of work, thirty-two of which shall be taken from the following list of required subjects, including

military, are required for graduation from the chemical courses. For the nine remaining credits five subjects must be chosen from the restricted electives and the others may be taken from these or from the open electives.

## REQUIRED STUDIES.

Chemistry (1 to 5), 13 credits.  
 German (1, 2), 5 credits.  
 French (4), 3 credits.  
 Mathematics (1, 3), 2 credits.  
 Physics (1), 3 credits.  
 Philosophy (1), 1 credit.  
 Mineralogy, 1 credit.  
 Military, 2 credits.  
 Rhetoric and Oratory (1), 2 credits.

## RESTRICTED ELECTIVES.

Botany (6 or 1), 1 or 3 credits.  
 Zoölogy (5 or 1), 1 or 3 credits.  
 Geology (4 or 1), 1 or 3 credits.  
 Physiology, 1 credit.  
 Political Economy, 1 credit.  
 Philosophy (2, 4) 2 credits.  
 History (4), 1 credit.

## OPEN ELECTIVES.

Chemistry (advanced work) 1 to 3 credits.  
 Electrical Engineering (1), 1 credit.  
 English Literature (1, 2, 3), 1 or 3 credits.  
 Bacteriology, 1 credit.  
 Materia Medica, 1 or 2 credits.  
 Metallurgy, 1 credit.  
 Art and Design (5), 1 credit.  
 Pedagogy (1 to 6), 1 to 3 credits.  
 Astronomy (4), 1 credit.  
 Mathematics (5, 7), 1 or 4 credits.

## COURSES OF STUDY.

## REGULAR COURSE.

The following course is that required of regular chemical students.

## FIRST YEAR.

1. Chemistry (1); Advanced Algebra; French; Military.
2. Chemistry (2); Trigonometry; French; Military.
3. Chemistry (2); Conic Sections; French; Military.

## SECOND YEAR.

1. Chemistry (3); Physics; German; Military.
2. Chemistry (3); Physics; German; Military.
3. Chemistry (3); Physics; German; Military.

## THIRD YEAR.

1. Chemistry (3); German; Mineralogy; Themes and Elocution.
2. Chemistry (4); German; Elective; Themes and Elocution.
3. Chemistry (4); Two Electives; Themes and Elocution.

## FOURTH YEAR.

1. Chemistry (5); Two Electives.
2. Chemistry (5); Two Electives.
3. Chemistry (5); Two Electives.

## SUGGESTED COURSES.

The electives in the above course occur exclusively in the third and fourth years. As a guide in the choice of elective subjects the following suggested courses are submitted.

## COURSE 1.

## THIRD YEAR.

1. Chemistry (3); German; Mineralogy; Themes and Elocution.
2. Chemistry (4); German; Geology; Themes and Elocution.
3. Chemistry (4); Botany; Geology; Themes and Elocution.

## FOURTH YEAR.

1. Chemistry (5); Mental Science; Zoölogy.
2. Chemistry (5); Constitutional History; Zoölogy.
3. Chemistry (5); Political Economy; Zoölogy.

## COURSE 2.

## THIRD YEAR.

1. Chemistry (3); German; Mineralogy; Themes and Elocution.
2. Chemistry (4); German; Geology; Themes and Elocution.
3. Chemistry (4); Metallurgy; Geology; Themes and Elocution.

## FOURTH YEAR.

1. Chemistry (5); Physiology; Mental Science.
2. Chemistry (5); Zoölogy; Logic.
3. Chemistry (5); Botany; Political Economy.

## COURSE 3.

## THIRD YEAR.

1. Chemistry (3); German; Botany; Themes and Elocution.
2. Chemistry (4); German; Botany; Themes and Elocution.
3. Chemistry (4); Astronomy; Botany; Themes and Elocution.

## FOURTH YEAR.

1. Chemistry (5); Mineralogy; Mental Science.
2. Chemistry (5); Geology; Constitutional History, or Logic.
3. Chemistry (5); Geology; History of Philosophy, or Political Economy.

## COURSE 4.

## THIRD YEAR.

1. Chemistry (3); German; Physiology; Themes and Elocution.
2. Chemistry (4); German; Zoölogy; Themes and Elocution.
3. Chemistry (4); Chemistry Special; Botany; Themes and Elocution.

## FOURTH YEAR.

1. Chemistry (5); Mental Science; Mineralogy.
2. Chemistry (5); Pedagogy; Materia Medica.
3. Chemistry (5); Pedagogy; Materia Medica.

## COURSE 5.

## THIRD YEAR.

1. Chemistry (3); German; Physiology; Themes and Elocution.
2. Chemistry (4); German; Zoölogy; Themes and Elocution.
3. Chemistry (4); Electrical Measurements; Botany; Themes and Elocution.

## FOURTH YEAR.

1. Chemistry (5); Chemistry Special; Mineralogy.
2. Chemistry (5); Chemistry Special; Constitutional History, or Logic.
3. Chemistry (5); History of Philosophy; Political Economy.

## COURSE 6.

## THIRD YEAR.

1. Chemistry (3); German; Mental Science; Themes and Elocution.
2. Chemistry (4); German; Zoölogy; Themes and Elocution.
3. Chemistry (4); Astronomy; Botany; Themes and Elocution.

## FOURTH YEAR.

1. Chemistry (5); Chemistry Special; Mineralogy.
2. Chemistry (5); Chemistry Special; Geology.
3. Chemistry (5); Chemistry Special; Geology.

## COURSE IN PHARMACEUTICAL CHEMISTRY.

## FIRST YEAR.

1. Chemistry (1); Mathematics; French; Military.
2. Chemistry (2); Mathematics; French; Military.
3. Chemistry (2); Mathematics; French; Military.

## SECOND YEAR.

1. Chemistry (8); Botany; German; Military.
2. Chemistry (8); Botany; German; Military.
3. Chemistry (8); Botany; German; Military.

## THIRD YEAR.

1. Chemistry (8); Physiology; Physics; Themes and Elocution.
2. Chemistry (4); Materia Medica; German; Themes and Elocution.
3. Chemistry (4); Materia Medica; German; Themes and Elocution.

## FOURTH YEAR.

1. Chemistry (5); two Electives.
2. Chemistry (5); two Electives.
3. Chemistry (5); two Electives.

## TWO YEARS' COURSE IN PHARMACEUTICAL CHEMISTRY.

## FIRST YEAR.

1. Chemistry (1); Botany; German; Military.
2. Chemistry (2); Botany; German; Military.
3. Chemistry (2); Botany; German; Military.

## SECOND YEAR.

1. Chemistry (8); Chemistry (8); Physiology; Military.
2. Chemistry (8); Chemistry (4); Materia Medica; Military.
3. Chemistry (8); Chemistry (4); Materia Medica; Military.

## SCHOOL OF NATURAL SCIENCE.

The courses in the school of natural science are especially intended to provide a general preparation for professions and business pursuits requiring more of an acquaintance with the methods and facts of science than with those of literature. More specifically they are designed:

(1) To afford a thorough and liberal education with a basis in science and the modern languages.

(2) To prepare for the pursuit of specialties in zoölogy, entomology, botany, general biology, and geology, as a scientific career.

(3) To lay a liberal foundation in biological work and study for a course of medicine.

(4) To prepare for the teaching of the natural and physical sciences, either in the higher schools or as a professional specialty.

## NATURAL SCIENCE BUILDING.

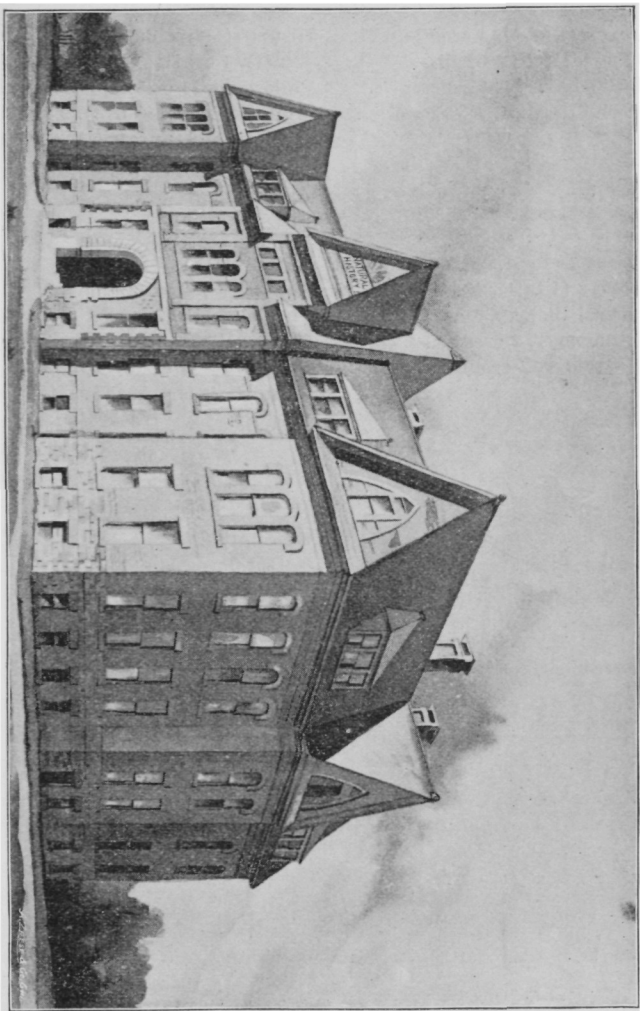
The natural science building erected in 1892, at a cost of \$60,000, is 94 feet in width by 134 feet in length, and two stories in height, besides basement and attic. There is a spacious, well lighted, central hall, around which, on all sides, are situated laboratory, lecture, and subsidiary rooms, all lighted by an abundance of windows spaced for the best results. On the main floors there are eight laboratories for students' work and four for the professors' private use, four lecture halls, as many office rooms, and the requisite number of cloak rooms and closets. The basement and attic give abundance of room for storage and work, and may be used for laboratory purposes.

The building will be occupied at the beginning of the year 1892-3 and to it will be transferred the work in botany, zoölogy, physiology, mineralogy, and geology. These subjects have heretofore been mostly provided for in University Hall, where the respective laboratories have extensive equipments. The new laboratories will receive the apparatus and material now in hand, together with considerable additions to be made during the year. With these superior quarters and advantages the instruction in natural science will be still more prominent than heretofore in this rapidly growing work of the University. Present provision is also made in the building for the State Laboratory of Natural History, for the office of the State Entomologist, and for the office of the Agricultural Experiment Station.

## CLASSIFICATION OF SUBJECTS AND REQUIREMENTS FOR GRADUATES.

The studies offered in this school are divided into three groups: (1) required studies, (2) restricted electives, and (3) open electives. Under the head of restricted electives both major and minor courses are given, the former the maximum offering and the latter the minimum requirement in their respective subjects.

No student may graduate from the school of natural science until he has completed all required courses as given in group 1, and has done at least nine terms' work on one major subject, or twelve terms' work on more than one from group 2; and taken at least minor courses in all the other subjects of this group in which such courses are offered. He must further have received forty full-term credits (including military) for University studies. The major courses must be chosen for a year at a time, and may not be changed without special permission.



NATURAL SCIENCE HALL

## GROUP 1. REQUIRED SUBJECTS.

French (4 or 1), 3 credits.	History (4), or Political Economy (1), 1 credit.
German (1, 2), 5 credits.	Philosophy (1 or 3), 1 credit.
Mathematics (1, 3), 2 credits.	Military Science (1, 2), 2 credits.
Art and Design (4), 2 credits.	Rhetoric and Oratory (1), 2 credits.

## GROUP 2. RESTRICTED ELECTIVES.

## MAJOR COURSES.

Botany (1 to 5) 3, 6, or 8 credits.  
 Zoölogy (1 to 4), 4, 6, or 9 credits.  
 General Biology, 1 credit.  
 Entomology, 2 credits.  
 Mineralogy, 1 credit.  
 Geology (1, 2), 3 or 5 credits.  
 Physics (1), 3 credits.  
 Chemistry (6, or 1 to 3), 3 or 6 credits.

## MINOR COURSES.

Botany (6), 1 credit.  
 Zoölogy (5), 1 credit.  
 Physiology, 1 credit.  
 Geology (4), 1 credit.  
 Physics (2), 1 credit.  
 Chemistry (1), 1 credit.

## GROUP 3. OPEN ELECTIVES.

French (2), 3 credits.	Descriptive Astronomy (1), 1 credit.
English Literature (1 to 3, or 6 to 8), 3 credits.	Meteorology, $\frac{1}{2}$ credit.
History (1, 2), 4 credits.	Political Economy, 1 credit.
Entomology, 2 credits.	Pedagogy (1, 2, 3), 3 credits.
Anthropology, $\frac{1}{2}$ credit.	Philosophy, 2 credits.
	Mathematics (5), 1 credit.

## SUGGESTED COURSES OF STUDY.

The following arrangement of studies in definite courses is presented as an aid to election by students. The work of the freshman year must be taken in some one of these courses, but beyond this they have no binding force.

## GENERAL COURSE IN BIOLOGY.

Students desiring uniform major courses in the biological subjects, with a maximum amount of the related sciences and the modern languages, are advised to take substantially the following course. It is recognized by the ILLINOIS STATE BOARD OF HEALTH as the equivalent of one year's study in a three years' medical course,



or of two years' medical study and one course of lectures in a four years' course in medicine.

## FIRST YEAR.

1. Chemistry; Advanced Algebra; Physiology; Military.
2. Chemistry; Trigonometry; Drawing; Military.
3. Chemistry; Astronomy; Drawing; Military.

## SECOND YEAR.

1. Botany; Physics; French; Military.
2. Botany; Physics; French; Military.
3. Botany; Physics; French; Military.

## THIRD YEAR.

1. Zoölogy; Mineralogy; German; Themes and Elocution.
2. Zoölogy; Geology; German; Themes and Elocution.
3. Zoölogy; Geology; German; Themes and Elocution.

## FOURTH YEAR.

1. Mental Science; Geology; German.
2. Thesis; Embryology; German.
3. Thesis; Political Economy; General Biology.

## SPECIAL BIOLOGICAL COURSES

Courses in botany and zoölogy are offered those wishing to specialize early in either of these sciences, and to avail themselves fully of all the resources of the University in the major subject chosen.

## COURSE IN BOTANY.

## FIRST YEAR.

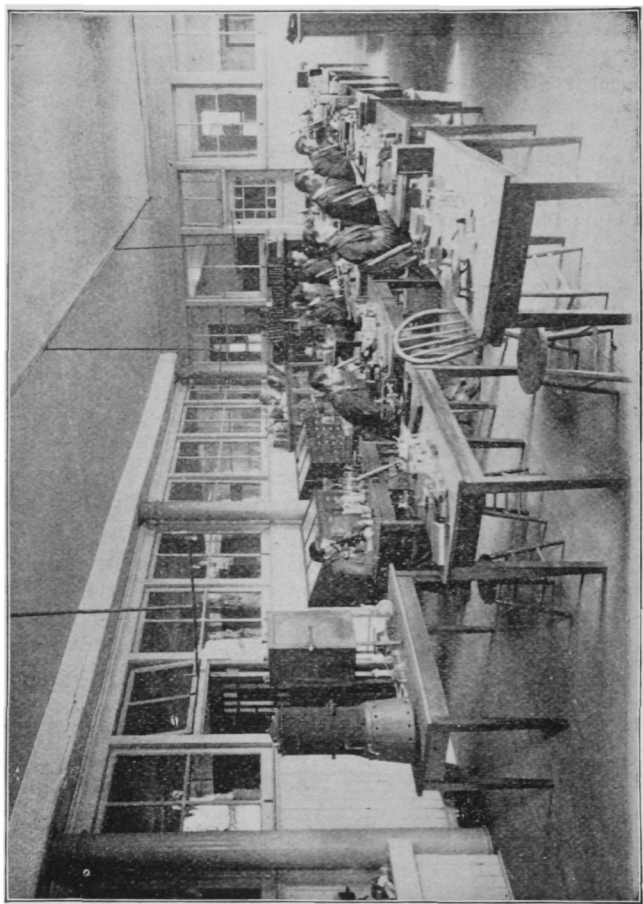
1. Chemistry; French; Advanced Algebra; Military.
2. Drawing; French; Trigonometry; Military.
3. Drawing; French; Astronomy; Military.

## SECOND YEAR.

1. Botany; Physiology; German; Military.
2. Botany; Zoölogy; German; Military.
3. Botany; Zoölogy; German; Military.

## THIRD YEAR.

1. Botany; ———; German; Themes and Elocution.
2. Botany; Physics; German; Themes and Elocution.
3. Botany; ———; ———; Themes and Elocution.



ZOOLOGICAL LABORATORY

## FOURTH YEAR.

1. Elective; Mental Science; History of Civilization.
2. Botany (Thesis); Logic; \_\_\_\_\_.
3. Botany (Thesis); Political Economy; General Biology.

## COURSE IN ZOOLOGY.

## FIRST YEAR.

1. Chemistry; French; Advanced Algebra; Military.
2. Drawing; French; Trigonometry; Military.
3. Drawing; French; Botany; Military.

## SECOND YEAR.

1. Zoölogy; Physiology; German; Military.
2. Zoölogy; Physics; German; Military.
3. Zoölogy; Astronomy; German; Military.

## THIRD YEAR.

1. Zoölogy; \_\_\_\_\_; German; Themes and Elocution.
2. Zoölogy; \_\_\_\_\_; German; Themes and Elocution.
3. Zoölogy; Geology; \_\_\_\_\_; Themes and Elocution.

## FOURTH YEAR.

1. Elective; Mental Science; History of Civilization.
2. Zoölogy (Thesis); Logic; \_\_\_\_\_.
3. Zoölogy (Thesis); Political Economy; General Biology.

## SCIENCE TEACHERS' COURSES.

Those who wish to fit themselves especially for teaching zoölogy, botany, and geology, in high schools, academies, seminaries, and the like, may advantageously substitute some of the pedagogical subjects of the course in philosophy and pedagogy, for German, mental science and political economy in the above general course in biology.

Similarly, pedagogical subjects may be elected by those taking special botanical or zoölogical courses and wishing to prepare for the teaching of botany or zoölogy as a specialty.

## GENERAL SCIENCE COURSE.

For those desiring to qualify themselves in physics and chemistry with special reference to teaching, the following science course has been arranged. Pedagogical or other subjects may be taken as electives in the junior and senior years.

## FIRST YEAR.

1. Chemistry; Advanced Algebra; French; Military.
2. Chemistry; Trigonometry; French; Military.
3. Chemistry; Conic Sections; French; Military.

## SECOND YEAR.

1. Chemistry; Physiology; German; Military.
2. Chemistry; Zoölogy; German; Military.
3. Chemistry; Botany; German; Military.

## THIRD YEAR.

1. Physics; Mineralogy; German; Themes and Elocution.
2. Physics; Geology; German; Themes and Elocution.
3. Physics; Logic; Geology; Themes and Elocution.

## FOURTH YEAR.

1. Geology; ———; ———.
2. History; ———; ———.
2. Psychology; ———; ———.

## COURSE PREPARATORY TO MEDICINE.

For students intending to study medicine, and not wishing to take a full biological course, a two years' course is offered, not leading to a degree.

1. Chemistry; Physics; Botany; Military.
  2. Chemistry; Anatomy; Botany; Military.
  3. Chemistry; Physics; Botany; Military.
1. Zoölogy; Physiology; French or Latin; Drawing; Military.
  2. Zoölogy; Embryology; French or Latin; Drawing; Military.
  3. Zoölogy; Histology; French or Latin; Drawing; Military.

# COLLEGE OF LITERATURE.

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SCHOOL OF ENGLISH AND MODERN LANGUAGES; SCHOOL OF ANCIENT  
LANGUAGES; SCHOOL OF PHILOSOPHY AND PEDAGOGY.

## FACULTY.

THOMAS J. BURRILL, PH.D., ACTING REGENT, Botany.  
EDWARD SNYDER, M.A., German.  
JAMES D. CRAWFORD, M.A., History.  
JAMES H. BROWNLEE, M.A., Rhetoric and Oratory.  
NATHANIEL BUTLER, JR., M.A., English Language and Literature.  
FRANK F. FREDERICK, Industrial Art and Design.  
ELBRIDGE R. HILLS, First Lieut., U.S.A., Military Science.  
—— ———, Psychology.  
HERBERT J. BARTON, M.A., Latin.  
M. R. PARADIS, M.A., French.  
CHARLES M. MOSS, M.A., Ph.D., Greek.

## MEMBERS OF OTHER FACULTIES GIVING INSTRUCTION IN THIS COLLEGE.

SAMUEL W. SHATTUCK, C.E., Mathematics.  
STEPHEN A. FORBES, PH.D., Zoölogy.  
CHARLES W. ROLFE, M.S., Geology.  
ARTHUR W. PALMER, SC.D., Chemistry.  
SAMUEL W. PARR, M.S., Chemistry.  
SAMUEL W. STRATTON, B.S., Physics.  
GEORGE W. MYERS, M.L., Mathematics.

## OBJECT OF THE COURSES.

The object of the courses in this College is to furnish a sound and liberal education to fit students for the general duties of life, and especially to prepare them for those business pursuits which require a large measure of literary and scientific knowledge and training. They meet the wants of those who wish to prepare themselves for

the labors of the press as editors and publishers, for teachers in the higher institutions, or for the transaction of public business.

#### INSTRUCTION.

The plan of instruction embraces, besides the ordinary text book study, lectures and practical exercises in all the departments, including original research, essays, criticism, and other work intended to illustrate the studies pursued, and to exercise the student's own powers.

A prominent aim will be to teach the right use of books, and thus to prepare the students for self-directed investigation and study, which will extend beyond the curriculum of his school and the period of his graduation. With this view, constant use of the already ample and continually enlarging stores of the library will be required and encouraged.

The library is well supplied with works illustrating the several periods of English, American, French, and German literature, as also those of ancient literature. It contains at present over twenty thousand well selected volumes, and is constantly growing by purchase at home and abroad. Valuable American and foreign periodicals are received regularly in the reading room.

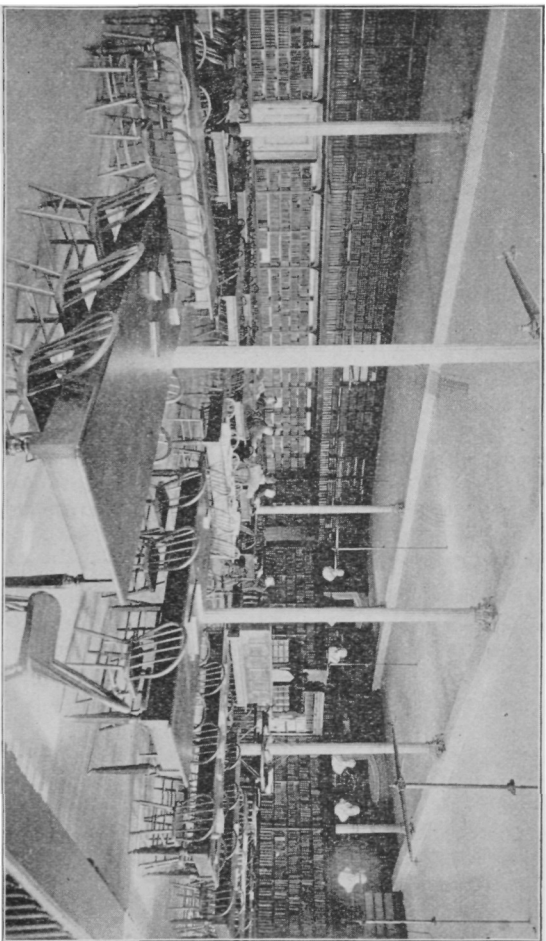
The facilities for the intelligent study of Latin and Greek have been greatly increased by the purchase of a large number of maps, pictures, and views illustrating the life, art, and architecture of Greece and Rome. These are mounted or framed and placed in the recitation room, and are constantly studied in connection with the class work. In this way a realism is given to the literary and artistic achievements of these great peoples; and with access to a good equipment in other respects and a good art gallery, the student of ancient languages is in a position for intelligent and enjoyable study.

The class room devoted to English literature is furnished with portrait engravings, etc., of the principal authors studied, and other illustrative equipments, while the work in elocution is aided by models in *papier maché* of the vocal organs.

#### PHILOSOPHY.

[The courses in Philosophy are open to such students only as have completed two years of University work.]

1. Mental Science.—The subjects customarily studied under this head are (a) the mental subject, and (b) its functions. This in-



LIBRARY

volves a discussion of the ego as a personality, and as evincing certain capacities, and hence to an enumeration and examination of such capacities, with a view of determining the conditions under which they fulfill their function. Under sensation, the primary mental fact, arises a consideration of the relation of mind and the nervous system. Lectures upon this important subject are given to supplement the usual text book discussions. Analysis of certain phases of thought leads to a consideration of the question whether knowledge does not contain some elements for the production of which the mind alone is responsible. (The intuitive and contrary views.) The primary view of the study is to examine the mind as an activity; but sight is not lost of the opportunity afforded to awaken self-reflection, and thus, together with the implications of the subject itself, to make it a propædeutic to further researches in the philosophical branches.  
*Fall term, 5 hours a week.* ——— ———

2. Introduction to Philosophy.—Nature and problems of philosophy. Relation of philosophy to the particular sciences. Presuppositions of experience; space, time, ideas of cause, effect, self-cause or self-activity; dependent and independent beings; dogmatism, scepticism, and criticism; theory of knowledge; philosophy of nature and of mind, ethics; æsthetics; tendencies and schools in philosophy. *Winter term, 5 hours a week.* ——— ———
3. Logic.—This study lies at the basis of the natural or logical organization of the studies of the curriculum. Any given topic in arithmetic, for example, is logically preceded and followed by others. Logic also gives a key to the deeper or philosophical discussion of the problems of mind, Some of its topics are as follows:  
 Principles of logic; conditions of valid thinking; forms of arguments; fallacies and their classification; inductive and deductive reasoning; principles and methods of investigation; practical applications of logic in the construction of arguments, in the detection and answer of fallacies, and the formation of the habits of thinking and common judgment of life. *Winter term, 5 hours a week.* ——— ———
4. History of Philosophy.—The systems of ancient, and part of those of modern philosophy are studied using Schuyler's History of Philosophy as a basis of work. Supplementary lectures and discussions aim mainly to enforce the notion of philosophy as a



legitimate field of investigation, to set forth its struggle to present an acceptable ontology and to explain the theories of cognition growing out of the presuppositions of the different systems. The points of harmony and discord between the systems are elaborated, the purpose being to extract from each whatever seems best authenticated by this comparative study. *Spring term, 5 hours a week.* ——— ———

## PEDAGOGY.

1. Educational Psychology.—Its chief purpose is the awakening of the pedagogical consciousness. Some of its topics are: The production of sense perceptions; clear and obscure consciousness; laws for the reciprocal action of ideas; reproduction and memory; the imagination and its significance for instruction and moral training; apperception and its supreme importance in education; attention; the fate of concepts; thinking; the judgment, the syllogism; formation and kinds of notions; fancy; the ego as concept of the body, as meeting place of concepts; the historical ego; "we" as social ego; feelings, their content, tone, strength, and duration; relation of feelings to concepts; kind of feeling; desire, and its relations to thought and feeling; classification of desires; will and its rise and development; freedom in mental states; reflection and self-determination; psychological freedom; reason; character. *Fall term, 5 hours a week.*  
————— —————
2. Science of Instruction.—Purposes of instruction. Interest, direct, permanent, and many sided, the fundamental condition of all sound instruction. The selection, arrangement, and coordination of the matter of instruction; general methods of instruction, as in the apperception of individual notions, the nature and significance of generalizations in instruction (pedagogical significance of inductive methods); the fixing and utilizing of knowledge through concrete application; practical applications of the foregoing through model exercises prepared by the students. *Winter term, 5 hours a week.* ——— —————
3. Special Methods in Education.—This work includes a full pedagogical treatment of each of the common branches, as reading, language, arithmetic, grammar, history, drawing, etc. It seeks

to answer such questions as the following: What are the essential or governing ideas in this subject? What is the natural order of their development? What phases of this natural or logical development correspond to the various phases in the development of the child; or, what would an ideal course of study show in each grade, so far as the subject is concerned? How must the general laws of instruction be applied to this special subject? What is the history of this study in school education, as to its introduction and development, as to the development of methods of teaching it? What is the specific educational value of this subject in the discipline of mind and in practical usefulness? What is its relation to the other subjects of the curriculum? *Spring term, 5 hours a week.* ———

4. School Supervision.—Historical view of school supervision in the United States; character of school supervision; state, county, and city supervision; the city superintendent of schools, his relation to pupils, to teachers; gradation and course of study; promotions; relation of superintendent to parents, to physical and moral training of pupils, to government and discipline; his relation to the board of education, to agencies for the improvement of teachers. *Fall term, 5 hours a week.* ——— ———.
5. History of Education.—The history of education traces the growth of educational ideals, showing how these are determined by national institutions and modes of thought, and also how these ideals in turn help to shape the further development of national life. Special attention is given to the growth of modern pedagogical doctrines, notably those of Comenius, Rousseau, Pestalozzi, Herbart, and Froebel on the continent, and those of Locke, Bain, and Spencer in England. The central and determining principle of each educational movement or system is sought and carried to its logical conclusion. These principles are then articulated and exhibited in their organic development. The history of education is thus no longer a chaos of unrelated or repeated facts, but an organic whole, capable of being understood and remembered. In addition to this organic general view, each of the important notions of education, such as the principles of right methods, is traced in its development and transformations through the modern systems of education. *Winter term, 5 hours a week.* ——— ———.

6. Philosophy of Education.—The basis of this work will be Bain's Education as a Science, and Rosenkranz's Philosophy of Education. *Spring term, 5 hours a week.* ——— ———.

#### POLITICAL ECONOMY.

1. Political Economy.—At present a single term's work is given in this subject, devoted to the study of standard text books and to assigned reading. *Spring term, 5 hours a week.* Professor CRAWFORD.

#### HISTORY.

The study of history extends through the junior and senior years and includes general history, the history of civilization, and the history of the English and United States constitutions. The work of the two years is intended to be continuous, each term being helped by the one preceding; but the study of the constitutional history of the United States is arranged separately for students who have not had the course in general history. The work of the course is presented by text books, topics, and lectures, and it is desired that students should obtain a considerable acquaintance with historical writers as well as facts.

1. General History.—Three terms are given to general history (some previous knowledge of the subject being assumed), in tracing the outlines of the world's progress from the first appearance of civilization. The work is intended to be much more than an outline, however, and cause and effect, the philosophy of history, are carefully looked to as preparing the way for the special study of the history of civilization which follows. *Fall, winter, and spring terms, 5 hours a week.* Professor CRAWFORD.
2. History of Civilization.—In this subject the early state of mankind and the history of progress from that state on through the Greek and Roman periods is presented in lectures, followed by a consideration of the civilization of modern Europe on the basis of Guizot's Lectures. References are made to a considerable range of literature, and essays on various topics are required. *Fall term, 5 hours a week.* Professor CRAWFORD.  
*Required:* History, 1.
3. Constitutional History.—In the first term the time is given to an historical study of the English constitution with special refer-

ence to principles and precedents belonging equally to modern England and the United States. In the second term an historical and critical study is made of the constitution of the United States. *Winter and spring terms, 5 hours a week.* PROFESSOR CRAWFORD.

*Required:* History, 1, 2.

4. Constitutional History.—For students who have not had the work in general history, a term is arranged giving a brief sketch of the principles of English government, and a study of the constitution of the United States. *Winter term, 5 hours a week.* PROFESSOR CRAWFORD.

#### GREEK.

The purpose of the instruction in this department may be stated as follows: First, to acquaint the student with the principles of the language itself, beginning with those most essential, and progressing toward those less so. A systematic carrying out of this purpose must lead to more rational results, and by an easier route, than is sometimes reached in linguistic study. Much stress is laid upon the fact that the laws of syntax are the laws of mental operation, and that a proper regard for the logical order of thought must lend help to translation. Every device at hand for impressing this fact upon the student will be persistently used. Extemporaneous translations will be required throughout the course as furnishing the most available application, under the stimulus of the class room, of the purpose enunciated. A second purpose is to employ the literature read as a basis for the consideration of those numerous problems of life and civilization which the Greeks attempted to solve. The debt of present civilization to the Greek movement is so large and so varied that abundant opportunity is afforded for a fruitful study of the growth and descent of ideas and institutions. Conversations upon the governmental, moral, educational, and esthetic ideas of the Greeks will be used to elucidate these questions, and students will be required to use the library, and the numerous photographs and other apparatus of instruction that will be at their command for further information in special work to be assigned from time to time.

The two purposes are, then, to deal rationally with the language as a language, and to make this study a fruitful source of information upon questions that must concern every thoughtful person.

Following is a detailed account of the work presented for the year 1892-3:

1. Selections from Herodotus.—Special studies in verb syntax. Ionic etymology. Greek prose. *Mather. Fall term, 5 hours a week.*  
Professor Moss.
2. Selections from Xenophon's Hellenica.—Studies in syntax. Greek prose. Consideration of the causes of the downfall of Athens. *Manatt. Winter term, 5 hours a week.* Professor Moss.  
*Required:* Greek, 1.
3. Xenophon's Memorabilia.—Studies in syntax. Consideration of the work of Socrates as a public teacher. *Winans. Spring term, 5 hours a week.* Professor Moss.  
*Required:* Greek, 1, 2.
4. Selections from the Orations of Lysias and Demosthenes.—Comparative study of the syntax of the two authors. Discussions upon the development of Greek oratory. *Stevens; Tyler; Tarbell. Fall term, 5 hours a week.* Professor Moss.  
*Required:* Greek, 1, 2, 3.
5. Plato's Apology; and Selections from the Phaedo.—Studies in the rhetoric and idiom of Plato. Outline of his philosophical views, so far as touched upon in the text read. *Wagner. Winter term, 5 hours a week.* Professor Moss.  
*Required:* Greek, 1, 2, 3, 4.
6. Aeschylus's Prometheus Bound, and Euripides' Alcestis.—Studies in the history and characteristics of the Greek drama. *Prickard; Jerram. Spring term, 5 hours a week.* Professor Moss.  
*Required:* Greek, 1, 2, 3, 4, 5.
7. Homer's Illiad.—Studies in the Homeric syntax. Lectures upon the civilization represented in the poems and upon the interpretative character of the two epics. *Seymour, or Keep. Fall term, 5 hours a week.* Professor Moss.  
*Required:* 1, 2, 3, 4, 5, 6.
8. Seminary.—Aristophanes' Clouds. Greek Comedy. Textual criticism. *Winter term, 5 hours a week.* Professor Moss.  
*Required:* 1, 2, 3, 4, 5, 6, 7.
9. Seminary.—Poets. Social character of lyric poetry. Comparative study of the same. *Buchholz. Spring term, 5 hours a week.* Professor Moss.  
*Required:* Greek, 1, 2, 3, 4, 5, 6, 7, 8.

## LATIN.

1. (a) Livy.—Selections from the XXI. and XXII. books. A study of Hannibal and of the military systems of the times. A thorough review of syntax, when necessary, with a careful study of subjunctives.  
(b) Prose Composition.—The work is based on Livy, and that author's text in representative passages is made the subject of careful analysis. The writing is based on this analysis. *Fall term, 5 hours a week.* Professor BARTON.
2. Cicero de Amicitia.—An introduction is here made to the philosophical system of the Romans. Grammatical drill is lessened and a constant endeavor is made to read with a view to appreciate the quality of the author. *Winter term, 5 hours a week.* Professor BARTON.  
*Required:* Latin, 1.
3. Horace. Selections from the Odes.—The metres are carefully studied. The selections are designed to bring into prominence the beauty of the poet. Enjoyment as well as knowledge and discipline are sought. *Spring term, 5 hours a week.* Professor BARTON.  
*Required:* Latin, 1, 2.
4. Tusculan Disputations.—The first book of the Disputations is read together with extracts from Cato Major, de Senectute, and Scipio's Dream. *Fall term, 5 hours a week.* Professor BARTON.  
*Required:* Latin, 1, 2, 3.
5. Horace's Satires. Selections.—A careful study is made of the social life of the Romans. *Winter term, 5 hours a week.* Professor BARTON.  
*Required:* Latin, 1, 2, 3.
6. Tacitus. The Germania and Agricola. Roman Archaeology.—The sculpture and painting of the Romans. *Spring term, 5 hours a week.* Professor BARTON.  
*Required:* Latin, 1, 2, 3.
7. Quintilian.—Selections from the X. and XII. books. The whole field of classical literature is here studied and reviewed. *Fall term, 5 hours a week.* Professor BARTON.  
*Required:* Latin, 1, 2, 3.

8. Juvenal's Satires.—Especial reference to the private life of the Romans. *Winter term, 5 hours a week.* Professor BARTON.  
*Required:* Latin, 1, 2, 3.
9. Cicero de Officiis.—In this connection a study of the ethics of the Roman world. *Spring term, 5 hours a week.* Professor BARTON.  
*Required:* Latin, 1, 2, 3.

## FRENCH.

Of the four courses provided in this subject the first three are intended for students of the language as such; the other for those who especially wish to make use of French in the prosecution of other studies. The former are mainly for students in literary courses and constitute three years of progressive work; the fourth course is for those whose chief attention is given to technical and scientific subjects.

1. For Students in College of Literature.—The course begins with a study of grammatical constructions, with exercises upon pronunciation, and with easy translations from French into English. As the work progresses greater attention is paid to grammatical rules and their applications and translations from English into French are required. Conversation is introduced as soon as the way opens. Careful attention is given to French pronunciation. *Super's Reader; Souvestre's Confessions d'un Ouvrier; Sandeau's M'le de LaSeigilère.* *Fall, winter, and spring terms, 5 hours a week.* Professor PARADIS.
2. For Students in College of Literature.—This is a second year's work for those who have had course 1. It consists of readings and translations of various selections from classical and modern writers with a further study of syntax, of idioms, etc., and with exercises in composition and conversation. Essays in French are required. *Fall, winter, and spring terms, 5 hours a week.* Professor PARADIS.  
*Required:* French, 1.
3. For Students in College of Literature.—This is a third year's study following courses 1 and 2 and is elective by students who want to become further proficient in the language and literature. The instruction is given in French. *Fall, winter, and spring terms, 5 hours a week.* Professor PARADIS.  
*Required:* French, 1, 2.

4. For Students in Colleges of Agriculture, Engineering, and Science.—This is similar to course 1; but less attention is given to grammar and more to translation from French into English, in order that students may learn to read at sight works in various departments of science and art. *Super's Reader*; *Souvestre's Confessions d'un Ouvrier*; *Sandeau's M<sup>lle</sup> de La Seiglière*. *Fall, winter, and spring terms, 5 hours a week.* Professor PARADIS.

#### ITALIAN AND SPANISH.

One year courses in these languages will be given in alternate years—the Italian course, in 1892–93; the Spanish, in 1893–4.

1. Italian.—Selected readings, composition, and conversational exercises. *Sauer's Italian Grammar and Reader*. *Fall, winter, and spring terms, 5 hours a week.* Professor SNYDER.

*Required:* French, 1, or 4.

1. Spanish.—Selected readings, composition, and conversational exercises. *Knapp's Spanish Grammar and Reader*. Professor PARADIS.

*Required:* French, 1, or 4.

#### GERMAN.

There are three years of instruction given in German. The first is devoted to the study of grammar. In the second a select course of reading is followed with exercises in composition and conversation. In the third the study is conducted in German; the history of literature is studied from a manual and by lectures, accompanied by critical reading of classic and latest authors.

1. For Students in College of Literature.—*Joynes-Meissner German Grammar*; *Joynes's German Reader*. *Fall, winter, and spring terms, 5 hours a week.* Professor SNYDER.
2. For Students in College of Literature.—Reading, composition, and conversation. *Harris's German Composition*, *White's German Prose*, and a selection of Classics. *Goethe's Iphigenie*, or *Hermann and Dorothea*; *Schiller's Maria Stuart*, *Wilhelm Tell*, or *Jungfrau von Orleans*, etc. Also selections of modern prose. *Frietag's Aus dem Staate Friedrich des Grossen*; *Jensen die Braune Erica*; *Fouqué's Undine*, etc. *Fall, winter, and spring terms, 5 hours a week.* Professor SNYDER.

*Required:* German, 1.



3. For Students in College of Literature.—The study in this year will be conducted in German, History of German Literature, Manual, Wenkibach *Deutsche Literaturgeschichte*. Lectures on same. Readings and reports on assigned reading. Texts, Goethe's *Faust* (1st part), and Torquato Tasso; Lessing's *Nathan der Weise*, and *Minna von Barnheim*; Schiller's *Wallenstein*; Buchheim's *Deutsche Lyrik*, and selections from modern authors. *Fall, winter, and spring terms, 5 hours a week.* Professor SNYDER.  
*Required:* German, 1, 2.
4. Special one year's course for students in Colleges of Agriculture, Engineering, and Science. *Otis's German Grammar; Joyne's Reader; Gore's German Science Reader.* *Fall, winter, and spring terms, 5 hours a week.* Professor SNYDER.

## ENGLISH LITERATURE.

The aim of instruction in this department is to acquaint the student with the resources of English literature, to teach him how to study its best productions, and to awaken and confirm in him a love for such study.

The methods adopted for securing these ends are intended also to involve general discipline equal to that afforded in the study of the ancient classics. All the courses except 6, 7, and 8 are required for the degree of B.L.

1. American Authors.—The first term of the freshman year is given to a general survey of American literature. This survey is mainly critical, rather than historical and biographical. The student is expected also to read and write a critique upon a book by an American author, selected from a prescribed list. The student also prepares and enters in a note book, a general historical outline of the whole subject, worked up by himself in the library of the University. *Scudder's American Prose and American Poems.* *Fall term, 5 hours a week.* Professor BUTLER.
2. British Authors.—The second and third terms of the freshman year are devoted to a similar survey of the literature of England since 1550. Here also the historical and biographical side of the study is kept subordinate to the critical. Using the texts as a basis of induction, the student is led to see for himself through what phases English literature has passed in its devel-

opment; he then supplements his own inferences by the opinions of the best critics, and writes one paper upon each of the great periods of modern English literature. The historical outline is made and entered in a note book, as in the case of American authors. *Hale's Longer English Poems; Garnett's English Prose from Elizabeth to Victoria. Winter and spring terms, 5 hours a week.* Professor BUTLER.

*Required:* English Literature, 1.

3. English Classics (Prose).—The first term of the sophomore year is occupied with the study of English prose masterpieces. The list of authors selected varies with each year. The work of the last term in this subject consisted of a study of Edmund Burke, Carlyle's *Heroes and Hero Worship*, and Bacon's *Essays*. The purpose of this study is to bring the mind of the student into contact with specimens of the best thought and sentiment embodied in English prose that he may learn how to get out of such productions what they have for him, and that he may develop a taste for this kind of study, such as will insure his voluntary continuance of it in the future. The student is also led to consider what a given author represents in the world of thought and sentiment, why one should read his works, and on what his claim to permanence rests. *Fall term, 5 hours a week.* Professor BUTLER.

*Required:* English Literature, i, 2.

4. English Classics (Verse).—In the second term of the sophomore year a study is made of English poetry of the nineteenth century, as represented by Wordsworth, Tennyson, and Browning. Rolfe's *Selections* are used, and the student's judgment, based on careful study of the poems, is afterwards confirmed or corrected by a study of the best critical estimates of these writers, by such men as De Quincy, Lowell, Principal Shairp, Matthew Arnold, and Edward Dowden. Thus a very useful acquaintance is incidentally formed with the valuable literature of general criticism and interpretation, though this is kept subordinate and subsequent to the study of the text itself. *Rolfe's Selections. Winter term, 5 hours a week.* Professor BUTLER.

*Required:* English Literature, 1, 2, 3.

5. Shakspeare.—The sophomores study Shakspeare during the third term. One tragedy, one comedy, and one historical play constitute the term's work. Familiar lectures are given upon the

origin and nature of the drama. Paraphrased narratives of parts of the plays are required, and one paper is written upon Shakspeare. *Hudson's or Rolfe's Editions*. *Spring term, 5 hours a week*. Professor BUTLER.

*Required:* English Literature, 1, 2, 3, 4.

6. Old English (Anglo-Saxon; A. D. 650-1154).—This study is intended to lead the student to understand the origin and development of the English language and literature, and the relation of English to kindred languages. *Sweet's Anglo-Saxon Reader*. *Full term, 5 hours a week*. Professor BUTLER.

*Required:* English Literature, 1, 2, 3, 4, 5, or German, 1, 2.

7. Middle English (A. D. 1154-1362).—The work in middle English follows the term in old English and can be taken by those only who have done that work. *Morris's Specimens of Early English, Part 1*. *Winter term, 5 hours a week*. Professor BUTLER.

*Required:* English Literature, 1, 2, 3, 4, 5, 6, or 6 and German 1, 2.

8. Science of Languages.—This work is for students who have done the work of the first and second senior terms. *Whitney's Life and Growth of Languages*. *Spring term, 5 hours a week*. Professor BUTLER.

*Required:* English Literature, 1, 2, 3, 4, 5, 6, 7, or 6, 7, and German 1, 2.

#### RHETORIC AND ORATORY.

The object of the prescribed courses outlined below is not so much the acquisition of knowledge regarding English as skill in the use of English. They are chiefly designed to furnish the student with the ability to write well and to speak well,—to express their thoughts, both with the pen and with the voice, in a clear, effective manner.

1. Themes and Elocution.—Students from the Colleges of Agriculture, Engineering, and Science do their work in this department during their junior year. No text book is used; but in order that all practice in writing may be intelligent, a fair working knowledge of the principles of composition is conveyed in lectures. Ten themes are presented by each person, each of which, after correction by the instructor, is handed back to the student to be carefully re-written and returned to the instructor.

Further on in the work of the year is included a carefully graded series of twenty lessons in elocution. *Phyfe's How I Should Pronounce. Fall, winter, and spring terms, 3 hours a week.* Professor BROWNLEE.

2. Themes and Elocution.—Students from the College of Literature do the work of this department during the freshman and the senior years. Two hours a week throughout the freshman year are devoted to rhetoric and theme writing. Ten themes are required, and each, after correction, is re-written by the student. One hour a week throughout the senior year is devoted to oratorical delivery. Six lectures are given upon the art of oratory. *Genung's Practical Rhetoric. First year, 2 hours a week; fourth year, one hour a week.* Professor BROWNLEE.
3. Themes and elocution.—To meet the wants of those desiring a more extended training in elocution and oratory than is furnished by the prescribed course, an elective course is provided. *Fall, winter, and spring terms, 2 hours a week.* Professor BROWNLEE.

The following subjects, offered to students in the College of Literature, are described elsewhere as noted:

In College of Engineering—

Mathematics, 1, 3, 5, 7; Astronomy, 1; Physics, 1, 2.

In College of Science—

Chemistry, 1, 6, or 1, 2, 3; Mineralogy, 1; Geology, 5 or 1; Meteorology, 1; Botany, 6, or 1 to 4; Zoölogy, 5, or 1, 2, 4; Entomology, 1; Physiology, 1; Anthropology, 1.

#### CLASSIFICATION OF STUDIES AND REQUIREMENTS FOR GRADUATION.

Forty term credits (including military) constitute the requirement for a degree in literary courses. Every student must take the required subjects (11 terms), must select at least two majors of six terms each (12 terms) and three minors (3 terms) from the restricted electives, and may choose 14 or more subjects from the remaining majors and minors, or from the open electives; *Provided, That* each term one study must be chosen from the list prescribed by state law. For degrees of B. A. the two majors must be taken in Greek and Latin; for degree of B. L. the majors may be chosen in English, Latin, German, French, or Pedagogy.

Election of mathematics, physics, or chemistry from open electives excuses from required studies of same kind.

The prescribed studies must be taken at the time when they are set down in all suggested courses of study.

In electing studies students must be careful to observe the preparation required for each, as given under separate subjects; no deviation will be allowed.

#### REQUIRED SUBJECTS.

History—3 credits.	Physics—1 credit.
Mathematics—2 credits.	Themes and Elocution—2 credits.
Chemistry—1 credit.	Military—2 credits.

#### RESTRICTED ELECTIVES.

##### MAJORS.

English—6 or 9 credits.
Greek—6 or 9 credits.
Latin—6 or 9 credits.
German—6 to 9 credits.
French—6 to 9 credits.
Pedagogy—6 credits.

##### MINORS.

Constitutional History—2 credits.
Political Economy—1 credit.
History of Civilization—1 credit.
History of Philosophy—1 credit.
Psychology—1 credit.
Logic—1 credit.

#### OPEN ELECTIVES.

Italian—3 credits.	Physiology—1 credit.
Spanish—3 credits.	Mathematics—3 or 6 credits.
Oratory— $\frac{1}{2}$ credit.	Physics—3 credits.
Art and Design—3 or 6 credits.	Entomology—2 credits.
Botany—1 to 3, or 6 credits.	Mineralogy—1 credit.
Zoölogy—1 to 3, or 6 credits.	Anthropology and Meteorology—1 credit.
Chemistry—3 or 6 credits.	Astronomy—1 credit.
Geology—1 or 3 credits.	

#### SUGGESTED COURSES OF STUDY.

These courses are presented as an aid to election by students. The work of the freshman year must be taken as given in some one of these courses. Electives and specialties ought to be left for the junior and senior years, when the student has gained a more correct estimate of his own powers and preferences, as well as of his ultimate aim in life.

## ENGLISH COURSE.

## FIRST YEAR.

1. American Authors; Mathematics; French, German, or Latin; Theme Writing; Military.
2. British Authors; Mathematics; French, German, or Latin; Theme Writing; Military.
3. British Authors; Astronomy; French, German, or Latin; Theme Writing; Military.

## SECOND YEAR.

1. English Classics (Prose); Physiology; French or German; Military.
2. English Classics (Verse); Physics; French or German; Military.
3. English Classics (Shakespeare); Botany; French or German; Military.

## THIRD YEAR.

1. History; Chemistry; French or German; Italian or Spanish.
2. History; Zoölogy; French or German; Italian or Spanish.
3. History; Geology; French or German; Italian or Spanish.

## FOURTH YEARS.

1. Old English (449-1066); Mental Science; History of Civilization; Elocution.
2. Middle English (1066-1362); Logic; History of the Constitution; Elocution.
3. Science of language; Political Economy; History of Philosophy; Elocution.

## MODERN LANGUAGE COURSE.

## FIRST YEAR.

1. American Authors or Latin; Mathematics; French, 1; Theme Writing.
2. British Authors or Latin; Mathematics; French, 1; Theme Writing.
3. British Authors or Latin; Astronomy; French, 1; Theme Writing.

## SECOND YEAR.

1. French, 2; Physiology; German, 1; Free Hand Drawing; Military.
2. French, 2; Physics; German, 1; Free Hand Drawing; Military.
3. French, 2; Botany; German, 1; Free Hand Drawing; Military.

## THIRD YEAR.

1. History; Chemistry; German, 2; Italian, Spanish, or French, 3.
2. History; Zoölogy; German, 2; Italian, Spanish, or French, 3.
3. History; Geology; German, 2; Italian, Spanish, or French, 3.

## FOURTH YEAR.

1. Psychology; History of Civilization; Old English, Italian, Spanish, or German, 3; Elocution.
2. Logic; Constitutional History; Middle English, Italian, Spanish, or German, 3; Elocution.
3. Political Economy; History of Philosophy; Science of Language, Italian, Spanish, or German, 3; Elocution.

## LATIN COURSE.

## FIRST YEAR.

1. Latin; French, or German; Mathematics; Theme Writing; Military.
2. Latin; French, or German; Mathematics; Theme Writing; Military.
3. Latin; French, or German; Astronomy; Theme Writing; Military.

## SECOND YEAR.

1. Latin; French, or German; Physiology; Free Hand Drawing; Military.
2. Latin; French, or German; Physics; Free Hand Drawing; Military.
3. Latin; French, or German; Botany; Free Hand Drawing; Military.

## THIRD YEAR.

1. Latin; History; Chemistry; Pedagogy.
2. Latin; History; Zoölogy; Pedagogy.
3. Latin; History; Geology; Pedagogy.

## FOURTH YEAR.

1. History of Civilization; Psychology; Early English, French, or German; Elocution.
2. Constitutional History; Logic; Middle English, French, or German; Elocution.
3. Political Economy; Constitutional History, or History of Philosophy; Science of Language, French, or German; Elocution.

## CLASSICAL COURSE.

(With maximum of Science.)

## FIRST YEAR.

1. Latin; Greek; Mathematics; Theme Writing; Military.
2. Latin; Greek; Mathematics; Theme Writing; Military.
3. Latin; Greek; Astronomy; Theme Writing; Military.

## SECOND YEAR.

1. Latin; Greek; Physiology; Zoölogy, or Botany; Military.
2. Latin; Greek; Physics; Zoölogy, or Botany; Military.
3. Latin; Greek; Free Hand Drawing; Zoölogy, or Botany; Military.

## THIRD YEAR.

1. Greek; History; Chemistry; English Classics.
2. Greek; History; Chemistry; English Classics.
3. Greek; History; Chemistry; English Classics.

## FOURTH YEAR.

1. German, or French; Mental Science; Early English; Elocution.
2. German, or French; Logic; Middle English; Elocution.
3. German, or French; Political Economy; Science of Language; Elocution.

## CLASSICAL COURSE.

(With maximum of modern language, or pedagogy.)

## FIRST YEAR.

1. Latin; Greek; Mathematics; Theme Writing; Military.
2. Latin; Greek; Mathematics; Theme Writing; Military.
3. Latin; Greek; Astronomy; Theme Writing; military.

## SECOND YEAR.

1. Latin; Greek; Physiology; Free Hand Drawing; Military.
2. Latin; Greek; Physics; Free Hand Drawing; Military.
3. Latin; Greek; Free Hand Drawing; Anthropology and Meteorology; Military.

## THIRD YEAR.

1. German; History; Chemistry; Pedagogy.
2. German; History; Zoölogy; Pedagogy.
3. German; History; Geology; Pedagogy.

## FOURTH YEAR.

1. German; French; Mental Science; History of Civilization; Elocution.
2. German; French; Logic; Constitutional History; Elocution.
3. German; French; Political Economy; History of Philosophy; Elocution.

## PHILOSOPHY AND PEDAGOGY.

The first and second years of this course may be those of either of the other courses in the College of Literature.



## THIRD YEAR.

1. Mental Science; Psychology; Chemistry; History; French, German, or Latin.
2. Science of Instruction; Zoölogy; History; French, German, or Latin.
3. Special Methods; Geology; History; French, German, or Latin.

## FOURTH YEAR.

1. School Supervision; Educational Psychology; History of Civilization; Early English; Elocution.
2. History of Education; Logic; Constitutional History; Middle English; Elocution.
3. Philosophy of Education; Political Economy; History of Philosophy; Science of Language; Elocution.

## SCHOOL OF ART AND DESIGN.

PROFESSOR FRANK FORREST FREDERICK.  
EDITH ADELAIDE SHATTUCK.

This school subserves a two-fold purpose. (1) It affords to the students of the several colleges the opportunity to acquire such a knowledge of free hand drawing as their chosen courses may require. (2) It offers to such as have a talent or taste for art the best facilities for pursuing studies in industrial designing or other branches of fine art.

Special students, not otherwise connected with the University, may enter this school upon payment of very moderate fees.

In all courses the work is made of direct benefit to the students in other lines, and at the same time it aims to develop in them a love for and an appreciation of the beautiful.

Work must be taken at the times indicated below and all students must satisfactorily complete the requirements of each term before taking up that of the next.

## EQUIPMENT AND FACILITIES.

The art gallery is much used by students of this school. A description of this is given on page 14. The school owns a large number of casts of ornament from the Alhambra and other Spanish buildings, presented by the Spanish government. Also another valuable set of casts from Germany, illustrating German Renaissance ornament. In addition the school owns all the casts and models usually found in an art school, together with a large number of objects for still life. Students have the use of the collection of

American and foreign drawings and photographs, numbering several thousands, belonging to the department of architecture, and of the University library which is particularly rich in works on art. The principal English and American art magazines are found in the reading room.

#### COURSES OF STUDY.

##### 1. For Special Students of Art and Design.—First year, first term.

Principles of free hand drawing learned from drawing geometric solids (a) in outline, (b) in washes of water color, (c) in values of charcoal.

Second term. Principles applied by drawing (a) groups of common objects, as books, vases, chairs, tables, etc.; (b) casts of ornament; (c) interior, as the corner of the room; (d) plants and flowers from nature.

Third term. Study of anatomy, using Duval's Artistic Anatomy as text book, and drawing from Rimmer's Art Anatomy and Julien's Etudes D'Après l'Antique. Also outline drawing from the antique figure and shaded drawings. In charcoal, of details of the human figure and animal forms.

Lectures are given throughout the year on design and the historic styles of ornament. Students are required to prepare (a) a monograph of the ancient mediaeval or modern styles, (b) original exercises showing principles and methods, (c) original exercises employing color.

Lectures on perspective are given the second term and the problems then worked out are illustrated by sketches from nature made during the third term.

Second year, first term. Modeling in clay (a) details of human face, (b) copy of cast of ornament, (c) ornament from photograph. Casts are made of (a) at least one modeled piece, (b) arm, hand, or foot from nature, (c) foliage, fruit, or vegetable from nature.

Second term. Painting in oil color: (a) study in monochrome from still life; (b) group, as a study for composition and color.

Third term. Painting in water color: (a) group, as a study for composition and color; (b) flower and foliage from nature; (c) sketching from nature.

Design. (a) An original design for capital, panel, or spandrel—modeled and cast. (b) An original design for surface decoration in color.

Third year, first term. Advanced work in oil and water color painting, and sketching from nature in color.

Second term. Modeling (a) bas-relief from antique figure, (b) anatomical rendering of an antique figure, (c) bust from the antique, (d) portrait head from nature in round or relief.

Third term. (a) Shaded study of antique figure. (b) Portrait head from nature. (c) Sketching from nature in color.

Design. Details comprising the human, animal, plant, and insect forms for the purpose of design, and an original practical design employing part of this material. *Three years, 20 hours a week.* Professor FREDERICK.

2. For Students of Design.—First term, same as work in design of course 1; also study of the relation of design to manufacture.

Second term. Study of the color as a means of interior and exterior decorations. At least one color scheme to be worked out, full size, in tempera colors.

Third term. Practice in designing in the line of work of which the student wishes to make a specialty. *One year, 20 hours a week.* Professor FREDERICK.

*Required:* Art and Design, 1, first two years.

3. For Students of Architecture.—First year, first term, same as first term of course 1. Second term, same as course 1, except that special attention is given to the drawing of casts of ornament and interiors.

Third term, rendering perspective in washes of water color (sepia). Sketching from nature.

Design, same as in course 1.

Perspective, same as in course 1.

Instruction in pen sketching is given throughout the year, but most of the work must be done out of hours. Gregg's Architectural Rendering in Pen and Ink.

Second year, first term, same as in course 1. Second term, same as in course 1; or as in second term, third year, course 1; or as in second term, third year, course 2. Third term, same as in course 1; or as in third term, third year of course 1.

Design, same as in course 1. *Two years, 10 hours a week.* Professor FREDERICK.

4. For Students in College of Agriculture, and School of Natural Science.—First term, same as in course 1. Second term, same as in course 1, except that special attention is given to drawing

plant and animal forms from nature. Third term, use of pen and ink and water color in work relating to these courses.

Design, same as in course 1. *One year, 10 hours a week.* Professor FREDERICK.

5. For Students of Mechanical, Electrical, and Civil Engineering, and of Chemistry.—First term, same as in course 1. Second term, same as in course 1, except that special attention is given to drawing details of machinery and chemical apparatus. *Fall and winter terms, 10 hours a week.* Professor FREDERICK.
6. For Students in College of Literature.—The work in this course is the same as course 1, as far as time will allow, including design. Students are required to attend the lectures of course 7. *One or two year, 10 hours a week.* Professor FREDERICK.
7. Course in the History of Art.—Lectures with collateral reading. Selections from Ruskin, Sir Joshua Reynolds, Viollet le Duc, Day's Work on Ornament, Penot and Chipiez' and Reber's histories of art, and other works relating to the history and methods of painting, sculpture, and architecture.  
These lectures are illustrated by several hundred lantern slides and are open to all students of the department. *One year, 1 hour a week.* Professor FREDERICK.

# SCHOOL OF MILITARY SCIENCE.

PROFESSOR ELBRIDGE R. HILLS,  
1st Lieutenant 5th Artillery, U.S.A.

The military instruction is under the charge of 1st Lieutenant Elbridge R. Hills, a graduate of the U. S. Military Academy, and an officer of the regular army of the United States. The course as a whole has special reference to the duties of officers of the line. A full supply of arms and ammunition is furnished by the War Department, including 300 cadet rifles and accoutrements, and two field pieces of artillery. Ammunition is supplied for the practice and target firing and for artillery use.

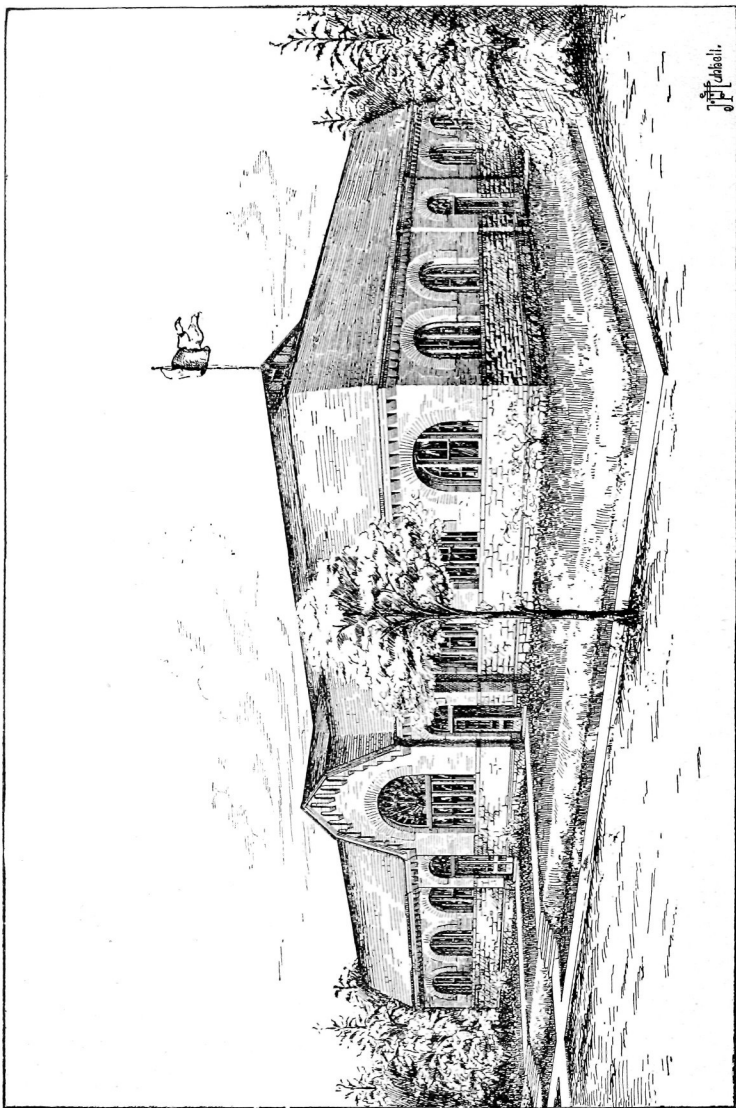
Every male student capable of performing military duty and not excused for sufficient cause, is required to drill twice each week until he has gained six creditable term records. He is also required to study the Drill Regulations for Infantry and to recite upon the same once a week until he passes two creditable term examinations. This practical instruction begins as soon as possible after he enters the University; but a preparatory student, carrying no freshman studies and not expecting to matriculate during the year, is not permitted to drill. The standings in study and drill are placed on record, with other class credits; two terms of recitations and drill count one credit, and the four remaining terms of drill another, and are requisite to graduation in every University course.

Appointments in the battalion are nominated by the professor in charge and confirmed by the Faculty.

Students who have passed two examinations in the drill regulations and who have gained two term credits in drill practice are eligible for corporals; those having three term credits in each are eligible for sergeants; and those having six term credits in each, for lieutenants and for officers of higher rank.

The battalion (four companies) is composed mainly of the members of the freshman and sophomore classes; the first supplying the corporals, the second, the sergeants, while the captains and lieutenants are taken from those of the junior class who have passed through the lower grades satisfactorily.

A special military scholarship, good for one year, is conferred upon each student who attains the grade of a commissioned officer; one-third the value of which is paid the holder at the close of each term.



MILITARY HALL

An artillery detachment is organized mainly from the second year or sophomore class, which receives practical instruction twice each week during the college year.

Towards the close of the spring term, a committee appointed by the Faculty examines candidates for nomination to the governor of the state to receive commissions as brevet captains in the state militia. Candidates must be members of the senior class in full standing at the time of this examination; must have completed the course of military studies; must have served three terms as captains or lieutenants, and must be approved by the Faculty, as having good reputations as scholars, officers, and gentlemen.

Under the authority of the acts of incorporation, the Trustees have prescribed a uniform of cadet gray, with black cloth trimming, cut after the pattern prescribed by the U. S. Army Regulations; members of the band to wear the usual additional trimmings. The uniform of the commissioned officers is that of officers of the same grade in the National Guard. All members of the battalion wear the University badge on the cap. Uniforms must be procured within one month after entering upon military duty, and must be worn at all military formations.

The University Cornet Band is composed of students, and every full term of service therein is counted as one term of drill.

#### COURSES IN MILITARY SCIENCE.

1. Drill Regulations.—For all male students. School of the soldier; school of the company in close and in extended order; bayonet exercise. *Fall and winter terms, 1 hour a week.* Professor HILLS.
2. Drill Practice.—For all male students. *Six terms, 2 hours a week.* Professor HILLS.
3. Recitation and Practice for Military Class.—(a) School of the battalion, close and extended order; artillery drill.  
(b) Ceremonies, review, and inspection; military signaling; sword exercise; artillery drill.  
(c) Guard, outpost, and picket duty; military signaling; artillery drill.  
(d) Military administration; reports and returns; theory of fire arms; target practice.  
(e) Organization of armies; field fortifications; art of war. *Seven terms, recitations, 1 to 2 hours a week; drill, 2 hours a week.* Professor HILLS.

## MUSIC.

CLARA MAUD KIMBALL.

Music constitutes no part of any University course of studies, and is therefore not provided by the Trustees. But, as many students desire instruction in music, competent teachers are selected by the Trustees, and rooms are set apart for instruction.

## TUITION.

Instruction, term of ten weeks—2 lessons a week.....	\$15.00
For term of ten weeks—1 lesson a week.....	8.00
Practice on piano, one hour daily, per term....	2.00

The teacher of Vocal Music and Voice Culture, follows the Italian method, giving individual instruction.

## TERMS.

Ten weeks—2 lessons a week.....	\$20.00
Ten weeks—1 lesson a week.....	12.00

No deduction on account of absence in either course, except in case of protracted illness.

Special students in music will also be charged the regular term fee charged other students of the University.

## PRIZES AND SCHOLARSHIPS.

## THE CONKLIN ORATORICAL PRIZES.

Mr. R. R. Conklin, an alumnus of the University, has offered two prizes, of \$60 and \$40, respectively, for original orations from juniors, to be pronounced at such time as the Faculty may appoint during the week of commencement. Competition is open to such as are full members of the junior class. From the orations submitted on or before the 17th day of April, a number, not to exceed ten, to be selected by the Faculty, will be presented on the platform, and to the first and second best, as may be determined by judges, the prizes will be awarded.

[For the year 1891-92 Mr. Conklin made the prizes respectively \$90 and \$60, and a third prize of \$20 was added by a citizen of Champaign, Ill.]



## THE HAZLETON PRIZE MEDAL.

Capt. W. C. Hazleton has provided a medal, of beautiful and artistic design, which is to be awarded at a competitive drill to be held near the close of the year, to the best drilled student. Each competitor must have been in attendance at the University for at least sixteen weeks of the current college year; must not have had more than four unexcused absences from drill; and must present himself for competition in full uniform.

The award will be made on the following points:

1. Erectness of carriage, military appearance, and neatness.
2. Execution of the school of the soldier, without arms.
3. Manual of arms, with and without numbers.

The successful competitor will receive a certificate setting forth the facts, and may wear the medal until the 15th day of May following, when it will be returned for the next competition.

## HONORARY SCHOLARSHIPS.

Provision has been made for one honorary scholarship for each county in the state. The holder of the scholarship may attend the University for four years, under proper regulations, free of charge for tuition or incidental expenses. The total value of this scholarship is \$90.

Several of these scholarships are already occupied. The vacancies in other counties will be filled as follows:

Examinations are to be held in the several counties, under the supervision of the county superintendents thereof, on the second Friday and Saturday of June, at such places as the superintendents may select. Candidates for the examination must be approved by the superintendents in the common English branches. Questions will be furnished from the University, and the answers, in writing, will be sent to the University for judgment. The scholarship will be awarded to the candidate who passes the best examination, provided he has a standing in each subject of not less than 75, and an average standing on all the subjects of not less than 80, per cent.

Each pupil who enters the examination may choose whether he will be examined to enter upon a course in Colleges of Agriculture, Engineering, or Science, or one of the courses in the College of Literature.

In the first case, the subjects of his examination will be algebra, geometry, physiology, botany, natural philosophy, and English rhetoric.

In the second case, the subjects will be algebra, geometry, botany, or natural philosophy, three books of Cæsar, five orations of Cicero, and six books of the *Æneid*.

The two classes of examinations are intended to be as nearly equivalent as possible, and to conform to the requirements stated under the head, *Examinations for Admission*, p. 143. It is essential that the examinations in the counties be held at the time named above, publicly, and with reasonable notice; requests for special or private examinations can not be considered.

### CHICAGO CLUB SCHOLARSHIPS.

The CHICAGO CLUB OF THE UNIVERSITY OF ILLINOIS offers two scholarships of \$250.00 each, payable to the beneficiary, \$100.00 the first year, \$75.00 the second year, \$50.00 the third year, and \$25.00 the fourth year. The scholarships are offered to residents of Cook County, Illinois, only, and are to be awarded upon competitive examination to those obtaining the highest average grades. The examination questions are prepared at the University and cover the same subjects as those for the honorary scholarships.

### MILITARY SCHOLARSHIPS.

Students who have gained six term credits in class room military instruction and six such credits in drill practice are eligible for appointment as commissioned officers of the battalion. Those attaining this rank are each awarded a special scholarship, good for one year and equal in value to the University term fees for the same length of time.

### FELLOWSHIPS.

Four fellowships, each of \$400 a year, are offered to members of the Graduate School, in connection with which further particulars in regard to them are given.

### SOCIETIES.

The Literary Societies have from the opening of the University enjoyed its fostering care.

The ADELPHIC, PHILOMATHEAN, and ACADEMY societies, for men, and the ALETHENAI, for women, occupy spacious halls, which

the members have furnished and decorated with taste and elegance. Meetings are held Friday evenings throughout the term time, are well attended, and are maintained with unflagging interest. They furnish excellent drill in writing, speaking, and parliamentary methods.

The YOUNG MEN'S and YOUNG WOMEN'S CHRISTIAN ASSOCIATIONS are both active and useful.

Special organizations unite the students of NATURAL HISTORY, of CIVIL ENGINEERING, of MECHANICAL ENGINEERING, of ARCHITECTURE, of AGRICULTURE, and of CHEMISTRY, and in ATHELETICS.

## GRADUATE SCHOOL.

Instruction and the facilities of advanced study and research are now offered to the graduates of this and of other colleges and universities without fees or payment of any kind, except for actual laboratory expenses. The diploma of any college or university in good standing is accepted for admission, instead of entrance examinations. No formal courses of study are prescribed, but special arrangements are made to meet as nearly as practicable the wishes of each applicant. Such students do not attend regular recitations or lectures unless they also take some undergraduate work, in which case they conform to the usages of the class attended, and pay the regular fees. They may be requested to give one or more class lectures in the line of their special studies. A second degree is awarded upon the completion of the required studies and the presentation of an accepted thesis. The general requirements for degrees may be found elsewhere under the proper heading.

## FELLOWSHIPS.

The University offers four fellowships, open to graduates of this or other similar institutions, conditioned upon required qualifications and a designated amount of service to the University. Each fellowship is good for one year and has a money value of \$400.00, payable in ten monthly installments. Appointments to these fellowships are made upon the grounds of good character, high attainments, promise of distinguished success in the line of studies chosen, and of usefulness to the University. The holders of the

fellowships are required to give instruction in assigned subjects (5 to 10 hours a week) to one class each day during the year. The time remaining is to be devoted to graduate study; and, upon the completion of a prescribed course, a second degree is awarded.

## UNIVERSITY EXTENSION.

The University offers a series of lecture courses by members of the Faculty upon a considerable number of the subjects taught by them. The work is similar to that which has become so popular in connection with the great English universities during the last few years. It is an extension of University instruction to people at their homes who cannot attend the institution itself as students, but yet desire the information that such students gain. In the endeavor to make the University doubly useful to the people of the state, the professors hold themselves in readiness to lecture upon invitation in any accessible locality, if consistent with regular duties. The subjects and lectures are the same as at the University, so that there is a real extension of its teaching. The course upon a single subject usually consists of six lectures, one given each week and commonly upon Friday or Saturday evening. For each lecture there is distributed a printed syllabus or outline giving also directions to the best literature upon the subject, and other information. The lectures are preceded or followed by reviews, quizzes, and discussions; and at the end of the course an examination may be held. To those satisfactorily passing such examinations a special certificate is issued in the name of the University, and the proper records are made upon its books.

A special series of lectures has been arranged for teachers' summer institutes. These are not intended to take the place of the ordinary instruction given in such institutes, but to present University subjects, by University methods, as far as possible, with all the aids of illustrative and demonstrative equipments.

During the year 1891-92 (beginning in January), the following courses have been given:

*Constitutional History.*—Professor CRAWFORD. (1) Six lectures, at Pontiac, Ill.; (2) Three lectures, at the University, for citizens of Champaign and Urbana.

*Lowest Forms of Life.*—Professor FORBES. Three lectures, at the University, for citizens of Champaign and Urbana.

*Elocution and Oratory.*—Professor BROWNLEE. Two lectures, at La Salle, Ill.

*English Language and Literature.*—Professor BUTLER. (1) Three lectures, at the University, for citizens of Champaign and Urbana; (2) Six lectures, at Oak Park, Ill.; (3) Six lectures, at Evanston; (4) Six lectures, at the Newberry Library, Chicago; (5) Six lectures, at Freeport, Ill.; (6) Six lectures, at Farmer City, Illinois.

*Electricity.*—Professor STRATTON. Three lectures, at the University, for citizens of Champaign and Urbana.

Over 800 people have attended these courses and in every case much interest has been awakened. A large amount of collateral reading has been done by members of the several classes. A number of invitations are already in for next winter.

A special circular giving the subjects and lectures for 1892-93, will be sent on application.

## REGULATIONS AND ADMINISTRATION.

### ADMISSION.

Examinations of candidates for admission to the University, or to any of its departments, are held at the University itself, on the two days previous to the opening of each term.

Applicants must be at least fifteen years of age, and it is considered desirable that they be three to five years older than this. They must pass the required examinations, and must pay the prescribed fees. No distinction is made in regard to sex, nativity, color, or place of residence. Entrance may be made at any time, provided the candidate is competent to take up the work of the classes then in progress; but it is very much better to begin upon the first collegiate day in September, when a large number of the classes are organized, several of them to continue during the year. Entrance, however, may usually be made satisfactorily at the beginning of the winter and spring terms.

The engineer and architect should be adepts in the various departments of drawing, and some previous study of this branch will

be of great advantage. Faunce's Mechanical Drawing is recommended as a text book, and the drawings should be made on smooth paper, eight by ten inches, then inked properly.

#### ENTRANCE EXAMINATIONS.

The subjects upon which examinations for admission are held are as enumerated below:

##### FOR THE COLLEGES OF AGRICULTURE, ENGINEERING, AND SCIENCE.

Arithmetic; English grammar; geography; history of the United States; algebra, including equations of the second degree and the calculus of radical quantities; geometry, plane and solid; physiology; botany; natural philosophy; rhetoric and composition.

Candidates for admission will be required to write a short essay correct as to punctuation, paragraphing, the use of capitals, etc., and they will be asked to correct English writing faulty in these and other respects. In 1893 longer essays will be required (except from those offering Greek) upon subjects drawn from one or two of the following works: Shakespere's Julius Cæsar, Scott's Marmion, Webster's First Bunker Hill oration, Goldsmith's Deserted Village, Irving's Sketch Book. Or one year's work in French or German will be accepted instead of the English literature described.

The text books mentioned in course of study for the preparatory classes, may be taken as an indication of the requirements in these studies. Any real equivalents for the books named are accepted.

##### FOR COLLEGE OF LITERATURE.

*For the courses in English Modern Languages, Latin, and Philosophy and Pedagogy*, the same as the above, except the Rhetoric and Composition and with the addition of the following Latin:

Three books of Cæsar's Commentaries, five orations of Cicero, six books of Vergil's Æneid, with scansion of hexameter verse and the translation of English sentences into Latin prose, based on the portions of Cæsar and Cicero above named. This will necessitate a thorough knowledge of the etymology and syntax of Latin grammar.

Harkness's or Allen and Greenough's Grammar and Collar's Latin Prose Composition are recommended.

Real equivalents for any of the above mentioned works will be accepted.

The Roman method of pronunciation is used.

*For the Classical Courses*, the same as the first list, except the omission of rhetoric and composition, physiology, botany, and

natural philosophy, and with the addition of the Latin described and Greek as follows:

Greek Grammar (Goodwin's or Hadley's), Greek Prose Composition (Jones's), and four books of Xenophon's Anabasis, or two books of the Anabasis and Herodotus, Mathew's Selections. Writing Greek with the accents will be required.

The so-called Continental sounds of the vowels and diphthongs and pronunciation according to accent are recommended.

*County Superintendents' Certificates.*—To prevent loss to those who are not prepared to enter the University, but might come, hoping to pass the examinations for admission, the following arrangement has been made:

County Superintendents of schools will be furnished with questions and instructions for the examination of candidates in the four common branches, arithmetic, geography, English grammar, and history of the United States; applicants who pass creditably will, when they present the superintendent's certificate to that effect, be admitted to the classes of the preliminary year.

Persons who hold teacher's certificates from county superintendents will be admitted to the preliminary class without further examination.

#### ACCREDITED HIGH SCHOOLS.

The Faculty, after personal examination, appoints accredited high schools, whose graduates may be admitted to the University without further examination within two years after the date of their graduation. These must be schools of first rate character, whose course of instruction include all the studies required for admission to some one of the colleges of the University. On application, a member of the Faculty is sent to examine a school making application, as to its facilities for teaching, its course and methods of instruction, and the general proficiency shown. If the report is favorable, the name of the school is entered in the published list of high schools accredited by the University. The graduates of these schools are admitted to such of the colleges as their studies may have prepared them to enter. The appointment continues as long as the work of the school is found satisfactory. Annual reports are asked from these schools.

The accredited schools whose graduates are admitted to any of the colleges of the University are the public high schools in

## SCHOOLS AND PRINCIPALS.

Aurora, East, E. G. Cooley.	Aurora, West, Kittie Reynolds.
Austin, Helen S. Wyllis.	Beardstown, M. Moore.
Belvidere, J. C. Zinser.	Bement, J. M. Martin.
Bloomington, Edward Manley.	Cairo, M. D. Leahy.
Canton, C. M. Bardwell.	Champaign, R. L. Barton.
Charleston, Louise Baumberger.	Chicago, North, O. S. Westcott,
Chicago, South, Jeremiah Slocum.	Chicago, West, Geo. M. Clayberg.
Danville, S. D. Brooks.	Decatur, Lewis B. Lee.
Delavan, Geo. A. Franklin.	Dixon, Martha Minerman.
Elgin, H. F. Derr.	Englewood, James E. Armstrong.
Evanston, H. L. Boltwood.	Farmer City, Geo. S. Mellor.
Freeport, Frances Roseborough.	Galena, Kate McHugh.
Hyde Park, Chas. W. French.	Jacksonville, Virginia Graves.
Jerseyville, J. Pike.	Joliet, S. M. Van Petten.
Kankakee, C. W. Groves.	Kewanee, Horace Phillips.
La Grange, H. W. Thurston.	Lake, E. F. Sterns.
Lake View, James H. Norton.	Lincoln, Jane Kidd.
Maywood, C. W. Minard.	Mattoon, Mary A. Port.
Mendota, West, Wm. Jenkins.	Moline, B. C. Caldwell.
Oak Park, W. E. Goddard.	Ottawa, J. O. Leslie.
Paris, H. B. Hayden.	Peoria, A. W. Beasley.
Princeton, Richard A. Metcalf.	Quincy, W. B. Corbyn.
Rockford, Walter A. Edwards.	Rock Island, J. A. Bishop.
Springfield, Wm. W. Helmle.	Streator, R. Williams,
Taylorville, A. C. Butler.	Tuscola, Elizabeth C. Minor.
Urbana, J. W. Hayes.	

Also the high school of the Normal University, at Normal, O. L. Manchester, principal.

The accredited schools whose graduates are admitted to the Colleges of Engineering, of Agriculture, or of Science, are the public high schools in

## SCHOOLS AND PRINCIPALS.

Barry, L. H. Chapin.	Belleville, H. J. Klein.
Camp Point, J. W. Creekmur.	Centralia, J. E. Ellis.
DuQuoin, C. J. Harris,	Gibson City, Frances D. Guion.
Greenville, D. W. Lindsey.	Hillsboro, H. M. Anderson.
LaSalle, L. A. Thomas.	Marengo, C. W. Hart.
Monticello, John W. Hughes.	Olney, O. J. Bainum.



Newman, J. L. Hughes.	Pekin, C. W. Vandegrift.
Onarga, J. R. Freebern.	Pittsfield, Geo. Selby.
Peru, Carrie V. Smith.	Robinson, D. W. Creekmur.
Polo, I. M. Bridgman.	Rossville, H. W. Flanegin.
Rochelle, E. C. Webster.	Sheldon, M. L. Weems.
Shelbyville, F. D. Jordan.	Sterling (Wallace High School),
Sterling, A. Bayliss.	S. B. Hursh.
Sullivan, B. F. McClelland.	Sycamore, A. J. Blanchard.
Tolono, J. S. Holady.	Washington, F. L. Calkins.
Warren, I. C. Baker.	Waverly, H. C. McCarrell.
Watseka, Henry Rulison.	Yorkville, W. D. Edmunds.
Wenona, Ira M. Ong.	

Also the Chicago Manual Training School, H. H. Belfield, principal.

## REGISTRATION.

At the beginning of each term each student must present himself in the Regent's office for registration at some time during the two days preceding the formation of classes; and he must be present and be registered at the first exercise of each class he is to attend.

## CHOICE OF STUDIES.

Great freedom in the choice of studies is permitted. It is, however, necessarily required that the student shall be thoroughly prepared to enter, and keep pace with, the classes in the chosen studies; and that he shall take these in the terms and at the time of day elsewhere designated. Following the description of each course of instruction will be found the necessary requirements, if any, beyond the general entrance examinations, for admission to that particular course. Careful attention must be given to these requirements and to the special conditions stated in connection with the various courses of study.

The work in military instruction and drill practice is required, as described, of all male students during the freshman sophomore years. Women are excused from this and are allowed to graduate with two credits less than required of men.

The described courses in rhetoric and oratory must be taken by all students at the times and to the extent given in the suggested and prescribed courses of study.

Each student must have three distinct studies, affording three daily class exercises, unless specially permitted by the Faculty to take less or more.

### REQUIRED STUDIES.

To secure the diffusion of the sciences relating to the great industries, the state legislature, in 1873, prescribed that each student should be taught some of those sciences.

The Trustees accordingly require that each student shall take, each term, one study, at least, from the following list:

Agricultural Chemistry.	Hydraulics.
Agricultural Engineering and Architecture.	Landscape Gardening.
Analytical Mechanics.	Logic.
Anatomy and Physiology.	Machine Drawing.
Animal Husbandry.	Masonry Construction.
Architectural Drawing and Designing.	Mathematics.
Astronomy.	Mechanism.
Botany.	Mental Science.
Bridges.	Metallurgy.
Chemistry.	Military Science.
Dynamics.	Mill Work.
Electric Machinery.	Mine Administration.
Elements of Agriculture.	Mine Attack.
Elements of Horticulture.	Mineralogy.
Entomology.	Mining Engineering.
Esthetics of Architecture.	Physics.
Estimates.	Political Economy.
Free Hand Drawing.	Railroad Engineering.
Geodesy.	Resistance of Materials.
Geology.	Rural Economy.
Graphic Statics.	Sanitary Construction.
Heat Engines.	Stone, Brick, and Metal Construction.
History of Agriculture.	Surveying.
History of Architecture.	Vegetable Physiology.
Hydraulic Engines and Wheels.	Veterinary Science.
	Wood Construction.
	Zoölogy.

## TERM EXAMINATIONS.

Written examinations are held at the close of each term or oftener, and whenever any study has been completed. Any student failing to answer correctly 60 per cent of the questions proposed, loses all credit for that study, and is precluded from proceeding with any other studies without special permission. If he answers from 60 to 74 per cent of the questions he is conditioned and may have another examination on application to and arrangement with the instructor. 75 per cent is required to pass.

A record is kept of each student's term work and standing, and from this his final certificate of graduation is made up.

A statement of the scholarship of each student will be sent to his parent or guardian as soon as may be after the end of each term.

## DEGREES.

The usual bachelors' and masters' degrees are conferred upon those who satisfactorily complete the courses of study described under the different colleges. A candidate for a bachelor's degree must pass in the subjects marked *required* in his chosen course, and must conform to the directions given in connection with that course in regard to electives. In the College of Engineering he must complete the course of study as laid down. In the Colleges of Agriculture and Literature and in the school of natural science 40 term credits, and in the College of Engineering and in the school of chemistry 41 term credits are required for graduation. This includes two credits for military science which are not required of women, who may therefore graduate with two credits less than the number stated. Men, excused for cause from the military requirements, may elect in lieu thereof two extra term's work in any subjects taught in the University.

Credits from other colleges or universities may be accepted by the Faculty for advanced standing; but at least one year's residence at the University and the completion of one year's work is necessary to secure a bachelor's degree.

In all cases an accepted thesis is required for graduation. The subject must be announced not later than the first Monday of the winter term, and the completed thesis must be handed to the dean of the proper College by April 30th. The work should be done under

the direction of the professor in whose department the subject naturally belongs, and should be in the line of the course of study for which a degree is expected. The thesis should be based upon original research, and must contain at least 2,000 words, or an equivalent in tables, drawings, and illustrations. It must be presented upon regulation paper and will be deposited in the library of the University.

1. The degree of Bachelor of Arts will be given to those who complete a classical course in the College of Literature.

2. The degree of Bachelor of Letters will be given to those who complete one of the other courses in the College of Literature. The name of the course will be inserted after the degree.

3. The degree of Bachelor of Science will be given to those who complete a course of study in the College of Engineering, of Agriculture, or of Science. The name of the course will be inserted after the degree.

4. The master's degrees, M.A., M.L., and M.S., and the equivalent degrees of Civil Engineer and Mechanical Engineer, etc., will be given, after 1894, to graduates of this or other similar institutions who have pursued at this University a year of prescribed graduate studies and have passed examinations thereon, or who have pursued as non-residents three years of such study and have passed the required examinations. Studies for a master's degree must be in the general line of the bachelor's degree already received, and of the degree sought.

In all cases an accepted thesis is required and this should be presented at least one month before the close of the collegiate year. It must be based upon original research and must show scholarly requirements of high order.

Graduates of this University who took a first degree before 1892 may obtain a second degree as heretofore, until after 1894.

## GENERAL DIRECTIONS TO STUDENTS.

Young men or women desiring a liberal education, and living at a distance from a college or university, are often puzzled to understand precisely what they will be required to know and do in order to gain admission. To such these words are addressed:

1. Notice that a college, or university (which is properly a collection of colleges) is designed for the higher education only, and

not for the study of common branches. None of the common branches, such as arithmetic, geography, English grammar, reading, and spelling, are taught in this University. These all must be finished before you come.

2. In order to pursue profitably the true college studies, and to keep pace with the classes, you must be ready to pass a strict examination in the common branches just mentioned, and in certain other preparatory studies, differing with the different colleges of the University. (See p. 143.)

3. If well prepared in the above named common branches only, you may be admitted, not to a college, but to the preparatory classes, in which you will study the other preparatory studies for admission to college. (See p. 154.) All preparatory studies must be completed before you can be admitted, as a matriculated student, in any college class.

4. You should enter at the beginning of the college year, in September. If unable to enter at that time, you may enter at any later time, if you can profitably take up the work of the classes.

5. Enter college with the purpose of going through, and make your course *regular as far as you go*. If obliged to leave before you have finished the course, you will have done the best thing for yourself in the meantime; while if you remain, the regular course is in nine cases out of ten the most useful and effective.

Students desiring only a winter's schooling should go to some high school.

## LABOR.

Labor is furnished as far as possible to all who desire. It is classified into educational and remunerative labor.

Educational labor is designed as a practical instruction, and constitutes a part of the course in several schools. Students are credited with their proficiency in it as in other studies. Nothing is paid for it.

Remunerative labor is prosecuted for its products, and students are paid what their work is worth. The usual rate paid for ordinary farm, garden, and shop labor is *twelve and one-half cents* per hour. Students of sufficient experience may be allowed to work by the piece or job, and thus by diligence or skill secure more pay.

Some students who have the requisite *skill, industry, and economy*, pay their entire expenses by their labor; but, in general,

young men cannot count upon doing this at first, without a capital to begin with, either of skill or money, to serve them till a degree of skill is acquired. As the number of students increases, it is found more and more difficult to furnish the labor needed, and students cannot count upon finding employment.

## BOARD.

The University does not furnish board. There is no general provision for boarding, but there is an abundance of suitable private places in Urbana and Champaign within a reasonable distance of the University, and easily accessible by electric railways, where students can obtain either table board or board and rooms, with the advantages of the family circle. Boarding clubs are formed, at which the cost of meals is about two and a half dollars per week. Some students prepare their own meals, thus considerably reducing expenses.

The Business Agent and the Young Men's and Young Women's Christian Associations of the University will aid new students in procuring rooms and boarding places.

## EXPENSES.

THE TUITION IS FREE in all the University classes.

THE MATRICULATION FEE entitles the student to membership in the University until he completes his studies, and must be paid before he enters.

Amount.....\$10 00

THE TERM FEE for incidental expenses is for each student.... 7 50

Each student working in laboratories, or in the draughting or engineering classes, is required to make a deposit varying from 50 cents to \$10, to pay for chemicals and apparatus used, and for any breakages or damages.

ALL BILLS due the University *must be paid before the student can enter classes.*

The following are estimated maximum and minimum annual expenses, exclusive of books and clothing, of a residence of thirty-six weeks at the University:

Term fees.....	\$ 22 50	\$ 22 50
Room rent for each student.....	18 00	48 00

Table board in boarding houses and clubs.....	\$ 90 00	\$ 126 00
Fuel and light.....	10 00	15 00
Washing at 60 cents per dozen.....	9 00	18 00
	<hr/>	<hr/>
Total amount.....	\$149 50	\$229 50
Board and room in private houses, per week...	4 00	6 00

FEES IN THE PRELIMINARY YEAR, OR THE FARMERS' JUNIOR  
COURSE.

Tuition, per term.....	\$ 5 00
Incidental fee, per term.....	7 50

SPECIAL FEES.

For Instrumental Music, for 20 lessons.....	\$15 00
For Painting, or Drawing, to special students.....	10 00
Matriculation fee.....	10 00
Fees for diplomas.....	5 00

CAUTION TO PARENTS—STUDENTS' FUNDS.

The Business Agent will receive on deposit any funds parents may intrust to him to meet the expenses of their sons. *No greater error can be committed than to send boys from home with large amounts of spending money, without the authoritative care of some prudent friend.* Half the dissipation in colleges springs from excessive allowances of money. Students have little real need for money, beyond that required for fees, board bills, and books. The attention of parents and guardians is earnestly requested to this matter, and especially in the case of those students who are under 20 years of age.

## PREPARATORY CLASSES.

To meet an urgent demand, the Trustees have temporarily provided for teaching the preparatory studies lying between the work of the elementary schools and the University. Candidates for these classes must not be less than fifteen years old. They must pass satisfactory examination in arithmetic, geography, English grammar, and history of the United States.

Students in the preparatory studies are not matriculated as members of the University. They pay no entrance fee, but are

charged a tuition fee of five dollars a term, and an incidental fee of seven and a half dollars a term. They have all the privileges of the library, and of public lectures.

The studies taught in the preliminary year as follows:

FOR COLLEGES OF AGRICULTURE, ENGINEERING, AND SCIENCE.

*First Term.*—Algebra—(Wells's). Fundamental rules; factoring; common divisors and multiples; powers and roots; calculus of radicals; simple equations; proportion and progression. Physiology—(Cutter's). Natural Philosophy—(Norton's).

*Second Term.*—Algebra—Quadratic equations, etc. Geometry—Wells's) Plane geometry, lines, circumferences, angles, polygons, as far as equality. English—Elements of composition. (Clark's.) Orthoëpy and word analysis. (Introduction to Webster's Academic Dictionary.)

*Third Term.*—Geometry completed, including solid geometry and the sphere. English, as in the second term, with addition of Goldsmith's Deserted Village, Shakespere's Julius Cæsar, Scott's Marmion, Webster's first Bunker Hill oration, and Irving's Sketch Book, read with care. Botany—Gray's Lessons and Manual.

FOR COURSES IN THE COLLEGE OF LITERATURE, EXCEPT THE CLASSICAL COURSE.

*First Term.*—Algebra as above. Physiology. Natural Philosophy. Latin—Cicero's Orations. Prose composition.

*Second Term.*—Algebra and Geometry, as above. Latin—Æneid. Prose composition.

*Third Term.*—Geometry, as above. Botany. Latin—Æneid. Prose composition.

FOR CLASSICAL COURSE.

*First Term.*—Algebra, as above. Latin—Cicero's Orations. Prose composition. Greek—Grammar (Goodwin) and Reader (Moss). Prose composition.

*Second Term.*—Algebra and Geometry, as above given. Latin—Æneid. Prose composition, Greek—Continuation of first term. Prose composition.

*Third Term.*—Geometry completed. Latin—Æneid. Prose composition. Greek—Anabasis (Kelsey). Prose Composition (Woodruff).



# LIST OF STUDENTS.

## RESIDENT GRADUATES.

Bouton, Charles Sherman,	Hyde Park.
Bowsher, Columbus Austin,	Champaign.
Hobbs, Glen Moody,	Yorkville.
Jones, Isabel Eliza,	Champaign.
McClure, George W., B.S.,	Champaign.
Myers, George Washington, M.L.,	Urbana.
Paine, Sarah Mariena,	Orizaba.
Shattuck, Anna Fletcher, B.L.,	Champaign.

## SENIOR CLASS.

Barber, William Davis,	<i>Champaign,</i>	Civil Engineering.
Barker, John King,	<i>Three Rivers, Mass.</i>	Civil Eng.
Beckwith, Frank,	<i>Quincy,</i>	Civil Engineering.
Burrows, Parke Tunis,	<i>Davenport, Iowa,</i>	Arch. and Mil.
Carnahan, Franklin Gregory,	<i>Champaign,</i>	Classical.
Crissey, John Waterbury,	<i>Chester,</i>	Civil Engineering.
Cross, Charles William,	<i>Kewaunee,</i>	Architecture.
Forbes, Robert Humphrey,	<i>Princeton,</i>	Chemistry.
Foster, Winslow Howard,	<i>Chicago,</i>	Mech. Engineering.
Foster, Zebulon,	<i>Armstrong,</i>	Civil Engineering.
Funston, Edmund Bailey,	<i>Champaign,</i>	Architecture.
Gates, Andrew Wallace,	<i>Earlville,</i>	Civil Engineering.
Gulick, Edward Everett,	<i>Champaign,</i>	Eng. and Mod. Lang.
Gulick, Joseph Piper,	<i>Champaign,</i>	Eng. and Mod. Lang.
Gunn, Charles Alexander,	<i>Evanston,</i>	Architecture.
Hall, Fred Augustus,	<i>Tonica,</i>	Chemistry.
Hart, Ralph Warner,	<i>Harvey,</i>	Architecture.
Harvey, Walter Clarence,	<i>Paris,</i>	Architecture.
Herrick, Lott Russell,	<i>Farmer City,</i>	Eng. and Mod. Lang.
Kiler, Charles Albert,	<i>Urbana,</i>	Natural Science.
Klingelhoefer, William,	<i>Mascoutah,</i>	Civil Engineering.
McLane, Cyrus Daniel,	<i>Allerton, Iowa,</i>	Architecture.

Martin, William Alexander,	<i>Chicago</i> , Mechanical Engineering.
Mather, Roy Allen,	<i>Naperville</i> , Civil Eng. and Mil.
Miller, William George,	<i>Chicago</i> , Mech. Eng. and Mil.
Morgan, John Barb, Jr.,	<i>Kinmundy</i> , Eng. and Mod. Lang.
Mosier, Jeremiah George,	<i>Urbana</i> , Natural Science.
Page, John William,	<i>Waukegan</i> , Civil Engineering.
Peterson, Adolph Bertinus,	<i>Chicago</i> , Architecture.
Phillips, James David,	<i>Englewood</i> , Architecture.
Piatt, Herman S,	<i>Champaign</i> , Classical.
Plank, Ulysses Samuel Grant,	<i>East Lynne, Mo.</i> , Natural Science.
Pullen, Rome B,	<i>Centralia</i> , Eng. and Mod. Lang.
Scheidenhelm, Edward Louis,	<i>Mendota</i> , Civil Eng. and Mil.
Snodgrass, William, Jr.,	<i>Urbana</i> , Mech. Engineering.
Swenson, Bernard Victor,	<i>Chicago</i> , Mech. Engineering.
Wait, Benjamin Asaph, Jr.,	<i>Armstrong</i> , Civil Engineering.
Walker, Edward Lewis,	<i>Petersburg</i> , Eng. and Mod. Lang.
Williamson, Frank Robert,	<i>St. Anne</i> , Civil Engineering.
Woodworth, Howard Oakley,	<i>Champaign</i> , Natural Science.
Wright, Royal,	<i>Urbana</i> , Eng. and Mod. Lang.
Barber, Alice May,	<i>La Fox</i> , Natural Science.
Bennett, Sarah,	<i>Mattoon</i> , Eng. and Mod. Lang.
Boggs, Cassandra Armstrong,	<i>Urbana</i> , Eng. and Mod. Lang.
Hill, Agnes Gale,	<i>Nevada, Mo.</i> , Classical.
Maxwell, Anne Melissa,	<i>Champaign</i> , Eng. and Mod. Lang.

## JUNIOR CLASS.

Aranda, Ezequiel,	<i>Allende, Mex.</i> , Mechanical Eng.
Bacon, Harlow,	<i>Huntsville</i> , Civil Eng. and Mil.
Barrett, Edward Ernest,	<i>Port Byron</i> , Civil Engineering.
Bartlett, Henry Emmett,	<i>Mt. Sterling</i> , Civil Engineering.
Behrensmeyer, George Philip,	<i>Quincy</i> , Architecture.
Blakesley, George Webster,	<i>Rock Island</i> , Electrical Eng.
Brown, Frank Manear,	<i>Champaign</i> , Architecture.
Butler, William Tennent,	<i>Franklin, Ohio</i> , Civil Engineering.
Carter, Charles Willard,	<i>Aledo</i> , Eng. and Mod. Lang.
Chambers, William Rock,	<i>Sadorus</i> , Eng. and Mod. Lang.
Coffeen, Fred Goldsmith,	<i>Champaign</i> , Chemistry.
Cornell, William Henry,	<i>Grant Park</i> , Mech. Eng. and Mil.
Craig, Edward Chilton,	<i>Mattoon</i> , Eng. and Mod. Lang.
Danley, Willis Wilson,	<i>Hennepin</i> , Civil Engineering.

Davis, Jonathan Sydney,	<i>Atwater,</i>	Arch. and Mil.
Dunaway, W. Alfred,	<i>Ottawa,</i>	Architecture.
Earl, Mark Alden,	<i>Centralia,</i>	Civil Eng. and Mil.
Gibbs, William David,	<i>Winchester,</i>	Agriculture.
Graham, William Johnson,	<i>Aledo,</i>	Eng. and Mod. L. and Mil.
Hicks, Preston T.,	<i>Warren,</i>	Civil Engineering.
Higgins, Albert Grant,	<i>Eltmwood,</i>	Architecture.
Hucke, Philip Matthias,	<i>Mascoutah,</i>	Natural Science.
Levy, Alexander,	<i>Brookfield, Mo.,</i>	Architecture.
Lockwood, Frank Miner,	<i>Champaign,</i>	Architecture.
Loomis, Arthur Bates,	<i>Fulton,</i>	Civil Engineering.
McCloy, Robert Emmett,	<i>Welton,</i>	Eng. and Mod. Lang.
McClure, Clyde Benjamin,	<i>Gibson City,</i>	Civil Engineering.
McGee, Walter Scott,	<i>Deers,</i>	Pedagogy.
McMains, Louis,	<i>Armstrong,</i>	Natural Science.
Merrifield, Albert Warren,	<i>Ottawa,</i>	Civil Engineering.
Powers, Will Ambrose,	<i>Belvidere,</i>	Chemistry.
Rea, Alfred Willemin,	<i>Urbana,</i>	Architecture.
Rowe, William Briggs,	<i>Ottawa,</i>	Classical.
Russell, Charles Wesley,	<i>Virginia,</i>	Classical.
Scott, Donald Gamaliel,	<i>Champaign,</i>	Architecture.
Seaman, George Washington,	<i>Beardstown,</i>	Elec. and Mech. Eng.
Shiga, Shizetsura,	<i>Tokio, Japan,</i>	Architecture.
Skielvig, Severin Canute,	<i>Chicago,</i>	Architecture.
Somers, Bert Sheldon,	<i>San Diego, Cal.,</i>	Architecture.
Spalding, Fred Milton,	<i>Gibson City,</i>	Civil Eng. and Mil.
Steele, James,	<i>Henry,</i>	Chemistry.
Steinwedell, William Ernest,	<i>Quincy,</i>	Electrical Engineering.
Swenson, Bernard Victor,	<i>Chicago,</i>	Elect. and Mech. Eng.
Thielbar, Frederick John,	<i>Peoria,</i>	Architecture.
Thompson, Almon Daniel,	<i>Gilman,</i>	Civil Engineering.
Toerring, Christian Jensen,	<i>Davenport, Iowa,</i>	Mech. Eng.
Vial, Robert Clarke,	<i>Western Springs,</i>	Civil Engineering.
Wilder, Charles Thornton,	<i>Champaign,</i>	Natural Science.
Woodruff, Thomas Tyson,	<i>Quincy,</i>	Elect. and Mech. Eng.
Young, Orres Ephraim,	<i>Stonington,</i>	Eng. and Mod. Lang.
Ayers, Grace,	<i>Urbana,</i>	Eng. and Mod. Lang.
Johnson, Harriette Augusta,	<i>Rock Island,</i>	Eng. and Mod. Lang.
Lamkin, Nina Belle,	<i>Champaign,</i>	Eng. and Mod. Lang.
McCormick, Flora,	<i>Mahomet,</i>	Eng. and Mod. Lang.

Mann, Estelle,	<i>Geneva,</i>	Eng. and Mod. Lang.
Peterson, Sophia May,	<i>Champaign,</i>	Eng. and Mod. Lang.
Philbrick, Margaret,	<i>Champaign,</i>	Natural Science.

## SOPHOMORE CLASS.

Andrews, Herbert Franklin,	<i>Piasa,</i>	Natural Science.
Arbeiter, George J.,	<i>Plainfield,</i>	Eng. and Mod. Lang.
Arms, Franklin David,	<i>Chicago,</i>	Architecture.
Armstrong, James William,	<i>Toulon,</i>	Mechanical Engineering.
Arnold, Benjamin A.,	<i>Haldane,</i>	—————
Atwood, Levi Patten,	<i>Rockford,</i>	Civil Engineering.
Babcock, Clyde Leslie,	<i>Harvard, Neb.,</i>	Civil Engineering.
Barker, Louis Gilbert,	<i>Three Rivers, Mass.,</i>	Mech. Eng.
Barker, Louis William,	<i>Sparta,</i>	Electrical Engineering.
Bauman, Otto,	<i>Quincy,</i>	Mechanical Engineering.
Beasley, Harrison Easton,	<i>Peoria,</i>	Civil Engineering.
Bevis, Albon,	<i>Virginia,</i>	Architecture.
Bond, Joseph Edward,	<i>Tolono,</i>	Mechanical Engineering.
Braucher, Herbert Hill,	<i>Lincoln,</i>	Agriculture.
Brownell, Charles Dean,	<i>Champaign,</i>	Chemistry and Mil.
Burt, Henry Jackson,	<i>Urbana,</i>	Civil Engineering.
Bush, Arthur Willis,	<i>Joliet,</i>	Architecture.
Butterfield, Clarence James,	<i>Chicago,</i>	Architecture.
Carpenter, Harvey Irving,	<i>Champaign,</i>	Eng. and Mod. Lang.
Carr, Robert Franklin, Jr.,	<i>Argenta,</i>	Chemistry.
Chester, Charles Ellsworth,	<i>Champaign,</i>	Civil Engineering.
Chester, Oscar Paul,	<i>Champaign,</i>	Natural Science.
Chipman, Paul,	<i>Mt. Carmel,</i>	Civil Engineering.
Coffman, Birch David,	<i>Champaign,</i>	Natural Science.
Cole, Edward Smith,	<i>Chicago,</i>	Mechanical Engineering.
Cook, James W.,	<i>Rock Island,</i>	Mechanical Eng.
Cornell, Frank Howe,	<i>Yorkville,</i>	Natural Science.
Crawford, Thomas,	<i>Sterling,</i>	Electrical Engineering.
Dewey, George French,	<i>Cairo,</i>	Civil Engineering.
Dickinson, Richard Joy,	<i>Eureka,</i>	Civil Engineering.
Earl, Edward Curtis,	<i>Centralia,</i>	Architecture.
Engberg, Martin Jonas,	<i>Chicago,</i>	Chemistry.
Foote, Ferdinand John,	<i>McComb City, Miss.,</i>	Mech. Eng.
Foster, Alfred Bradford,	<i>Urbana,</i>	Civil Engineering.
Fraser, Wilber John,	<i>Plainfield,</i>	Agriculture.

Frederickson, George,	<i>Champaign</i> , Eng. and Mod. Lang.
Funston, Jesse Grant,	<i>Champaign</i> , Mechanical Eng.
Gaffin, William Ward,	<i>Leaf River</i> , Civil Engineering.
Gaut, Robert Eugene,	<i>Mt. Sterling</i> , Civil Engineering.
Goldschmidt, Ot o Emil,	<i>Davenport, Iowa</i> , Mech. Eng.
Graham, Louis Thomas,	<i>Pittsfield</i> , Natural Science.
Greene, Herbert Miller,	<i>Peoria</i> , Architecture.
Gulick, Frank M.,	<i>Champaign</i> , Natural Science.
Gumbiner, Charles,	<i>Peoria</i> , Civil Engineering.
Heaton, Edward J.,	<i>Emden</i> , Civil Engineering.
Heideman, George Herman,	<i>Elmhurst</i> , Mech. Engineering.
Hoblit, John Alexander, Jr.,	<i>Atlanta</i> , Eng. and Mod. Lang.
Holston, Benjamin Baldwin,	<i>Nashville</i> , Natural Science.
Huff, George A., Jr.,	<i>Englewood</i> , Chemistry.
Hughes, Samuel Kelso,	<i>West Unity, O.</i> , Latin.
Hunt, Edward Everett,	<i>Urbana</i> , Chemistry.
Jansen, Dietrich Herman,	<i>Pekin</i> , Civil Engineering.
Jasper, Thomas,	<i>Quincy</i> , Mechanical Engineering.
Johannsen, Albert,	<i>State Center, Iowa</i> , Architecture.
Johannsen, Oskar August,	<i>State Center, Iowa</i> , Architecture.
Johnston, Elmer Alward,	<i>Dewey</i> , Mechanical Engineering.
Kerns, Shirley Kendrick,	<i>Champaign</i> , Chemistry.
King, Frank,	<i>White Hall</i> , ————
Kinkead, James Albert,	<i>Earlville</i> , Chemistry.
Klingel, Louis,	<i>Mascoutah</i> , Eng. and Mod. Lang.
Locke, Alfred,	<i>LaSalle</i> , Mechanical Eng.
Lockhart, John William,	<i>Owensville, Ind.</i> , Mechanical Eng.
Lowry, James Percival,	<i>Gibson City</i> , Architecture.
Lowry, John Albert,	<i>Gibson City</i> , Civil Engineering.
McCartney, William Priestly,	<i>Metropolis</i> , Chemistry.
McGee, Walter Scott,	<i>Deers</i> , Natural Science.
Mann, Jacob Grant,	<i>Mascoutah</i> , Civil Engineering.
Metcalf, James David,	<i>Girard</i> , Chemistry.
Millar, Clendon Van Meter,	<i>Mattoon</i> , Chemistry.
Miller, Grant Clark,	<i>Mt. Vernon, Iowa</i> , Architecture.
Mogensen, Peter,	<i>Cope hagen, Denmark</i> , Civil Eng.
Morris, Edgar William,	<i>Onarga</i> , Eng. and Mod. Lang.
Morrissey, Daniel C,	<i>Champaign</i> , Eng. and Mod. Lang.
Needham, James,	<i>Collinsville</i> , Mining Engineering.
Phelps, Albert Charles,	<i>Lockport</i> , Architecture.
Riley, Walter Busey,	<i>Champaign</i> , Eng. and Mod. Lang.

Royer, Joseph William,	<i>Urbana,</i>	Architecture.
Rutledge, John Joseph,	<i>Alton,</i>	Mining Engineering.
Seastone, Charles Victor,	<i>New Boston,</i>	Civil Engineering.
Sharpe, Richard W.,	<i>Tiskilwa,</i>	Natural Science.
Smith, Harry Keys,	<i>Quincy,</i>	Mechanical Engineering.
Smith, Riley Ellis,	<i>Blue Mound,</i>	Mechanical Eng.
Stewart, John Truesdale,	<i>Onarga,</i>	Civ. Eng. and Mil.
Strauss, William,	<i>Pittsfield,</i>	Chemistry.
Stront, Frank Asbury,	<i>Elwood,</i>	Mechanical Engineering.
Sy, Albert Philip,	<i>Altamont,</i>	Chemistry.
Tackett, William C.,	<i>Sadorus,</i>	Natural Science.
Taft, Frank Harvey,	<i>Champaign,</i>	Mechanical Eng.
Templeton, Benjamin Franklin,	<i>Palestine,</i>	Classical.
Tower, Willis Eugene,	<i>Chana,</i>	Chemistry.
Townsend, William,	<i>Champ-ign,</i>	Civil Engineering.
Weedman, Frederick John,	<i>Farmer City,</i>	Eng. and Mod. Lang.
Walton, Thomas Percival,	<i>Paxton,</i>	Civil Engineering.
Arnold, Mary Edna,	<i>Souders,</i>	Classical.
Coddington, Hester,	<i>Champaign,</i>	Eng. and Mod. Lang.
Mathews, Loueva May,	<i>Urbana,</i>	Eng. and Mod. Lang.
Naughton, Katheryn Louise,	<i>Champaign,</i>	Eng. and Mod. Lang.
Nichols, Maude E.,	<i>Urbana,</i>	Chemistry.
Shawhan, Gertrude,	<i>Urbana,</i>	Eng. and Mod. Lang.
Wingard, Anna Laura,	<i>Champaign,</i>	Eng. and Mod. Lang.
Woolsey, Ola C,	<i>Polo,</i>	Eng. and Mod. Lang.

## FRESHMAN CLASS.

Arms, Herbert Clarke,	<i>Chicago,</i>	Architecture.
Armstrong, John Adams,	<i>Kewanee,</i>	Mech. Engineering.
Ashley, Richard Jason,	<i>Tonica,</i>	Mech. Engineering.
Atherton, George Henry,	<i>Streator,</i>	Civil Engineering.
Atkinson, John Thomas,	<i>Wilmington,</i>	Mech. Engineering.
Ayers, Clarence Otto,	<i>Nashville,</i>	Natural Science.
Barry, Charles,	<i>Henry,</i>	Mech. Engineering.
Bassett, John Benjamin,	<i>Kewanee,</i>	Architecture.
Baum, Harry William,	<i>Indianola,</i>	Civil Engineering.
Beebe, Fred Albert,	<i>Wisner, Neb.</i>	Mech. Engineering.
Bennett, Charles Gerrish,	<i>Mattoon,</i>	Classical.
Benson, Oliver, Newkirk,	<i>Champaign,</i>	Architecture.
Bing, Edward W,	<i>Urbana,</i>	Chemistry.

Bissell, Frank,	<i>Farmer City</i> , Eng. and Mod. Lang.
Boggs, Fortune Stanley,	<i>Urbana</i> , Mech. Engineering.
Boon, William Guthrie,	<i>Armstrong</i> , Civil Engineering.
Bower, Loring Alphonso,	<i>Oreana</i> , Mech. Engineering.
Boyle, Hugh G.,	<i>Hamlet</i> , Eng. and Mod. Lang.
Brode, Arthur Willis,	<i>Buda</i> , Mechanical Engineering.
Brown, Fred Gage,	<i>Urbana</i> , Architecture.
Browning, Howard Allen,	<i>Elgin</i> , Architecture.
Burdick, Charles Baker,	<i>Sterling</i> , Civil Engineering.
Burdsal, Charles Southerd,	<i>Evanston</i> , Mining Eng.
Burrill, William Thomas,	<i>Shelby, Neb.</i> , Architecture.
Busey, Frank Lyman,	<i>Urbana</i> , Mechanical Engineering.
Capps, Earl Vanhise,	<i>Mt. Pulaski</i> , Electrical Eng.
Carberry, Ray Shepard,	<i>Mansfield</i> , Civil Engineering.
Carmack, Clyde Robert,	<i>Camargo</i> , Mech. Engineering.
Carnahan, David Hobart,	<i>Champaign</i> , Eng. and Mod. Lang.
Carpenter, Frank Albert,	<i>Rockford</i> , Architecture.
Chester, Henry Ezra,	<i>Champaign</i> , Chemistry.
Clark, Amos Cable,	<i>Urbana</i> , Architecture.
Clark, Cyril Balfour,	<i>Champaign</i> , Mech. Engineering.
Clinton, John Dewitt,	<i>Polo</i> , _____
Cooper, Albert Riley,	<i>Pesotum</i> , Mech. Engineering.
Coultas, Alvin Foster,	<i>Virden</i> , Architecture.
Cowles, Roy Merrick,	<i>Englewood</i> , Mech. Engineering.
Crawford, Charles Francis,	<i>Chicago</i> , Civil Engineering.
Crawford, John,	<i>Jonesboro</i> , Mech. Engineering.
Cutter, Scott Clay,	<i>Oswego</i> , Electrical Engineering.
Decius, Lyle,	<i>Toledo</i> , Eng. and Mod. Lang.
Doxey, Samuel,	<i>Ogden City, Utah</i> , Architecture.
Eakle, Silas Jackson,	<i>Forreston</i> , Natural Science.
Elder, Charles Abbott,	<i>Topeka, Kansas</i> , Architecture.
Emmons, Henry Jeffers,	<i>Atkinson</i> , Civil Engineering.
Farrar, George Arthur,	<i>Quincy</i> , Architecture.
Fay, Frank Earle,	<i>Marengo</i> , Civil Engineering.
Fellheimer, Alfred,	<i>Chicago</i> , Architecture.
Fletcher, Marcus Samuel,	<i>Ridge Farm</i> , Natural Science.
Frye, Theodore Christian,	<i>Congerville</i> , Natural Science.
Fulton, George Thomas,	<i>Waterman</i> , Civil Engineering.
Gamble, Samuel Welsey,	<i>Chicago</i> , Architecture.
Gould, George D.,	<i>Mattoon</i> , Mech. Engineering.
Grattan, William Taylor,	<i>Galatia</i> , Natural Science.

Green, James Albert,	<i>Ivesdale,</i>	Mech. Engineering.
Guthrie, Fred Ashford,	<i>Aledo,</i>	Chemistry.
Hall, Emery Stanford,	<i>East Lynn,</i>	Architecture.
Hall, Lyman,	<i>Savoy.</i>	Chemistry.
Hamilton, Frank Henry,	<i>Springfield,</i>	Civil Engineering.
Hamilton, Vernor Edward,	<i>Gardner,</i>	Architecture.
Hammett, John Burnham,	<i>Camargo,</i>	Agriculture.
Harms, Armin,	<i>Rock Island,</i>	Chemistry.
Harris, Newton Megrue,	<i>Champaign,</i>	Eng. and Mod. Lang.
Harvey, Guy Charles,	<i>Tolono,</i>	Chemistry.
Heaton, Thomas Reid,	<i>Emden,</i>	Mech. Engineering.
Herdman, Herbert Orville,	<i>Taylorville,</i>	Natural Science.
Hiles, Elmer Kirkpatrick,	<i>Chicago,</i>	Mech. Engineering.
Hobbs, Reuben Merrill,	<i>Yorkville,</i>	Chemistry.
Holbrook, Fred Samuel,	<i>Englewood,</i>	Chemistry.
Holtzman, Stephen Ford,	<i>Pontiac,</i>	Civil Engineering.
Hoyt, William Judson,	<i>Chicago,</i>	Electrical Engineering.
Hunt, Ernest Alexander,	<i>Urbana,</i>	Electrical Engineering.
Jameson, Stuart Wells,	<i>Farmer City,</i>	Classical.
Johnson, Herbert Lewis,	<i>Elgin,</i>	Architecture.
Johnson, John Cummins,	<i>Lacon,</i>	Mech. Engineering.
Johnson, Lewis William,	<i>Champaign,</i>	Chemistry.
Junkersfeld, Peter,	<i>Sadorus,</i>	Electrical Engineering.
Kennard, Perry Garst,	<i>Champaign,</i>	Civil Engineering.
Kennedy, John William,	<i>Collinsville,</i>	Architecture.
Kerchner, Fred William,	<i>Belleville,</i>	Chemistry.
Ketchum, Milo Smith,	<i>Elmwood,</i>	Civil Engineering.
Kilgour, Cassius Mathers,	<i>Sterling,</i>	Mech. Engineering.
Killam, Francis Grimes,	<i>Comer,</i>	Mech. Engineering.
Kimball, Conrad Bryant,	<i>Champaign,</i>	Architecture.
Kimball, William Haven.	<i>Chicago,</i>	Mech. Engineering.
Klingelhoef, Charles Benjamin,	<i>Mascoutah,</i>	Civil Engineering.
Lackey, Robert Allen	<i>Oak Park,</i>	_____
Lake, Edward John,	<i>Viroqua, Wis.,</i>	Architecture.
Larrimore, Charles Wesley,	<i>Jacksonville,</i>	Elec. Engineering.
Lee, Robert, Jr.,	<i>Cable,</i>	Mining Engineering.
Lewellyn, David Rossiter,	<i>Sterling,</i>	Mech. Engineering.
Long, Albert Milton,	<i>Virden,</i>	Architecture.
Lyons, Timothy John,	<i>Sadorus,</i>	Mech. Engineering.
McCaskrin, George Washington,	<i>Rantoul,</i>	Chemistry.
McCaskrin, Harry Madison,	<i>Rantoul,</i>	Natural Science.



McClintock, Alexander Wiley,	<i>Urbana,</i>	Natural Science.
McDonnell, Ernest,	<i>Table Rock, Colo.,</i>	Architecture.
McElfresh, Fred Morgan,	<i>Jacksonville,</i>	Natural Science.
McLane, John Wallace,	<i>Allerton, Iowa,</i>	Chemistry.
McMains, Harrison,	<i>Armstrong,</i>	Civil Engineering.
McNutt, John, Jr.,	<i>Humbolt,</i>	Eng. and Mod. Lang.
McRae, John Alexander,	<i>Kewanee,</i>	_____
Mann, Edward Loring,	<i>Gilman,</i>	Eng. and Mod. Lang.
Mather, Fred Elbert,	<i>Naperville,</i>	Architecture.
Mathews, John Lathrop,	<i>Evanston,</i>	Classical.
Maxon, Robbins Yale.	<i>Danville,</i>	Civil Engineering.
Maxwell, Charles Jacob,	<i>Champaign,</i>	Chemistry.
Merrick, Harry Austin,	<i>Chicago,</i>	Architecture.
Miltimore, Guy,	<i>Janesville, Wis.,</i>	Civil Eng.
Morrison, Charles Hugh,	<i>Odin,</i>	Eng. and Mod. Lang.
Morrison, William Robert,	<i>Joliet,</i>	Architecture.
Morse, Jedidiah D.,	<i>Champaign,</i>	Elec. Engineering.
Mueller, Oscar,	<i>Decatur,</i>	Mech. Engineering.
Munn, Alexander Majors,	<i>Swift, Neb.,</i>	Civil Engineering.
Neal, John Dodge,	<i>Rantoul,</i>	Chemistry.
Needham, Frank Mix,	<i>Hinsdale,</i>	Natural Science.
Noble, William,	<i>Champaign,</i>	Classical.
Orr, Edward Ellsworth,	<i>Quincy,</i>	Architecture.
Quade, John Conrad,	<i>Moline,</i>	Civil Eng. and Mil.
Randall, Parke Benjamin,	<i>Aurora,</i>	Civil Engineering.
Reed, James Horatio,	<i>Evanston,</i>	Electrical Engineering.
Reely, Thomas W,	<i>Spring Green, Wis.,</i>	Architecture.
Reeves, Harley Edson,	<i>Tampico,</i>	Civil Engineering.
Roberts, Francis Eugene,	<i>Chicago,</i>	Civil Engineering.
Roby, Luther Edward,	<i>Decatur</i>	Civil Engineering.
Root, George Hinchliff,	<i>Chicago,</i>	Mechanical Engineering.
Roysdon, William Ira,	<i>Champaign,</i>	_____
Sanders, Ralston Harvey,	<i>Chicago,</i>	Mechanical Engineering.
Sayers, Albert Jefferson,	<i>Champaign,</i>	Mech. Engineering.
Schwarz, Charles Edward,	<i>Edwardsville,</i>	Min. Engineering.
Scott, Lawson,	<i>Polo,</i>	Eng. and Mod. Lang.
Scurlock, Henry Harrison,	<i>Jackson, Ohio,</i>	Natural Science.
Seyffert, Felipe V.,	<i>Chihuahua, Mex.,</i>	Civil Eng.
Shepardson, John Eaton,	<i>Aurora,</i>	Civil Engineering.
Slater, William Frederick,	<i>Urbana,</i>	Mechanical Engineering.
Snider, Harry Holderman,	<i>Rantoul,</i>	Mechanical Engineering.

Snow, Lester J.,	<i>Maple Park</i> , Mech. Engineering.
Stocker, Edwin Warren,	<i>Rock Island</i> , Architecture.
Stoltey, Benjamin Franklin,	<i>Champaign</i> , Architecture.
Stone, Frank Lemuel,	<i>Port Byron</i> , Civil Engineering.
Stowell, Hanson Abbott,	<i>Anona, Fla.</i> , English.
Strehlow, Oscar Emil,	<i>Champaign</i> , Civil Engineering.
Stuart, Will Taylor,	<i>Cairo</i> , Mechanical Engineering.
Tarble, Myron Joy,	<i>Aurora</i> , Civil Engineering.
Teeple, Wallace, Douglas,	<i>Marengo</i> , Architecture.
Thomas, Homer,	<i>Kickapoo</i> , Architecture.
Trego, Charles Henry,	<i>Hoopeston</i> , Elect. Engineering.
Vance, Walter Noble,	<i>Bement</i> , Electrical Engineering.
Warfield, Charles W.,	<i>Princeton</i> , Electrical Engineering.
Weaver, Leslie Alvord,	<i>Danville</i> , Classical.
Webster, Charles Carlton,	<i>Polo</i> , Mechanical Engineering.
Widner, Frederick William,	<i>Ottawa</i> , —————
Wilkinson, Arthur Lewis,	<i>Argenta</i> , Natural Science.
Williams, Parker Merrill,	<i>Moline</i> , Electrical Engineering.
Williams, Scott,	<i>Bloomington</i> , Mech. Engineering.
Wiswall, Thomas,	<i>Alexander</i> , Civil Engineering.
Yeakel, William Krebel,	<i>Polo</i> , Natural Science.
Barnes, Jessie,	<i>Champaign</i> , Natural Science.
Beidler, Gertrude Lou,	<i>Champaign</i> , Eng. and Mod. Lang.
Boggs, Arclissa Florence,	<i>Urbana</i> , Natural Science.
Boggs, Pearl,	<i>Urbana</i> , Classical.
Borden, Susan May,	<i>Champaign</i> , Eng. and Mod. Lang.
Burton, Dora Francelia,	<i>Mahomet</i> , Eng. and Mod. Lang.
Call, Hortense,	<i>Urbana</i> , Chemistry.
Cole, Mary Maude,	<i>Rantoul</i> , Eng. and Mod. Lang.
Crum, Ellen Petefish,	<i>Farmer City</i> , Classical.
Fleming, Edith Anna Belle,	<i>Champaign</i> , Eng. and Mod. Lang.
Forbes, Bertha,	<i>Champaign</i> , Eng. and Mod. Lang.
Green, Marianna,	<i>Champaign</i> , Eng. and Mod. Lang.
Hopper, Georgia Etherton,	<i>Lockport</i> , Natural Science.
McCaskrin, Louise Elizabeth,	<i>Rantoul</i> , Natural Science.
McCullough, Jessie Olive,	<i>Urbana</i> , Eng. and Mod. Lang.
McFadden, Alice Alberta,	<i>Champaign</i> , Natural Science.
Moore, Grace Lillian,	<i>Tolono</i> , Natural Science.
Nye, Ruth Hood,	<i>Mt. Sterling</i> , Eng. and Mod. Lang.
O'Brien, Marguerite Helen,	<i>Champaign</i> , Chemistry.
Parker, Nettie Florence,	<i>Champaign</i> , Natural Science.

Pillsbury, Bertha Marion,	<i>Urbana,</i>	Classical.
Scott, Daisy Coffin,	<i>Champaign,</i>	Eng. and Mod. Lang.
Shepardson, Mary Frances,	<i>Aurora,</i>	Natural Science.
Spencer, Bertha,	<i>Decatur,</i>	Natural Science.
Stewart, Mabel,	<i>Champaign,</i>	Chemistry.
Thompson, Marion,	<i>Bement,</i>	Latin.
Wilder, Elizabeth Cutler,	<i>Champaign,</i>	Eng. and Mod. Lang.

## PREPARATORY CLASS.

Acton, William M.,	<i>Higginsville.</i>	_____
Allison, Waite Fisher,	<i>Mt. Carroll,</i>	Electrical Eng.
Arends, Homer Albertus,	<i>Urbana,</i>	Eng. and Mod. Lang.
Armstrong, John Walter,	<i>Champaign.</i>	_____
Ash, Joseph,	<i>Atlanta,</i>	Eng. and Mod. Lang.
Bailey, Leonard Lionel,	<i>Chicago,</i>	Architecture.
Ball, Elmer Newton,	<i>Mitchellville, Iowa.</i>	_____
Barr, Andrew, Jr.,	<i>Urbana,</i>	Architecture,
Barr, Richard James,	<i>Wilton Center,</i>	Eng. & Mod. Lang.,
Beasley, Abel Harwood,	<i>Champaign.</i>	_____
Bell, James Arthur,	<i>Channahon,</i>	Mechanical Eng.
Bigham, John Ross,	<i>Chatsworth.</i>	_____
Bishop, James F.,	<i>LeRoy.</i>	_____
Boal, Edward Tracy,	<i>Buda,</i>	Eng. and Mod. Lang.
Bower, Allan,	<i>Tolono,</i>	Eng. and Mod. Lang.
Burns, Lubin Ray,	<i>Champaign,</i>	Natural Science.
Bussey, Clyde George,	<i>Lanark,</i>	Engineering.
Campbell, George Henry,	<i>Edgewood,</i>	Natural Science.
Campbell, Walter,	<i>Brimfield.</i>	_____
Carr, Walter Scott,	<i>Argenta.</i>	_____
Carswell, Arthur Scott,	<i>New City,</i>	Electrical Engineering.
Chapin, Clarence Willard,	<i>DeLand.</i>	_____
Chatten, Melville Clark,	<i>Quincy,</i>	Architecture.
Chester, Wilfred Dudley,	<i>Champaign,</i>	Mining Engineering.
Church, George Leonard,	<i>Atlanta,</i>	Eng. and Mod. Lang.
Cook, Harvey,	<i>Tolono,</i>	Chemistry.
Crayne, William E.,	<i>Champaign,</i>	Mechanical Eng.
Crighton, William Collier,	<i>Champaign,</i>	Civil Engineering.
Duffy, Sherman,	<i>Ottawa,</i>	Eng. and Mod. Lang.
Dunkin, Will Van,	<i>Blue Grass,</i>	Eng. and Mod. Lang.
Drake, Louis Sanford,	<i>Chicago,</i>	Eng. and Mod. Lang.
Drury, George Edward,	<i>Wilmette,</i>	Architecture.

Evans, Robert Herman,	<i>Bloomington,</i>	Architecture.
Everett, Frank Milton,	<i>Quincy,</i>	Electrical Engineering.
Feigley, Samuel Henry,	<i>Rock Falls,</i>	Civil Engineering.
Ferguson, Harry Taylor,	<i>Sterling,</i>	Eng. and Mod. Lang.
Feuerbach, William John,	<i>St. Louis, Mo.,</i>	Architecture.
Fitzgerald, John Richard,	<i>Bethany,</i>	Eng. and Mod. Lang.
Fouts, Lewis Hayden,	<i>Chicago,</i>	Eng. and Mod. Lang.
Garber, Emanuel,	<i>Washington,</i>	Natural Science.
Granger, Guy,	<i>Champaign,</i>	Mechanical Eng.
Greeley, Carlton Lloyd,	<i>Waterman,</i>	Natural Science.
Green, Frank H.,	<i>Ivesdale,</i>	Mechanical Engineering.
Haley, Arthur Fenn,	<i>Champaign,</i>	Mechanical Eng.
Hanker, William Julius,	<i>Toledo,</i>	Architecture.
Harvey, William Keith,	<i>Blue Mound,</i>	Mechanical Eng.
Hindman, John,	<i>Buckley,</i>	Eng. and Mod. Lang.
Honens, Fred William,	<i>Milan,</i>	Civil Engineering.
Hughes, Frank Alexis,	<i>Okawville,</i>	Civil Engineering.
Huston, Fred Thales,	<i>Blandinsville,</i>	Natural Science.
Jackson, Z. Edward,	<i>Atchison, Kan.,</i>	Mechanical Eng.
Jones, Fred R.,	<i>Neponset,</i>	Mechanical Eng.
Keeler, Frederic Blair,	<i>Earlville,</i>	Architecture.
Kent Louis Maxwell,	<i>Danville,</i>	Electrical Engineering.
Ketchum, Richard Bird,	<i>La Prairie.</i>	-----
King, Harless Warden,	<i>Joliet,</i>	Architecture.
Leigh, Charles Wilber,	<i>La Prairie Centre.</i>	-----
Lemon, William Clarence,	<i>Morganfield, Ky.,</i>	Civil Eng.
Leonhard, Adolph,	<i>Trenton.</i>	-----
Lewis Charles Milton,	<i>Blue Mound,</i>	Architecture.
Lienesch, Walter Herman,	<i>O'Fallon,</i>	Engineering.
Liese, George Charles,	<i>Nashville,</i>	Natural Science.
Lilly, John Crozier,	<i>Champaign,</i>	Eng. and Mod. Lang.
Lovitt, Walter,	<i>Kansas City, Mo.</i>	-----
McBride, Willis Brammer,	<i>Taylorville,</i>	Civil Engineering.
McConney, Porter David,	<i>Peoria,</i>	Mechanical Engineering.
McGrath, John,	<i>Keithsburg,</i>	Mechanical Eng.
MacGregor, Leonard Allen,	<i>Earlville,</i>	Architecture.
McKee, Eli Earl,	<i>Rising,</i>	Architecture.
McKnight, Robert Wade,	<i>Girard.</i>	-----
McQuaid, Charles William,	<i>LeRoy, Kan.,</i>	Engineering.
Maxwell, Irvine William,	<i>Savoy,</i>	Mechanical Engineering.
Mell, Joseph Lenard,	<i>San Jose,</i>	Agriculture.

Mettler, Joseph Ferdinand,	<i>Rankin,</i>	Latin.
Millar, Harry Knowles,	<i>Mattoon,</i>	Civil Engineering.
Miller, Frank Arthur,	<i>Chicago,</i>	Mechanical Engineering.
Mitchell, George White,	<i>Chicago,</i>	Architecture.
Morrow, Clarence Gifford,	<i>Champaign,</i>	Agriculture.
Mueller, Arnold William,	<i>Allegheny, Pa.</i>	Architecture.
Naughton, Charles Colby,	<i>Champaign,</i>	Chemistry.
Newcomer, Joseph Hardin,	<i>Petersburg,</i>	Eng. and Mod. Lang.
Noble, Charles William,	<i>Chicago,</i>	Architecture.
Noble, Harry Charles,	<i>Champaign,</i>	Engineering.
O'Leary, Arthur,	<i>Keithsburg,</i>	Mechanical Eng.
Oyler, Harry Schuyler,	<i>Mt. Pulaski.</i>	-----
Parker, Walter A.,	<i>Champaign,</i>	Eng. and Mod. Lang.
Parry, Joseph Lawrence,	<i>Tolono,</i>	Eng. and Mod. Lang.
Perkins, Allie Christian,	<i>Tolono,</i>	Elec. Engineering.
Perry, George G.,	<i>Urbana,</i>	Architecture.
Pfeffer, John Edward,	<i>Bondville,</i>	Mech. Engineering.
Pierce, Will Thomas,	<i>Mt. Carroll,</i>	Civil Engineering.
Piper, Caryl Sylvester,	<i>Grand Crossing,</i>	Mech. Eng.
Pope, George Albert,	<i>Chicago,</i>	Mech. Engineering.
Ray, George Joseph,	<i>El Paso,</i>	-----
Read, Frank Albert,	<i>Lily Lake,</i>	Eng. and Mod. Lang.
Reardon, Edward Emmett,	<i>Boynnton,</i>	-----
Rice, Fred Lee,	<i>Champaign,</i>	-----
Roberts, John Jacob,	<i>Sadorus,</i>	-----
Rose, William,	<i>Columbia,</i>	Engineering.
Rouse, John Edward,	<i>Gays,</i>	Classical.
Rowe, Herbert Brunskill,	<i>Redmon,</i>	Eng. and Mod. Lang.
Seyffert, Alberto F.,	<i>Chihuahua, Mex.,</i>	-----
Shearer, Hallock,	<i>Gard's Point,</i>	Agriculture.
Sherman, Cecil Harvey,	<i>Elgin,</i>	Mech. Engineering.
Simons, Alexander Martin,	<i>Quincy,</i>	Elec. Engineering.
Smith, Louie Henrie,	<i>Crystal Lake,</i>	Chemistry.
Southward, Harry A.,	<i>New Boston,</i>	-----
Sperry, James Frank,	<i>Champaign,</i>	Mech. Engineering.
Spurgin, William Grant,	<i>Urbana,</i>	Classical.
Stark, Robert Watt,	<i>Augusta,</i>	Chemistry.
States, William Daniel,	<i>Elwood,</i>	Mech. Engineering.
Stokes, Hurlie Albert,	<i>Carthage,</i>	Mech. Engineering.
Stroker, George Dick,	<i>Palatine,</i>	Civil Engineering.
*Sullivan, John Laurence,	<i>Mansfield,</i>	Eng. and Mod. Lang.

\*Deceased.

Sweney, Don,	Mason City,	_____
Tait, Daniel Webster,	Macon,	Agriculture.
Thompson, Risty Melroy,	Fairland,	_____
Thornhill, Charles Calaware,	Champaign,	Engineering.
Tilton, Harry William,	Mt. Carmel,	Elec. Engineering.
Tobias, Frank Owen,	Peotone,	Mech. Engineering.
VanMeter, Seymour,	Cantrall,	Architecture.
Van Ostrand, Charles Edwin,	Pekin,	Civil Engineering.
Walker, George Washington,	Walker,	Agriculture.
Warfield, Ray Mary,	Quincy,	Electrical Engineering.
Warnecke, Carl Marie,	Denver, Col.,	Architecture.
Watson, Ebenezer Bliss,	Waverly,	Agriculture.
Weeks, Charles Henry,	Upper Alton,	Architecture.
West, George,	Marseilles,	Mech. Engineering.
White, Solon Marks,	Sandwich,	Natural Science.
Whittemore, Leonard Archie,	Verona,	Mechanical Engineering.
Williamson, John Arthur,	Nashville, Tenn.,	Mechanical Eng.
Wilmes, Fred Henry,	Quincy,	_____
Woods, Ray Elmo,	Gardner,	_____
Wookey, Murray Adrian,	Peoria,	Architecture.
Woolsey, Theo. Dwight,	Polo,	Latin.
Young, Clyde Cyrus,	Stonington,	Natural Science.
Zimmerman Walter,	Earlville,	Mech. Engineering.
Bibler, Adda,	Urbana,	Eng. and Mod. Lang.
Bibler, Anna,	Urbana,	Eng. and Mod. Lang.
Bonner, Kate Porter Harper,	Champaign,	Eng. and Mod. Lang.
Bradshaw, Alice Rice,	Urbana,	Eng. and Mod. Lang.
Burt, Myra Ernestine,	Urbana,	Architecture.
Cross, Daisy,	Rantoul,	Eng. and Mod. Lang.
Hill, Mary,	Champaign,	_____
Howse, Darlie P.,	Champaign,	_____
Kent, Jennie Isabella,	Urbana,	Eng. and Mod. Lang.
Leal, Mary Cloelia,	Urbana,	_____
Mason, Mildred,	Plainfield,	Eng. and Mod. Lang.
Moore, Minnie Rose,	French Grove,	_____
Noble, Isabelle,	Champaign,	Eng. and Mod. Lang.
Noble, Mary Elizabeth,	Champaign,	Eng. and Mod. Lang.
O'Neill, Marian Madeline,	Champaign,	Eng. and Mod. Lang.
Palmer, Mabel,	Champaign,	Eng. and Mod. Lang.
Peck, Harriet Stella,	Fisher,	Eng. and Mod. Lang.
Powers, Florence Victoria,	Tiskilwa,	_____

Sabin, Nellie,	<i>Stonington.</i>	_____
Schenk, Clara,	<i>Fisher.</i>	_____
Shlaudeman, Maud,	<i>Decatur,</i>	Eng. and Mod. Lang.
Sim, Anna M.,	<i>Urbana.</i>	_____
Starkweather, Pearl Belle,	<i>Champaign.</i>	_____
Stokes, Birdie Corneilia,	<i>Urbana,</i>	Eng. and Mod. Lang.
Stone, Ethel,	<i>Champaign</i>	_____
Wilkinson, Luella Jane,	<i>Argenta.</i>	_____

## SPECIAL STUDENTS.

Cook, Walter Scott Downing,	<i>St. Louis, Mo.,</i>	Architecture.
Crawford, Henry Virden,	<i>Virden,</i>	Architecture.
Friess, John Peter,	<i>Mascoutah,</i>	Architecture.
Herbel, Emil Hartman,	<i>Jacksonville,</i>	Architecture.
Lucas, Frank,	<i>Champaign,</i>	Chemistry.
McKinney, Newton Charles,	<i>Camargo,</i>	Agriculture.
Pierson, Ora,	<i>Indianapolis, Ind.,</i>	Architecture.
Rogers, Herbert Dinwiddie,	<i>Peoria,</i>	Architecture.
Saunders, Oliver Clinton Thornton,	<i>St. Joseph,</i>	Chemistry.
Stoolman, Winfield,	<i>Champaign,</i>	Architecture.
Todd, Daniel Malcolm,	<i>Elgin,</i>	Architecture.
Aspern, Helen,	<i>Champaign,</i>	Art and Design.
Besore, Ida May,	<i>Urbana,</i>	Art and Design.
Brown, Katherine,	<i>Oreana,</i>	Natural Science
Harwel, Mittie,	<i>Champaign,</i>	Music.
Maxwell, Nellie,	<i>Champaign,</i>	Art and Design.
McIntosh, Mabel C. U.,	<i>Champaign,</i>	Modern Languages.
McIntosh, Winifred W. S.,	<i>Champaign,</i>	Modern Languages.
Palmer, Vesper,	<i>Champaign,</i>	Art and Design.
Pound, Maggie May,	<i>Champaign,</i>	Art and Design.
Pound, Martha Eleanor,	<i>Champaign,</i>	Music.
Paradis, Mrs. Mattie Ann,	<i>Urbana,</i>	Modern Languages.
Riddle, Florence Newell,	<i>Champaign,</i>	Art, Design, Music.
Stoltey, Ada Gay,	<i>Champaign,</i>	Art, Design, Music.

## SUMMARY.

BY CLASSES.	MEN.	WOMEN.	TOTAL.
Resident Graduates.....	5	3	8
Seniors.....	41	5	46
Juniors.....	50	7	57
Sophomores.....	93	8	101
Freshmen.....	157	27	184
Preparatory.....	137	26	163
Special.....	11	13	24
Total.....	494	89	583
BY COURSES.			
Agriculture.....	11	.....	11
Mechanical Engineering.....	88	.....	88
Electrical Engineering.....	29	.....	29
Civil Engineering.....	87	.....	87
Mining Engineering .....	6	.....	6
Architecture .....	91	1	92
Chemistry.. .....	41	4	45
Natural History .....	40	13	53
Art and Design.. .....	.....	7	7
Music.....	.....	2	2
English and Modern Languages.....	54	45	99
Latin.....	3	1	4
Classical.....	12	5	17
Pedagogy.....	1	.....	1
Not Specified.....	31	11	42
Total.....	494	89	583



# HOLDERS OF SCHOLARSHIPS, PRIZES, AND COMMISSIONS.

## HONORARY SCHOLARSHIPS.

The following named counties have been represented during the year by the students named:

Adams,	Woodruff, Thomas Tyson.
Brown,	Bartlett, Henry Emmett.
Bureau,	Forbes, Robert Humphrey.
Champaign,	Snodgrass, William.
Clinton,	Earl, Mark Alden.
Coles,	Bennett, Sarah.
Cook,	Hart, Ralph Warner.
Crawford,	Templeton, Benjamin Franklin.
Douglas,	Carmack, Clyde Robert.
Du Page,	Heideman, George Hermann.
Ford,	Lowry, James Percival.
Kane,	Shepardson, John Eaton.
Livingston,	Holtzman, Stephen Ford.
Mercer,	Boyle, Hugh G.
Ogle,	Woolsey, Ola C.
Peoria,	Beasley, Harrison Easton.
Rock Island,	Johnson, Harriette Augusta.
St. Clair,	Klingelhofer, Charles Benjamin.
Scott,	Gibbs, William David.
Washington,	Ayers, Clarence Otto.
Whiteside,	Reeves, Harley Edson.
Winnebago,	Carpenter, Frank Albert.

## WINNERS IN JUNIOR PRIZE SPEAKING CONTEST.

Forbes, Robert Humphrey, First Prize.

Kiler, Charles Albert, Second Prize.

COMMISSIONED BY THE GOVERNOR AS CAPTAINS BY  
BREVET IN THE ILLINOIS NATIONAL GUARD.

Eno, Frank Harvey.	McClure, Ora Deal.
Harvey, Alfred Ernest.	Smolt, Franklin Oscar.
Clarke, Edward Besançon.	Wallace, Ross Straw 1.
Clarke, Frederic Woodruff.	Vail, Charles Davis.

SPECIAL COMMENDATION.

The following have been named to the Secretary of War as worthy of special commendation :

Eno, Frank Harvey.	Harvey, Alfred Ernest.
	Smolt, Franklin, Oscar.

WINNER OF HAZLETON PRIZE MEDAL, 1892.

Atwood, Levi Patten.

ROSTER OF OFFICERS AND NON-COMMISSIONED OFFICERS  
OF THE BATTALION FOR 1891-2.

Majors: P. T. Burrows, R. A. Mather.

Adjutant: Captain E. C. Craig.

Sergeant Major: S. K. Hughes.

Co. A—Captain, F. M. Spalding; 1st Sergeant, J. H. Reed; Sergeant, W. D. Teeple; Corporals, C. C. Webster, M. S. Fletcher, H. O. Herdman, L. E. Roby, F. A. Carpenter, C. Barry.

Co. B—Captain, W. J. Graham; 1st Sergeant, L. P. Atwood; Sergeant, W. K. Yeakel; Corporals, W. N. Vance, H. E. Reeves, J. C. Quade, P. Junkersfeld, A. M. Munn, Z. E. Jackson.

Co. C—Captain M. A. Earl; 1st Sergeant, E. A. Johnston; Corporals, C. W. Noble, J. L. Mathews, J. A. Green, J. E. Shepardson, L. A. McGregor, S. F. Holtzman.

Co. D—Captain, J. T. Stewart; 1st Sergeant, C. L. Babcock; Sergeant, E. W. Stocker; Corporals, E. V. Capps, F. King, W. C. Lemen, F. L. Busey, H. G. Boyle, Wm. Noble.

Artillery Detachment—Captain, C. D. Brownell; 1st Sergeant, W. H. Kimball; Corporal, P. B. Randall.

Band—Samuel Doxey, Drum Major; C. A. Elder, Leader.

## LIST OF GRADUATES.

[Alumni of the University are requested to send to the Regent's office prompt notice of any changes which should be made in the following lists.]

### CLASS OF 1872.

Burwash, Milo B., Farmer.....	Savoy.
Davis, John J., B.S., Physician.....	Racine, Wis.
Drewry, Henry N., Physician.....	Effingham.
Flagg, Alfred M., Capt., Lawyer.....	Sioux Falls, Dak.
Hatch, Miles F., Banker and Mill Owner.....	Tacoma, Wash.
Lyman, George H., Real Estate Agent.....	Ft. Smith, Ark.
Mathews, James N., M.L., Physician.....	Mason.
Parker, Calvin E., Banker.....	Philo.
Reiss, Willis A., Teacher.....	Belleville.
Reynolds, Stephen A., Capt., Lawyer.....	Chicago.
Rickard, Thomas E., Farmer.....	Springfield.
Ricker, N. Clifford, M. Arch., Professor of Architecture, University of Illinois.....	Urbana.
Rolfe, Charles W., M.S., Professor of Geology, University of Illinois.....	Urbana.
Silver, Charles W., Merchant.....	Kansas City, Mo.
Silver, Howard, Principal of Public Schools.....	Janesville, Wis.
*Teepie, Jared, April 2, 1888.....	Marengo.
Wharton, Jacob N., Builder.....	Chicago.
Whitcomb, Alonzo L., Physician.....	St. Paul, Minn.
Wood, Reuben O., Capt., Farmer.....	Woodburn.

### CLASS OF 1873.

Graham, Charles P., Clergyman.....	New Salem, Kan.
Hatch, Fred L., M.S., Farmer.....	Spring Grove.
Hayes, Charles I., B.S., Mining Engineer.....	Breckenridge, Col.
Hennessey, Augustus L., Editor.....	Chicago.
Hill, Edgar L., Capt., Farmer.....	Austin, Texas.
Hook, Samuel H., Miner.....	Black Hills, Col.
Morrow, Andrew T.	
Ockerson, John A., C.E., Civil Engineer in U. S. Service, with Miss. River Commission.....	St. Louis, Mo.
Phillips, Parley A., Farmer.....	Damascus

Platt, Franklin C., Capt., Lawyer and Banker..... Waterloo, Iowa.  
 Porterfield, Elijah N., City Civil Engineer..... Kearney, Neb.  
 Robbins, Henry E., M.S., Superintendent of Schools... Lyons, Iowa.  
 Swartz, Alex. C., C. E., Civil Engineer and Architect... Ogden, Utah.  
 Williams, Lewis E., Real Estate..... Trinidad, Col.

## CLASS OF 1874.

Baker Ira O., C.E., Professor of Civil Engineering, University of  
 Illinois..... Champaign.  
 Campbell, John P., Physician..... Winchester.  
 Drewry, Ebenezer L., Co. Supt. of Schools..... Chamberlain.  
 Eaton, Herbert, Printer..... Bloomington.  
 Ells, William C., Civil Engineer..... City of Mexico.  
 Estep, Harvey C., Civil Engineer..... Anacostes, Wash.  
 Foster, Charles W., Lawyer..... Champaign.  
 Gabrialial, Gregory, Missionary..... Asia Minor.  
 Gennadius, Parragiottis, B.S., Chief of Bureau of Agriculture  
 and Director Agricultural School of Athens.. Athens, Greece.  
 Jeffers, Charles P., Druggist..... Swampscott, Mass.  
 Pickrell, William, Manufacturer..... Beatrice, Neb.  
 Pierce, John L., B.A., Lawyer..... Norfolk, Neb.  
 Reynolds, Henry S., M.S..... Providence, R. I.  
 Smith, Charles A., B.S., Draughtsman..... Providence, R. I.  
 Storey, George, Civil Engineer..... San Diego, Cal.  
 Watts, William, Physician..... Sylvania, Ohio.  
 Wharry, Walter W., Capt.

Cheever, Alice, Mrs. A. H. Bryan..... Champaign.  
 Potter, F. Adelia, B.L., Mrs. H. S. Reynolds..... Providence, R. I.

## CLASS OF 1875.

Barnard, Delonzo E., Farmer... Manteno.  
 Barnes, Arthur E., B.S., Banker..... Kansas City, Mo.  
 Brown, Dillon S., of Brown & Brown, Bankers..... Genoa.  
 Brown, Ralph L., M.L., Lawyer and Real Estate..... Ashland, Ky.  
 Coddington, Vantile W., Architect..... Wilmette.  
 Dobson, Franklin P., Capt.  
 Dunlap, Burleigh A., Lawyer..... De Smet, Dak.  
 Dunlap, Henry M., M.S., Farmer..... Savoy.  
 Eaton, Ernest, Farmer..... Downs, Ind. Ty.  
 Everhart, Winfield S., Capt., M.L., Lawyer..... Toledo, Ohio.  
 \*Faulkner, James, Capt., Oct. 1, 1882..... Bloomfield.  
 Gridley, George N., Farmer..... Prairie View.  
 Kenower, George F., M.L., Editor..... Wisner, Neb.  
 Lefler, John E..... Denver, Col.  
 Lyford, Charles C., B.S., Veterinary Surgeon... Minneapolis, Minn.  
 McCauley, John C.....

\*Deceased.

Mueller, John, B.S., Instructor.....	Upsala, Sweden.
Parks, James H., Co. Surveyor, Donley Co.....	Clarendon, Tex.
Parsons, Fernando A., M.L., Banker.....	Kingman, Kan.
Patch, Emory, Machinist.....	Janesville, Wis.
Pickrell, Watson, Lawyer, Commissioner Bureau of Animal Industry.....	Beatrice, Neb.
Pollock, Wm. C., Lawyer.....	Washington, D. C.
Robinson, Elna A., Machinist.....	Champaign.
Scovell, Melville A., M.S., Director and Chemist of Kentucky Agr. Exp. Station and State Chemist.....	Lexington, Ky.
Scudder, Clarence O., M.L., Superintendent of Schools.....	South Evanston.
Shawhan, George R., B.L., County Superintendent of Schools.....	Urbana.
Tyndale, Henry H., Lawyer.....	London, England.
Warner, L. Fenn., Civil Engineer.....	Auburn, Cal.
Anderson, Laura, Mrs. J. R. Greenhalgh.....	Champaign.
Campbell, Amanda, Mrs. Milton Moore.....	Mansfield.
Hullinger, Kate, Mrs. Sterling.....	Parker, Dakota.
Kariher, Kate, Mrs. Albert Eisner.....	Champaign.
Kellogg, Flora L., Mrs. Hudson.....	Coldwater, Iowa.
Lee, Alice, B.L., Mrs. V. W. Coddington.....	Kansas City, Mo.
Pierce, Fannie, Stenographer.....	Norfolk, Neb.
Steele, Mary C., B.L., Mrs. N. C. Ricker.....	Urbana.
Stewart, Maggie E., M.L., Mrs. H. E. Robbins.....	Lyons, Iowa.

## CLASS OF 1876.

Allen, Ralph, Farmer.....	Delavan.
Ballou, Edward L., Miner.....	Igo, Cal.
*Campbell, James W., January 22, 1890.....	Los Gatos, Cal.
Chandler, William B., Lawyer.....	Pueblo, Col.
Clark, Charles W., Architect.....	St. Louis, Mo.
Drake, James F., Lawyer.....	S. Pueblo, Col.
Gill, John D., Lawyer.....	Duluth, Minn.
Gore, Simeon T., Architect.....	Chicago.
Gregory, Charles E, Capt., Lawyer.....	Carrington, Dak.
Knibloe, Walter E., Principal of High School.....	St. Augustine, Fla.
Mackay, Daniel S., Farmer.....	Mt. Carroll.
Mackay, Henry J., Lawyer.....	Mt. Carroll.
Mackay, William A., Capt., Cashier First National Bank.....	Madison, S. Dak.
Mahan, H. Weston, Real Estate.....	Chicago.
*Mann, A. Howard, April 23, 1879.....	Winnebago, Cal.
Mann, Frank I., Capt., Nurseryman.....	Gilman.
Mann, James R., Capt., Lawyer.....	Chicago.
Noble, Lewis R., Capt., B.S., Insurance Agent.....	Mattoon.
Oliver, Will F., Capt., Physician.....	Trafton, Wash.

Palmer, Frank M., Capt., Lawyer.....Clinton.  
 Pierce, Elon A., Teacher.....Santa Rosa, Cal.  
 Rhodes, James F., Lawyer.....Durango, Col.  
 Scribner, Artemus C., Lawyer.....Seattle, Wash.  
 Starr, Frank A. E., Capt., M.L., Lawyer.....Portland, Ore.  
 Stookey, D. Wesley, Tile Manufacturer.....Buffalo.  
 Weston, Charles H., Merchant and Banker.....Hay Springs, Neb.  
 \*Wild, George A., November, 1881.....Las Animas, Col.  
 William, Thomas T., Farmer.....Sterling.

Holton, Mattie S., Mrs. Charles Krebs.....Chicago.

### CLASS OF 1877.

Abbott, Theodore S., B.S., Civil Engineer.....Laredo, Texas.  
 \*Allen, Charles W., B.L., July 8, 1880.....Harristown.  
 Barry, Charles H., Capt., Insurance Agent.....Erie, Pa.  
 Barry, Frank Capt., B.L., Publisher.....Milwaukee, Wis.  
 Blackall, C. H., Capt., M.A., Architect.....Boston, Mass.  
 Brush, Charles E., Architect.....Kansas City, Mo.  
 Buckingham, William, Mining Engineer.....Chicago  
 Bumstead, James E., Physician and Surgeon.....Dundee.  
 Clay, Luther G., Horticulturist.....Cobden.  
 Crow, Benjamin F., Superintendent Car Works.....St. Louis, Mo.  
 Elliott, Charles G., C.E., Civil Engineer.....Bloomington.  
 Faulkner, Richard D., Merchant.....San Francisco, Cal.  
 Gibson, Charles B., Capt., Professor of Chemistry, College of  
 Physicians and Surgeons.....Chicago.  
 Gilkerson, Hiram, Capt., Farmer.....Hampshire.  
 Gilkerson, John, Lawyer.....Chicago.  
 Kennedy, Allen G., Capt., Secretary and Treasurer Manufactur-  
 ing Company.....Minneapolis, Minn.  
 Lewis, Edward V., Capt., Manufacturer.....Omaha, Neb.  
 Llewellyn, Joseph C., B.S., Farmer.....Monticello.  
 \*McPherson, John, January 26, 1886.....Lexington, Ky.  
 Moore, John F., Architectural Draughtsman.....Davenport, Iowa.  
 Rice, George C., Merchant.....Oakwood  
 Seymour, John L., Civil Engineer.....San Jose, Cal.  
 Sim, Coler L., Capt., Cashier Wichita Banking Co.....Wichita, Kas.  
 Spence, Franklin, Farmer.....Hamilton  
 Stayman, John M., Machinist.....Chicago  
 Stoddard, Ira J., Capt., Civil Engineer.....Champaign.  
 Ward, Walter P., B.L., Lawyer.....Spencer, Iowa.  
 Whitham, R. F., Capt., B.L., City Engineer.....Olympia, Wash.  
 Wright, Myron J., Superintendent with the Urie Dredge Man-  
 ufacturing Company.....Kansas City, Mo.

Adams, Nettie, Mrs. W. Bent Wilson.....Lafayette, Ind.  
 Bogardus, Eva, Mrs. T. L. Price.....Pound Ridge, N. Y.  
 Broshar, Cornelia, Artist.....Champaign.  
 Conn, Emma, Music Teacher.....Champaign.

\*Deceased.

Falls, Ida Bell.....	Champaign.
Gregory, Helen B., B.A., at home.....	Kansas City, Mo.
Maxwell, Emma C.....	Philadelphia, Pa.
Page, Martha. Mrs. R. F. Whitham.....	Olympia, Wash.
Piatt, Emma C., B.S., Mrs. J. C. Llewellyn.....	Warrensburg, Mo.
Skinner, Velma C., Mrs. W. P. Ward.....	Spencer, Iowa.
Smith, Avis E., M.S., Physician.....	Kansas City, Mo.
Switzer, Gertrude, Mrs. H. Peddicord.....	Champaign.
Victor, Carrie D., Mrs. Ira J. Stoddard.....	Champaign.

## CLASS OF 1878.

Baker, Edward J., B.S., Farmer.....	Savoy.
Ballard, Charles K., B.S.....	Madison, Dak.
Bridge, W. E., Capt., B.S., Merchant.....	Detroit, Mich.
Brown, Frank A., Real Estate and Banker.....	Aberdeen, S. D.
Bullard, Samuel A., B.S., Architect.....	Springfield.
Burr, Ellis M., B.S., Machinist.....	Champaign.
Coffin, Frank S., Lawyer.....	Nashville, Tenn.
Coffman, Noah B., B.S., Banker.....	Chehalis Wash.
Dean, Frank A., Capt., Merchant.....	Holdrege, Neb.
Francis, Fred, Machinist.....	Neponset
Gaffner, Theodore, Physician.....	Trenton
Gregory, A. T., Capt., B.S., Lawyer.....	Kansas City, Mo.
Hauser, Henry A., Capt., B.S., Civil Engineer.....	Topeka, Kan.
Lee, Edward O., B.L., Lawyer.....	Sidney, Neb.
Lloyde, Frank H., Merchant.....	Champaign.
McLane, James A., B.S., Real Estate.....	Chicago.
Moore, Aaron H., Merchant.....	Louisville.
Morava, Wensel, Capt., B.S., Machinist.....	Chicago.
Patchin, John, Lawyer.....	Manchester, Mich.
Pollock, James L., B.L., Lawyer.....	Mt. Vernon.
Richards, Chas. L., B.S., Lawyer.....	Hebron, Neb.
Rudy, Wm. D., B.S., Special Agent P. O. Dept....	Washington, D. C.
*Rutan, Abram R., June 4, 1887.....	Raton, N. Mex
Savage, Manford, B.L., Lawyer.....	Hebron, Neb.
Sawyer, Hamlin W., Capt.	
Sparks, Hosea B., Capt., Miller.....	Alton.
*Spradling, W. F., November 30, 1881.....	Greenleaf, Kan.
Sprague, Martin, Lawyer.....	Springfield.
Weed, Mahlon O., B.S., Teacher.....	Greenwood, Neb.
Whitlock, J. F., Capt., B.S., Lawyer.....	Huron, Dak.
Ziesing, August, Capt., B.S., Supt. Bridge Works.....	Chicago.
Zimmerman, H. W., B.L., Chemist.....	LaSalle.
Columbia, Emma, Mrs. J. R. Maun.....	Chicago.
Culver, Nettie M., B.L., Mrs O. Ellison.....	St. Paul, Minn.
Davis, Nannie J., Mrs. M. A. Scovell.....	Lexington, Ky.
Deardorf, Sarah C., B.S., Mrs. B. F. Donnell.....	Winfield, Kan.
*Estep, Ida M., January 25, 1887.....	Rantoul.
Estep, Jessie.....	Seattle, Wash.

\*Deceased.

Larned, Mary S., Mrs. F. A. Parsons.....Kingman, Kan.  
 Mahan, Jennie C., Mrs. P. W. Plank....Lincoln, Neb.  
 Page, Emma, M.L.....Manville, Wy,  
 Page, Mary L., B.S., Architectural Draughtsman...Olympia, Wash.

## CLASS OF 1879.

Beardsley, H. M., M.L., Lawyer .....Kansas City, Mo.  
 Bourne, H. P., B.S., Civil Engineer.....Alamosa, Col.  
 Butler, Wm. N., Lawyer.....Cairo.  
 Coburn, R. P., Capt., B.S., Civil Engineer .....San Antonio, Tex.  
 Freijls, Charles T., Capt., Architect. ....Chicago  
 Gunder, James, B.S., Merchant. ....Homer  
 Hoyt, Otis W., B.S., Farmer.....Geneseo.  
 Johnson, Wm. P., Capt., Manager Coal Co .....Milwaukee, Wis.  
 Kays, Emory, Farmer.....Phoenix, Ariz.  
 Kimble, Willis P., B.S., Civil Engineer ...Marceline, Mo.  
 Kuhn, Isaac, B.S., Merchant ...Prescott, Ariz.  
 Lee, Elisha, B.S., Farmer.....Hamlet  
 \*Milton, Franklin S., B.S., July 23, 1882.....Plattville, Col.  
 Stanton, S. C., Capt., B.S., Physician.....Chicago.  
 Swannell, Arthur, Capt., Merchant....Kankakee.  
 Taft, Lorado Z., M.L., Sculptor.....Chicago.  
 Thompson, W. A., Capt., B.S., Banker.....Chicago.  
 Walker, Francis E., Capt., Farmer .....  
 Whitmire, Clarence L., Physician and Surgeon.....Waverly, Iowa.

Butts, Augusta E., B.S., Teacher ..Chicago.  
 Hale, Isabelle, B.S., Teacher ...Kewanee.  
 Kimberlin, Nettie D., Teacher.....Detroit, Mich.  
 McAllister, Nettie C., B.L., Mrs. J. H. Miller...Minneapolis, Minn.

## CLASS OF 1880.

Bley, John C., B.L., Machinist....Chicago.  
 Briles, Bayard S., B.S., Physician.....Etna.  
 Conklin, Roland R., M.L., Banker.....Kausas City, Mo.  
 Cook, Charles F., B.S., Merchant.....Edwardsville.  
 Groves, Charles W., Principal of High School .....Kankakee.  
 Hafner, Christian F.....Oak Park.  
 Harden, Edgar E., Banker. ....Liberty, Neb.  
 Hatch, Frank W., B.A., Farmer.....Spring Valley.  
 Hyde, Benjamin F., Draughtsman.....Chicago.  
 Jones, Richard D., Lawyer.....Henry.  
 Kingsbury, Charles S., B.L.....  
 Neely, Charles G., B.L., Lawyer .....Chicago.  
 Parker, Wm. L., B.S., Machinist.....Olympia, Wash.  
 Robinson, A. F., C.E., Civil Engineer.....Chicago.  
 Robinson, A. S., Capt., B.S., Engineer.....Joliet.  
 Savage, George N., M.L., Lawyer.....Olympia, Wash.

\*Deceased.



Sondericker, Jerome, C.E., Assistant Professor Applied Mathematics, Institute of Technology, Boston... Newton, Mass.  
 \*Travis, Wm. W., September 30, 1883..... Bloomington.  
 White, Frank, B.S., Farmer..... Valley City, N. Dak.

Bacon, Kittie I., B.L..... Whatcom, Wash.  
 Batcheler, Augusta, Mrs. W. T. Eaton..... Texarkana, Ark.  
 Lucas, Corda C., Teacher..... Camargo.  
 Parker, Minnie A., B.L., Mrs. V. N. Hostetler..... Decatur.  
 Pearman, Ida, B.L., Mrs. C. E. Stevens..... Logansport, Ind.  
 Watson, Ella M., B.S., Mrs. J. H. Davis..... Kansas City, Mo.

## CLASS OF 1881.

\*Allison, James G., April 21, 1891..... Anthony, Kas.  
 Armstrong, James E., B.S., Teacher..... Englewood.  
 Beach, Bayard E., B.L., Banking and Real Estate... Huron, S. Dak.  
 Bellamy, Albert, Merchant..... Girard  
 Birney, Frank L., Physician..... Denver, Col.  
 Boothby, Arthur, B.S., Draughtsman..... Indianapolis, Ind.  
 Boyd, Comma N., Capt., Farmer..... Sheffield  
 Coddington, Arch. O., M.L., Teacher..... Chicago.  
 Cooper, Fred. O., B.S., Cashier Citizens' Bank..... VanBuren, Ark.  
 Davis, Arthur E., B.L., Druggist..... Sulphur Spring, Tex.  
 Dennis, C. H., Capt., B.L., City Editor on Chicago News... Chicago.  
 Dresser, John C., B.S., Bookkeeper..... Jacksonville.  
 Forsyth, James, Engineer..... Gilroy, Cal.  
 Hammett, F. W., Capt., B.S., Tile Manufacturer..... Tuscola.  
 Hill, Fred L., Draughtsman..... Chicago.  
 Hill, Thomas C., Capt., B.A., Teacher..... Kensington.  
 Kingman, Arthur H., Clerk..... Boston, Mass.  
 McKay, Francis M., B.L., Principal of Douglass School ... Chicago.  
 Mansfield, Willis A., B.L., Physician..... Metamora.  
 Mason, William K., B.S., Farmer..... Buda.  
 Morse, John H., Capt., Real Estate..... Kansas City, Mo.  
 Pearman, J. Ora, B.S., Physician..... Palatine.  
 Pepoon, Herman S., B.S. Physician and Surgeon..... Lewistown.  
 Pepoon, William A., Farmer..... Baker City, Ore.  
 Philbrick, E., Capt., B.S., Civil Engineer... Chicago.  
 \*Pletcher, Francis M., B.S.....  
 \*Porter, Frank H., Capt., 1885.....  
 Ross, Sprague D., B.S., Real Estate..... Grand Island, Neb.  
 Schwartz, Joseph, Druggist..... Salem.  
 Seymour, Arthur B., M.S., Assistant in the Cryptogamic Herbarium of Harvard University..... Cambridge, Mass.  
 Slade, Byron A., Capt., B.S., Druggist..... Wabasha, Minn.  
 Stacey, Morelle, Stenographer..... Brookfield, Mo.  
 Sturman, James B., B.L., Lawyer..... Chicago.

Talbot, A. N., Capt., C.E., Prof. Municipal and Sanitary Engineering, University of Illinois.....	Champaign.
Weston, Wm. S., B.L., B.S., Civil Engineer.....	Topeka, Kas.
Wilson, Maxwell B., Farmer.....	Paris.
Baker, Kittie M., Mrs. J. G. Wadsworth.....	Lincoln, Neb.
Barnes, Bertha E., B.L., Mrs. S. D. Ross.....	Grand Island, Neb.
Davis, Marietta, B.L., Mrs. H. M. Beardsley.....	Kansas City, Mo.
Elder, Loretta K., B.L., Mrs. A. F. Robinson.....	Chicago.
Hammett, Jennie M., B.S., Mrs. A. N. Talbot.....	Champaign.
*Lawhead, Lucie M., B.S., May 1, 1884.....	Champaign.
Lawrence, Nettie E., Mrs. J. A. Allen.....	Tulare, Cal.
Macknett, Metta, B.A., Mrs. B. E. Beach.....	Huron, S. Dak.
Thomas, Darlie, B.L., Bookkeeper.....	Chicago.
Wright, Jessie A., B.L., Mrs. H. E. Richardson.....	Mascoutah.

## CLASS OF 1882.

Bailey, S. G. Jr., Capt., B.S.....	Topeka, Kas.
Barnes, Charles C.....	Stella, Col.
Bridge, Arthur M., Capt., Farmer.....	Goldfield, Iowa.
Bullard, Benjamin F., B.L., Editor.....	Forest City, Dak.
Bullard, George W., B.S., Architect.....	Tacoma, Wash.
Carman, W. B., Capt., B.S., Physician.....	Rochester, N. Y.
Cole, Edward E., Capt., Principal Public School.....	Grand Island, Neb.
Curtiss, Wm. G., Banker.....	Vernon, Texas.
Davis, Jephtha H., Real Estate.....	Kansas City, Mo.
Eichberg, David, Capt., B.L., Lawyer.....	Chicago.
Eisenmeyer, A. J., Capt., B.S., Pres. and Treas. Milling Co.....	Springfield, Mo.
Harrison, Samuel A., M.A.....	Chicago.
Merritt, Charles H., Bank Clerk.....	Mason City.
Neely, John R., B.L., Government Clerk and Physician.....	Washington, D. C.
Noble, Thomas, Mining Engineer.....	San Diego, Cal.
Orr, Robert E., Capt., B. S., Civil Engineer.....	Evanston.
*Palmer, Charles W., B.L., July, 1884.....	Austin, Tex.
Peabody, Arthur, B.S., Architect.....	Chicago.
*Richards, Geo. W., Capt., B.S., May 15, 1889.....	Chicago.
Roberts, Charles N., B.S., City Salesman with Hinds, Ketcham Co.....	Chicago.
Rugg, Fred D., B.L., Merchant.....	Champaign.
Sharp, Abia J., Capt., B.S., Machinist.....	Harrisonville, Mo.
Shlaudeman, Frank, B. S., Supt. Decatur Brewing Co.....	Decatur.
Slauson, Howard, B.S., Lawyer.....	Seattle, Wash.
Smith, Charles L., Capt., B.L., Lawyer.....	Minneapolis, Minn.
Spencer, Nelson S., B.S., Architect.....	Beatrice, Neb.

\*Deceased.

Taft, Florizel A., B.S., Cashier in Bank.....Hanover, Kan.  
 Todd, James, B.S.,.....Batavia.  
 Turner, Herbert, Capt., Farmer, Campbell.....Minn.  
 Wadsworth, J. G., Capt., Banker.....Lincoln, Neb.  
 Andrus, Dora A., B.L., Mrs. J. C. Griffith.....Ashton.  
 Avery, Kittie C., B.L., at home.....Omaha, Neb.  
 Cole, Fronia R., Mrs. W. F. Hall.....McLeansboro.  
 Raley, Arvilla K., at home.....Granville.

## CLASS OF 1883.

Abbott, Edward L., B.S., Bridge Constructor.....Chicago.  
 Adams, Charles F., Naturalist.....Champaign.  
 Bogardus, Eugene C., B.S., Chemist.....Seattle, Wash.  
 Brainard, Clarence, Foreman Architectural Iron Works...Chicago.  
 Craig, William P., Capt., Lawyer.....Champaign.  
 Gates, Alphonso S., B.S., Civil and Mining Engineer.....  
 .....Spearfish, S. Dak.  
 Goltra, William F., Capt., B.S., Civil Engineer...Indianapolis, Ind.  
 Gray, Nelson A., Capt., B.L., Farmer.....Passadena, Cal.  
 Haven, Dwight C., Capt., Lawyer.....Joliet.  
 Heath, Wm. A., B.L., Cashier of Bank.....Champaign.  
 Hewes, George C., B.S., Missionary.....India.  
 Huey, Joseph D., Postmaster.....Huey.  
 Kenower, John T., B.S., Principal Seminary.....Indian Ty.  
 Lewis, Ralph D. ....Chicago.  
 McCune, H. L., Capt., B.L., Lawyer.....Kansas City, Mo.  
 Moore, William D., Engineer.....Chatham.  
 Palmer, Arthur, B.S., S.D., Professor of Chemistry, University  
 of Illinois.....Champaign.  
 Pierce, Fred D., Capt., B.S., Druggist.....Chicago.  
 Piatt, Silas H., Express Agent.....St. Paul, Minn.  
 Scotchbrook, Geo. P., B.S.....Wessington, Dak.  
 Sondericker, William, B.A.  
 Weis, Joseph, B.S., Chemist.....Chicago.

\*Ashby, Lida M., B.L., Mrs. C. L. Richards, September 1, 1888.

.....Hebron, Neb.  
 Boggs, Hattie M., M.A., Mrs. I. A. Love.....Anthony, Kan.  
 Colvin, Mary S., Mrs. W. C. Hargis.....Bondville.  
 Fellows, Clara B., A.L., Mrs. J. D. Day.....Rhineland, Wis.  
 Gardner, Jessie, B.L., Music Student.....Cincinnati, O.  
 Healy, Grace, B.L., Mrs. C. L. Smith.....Minneapolis, Minn.  
 Knowlton, Lizzie A., B.L. ....Lincoln, Neb.  
 Langley, M. Celeste, B.L., Mrs. H. B. Slauson.....Seattle, Wash.  
 Lewis, C. Florence, Mrs. C. J. Bills.....Fairbury, Neb.  
 Peabody, Kate F., B.L., Teacher.....Hyde Park.  
 Stewart, Ella M., Teacher.....Champaign.  
 Wright, Minnie E., M.L., Mrs. J. M. Blackburn.....Texas.

## CLASS OF 1884.

Abbott, William L., Electrician .....	Chicago
Austin, James, Draughtsman .....	LaCrosse, Wis.
Babcock, Guy H., Capt., Banker .....	Arapahoe, Neb.
Barber, Henry H., B.S., Draughtsman .....	Chicago.
*Bartholf, Emmet G., B.A., December 28, 1884 .....	Chicago.
Bartholf, Wm. J., B.A., Principal of VonHumbolt School ..	Chicago.
Braucher, Arthur C., B.S., Machinist .....	Danville.
Chapman, Norman W., Civil Engineer .....	Omaha, Neb.
Eberlein, Frederick W., B.S., Physician .....	Rutland.
Herdman, F. E., Capt., M.E., Mechanical Engineer, Indianapolis, Ind,	
Hunt, Thomas F., B.S. Professor of Agriculture, University of	
Ohio .....	Columbus, O.
Kimball Edward R., B.S., Editor .....	Aspen, Col.
Lietze Frederic A., B.S. ....	Carlyle.
Lilly, Charles H., B.S., Merchant .....	Seattle, Wash.
Lilly, James E., .....	Seattle, Wash.
McCluer, Geo. W., B. S., Assistant Horticulturalist, Experiment	
Station, University of Illinois .....	Champaign, Ill.
Montezuma, Charles, B.S., Physician .....	White Rock, Nev.
Morgan, George N., B.L., Lawyer .....	Chicago.
Parr, Samuel W., M.S., Professor of Analytical Chemistry, Uni-	
versity of Illinois .....	Champaign.
Philbrick, Solon, Capt., Lawyer .....	Champaign.
Roberts, Lewis C., Capt., Civil Engineer .....	Anacortes, Wash.
Rupp, Andrew O., B.L., Editor .....	Monmouth.
Sizer, Lucius N., Capt., B.S., Civil Engineer .....	Chicago.
Speidel, Ernst, B.S., Chemist .....	Chicago.
Stevens, Hubert A., B.S., Civil Engineer .....	Chicago.
Stratton, S. W., Capt., B.S., Professor of Physics, University of	
Illinois .....	Champaign.
Van Petten, H. S., B.S., Druggist.. ..	Salt Lake, Utah.
Vial, Edmund R., B.S., Farmer .....	Western Springs.
Wills, Jerome G., B.L., Lawyer .....	Vandalia
Ayers, Nettie, B. L., Assistant in Botanical Laboratory, University	
or Illinois ..	Urbana.
Barber, Ella U., B.L., Teacher .....	Hamilton, Ont.
Braucher, Alma E., B.S., Librarian Lincoln Library Association	
.....	Lincoln.
Campbell, Juniata G., B.L., Mrs. T. F. Hunt .....	Columbus, O.
*Clark, Lucy J., January 9, 1887. ....	Champaign.
Conkling, Anna J., B.L., Mrs. A. B. Seymour .....	Cambridge, Mass.
Ellis, Lola D., B.L., Mrs. James W. Forsythe .....	Gilroy, Cal.
Hall, Lucy A., Mrs. S. W. Parr .....	Champaign.
Hill, Cora J., Stenographer .....	Chicago.
Kemball, Georgetta, B.L., Mrs. Harry L. Murray .....	Maroa.
Krause, Josephine .....	Chicago.

Sim, Keturah E., B.L., Clerk in County Clerk's Office..... Urbana.  
 Smith, Laura B., B.L., Mrs. S. H. Piatt . . . . . St. Paul, Minn.

## CLASS OF 1885.

Abbott, A. N., Capt., Farmer..... Union Grove.  
 Ayers, Judson F., Real Estate . . . . . Ft. Scott, Kan.  
 Braucher, Wm. B., Machinist..... Danville.  
 Carter, Harry L., Civil Engineer..... E. Las Vegas, N. M.  
 Cole, Edward T., Physician..... Penfield.  
 Colton, Simeon C., B.S..... Chicago.  
 Dunlap, Robert L., Farmer..... Savoy.  
 Ellis, Geo. H., Analytical Chemist..... Evanston.  
 Hicks, Geo. L., B.L., Farmer..... Warren.  
 Hopper, Chas. S., Manufacturer..... Lincoln, Neb.  
 Kendall, Wm. F., B.S., Civil Engineer..... Rock Island.  
 Kent, James M., B.S., Electrician..... Kansas City, Mo.  
 Lantz, Milo P., Capt., B.S., Farmer..... Carlock.  
 Lattin, Judson, Capt., B.S., Draughtsman... Chicago.  
 Manns, Albert, G. B. S., Ph. D., Manufacturing Chemist.... Chicago.  
 Marshall, S. L., Capt., B.L., Clerk..... Jacksonville.  
 Miller, John A., B.S., Ph.D., Professor of Chemistry and Toxicology, Niagara University..... Buffalo, N. Y.  
 Morse, E. L., Capt., B.L., Civil Engineer..... Red Cliff, Col.  
 North, Arthur F., Engineer..... Louisville, Ky.  
 Petty, Geo. R., B.S., Apiarist..... Pittsfield.  
 Rankin, Chas. H., Farmer..... Fall Creek.  
 Reynolds, Henry L., B.S..... Seattle, Wash.  
 Ronalds, Hugh I., B.S., Portrait Artist..... Chicago.  
 Schleder, Theo. H., B.S., Engineer and Architect..... Chicago.  
 Schrader, Alfred T., Civil Engineer..... Chicago.  
 Smith, William H.,..... Mt. Vernon, Wash.  
 Stockham, W. H., Capt., B.S., Manufacturer..... Chicago.  
 Swern, William C., Architect . . . . . Chicago.  
 Vial, Fred K., B.S., Civil Engineer..... Chicago.  
 Wright, John E., Assistant City Editor Evening Post . . . . . Chicago.  
 Woodworth, C. W., B.S., Ph.D., Entomologist at Experiment Station..... Fayetteville, Ark.

Clark, Kate F., B.S., Mrs. Wm. Stockham..... Chicago.  
 Earle, Mary T., B.S..... Cobden.  
 Jones, Emma T., B.L., Mrs. P. T. Spence..... Zanesville, O.  
 Merboth, Louisa, at home..... Spring Bay.  
 Owens, Bessie W., Mrs. J. H. Needham..... North Yakemo, Wash.  
 Paullin, L. Estelle, Medical Student..... Chicago.  
 Plank, Bessie G., Mrs. L. Thompson..... Cherokee, Iowa.  
 Switzer, Lottie, Teacher..... Champaign.  
 Weston, Abbie, Mrs. Wm. C. Swern..... Denver, Col.  
 Wills, Etta G., Bookkeeper and Cashier..... Vandalia.

Wright, Minnie S., Mrs. H. H. Barber .....	Chicago.
Wright, Lizzie M., Mrs. Miles Canady .....	Chicago.
Zellar, Josephine M. ....	Spring Bay.

## CLASS OF 1886.

Babcock, Wm. A., B.L. ....	Ipava.
Bannister, Geo. S., B.S., Architect .....	Chicago.
*Barrett, Dwight H., B.S., December 30, 1888 .. .	Baltimore, Md.
Bullard, S. Foster, Civil Engineer....	Tacoma, Wash.
Chitty, Wm. L., B.L., Lawyer.....	Chicago
Cromwell, John C., B.S., Draughtsman.....	Chicago.
Davis, James O., Capt., B.S., Civil Engineer .....	Houston, Tex.
Dodds, Joseph C., B.L., Physician.....	Kankakee.
Endsley, Lee, B.S. ....	Minneapolis, Minn.
Everhart, T. W. B., B.A., Agent ..	St. Louis, Mo.
Fulton, James, B.S., Electrician.....	Chicago.
Garrett, James H., B.S., Machinist .....	Anaconda, Mont.
Garvin, John B., B.S., Librarian and Registrar.....	Golden, Col.
Harris, James W., B.S., State School of Mines .....	Elburn.
Hubbard, Harry T., Merchant.....	Urbana.
*Jacobson, Jacob S., July 15, 1890.....	Denver, Col.
Kammann, Chas., B.L., Teacher.....	Peoria
Lemme, Emil, Architect.....	Los Angeles, Cal.
Lumley, Clinton G., B.L., Physician and Surgeon.....	Chicago.
Morse, Henry M., B.S., Draughtsman ..	Chicago.
Olshausen, W. A. G., B.S., Assistant Superintendent San Jose Mine.....	Sierra Mojada, Mex.
Pence, Wm. D., Capt., Civil Engineer .....	Temple, Texas.
Philbrick, Alvah, Civil Engineer .....	Chicago.
Plowman, Wm. L., B.L. ....	Virden.
Roberts, Vertus B., Capt.....	Chicago.
Sargent, Charles E., Machinist ..	Chicago.
Shlaudeman, Harry, B.S., Secretary and Treasurer of Decatur Brewing Co.....	Decatur.
Thompson, Luther, Capt., Civil Engineer.. . . .	Cherokee, Iowa.
Whitmire, Z. L., B.L., Physician and Surgeon .....	Tolono.
Wilder, Henry W., Capt., B.A., Secretary of Bridge Co....	Chicago.
Ayers, Belle, B.L., Teacher.....	Chicago.
Elder, Nettie, Mrs. Charles F. Harris ..	Urbana
Ermentrout, A. M., B.L., Teacher ..	Urbana
Fairchild, Rozina P., B.L., Mrs. J. O. Davis .....	Houston, Texas.
Huff, Bertie, B.L., Mrs. A. Philbrick .....	Chicago.
Jaques, Minnie, B.L.....	Urbana.
Parminster, Grace E., B.L., Teacher.....	Kearney, Neb.

## CLASS OF 1887.

Barclay, Wm., B.S., Civil Engineer.....	Kansas City, Kas.
Blake, John B., B.S., Electrician .....	Chicago.

\*Deceased.

Cantine, E. I., Capt., B.S., Civil Engineer	Rathdrum, Idaho.
Clark, Percy L., B.S., Physician	Chicago.
Dryer, Ervin, B.S., Electrician	Chicago.
Fargusson, Mark, Capt., B.S., Civil Engineer	New York.
Fink, Bruce, B.S., Teacher	Elk Point, S. Dakota.
Gilbert, Frank M., Machinist	Baltimore, Md.
Gill, Rudolph Z., Architect	Knoxville, Tenn.
Goldschmidt, Edward W., Electrician	Chicago.
Goodwin, Phil A., Capt., B.S., Civil Engineer	Albany, Oregon.
Gregory, Grant, B.L., Commercial Reporter	Kansas City, Mo.
Henson, Charles W., B.S., Draughtsman	Chicago.
Johnson, Edward J., Civil Engineer	
Lloyde, Clarence A., B.S., Electrician	Oak Park.
Long, Frank B., Architect	Chicago.
Lyman, Henry M., B.S., Electrician	Canton, Ohio.
Mitchell, Walter R., B.S., Teacher	Englewood.
Moore, Albert C., Capt., B.L., Freight Clerk	Walla Walla, Wash.
Powers, Mark, B.S., Professor in School of Pharmacy	Chicago.
Richards, Albert L., U. S. Assistant Engineer	Quincy.
Rinaker, John I., Jr., Architect	Spokane Falls, Wash.
Spear, Grant W., B.S., Machinist	Aurora.
Tatarian, Bedros, B.S., Chemist	Chicago.
Taylor, Horace, Artist	Chicago.
Waite, Merton B., Capt., B.S., Assistant in Section of Vegetable Pathology	Washington, D. C.
William, Herbert B., B.S., Mining Engineering	Streator.
Eisenmeyer, Ida, Teacher	Mascoutah.
Gayman, Angelina, Teacher	Champaign.
Williamson, Mary H., B.L., Teacher	Champaign.

## CLASS OF 1888.

Beadle, J. Grant, Architect	Peoria.
Bing, Benjamin, B.S., Chemist	Urbana.
Bowditch, Fred D., Capt., B.L., Principal of High School	Morristown, Tenn.
Bryant, William C., Draughtsman	Kewanee.
Bush, Lincoln, B.S., Civil Engineer	Chicago.
Carter, Truman P., B.S., Professor in Illinois College	Jacksonville.
Davis, Frank L., Capt., Manager of Chicago Office Marble Co.	Chicago.
Dewey, Ralph E., B.L., Teacher	Penfield.
Ellison, Edward, Capt., B.S., Civil Engineer	Edwardsville, W. Va.
Folger, Adolphus D., Farmer	Ridge Farm.
Frederick, Grant, B.L., Lawyer	Wolsey, S. Dak.
Goldschmidt, A. G., B.S., Electrician	Davenport, Ia.
Goodall, Nathan P., B.L., Clerk	Chicago.
Greaves, George, Chemist	Aurora.

Grindley, Harry S., B.S., First Assistant Chemist, University of Illinois .....	Champaign
McHugh, Geo. B., Capt., B.S., Railway Postal Clerk...	Toledo, Ohio.
Myers, Geo. W., Capt., B.L., Assisstant Professor in Mathematics, University of Illinois .....	Urbana.
Patton, Jacob A., B.S., Physician and Surgeon.....	Charleston.
Pickard, Edward W., Capt., B.A., Assistant City Editor Evening Post .....	Chicago.
Place, Raymond M., B.L., Teacher.....	Atlanta.
Roberts, Warren R., B.S., Civil Engineer.....	Chicago.
Samuels, John H., Capt., B.S., Machinist.....	Springfield.
Schaefer, J. V. E., Machinist .....	Chicago.
Taylor, John W., B.S., Insurance Agent.....	St. Louis, Mo.
VanGundy, Chas. P., B.S., Chemist.....	Baltimore, Md.
Barnes, Mary Lena, B.L., Teacher .....	Champaign.
Beach, Etta L., Mrs. J. E. Wright.....	Chicago.
Connett, Ella, B.L., Teacher .....	Farmington.
Eldridge, Mary A., B.L., Teacher.....	Galva.
Jillson, Nellie W., Teacher.....	Pittsburgh, Pa.
Mathers, Effie, B.S., at Home.....	Mason City.
McLean, Nellie, B.L., Mrs. C. G. Lumley.....	Chicago.
McLellan, Mary C., at Home.....	Champaign.
Stoltey, Ida M., Mrs. Geo. R. Petty.....	Pittsfield.

## CLASS OF 1889.

Bennett, Cleaves, B.L., Assistant Librarian, University of Illinois.....	Champaign.
Bennett, Frederick M., B.L., Bank Cashier ...	Fidalgo City, Wash.
Bopes, Charles N., B.S., Farmer ..	Hamlet.
Briggs, Charles W., B.L., Principal of Schools..	St. Lawrence, S. D.
Carver, Albert, Capt., B.S., Student ..	Berlin, Germany.
Daugherty, Lewis S., B.S., Teacher.....	Ottawa.
Dunaway, Horace, B.S., Civil Engineer .....	St. Louis.
Evans, Rolla W., B.S., Architect.....	Bloomington.
Kendall, Harry F., B.L., Law Student .....	Champaign.
Kinder, David R., B.L., Teacher.....	East St. Louis.
Kinkead, David R., B.S., Electrician ..	Chicago.
Lewis, C. Almon, B.S., Architect... ..	Spokane Falls, Wash.
Lewis, James L., Capt., B.L., Lawyer.....	Champaign.
Ligare, Edward F.	
McConney, Robert D., B.S., Electrician ...	Denver, Col.
Moles, Oliver S., B.L., Principal of Schools... ..	Canon City, Col.
Ross, Luther M., M.S., Teacher .....	Wenona, Wis.
Steele, Phillip, B.S., Machinist .....	Chicago.
Weston, Nathan A., B.L., Principal East Side School...	Champaign.
Weis, Herman L. ....	Tonica.
Bronson, Lilly O., Professional Nurse.....	Urbana.
Coffeen, Amy, B.L., Music Teacher.....	Champaign.



Church, Blanche A., B.L., Teacher. . . . . Ottawa.  
 Paine, Leanah J., B.L., Teacher . . . . . Champaign.  
 Sparks, Mrs. Myrtle E., M.A., Teacher. . . . . Champaign.  
 Weston, Margaret, B.L., Teacher. . . . . Champaign.

## CLASS OF 1890.

Barr, James, Capt., B.S., Electrician . . . . . Chicago.  
 Bawden, S. D., Capt., B.S., Machinist. . . . . Beatrice, Neb.  
 Beardsley John, B.L., Real Estate . . . . . Champaign.  
 Benson, Edward M., B.S., Civil Engineer. . . . . Rathdrum, Idaho.  
 Bowsher, Columbus A., Teacher. . . . . Champaign.  
 Camp, Norman H., B.S., Law Student. . . . . Knoxville, Tenn.  
 Clark, Frank H., Capt., B.S., Draughtsman. . . . . Chicago.  
 Clark, Thomas A., B.L., Instructor in University of Illinois, . .  
 . . . . . Champaign.  
 Clarkson, James F., Capt., B.S., Civil Engineer . . . . . Chicago.  
 Clinton, George P., B.S., Assistant in Botany, Agricultural Ex-  
 periment Station, University of Illinois . . . . . Champaign.  
 Cooke, Robert J., Capt., B.S., Civil Engineer. . . . . Dubuque, Iowa.  
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 . . . . . Cambridge, Mass.  
 Crabbs, Clarence L., Capt., B.S., Civil Engineer. . . . . Chicago.  
 Fisher Frank, Capt., B.S. . . . . Chicago.  
 Gilliland, Wm. M., B.S., Draughtsman. . . . . Chicago.  
 Hanssan, G. Adolph, Draughtsman . . . . . Chicago.  
 Hazelton, Hugh, Capt., B.S., Mechanical Engineer. . . . . Chicago.  
 Keene, Edward S., B.S., Assistant in Machine Shop, University  
 of Illinois . . . . . Champaign.  
 McCandless, H. W., B.S., Draughtsman . . . . . Chicago.  
 McKee, Will E., B.S., Draughtsman. . . . . Chicago.  
 Manny, Walter I., Law Student, Mich. University. Ann Arbor, Mich.  
 Moore, Byron L., B.S., Chemist. . . . . Cumberland, Md.  
 Nesbit, Edwin, B.S., Draughtsman . . . . . Chicago.  
 Peoples, U. J. Lincoln, Draughtsman . . . . . Ft. Wayne, Ind.  
 Proctor, Orla A., B.S., B.L., Vice President College of Mo. and  
 Professor Natural Science . . . . . Harris, Mo.  
 Schaefer, Philemon A., Mexican Government Survey. Parral, Mexico.  
 Shamel, Charles H., M.S., Professor of Chemistry, Microscopy,  
 and Toxicology . . . . . Keokuk, Iowa.  
 Snyder, C. Henry, B.S., Civil Engineer. . . . . Chicago.  
 Stevens, Fred W., Chemist . . . . . Chicago.  
 Terbush, Linsley F., B.L., Reporter. . . . . Chicago.  
 Tresise, Frank J., B.S., Civil Engineer. . . . . Geneva, N. Y.  
 Tscharner, John B., B.S., Supt. Water and Light Co. Waco, Texas.  
 Waterman, Fred W., B.S., Mechanical Engineer, Duluth, Minn.  
 White, James M., B.S., Assistant in Architecture, University of  
 Illinois . . . . . Champaign.  
 Wilber, Frank D., B.S. . . . . Champaign.  
 Wilkinson, Geo. E., B.S., Principal of Public Schools. Emporia, Kas.

Wilson, Robert C., B.S., Medical Student..... Philadelphia, Pa.  
 Boyle, Anna C., B.L..... Champaign.  
 Brumbach, Lucia R., B.L., Mrs. E. C. Bogardus..... Seattle, Wash.  
 Clark, Edith L., at home..... Urbana.  
 Ellars, Jessie, B.A., Teacher..... Tuscola.  
 Kennard, Katherine, B. L., at home..... Champaign.

## CLASS OF 1891.

Barclay, Thomas, B.S., Chemist..... Plainfield.  
 Bouton, Charles S., Reporter..... Hyde Park.  
 Boyd, Willard A., B.S., Draughtsman..... Chicago.  
 Braucher, Ernest N., B.S., Draughtsman..... Chicago.  
 Bunton, Fred L., B.S., Machinist..... Kewanee  
 Chester, Dick H., B.S., Chemist..... Pittsburg, Kan.  
 Chester, John N., B.S., Solicitor for Boughen Engraving Co....  
 ..... Cincinnati.  
 Clarke, Edwin B., Capt., B.S., Draughtsman..... Chicago.  
 Clarke, Frederic W., Capt., B.S. Draughtsman..... Chicago.  
 Eidman, Edward C., B.S., Civil Engineering..... Edwardsville.  
 Eno, Frank H., Capt., B.S., Civil Engineering..... Chicago.  
 Fischer, Lawrence, Architect..... Decatur.  
 Frahm, Hans, B.L., Columbian Law School..... New York City.  
 Frederickson, John H., B.S., Architectural Iron Works .. Chicago.  
 French, Ransford M., B.S., Architectural Designing..... Chicago.  
 Gardner, Frank D., B.S., Assistant in Agriculture, Experiment  
 Station, University of Illinois..... Champaign.  
 Gibson, Charles, B.S., Civil Engineer..... S. Chicago.  
 Green, Thomas S., B.S., Reporter..... St. Louis.  
 Harris, Jay T., B.S., City Surveyor..... Champaign  
 Harvey, Alfred E., Capt., B.S., U. S. Government Work on the  
 Illinois River.....  
 Hay, Walter M., B.S., Civil Engineering .. Chicago.  
 Hobbs, Glenn M., Assistant Physical Laboratory, University of  
 Illinois..... Champaign.  
 Howorth, Thomas J., B.A., Reporter..... St. Louis.  
 McClure, Ora D., Capt., B.S., Civil Engineer..... Cheyenne.  
 McCormick, Wirt, B.L..... California.  
 Maue, August, B.L., Teacher..... Mokena.  
 Mitchell, Charles J., B.S., Civil Engineer..... Chicago.  
 Peabody, Lorin W., Mechanical Engineer..... Philadelphia.  
 Powell, John H., B.S., Instructor in Projection Drawing and  
 Descriptive Geom., University of Illinois..... Champaign.  
 Richart, Frederic W., B.S., Electrician..... Carbondale.  
 Shamel, Clarence A., B.S., Farmer..... Willey.  
 Shattuck, Walter F., B.S., Teacher in Art Institute..... Chicago.  
 Smolt, Franklin O., Capt., B.S., Chemist..... LaSalle.  
 Terrill, Joseph S., B.S., Assistant in Entomology... Lexington, Ky.  
 Vail, Charles D., Capt., B.S., Civil Engineering..... Cheyenne.

Wallace, Ross S, Capt., B.S., Mechanical Engineer...	Sioux City, Ia.
Young, Charles B., B.S., Draughtsman. . . . .	Aurora.
Beach, Laura M., at home.....	Champaign.
Broadus, Alice V., B.S., Teacher.....	Forrest.
Butterfield, Helen, B.L., Teacher.....	Mattoon.
Carson, Annie, B.L., Teacher . . . . .	Urbana.
Darby, Nellie M., B.L., Teacher . . . . .	Urbana.
Heller, Opal B., B.L., Teacher.....	Urbana.
Jones, Isabel E., Student in University of Illinois....	Champaign.
Jones, Mabel, B.L., Teacher . . . . .	Champaign.
Myers, Clara, B.L. . . . .	Evanston.
Paine, Sarah M., Student in University of Illinois . . .	Champaign.
Shattuck, Anna F., B.L., Student in University of Illinois..	Champaign.
Seibert, Emma, B.S., Teacher.....	

<b>1892</b>							<b>1893.</b>							<b>1893.</b>							<b>1893.</b>						
<b>SEPTEMBER.</b>							<b>JANUARY.</b>							<b>MAY.</b>							<b>SEPTEMBER.</b>						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	..	..	..	1	2	3	1	2	3	4	5	6	7	..	1	2	3	4	5	6	..	..	..	..	..	1	2
4	5	6	7	8	9	10	8	9	10	11	12	13	14	7	8	9	10	11	12	13	3	4	5	6	7	8	9
11	12	13	14	15	16	17	15	16	17	18	19	20	21	14	15	16	17	18	19	20	10	11	12	13	14	15	16
18	19	20	21	22	23	24	22	23	24	25	26	27	28	21	22	23	24	25	26	27	17	18	19	20	21	22	23
25	26	27	28	29	30	..	29	30	31	..	..	..	..	28	29	30	31	..	..	..	24	25	26	27	28	29	30
<b>OCTOBER.</b>							<b>FEBRUARY.</b>							<b>JUNE.</b>							<b>OCTOBER.</b>						
..	..	..	..	..	..	1	..	..	..	1	2	3	4	..	..	..	..	1	2	3	1	2	3	4	5	6	7
2	3	4	5	6	7	8	5	6	7	8	9	10	11	4	5	6	7	8	9	10	8	9	10	11	12	13	14
9	10	11	12	13	14	15	12	13	14	15	16	17	18	11	12	13	14	15	16	17	15	16	17	18	19	20	21
16	17	18	19	20	21	22	19	20	21	22	23	24	25	18	19	20	21	22	23	24	22	23	24	25	26	27	28
23	24	25	26	27	28	29	26	27	28	..	..	..	..	25	26	27	28	29	30	..	29	30	31	..	..	..	..
30	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>NOVEMBER.</b>							<b>MARCH.</b>							<b>JULY.</b>							<b>NOVEMBER.</b>						
..	..	1	2	3	4	5	..	..	1	2	3	4	..	..	..	..	..	1	..	..	1	2	3	4			
6	7	8	9	10	11	12	5	6	7	8	9	10	11	2	3	4	5	6	7	8	5	6	7	8	9	10	11
13	14	15	16	17	18	19	12	13	14	15	16	17	18	9	10	11	12	13	14	15	12	13	14	15	16	17	18
20	21	22	23	24	25	26	19	20	21	22	23	24	25	16	17	18	19	20	21	22	19	20	21	22	23	24	25
27	28	29	30	..	..	..	26	27	28	29	30	31	..	23	24	25	26	27	28	29	26	27	28	29	30	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	30	31	..	..	..	..	..	..	..	..	..	..	..	..
<b>DECEMBER.</b>							<b>APRIL.</b>							<b>AUGUST.</b>							<b>DECEMBER.</b>						
..	..	..	..	1	2	3	..	..	..	..	..	1	..	1	2	3	4	5	..	..	..	..	..	1	2		
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12	3	4	5	6	7	8	9
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19	10	11	12	13	14	15	16
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26	17	18	19	20	21	22	23
25	26	27	28	29	30	31	23	24	25	26	27	28	29	27	28	29	30	31	..	..	24	25	26	27	28	29	30
..	..	..	..	..	..	..	30	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..	..	..	..	..

# THE UNIVERSITY CALENDAR.

.1892-93.

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## FALL TERM—1892.

Sept. 12, Monday.	Entrance examinations begin.
Sept. 13, 14, Tuesday, and Wednesday.	} Registration Days.
Sept. 15, Thursday,	
Nov. 24, Thursday.	Thanksgiving Recess.
Nov. 28, Monday.	Instruction resumed.
Dec. 19, Monday.	Term Examinations begin.
Dec. 21, Wednesday.	Term ends.

## WINTER TERM—1893.

Jan. 2, Monday.	Entrance Examinations.
Jan. 2, 3, Monday and Tuesday.	} Registration Days.
Jan. 4, Wednesday.	
Jan. 9, Monday,	} Latest date for announcing Subjects of Theses for Baccalaureate Degrees.
March 20, Monday.	
March 22, Wednesday.	Term ends.

## SPRING TERM—1893.

March 21, 22, Tuesday and Wednesday.	} Registration Days.
March 23, Thursday.	
April 17, Monday.	Latest day for presenting Conklin Oration.

April 29, Saturday.	}	Latest day for presenting Commencement
		Theses and Orations.
May 25, Thursday.		Senior Examinations begin.
May 29, Monday.		Hazleton Prize Drill.
May 30, Tuesday.		Competitive Drill.
May 31, Wednesday.		Term Examinations begin.
June 4, Sunday.		Baccalaureate Address.
June 5, Monday.		Class Day.
June 6, Tuesday.	}	Alumni Day.
		Conklin Prize Orations.
June 7, Wednesday.		Twenty-second Annual Commencement.

## FALL TERM—1893.

Sept. 11, Monday.		Entrance Examinations begin.
Sept. 12, 13, Tuesday,	}	Registration Days.
and Wednesday.		
Sept. 14, Thursday.		Instruction begins.
Nov. 30, Thursday.		Thanksgiving Recess.
Dec. 4, Monday.		Instruction resumed.
Dec. 18, Monday,		Term Examinations begin.
Dec. 20, Wednesday.		Term ends.

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