

CIRCULAR AND CATALOGUE
OF THE
OFFICERS AND STUDENTS
OF THE
ILLINOIS INDUSTRIAL UNIVERSITY,
URBANA, CHAMPAIGN COUNTY,

Post Office, CHAMPAIGN.

ILLINOIS INDUSTRIAL UNIVERSITY.

THE ILLINOIS INDUSTRIAL UNIVERSITY is located between the contiguous cities of Urbana and Champaign, Champaign County, Illinois, 128 miles from Chicago, on the Chicago branch of the Illinois Central Railroad.

It was first opened for the reception of students on Monday, the 2d day of March, 1868.

The Industrial University was founded by an act of the Legislature, approved February 28, 1867, and endowed by the Congressional grant of *four hundred and eighty thousand* acres of land scrip, under the law providing for Agricultural Colleges. It was further enriched by the donation of Champaign County, of farms, buildings, and bonds, valued at \$400,000.

The main University building is of brick, one hundred and twenty-five feet in length, and five stories in height. Its public rooms are sufficient for the accommodation of over four hundred students, and it has private study and sleeping rooms for one hundred and twenty. The cities of Champaign and Urbana, which are connected by a street railroad running past the University grounds, are well supplied with churches and schools, and afford abundant facilities for boarding and rooming a large body of students.

The University domain, including ornamental and parade grounds, experimental and model farms, gardens, etc., comprises over one thousand acres of land.

AIMS OF THE UNIVERSITY.

The chief aim of the Industrial University, as expressed in the law of Congress, is "THE LIBERAL AND PRACTICAL EDUCATION OF THE INDUSTRIAL CLASSES in the several pursuits and professions in life." In order to do this, it is required, under the Statute of Incor-

poration, “to teach, in the most thorough manner, such branches of learning as are related to Agriculture and the *Mechanic Arts*, and *Military Tactics*, without excluding other scientific and classical studies.” The hope of the Trustees and Faculty is that the Institution will produce scholars of sound learning, of practical sense and skill—fitted to be leaders, if need be, in those industrial interests on which the social well-being and civilization of our country so much depend. It is also their aim and hope that the University shall contribute to the increase and diffusion of real science, and especially of that science which bears upon and promotes the useful arts.

DEPARTMENTS OF STUDY.

The following new and enlarged statement of the Departments of Study and Instruction, has been prepared to prevent the injurious misapprehensions which are stated to have grown, in some instances, out of former enumerations of studies. Classes are already at work in most of these Departments and will be organized in the others when the wants of students shall require it.

Special prominence is given to those “branches of learning related to Agriculture and the Mechanic Arts,” but entire liberty is allowed to each student to select such studies as he may be prepared to pursue. The University is designed more especially for young men who have already attained such age that they may properly claim to be the judges of their own wants. It is not thought useful or right to attempt to urge every student, without regard to his capacity, tastes, or practical wants, through some fixed “course of studies.” While opportunities are freely provided for a thorough and full mastery of each branch of useful learning, the student is exhorted to study carefully his own capacity and needs ; to choose, with serious and independent consideration, the branches which will best fit him for his chosen work, and to pursue them to such extent as he may be able.

It is expected that each student will pursue studies in three or more departments at the same time, in order to employ his time fully. But, on special request, he may give his whole time to any one department, if the studies and practice in that department will afford him full employment.

In the appendix will be given several combined courses of studies, to aid the student to select such a course as may best fit him for his chosen profession or pursuit in life. These courses are given simply as hints to guide the inexperienced, and must by no means be understood as restricting the entire liberty of choice, which is a fundamental idea of the University.

DEPARTMENT OF AGRICULTURE.

This department will ultimately be divided into two :

1. The Department in General Agriculture.
2. The Department in Horticulture, Fruit Growing, Landscape Gardening.

The aim of the courses will be to fit students to manage successfully, for themselves or others, agricultural and horticultural estates and enterprises. The studies will be pursued partly by lectures, accompanied by courses of reading and examinations, and partly by the regular study of text books. Practical exercises and experiments on the farm; and in the gardens, nurseries, and fruit plantations, will constitute a part of the course.

It is designed to arrange, from the studies connected with agriculture, several distinct courses, one to occupy two years, one three years, and the third four years. Students may take either, at their option, or may select studies from either, but a student having made his selection, is not expected to change during the term.

The following presents the full course of studies in this department :

FIRST YEAR.—*The Farm.*—Its measurements and mapping; sub-divisions—meadows, pastures, orchards, woodlands, gardens, etc. Fences, hedges, farm buildings. Soils—classification and mechanical treatment of soils, plowing, etc. Drainage. Plant culture—Structure and Physiology of plants; classes of the useful plants, their characteristics, varieties, habits and values. Wheat culture, maize culture, grass culture, root culture, fruit culture begun, apples, pears, peaches, etc.

Related Studies.—Structural Botany. Inorganic Chemistry. Vegetable Physiology. English Language.

SECOND YEAR.—*The Farm.*—Chemical elements and chemical treatment of soils. Fertilizers—their composition, manufacture, preservation and application. Climate, influence of light, heat, and electricity on soils and vegetable growth. Farm Implements—principles of structure and use. Road making. Fruit culture—modes of propagation, production of new varieties, diseases of fruit trees. Insects injurious to vegetation. Animal husbandry—breeds and varieties of neat cattle, horses, sheep, and swine. Principles of breeding, rearing, training, fattening, etc. Chemical composition of food, and preparation of the several varieties. Sheep husbandry. Poultry. Bees.

Related Studies.—Trigonometry, Chain Surveying and Mensuration; Geometrical Drawing. Topographical Drawing. Vegetable Economy. Chemistry. German.

THIRD YEAR.—*Agricultural Economy*.—Relation of agriculture to the other industries and to commerce. The several branches of agriculture. Agricultural book keeping, the farm book, herd book, etc.

Related Studies.—General principles of Geology. Local and agricultural Geology. Theoretical Agriculture. Compass Surveying and Leveling. Plats and Maps of farm surveys. French.

FOURTH YEAR.—*Rural Law*.—Of tenures and conveyances of land, of highways, of cattle, of fences, of noxious weeds, etc. Veterinary surgery and medicine. Landscape gardening, and laying out of large farming estates. Rural architecture and engineering. Foreign agriculture. History and literature of agriculture.

Related Studies.—English Literature. Inductive Logic. Animal Physiology. Entomology. Meteorology. Physical Geography. Political Economy.

DEPARTMENT OF NATURAL AND MECHANICAL PHILOSOPHY AND ASTRONOMY.

The studies in this department occupy four years, and will be pursued with the use of text books, combined with lectures, and practical investigations of the several subjects.

FIRST YEAR.—*First Term*.—Natural Philosophy—Properties of Matter, Force, Gravity, Falling Bodies, Pendulum, Motion, Projectiles, Hydrostatics and Hydraulics, etc. Mechanical Drawing. *Second Term*.—Natural Philosophy—Pneumatics, Barometer, Pumps, Steam Engine, Acoustics, Optics, Electricity, etc. Mechanical Drawing. *Third Term*.—Mechanics. Drawing.

Related Studies.—Trigonometry and Analytical Geometry 3; Book keeping 1; English Language 1; Chemistry 2.

SECOND YEAR.—*First Term*.—Heat—Steam and its applications. Steam Engine, its theory, construction, history, etc. Air Engines, Drafts of Engines. *Second Term*.—Electricity, statical and dynamical, Terrestrial Magnetism, Construction and use of Telegraph, Theory of Electroplating, etc., Acoustics, Laws of Sound. *Third Term*.—Optics, Theories of Light, Polarization, Telescopes, Microscopes, Mathematics of, etc.

Related Studies.—Higher Algebra and Calculus 3. Free hand Drawing. German 3; Mineralogy 1.

THIRD YEAR.—*First Term*.—Practical Hydraulics—flow of liquids in pipes, pressure, etc. Hydrostatics, Motors, Practical Pneumatics, Friction, etc. *Second Term*.—Machinery—theory, construction, location, calculation of power, motors. *Third Term*.—Building materials, Strength of Materials, Designs and Estimates for mills, machinery, etc.

Related Studies.—Analytical Mechanics 1; Geology 2; French 3.

FOURTH YEAR.—*First Term*.—Astronomy—Solar System, Descriptive Astronomy. *Second Term*.—Stellar System, Meteorology, etc. *Third Term*.—Practical Astronomy, calculations of eclipses, use of instruments.

Related Studies.—Rhetoric and English Language 2; Constitutional History of England and the United States 1; History of Civilization 1; Mental Philosophy 1; Political Economy 1.

DEPARTMENT OF MILITARY TACTICS AND ENGINEERING.

FIRST YEAR.—*First Term.*—Infantry Tactics—Schools of the Soldier and Company; Squad and Company Drills. Reports and Returns required from Company Commandants. *Second Term.*—Infantry Tactics—School of the Battalion. Instruction for Skirmishers. Reports and Returns required from Battalion Commandants. Bayonet Fencing. *Third Term.*—Infantry Tactics—Evolutions of a Brigade. Reports and Returns required from Brigade Commandants. Skirmish and Battalion Drills. Guard-mountings, Inspections, Escorts, Funeral Honors.

Related Studies.—Geometry. Algebra. French or German.

Optional.—Natural Philosophy. English Language.†

SECOND YEAR.—*First Term.*—Artillery Tactics in the different Schools. Artillery Drill. Reports and Returns required from Artillery Officers. *Second Term.*—Cavalry Tactics in the different Schools. Reports and Returns required from Cavalry Officers. Sword Fencing. *Third Term.*—Evolutions of a Division, and of a Corps, in the different Arms. Reports and Returns required from Division and Corps Commandants. Forms for Parade and Review of a Division and of a Corps. The Essential Principles of Strategy and Grand Tactics. Advanced Guard, Outpost and Detachment Service of Troops. History of the most remarkable Epochs in the Military Art. Military Drill.

Related Studies.—Trigonometry. Analytical Geometry. French or German. Geometrical and Topographical Drawing.

Optional.—Mensuration. Land Surveying. Descriptive Geometry.

THIRD YEAR.—*First Term.*—Field Fortifications. Descriptive Geometry as applied to Drawing Fortifications. Plans, Profiles and Sections of proposed Works. Military Surveying. Military Drill. *Second Term.*—Duane's or Mahan's Manual for Engineer Troops, consisting of Pontoon Drill, Practical Operations of a Siege, School of the Sap, Military Mining, Construction of Batteries. Bayonet and Sword Fencing. *Third Term.*—Jomini's Art of War. Cullum on Military Bridges. Military Drill.

Related Studies.—Higher Algebra. Differential and Integral Calculus. French or German. Free-hand Drawing.

Optional.—Topographical Surveying. Leveling. Mahan's Civil Engineering. Road Making.

FOURTH YEAR.—*First Term.*—Duties of Staff Officers. Theory of Gunnery, and Results of Experiments. *Second Term.*—Permanent Fortifications. Plans, Profiles, Sections and Drawings of proposed Works. Sword Fencing. *Third Term.*—Benet's Military Law. Army Regulations. Military Authors Reviewed. Military Drill.

Related Studies.—Analytical Mechanics. Acoustics and Optics. Practical Astronomy. Chemistry. Mineralogy. Constitutional and International Law.

Optional.—Constitutional History of England and of the United States. History of Civilization. Political Philosophy.

DEPARTMENT OF CHEMISTRY.

The full course in this department will occupy four years, and is designed to make students at home in the applications of chemistry to agriculture, and the arts and manufactures; in a word to make them thorough chemists.

FIRST YEAR.—*First Term.*—Inorganic Chemistry. *Second Term.*—Organic Chemistry. *Third Term.*—Qualitative Analysis—detection of the alkalies, the alkaline earths, the earths, the metals, the mineral acids, and the organic acids. Use of the blow pipe and the spectroscope. Descriptive Mineralogy. Instructions on the subject will be given by lectures, and the students will have practice in determining minerals.

SECOND YEAR.—*First Term.*—Qualitative Analysis—a series of substances for practice in the detection and separation of the elements. Practice in Mineralogy continued. *Second Term.*—Quantitative Analysis—salts, minerals, ores, alloys, furnace products, etc. Practice in Mineralogy continued. *Third Term.*—Quantitative Analysis, of soils, manures, ashes of plants, mineral waters, etc. Practice in Mineralogy continued.

THIRD YEAR.—*First Term.*—Quantitative Analysis continued. Assaying. Volumetric Analysis. *Second Term.*—Organic Analysis. Detection and separation of organic acids and bases, and other organic compounds. *Third Term.*—Quantitative Organic Analysis: 1st, of compounds containing carbon and hydrogen; 2d, of compounds containing carbon, hydrogen and oxygen; 3d, estimation of nitrogen, sulphur, chlorine, bromine and iodine in organic compounds.

FOURTH YEAR.—*First Term.*—Preparations of Chemicals. *Second Term.*—Chemistry applied to the arts of dyeing, bleaching, calico printing, electrotyping and photographing. *Third Term.*—Lectures on the manufacture of glass and procelain, the smelting of ores. Heating and illumination.

DEPARTMENT OF NATURAL HISTORY.

The complete course in this department extends through four years.

FIRST YEAR.—*First Term.*—Structural and Physiological Botany. Form, arrangement, structure, morphology, growth and office of the leaves and flowers; forms, growth and office of stem and root; cellular tissue, cell development, cell contents and cell transformations. Structure, parts and uses of seeds and fruit; and the food, nutrition and reproduction of plants. The whole illustrated by living and dried specimens and drawings. Also, enough of Systematic Botany to enable the general student to analyze the flowering plants. *Second Term.*—Systematic Botany in lectures: 1st, the natural orders, their extent, properties, uses and distribution; 2d, use of the microscope. Vegetable Physiology continued. Chemistry of plants and of their food. Fungi and vegetable diseases, and outlines of the classes. Distribution and reproduction of the Cryptogamia. Two lectures a week. *Third Term.*—Systematic Botany. Practical collection and examination of the flowering and flowerless plants from all parts of the State as far as practicable. Botanical excursions and surveys.

SECOND YEAR.—*First Term.*—Principles of Zoology—development, structure, classification and distribution of animals. *Second Term.*—Systematic Zoology in lectures: 1st, natural orders, families, etc.; 2d, Embryology and peculiar modes of reproduction; alternate generation; Comparative Anatomy as applied to classification. Collection and preservation of specimens, and Natural History of domestic animals. *Third Term.*—Entomology; classification of insects; habits of those injurious to vegetation, with means of checking their ravages. Habits of beneficial species.

THIRD YEAR.—*First Term.*—Zoology—General Physiology. Comparative Anatomy and Veterinary Surgery. *Second Term.*—Principles of Geology. *Third Term.*—Lithological Geology—sources and materials of mineral wealth; building stones; mineral veins. Palæontology.

FOURTH YEAR.—*First Term.*—Historical and Dynamical Geology. Palæontology. *Second Term.*—Physical Geography and Meteorology. *Third Term.*—Special Geology of Illinois—Method of conducting surveys. Practical excursions.

DEPARTMENT OF PURE MATHEMATICS.

The studies of this department extend through three years. Those of the first year belong properly to the preparatory course, and should, when practicable, be completed before entering, by those who wish to take either of the fuller courses in the University.

FIRST YEAR.—(Preparatory.)—*First Term.*—Geometry. Davies' Legendre. *Second Term.*—Geometry completed. *Third Term.*—Algebra, Davies' Bourdon—Chapters VII-IX.

SECOND YEAR.—*First Term.*—Trigonometry. *Second Term.*—Trigonometry completed; Analytical Geometry begun. *Third Term.*—Analytical Geometry completed.

THIRD YEAR.—*First Term.*—Higher Algebra. *Second Term.*—Differential Calculus. *Third Term.*—Integral Calculus.

DEPARTMENT OF CIVIL ENGINEERING.

The studies in this department will occupy three years, and the instruction will be as follows:

FIRST YEAR.—*First Term.*—Chain Surveying, Mensuration, Geometrical Drawing. *Second Term.*—Descriptive Geometry, Geometrical Drawing. *Third Term.*—Compass and Transit Land Surveying, Elements of Topographical Drawing, Leveling, Plats and Maps of Farm Surveys.

SECOND YEAR.—*First Term.*—Topographical Surveying, Elements of Hydrographical Surveying, Leveling, Maps of Surveys, Free hand Drawing. *Second Term.*—Mahan's Civil Engineering, Plans, Elevations and Sections of Engineering Constructions. *Third Term.*—Gillespie's Roads and Railroads, Railroad and Canal Surveying, Plans, Profiles and Sections of Surveys.

THIRD YEAR.—*First Term.*—Descriptive Geometry applied to Stone Cutting, Analytical Mechanics, Mathematical theory, and results of experiments upon the Strength of Materials, and of the Stability of Girder, Suspension,

Tubular and Arch Bridges, and of Retaining Walls and Frames. Plans, Elevations and Sections of Engineering Constructions. *Second Term.*—Supply and Distribution of Water, Distribution of Gas, Drainage. Theory of Machines, Plans, Elevations and Sections of Engineering Constructions. Machine Drawing. *Third Term.*—Practical Astronomy and Geodesic Surveying. Designs and Reviews of Special Machines, and Engineering Constructions. Discussion of Scientific Subjects. General Field Work.

The first year of the above course corresponds with the second year of the Mathematical course.

DEPARTMENT OF ENGLISH LANGUAGE AND LITERATURE.

The studies of this department will extend through three years. The instruction will be given by text books and lectures, with exercises in Composition, Essays, Forensics, Presentation and Criticism of plans. Declamations throughout the course.

FIRST YEAR.—*First Term.*—Advanced Grammar, and the Grammatical analysis of authors, etc. *Second Term.*—Principles of Punctuation, Use of Capitals, etc., English Composition. *Third Term.*—Grammatical and philological analysis of Milton and other authors, with History of their times and contemporaries.

SECOND YEAR.—*First Term.*—Grammatical and Philological analysis of Shakspeare and earlier Dramatists, History of the times and Contemporaries of Shakspeare. *Second Term.*—Grammatical and Philological analysis of Chaucer and Spenser, and History of their times, etc. *Third Term.*—History of English Literature.

THIRD YEAR.—*First Term.*—History of English and American Literature of the 19th century. *Second Term.*—Rhetoric—Invention—Plans for Essays, etc. *Third Term.*—Elements of Criticism—Methods of Philological study, etc.

DEPARTMENT OF THE FRENCH LANGUAGE AND LITERATURE.

The course of instruction in French will extend through three years, but students who desire to pursue the language only far enough to enable them to read the scientific works which they may find it necessary to consult, are expected to acquire sufficient for this in a single year. The reading room will be supplied with French agricultural and scientific journals, which will be used in instruction as soon as the advancement of the student allows.

FIRST YEAR.—Robertson's Grammar, French Periodicals, McGill's French Reader.

SECOND YEAR.—Telemaque, Charles XII, and modern French Authors, Arnould's French Grammar.

THIRD YEAR.—Classic and modern French authors, De Vere's Advanced French Grammar for reference, History of French Literature.

DEPARTMENT OF GERMAN LANGUAGE AND LITERATURE.

The course in German will extend through three years. The first year is expected to prepare students to read such German scientific books as they may need or desire to consult. The second and third year's instruction will be so conducted as to enable students to complete their mastery of the language, and give German students an opportunity to acquire a perfect knowledge of their native tongue.

FIRST YEAR.—German Grammar and Reader. German Classic Reader. One exercise a week in reading German agricultural and scientific papers.

SECOND YEAR.—Classic Reader, Schiller's *William Tell*, Goethe's *Iphigenia* Conversation and Composition.

THIRD YEAR.—History of German Language and Literature, by Vilmar. Kohlrausch's *Geschichte des Deutschen Volkes*. Conversation and Composition. Reading of scientific journals in the several branches.

DEPARTMENT OF THE LATIN LANGUAGE AND LITERATURE.

The course of instruction in this department will extend through three years, and will, at every stage, include a careful attention to the subject matter of the authors read in connection with the study of the language. A preliminary year is also provided in order to meet the present wants of students. This year is not considered a part of the regular course, and is to be dropped after 1870. Students will not be admitted to this department who are not prepared to enter at once upon the reading of *Cæsar*. For this purpose, a satisfactory knowledge of the Latin Grammar and Reader is required.

[**PRELIMINARY YEAR.**—Four books of *Cæsar's* Gallic war; Sallust's *Conspiracy of Catiline*; Ancient Geography of Europe, and chapters 64, 65 and 66 of Liddell's *Rome*.]

FIRST YEAR.—*First Term.*—Three orations of Cicero against Catiline. Latin Prose Composition begun and continued through the course. Chapter 67 to 71 inclusive of Liddell's *Rome*. *Second Term.*—Fourth oration against Catiline. Oration pro lege Manilia, and pro Archia Poeta. Political constitution of Rome. *Third Term.*—Selections from Virgil. Latin Prosody.

SECOND YEAR.—*First Term.*—Selections from Livy. Chapters 28—35 and 46 of Liddell's *Rome*. *Second Term.*—Livy continued. Horace begun. Chapters 38—45 Liddell's *Rome*. *Third Term.*—Selections from Horace and Juvenal, Geography of the Countries bordering on the Mediterranean.

THIRD YEAR.—*First Term.*—Cicero *De Officiis*. Lectures on the History of Roman Literature and Philosophy. *Second Term.*—Cicero *De Oratore*. Lectures on the origin and structure of the Latin language. *Third Term.*—Fricze's *Quintilian*. Lectures continued. Other authors will occasionally be substituted in place of some of the above.

DEPARTMENT OF GREEK LANGUAGE AND LITERATURE.

This course will also occupy three years, and the instruction will resemble that in the Department of Latin.

FIRST YEAR.—First three books of Xenophon's Anabasis. Herodotus. Greek Prose begun.

SECOND YEAR.—Demosthenes, Thucydides, Homer's Illiad.

THIRD YEAR.—Xenophon's Memorabilia of Socrates. Selections from Plato and the Greek Poets.

Select portions of Smith's History of Greece will be read in course, and lectures given on the Grecian History, Literature and Philosophy.

DEPARTMENT OF HISTORY AND SOCIAL SCIENCE.

The study of this department will extend through three years. The instruction will be given partly with text books, but chiefly by lectures with, systematic readings of specified authors, and daily examinations on the same. The study of historical geography will keep even pace with the history studied, and the chronology will be rendered as clear and distinct as possible. Written exercises on chronology, and essays in historical criticism will constitute prominent features of the course.

FIRST YEAR.—*First Term.*—Discovery, settlement and colonial history of United States, with notices of other American States. American geography. Two lectures (or lessons) a week. *Second Term.*—History of the United States from the time of the Revolution. Two lectures (or lessons) a week. *Third Term.*—Political economy. Five lessons a week.

SECOND YEAR.—*First Term.*—Ancient history of Greece and Rome with notices of other ancient nations. Ancient Geography. Five lessons (or lectures) a week. *Second Term.*—Mediæval history, with history of christianity and ancient schools of philosophy. Scholasticism. Five lessons (or lectures) a week. *Third Term.*—Modern history—general European history. European geography. Five lessons (or lectures) a week.

THIRD YEAR.—*First Term.*—Constitutional history of England, and of the United States. Two lectures a week. *Second Term.*—History of civilization Analysis of historical forces and phenomena. Notices of the history of the arts and inductive sciences. *Third Term.*—Political philosophy. Constitutional and international law.

COMMERCIAL DEPARTMENT.

The course in this department will occupy one or two years, according to the time the student may give to the special studies of the department.

First Term.—Book-keeping by single or double entry—applied to farming mechanic and mercantile accounts. Theory of the several principal and auxiliary books. Theory of journalizing. Penmanship. Commercial calculations.

Second Term.—Partnership business. Commission and shipping accounts. Manufacturing accounts. Farm books. Herd and stock books. Business forms and papers. Notes. Endorsements. Drafts. Bills of exchange, inland and foreign. Bills of lading. Accounts current. Accounts sales. Inventories, invoices, receipts, etc. Commercial correspondence.

Third Term.—Banking and insurance. Railroad books. Commercial customs. Commercial law. Currency and exchange. Political economy applied to trade, markets, etc. Commercial geography. History of commerce.

DEPARTMENT OF MENTAL AND MORAL SCIENCE.

The studies in this department will occupy one year. The instruction will be given by lectures, combined with reading selected portions from specified authors, and examinations on the topics discussed.

First Term.—Mental philosophy—definitions and classification of mental phenomena. Connection and relations of mind and matter. Theories of perception. Phenomena of consciousness. Doctrines of ideas. Theory of mental culture. Three lectures a week.

Science of education, or mental philosophy applied to education. Two lectures a week.

Second Term.—Moral philosophy—connection of moral and mental philosophy. Theories of moral obligation. The moral powers. Practical ethics. Three lectures a week. Logic. Two lectures a week.

Third Term.—History of philosophy. Modern Schools of philosophy. Inductive logic. Three lectures a week.

LECTURE COURSE.

It is a part of the plan of the University to provide courses of lectures in special departments of knowledge and art. These lectures will be given by regular members of the Faculty, or by eminent scholars and authors whose services may be secured for this purpose. Dr. John A. Warder, the eminent American pomologist delivers during the winter term, a course of lectures on fruit growing, etc. Rev. Edward Eggleston, an eminent writer and editor, is also under appointment as lecturer on English Literature, and negotiations are in progress to secure other lecturers.

A weekly lecture is delivered to all the students, on manners, formation of habits and character; on the conditions of health, happiness, and success in life; on the general duties and affairs of life; on methods of study, course of reading, etc.

AGRICULTURAL LECTURE SESSION.

It is designed to hold at the University, each winter, a lecture session of one or two weeks, for lectures on the several branches of Agricultural and Horticultural science, to be delivered by gentlemen of eminent acquirements and experience in these branches. These lectures will be free to all, and the endeavor will be to make them of practical value to the farmers and fruit growers of our state. It is hoped and expected that these lectures will bring together a large number of the practical Agriculturists and Horticulturists of this and adjoining States, and that discussions of great value will follow the several lectures. The first course of 22 lectures was held from January 12,

1869 to January 22 inclusive, and was very encouraging in its results, both in the number in attendance, and in the interest manifested. Dr. Warder's course of from 12 to 20 lectures is delivered at the same time, and is open to all.

Board and comfortable quarters will be provided, at reasonable rates, for as many as attend. It is hoped that arrangements for reduced fare on the several railroads will be effected.

APPARATUS OF INSTRUCTION.

A valuable set of philosophical apparatus has been received and large additions will soon be made. A special Laboratory has been fitted up and supplied with apparatus and chemicals, so that excellent facilities are now furnished to those who wish to acquire a thorough knowledge of practical chemistry. As soon as students shall have become acquainted with the general principles of the science, no pains will be spared to familiarize them with it in its applications to agriculture, and other industrial pursuits, and to awaken in them a love for scientific investigation. They will have access to minerals, ores, and geological specimens, and be taught how to analyze them. A library of standard works on general and analytical Chemistry will soon be purchased; and English, French, and German periodicals will furnish information of the most recent views and discoveries in this department of science. During the past term and a half ten students have been at work for two hours daily in the Laboratory and have made very satisfactory progress.

Valuable collections have been received for cabinets in Mineralogy, Botany, Geology, Palæontology, Conchology, and in several departments in Zoology. Professor Powell, of the chair of Natural History, is now absent in charge of a scientific expedition to the region of the Colorado of the North; and the students in the practical work of their classes, and in organized expeditions under the authority of the Board of Trustees, are constantly making additional collections.

The apparatus for the engineering department is ample for its present needs, and of the best quality. Additions will be made as the department requires.

The illustrative apparatus in the Department of Agriculture is designed to be very full and complete. The University owns over one thousand acres of improved farming lands, equal to any in the State. Forty acres are set apart for gardens, nurseries and arboretum. The remainder is to be used for experimental and stock farms, orchards, etc. Through the liberality of manufacturers, the University is rapidly accumulating a collection of agricultural implements; and cabinets and drawings of specimen fruits, vegetables, etc., will be added as fast as practicable. The ornamental grounds around the buildings already contain a variety of evergreens and flowering plants.

A collection of maps, charts, models and engravings, is also begun, and is being steadily increased by donation or purchase.

THE UNIVERSITY UNIFORM.

Under the authority of the act of incorporation, the Trustees have prescribed that all the students, after their first term shall wear the University uniform. This uniform consists of a suit of cadet gray mixed cloth, of the same color and quality as that worn at West Point, and manufactured by the the same establishment.

The coat is a single-breasted frock, buttoned to chin, with standing collar, and a trimming of black mohair cord on the shoulders, in loops. The vest is also single-breasted, buttoned to chin, with standing collar. Buttons for coat and vest are manufactured expressly for the University. They are gilt, of medallion style, the design being a sheaf of wheat surrounded with the words, "Illinois Industrial University." The pants have a welt of dark blue in the outside seams. The suit is a very tasteful dress, and is substantial and enduring. An arrangement has been made with responsible parties to furnish the suits to students at twenty-seven dollars each. Students can procure them ready made on their arrival here.

The University cap is of dark blue cloth, and ornamented with the initials I. I. U., surrounded by a silver wreath in front.

The arms and equipments used in the drill are furnished by the State.

Students will wear their uniform always on parade, but in their rooms, and at recitation, may wear other clothing. An army blouse or fatigue dress, can be purchased at low rates by those who want it.

CHOICE OF STUDIES.

Entire liberty of choice is allowed each student, in selecting the department which he will enter and the studies he will pursue. Each student is required to have fifteen lessons a week, unless specially excused for cause. Changes from one department to another can only be made at the opening of a term.

REQUIREMENTS FOR ADMISSION.

1. Each student is required by law to be at least *fifteen years* of age, but it is believed that few will be found mature enough at this age to enter with the highest profit upon the studies of the University, and it is recommended as a general rule, that students be at least eighteen years old before entering.

2. The law also prescribes that "no student shall be admitted to instruction in any of the departments of the University, who shall not previously undergo a satisfactory examination in each of the branches ordinarily taught in the common schools of the State." In addition to these, candidates for any particular department will be examined in such studies as may be necessary to fit them to pursue successfully the course in that department.

The chief aim of all examinations for admission to the University is to ascertain the student's preparation to pursue successfully the studies of the course. Hence, thoroughness, and a general knowledge of the subject, will be accounted as of more importance than the amount studied. A student of

earnest purpose and well disciplined mind will often pursue a new study more successfully than one of much more extensive preparation, but of less discipline and diligence. Much more solicitude is felt about the progress of the student after he enters, than about the preparation made before he enters, the University. Frequent and searching examinations will be held to test the progress in study, and to determine each student's fitness to remain in the classes. The University cannot be held responsible for the lack of thoroughness in the common school studies of its students, but will insist upon thoroughness in its own proper studies.

THE LABOR SYSTEM.

Practice in some form, and to some extent, is indispensable to a practical education. It is the divorcement of the theoretical and practical which renders so much of education mere "book learning." To guard against this fatal defect, the trustees have directed that the manual labor system shall be thoroughly tried. All labor is voluntary, but students who are not excused, are expected to labor from *one to two* hours each day, except Saturday and Sunday. The students go out in labor classes, under the general supervision of members of the faculty, or the superintendents of the departments.

The labor is designed to be educational, and to exhibit the practical applications of the theories taught by the text books and in the lecture room. Thus far it has been popular among the students, several attributing to it the preservation of their health through a long term of severe study. They have already accomplished a large amount of valuable work, and are proud to point to the grounds fenced, planted with trees, and ornamented by their own labor. It is found to facilitate rather than hinder study,¹ and affords a much more valuable means of physical culture than any system of gymnastics.

The labor is compensated in proportion to the ability and fidelity of each laborer, the maximum compensation being twelve and a half cents an hour. The experience of the past confirms the belief that this union and alternation of mental and muscular effort will not only give the "sound mind in a sound body," but will help to produce educated men who will be strong, practical, and self-reliant, full of resource, and practical in judgement, the physical equals of the strongest, and the mental peers of the wisest; thus redeeming higher education from the odium of puny forms and pallid faces, and restoring the long lost and much needed sympathy between educated men and the great industrial and business classes.

It is not expected that all prejudices against work will disappear at once, or that labor will at once assume for all, its position of native dignity and honor; but we may confidently hope, if the increasing numbers do not render it impracticable to furnish profitable employment, finally to overcome the strongest prejudices, and render the labor system one of the most popular features of the University, with the public as well as with the students themselves.

HONORARY SCHOLARSHIPS

The Legislature prescribed that one honorary scholar shall be admitted from each county in the State. These scholarships, which are designed "for the benefit of the descendants of soldiers and seamen who served in the armies and navies of the United States during the late rebellion," entitle the incumbents to free tuition. The trustees have also authorized the faculty of the University to remit the tuition of worthy young men whose circumstances are such as to require this aid.

PRIZE SCHOLARSHIPS.

A movement has been started to secure in each county of the State the endowment of a prize scholarship, with a permanent fund of \$1,000 for each. The plan contemplates that the income of this fund shall be annually awarded to the best scholar from the public schools of the county, who shall present himself as a candidate for the University. The scholarship shall be determined by a competitive examination, to be held in each county, under the Regent of the University, and the State Superintendent of Public Instruction. The examinations will be held the first Friday in September, or at such time and place as the county superintendent of schools may appoint. Honorary scholars will be examined at the same time. Only a few of the counties have as yet provided for the prize scholarship, but it is hoped that a prize of greater or less amount will be provided in each county in which a worthy candidate shall be selected.

STUDENTS' DORMITORIES AND BOARD.

There are in the University building about sixty private rooms for students, which are rented to the students who first apply. Each room is designed for the accommodation of two students. These rooms are fourteen feet long and ten feet wide. They are without furniture, it being deemed best that students shall furnish their own rooms. It is earnestly recommended for health's sake that each student have a separate bed. A narrow bedstead and mattress, with suitable clothing, should be provided by each. A study table, chairs, and a small coal stove, may be provided in common by the occupants of the room.

Good private boarding houses are already springing up around the University, where either day board, or board and rooms can be obtained, with the advantages of the family circle. Several students have provided themselves with meals in their rooms, at an expense varying from \$1 to \$1 50 per week.

To avoid unnecessary litter about the grounds, coal is purchased by the University at wholesale, and furnished to students at cost.

HOW TO ENTER THE UNIVERSITY.

In answer to the questions often received, the following explicit directions are given to young men wishing to enter the University :

1st. If you are over fifteen years of age, of good habits, and have a fair knowledge of the common school branches, Arithmetic, Grammar, Geography, and History of the United States, you may enter, and take any course of study you are prepared for. The further advanced in study, the better you will be prepared to secure the full advantages of a residence at the University.

Some of the Departments require more preparation than others.

2d. You should enter at the beginning of a term ; but you may enter at any other time if prepared to go forward with any of the classes.

3d. If doubtful of your ability to enter the departments you have selected, write to the Regent, J. M. Gregory, Champaign, and state what branches you have studied, the progress you have made in each, and your wishes as to course and term of study.

4th. If prepared, come on at once, bringing with you, if practicable, a letter of recommendation from your last teacher, or county superintendent of schools, or any good citizen.

HOW CAN I PAY MY WAY ?

In answer to this question which often reaches us from earnest young men, eager for an education, but without means, we reply :

1st. Your necessary expenses (except for books and clothing,) will be as stated on the next page, under the head of "Expenses."

2nd. During the Spring and Fall terms, and to some extent during the Winter term, you can find work on the University farm and gardens, or in the shops, for which you will be paid $12\frac{1}{2}$ cents per hour, if diligent and faithful. You can easily, without hindering your studies, work three hours a day, and if needful the whole day, on Saturdays. This will amount to \$3 $12\frac{1}{2}$ per week, and will, if you choose to board yourself, more than cover all your expenses. If you understand some common trade, you can do still better. You will easily be able to earn, during the vacation, enough to buy your clothes and books. Several secure labor, at good wages, on the farm or in the mechanic shops, during the Summer vacation. Some students pay their way, and have money to spare.

If possible you should have, to start with, money enough to pay your entrance fee and bills, and to buy your half of the furniture of your room, which will cost, say \$15. You will find numbers of fellow students, who are taking care of themselves, and who will, with true brotherly feeling, advise and assist you. Come on without fear. What man has done, man can do.

TERMS.

The college year is divided into three terms, of fourteen, twelve and ten weeks. Students are expected, in all cases, to be present on the first day of the term. Those unavoidably delayed will be required to make up all lessons which their classes shall have passed over in their absence.

Examinations for admission will be held on the 11th of September, the 4th of January and the 29th of March.

CALENDAR FOR 1869-70.

Examination for Admission,.....Saturday, Sept. 11th, 1869.
 Fall Term opens.....Monday, Sept. 13th, 1869.
 Fall “ closes.....Wednesday, Dec. 22, 1869.

Vacation of two weeks.

Examination for Admission,.....January 4th, 1870.
 Winter Term opens,.....January 5th, 1870.
 Winter “ closes,.....March 30th, 1870.
 Examination for Admission,.....March 29th, 1870.
 Spring Term opens.....March 30th, 1870.
 Spring “ closes.....June 8th, 1870.

EXPENSES.

Tuition in any of the industrial, or military courses is free.

Tuition, in other courses, to students from Illinois, per annum....\$15 90.

Tuition “ “ “ “ other States “ 20 00.

Fee for incidentals, per term.....,..... 2 50.

Room rent for each student, per term..... 4 00.

Room rent is only charged to students who room in the University building. Each student is required to pay a matriculation fee of \$10 on first entering the institution. This entitles him to membership till he completes his studies. Honorary and prize scholars pay no tuition fee, but pay all other fees. All bills due the University must be paid, and the treasurer's receipt be shown to the Regent, before the student can enter the classes.

The annual expense of a residence at the University, exclusive of books and clothing, will be nearly as follows :

Tuition, room rent and incidentals, from..... \$19 50 to \$34 50.

Board, from..... 54 00 to 180 00.

Fuel and lights, from..... 10 00 to 15 00.

Washing, 75 cents per dozen..... 10 00 to 15 00.

Total.....\$93 50 to 244 50.

Many young men reduce the expense to within \$100 per year, and pay this by their labor during the year. It ought to be known that *any young man can pay his way through college* who is willing, for the sake of an education, to practice steadily the virtues of industry and economy.

GOVERNMENT.

The University is designed for *men not children*, and its government rests in an appeal to the manly feeling and sense of honor of its students. If any student shall show himself so weak or corrupt that he cannot, when thus treated, refrain from vicious conduct, he will receive permission to leave the institution, where his presence can only injure others, without being of any benefit to himself. But no pains will be spared to counsel the inexperienced, to admonish the careless, and to save the tempted. Especially will it be an

object to establish and maintain that high toned, refined, and honorable public sentiment, which is at once the best safeguard against meanness and vice, and a constant inspiration to nobleness and virtue.

DONATIONS.

In addition to the donations heretofore acknowledged, the officers of the University take pleasure in acknowledging the following:

Hon. Lyman Trumbull, Hon. John A. Logan, Hon. S. M. Cullom, congressional documents and speeches.

Harper Brothers, Publishers, New York, set of classical text books and histories.

D. Appleton & Co., Publishers, New York, several text books.

Sheldon & Co., Publishers, New York, several text books.

A. S. Barnes & Co., Publishers, New York, 1 set Mathematical and other text books.

J. Davis Wilder, Chicago, 8 yards paper black board.

J. H. Pickrell, Harristown, Ill., 1 large and beautiful colored lithograph of group of Durham cattle.

Edgar Sanders, Florist, Chicago, several flower bulbs.

A. Blumenschein, Florist, Chicago, collection of green-house plants.

T. A. E. Holcomb, South Pass, Ill., collection of Roses and green-house plants.

Hovey & Co., 15 varieties of flowers.

W. C. Flagg, barrel of Catalpa seed.

Dr. J. A. Warder, 400 Grape cuttings.

Messrs. Pettigrew & Reed, 100 Fuchsia cuttings.

W. C. Mann, Gilman, 20,000 Hedge plants.

H. Michel, St. Louis, 24 Green house and bedding plants, and 6 Dahlias.

Samuel Edwards, LaMoille, 10,000 White Pine seedlings.

Northwest Fertilizing Company, 320 lbs. Raw-bone super phosphate.

S. M. Haywood & Son, Pana, 2 bushels red Genesee Wheat for seed.

M. C. Goltra, Jacksonville, seed Corn.

John Burchard, Beloit, Wis., Gates and Castings for self-opening gates.

E. M. Potter, Kalamazoo, Mich., Potter's Three-horse Clevis.

Collins & Co., Hartford, Conn., per H. H. Taylor, agent Chicago, 1 cast cast-steel plow with steel beam.

John D. Platt, Warren, Ill., 1 Curtis patent Fanning mill.

J. H. Halsted, Springfield Ill., 1 patent adjustable Harrow.

BOARD OF TRUSTEES.

MEMBERS EX OFFICIO.

HON. JOHN M. PALMER. *Governor.*

HON. NEWTON BATEMAN, LL. D., *Sup't of Public Instruction.*

DR. WILLIAM KILE, *President State Agricultural Society.*

JOHN M. GREGORY, LL. D., *Regent of University.*

MEMBERS APPOINTED BY THE GOVERNOR AND SENATE.

Name.	District.	Post Office.	County.
Lemuel Allen.....	8th Congressional.....	Pekin.....	Tazewell.....
Alexander Blackburn.....	9th Congressional.....	Macomb.....	McDonough.....
Mason Brayman.....	2d Grand Judicial.....	Springfield.....	Sangamon.....
A. M. Brown.....	13th Congressional.....	Villa Ridge.....	Pulaski.....
Edwin Lee Brown.....	3d Grand Judicial.....	Chicago.....	Cook.....
Horatio C. Burchard.....	5th Congressional.....	Freeport.....	Stephenson.....
J. C. Burroughs.....	3d Grand Judicial.....	Chicago.....	Cook.....
Emery Cobb.....	8d Grand Judicial.....	Kankakee.....	Kankakee.....
J. O. Cunnigham.....	2d Grand Judicial.....	Urbana.....	Champaign.....
M. L. Duulap.....	7th Congressional.....	Champaign.....	Champaign.....
Samuel Edwards.....	5th Congressional.....	LaMoille.....	Bureau.....
O. B. Galusha.....	6th Congressional.....	Morris.....	Grundy.....
M. C. Goltra.....	10th Congressional.....	Jacksonville.....	Morgan.....
David S. Hammond.....	1st Congressional.....	Elgin.....	Kane.....
C. R. Griggs.....	2d Grand Judicial.....	Urbana.....	Champaign.....
S. S. Hayes.....	3d Grand Judicial.....	Chicago.....	Cook.....
John S. Johnson.....	4th Congressional.....	Warsaw.....	Hancock.....
Edward Kitchell.....	11th Congressional.....	Olney.....	Richland.....
Luther Lawrence.....	2d Congressional.....	Belvidere.....	Boons.....
Isaac W. Mahan.....	1st Grand Judicial.....	Centralia.....	Marion.....
L. B. McMurray.....	1st Grand Judicial.....	Efingham.....	Efingham.....
John M. Pearson.....	12th Congressional.....	Godfrey.....	Madison.....
J. H. Pickrell.....	2d Grand Judicial.....	Harristown.....	Macon.....
Burden Pullen.....	1st Grand Judicial.....	Centralia.....	Marion.....
James P. Slade.....	1st Grand Judicial.....	Belleville.....	St. Clair.....
J. W. Scroggs.....	2d Grand Judicial.....	Champaign.....	Champaign.....
Paul R. Wright.....	1st Grand Judicial.....	South Pass.....	Union.....
John M. VanOsdell.....	3d Grand Judicial.....	Chicago.....	Cook.....

OFFICERS AND INSTRUCTORS.

JOHN M. GREGORY, LL. D.,
REGENT, AND PROFESSOR OF PHILOSOPHY AND HISTORY.
WILLIAM M. BAKER, M. A.,
PROFESSOR OF ENGLISH LANGUAGE AND LITERATURE.

PROFESSOR OF HISTORY AND SOCIAL SCIENCE.
J. W. POWELL, A. M.,
PROFESSOR OF NATURAL HISTORY AND GEOLOGY.
WILLARD F. BLISS, A. M.,
PROFESSOR OF AGRICULTURE.
A. P. S. STUART, A. M.,
PROFESSOR OF THEORETICAL AND APPLIED CHEMISTRY.

PROFESSOR OF HORTICULTURE.

PROFESSOR OF MECHANICAL SCIENCE.

PROFESSOR OF CIVIL AND RURAL ENGINEERING.

PROFESSOR OF MATHEMATICS.
THOMAS J. BURRILL,
ASSISTANT PROFESSOR OF NATURAL HISTORY.
COL. S. W. SHATTUCK, A. M.,
ASSISTANT PROFESSOR OF MATHEMATICS, AND INSTRUCTOR IN MILITARY TACTICS.
CAPT. EDWARD SNYDER,
ASSISTANT PROFESSOR OF BOOK KEEPING AND GERMAN.

NON-RESIDENT PROFESSORS.

JOHN A. WARDER, M. D., CINCINNATI,
LECTURER ON VEGETABLE PHYSIOLOGY AND FRUIT GROWING.
EDWARD EGGLESTON, M. A., CHICAGO.
LECTURER ON ENGLISH LITERATURE.

LECTURER ON VETERINARY SCIENCE.

CATALOGUE OF STUDENTS.

SPRING TERM OF 1869.

Names.	Residence.		Nativity.
	City.	County.	
Edwin Fletcher Abbott.....	Centralia.....	Marion.....	Wisconsin.....
Jashup Wing Aldrich.....	Tiskilwa.....	Bureau.....	Illinois.....
John F. Alexander.....	Alexandria.....	Morgan.....	Illinois.....
Benton Alfred.....	Urbana.....	Champaign.....	Illinois.....
*Charles Edward Allard.....	Roseclare.....	Hardin.....	Indiana.....
*Willbur Clinton Alvord.....	Bement.....	Piatt.....	Massachusetts.....
*David Bailly.....	Champaign.....	Champaign.....	Illinois.....
Herbert Ozias Barber.....	Rantoul.....	Champaign.....	Illinois.....
Delonson Elroy Bernard.....	Manteno.....	Kankakee.....	Indiana.....
Joseph T. Beasley.....	Champaign.....	Champaign.....	Illinois.....
Louis Henry Beidler.....	Champaign.....	Champaign.....	Illinois.....
George W. Brewer.....	Champaign.....	Champaign.....	Illinois.....
Frank Morgan Burroughs.....	Champaign.....	Champaign.....	New York.....
Hiram P. Blackburn.....	Kossville.....	Vermilion.....	Illinois.....
James Frederick Blake.....	Mount.....	Jo Davies.....	Illinois.....
Charles Burkhardt.....	Springfield.....	Sangamon.....	Illinois.....
Milo Benedict Burwash.....	Champaign.....	Champaign.....	Canada E.....
Thomas Nathaniel Burwash.....	Champaign.....	Champaign.....	Canada E.....
*John Wilbur Busey.....	Champaign.....	Champaign.....	Illinois.....
Oscar Fred Cady.....	Champaign.....	Champaign.....	Illinois.....
William Henry H. Campbell.....	Nauvoo.....	Hancock.....	Ohio.....
James William Campbell.....	Springfield.....	Sangamon.....	Illinois.....
Willis Smith Chase.....	Chicago.....	Cook.....	N. Hampshire.....
Cassius C. Clendenin.....	Morrison.....	Whiteside.....	Illinois.....
Thomas Benton Columbia.....	Champaign.....	Champaign.....	Illinois.....
Marcellus Edgar Covington.....	Havana.....	Mason.....	Illinois.....
William Harrison Crayne.....	Urbana.....	Champaign.....	Indiana.....
Charles B. Curtis.....	Belvidere.....	Boone.....	Illinois.....
*Joseph Buchanan Dare.....	Champaign.....	Champaign.....	Illinois.....
John Jefferson Davier.....	Freeport.....	Stephenson.....	Illinois.....
Joseph Martin Davidson.....	Tolono.....	Champaign.....	Illinois.....
*Frank Dexter Dole.....	Mattoon.....	Coles.....	Illinois.....
Ira Bardwell Donaldson.....	Morrison.....	Whiteside.....	Illinois.....
Ed Alder Donaldson.....	Urbana.....	Champaign.....	Indiana.....
Henry N. Drewry.....	Mason.....	Effingham.....	Indiana.....
Henry Dunlap.....	Champaign.....	Champaign.....	Illinois.....
Ernest Sans Duniap.....	Champaign.....	Champaign.....	Illinois.....
Herbert Eaton.....	Philo.....	Champaign.....	New Jersey.....
Krnest Eaton.....	Philo.....	Champaign.....	New Jersey.....
Elias Quincy Emerson.....	Champaign.....	Champaign.....	Massachusetts.....
Charles S. Emerson.....	Mahomet.....	Champaign.....	Illinois.....
John Leslie Evans.....	Decatur.....	Macon.....	Illinois.....
Charles Austin Falls.....	Urbana.....	Champaign.....	Kentucky.....
Alfred Murray Flagg.....	Moro.....	Madison.....	Illinois.....
Cyrus David Fry.....	Freeport.....	Stephenson.....	Pennsylvania.....
*Fayette Gere.....	Urbana.....	Champaign.....	Illinois.....
John C. Goltra.....	Jacksonville.....	Morgan.....	Illinois.....

LIST OF STUDENTS—CONTINUED.

Names.	Residence.		Nativity.
	City.	County.	
James M. Goodspeed	Urbana	Champaign	Ohio
James E. Graham	Galena	Jo Davies	Illinois
*Charles Payton Graham	Champaign	Champaign	Kentucky
Charles Henry Hall	Danville	Vermillion	Indiana
William Townsend Hamer	Champaign	Champaign	Indiana
Miles Fayette Hatch	Blivens' Mills	McHenry	Illinois
Edmund Burke Hazard	Lyndon	Whiteside	Illinois
Robert Harmon Hazlett	Springfield	Sangamon	Illinois
Edgar Lewis Hill	Watson	Effingham	Ohio
William H. Hinrichson	Alexandria	Morgan	Illinois
Charles W. Hoxsey	Macon	Effingham	Wisconsin
William Hubbard	Elgin	Kane	Illinois
Robert G. Hulet	Morrison	Whiteside	Ohio
Marion Franklin Kirkpatrick	Champaign	Champaign	Illinois
Theodore Julius Kraft	Belleville	St. Clair	Illinois
James C. Ladd	Ringwood	McHenry	Illinois
Peter Winfield Lawyer	Freeport	Stephenson	Illinois
Joseph Kirk Love	Sidney	Champaign	Ohio
George H. Lyman	Richland	Sangamon	Illinois
Edward Lynch	Wapella	Dewitt	England
John L. Lyon	Chicago	Cook	Massachusetts
Taylor Martin	La Moille	Bureau	Illinois
James Newton Matthews	Mason	Effingham	Indiana
David Meade	Fairmount	Vermillion	Illinois
James Humboldt McCorkle	Fairmount	Vermillion	Illinois
Howard M. Montelius	Freeport	Stephenson	Illinois
Elwain F. Moore	Tolono	Champaign	New York
Ernest Nelson	Canton	Fulton	Illinois
Henry Norris	Tolono	Champaign	N. Jersey
George H. Pancake	Mahomet	Champrign	Illinois
*John Joshua Parish	Raliegh	Saline	Illinois
Calvin E. Parker	Philo	Champaign	Massachusetts
Willey Lemon Parke	Urbana	Champaign	Ohio
John Charles Patton	Paxton	Ford	Illinois
Clark Lewis Payton	Danville	Vermillion	Illinois
John J. Parsons	Wenona	Marshall	Illinois
Russell D. Peacock	Chicago	Cook	Illinois
Perley Agrippa Phillips	Damascus	Stephenson	Illinois
Edward F. Phillips	Chicago	Cook	Illinois
Franklin Carpenter Platt	Warren	Jo Davies	Illinois
Millard F. Porterfield	Sidney	Champaign	Pennsylvania
Elijah Newton Porterfield	Sidney	Champaign	Pennsylvania
Charles William Post	Springfield	Sangamon	Illinois
Hiram C. Powell	Champaign	Champaign	Indiana
George D. Pratt	Mahomet	Champaign	N. Hampshire
Adolphus Lafayette Rader	Charleston	Cole	Tennessee
Isaac Stuart Raymond	Champaign	Champaign	Ohio
Wilhs Albert Reiss	Belleville	St. Clair	Illinois
George Martin Randall	Yellowhead	Kankakee	Michigan
Stephen Avery Reynolds	Belvidere	Boone	Wisconsin
Thomas Edwin Rickard	Springfield	Sangamon	Illinois
Ozi's Riley	Urbana	Champaign	Illinois
Samuel Erhardt Rigg	Champaign	Champaign	Pennsylvania
Charles Wesley Rolle	Oswego	Kendall	Illinois
James Simpson Romine	Urbana	Champaign	Illinois
*Reuben Roughton	Rantoul	Champaign	England
John Robinson Rowlen	Tolono	Champaign	Ohio
*Albert Russell	Urbana	Champaign	Illinois
Charles Elliott Sale	Newcomb	Champaign	Ohio
Edgar Sawyer	Tiskilwa	Bureau	Illinois
George Blanchard Scripps	Astoria	Fulton	Illinois
Luther Edgar Shinn	Urbana	Champaign	Illinois
Wilbur Thomas Shinn	Urbana	Champaign	Illinois
Howard Silver	Urbana	Champaign	Ohio
Charles Wallace Silver	Urbana	Champaign	Ohio
Edward G. Smith	Peru	La Salle	Illinois
Charles Carrol Smith	Freeport	Stephenson	Pennsylvania
Albert Alexander Snelling	Kinmundy	Marion	N. Hampshire
*Henry Augustus Staples	Springfield	Sangamon	Maine
John Newton Swinford	Paxton	Ford	Illinois

CATALOGUE OF STUDENTS—CONTINUED.

Names.	Residence.		Nativity.
	City.	County.	
*Thomas Stoddert.....	Charleston.....	Coles.....	Illinois.....
Riley Swisher.....	Rossville.....	Vermilion.....	Illinois.....
James David Swearingen.....	Champaign.....	Champaign.....	Illinois.....
David Edwin Swyer.....	Belleville.....	St. Clair.....	Illinois.....
Jared Teeple.....	Woodstock.....	McHenry.....	Illinois.....
*Irvin Terwilliger.....	Belvidere.....	Boone.....	Illinois.....
John R. Trevett.....	Champaign.....	Champaign.....	Illinois.....
Samuel West Thompson.....	Homer.....	Champaign.....	Illinois.....
*Irvin Bedell Towle.....	Urbana.....	Champaign.....	New York.....
Lewis Cass Warner.....	Salem.....	Marion.....	Illinois.....
*Samuel Thompson Weber.....	Raleigh.....	Saline.....	Illinois.....
Samuel Judson Westlake.....	Springfield.....	Sangamon.....	Illinois.....
Charles Lauterman Westlake.....	Springfield.....	Sangamon.....	Illinois.....
Jacob Norton Wharton.....	Bement.....	Platt.....	Pennsylvania.....
Joseph C. Walker.....	Champaign.....	Champaign.....	Illinois.....
William J. Weagley.....	Jacksonville.....	Morgan.....	Illinois.....
Oscar R. Wheeler.....	Versailles.....	Brown.....	Illinois.....
Cyrus W. Wheeler.....	Versailles.....	Brown.....	Illinois.....
Alonso Lyons Whitcomb.....	Urbana.....	Champaign.....	Illinois.....
Samuel Weaver White.....	Paxton.....	Ford.....	Ohio.....
James Alexander Williams.....	Urbana.....	Champaign.....	Illinois.....
Reuben O. Wood.....	Woodburn.....	Macoupin.....	Illinois.....
Paul Way Woody.....	Champaign.....	Champaign.....	Indiana.....
Harley Wilburn Yeager.....	Monticello.....	Platt.....	Illinois.....
†Robert R. Warder, A. B.....	Clevis.....	Ohio.....	Ohio.....

‡Resident graduate, and student of Analytical Chemistry.

*Absent this year.

The names of Members who have been expelled, or who have left without permission, are omitted from this catalogue.

A P P E N D I X .

The following courses of combined studies are here presented to aid such students as may need some assistance in making out courses for themselves. It must be remembered that each study taught in the University must be confined to its regular terms, and any selection of studies must be made with constant reference to this fact. The terms in which each study will be taught, can be ascertained by a reference to the courses in the several Departments.

Other courses of study belonging to institutions of well-known fame, are added as affording valuable suggestions.

AGRICULTURAL COURSE.

Three Suggested Courses of Collateral Study for a Student in Agriculture.

“Chemistry is the corner-stone of Scientific Agriculture.”—DR. JOHN A. WARDER.

“Without a knowledge of Physics, of Chemistry, and of Agricultural Geology in the widest signification, is no understanding of Plant and Animal life to be gained. The Natural Sciences can never be learned *thoroughly*, that is, so that practical application of them can be made in life, from books or lectures. The student will grasp, understand, and assimilate mentally what he has learned, and read only when he *makes Chemical Experiments, Physical Experiments, dissects Plants, and investigates and observes for himself.*

Practical knowledge is thorough knowledge. All superficial knowledge is unpractical. The farmer who wishes rational education, and does not devote at least a year exclusively and earnestly to the study of Physics, Chemistry, and Physiology, had better not pursue the Natural Sciences at all.”—M. J. SCHLEIDEN.

The work laid down in the following courses is designed at once to supplement and explain the Lectures delivered from time to time on the various branches of Agriculture, and to afford such general education as is absolutely necessary to progress in any direction, and which must, for the present, be provided for students here, since they do not bring it with them.

Students desiring to remain but a single year and pursue special branches during that time, will be allowed to do so.

Persons wishing to spend the Fall and Winter terms of each year here, and the Spring term at home, will still be able to go on with their classes at the beginning of the succeeding year, though at some disadvantage.

A TWO YEARS' COURSE.

FIRST YEAR.—*First term.*—Chemical Physics and Inorganic Chemistry. Structural and Physiological Botany. First five books of Davies' Legendre.

Second term. Organic Chemistry. "How Crops Grow." English Language.

Third term.—Qualitative Analysis. Detection of the alkalis, alkaline earths, earths, etc. Systematic Botany; Excursions and Collections. English Language.

SECOND YEAR.—*First term.*—Qualitative Analysis continued. Detection and Separation of the Elements. Chain Surveying and Mensuration. Geometrical Drawing. General Principles of Zoology, (or German).

Second term.—General Principles of Geology. Vegetable Economy; How Plants Feed. Topographical Drawing. Animal Physiology, (or German).

Third term.—Geology of Illinois. Vegetable Economy. Entomology, (or German).

A THREE YEARS' COURSE.

FIRST YEAR.—*First term.*—Chemical Physics and Inorganic Chemistry. Structural and Physiological Botany. First five books of Davies' Legendre.

Second term.—Organic Chemistry. Vegetable Physiology. English Language.

Third term.—Qualitative Analysis. Detection of the alkalis, alkaline earths, earths, etc. Systematic Botany; Excursions and Collections. English Language.

SECOND YEAR.—*First term.*—Qualitative Analysis continued; Detection and Separation of the Elements. Chain Surveying and Mensuration. Geometrical Drawing. German.

Second term.—Quantitative analysis of salts, minerals, ores, alloys, furnace products, etc. Vegetable Economy. German.

THIRD YEAR.—*First term.*—General Principles of Zoology. Plane Trigonometry, one half term. Entomology. French.

Second term.—Principles of Geology. Tillage and Manures. French.

Third term.—Geology of Illinois. Compass Surveying and Leveling. French.

A FOUR YEARS' COURSE.

FIRST YEAR.—*First term.*—Chemical Physics and Inorganic Chemistry. Structural and Physiological Botany. First five books of Davies' Legendre.

Second term.—Organic Chemistry. How Crops Grow. English Language.

Third term.—Qualitative Analysis. Detection of the alkalis, alkaline earths, earths, etc. Systematic Botany; Excursions and Collections. English Language.

SECOND YEAR.—*First term.*—Qualitative Analysis continued; Detection and separation of the Elements. Chain Surveying and Mensuration. Geometrical Drawing. German.

Second term.—Quantitative Analysis of salts, minerals, ores, alloys, furnace products, etc. Topographical Drawing. How Plants Feed. German.

Third term.—Quantitative Analysis of soils, manures, ashes of plants, etc. How Plants Feed. German.

Third term.—Quantitative analysis of soils, manures, ashes of plants, etc. Vegetable Economy. German.

THIRD YEAR.—*First term.*—Higher Physics. Plane Trigonometry, one-half term. French.

Second term.—Principles of Geology. Tillage and Manures. French.

Third term.—Geology of Illinois. Excursions and collections, Compass Surveying and Leveling. Maps and Plats of Farm Surveys. French.

FOURTH YEAR.—*First term.*—General Principles of Zoology. Inductive Logic. English Literature.

Second term.—Animal Physiology. Stock Feeding and Dairy produce. Meteorology. English Literature.
Third term.—Entomology. Political Economy. English Literature.

The following course is suggested to those students not in the regular departments of the University, as affording aid in the selection and arrangement of studies.

FIRST, OR FRESHMAN YEAR.

REGULAR STUDIES.—*First Term.*—Trigonometry. Structural Botany. Latin.

Optional and Extra.—Geometrical Drawing. Greek.

Second term.—Trigonometry and Analytical Geometry. Systematic Botany. Latin.

Optional and Extra.—Geometrical Drawing. Greek.

Third term.—Analytical Geometry. Systematic Botany. Latin.

Optional and Extra.—Topographical Drawing. Greek.

SECOND, OR SOPHOMORE YEAR.

First term.—Physics. Chemistry. Zoology. German.

Optional and Extra. Freehand Drawing. Latin. Greek.

Second term.—Physics. Chemistry. Zoology. German.

Optional and Extra.—Latin. Greek.

Third term.—Mineralogy. Entomology. English Literature. German.

Optional and Extra.—Latin.

THIRD, OR JUNIOR YEAR.

First Term.—Astronomy. English and American Literature. French.

Optional and Extra.—History.

Second term.—Geology. Rhetoric. French.

Optional and Extra.—History. Calculus.

Third Term.—Geology and Paleontology. Elements of Criticism. French.

Optional and Extra.—History. Calculus.

FOURTH, OR SENIOR YEAR.

First Term.—Mental Philosophy and Science of Education. Constitutional History of England and the United States. History of Civilization.

Optional and Extra.—Analytical Mechanics.

Second Term.—Moral Philosophy. Physical Geography and Meteorology. Political Economy. Constitution of the United States.

Third term.—History of Philosophy. Modern Philosophy. Constitutional Law. International Law. History of Inductive Sciences.

COURSE OF INSTRUCTION.

IN MICHIGAN AGRICULTURAL COLLEGE.

FRESHMAN CLASS.

FIRST HALF YEAR.—Algebra, Robinson; History, Weber; Geometry, Robinson; Book-keeping, Bryant & Stratton.

SECOND HALF YEAR.—Trigonometry, Robinson Surveying, Davies; Practical Agriculture; Geology, Dana.

SOPHOMORE CLASS.

FIRST HALF YEAR.—English Literature, Chambers, Spaulding; Botany, Gray; Elementary Chemistry, Youmans.

SECOND HALF YEAR.—Entomology, Harris; Analytical Chemistry, Fresenius; Botany, Gray, Darlington and Lindley; Horticulture.

JUNIOR CLASS.

FIRST HALF YEAR.—Physics, Snell's Olmstead; Agricultural Chemistry, Johnstone; Inductive Logic, Herschel.

SECOND HALF YEAR.—Physics, Miller; Rhetoric, Whately; Day's Praxis; Animal Physiology, Dalton.

SENIOR CLASS.

FIRST HALF YEAR.—Zoology, Carpenter; Practical Agriculture; Mental, Philosophy, Wayland; Astronomy, Snell's Olmstead; Landscape Gardening, Downing; Kemp.

SECOND HALF YEAR.—Civil Engineering, Mahan; Moral Philosophy Haven; Political Economy, Carey, Walker; French Fasquelle

COURSE OF STUDY AND INSTRUCTION

IN THE MASSACHUSETTS AGRICULTURAL COLLEGE.

FRESHMAN YEAR.

FIRST TERM.—Algebra; Human Anatomy and Physiology; Chemical Physics.

SECOND TERM.—Geometry; French; Chemistry.

THIRD TERM.—Geometry; French; Botany; Lectures upon Hygiene, Chemistry, Botany and Agriculture; and Exercises in Orthography, Elocution and English Composition, during the year.

SOPHOMORE YEAR.

FIRST TERM.—German; Agriculture; Commercial Arithmetic and Book-keeping.

SECOND TERM.—German; Trigonometry; Analytical Chemistry.

THIRD TERM.—Mensuration; Surveying; Analytical Chemistry; Zoology and Drawing; Lectures upon Comparative Anatomy, Diseases of Domestic Animals, Organic Chemistry and Market Gardening; Exercises in English Composition and Declamation, during the year.

JUNIOR YEAR.

FIRST TERM.—Physics; French or German; Agricultural Chemistry, Drawing.

SECOND TERM.—Physics; Rhetoric; Horticulture.

THIRD TERM.—Astronomy; Systematic Botany; History of the United States; Lectures upon Physics, Mineralogy, the Cultivation of the Vine, and Fruit and Forest Trees, and Useful and Injurious Insects; and Exercises in English Composition and Debate, during the Year.

SENIOR CLASS.

FIRST TERM.—Intellectual Philosophy; History; Physical Geography.

SECOND TERM.—Moral Philosophy; Political Geography; The Civil Polity of Massachusetts and the United States.

THIRD TERM.—Geology; Engineering; Political Economy; Lectures upon Stock Farming, Architecture, Landscape Gardening, Geology and English Literature; and Exercises in Original Declamation and Debate, during the year.

Exercises in Gymnastics, Military Tactics, and the various operations of the Farm and Garden, through the course.

COURSE OF INSTRUCTION.

IN THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

FIRST YEAR.—Mathematics; Algebra; Solid Geometry; Trigonometry, Elementary Mechanics; Chemistry; English; German; Descriptive Geometry; Mechanical Drawing; Free-hand Drawing.

SECOND YEAR.—Mathematics; Spherical Trigonometry; Analytical Geometry of two and three dimensions; First Principles of the Differential and Integral Calculus; Descriptive Astronomy; Surveying; Physics; Chemistry; English; French; German; Descriptive Geometry; Mechanical Drawing; Free-hand Drawing.

THIRD YEAR.—1. *Course in Mechanical Engineering.*—Mechanism; Mathematics; Differential and Integral Calculus; Analytic Mechanics; Applied Mechanics; Descriptive Geometry; Drawing; Physic; Geology; English; Constitutional History; French; German.

2. *Course in Civil and Topographical Engineering.*—Engineering; Mathematics; Applied Mathematics; Spherical Astronomy; Descriptive Geometry; Drawing; Physics; Geology; English; Constitutional History; French; German.

4. *Course in Mining Engineering.*—Engineering; Descriptive and Determinative Mineralogy; Assaying; Quantitative Chemical Analysis; Metallurgy; Mathematics; Applied Mathematics; Drawing; Physic; Geology; English; Constitutional History; French; German.

5. *Course in Building and Architecture*.—Architectural Design; Construction; Drawing; Mathematics; Applied Mechanics; Descriptive Geometry; Physics; Geology; English; Constitutional History; French; German.

6. *Course in Science and Literature*.—Mathematics; Chemistry; Physics; Architectural Design; History; Drawing; Physics; Geology; English Constitutional History; French; German.

FOURTH YEAR.—1. *Course in Mechanical Engineering*.—Machines; Motors; Building Materials; Descriptive Geometry; Drawing; Political Economy; Natural History; French; German.

2. *Course in Civil and Topographical Engineering*.—Engineering; Machinery and Motors; Building Materials; Descriptive Geometry; Drawing; Political Economy; Natural History; French; German.

4. *Course in Mining Engineering*.—Mining; Machinery and Motors; Engineering; Chemistry; Geology; Building Materials; Drawing; Political Economy; Natural History; French; German.

5. *Course in Building and Architecture*.—Architectural Design; Professional Practice; Drawing; Engineering; Descriptive Geometry; Warming, Lighting, Venting, Acoustics; Building Materials; Political Economy; Natural History; French; German.

6. *Course in Science and Literature*.—The Higher Mathematics; Chemistry; Physics; Architectural Design; Mental Science; Building Material; Drawing; Political Economy; Natural History; French; German.

COURSE IN CIVIL ENGINEERING.

IN RENSSELAER POLYTECHNIC INSTITUTE.

FOUR YEARS.

DIVISION D.

WINTER SESSION.—Mathematics—Davies' Bourdon's Algebra—Chapters VI-IX, inclusive; Davies' Legendre's Geometry—Books IV-VI, inclusive; Plane Graphic Geometry—Warren's Elementary Plane Problems; English Language—Quackenbos' English Composition and Rhetoric, commenced; French Language—Fasquelle's French Grammar—Lessons I-L inclusive; Geodsey—Line Surveying, Elementary Practice; Geometrical Drawing—Plane Problems—Warren's Drafting Instruments and Operations.

SUMMER SESSION.—Mathematics—Davies' Legendre's Geometry—Books VII–IX, inclusive. Mensuration—Use of Mathematical Tables. Analytical Trigonometry, Plane and a Spherical Trigonometry. Descriptive Geometry—Warren's Elementary Projections. Physics—Loomis' Natural Philosophy. English Language—Quackenbos' English Composition and Rhetoric, completed. French Language—Fasquelle's French Grammar, completed. Geodesy—Line Surveying, Chain Surveys. Geometrical Drawing—Elementary Projections. Construction Drawing—Elements and Structures.

DIVISION C.

WINTER SESSION.—Mathematics—Higher Algebra. Descriptive Geometry Orthographic Projections. Physics—Physics of Heat. English Language—English Composition; Logical and Rhetorical Criticism. French Language—English Translations, Reading of French Scientific Authors. Geodesy—Line Surveying, Theory, Compass Surveys. Geometrical Drawing—Orthographic Projections Topographical Drawing—Elementary Drawing, Topographical Plans.

SUMMER SESSION.—Mathematics—Analytical Geometry. Descriptive Geometry—Orthographic Projections. Chemistry—Inorganic Chemistry. Natural History—Botany. English Language—English Composition; Logical and Rhetorical Criticism. French Language—English Translations; French Composition. Geodesy—Adjustment and Use of Instruments, Line Surveying, Topographical Sketching, Farm Surveys. Geometrical Drawing—Orthographic Projections. Topographical Drawing—Map of Farm Surveys.

DIVISION B.

WINTER SESSION.—Mathematics—Differential Calculus, Integral Calculus, Calculus of Variations, Descriptive Geometry—Shades and Shadows. Physics—Electricity, Terrestrial Magnetism, Static and Dynamical Electricity, Chemistry—Practical Chemistry, Qualitative Analysis, Blow-pipe Analysis. Determinative Mineralogy. Geodesy—Practical Trigonometry, Leveling, Topographical Surveying. Geometrical Drawing—Shades and Shadows, Machine Drawing, Elements of machines. Topographical Drawing—Maps of Topographical Surveys.

SUMMER SESSION.—Rational Mechanics—Mechanics of Solids, Mechanics of Fluids. Descriptive Geometry—Linear Perspective. Physics—Acoustics, Optics. Astronomy—Descriptive Astronomy. Natural History—Descriptive Geology. Geodesy—Hydrographical Surveying. Theory and Practice. Geometrical Drawing—Perspective; Construction Drawing, Bridge Drawing. Topographical Drawing—Colored Topography.

DIVISION A.

WINTER SESSION.—Mathematics—Method of Least Squares. Astronomy—Spherical Astronomy, Practical Astronomy. Physical Mechanics—Mechanics of Solids—Friction, Strength of Materials; Mechanics of Fluids—Practical Hydraulics, Practical Pneumatics. Machines—Theory of Machines. Descriptive Geometry—Stone Cutting. Natural History—Physical Geography. Philosophy—Intellectual Philosophy, Geometrical Drawing—Stone Cutting. Topographical Drawing—Maps of Hydrographical Surveys.

SUMMER SESSION.—Machines—Theory of Prime Movers, Designs for, and reviews of Special Machines. Constructions—Stability of Structures, Construction of Engineering and Architectural Works, Designs for, and reviews of Special works. Road Engineering—Common Roads. Railroads. Chemistry—Technical Chemistry. Geology—Practical Geology, Technical Geology. Philosophy—Ethical Philosophy. Topographical Drawing—Plans Profiles, and Sections of Railway Surveys.

COURSE IN MECHANICAL ENGINEERING

IN RENSSELAER POLYTECHNIC INSTITUTE.

FOUR YEARS.

DIVISION D.

THE COURSE IDENTICAL WITH THAT IN CIVIL ENGINEERING.

DIVISION C.

THE COURSE IDENTICAL WITH THAT IN CIVIL ENGINEERING.

DIVISION B.

WINTER SESSION.—Mathematics—Differential Calculus, Integral Calculus, Calculus of Variations. Descriptive Geometry—Shades and Shadows. Physics—Electricity; Terrestrial Magnetism, Statical and Dynamical Electricity. Chemistry—Practical Chemistry, Qualitative Analysis, Blow-pipe Analysis, Determinative Minerology. Geodesy—Practical Trigonometry, Leveling, Topographical Surveying. Geometrical Drawing—Shades and Shadows, Machine Drawing, Elements of Machines. Topographical Drawing—Maps of Topographical Surveys.

SUMMER SESSION.—Rational Mechanics—Mechanics of Solids; Mechanics of Fluids. Machines—Cinematics. Descriptive Geometry—Linear Perspective. Physics—Acoustics, Optics. Astronomy—Descriptive Astronomy. Natural History—Descriptive Geology. Geometrical Drawing—Perspective; Machine Drawing, Elements of Machines.

DIVISION A.

WINTER SESSION.—Mathematics—Method of Least Squares. Astronomy—Spherical Astronomy. Physical Mechanics—Mechanics of Solids; Friction, Strength of Materials; Mechanics of Fluids; Practical Hydraulics; Practical Pneumatics. Machines—Construction of Machines, Location of Machines, Theory of Machines, Efficiency of Machines. Philosophy—Intellectual Philosophy. Geometrical Drawing—Machine Drawing, Complete Machines.

SUMMER SESSION.—Mechanics—Theory and Construction of Prime Movers, Designs and Estimates for, and reviews of Special Machines. Constructions, Stability of Structures.—Chemistry—Technical Chemistry, Chemistry of the Materials and Processes of Heating and Illumination. Philosophy—Ethical Philosophy. Geometrical Drawing—Machine Drawing, Complete Machines.

CLASSICAL COURSE OF INSTRUCTION

IN HARVARD UNIVERSITY.

FRESHMAN CLASS.

FIRST TERM.—Greek.—Xenophon's Memorabilia, Homer's Odyssey, Goodwin's Greek Moods and Tenses, Exercises in writing Greek. Latin—Livy, (Lincoln's Selections,) Cicero's Epistles, Ramsay's Elementary Manuel of Roman Antiquities, Zumpt's Grammar, Exercises in writing Latin. Mathe-

matics—Pierce's Geometry, Pierce's Algebra begun. French—Otto's Grammar, Moliere, Racine, Modern French Comedies, Elocution. Ethics.—Champlin's First Principles of Ethics, Bulfinch's Evidences of Christianity. Integral Education.—Lectures.

SECOND TERM.—Greek. Lysias, Homer's Odyssey, Arrian's Anabasis, Greek Antiquities, Goodwin's Greek Modes and Tenses, Exercises in writing Greek. Latin.—Horace, Odes and Epodes, Cicero's Tusculan Disputations, Zumpt's Grammar, Ramsay's Elementary Manual of Roman Antiquities, Exercises in writing Latin. Mathematics.—Pierce's Algebra, finished (including Logarithms,) Pierce's Plane Trigonometry. History, in French.—Histoire Grecque par Duruy. Elocution.

SOPHOMORE CLASS.

FIRST TERM.—Rhetoric.—Campbell's Philosophy of Rhetoric (Second Book), Themes. History.—Roman History. Chemistry.—Cook's Chemical Physics. Elocution. French. Histoire de la Literature Francaise.

Elective Studies.—Pure Mathematics.—Pierce's Plane and Spherical Trigonometry and Navigation and Surveying, with Bowditch's Tables, Puckle's Conic Sections, Salmon's Conic Sections. Applied Mathematics.—Pierce's Plane Trigonometry and Surveying, with Bowditch's Tables, Smith's Mechanics. Greek—The Prometheus of Aeschylus, the Birds of Aristophanes, Felton's Greek Historians, Exercises in writing Greek. Latin.—Cicero de officiis, Quintilian, Zumpt's Grammar, Exercises in writing Latin.

SECOND TERM.—Rhetoric.—Whatley's Rhetoric, Themes, Reading in English Literature. Philosophy.—Stewart's Philosophy of the mind. Chemistry.—Eliot and Storer's Elements of Chemistry, Lectures. German.—Krauss' German Manual, Rolker's German Reader. Elocution.

Elective Studies.—Pure Mathematics.—Puckle's Conic Sections, Salmon's Conic Sections. Applied Mathematics.—Conic Sections, Smith's Mechanics, Goodwin's Elementary Dynamics. Greek. Demosthenes, Grote's History of Greece, Vol. XI. (chapters 86–90), Lysias, Greek Composition. Latin.—Terence, Cicero, Horace, Exercises in writing Latin.

JUNIOR CLASS.

FIRST TERM.—Herschel's Outlines of Astronomy, last edition, Lectures on Mechanics.* Rhetoric—Themes. Chemistry—Lectures.

Elective Studies.—Mathematics.—Pierce's Algebra, chapter VIII, Pierce's Curves and Functions, Vols. I. and II. Ancient History.—Polybius, Greek Composition. Greek.—Aeschines and Demosthenes on the Crown, Greek Composition. Latin.—Pliny's Letters, Martial, Latin Exercises and Extemporalia. Chemistry.—Galloway's Qualitative Analysis, with instructions in the Laboratory. Natural History. English Language.—Thorpe's Analecta Anglo-Sanonica, Morris Specimens of Early English, The Bible, Spencer, Shakespeare. German.—Krauss' German Manual. Spanish.—Gil Blas, Josse's Grammar and Exercises, (Sales' ed). Italian.—Dall's Ongaro's La Rosa dell' Alpi, Cuorre's Grammar and Exercises.

SECOND TERM.—Philosophy.—Forensics. Physics.—Lardner's Course of Natural Philosophy, (Optics), Lectures on Hydrostatics, Pneumatics, etc.

Elective Studies.—Mathematics.—Pierce's Curves and Functions, Vols. I. and II. Ancient History.—Plutarch, Greek Composition. Greek.—The Electra of Sophocles, Plato, Greek Composition. Latin, Slautus, Latin Exercises and Extemporalia. Chemistry.—Galloway's Qualitative Analysis, with instruction in the Laboratory. Natural History. English Language.—Studies of the First Term continued. German.—Simonson's Deutsches Balladenbuch. Spanish.—Don Quixote, Sale's edition.

* The full course of Lectures in this department appears only by consulting the Catalogue for two successive years, with reference to the same student.

SENIOR CLASS.

FIRST TERM.—Logic and Philosophy—Bowen's Logic, Bowen's Political Economy, Forensics. Physics.—Lectures on Optics and Accoustics. History.—Constitutional History of the United States.

Elective and Extra Studies.—Mathematics.—Pierce's Curves and Functions. Greek.—The Agamemnon of Aeschylus, the Antigone of Sophocles, Greek Composition. Latin.—Quintilian, Cicero against Verres, Latin Exercises and Extemporalia. German.—Schiller's Wilhelm Tell, Goethe's Faust, Lectures on German Grammar. Spanish.—Gil Blas, Sale's Grammar. Italian.—Dall' Ongara's La Rosa dell' Alpi, Cuorre's Grammar and Exercises. Modern Literature.—Lectures. Patristic and Modern Greek. Geology.—Lectures. Anatomy.—Lectures.

SECOND TERM.—Philosophy.—Hamilton's Metaphysics, Bowen's Ethics and Metaphysics. History. Modern History. Religious Instruction. Rhetoric.—Themes.

Elective and Extra Studies.—Mathematics.—Pierce's Analytic Mechanics. Greek.—Thucydides, Greek Composition. Latin—Lucretius, Latin Exercises and Extemporalia. German.—Goethe's Faule, Otto's German Grammar, Lessing's Emilia Galotti and Laokoon. Spanish.—Calderon's El Principe Constante, Calderon's El Magico Prodigioso. Italian.—Dante. Zoology.—Lectures. Modern Literature.—Lectures. Patristic and Modern Greek.

The Hebrew Language is taught by Professor Noyes to those who desire to learn it.

COURSES IN CIVIL ENGINEERING AND MECHANICS,

IN SHEFFIELD SCIENTIFIC SCHOOL.

JUNIOR YEAR.

A. CIVIL ENGINEERING. *First Term.*—French and German—(see Select Course.) Mathematics—Descriptive Geometry (Church's) Analytical Geometry of Three Dimensions. Surveying—Higher Surveying, Topographical Surveying. Drawing—Topographical.

Second Term.—French—(See Select Course.) Mathematics—Davies' Shades, Shadows, and Linear Perspective, Differential Calculus. Astronomy. Norton's Astronomy with practical problems.

Third Term.—French—(See Select Courses.) Mathematics—Linear Perspective (continued), Isometrical Projection, Differential and Integral Calculus. Drawing—Isometrical and Mechanical.

B. MECHANICS.—The same as the course in Civil Engineering, with the omission of Higher Surveying, Topographical Surveying, Topographical Drawing and Astronomy, and the substitution of Mechanics (Peck's Elements), Mechanical Drawing, Metallurgy, and Principles of Mechanics.

SENIOR YEAR.

A. CIVIL ENGINEERING.—*First Term.*—French—Selections. Field Engineering and Surveying—Hench's Field Book for Railroad Engineers. Location of Roads, Geodetic Surveying. Mechanics—Peck's Elements, Thermodynamics. Geology—Dana, Drawing—Architectural.

Second Term.—Mechanics—Peck's Elements (continued), Application of Calculus to Mechanics, Principles of Mechanism, Theory of Steam Engine.

Civil Engineering—Strength of Materials, Bridge Construction, Stability of Arches, Stone Cutting, with graphical problems. Geology—Dana (continued).

Third Term.—Mechanics—Mechanics applied to Engineering (Weisbach, Vol. II.), prime Movers. Civil Engineering—Stone Cutting (continued), Building Materials (lectures), Designs of Structures, Mahan's Civil Engineering. Drawing—Structural.

B. MECHANICS.—*First Term.*—Analytical Mechanics, Machinery, Thermodynamics. Drawing—Architectural.

Second Term.—Analytical Mechanics (continued), Strength of Materials, Theory and Construction of Steam Engine, Examination and Reports of Machines, Mechanical Practice.

Third Term.—Prime Movers, Mill Work, Designs of Machines.

JUNIOR YEAR.

FIRST TERM.—Agriculture—Chemistry, Structure, and Physiology of the Plant, Water, Atmosphere and Soil in their relation to Vegetable Production, Improvement of the Soil, Tillage Draining, Amendments and Fertilizers, Lectures. Experimental and Analytical Chemistry—in their Agricultural Applications, Daily Laboratory practice. Zoology—Lectures. French—commenced. German—Woodbury's Method. Meteorology—Academical Lectures.

SECOND TERM.—Agriculture—Chemistry and Physiology of Domestic Animals, Digestion, Respiration, Assimilation and Excretion; Composition, Preparation and Value of the kinds of Fodder; Milk, Butter, Cheese, Flesh and Wool, as Agricultural products, Lectures. Experimental Chemistry—Laboratory Practice. French and German—continued. Physical Geography—Lectures. Zoology—Lectures.

THIRD TERM.—Horticultural and Kitchen Gardening—Propagation, training and culture of Fruit Trees, the Vine, Small Fruits and Vegetables, Lectures, Mineralogy—Lectures and Practical Exercises. Experimental Chemistry—Laboratory Practice. French or German—continued. Drawing—Free Hand Practice. Excursions—Botanical, Zoological, &c.

SENIOR CLASS.

FIRST TERM.—Agriculture—The staple grain, forage, root and fiber crops of the Northern States, their varieties, soils adapted for them, preparation of soil, seeding, cultivation, harvesting, and preparation for market. Lectures. Agricultural Zoology—Origin and Natural History of Domestic Animals, Insects useful and injurious to Vegetation, Lectures. Geology—Dana's Manual. French or German—Selections. Excursions—Agricultural, Zoological, Geological, &c.

SECOND TERM.—Agriculture—Raising and Care of Domestic Animals, characteristics and adaption of Breeds, Cattle for Beef and Draught, The Dairy, Sheep for Wool and Mutton, Horses, Swine, pasturing, soiling, stall feeding, Tobacco, Hops, &c. Lectures. Forestry—Preservation, culture and uses of Forests and Forest Trees, Lectures. Human Anatomy and Physiology—Lectures. Agricultural Botany—Weeds and Noxious Plants, Lectures. French or German.

THIRD TERM.—Rural Economy—History of Agriculture and Sketches of Husbandry in Foreign Countries, Adaptation of Farming to soil, climate, market, and other natural and economical conditions, Systems of Husbandry, Stock, Sheep, Grain, and mixed Farming, Lectures. Farm Accounts—Lectures and Practical exercises. Excursions—Agricultural, Geological, Zoological and Botanical. Examinations in the studies of the Course.