

Series I.

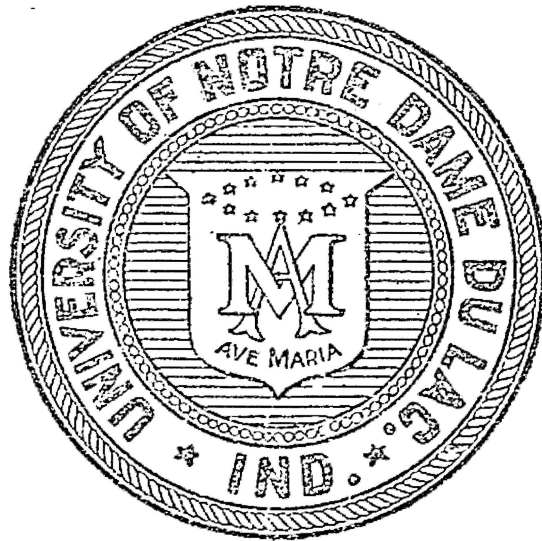
Number I.

BULLETIN

OF THE

University of Notre Dame

NOTRE DAME, INDIANA



GENERAL CATALOGUE

1904-1905

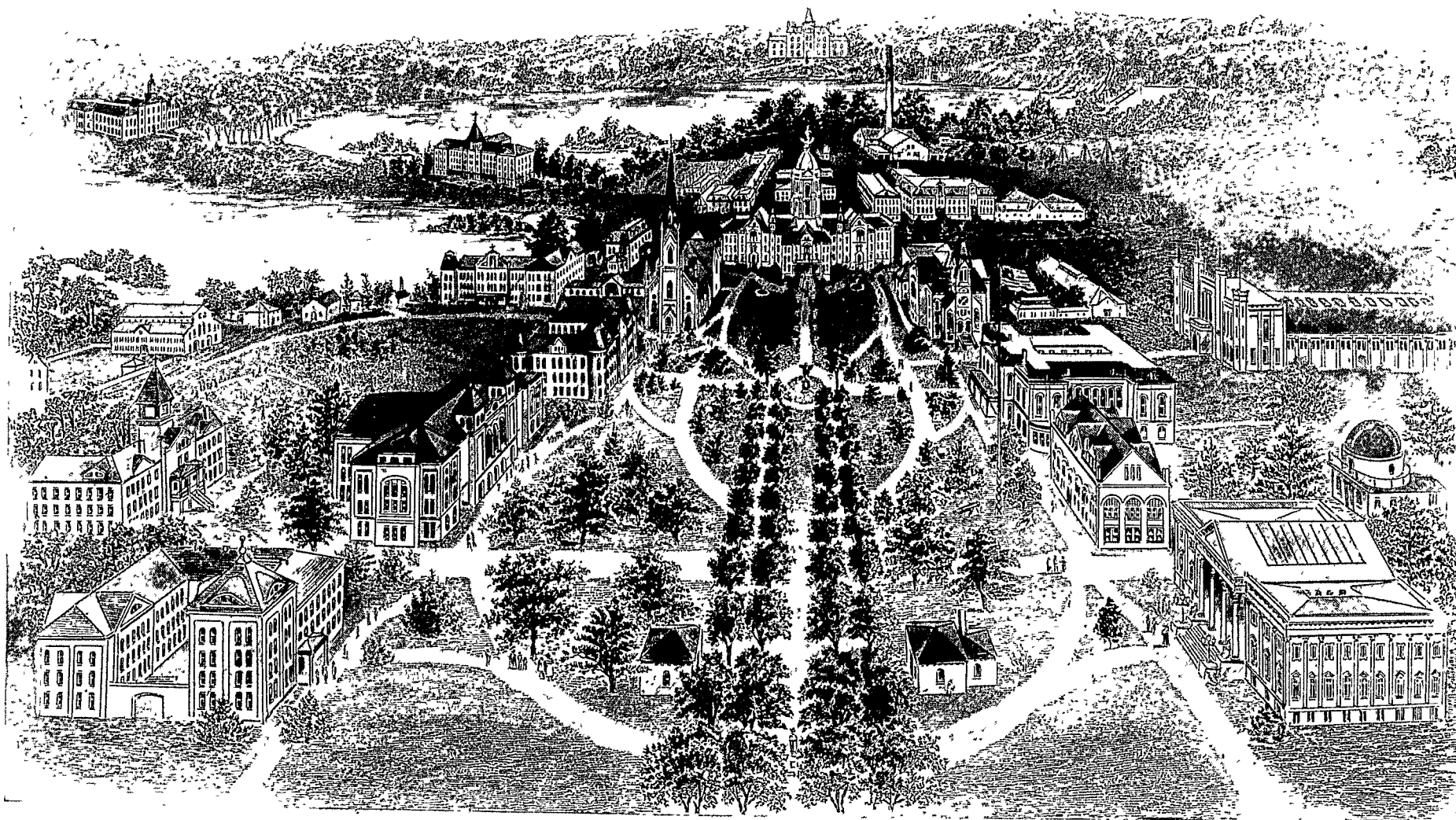
PART FOUR

PUBLISHED QUARTERLY AT NOTRE DAME

UNIVERSITY PRESS

JULY, 1905

Application has been made for entry at the Post Office, Notre Dame, Indiana,
as second class matter.



UNIVERSITY OF NOTRE DAME
Notre Dame, Indiana

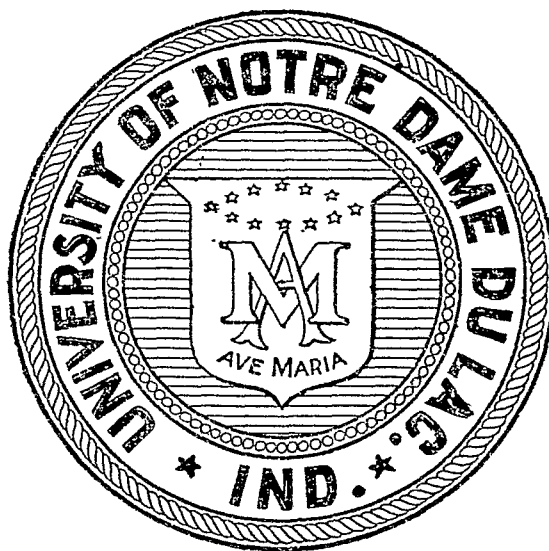
CARNELL & DEARMAN, PHILA.

BULLETIN

OF THE

University of Notre Dame

NOTRE DAME, INDIANA



GENERAL CATALOGUE
1904-1905

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JULY, 1905

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DIRECTORY OF THE UNIVERSITY.

The FACULTY—Address :

THE UNIVERSITY OF NOTRE DAME,

NOTRE DAME, INDIANA.

The STUDENTS—Address :

As for the faculty, except that the name of the
HALL in which the student lives should be added.

A Postoffice, a Telegraph Office, a Long Distance
Telephone, and an Express Office are at the University.

The University is two miles from the city of South Bend, Indiana, and about eighty miles east of Chicago. The Lake Shore and Michigan Southern, the Grand Trunk, the Vandalia, the Indiana, Illinois & Iowa, the St. Joseph, South Bend & Southern, and the Michigan Central railways run directly into South Bend.

CALENDAR FOR 1905-1906.

- SEPTEMBER 12. Examination of Conditioned Students.
13-14. Entrance Examination.
15. School begins.
17. Reading of University Regulations in all the Halls.
- OCTOBER 13. Founder's Day.
27-28. Bi-Monthly Examinations.
29. Annual Retreat begins in the evening.
- NOVEMBER 1. Feast of All Saints.
30. Thanksgiving Day.
30. President's Day.
- DECEMBER 5. Contest in Oratory.
8. Feast of the Immaculate Conception.
18-19. Winter Examinations.
19. Christmas Vacation begins.
- JANUARY 5. School begins.
- FEBRUARY 2. State Oratorical Contest.
22. Washington's Birthday.
23-24. Bi-Monthly Examinations.
- MARCH 17. St. Patrick's Day.
19. St. Joseph's Day.
- APRIL 15. Easter. *No Easter Vacation.*
16. Easter Monday.
24-25. Bi-Monthly Examinations.
- MAY 1. Latest Date for handing in Prize and Graduation Essay in all Collegiate Courses.
16. Contest in Elocution.
30. Decoration Day.
- JUNE 4-9. Examination of Graduates.
10. Baccalaureate Sermon.
11-13. General Examinations.
13. Commencement. Preliminary Exercises
7:30 P. M.
14. Graduation Exercises, 8:00 A. M.

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UNIVERSITY OF NOTRE DAME.

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HENRY F. MAY,
Director of Gymnasium.

UNIVERSITY OF NOTRE DAME.

The University of Notre Dame was founded in the year 1842, by the Very Reverend Edward Sorin, the late Superior General of the Congregation of the Holy Cross. In an act approved January 15, 1844, the Legislature of Indiana gave the University power to grant degrees. The beginning of this act is:

"Be it enacted by the General Assembly of the State of Indiana, that Edward Frederick Sorin, Francis Lewis Cointet, Theophilus Jerome Marivault, Francis Gouesse, and their associates and successors in office, be, and are hereby constituted and declared to be, a body corporate and politic, by the name and style of the 'University of Notre Dame du Lac,' and by that name shall have perpetual succession, with full power and authority to confer and grant, or cause to be conferred and granted, such degrees and diplomas in the liberal arts and sciences, and in law and medicine, as are usually conferred and granted in other universities in the United States, provided, however, that no degree shall be conferred or diplomas granted, except to students who have acquired the same proficiency in the liberal arts and sciences, and in law and medicine, as is customary in other universities in the United States."

UNIVERSITY BUILDINGS.

THE MAIN BUILDING.

The dimensions of this building are 320 by 155 feet; it is five stories in height and is surmounted by a dome 207 feet in height. The executive offices, two study-halls, some dormitories and class-rooms and the refectories are in this building. The Library and the Bishops' Memorial Hall are also here temporarily. This building, like all others in the University, is lighted by electricity and gas, and heated by steam. The corridors of the first floor are decorated with mural paintings by Gregori.

THE CHURCH.

The Church of the Sacred Heart is 275 by 120 feet in ground dimensions and 125 feet in height from the floor to the roof-edge. The interior is decorated by Gregori, and the architecture is Gothic. There is a large crypt and many chapels. In the tower are a chime of 32 bells and the great six-ton chief bell.

THE LIBRARY.

The Library contains 55,000 volumes. Students have access to it from 8:00 a. m. to 9:00 p. m.

WASHINGTON HALL.

This hall is 170 feet in length, 100 feet in width, and about 100 feet in height. It contains the rooms of the Musical department, the reading rooms for Brownson and Carroll Halls, and the University Theatre. The Theatre

is equipped with stage settings, and it will seat 1,200 persons.

SCIENCE HALL

is situated a few steps south of Washington Hall. Its dimensions are 104 by 131 feet, and it is three stories in height. A large central space, the full height of the building, is occupied by the Museum containing mineral, fossil, and biological specimens.

THE CHEMICAL DEPARTMENT

occupies the entire north side of the first and second floors of Science Hall.

On the second floor, and adjoining the General Museum, is a large and well lighted room reserved for a library and chemical museum. Here are a library of chemical journals and books, and a steadily increasing collection of minerals, chemicals, and chemical-technical products of all kinds, designed to serve as illustrations of substances and processes, discussed in the various lecture courses. Adjoining this room are, successively, an apparatus-room, filled with the most modern apparatus for lecture and experimental work; a chemical store-room, where laboratory supplies may be procured by the students; a lecture room, and a laboratory for Qualitative and Quantitative Analysis. The laboratory is furnished with hoods, of good draught; the desks are provided with water, gas, and the necessary reagents, and fully equipped with apparatus for work in gas analysis, organic analysis, and with apparatus for "Boiling Point and Freezing Point Determinations." The Balance Room, adjoining, contains assay and analytical balances sensitive to the one ten-thousandth of a gramme. The lecture room is provided, among other things, with apparatus for stereopticon illustration, with electric batteries, and with a complete

set of charts illustrative of the process employed in modern chemical industries.

The assay and furnace-room, on the first floor, is equipped with a set of gas furnaces of the most modern type, for the operations of roasting, fusing, scorifying and cupelling employed in the dry assay of ores.

The Department of

PHYSICS AND ELECTRICAL ENGINEERING

is located in the south wing. There is a large lecture room, with a seating capacity of sixty-five students, adjoining the rooms in which the apparatus is stored in dust-proof cases. Several smaller rooms in the basement contain heavy piers of masonry, for work with sensitive galvanometers.

The following is a partial list of the more important pieces of apparatus in the Physical Laboratories :

IN MECHANICS, ETC.:

Large physical balance,	Break circuit recording chrono-
Standard kilogram,	graph,
Standard metre,	Powerful hydraulic press with
Geneva cathetometer, capable	attachments,
of measuring to one twenty-	Rotary air pumps and receivers,
five thousandth of an inch.	A large clock with electrical
Dividing engine,	contact pieces,
Atwood's machine,	Self-winding clocks,
Compound pendulum,	Several mercury barometers,
	Two aneroid barometers.

IN ACOUSTICS :

A Mercadier radiophone,	Koenig's movable tuning forks,
Set of Koenig resonators,	to draw compound curves on
Set of electrically - operated	smoked glass,
tunnel forks by Koenig,	Three sets of organ pipes,
A Scott-Koenig Phonautograph,	Four sets of fine tuning forks,
Edison phonograph of earliest	Apparatus for manometric
type,	observation of sound pheno-
	mena,

Sets of vibrating rods, tubes and bells,
 Large double siren,
 A large tuning fork producing the lowest audible sound,
 A set of very small tuning forks producing the highest audible sounds,
 Apparatus for producing longitudinal vibrations in rods,

A set of resonators mounted together with capsules for sensitive flames, arranged for the analysis of complex sounds,
 An electrical metronome,
 Mounted tuning forks carrying small mirrors arranged to perform Lissajou's experiment, producing complex curves.

IN LIGHT :

Complete set of apparatus, made by Soleil, Paris, for the measurement of the wave length of light by the various interference methods,
 Sets of polarization apparatus,
 Sets of lenses and spherical mirrors,
 Two heliostats,
 Four spectroscopes,
 A polarizing saccharimeter,
 Three projecting lanterns for gas or electric light, and 3,000 slides,

Set of large Nicol's prisms mounted,
 Large compound prism to form widely dispersed spectrum,
 Two Rowland gratings, 14,000 lines to the inch,
 Sets of photographs of solar spectrum by Rowland,
 Several cameras with lenses and attachments,
 A well equipped dark-room for photographic work,
 Photometric room and equipment.

IN HEAT :

Melloni's apparatus for measuring radiation, absorption and reflection of heat, complete with a set of prepared substances,
 Standard thermometers,
 Air thermometers,

Steam engine indicator,
 Calorimeters,
 Apparatus for determining the coefficient of linear expansion, using the optical lever method.

IN ELECTRICITY AND MAGNETISM :

An absolute electrometer,
 Holtz machine and apparatus for illustrating static phenomena,

Ten galvanometers of various types,
 Ammeters and voltmeters,
 One 2,000 lb. electro magnet,

Four induction coils,
Six bridges of different types,
Historical set of motors showing evolution of the modern machine from the early forms of the reciprocating type,

Standard resistance coils,
Several sets of storage cells,
Complete X-ray outfit,
Sets of apparatus for wireless telegraphy.

In addition to the electrical apparatus in the Department of Physics, the equipment for the practical work in Electrical Engineering consists of engines, dynamos, instruments, etc., of commercial size, as follows:

A three phase A. C. induction motor, arranged to operate on single phase circuits, with a condenser compensator,
A high frequency 1000 V., 33 K. W., composite wound, Wood alternator of the latest type, with exciter and a full set of switchboard instruments,
Several transformers of different capacity,
A high tension transformer for testing insulation,
An Edison bipolar 15 K. W. 125 V., generator,
A Thompson-Houston arc light machine with regulator and fifteen lamps,
A Wood arc machine, capacity 25 lights,
An Edison bipolar 3 K. W. 125 V., dynamo, with special winding,
A Van Depoele compound wound dynamo,
A special A. C. and D. C. 5 H.P. dynamo or rotary converter.
A series wound dynamo with wrought iron field,
A number of small motors,
A forty horse power high speed automatic engine,
A power or foot lathe with wood turning tools, drills and hand tools for metals,

A set of wood working tools,
A set of tools for metal working,
Telegraph relays, sounders, switchboards, etc.,
Telephone apparatus, including subscribers sets of various modern types, a fifty drop manual switchboard complete and a lot of separate drops, jacks, switches, lightning arresters, etc.,
Automatic telephone switchboard containing first and second selector and connector switches, interrupter heat coils etc. and three subscribers sets. With this apparatus all the operations involved in the operation of a 10000 system may be performed.
A complete central energy switchboard, several lines and subscribers sets and a selective signaling four party line outfit.
A collection of historical sets, including Reis' transmitter and receiver,
Standard portable bridge,
Common portable bridge,
Kohlrausch bridge for measuring battery resistance, etc.,
Testing battery,

- D'Arsonval and common galvanometers,
- Ballistic galvanometer, standard condenser, etc., for capacity work.
- Resistance boxes, standard megohms, etc.,
- High resistance Thompson galvanometer,
- Standard cells,
- Voltmeter arranged for the comparison of incandescent lamps,
- A plug switchboard controlling all circuits,
- A calibrating lamp rack.
- A small engine belted to shafting to drive a plating dynamo and a buffer for cleaning and polishing work to be plated; solution, tank, etc.,—in all, a complete outfit for electro-type work,
- A hot wire ammeter,
- Twelve ammeters and voltmeters, mostly of the Weston type for direct current measurements,
- A set of inclined coil alternating current portable instruments; voltmeter, ammeter and wattmeter,
- A lot of arc lamps, series and constant potential, open and enclosed arcs of various types,
- A dynamometer type wattmeter,
- Recording wattmeters of various types,
- A collection of motor starting rheostats,
- A set of parts of incandescent lamps showing the various stages in their manufacture,
- A large collection of porcelain insulators, etc., used in electrical work, including a lot of insulators for high tension transmission lines,
- A lot of armature core disks, transformer core stampings, formed coils, brush holders, pole pieces, samples of insulation, commutator segments, etc., used in dynamos of good design, donated by leading manufacturers of electrical machinery,
- A case of marked samples of wire insulators, lamps, and other construction materials,
- Library of practical technical books of reference and files of leading periodicals and trade publications,

EQUIPMENT IN THE DEPARTMENTS OF BIOLOGY, GEOLOGY, AND MINERALOGY.

The Department of Biology, on the north side of the second floor of Science Hall, consists of three large classrooms and laboratories properly ventilated and lighted. There are also private laboratories set apart for post-graduate students. All the class-rooms are furnished with charts and models necessary in teaching the different courses. The arrangement of windows is such that the rooms can be easily darkened so that a stereopticon and

lantern slides on the subjects of Botany, Zoology, and Physiology may be used.

The Laboratories are well equipped with compound and dissecting microscopes, and in each room there is a library of books pertaining to Biological subjects. The Botanical laboratory contains twenty-four compound microscopes and all the requisite accessories for work in Vegetable Histology and Cryptogamic Botany. The general laboratory of Microscopy, Histology and Embryology is also supplied with compound microscopes and their necessary accessory apparatus and other equipments indispensable in the courses mentioned above.

The Bacteriological laboratory is completely equipped with compound microscopes, incubators, sterilizers, and all the improved apparatus employed in thorough and careful work in Bacteriology. Apart from the others is a laboratory of Photo-Micrography which contains a perfect photo-micrographic instrument with a complete set of accessory apparatus for experimentation, photographing microscopic objects, making lantern-slides, etc. A large and fully equipped dark-room adjoins this laboratory.

The south side of the second floor consists of class-rooms and laboratories for the courses in Geology and Mineralogy. The laboratories adjoining the class-rooms are well equipped for work in blow-pipe analysis and assaying.

THE MUSEUM

connected with the departments described above, is well arranged for convenience of study. The Zoological collection on the second floor at present fills sixteen large cases and represents typical forms of all the orders and genera of vertebrate and invertebrate animals. A large collection of representative vertebrate skeletons has recently been added to this part of the Museum.

The Botanical collection, also on this floor, consists of two complete Herbaria, one of the United States, the other of Canada. There is also a second collection of the woods and fruits of the United States, almost complete.

The collections in Geology and Mineralogy occupy the first floor. These collections are arranged in a series of cases on each side of the building. In one series is a carefully classified collection of minerals and ores. The opposite series of cases contains a large Geological collection; some of the specimens here are of the rarest fossil remains of animal and plant life.

ENGINEERING HALL.

This building is situated directly south of Science Hall, and is a large three-story brick building, well lighted and heated. The two upper floors are given up to Chemistry and Pharmacy. The General Inorganic, Organic and Elementary Chemical laboratories are on the third floor, while the second floor is mostly taken up with Pharmaceutical laboratories, a well equipped drug store, a lecture room and a general stock room. Each laboratory is provided with ample hood accommodations, and each desk is furnished with water, gas and suction.

The southern portion of the second story of this Hall is used for the

CIVIL ENGINEERING DEPARTMENT.

The equipment of this department is sufficient for all the practice and exercises in the field necessary to illustrate and teach the practical methods of engineering. The instrumental outfit consists of one surveyor's transit, two engineer's transits with levels and vertical circles attached to telescopes, one engineer's wye level, and a plane table with all the attachments, clinometers, chains, tapes, etc.

MECHANICAL ENGINEERING DEPARTMENT.

The wood shop, machine shop and blacksmith shop are on the first floor. The wood shop is supplied with modern work-benches fully equipped with the smaller tools necessary for carpentry, twelve lathes for turning, a jig saw, a revolving planer and a circular saw, the whole forming an adequate equipment for a thorough mastery of joinery, scroll work and pattern making.

The machine shop contains two horizontal slide valve steam engines which are used for experimental purposes. The power for operating the machine shop is derived from the electric station of the University, two ten-horse power motors being used for this purpose, from which power is transmitted to the various machines by a line of shafting running the entire length of the building. The latest improved lathes have been provided, nine in number, varying from a five inch swing in the smallest to a large engine lathe with sixteen foot bed having a capacity for work twenty-eight inches in diameter. Two drill presses, a large planer, a shaping machine and a Brown and Sharp milling machine complete the outfit, thus making the machine shop a model of its kind. The blacksmith shop has the usual complement for teaching forging, annealing, welding and tool making. In the foundry work the student is instructed in the proper disposition of gates and sprues, the mixing of sand, setting up and drawing simple and complicated patterns and core making. This is supplemented with lectures on the proper mixing and heating of cast iron for the various purposes for which it is used.

In addition to the faculties afforded by the shops, the engineering students have access to the steam and power plants of the University which have been recently remodeled and made to compare favorably with the best contemporary practice. The main steam plant contains two batteries of ten horizontal tubular boilers, aggregating

about 1200 horse power. In connection with the boilers is installed the necessary testing apparatus as follows:—a Worthington hot water meter for measuring the amount of feed water, a feed water thermometer, for getting temperature of same, a high range thermometer for the temperature of generated steam, a throttling calorimeter for ascertaining the quality of steam and an automatic recording pressure gauge giving a continuous record of the boiler pressure. Provision is made for finding the temperature and pressure of the flue gases by means of a pyrometer and draught gauge and for obtaining samples of flue gas for analysis. These, with a Carpenter coal calorimeter for determining the heating value of the fuel, comprise a full and complete equipment for giving the student an intimate knowledge of the practical part of boiler management and testing. A Webster feed water heater and purifier, two compound duplex pumps, two vacuum pumps working on the heating system, two large Worthington fire pumps 16 by 9 by 12 with a capacity of 1500 gals. per minute, with numerous separators, steam traps, automatic reducing valves, etc., complete the apparatus in the main steam plant. A McEwen high speed automatic engine, an Armington and Simms engine of similar type and several low speed horizontal engines with planimeters, indicators, reducing wheels, slide rules and other necessary instruments, are used in studying the operation of the steam engine, distribution and economy of steam, regulation, valve setting and heat wastes.

SORIN HALL.

This building is 144 feet in length, with two wings 112 feet in depth. It has a basement and three high stories. The building contains 101 private rooms for advanced students. These rooms are furnished, and students of Senior, Junior or Sophomore standing in any of the

Collegiate Courses are not required to pay rent. On the first floor there is a chapel, a law lecture-room and a law library. The building is lighted with electricity and heated with steam. In the basement are recreation rooms and bath rooms.

CORBY HALL.

Corby Hall is a second residence building. It has three stories and a basement, and it is 240 feet in width. There are 125 private rooms for students, with recreation rooms and a chapel. The building is lighted with electricity and gas and heated with steam. For room-rent and care of the room a fee is charged.

THE OBSERVATORY.

This building is located near the Engineering Hall and is designed for an equatorial telescope and for a transit or meridian circle. The equatorial telescope now in the building is intended for students of Astronomy, and is in use whenever favorable weather permits.

THE INFIRMARY.

This building, 200 feet by 45 feet in ground measurement and three stories in height, contains rooms for the use of students during illness. The sick are nursed by Sisters of the Holy Cross, and the University physician visits them daily.

THE GYMNASIUM.

The gymnasium which was burnt down in November, 1900, was replaced by a building 230 by 200 feet in dimensions. The track-hall is now 100 by 180 feet on the ground: it is used for indoor meets, winter baseball-practice, basketball and military drill. The gymnastic hall is 100 by 40 feet and is furnished with a full set of new apparatus; below that are the offices, dressing-rooms

and showerbaths. Friends of the University and the alumni contributed more than \$3,000 to the fund for re-building.

The Cartier Field is an enclosed field for athletic games. There is a permanent grand stand near the baseball diamond and the cinder track, and a portable stand near the football rectangle. The field contains ten acres of ground, and is a gift to the University from Mr. Warren A. Cartier, C. E., of the class of '87.

OTHER BUILDINGS.

There are numerous other large buildings connected with the University; of these the principle are. Saint Joseph's Hall, Holy Cross Hall, the Community House, the Presbytery, and Saint Edward's Hall.

DISCIPLINE.

Official bi-monthly reports of each student's class standing will be sent to parents and guardians.

The Faculty maintains that an education which gives little attention to the development of the moral part of a youth's character is pernicious, and that it is impossible to bring about this development where students are granted absolute relaxation from all Faculty government while outside the class-room. A young man must learn obedience to law by the actual practice of obedience, not by mere appeals to honor.

Moreover, the quiet and concentration of mind that are needed for collegiate work are not obtained except where discipline exists.

Therefore the following regulations, shown to be salutary by experience, are enforced at the University :

1. No student shall leave the University grounds without permission from the President or the person delegated to represent him.

2. *Leave of absence will not be granted to students during the term time, except in cases of urgent necessity. There is no vacation at Easter.*

3. Students are required to report at the University immediately after arriving at South Bend. This rule is binding not only at the beginning of the scholastic year, but at all other times when leave of absence has been granted. Unnecessary delay in South Bend is looked upon as a serious violation of rule.

4. *Flagrant disobedience to authority, cheating in exam-*

inations, the use of intoxicating liquors, immorality, the use of profane and obscene language, and an unauthorized absence from the college limits are among the causes for expulsion. In case of suspension or expulsion for such offences, no fees will be returned.

5. No branch of study shall be taken up or discontinued without the consent of the Director of Studies.

6. Preparatory students are enrolled in Brownson, Carroll or St. Edward's Hall according to age: boys seventeen years of age or older are placed in Brownson Hall; those over thirteen and under seventeen, in Carroll Hall; and those under thirteen, in St. Edward's Hall.

7. The use of tobacco is forbidden except to those students of Sorin, Corby and Brownson Halls that have received from their parents written permission to use tobacco.

8. Continued violation of regulations in Sorin or Corby Hall leads to forfeiture of rooms.

9. *Although students of all religious denominations are received, the University is nevertheless a strictly Catholic institution, and all students are required to attend divine service in the College Church at stated times.*

10. The use of intoxicating liquors is strictly prohibited.

11. Undue attention to athletics at the expense of study will not be permitted, but students are expected to take part in outdoor sports and other games.

12. A limited number of athletic contests is permitted with college organizations from without.

13. All athletic associations of the students is strictly forbidden to countenance anything that savors of professionalism.

14. All athletics will be governed by a Faculty Board of Control which will be guided by its rulings by the regulations adopted by the Conference Colleges. The President

of the University and members of the Faculty will compose this Board, and reserve the right of a final decision on all questions concerning athletics. The Faculty Board will determine the amateur standing of the members of the athletic teams and apportion the finances. By this means indiscreet and unconsidered action of students will be checked.

LECTURES AND CONCERTS.

Each winter, eminent men are invited to lecture before the students. Concerts are also given monthly by organizations from without.

MEDALS AND HONORS.

The Quan Gold Medal is awarded yearly to the student in the Senior Class of the Classical Course that has the highest average over 80 per centum.

The Meehan Gold Medal, founded by Mrs. J. Meehan, of Covington, is awarded to a Senior student in the English, History and Economics or Classical Course for an English Essay. This medal is awarded only when the best essay has attained a fixed standard.

The Ellsworth C. Hughes Medal, presented by Mr. A. Hughes, of Denver, is awarded for the best record in Mathematics in the Civil Engineering Course.

The Breen Gold Medal, founded by Mr. William P. Breen, of Fort Wayne, is awarded for Oratory.

The Barry Medal, founded by Mr. P. T. Barry, of Chicago, is awarded to the winner of the Senior contest in Elocution.

The Mason Medal, presented by Mr. George Mason, of Chicago, is awarded to the student of Carroll Hall having the best record for the Scholastic year.

The Studebaker Debating Prize, Seventy-five Dollars, presented by the late Hon. Clement Studebaker, of South Bend, is divided among the three members of the University Debating Team.

First Honors are awarded to students of Sorin, Corby and Brownson Halls that have maintained throughout the year an average of at least 90 per centum for class-work and observance of regulations. A first-honor man for the first year receives a diploma, the second year a gold medal. The medal may be received also during the succeeding year of the course.

EXPENSES.

Matriculation Fee (Payable on first entrance),.....	\$ 10.00
BOARD, TUITION, (Latin, Greek and Modern Languages included) Lodging, Washing, and Mending of Linens, per Session of nearly ten months.....	400.00

PAYABLE IN ADVANCE, as follows:

On entrance in September:

Matriculation Fee (first year only),.....	\$ 10.00
First Payment on Board and Tuition,	250.00
Deposit on Book and Stationery account,.....	10.00
Special Lecture and Concert Course,.....	3.00

Also, in this First Payment must be included any extra expense the student may wish to incur, such as charges for Private Room, Special Courses (listed below), Spending Money.

On January 15:

Balance on Board and Tuition,.....	\$ 150.00
and any extra expenses the student may have incurred.	

No rebate will be allowed for time absent at the opening of the Sessions, September and January. The charge of \$400 covers the tuition fee, which is fixed at \$100 per Scholastic Year. The latter sum is accepted as an entirety for tuition during the Scholastic Year, and will not be refunded in whole or in part if the student be dismissed for wilful infraction of the fundamental rules and regulations herein stated and hereby brought to his notice; and so likewise in the event of his leaving and absenting himself from the University at any time or for any cause without proper notice and permission. However, an exception is made if it seems to be expedient for him to go to his home because of severe or protracted illness. *Degrees will not be conferred on any student whose account with the University has not been settled.*

SPECIAL EXPENSES—PAYABLE IN ADVANCE—

For whole Session of nearly Ten Months.

PRIVATE ROOMS—

Sorin Hall: Seniors, Juniors and Sophomores, Free;	
Freshmen,.....	\$ 50.00
Corby Hall,.....	\$ 80.00

While students, as a rule, are advised to confine themselves to the regular studies of the course they have entered any of the following may be taken at the rate mentioned per Scholastic Year. The charges will be *pro rata* for any portion of the year.

Instrumental music — Lessons on Piano and use of Instru- ment.....\$60.00	Use of each instrument....\$ 5.00
Use of Piano for advanced Students.....\$30.00	Vocal Culture.....\$40.00
Telegraphy\$25.00	Elocution-Special Course,\$10.00
Typewriting—Full Course, (20 lessons).....\$ 5.00	Use of Library.....\$ 5.00
Phonography\$25.00	“Scholastic,” college paper.....\$ 1.50
Practical Mechanics.....\$30.00	Artistic Drawing.....\$25.00
Lesson on Violin, Guitar, Flute, Cornet, Clari- net, or Mandolin.....\$30.00	Applied Electricity.....\$40.00
	Special Lecture and Con- cert Course.....\$ 3.00
	Gymnastics—Full Course (20 lessons).....\$ 5.00

Laboratory Fees Listed under Regular Courses.

GRADUATION FEE.

For all Courses leading to a degree, \$10 ; Commercial Course, \$5.

REMARKS.

The Entrance fee, cost of Books, Music and Laboratory fees, etc., are required with first payment.

Remittance should be made by draft, postoffice money order or express, payable to the order of the President.

Checks on local banks are not desirable, and exchange will be charged in all cases.

Term bills and other accounts are subject to sight draft if not paid within ten days after they have been rendered.

Brownson, Sorin, Corby and Carroll Halls are closed during the months of July and August. Students wishing to spend their Summer Vacation under the care of the College authorities can be accommodated at San Jose Park, Lawton, Michigan.

In consequence of benefactions lately received by the University, a limited number of students aspiring to the ecclesiastical state can be received at special rates. Fuller information can be obtained by addressing the President.

The year 1905–1906 will open on Tuesday, September 12.

Courses of Instruction.

COURSES IN PHILOSOPHY.

I.

(a) **Physiological Psychology** — This course is a fairly comprehensive treatment of the physical basis of consciousness.

(b) **Experimental Psychology** — Psycho-physical methods and results.

(c) **Rational Psychology** — The problems of the mind. Nature, origin, and destiny of the soul.

[Courses a, b, and c are consecutive. Lectures three hours a week for two terms.]

(d) **Laboratory Exercises** — Experiments will be conducted with special reference to their value as aids to introspection. Sandford: Course in Experimental Psychology.

[Two hours a week for two terms.]

II.

(a) **Elements of Epistemology.** A study of the Scholastic theory of knowledge in relation to the teachings of Descartes, Leibnitz, Locke, Berkeley, Hume, Kant and Spencer.

[This course is intended to be introductory to Logic and General Metaphysics and will be given at the beginning of the year during the time prescribed for these studies.]

(b) **Logic** — Hyslop: Elements of Logic.

[Two hours a week for two terms.]

(c) **General Metaphysics**—Transcendental concepts : their value in different systems of philosophy.

[*Two hours a week for one term.*]

(d) **Cosmology**—The fundamental concepts of the natural sciences in relation to Thomistic philosophy.

[*One hour a week for one term.*]

(e) **Theodicy**—The existence of God. His attributes ; His presence in the universe.

[*One hour a week for one term.*]

(f) **Student Discussions**—From time to time throughout the year students will be required to read and discuss papers on various subjects in the field of philosophic inquiry.

III.

Principles of Ethics.—(*Q. 1.*) Man's last end and Happiness ; the Purpose of Man in this life. (*Q. 2.*) Human Acts ; Responsibility ; Merit ; Obstacles to Human Acts. (*Q. 3.*) Origin of Morality ; Hedonism ; Altruism ; Sympathy ; Essential Differences between Good and Evil ; the Constituents of Morality ; the Eternal Law. (*Q. 4.*) The Natural Moral Law ; its Existence and Characters ; Evolution. (*Q. 5.*) The Positive Law. (*Q. 6.*) On Conscience ; Good Faith ; Doubtful Conscience and Reflex Principles. (*Q. 7.*) Passions in Practical Life ; their Classification ; their Imputability. (*Q. 8.*) The Moral Virtues ; Stoicism ; Epicureanism ; Christianity.

(a) **Individual Duties**—Notions of Right and Duty. (*Q. 1.*) The Duty of Man to God ; Necessity of External and Public Worship ; Obligation of Prayer ; the fact of Sacrifice. (*Q. 2.*) The Duty of Man to Himself ; Culture of the intelligence, the Will, the Imagination, the Memory ; Care of the body ; Suicide essentially Unlawful. (*Q. 3.*) The Duty of Man to his Fellowmen ; on Truthfulness and Lying, Homicide and Self-Defence ; on Duelling ;

on Private Ownership, Socialism, Communism, Single Tax; on the Right to Honor and Reputation; on Contracts and Usury.

(b) **Social Duties** — (*Q. 1.*) The Domestic Society and Marriage; Monogamy; Polygamy and Divorce; Relations between Parents and Children. (*Q. 2.*) Education: the Part of the Parents, the Church and the State. (*Q. 3.*) On Slavery in Ancient and Modern Times; Duties of Masters and Servants. (*Q. 4.*) On Capital and Labor.

[Five hours a week for one term.]

IV.

(a) **Moral Sociology** — Necessity of a Public Society; the City. (*Q. 1.*) Origin of the Civil and Political Organization; Theories of Hobbes and J. J. Rousseau; source of authority in Human Society. (*Q. 2.*) On the Divine Right of Kings; the Absolute Sovereignty of the People; the Reasonable System. (*Q. 3.*) The Different Forms of Government; the Primitive Polity; the best Form of Government; Opinions of O. A. Brownson. (*Q. 4.*) On Modern Democracy; the Position of the Church; the Usurpation and Transfer of the Supreme Power; on the Government de Facto. (*Q. 5.*) On Despotism; is it Lawful to Resist a Tyrant? Theory of St. Thomas and Machiavelli on Government. (*Q. 6.*) The Distinction of the three Social Powers; Parliamentary and Representative Government. (*Q. 7.*) Qualities of a good Ruler; the Question of the Poor. (*Q. 8.*) Public Liberties; Freedom of the Press and of Conscience; the Right of the Sword; on War and Treaties. (*Q. 9.*) The International Law. (*Q. 10.*) Civilization. (*Q. 11.*) Church and State.

(b) **Government of the United States*** — History of the

* This course is sketched according to the principles laid down in "The American Republic," by O. A. Brownson, and "The American Commonwealth," by Mr. Bryce.

Constitution; the Legislative Department of the U. S.; the Executive Department of the U. S.; the President and the Cabinet; the Judicial Department of the U. S.; the Supreme Court; the Rights of the States and the United States; Jury, Suffrage and Elections; Ballot Systems; Parties and Party Machinery; Patriotism and Religion.

This Course is for Classical Students.

(c) **HISTORY OF PHILOSOPHY***—Schools and Systems.—*Ancient Philosophy*: Pythagoras.—Anaxagoras—The Sophists and Socrates.—Plato and Aristotle.—Epicurus.—Zeno.—Pyrrho.—Eclecticism and Neo-Platonism.—Cicero and Seneca. *Philosophy of the Middle Ages*—Christian Platonism; St. Augustine.—Scholasticism: St. Thomas of Aquin.—*Renaissance and Modern Philosophy*—Neo-Platonism.—Francis Bacon—Thomas Hobbes—Descartes—Spinoza—Leibnitz—John Locke. Materialism.—David Hume.—Kant and his disciples.—Darwin and Monism.—A. Comte and Positivism.—Herbert Spencer.—T. Huxley—Agnosticism and Evolution.

* The text-book used is Dr. Turner's "History of Philosophy."

COURSES IN GREEK.

I.

Lysias—Orations selected. Short history of the Attic orators.

Homer—Odyssey.

Prose Composition based on Lysias.

Epitome of the New Testament: Parts IV., V. *Stoffel*.

[Four hours a week for one term.]

II.

Lysias—Orations selected.

Homer—Odyssey.

Prose Composition based on Lysias.

St. John Chrysostom—Eutropius.

[Four hours a week for one term.]

III.

Herodotus—Selections. Study of Herodotus dialect.

Advanced Greek Prose Composition.

St. Basil—De Profanis Scriptoribus.

[Four hours a week for one term.]

IV.

Herodotus—Selections.

Selections from the Greek Lyric Poets.

Advanced Greek Prose Composition.

St. Gregory—Machabees.

[Four hours a week for one term.]

V.

Demosthenes—De Corona. Review of political situa-

tion and events in reference to the oration. Aeschines' speech against Ctesiphon compared with the speech on the Crown.

[Three hours a week for one term.]

Thucydides—Book I. State and condition of Greece before the Peloponnesian war. Importance of this war in Greek history. The speeches in the congress of the allies held at Sparta in respect to the complaints made against the Athenians will be carefully analyzed and the choicest specimens of the condensed and vigorous style of Thucydides will form the subjects for special class interpretations. Stylistic differences between pure Attic and archaic Attic will be pointed out.

[Two hours a week for one term.]

N. B. During this course special attention will be given to Attic syntax. Short introduction to textual and exegetical criticism practically shown by passages selected for that purpose. This is done in the belief that it is the best way to make students appreciate the notes in the editions of classical authors.

Practical Exercises—Embodying idiomatic expressions and constructions of the authors read.

[Twice a month for one term.]

VI.

Thucydides—One book selected for each year. Thucydides, the philosopher of history.

[One hour a week for one term.]

Aeschylus—One play, to vary each year. In connection with this will be discussed the origin of the drama. Aeschylus the real founder of tragedy. The important part which the chorus holds in the early tragedy. Religious and moral ideas of Aeschylus, to which Necessity (fatum) gives the key-note. The structure of a Greek

tragedy, the iambic trimeter and the lyric measures will be sufficiently explained so as to be properly appreciated by the students.

Incidentally also the Greek festivals, at which the plays were represented, and the Dionysiac theatre will be spoken of.

[One hour a week for one term.]

Sophocles—Oedipus Tyrannus and Antigone.. Digest of the Theban legends. Religious views of Sophocles compared with those of Aeschylus.

[Two hours a week for one term.]

Practical exercises in Greek Composition.

[Twice a month for one term.]

Elements of Greek Literature—Students shall use Jebb's Primer of Greek Literature.

[Twice a month for one term.]

VII.

Plato—Apology and Crito. Study of the character of Socrates,—a philosopher or a sophist? His friends and enemies. Athenian court-proceedings and jurisprudence.

[Two hours a week for one term.]

N. B. Students are required to read the symposium of Plato outside of class.

Eurípides—One play, to vary each year. Religious tendencies of Euripides. His dramatic art. The frequent resolutions in the Iambic Trimeter of Euripides, compared with those of Aeschylus and Sophocles. Picturesqueness—the chief elements in his plays, as heroic grandeur and artistic perfection were the characteristic traits in Aeschylus and Sophocles respectively. Euripides' right to the title of Scenic Philosopher.

[Two hours a week for one term.]

Short Introduction to Modern Greek—Reading of Modern Greek stories and anecdotes. *Stoffel.*

Lectures in Greek Literature—Based on Christ's Griechische Litteratur-Geschichte in Iwan v. Muller's Handbuch der Klassischen Altertums Wissenschaft.

[Twice a month for one term.]

VIII.

Aristophanes—Two plays, to vary from year to year. The Acharnians and Knights; the Frog and Clouds; or the Birds and Wasps. In connection with the reading of these plays will be treated the Greek comedy,—its origin, nature and aim. Aristophanes—the great burlesque critic of Athenian life and manners, political, intellectual, moral and social. The plays are selected especially in view of this point. The structure of comedy compared with the structure of tragedy.

[Two hours a week for one term.]

Euripides—Electra. With this will be compared and partially read in class the Electra of Sophocles and the Cheophori of Aeschylus, on the same subject.

[One hour a week for one term.]

Pindar—Selected odes, in connection with which the public games of Greece will be considered.

[Elective, one hour a week for one term.]

Cursory Reading of the Greek Fathers—St. Basil—The Martyr Gordius. St. John Chrysostom—The Return of Bishop Flavian. St. Gregory Nazianzen—Funeral Oration of Caesarius.

[Elective, one hour a week for one term.]

Lectures in the history of Greek literature.

[Twice a month for one term.]

COURSES IN LATIN.

I.

Livy — Book XXI. Study of Livy's Grammar and Style.

Cicero — Epistles selected.

Prose Composition.

[Five hours a week for one term.]

II.

Livy — Book XXII.

Cicero — De Senectute and De Amicitia.

Pliny — Epistles selected.

Prose Composition. Writing of continuous prose.

[Five hours a week for one term.]

III.

Cicero — De Oratore. Book I.

Horace — Odes and Epodes. Study of Metrical Systems; Peculiarities of Style; Plan of Composition; Comparison with Odes of a similar nature.

Advanced Latin Prose Composition.

[Five hours a week for one term.]

IV.

Tacitus — Dialogus De Oratoribus.

Horace — Odes and Epodes; or, Satires selected. See Course III.

Terence — Phormio. Short history of Greek and Roman comedy.

Advanced Latin Prose Composition.

[Five hours a week for one term.]

V.

Livy—Roman History, First Book. In the reading of the text particular attention is called to the rules of Syntax—roots and derivation of words—and the Ancient History, Geography and Mythology.

Latin Composition twice a week, either paraphrases or original. Short fables and stories.

Horace—Epistula ad Pisones translated, analyzed and criticised from a Philological and Literary standpoint.

Ancient Literature—Historians and Lyric Poets: their lives, their works, their genius.

[Five hours a week for one term.]

VI.

Tacitus—Agricola and Germania. While reading the text a comparison is made with the private and public manners of modern nations.

Terence—Andria. Sight reading.

Horace—The Literary Epistles.

Weekly practice in written Composition, Latin Conversation and Versification.

Ancient Literature—Dramatists of Greece and Rome compared and discussed.

[Five hours a week for one term.]

VII.

Quintilian—De Institutione Oratoria, Books Tenth and Twelfth. Translation. The explanation embraces a literary criticism of Grecian and Roman Orators, and practical remarks on Latin Idioms and the fine arts of Antiquity.

Short Orations or Dissertations, and practical Conversations take place weekly.

Plautus—Captivi. The study of the play gives a full knowledge of the Characters, the Plot and the Style, the archaic Forms, and the Constructions peculiar to the author.

Ancient Literature—Orators, especially Demosthenes and Cicero.

[*Five hours a week for one term.*]

VIII.

Cicero—De Officiis. Partly sight reading. Besides the study of the work from a philological standpoint, the student is made acquainted with the main systems of Grecian Philosophy, and continual reference is made to Course III. in Philosophy.

Oratorical and Philosophical Compositions alternate weekly. Latin Conversation on general topics.

Lucretius—De Rerum Natura. Select passages. Synopsis of the poem. Statement and refutation of erroneous philosophical systems of antiquity. Analogy with the errors of our day. Style of the writer.

Ancient Literature—Philosophers, particularly Socrates, Plato and Aristotle, Cicero and Seneca.

[*Five hours a week for one term.*]

COURSES IN ENGLISH.

I.

(a) **Prose Forms.** Special treatment of Exposition and Argumentation. Genung's *Working Principles of Rhetoric*, Part II., and Heydrick's *How to Study Literature*.

[*Three hours a week for one term.*]

(b) **Literature.** Higginson and Boynton's.

[*Three hours a week for one term.*]

(c) **Lyric Poetry.**

[*One hour a week for two terms.*]

II.

(a) **Prose Forms.** Special study of the Novel and the Short Story.

[Three hours a week for one term.]

(b) **Literature.** The Development of English Literature.

[Three hours a week for one term.]

(c) **The Sonnet.**

[One hour a week for two terms.]

III.

(a) **Prose Forms.** Intensive study of the Essay and the Oration.

[Three hours a week for one term.]

(b) **Literature.** Recent English and American Poetry.

[Three hours a week for one term.]

(c) **Didactic Poetry and Satire.**

[One hour a week for two terms.]

IV.

(a) **The Laws of the Epic and the Drama.**

[Three hours a week for one term.]

(b) **Shakespeare.** Reading and Analysis of the Plays.

[Three hours a week for one term.]

(c) **The Leading Poets of the Nineteenth Century.**

[One hour a week for two terms.]

COURSES IN ELOCUTION AND ORATORY.

I.

Readings and Declamations.—This course is designed to correct defects in pronunciation and emphasis. Each student will be required to give two declamations.

[Two hours a week for first term.]

II.

Continuation of Course I.—Each student will be required to give three declamations.

[Two hours a week for second term.]

III.

Practical Elocution.—Exercises in breathing, voice-culture, and action. The principles of pronunciation and emphasis and their application in the reading of selections. Text-book, Fulton and Trueblood's *Practical Elocution*.

[Two hours a week for first term.]

IV.

Continuation of Course III.—Further exercises in breathing, voice-culture, action. Quality, Force, Pitch and Time. Minute speeches and declamations. Lectures on the principles of action. Text-book, Fulton and Trueblood's *Practical Elocution*.

[Two hours a week for second term.]

V.

Oral Discussions—The application of Formal Logic to debating. Analysis of selected argumentative speeches,

and the preparation of briefs. Courses III. and IV. and a course in Logic are required for admission to this course. It is limited to 24 students.

[Two hours a week for first term.]

VI.

Shakesperian Reading—The critical and artistic reading of two of Shakespeare's plays accompanied with stage action. The students present the play by scenes before the class. Courses III. and IV. are required for admission to this course. It is limited to 24 students, and alternates with course VII. below.

[Two hours a week for second term.]

VII.

Oratory—A study of the great orators of ancient and modern times. Each student is required to write and deliver a biographical oration on one of the great orators. Lectures on methods of public address. Courses III. and IV. above and course I. in English are required for admission to this course. It is limited to 24 students and alternates with course VI. above.

[Two hours a week for second term.]

VIII.

Assembly Work—This course is designed to supplement the other courses in this department. It consists of debates, short orations, minute speeches, declamations, impromptus and drill work in parliamentary law. Wednesday from 1 to 3. One hour credit.

[Throughout the year.]

COURSES IN HISTORY.

I.

ANCIENT HISTORY.

(a) **Ancient Greece** to the conquest of Rome of the Hellenic world. Readings, and examinations on required texts. This course is given in an alternate year with Course I. (b).

[Four hours a week for one year.]

(b) **Ancient Rome** to the Barbarian invasions. Readings, and examinations on required texts. This course is given in an alternate year with Course I. (a).

In both courses, the student is required to become familiar with the institutions of the ancient world, and to study the same in De Coulanges' *The Ancient City*.

[Four hours a week for one year.]

II.

MEDIAEVAL AND MODERN HISTORY.

(a) **The History of the Middle Ages** from the invasion of the barbarians, and the history of the periods of the Renaissance and the Reformation of 1603. Readings, and examinations on required texts.

[Five hours a week for one year.]

(b) **The General History of Europe** from the beginning of the 17th century to the present time. Readings, and examinations on required texts.

[Five hours a week for one year.]

III.

The History of the British Isles to the Revolution of 1689—Readings, and examinations on required texts. The student is required to obtain by direct reading and

examinations a special knowledge of the development of the political institutions of Great Britain, using Feilden's *Constitutional History*.

[*Five hours a week for one year.*]

IV.

AMERICAN HISTORY.

(a) American History from its beginning to 1763—Readings and examinations on required texts.

[*Four hours a week for five months.*]

(b) American History from 1763 to the present time—Readings, lectures and examinations. There is first given by lectures an outline of the political condition of the Colonies under the Crown, the causes leading up to the Revolution of 1776, the Revolution, the political status of the State after Independence, the Confederation of 1781, the causes leading to the formation of the Constitution, and the Constitutional Convention. This is followed by a thorough treatment of the political history of the United States since 1789, using as an outline text, Johnson's *American Politics*.

[*Three hours a week for one year.*]

COURSES IN POLITICAL SCIENCE.

(a.)

ECONOMICS.

I. The Elements of Economics, viz.:—Land, Human Exertions and Capital; Value, Money and Credit; Rent, Interest, Profit and Wages; and Population and Consumption. The text-book used is Walker's *Manual of Political Economy*.

[*Four hours a week for five months.*]

II. Industrial History and the history of Economic Thought. Readings, lectures and examinations on required texts.

[Three hours a week for one year.]

III. Money, Credit and Banking, with special treatment of the monetary experiences of the United States. Lectures, readings, and examinations on required texts.

[Four hours a week for five months.]

IV. Distribution—A course covering the Land and Labor Questions and Socialism. Lectures, readings and examinations on required texts.

[Four hours a week for five months.]

(b)

POLITICS.

V. The Elements of Politics—Lectures and Examinations on required texts.

[Two hours a week for five months.]

VI. The American Constitution and Political Institutions. Lectures, readings, and examinations on required texts.

[Two hours a week for five months.]

VII. Jurisprudence—A course covering (a) The outlines of the Science of Law. (b) The elements of International Law, and (c) Lectures on selected topics of Roman and Canon Law. Lectures, readings, and examinations on required texts.

[Two hours a week for one year.]

(c)

SOCIAL SCIENCE.

VIII. The Elements of Sociology—Lectures, readings, and examinations on required texts.

[Two hours a week for five months.]

COURSES IN ROMANCE LANGUAGE.

This Course includes the study of French, Spanish, Italian, Portuguese, Old French, Provençal.

Its principal aim is to impart an accurate reading knowledge of literary works written in these languages. In the study, however, of Old French and Provençal special attention will be paid to Philosophy.

COURSES IN FRENCH.

I.

This Course consists in reading, writing short sentences, explaining the parts of speech, especially the regular conjugations as well as the more usual irregular verbs, then translating two at least of the following works: Houghton's *French by Reading*. *La Tache du Petit Pierre*. (*Mairet*). *Un cas de Conscience*. (*Gervais*). *La Main malheureuse*. (*Guerber*). *Sans Famille*. (*Malot*). *Super's Reading from French History*.

[*Five hours a week.*]

II.

The intermediate class continues and perfects all the work of Course I. Dictations and conversations are added on practical topics, and careful translation made of two or three of the following works: *Le Voyage de M. Perichon*; (*Labiche*). *Roman d'un Jeune Homme Pauvre*. (*Feuillet*). *Fables choisies*. (*La Fontaine*). *Le Médecin Malgré' Lui*. (*Moliere*). *Le Cid*. (*Corneille*). *Esther*. (*Racine*). *Pages oubliées de* (*Chateaubriand*). *La Question d' Argent*. (*Dumas*).

[*Three hours a week.*]

III.

The advanced class is devoted chiefly to the prose and poetry of the 19th century and includes composition, oral practice and brief notions of Literature. Besides a translation and criticism of the best writers such as: *Causeries du Lundi*. (*Ste. Beuve*). *On Rend l' Argent*. (*Coppée*). *Hernani*. (*Hugo*). *Meditations* (*Lamartine*). *Athalie*. (*Racine*). *L'Avare*. (*Moliere*). *Mlle. de la Seigliere*. (*Sandean*). *Les Origines de la France Contemporaine*. (*Taine*). *Expedition de Bonaparte en Egypte*. (*Thiers*). *Ste. Elisabeth de Hongrie*. (*Montalembert*.)

[*Two hours a week.*]

N. B.—The books used are not necessarily the same every year.

COURSES IN SPANISH.

I.

Introductory Course—General outlines of grammar with composition. Translation of easy tales from Trueba, Fernon Caballero, Perez Escrich, etc., with select Fables of Samaniego, and Iriarte.

[*Four hours a week for one year.*]

II.

Advanced Course—Spanish Prose and Poetry of the 18th and 19th centuries, with composition and the history of the literature of the period.

[*Four hours a week for one year.*]

III.

Literature of the 16th and 17th centuries: Cervantes, Calderon, Lope de Vega. History of the Literature of the period, with essays in Spanish.

[*Four hours a week for one year.*]

Early Spanish—El Poema del Cid. History of the literature of the 15th century.

[*Two hours a week for one year.*]

COURSES IN ITALIAN.

A two years' course. The chief work of this course is a critical study of Dante's *Divina Commedia*. Reading from Tasso, Petrarca, Ariosto's *Satires*, Manzoni, etc.

COURSES IN PORTUGUESE.

I.

Wall's *Portuguese Conversation Grammar*—Texts: *Camillo Castello Branco*, "Perfil do marquez de Pombal;" *Pinheiro Chagas*, "Novellas Historicas;" *Herculano*, "Lendas e narrativas;" *Joao de Deus*, "Campo de flores."

II.

Sermoes do *Padre Antonio Vieira*; *Camoës*, "Os Lusíadas." History of Portuguese literature.

COURSES IN OLD FRENCH.

Special attention will be paid to the laws underlying the formation of the French language from the popular Latin. For this purpose a work like Brachet's *Grammaire Historique* will be studied. It is under this point of view that Old French authors will be read, especially *La Chanson de Roland*.

COURSES IN PROVENÇAL.

Language and Literature, with reading from the works of the Troubadours.

COURSES IN GERMAN.

I.

Grammar — *Joynes-Meissner*. *Marchen and Erzählungen*, Guerber. Vol. I. and II.

Themes — Original and imitation work.

[*Five hours a week.*]

II.

Special Course for students in the English and Scientific Courses.

Grammar — *Joynes-Meissner*.

Readings from scientific and literary works.

[*Three hours a week.*]

III.

Readings from scientific and literary works.

[*Two hours a week.*]

COURSES IN PURE MATHEMATICS.

I.

Algebra — This course includes a study of the binomial theorem, the theory of logarithms, choice, chance, variables and limits, series, determinants. Then follows a thorough study of the general properties and solution of equations, embracing the subjects of derivatives, transformation, detached coefficients, surd and imaginary roots, incommensurable roots, limits of roots, biquadratic equations, Des Cartes' and Cardan's rules; Sturm's theo-

rem; Horner's method; roots of complex number and trigonometric solution of cubic equations.

[Five hours a week for one term.]

II.

Analytic Geometry—This course includes a study of the point and right line; conic sections, their equations and properties; discussion of the general equation of the second degree containing two variables; higher plane curves, equations of the third degree; different systems of coordinates; transformation of coordinates; spirals; an elementary course in geometry of three dimensions, embracing the point, straight line, plane, and surfaces of revolution; transformation of coordinates; quadric surfaces and supplementary propositions.

III.

Calculus Differential—This course, as also Courses IV. and V., is designed to meet the requirements of Engineering students. It includes a study by the methods for the differentiation of algebraic, logarithmic and exponential, trigonometric, and inverse trigonometric functions; successive differentiation and differential coefficients; treatment of implicit and compound functions; expansion of functions; indeterminate forms; partial differential coefficients of the first order and of higher orders; direction of curvature; radius of curvature; envelopes; singular points of curves, maxima and minima of functions of one independent variable, and of several independent variables; tracing curves, differentials of arcs, plane areas, surfaces and volumes of revolution.

[Five hours a week for one term.]

IV.

Calculus, Integral—Integration of elementary forms and of rational fractions; integration by rationalization and by

parts ; successive integration ; multiple integrals ; definite integrals, limits of integration ; double integration applied to plane areas ; rectification of plane curves ; quadratures of plane areas and surfaces of revolution ; surface and volume of any solid ; intrinsic equation of a curve. This course is supplemented by numerous exercises and examples.

[*Five hours a week for one term.*]

V.

Differential Equations — An elementary course for engineering students, supplementary to the Course of Integral Calculus. It embraces : equations of the first order and first degree ; equations of the first order but not of the first degree ; singular solutions ; linear equations with constant coefficients ; special forms of equations with higher orders. Numerous applications to Mechanics and Physics are introduced during the course.

[*Five hours a week for six weeks.*]

VI.

Elective Work — The prescribed Courses in Pure Mathematics are I. to V. inclusive. The following advanced courses are offered, based on standard authors. The text-books are not necessarily the same every year. The number of students necessary to constitute a class in any one subject must be at least five.

- (a) Higher Algebra, *Hall and Knight, Smith, Crystal.*
- (b) Advanced work in Trigonometry, *Todhunter, Lock.*
- (c) Determinants, *Peck, Hanus, Muir.* (d) Theory of Equations, *Burnside and Panton.* (e) Differential Equations, Elementary Course, *Murray.* (f) Advanced Calculus, *Byerly, Todhunter, Williamson.* (g) Advanced Analytic Geometry, *Salmon.* (h) Analytic Geometry of Three Dimensions, *Aldis, Frost, Salmon.* (i) Quaternions, *Hardy*, with *Kelland and Tait* as reference.

[*Three hours' recitation a week for one subject.*]

COURSES IN APPLIED MATHEMATICS.

I.

Descriptive Geometry—In this course are considered problems on the point, right line, and plane; single curved, double curved, and warped surfaces; problems relating to tangent planes to single curved, double curved, and warped surfaces; intersection of surfaces by planes; tangencies, development of surfaces; spherical projections; orthographic, stereographic, globular, cylindrical, and conic projections; construction of maps, shades and shadows; linear perspective; isometric projections; theory and plates. Numerous practical problems and exercises requiring the application of the principles of Descriptive Geometry, are added by the instructor.

[Three hours a week for two terms.]

II.

Surveying—This course comprises the whole theory of land surveying and leveling; the use and adjustment of the transit, compass, level, and plane table; methods of measuring; relocation of boundaries; supplying omissions; obstacles to measurement; computations; field notes and plots; laying out land; parting off land; dividing up land; Public Lands survey.

[Five hours a week for one term.]

III.

Surveying—Field practice and application of theory; adjustment and use of instruments in the field; solution of problems in the field, the theory of which is taught in the class-room; practice in keeping field notes; computations and plots.

[Four hours a week for the spring term.]

IV.

Higher Surveying—This course is a more complete treatment of the theory of surveying than Course II. and can not be taken until the completion of that course. It treats of the adjustment, use, and care of all kinds of Engineering instruments; problems pertaining to solar attachment; topographical surveying with the transit and stadia; mining surveying; mining claims; survey of mines with shafts and drifts; determining positions of ends of tunnels, and depths below surface; theory of hydrographic and city surveying; geodetic surveying and leveling; measuring base lines; adjustments of angles, triangles, and quadrilaterals; latitude and azimuth; time and longitude; changing mean time into sidereal time and sidereal time to mean time.

[Five hours a week for one term.]

V.

Surveying—Exercises in the field in the adjustment and use of engineering instruments; stadia and plane table surveying in the field, leveling; practice in hydrographic surveying.

[Four hours a week for the spring term.]

VI.

Railroad Surveying—This course comprises all the theory pertaining to reconnoissance and preliminary survey for a railroad; theory of maximum economy in grades and curves; location of curves by deflection angles and offsets; obstacles to location of curves; special problems in curves; theory of compound curves; turnouts and crossings; compound transition curves; cubic parabola; curving the rail on curves and elevation of outer rail; easing grades on curves; vertical curves; earthwork and prismoidal formula; theory of excavation and embank-

ment; correction in excavation on curves; cross-section leveling.

[Five hours a week for one term.]

VII.

Railroad Surveying — Exercises in the field; staking out and running tangents, simple, compound and transition curves; execution on the ground of many problems previously treated theoretically; survey for a short line of railroad, leveling, cross-section work, and setting slope stakes; making profiles and maps; calculating the necessary excavations and embankments and cost of construction; culverts.

[Four hours a week for one term.]

VIII.

Analytic Mechanics — The aim of this course is to prepare students of Engineering for the study of the courses of Applied Mechanics. The course comprises a study of the fundamental principles of Statics, Kinematics, and Kinetics. The subjects selected are studied with the object of thoroughly preparing the engineering students to pursue the technical and practical branches of their respective courses. Some of the topics considered in this course are: work, energy, conservation of energy; power, composition and resolution of forces, centre of gravity, centre of mass, moment of inertia, acceleration, dynamics of rigid bodies, laws of friction, etc.

[Five hours a week for one term.]

IX.

Mechanics of Materials — This course is intended to meet the requirements of Engineering students, and to prepare them, by a study of the action and effect of forces on beams and structures, to design economically and intelligently the parts entering into a complete structure. The

course comprises a study, according to the latest and most approved methods, of tension and its effect on materials, compression, theories of flexure and rupture from transverse stress, shearing stress, transverse strength, beams of uniform resistance, various forms and loaded in any manner, design and strength of beams and columns, effect of long continued stresses, and repeated stresses, factor of safety and working stresses, strength of pipes and cylinders, theory and practice of riveting, torsion, transmission of power by shafts, continuous girders equation of curves of deflection, theorem of three moments, moment at any support, the resilience of materials, apparent stresses and true stresses, etc.

[Five hours a week for one term.]

X.

Bridges and Roofs — This course comprises a study of the different systems of trussed bridges and roof trusses, and the calculation of the strains produced when loaded in any manner, the weight of the structure and the effect of wind included. Both graphical and analytical methods are used. Besides the various systems of trussed bridges, which are studied in detail, the plate girders, suspension bridges, cantilever bridges, draw bridges, and roofs of various designs are given equal attention; the purpose being to familiarize the student with the different forms and to enable him to design and to estimate the cost of construction.

[Five hours a week for one term.]

XI.

Graphical Statics — This course teaches the determination of stresses in framed structures by the graphical method. Shearing forces, bending moments, centres of gravity, and moments of inertia are graphically determined by the application of the principles of the force and

equilibrium polygons ; also the determination of stresses in bridge tresses with parallel chords and with broken chords, caused by uniform loads and locomotive-wheel loads ; graphical determination of stresses in roof trusses, graphical treatment of the arch, symmetrical and unsymmetrical cases ; graphical method for arch-ribs of hinged ends, and of fixed ends ; stress diagrams ; temperature stresses ; braced arches ; graphics applied to continuous girders. This course is supplemented by full explanations, notes, examples, and problems.

[Five hours a week for one term.]

XII.

Engineering — This course is taken by students of Civil Engineering in the Senior Year, and teaches the principles of the science of Civil Engineering and the most approved methods of constructing engineering works, such as piers, abutments, foundations, coffer dams, reservoir walls ; instruction as to the types of structures suitable for different localities ; economy of construction and framing ; properties of building materials, as wood, stone, cement, brick, iron ; methods of testing, methods of preparation, preservation and cost ; construction of masonry arches, tunnels, sewers, highways, and city streets ; discussion of framed structures of different types ; river and harbor improvements ; canals ; seacoast defences.

[Five hours a week for two terms.]

XIII.

Sanitary Engineering — This course is a study of the principles and methods of drainage and disposal of sewage in populous districts ; shape, material and calculation of sewers ; catchbasins, flushing and ventilation ; separate and combined systems compared ; pollution of rivers ; chemical precipitation ; results and cost of purifi-

cation ; general municipal and domestic sanitation ; inspection of neighboring works.

[Two hours a week for two terms.]

XIV.

Stereotomy — This course comprises a study of the application of the principles of Descriptive Geometry to the determination of the forms and sizes of the stones used in the construction of the different classes of arches and masonry structures. This course is given by lectures in the Drawing Room, explaining the construction of templates, and use of directing instrument ; also explanations of methods of drawing plans, elevations and developments of oblique arches, wing walls and the like. A certain number of plates and drawings is required, illustrating the methods of performing practical work.

[Two hours a week for one term.]

XV.

Hydromechanics — This course is a thorough study of the theory of hydrostatics, hydraulics, and hydrodynamics, to which are added many practical exercises. The subjects considered are the transmission of pressures, centre of pressures ; velocity of flow from orifices of various shapes ; fluid friction ; Bernaulli's theorem with friction ; Chezy's formula ; Kutter's formula ; flow over weirs, and through tubes ; flow in pipes ; loss of head in friction and other losses ; flow in conduits, canals, and rivers ; velocities in cross section ; methods of gauging the flow, measurement of water power, dynamic pressure of flowing water ; designing of waterworks and standpipes ; hydraulic motors and relative merits ; discussion of water wheels of different types, and a study of the conditions determining high efficiencies ; classification of turbines, and a complete study and discussion of the different forms.

[Three hours a week for two terms.]

XVI.

Geodesy—This is an elementary course prescribed for Civil Engineering students in the Junior Year, and comprises a study of the instruments and methods of observation, base measurements and field work of the triangulation; method of least squares, elementary course; calculation of the triangulation, and theory of probable errors; geodetic latitudes, longitudes, and azimuths. This is followed by a brief discussion of the figure of the earth.

[Four hours a week for one term.]

COURSES IN ASTRONOMY.

Astronomy—Practical. This course is designed to meet the requirements of Civil Engineering students and to give them the training and information necessary for intelligently executing certain departments of work to which they may be assigned in the course of their professional career. The course comprises a study of astronomical instruments as well as instruments of more precision than those used in ordinary surveying. The adjustments and use of these instruments are considered, and instruction is given in methods of observation and computation; problems in finding right ascension and declination; different methods for finding latitude, longitude and time are studied in detail, and the methods of making the observations and their adjustments, and discussion of errors. Conversion of solar time into sidereal, and sidereal time into solar. In connection with this subject is given a more complete study of many of the topics considered in elementary astronomy, as here they

are treated mathematically; as for example, methods for finding parallax, computation of eclipses, altitudes and correction for refraction. The subjects of procession,— nutation—annual aberration—proper motion of stars, etc., are studied.

[Three hours a week for one term.]

COURSES IN MECHANICAL ENGINEERING.

I.

Thermodynamics—The subject begins with a theoretical study of the steam engine, gas engine and other heat motors involving the laws of thermodynamics of gases, saturated vapors and superheated steam. The applications of this preliminary work are then dwelt upon, and prime movers, the injector, condenser, refrigerating machinery, boilers and pumps are studied in detail. Frequent reference is made to trade catalogues, of which an abundant supply should be obtained by the student.

[Five hours a week for one term.]

II.

Materials of Engineering—This course, supplemented by shopwork and laboratory work in testing materials of construction, is designed with the purpose of acquainting the student with the properties of the materials he will use in his profession. Tensile and shearing strength, elasticity and resistance are studied, together with the effects of strain, intermittent loading and impact. The process of manufacture of the most important materials is taken up

and estimates of the cost of construction at the market prices complete the work. Thurston's *Materials of Engineering* is the text-book used.

[*Two hours a week for one term.*]

III.

Steam Engine Design—In this course the forms and sizes of steam engines, computation of dimensions and advantages and adaption of special forms of engines for specific work are taken up, which give the student a thorough knowledge of constructive detail. The latest researches and contemporary practice may be consulted in the numerous publications found in the University Library. During the first term of the Senior Year is required the complete design with working drawings of a simple non-condensing steam engine for a specific purpose. The second term is given to designing a multiple expansion, jacketed, condensing engine for marine service. The text-book used is Whitham's *Steam Engine Design*.

[*Five hours a week for one term.*]

IV.

Steam Boilers—This subject is treated much as that of the steam engine. The determination of sizes of parts from considerations of strains, thickness of shells, size of rivets, braces, furnaces and proper methods of connection of boilers with efficiency of furnaces and life of boiler, are some of the subjects considered. The method of determining the efficiency of fuels, heating surface, heights of chimneys, boiler settings and materials used in construction are also discussed.

[*Three hours a week for one term.*]

V.

Kinematics—This course treats on the geometry of machinery, the determination of the paths of the various

parts of an elementary combination and the constraining of the parts to move these paths. The general theory is then applied to cams and gear teeth, the relative motion of machine parts and kinematic trains, belts, pulleys, speed cones, link work and other aggregate combinations. Barr's *Kinematics of Machinery* is the text-book used.

[*Five hours a week for one term.*]

VI.

Machine Design—This work involves a study of the form and strength of machine parts as applied in designing with computation of dimensions for fastenings, bearings, rotating pieces, belt and tooth gearing, etc. The derivation of rational formulæ and the determination of empirical formulæ are included and applied in designing. The text-books used are Unwin's *Elements of Machine Design*, Low's *Handbook of Mechanical Engineers* and Reed's *Machine Design and Drawing*.

[*Three hours a week for one term.*]

VII.

Valve Gears—This course includes a complete study of the Bilgram diagram as applied to slide valves and the principal automatic cut-off engines. The radical gears, such as Hackworth, Walschæert, Marshall and Joy are treated in the same way and in conclusion the student is made familiar with the various types of Corliss valves, shifting eccentrics and link motions. The text-book is Halsey's *Valve Gears*.

[*Two hours a week for one term.*]

VIII.

Mechanical Laboratory—The work taken up includes a study of the methods of testing the steam engine under varying running conditions, valve setting, calibration of thermometers, gauges and indicator springs, use of Pony

brake, Weber and Emerson dynamometers, Pelton water wheel, Wier calibration, etc. Text-book, Carpenter's *Experimental Engineering*.

[*One afternoon each week for one term.*]

IX.

Thesis—Each candidate for a degree in this department must present for graduation a thesis of considerable magnitude which will exhibit his knowledge of the course he has followed. It may embrace designing, experimental investigation or original research in a subject selected by the student and approved by the Professor. The major part of the second term, Senior Year, is devoted to this work, and graduation is conditional upon the knowledge of Mechanical Engineering displayed in its preparation.

[*Twelve hours a week for one term.*]

X.

STEAM ENGINES AND BOILERS.

A briefer course in the study of boilers and steam engines designed to familiarize the student with the different types in use and their respective merits. Only that theory is taken up which is necessary to the working out of practical problems, the ultimate object of the course.

Students taking this work must provide themselves with an abundant supply of trade catalogues.

[*Three hours a week for one term.*]

XI.

Gas Engines—This course, extending over two sessions, is given to a general descriptive study of all the types of gas engines and explosive motors. The general construction of gas, oil and vapor engines is studied together with their adaptation to various uses. Results due to change in ignition, compression and variation of working

fluid; methods of speed regulating and governing and the details of auxiliaries as, pumps, carburetters, hot tubes, batteries, spark coils and dynamos are dwelt upon. The text-book used is *Gas, Oil and Vapor Engines* by Hiscox.

[*Five hours a week for one year.*]

XII.

Gas Engine Design—A complete study of the thermodynamics and design of the gas engine, by text-book, lectures and drawing board. The major subjects taken up are power, efficiency, economy, forces due to gas pressure and inertia and dimensions of engine parts. Lucke's *Gas Engine Design* is the text-book used.

[*Five hours recitation and ten hours drawing per week for one year.*]

XIII.

Laboratory, (Gas Engine)—Indicator practice, commercial efficiency, governing, economy, speed regulation. Experiments in ignition, spark coil construction, carburetters and vaporizers. Test of engine constructed by student.

[*Two afternoons each week for one year.*]

XIV.

SHOPWORK.

(a) **Woodwork**—Exercises in planing, sawing, splicing, framing, scroll-sawing and turning.

[*Three hours a week for one year.*]

(b) **Applications of Carpentry** to pattern-making, cores, etc., including parts of machines, pipe joints, cranks and bearings.

[*Three hours a week for one term.*]

(c) **Foundry Practice**—Setting up and drawing simple

and complicated patterns. Lectures on heating and pouring metals for different purposes. Core making.

[Three hours a week for one term.]

(d) **Iron Forging**, welding, annealing, shaping, tool making, tempering and case hardening.

[Three hours a week for one term.]

e) **Benchwork** in iron, including surface-chipping, key-setting, draw-filing, scraping and polishing.

[Three hours a week for one year.]

(f) **Accurate Work** on lathe, planer, shaping and milling machines. Construction of machine tools, reamers, taps, twist-drills, gear wheels and complete machines.

[Three hours a week for one year.]

(g) **Gas Engine Construction**—The complete working up from rough castings and forgings of a small type of gas engine. This is part of the thesis work and requires the complete machining and assembling of the engine. Must be preceded by courses XI. (a) and XI. (b).

(Three hours a week for one year.)

COURSES IN ELECTRICAL ENGINEERING.

I.

Applied Electricity — A course of lectures and recitations, supplemented by laboratory practice, on the general theory of electricity and magnetism and its application to practical work, as follows: Setting up and testing primary and secondary batteries, systems of call bells, electric and gas lighting appliances, fire and burglar alarms, telegraph and telephone lines, switchboards and accessories.

Experiments with induction coils, magnets, switches, voltmeters, ammeters, wheatstone bridges, galvanometers and other measuring instruments. The study of direct current generators and motors, arc and incandescent lighting systems, street railway machinery and appliances, electric heating and forging, electrolytic processes, etc.

[Five hours a week for two terms.]

II.

Applied Electricity — Lectures and laboratory work on the construction and testing of switches, magnets, measuring instruments, induction coils, etc. The calculation of sizes of wire and location of circuits for lighting and power, the experimental study of alternating current machinery and accessories.

If the student has acquired sufficient skill in handling tools in his workshop, he may design and build a small dynamo, starting with rough castings, doing all the fitting and finishing, winding and adjusting, and finally testing for insulation, efficiency and adaptability to special purposes. This course must be preceded by Course I. Both I. and II. are required in the Short Course in Electrical Engineering; they are elective for general students and those studying telegraphy.

[Five hours a week for two terms.]

III.

Dynamo-Electric Machinery — Recitations on the physical theory of dynamo machines, armature actions and reactions, characteristic curves, mechanical points, theory of armature winding, the mathematical theory of alternating currents, phase relations, modern forms of single phase and multiphase generators and motors, design of transformers.

[Five hours a week for two terms.]

IV.

Electrical Laboratory—Practical work at wiring buildings for lights and power, testing circuits for insulation and grounds, construction and operation of storage batteries, management and care of dynamos, characteristic curves of particular machines under different conditions, efficiency tests of motors by absorption dynamometer methods, alternating current dynamo and transformer tests, the testing of storage batteries, and complete plant-efficiency tests. Careful notes are taken.

[Five hours a week for two terms.]

V.

Drawing—The designing and making of working drawings of switches, resistance, and other electrical apparatus. Calculation of sizes of wire and location of circuits for lighting buildings. Complete drawings of direct and alternating current dynamos. Laying out plants for power and lighting.

[Three hours a week for two terms.]

COURSES IN ARCHITECTURE.

I.

(a) **History of Architecture**—This course comprises a study of the early beginnings, growth and development of Architecture. It includes Ethnography as applied to Architectural Art, Ancient Architecture, Egyptian Architecture, Assyrian Architecture, Grecian Architecture, Etruscan, Roman and Sassanian Architecture, Christian Architecture, France, Belgium and Holland, Germany, Scandinavia, England, Spain and Portugal, Italy, Saracenic

and Ancient American Architecture, Byzantine Architecture.

[Two hours a week for four terms.]

(b) **Architectural Research** — Comprises the study in detail of the structural features, ornamentations, use and purpose of the more noted structures, material used in the different styles, instructing the student in everything worthy of consideration in connection with architecture and its practical application. The course is given by lectures and recitations.

[Three hours a week for two terms.]

II.

(This course is preceded by Drawing; see parts I. and II., page 74.)

The Orders of Architecture — This course is a study of the Five Orders of Architecture and is given by lectures, recitations and drawing. The study embraces a thorough analysis of each Order, in which the principal and distinguishing features of each are clearly shown and comparisons made. Also a study in detail of the forms and proportions characterizing each is made in the class room. Problems pertaining to the Orders are given in the Drawing Room, and detail drawings and coloring made.

[Four hours recitation a week for two terms; Four hours drawing a week for two terms.]

III.

Design — The study of problems in architectural design, embodying the subjects of composition and form. This course expands from Elementary Design (second year) to Advanced Design and Thesis Work (fourth year), and includes the handling of design in monumental structures,

and its application to modern buildings, such as hospitals, theatres, municipal buildings, libraries, churches, etc.

[Four, five and ten hours a week, for second, third and fourth years.]

IV.

Heating and Ventilation — This course is a study of the theory and practice of heating and ventilating public buildings and dwelling houses. The different systems of heating, — furnace heating, hot water, steam, etc., — are carefully examined and studied. The radiation of heat from surfaces, the different systems of piping, condition of air as to moisture, amount of air required, causes and sources of impure air, and best means adopted to secure pure air; the necessity of good ventilation and the latest approved methods for securing this all important feature are some of the topics considered in this study.

[Three hours a week for one term.]

V.

Advanced Construction Designing — This course is a study of the properties of the building stones, iron and steel, that are used in structures, including the cements, paints, and preservatives in use. The methods of quarrying and testing building stones, manufacturing and testing brick and cement, the different methods of manufacturing and testing iron and steel, are briefly considered. Then the subject of foundations is given a careful study, wherein are taught methods of ascertaining the character and bearing power of strata below the surface; methods and materials used in building foundations; piles and their use in foundations; enlarging or spreading the base of the foundation; suitability of foundations for structures of different classes. These are some of the subjects studied in this course given both by lecture and text-book.

[Eight hours a week for one term.]

VI.

Theory of Arch — This course comprises a complete study of the theory of the linear arch, wherein are considered the nature of the loading and resulting stresses, and the application of the results to the loaded arch; then is studied the design of the arch, finding the line of pressures, etc. This course is given by recitation and drawing.

[Two hours a week for one term.]

VII.

Specifications and Working Drawings — This course is for the purpose of instructing the student to prepare according to the best approved methods, written specifications for structures, and the necessary contracts in connection with the same. It includes a study of the forms, general features, and leading clauses, of specifications, classifications of building materials, labor, duties of superintendents, the best methods of making estimates, and the common relations of owners, contractors, architects, and superintendents. This course is given by lectures and recitations and practical exercises in writing contracts and specifications.

[Two hours a week for two terms.]

VIII.

Materials — Lectures on building materials, their use, manufacture and treatment.

[Two hours a week for one term.]

IX.

Structural Design — Lectures and exercises on the subject of planning various kinds of buildings and the relation between the construction and the exigencies of a design.

[One hour a week one term.]

X.

History of Ornament—Lectures on the origin and evolution of ornament and the application of same, together with exercises in motive.

[One hour a week for one term.]

XI.

Roof Trusses—This course comprises a study of roof trusses; analyzed and discussed by graphical methods, under the three conditions of steady load, snow and wind.

[Five hours a week for one term.]

XII.

House Sanitation—This study is taught from text-book and embraces sanitary engineering pertaining to buildings, as follows: sewerage, water supply, lighting and ventilation, plumbing work, subsoil drainage, dry foundation, walls and cellars. Also drawings of plumbing systems and fixtures.

[Two hour a week for two terms.]

XIII.

Thesis Work—A course of eighteen hours per week during the second term of the last year is devoted entirely to the preparation of the graduating thesis. The subject in each case is selected by the Director of the Course in Architecture and the thesis comprises all the branches pertaining to the study of architecture in this institution.

[Eighteen hours a week for one term.]

COURSES IN ARTISTIC DRAWING.

In this department the aim is to lay a thorough foundation in drawing for those who want to make Art a profession, but the courses are so arranged as to be accessible to other students. The system of teaching, which is that followed in the best art schools, is intended to develop the individuality of each student, so that with a good understanding of the principles of art he may interpret nature according to his own temperament.

The work is done altogether from cast, object, and nature. The immediate surroundings of the University buildings, the lakes and the Saint Joseph River offer many beautiful subjects for the study of landscapes, and the classes are taken out in the summer for this study.

To the old collection of casts has been added a new one, which was carefully selected at the National School of Fine Arts in Paris, where all the casts are moulded directly from the originals. The collection is as follows:

Full Figure — The Diadumenos (British Museum); the Doryphoros (Naples). These two figures are full size.

The following figures are reduced mathematically: The Discobolus; the Venus of Milo; the Slave of Michelangelo; the Achilles; the Fighting Gladiator (Louvre), and Houdon's Anatomical Figure.

Busts and Heads — Asiaticus (Paris); Brutus (Rome, the Capitol); Cato (Rome, the Vatican); Cicero (Rome, the Capitol); Dante (Florence, Uffizi); Agrippa (Louvre); Venus (Vatican); A Centurion (Naples); Ariadne (the Capitol); Psyche of Naples (Naples); a Vestal (Vatican); Niobe (Vatican); the Two Daughters of Niobe (Florence).

Among the old busts are the Apollo Belvidere, the Antinous, Bacchus, Juno, Mercury, Demosthenes, etc.

Besides, there is a complete set of decorative and architectural ornaments, taken from monuments of antiquity, the middle ages and the Renaissance, and of elements of the human figure (hands, feet, etc.,) from the antique, and some anatomical pieces.

COURSE I.

Elementary Class.

(a) Drawing from casts of ornaments purely geometrical, such as mouldings, ovoloes, dentels, etc. Sketching from simple objects.

(b) Drawing from casts of ornaments of which the elements are living forms, such as ornamental leaves and flowers. Sketching from nature leaves and flowers.

(c) Drawing from architectural elements, such as pedestals, bases, shafts, cornices, etc. Lectures on perspective, direction of the principal lines in relation to the horizon. Elementary notions on the five orders of architecture.

(d) Drawing from casts of the human figure: hands, feet, masks, etc. Architectural ornaments. Sketching from familiar objects.

COURSE II.

Antique Class.

(a) Drawing from the antique of heads and busts. Still life drawing. Sketches of landscapes from nature. Selection of a subject. Composition in landscape. Applications of perspective.

(b) Drawing from the antique, full figure. Occasional studies of the head from the living model. Sketching from the costumed model. Still life in water colors. History of art,

COURSE III.

Life Class.

Drawing from life. Artistic anatomy. Anatomical studies from the collections of Science Hall. Still life painting in water colors and oil. Landscape painting. Drawing for illustration.

Sketch Class—One hour a week. This class is open also to the students in the Mechanical Drawing classes. The students have themselves an organization, "The Crayon Club," the object of which is to sketch college scenes and to do illustrative work: these sketches are brought into class and criticized.

Class of Decorative Design—The object of this department is to prepare students for professional work in decorative designings of all kinds. They will take up the study of historical ornaments and will be taught the general principles of the arrangement of designs, and from personal sketches of plants and flowers will be shown the art of making original designs for wall paper, book covers, stained glass, carpets, interior decorations, metal plates, etc. No particular programme is given out as the teaching is purely individual.

COURSES IN MECHANICAL DRAWING.

The instruction begins with sketching from blocks, of various geometric forms, so that the hand and eye may be trained in Outline Drawing in pencil and pen. Then follows the study of light and shade.

After considerable practice, and when a thorough knowledge of freehand drawing has been acquired, the use

of instruments is taken up. Beginning with the instruments, attention is given to accurate draughtmanship upon plates, illustrating problems of Civil, Electrical and Mechanical Engineering. This work is continued throughout the Courses.

[Two hours of actual time in drawing are required for each hour on the schedule.]

I.

Freehand—This work consists of sketching with pencil and pen from flat copies and models of machine parts, and freehand lettering. Later in the term, the use of instruments, section-lining and lettering are taught.

[Three hours a week for one term.]

II.

Projection Drawing—The work embraces the principles of projections, methods of shop-drawing, tinting, tracing, blue printing, line-shading and the preparation of working drawings of complete machines. This Course must be preceded by Course I.

[Three hours a week for two terms.]

III.

Descriptive Geometry—A series of accurate plates are made, illustrating the principles of orthographic and spherical projections, shades and shadows, perspective and isometric projections. (Students in Architecture will be required to do advanced work in shades and shadows and perspective.)

[One hour a week for first term, and two hours a week for second term.]

IV.

Kinematic Drawing—Designing of cams and gear teeth, complete working drawings of machines involving

the application of kinematics and the computation of dimensions.

[Two hours a week for two terms.]

V.

Topography—Pen and colored topographical drawing, conventional signs, map drawing from notes taken from surveys. This course must be preceded by Course I.

[Three hours a week for one term.]

VI.

Masonry—Drawing and designing plans, elevations and sections of masonry constructions, foundations, dams, piers, abutments, culverts and arches.

[Three hours a week for one term.]

VII.

Bridge Designing—Proceeding from simple framed girders to complete bridge-trusses of various designs. Complete design of a railroad bridge and detail drawings.

[Three hours a week for two terms.]

VIII.

Freehand—The principles of freehand drawing in pencil and pen from objects, and later from biological specimens, plants, animals and microscopical preparations.

[Two hours a week for two terms.]

IX.

Freehand—Advanced drawing from plants and anatomical dissections of animals. Illustrations for publications.

[Two hours a week for two terms.]

X.

Water Color—Drawing in water color from still life and nature.

[Two hours a week for one term.]

XI.

Rendering in Water Color — The rendering of architectural drawings, including perspectives ;—casting of shadows, color treatments of buildings, and handling of foreground and background.

[Two hours a week for one term.]

XII.

Pen and Ink — Rendering drawings in pen and ink from studies by noted artists in this branch of art ; followed by rendering of original drawings.

[One hour a week for four terms.]

COURSES IN CHEMISTRY.

(In the description of these courses, an "hour" means two sixty-minute periods in the laboratory or one in the lecture room.)

I.

(a) **General Chemistry** — A minor Course dealing with the general principles of the science and embracing a study of only the commoner elements and their typical compounds. Text-book, *Remsen's Elements of Chemistry*.

[Four hours a week for one term.]

(b) **A Laboratory Course** covering in the laboratory the work of the Lecture Course (Ia) and designed to accompany it.

[One hour a week for one term.]

II.

(a) **General Descriptive Chemistry** — Recitations and experimental lectures treating of the fundamental princi-

ples of chemistry, and designed to meet the requirements of the students of the Engineering Course. Text-book, *Remsen's Briefer Course*.

[*Two hours a week for two terms.*]

(b) **A Laboratory Course** arranged to fit the needs of Engineering students.

[*One hour a week for two terms.*]

III.

(a) **Advanced Inorganic Chemistry** — For Biological, General Science and Chemistry students. Lectures and recitations. A complete study of the elements and their most important compounds, following the classification based on Mendeleeff's Law, and including a thorough discussion of the theories of the science. Careful attention is given to the technical chemical processes and industries, and to the writing of chemical reactions. Text-book, *Newth's Inorganic Chemistry*.

[*Two hours a week for two terms.*]

(b) **Experimental Chemistry** — A Laboratory Course to accompany Course IIIa., the work consisting of the preparation by the student, of the elements and their more typical compounds, determination of molecular weights, verification of the fundamental laws of chemistry, etc. During the latter part of the Course, special attention is given to the characteristic reactions of the metals and to the principles of chemical analysis. Text-book, *Thorpe*.

[*Two hours a week, with discussion, for two terms.*]

IV.

Qualitative Analysis — The work of this Course comprises, in the laboratory, the study of the reactions involved in the separation and detection of the more

common inorganic bases and acids, the analysis of salts, mixtures of salts, and complex substances such as earths, ores, ashes, etc. Text-book, *Perkin*, supplemented by lectures.

[*Five hours a week, with recitation, for one term.*]

V.

Quantitative Analysis—A laboratory study of the principles involved in the quantitative separation and estimation of substances, both gravimetrically, and volumetrically. Complete analysis of a number of simple salts, like Barium Chloride, with partial analysis of substances such as steel, lye, drinking-water, etc. Reference-book, *Fresenius*.

[*Five hours a week, with recitation, for one term.*]

VI.

(a) **Organic Chemistry**—Lectures and recitations A systematic study of the compounds of Carbon by the student and the investigation of their properties. This Course may be taken without the accompanying Laboratory work. Text-book, *Remsen*.

[*Five hours a week for one term.*]

(b) **Experimental Organic Chemistry**—A Course fitted to accompany Course **VIa.**, involving the preparation by the student in the laboratory of the most important and typical organic compounds and the investigation of their properties. Ultimate organic analysis. Text-book, *Gattermann*.

[*Five hours a week for one term.*]

VII.

Urinary Analysis and Toxicology—A Course of Laboratory exercises in the methods employed in the detection

and estimation of the constituents of the urine, and of the alkaloids and principal organic poisons. Text-book, *Schimpf*.

[Five hours a week for one term.]

VIII.

Technical Chemical Analysis—An advanced course, intended for students specializing in chemistry. Special courses in gas analysis, water analysis, sugar analysis, commercial organic analysis, oils and fats, etc., at the option of the student.

[Five to fifteen hours a week for both terms.]

IX.

Organic Chemistry—Chiefly laboratory work. An advanced course, intended for students specializing in chemistry.

[Ten to fifteen hours a week for both terms.]

X.

General Pharmaceutical Chemistry—In this course, the chemical bases and their compounds are considered, with special reference to their importance in Pharmacy and Materia Medica. Text-book, Sadtler's and Trimble's *Pharmaceutical Chemistry*.

[Five hours a week for first term.]

XI.

Electrochemistry—Lectures and recitations supplemented by laboratory work. Theory of the principles of electrochemistry and their application to the quantitative determination and separation of metals and the preparation of chemical elements and compounds. Text-books, *Classen* and *Lüpke*.

[Five hours a week for one term.]

XII.

History of Chemistry—The subject is divided into topics of special interest in the development of the science. These are discussed at length, together with the biographies of the men who aided in their development.

[Three hours a week for one term.]

XIII.

Physical Chemistry—Lectures, recitations and laboratory work, treating of solutions, chemical dynamics, thermochemistry, etc.

[Five hours a week for one term.]

XIV.

Industrial Chemistry—Lectures, recitations and laboratory work. The consideration of chemical manufactures, fuels etc. and the preparation in the laboratory of chemically pure substances, organic and inorganic.

[Five hour a week for two terms.]

XV.

Advanced Quantitative—Mostly laboratory work in special methods for gravimetric and volumetric determinations of inorganic substances.

[Five hours a week for one term.]

COURSES IN PHYSICS.

I.

Physics — A complete course of recitations and lectures, including mechanics, heat, sound, light, electricity, and magnetism. The work is fully illustrated by experiments.

[Five hours a week for one term.]

II.

General Physics — In this course there is a more extended treatment of the same subjects than is given in Course I. Mathematical principles are applied to physical phenomena. Special attention is paid to accuracy in the mathematical work and in the statements of the principles involved. Lectures and recitations.

[Three hours a week for two terms.]

III.

Physical Problems — The application of mathematics in physical work. Measurements of length, mass and time. Work in mechanics, heat, light, sound, electricity and magnetism. The work is done in the laboratory and the student is taught to depend on his own resources and to check his results.

[Two hours a week for two terms.]

IV.

Physical Laboratory — Special advanced work in heat, light, mechanics, sound, electricity, and magnetism. Accuracy in observations and in the calculation and recording of results is required. Students may specialize here according to the college course which they are following. This course must be preceded by Courses II. and III. For list of apparatus see page 14.

[Three hours a week for two terms.]

COURSES IN BOTANY.

I.

Botany — Lectures and recitations on the morphology of the root, stem, leaf, flower, fruit and seed. The development of the embryo and the processes of pollination and fertilization. The study of the vegetable cell, of its products, of cell formation, of plant tissues, and the various physiological phenomena. The structure and reproduction of the Algæ, Fungi, Mosses and Ferns. The analysis of Phanerogams occupies the time during the spring months, and the student is made familiar with the local flora. Text-books, Bastin's *College Botany* and Gray's *Manual*.

[*Five hours a week for two terms.*]

II.

Botanical Laboratory — Supplementary to Course I. Special work on the Thallophyta and Bryophyta. Plants under these headings are collected and put before the student that he may become more familiar with their morphology, structure, etc. This course is to accompany or be preceded by Course I. Provision is also made in this course for Pharmacy students to take a special laboratory course in Pharmaceutical Botany.

[*One hour a week for one term.*]

III.

Botany — Lectures, recitations and laboratory work. The work in this course is essentially the same as that laid out in Strasburger's text-book of Botany. Special work is required in one particular group of plants. Herbarium study is encouraged as well as the collecting and preparing

of plants for preservation. During the spring months frequent excursions are made into the neighboring fields and woods, and the local aquatic and land flora are collected and studied.

[*Four recitation and two laboratory hours a week
for two terms.*]

COURSES IN ZOOLOGY.

I.

Zoology — Lectures and recitations. General ideas on the animal kingdom. Animals and plants defined. The homology and analogy between the organs and parts of animals. The morphology, classification, structure, development and relationship of the types of vertebrates and invertebrates. Text-book, *Nicholson*.

[*Five hours a week for one term.*]

II.

Invertebrate Zoology — Lectures, recitations and laboratory work. In this course there is an extended treatment of Invertebrates. Dissection of the different types of higher forms. Careful notes and drawings are made from these dissections. Opportunity is given to carry on systematic work on the different groups contained in the University Museum. Text-book, *Thompson*.

[*Three recitation and two laboratory hours a week
for one term.*]

III.

Vertebrate Zoology — Lectures, recitations and laboratory work. This course consists of a thorough study of

the morphology, structure and classification of the vertebrated animals. A type from each group of the vertebrates is selected for dissection and comparative study. In the latter part of this course the student is required to make a special study of Mammalian Osteology from prepared skeletons in the University Museum. Text-books, *Thompson*, and *Parker & Haswell*.

[*Three recitation and two laboratory hours a week for one term.*]

IV.

Mammalian Anatomy — This course has been specially provided for students preparing themselves for a medical course. The work consists of demonstrations and thorough dissections on the anatomy of the cat or some selected Mammal.

[*Two laboratory hours a week for six weeks.*]

V.

Comparative Embryology — Lectures and laboratory work. A study of the developmental history of invertebrates, including a comparison of the germ-cell and sperm-cell in different types of animals. The maturation and fertilization of the ovum. Mitosis and segmentation. The development of the Ectoderm, Mesoderm, and Endoderm compared in the types of invertebrates, differentiation of tissues, development of the embryo, etc. Special work on the embryology of a vertebrate — Fish, Bird or Mammal.

[*Three hours a week for one term.*]

COURSES IN GENERAL BIOLOGY.

I.

Cytology — Lectures and laboratory work. History of the cell, cell structure, organization, activity, and mitosis.

II.

General Biology — Lectures, recitations, and laboratory work. The forms of animals and plants compared as to structure, function, and relationship of parts. Animal and plant dissection. Biogenesis and Abiogenesis, Homogenesis and Heterogenesis. The alternation of generation in different forms of animals and plants worked out. The theories of evolution are discussed in this course. Text-book, *Parker*. [*Courses I. and II. together, three laboratory hours a week for two terms.*]

COURSES IN MICROSCOPY.

I.

Microscopy — Lectures and laboratory work. Refraction and dispersion of light and illumination. The index of refraction in different media. Different shapes of lenses. Spherical and chromatic aberration. The selection and care of a good microscope. The use of accessories for advanced work; immersion and adjustable objectives, camera lucida, sub-stage condenser, polarizer, micrometers, etc. Special work in photo-micrography. Text-book, *Gage*.

[*Three hours a week for one term.*]

II.

Micro-Chemistry—Laboratory work. The preparation of micro-chemical reagents and their application in testing, fixing, hardening, staining, clearing, and mounting tissues and organs.

[*One laboratory hour a week for one term.*]

COURSES IN HUMAN ANATOMY.

I.

Human Histology—Laboratory work and demonstrations. Preparations of the tissues and organs of the human body given to each student, and their structure demonstrated. This course is taught in connection with Course I. under Courses in Human Physiology.

II.

Human Histology—Lectures, recitations and laboratory work. The work covers a thorough course in Normal Histology, with the methods of hardening, staining, embedding, section cutting, and mounting of tissues. Careful work on the nervous system—brain and spinal cord, termination of nerve fibres, etc. Drawings made from each preparation. Text-book, *Piersol*.

[*Two laboratory hours a week for one term.*]

III.

Human Anatomy—Lectures and recitations. Osteology and the descriptive anatomy of the muscular, vascular and nervous systems and of the organs of special sense. The anatomy of the viscera. Text-book, *Gray*.

[*Three hours a week for four terms.*]

COURSES IN HUMAN PHYSIOLOGY.

I.

Physiology—Lectures, recitations and laboratory work. The study of the human skeleton including the physiology and hygiene of the bones. The action, relation, structure, and hygiene of the muscular, digestive, circulatory, and excretory systems. The anatomy and structure of the nervous system. All the work is supplemented by experiments and microscopic examinations made by the student. The demonstrations are facilitated by the use of models, charts and manakins. Material for dissection is introduced into the work in order to give a more correct and fixed understanding of the study. This course is to be accompanied by Course I. under Courses in Human Anatomy. Text-book, Thornton's *Physiology*.

[*Three laboratory hours a week for one term.*]

II.

Hygiene—Lectures on personal, domestic and municipal hygiene.

[*One hour a week for one term.*]

III.

Physiology—Lectures, recitations and experimental work. A more advanced course than Course I. on alimentation, deglutition, stomach and intestinal digestion, action of bile and pancreatic juice, absorption, properties of lymph and chyle, secretion, excretion, animal heat, and its sources. The physiological divisions and structure of the nervous system. Motor and sensory nerves. Physiological anatomy of the spinal cord. General arrangement and function of the sympathetic system, etc.

[*Two hours a week for two terms.*]

COURSE IN BACTERIOLOGY.

Lectures and Laboratory Work—Lectures on the form, structure, reproduction and classification of Bacteria. The relations of bacteria to diseases, etc. The principles of sterilization, thermal and chemical, are pointed out. The early part of the laboratory work is occupied in the preparation of the various culture-media and in studying pure cultures of certain non-pathogenic bacteria in these media. Observations on the microscopic characteristics of bacteria and special attention to the microscopic technique required in Bacteriological work. Later on in the course some time is devoted to practice in isolation and identification of pathogenic bacteria. Emphasis is given to the detection of pathogenic germs by the various staining processes. Inoculation of animals. Bacteriological investigation of water, air and soil. Text-book, Abbot's *Principles of Bacteriology*.

[*Three laboratory hours a week for one term.*]

COURSES IN GEOLOGY.

I.

Mineralogy—Lectures, recitations, and laboratory work. A study of crystallography and the classification of minerals, accompanied by practice in the laboratory and museum in the determination of minerals, especially the ores. Blow-pipe analysis. *Moses & Parsons*.

[*Three hours a week for one term.*]

II.

Assaying—Chiefly laboratory work. Furnace assaying of the ores of gold, silver and lead. *Ricketts.*

[*Two laboratory hours a week for one term.*]

III.

Geology—Lectures and recitations. The study of the general features of the earth. The material composing the accessible parts of the earth. The arrangement of the material in rocks. The causes of geological changes. The history of the earth and the various forms of life that existed in the different periods of successive geological ages. Text-book, *Dana.*

[*Five hours a week for one term.*]

COURSES IN PHARMACY.

I.

Elements of Pharmacy—Lectures and recitations on the art and science of Pharmacy, and demonstrations of the various Pharmaceutical processes. Text-book, Remington's *Practice of Pharmacy.*

[*Three hours a week for two terms.*]

II.

Galenical Pharmacy—A laboratory course to accompany Course I. This course consists of the practical application of the pharmaceutical processes to the manufacture of official preparations of the United States Pharmacopœia, and of unofficial and N. F. preparations.

[*Five hour a week for two terms.*]

III.

Inorganic Pharmacy—Laboratory, demonstrations and recitations. A thorough course in the preparation and testing of Pharmaceutical and Technical Chemicals.

[Six hours a week for one term.]

IV.

General Pharmacy—A systematic classification of organic and inorganic drugs and preparations from a pharmaceutical standpoint followed by a close study of each of the classes.

[Two hours a week for two terms.]

V.

Magistral Pharmacy—Includes the manifold methods of extemporaneous Pharmacy with consideration of incompatibility, posology, and the principles of Elegant Pharmacy. Dispensing and prescription practice.

[Three hours a week for one term.]

VI.

Pharmaceutical Chemistry—Chiefly assaying, testing and manufacturing. Some attention is given, however, to toilet and commercial preparations with a view to the invention and development of original formulas.

[Five hours a week for one term.]

VII.

General Pharmacy—Pharmaceutical analysis and assaying, micro-chemical, polariscopic and spectroscopic estimations. Incompatibilities and methods of manufacture.

[Five hours a week for one term.]

VIII.

Materia Medica, Pharmacognosy, and Therapeutics—

I. Materia Medica—A detailed consideration of medicinal substances, their constituents and use.

II. Pharmacognosy — The identification of drugs by their physical properties with special reference to quality.

III. Therapeutics — With reference to Therapeutic action, dose, and antidote, drugs will be studied in groups as well as individually.

[*Two hours a week for one year.*]

IX.

Pharmaceutical Arithmetic — This work embraces a study of Weights and Measures, Percentage, Relationship of Systems, Reducing and Enlarging Formulas, Allegation and Chemical Problems.

[*One hour a week for one term.*]

COURSES IN MUSIC.

FIRST YEAR.

I.

Violin — Studies by Wichtl, Ries, Mazas, Kreutzer. Fiorillo. Compositions by Dancla, DeBeriot, Sitt.

II.

Pianoforte — Koehler's and Damm's *Piano School*. Studies by Loeschorn, Berens, Czerny, Heller. Sonatinas and easy sonatas by Clementi, Haydn, Reinecke and Mozart. *Jugend album* and *Kinderscenen* by Schumann.

III.

Voice - Production — Tone placing. Diaphragmatic breath-control. Articulation. Text-books: *Shakespeare's Art of Singing. Part I.*; Kofler's *Art of Breathing*; *Studies* by Bassini; English Songs.

Vocal Sight Reading — Elementary Theory of Music. Intervals, and Ear-Training. Choir Practice.

IV.

Organ—Rink's *Organ School*. Eugene Thayer's *Studies*, *Light Preludes and Fugues* by Bach.

SECOND YEAR.

Ia.

Violin—Studies by Rode, Schradieck, Dont, Sonatas and pieces by Tartini, Bach, Beethoven, and Mozart.

IIa.

Pianoforte—Studies by Czerny, Heller, Hasert, Lecouppy, Cramer and Krause, Octave studies by Turner. Bach's Preludes, Fugues and Inventions. Sonatas and pieces by Mozart, Haydn, Beethoven, Mendelssohn, Schumann and Schubert.

IIIa.

Voice-Production—Advanced Breathing Exercises. Study of the Chest and Falsetto registers. Stroke of the Glottis. Text-Books: Shakespeare's *Art of Singing*, *Parts II.* and *III.*; Studies from Italian Operas; French and English Songs.

Vocal Sight Reading—Phrasing, punctuation and advanced study. Practice in Operatic Chorus-work.

IVa.

Organ—Schneider-Warren's *Pedal Studies*. Easy sonatas by Mendelssohn, Merkel, Rheinberger. Preludes and Fugues by Bach. *Twenty Studies* by Whiting. *Canonic Studies* by Chadwick.

V.

Harmony—Construction and use of chords. Harmonization of melodies. Harmonizing from figured bass. Text-books, Goetschius' *Tone Relations*. Logier's *Harmony*.

THIRD YEAR.

Ib.

Violin — Sonatas by Bach. Studies by Schradieck-Alard, Wieniawski. Concertos and pieces by Spohr, Viëuxtemps, Mendelssohn, Dvorak.

IIb.

Pianoforte — *Gradus ad Parnassum*, Clementi-Tausig. *Das Wohl Temperirte Klavier* by Bach. English and French Suites by Bach. *Etudes* by Haberbier and Henselt. Sonatas, concertos and pieces by Beethoven, Weber, Mendelssohn, Chopin, Schubert and Grieg.

IIIb.

Voice-Production — Study of the Trill, Mordent, Gruppo, etc. *Messa di Voce*.

IVb.

Organ — Sonatas, Preludes and *Chorale Vorspiele* by Bach. Concert Pieces by Hændel, Merkel, Salome, Whiting, Best, Rheinberger.

Va.

Harmony — (Counterpoint), Simple two and four part counterpoint; double and florid counterpoint. Canon. Fugue.

FOURTH YEAR.

Ic.

Violin — Studies by Paganini. Concertos and pieces by Beethoven, Brahms, Bruch, Joachim and others.

IIc.

Pianoforte — Studies by Tausig and Chopin. Sonatas, concertos, and concert pieces by Schumann, Brahms, Rubinstein, Liszt.

IIIc.

Organ — The greater Preludes, Fantasies and Fugues of Bach. Sonatas and concert pieces by Thiele, Widor, Dubois, Guilment and Saint - Saens.

IVc.

Harmony — (Composition.) Construction of musical forms, i. e., the Sonata, Rondo, etc. Practical application in an original manner of these forms. Orchestration.

INSTRUMENTS.

Instruction is also given on the Viola, Flute, Piccolo, Cornet, Trombone, Guitar and Mandolin.

Opportunity is given to the advanced students of playing in the University Orchestra and Band.

THE SINGING CLASS.

There is an organization of musical students open to those only taking lessons in vocal music; the choir is selected from the members of this class.

Requirements for the Degree of Bachelor of Music.

1. The candidate must have studied music in the University during the last year of his course.
2. He must have a thorough theoretical knowledge of four instruments mentioned in the courses described above, and a practical mastery of one of them.
3. He must pass a written examination in Harmony, Counterpoint and Composition.
4. He must submit to the examiner two original compositions: (a) a fugue for full orchestra, or for four voices with independent orchestral accompaniment; (b) a composition in the free form (sonata or rondo) for piano-forte, or a trio (pianoforte, violin and violincello).

EVIDENCES OF CHRISTIANITY.

All Catholic Students are obliged to attend the Courses in Evidences of Christianity.

The text-book used in the Senior year is Spalding's *Church History*—Lectures on Apologetics.

In the Junior year, *Hand-book of Christian Religion*, by Wilmers, is used.

A two-years' course in *Exposition of Christian Doctrine (Moral)* precedes the Junior course.

In the Preparatory School, Bible History and *Advanced Catechism (O'Brien)* are used.

REGULATIONS GOVERNING ADMISSION TO THE COLLEGIATE COURSES.

Examinations in all the subjects required for admission to the University are held at Notre Dame in September, at the beginning of the Fall term.

Certificates of work done in public or private schools will not be accepted instead of examinations, unless the applicant has passed the final examination after a full course in his school, and the University Faculty are satisfied with the standing of the School.

Graduate students of High Schools that are fully accredited to the State Universities, will by admittcd without examination to the Freshman year of any course to which their preparatory studies entitle them.

Applicants for advanced standing that present certificates from other colleges or universities may be received at the discretion of the Faculty with or without examination as regards particular cases.

No student will be received as a candidate for the degree of Bachelor after the beginning of the Senior year unless he passes an examination in the Metaphysics and Ethics already studied by the Senior class of the University.

No student will be admitted to any course of the Senior year until all conditions have been cancelled.

Catholic students that are candidates for any degree are required to take the prescribed Courses in Evidences of Religion.

CONDITIONAL ADMISSION TO FRESHMAN CLASSES.

A candidate failing to pass satisfactory examinations in one or more of the subjects required for admission to any Collegiate Course may, at the discretion of the Faculty, be admitted to his class conditionally, to make up his deficiency by extra study *within one school year*. Only when the conditions are removed will the student be admitted to full standing in his class.

ADMISSION TO ADVANCED STANDING.

Candidates for admission to advanced classes in any courses are required to pass, *in addition* to the usual entrance examinations, an examination in the work already done by the classes they desire to enter. The additional subjects may be found in the programme of courses.

I. School of Arts and Letters.

II. School of Science.

III. School of Engineering.

IV. School of Law.

SCHOOL OF ARTS AND LETTERS.

ENTRANCE EXAMINATIONS.

English — Part of the examination time is given for answering questions upon books required to be read in the preparatory course in English (See page 164); the remainder for writing an essay.

Latin — Grammar, complete; Cæsar; four books of the Gallic War; Cicero; four orations against Catiline; Vergil; Aeneid, six books; translation at sight of passages from Cicero and Cæsar; translation of English into Latin based on the text of the author.

Greek — (For Classical Students only) Grammar, Etymology, and general rules of Syntax; Xenophon; Anabasis, four books; Homer, at least three books; prose composition based on text.

History — A general knowledge of the outlines of Greek and Roman History and of Mediaeval and Modern History, as set out in the text used in the high schools and academies of the country.

Astronomy — Descriptive.

Algebra — The whole subject as far as logarithms, as given in Wentworth's *College Algebra*, or an equivalent in the larger treatises of other authors.

Geometry — Plane and Solid including the solution of simple original problems and numerical examples as given in the works of Wentworth, Chauvenet, Newcomb, or an equivalent in treatises by other authors.

Zoology — Elementary.

Physiology — Martin's *Human Body*, or an equivalent.

Botany — Elementary.

Chemistry — Elements of inorganic chemistry, as given in high schools of good standing.

Physics — Elementary. The preparation on this subject should include a course of lectures illustrated by experiments, and recitations from a text-book similar to Carhart and Chute's or Gage's. Laboratory work is recommended, but is not required.

French and German — A three year's study of either German or French and one year of French or German is required for entrance to the course in English and the course in History and Economics. Students that begin French in the second preparatory year will take up German in the fourth preparatory year and continue it for two years in the college course. A like regulation holds for those that start German in the second preparatory. Classical students present a year of French or German.

The entrance examination requires sight translation of ordinary German or French prose: an ability to translate, rather than accurate grammatical knowledge is expected.

Studies Prescribed in the Classical Course.

(DEGREE: A. B.)

FRESHMAN YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	SEE FOR DESCRIPTION		SUBJECTS: SECOND TERM.	Hrs. a Week	SEE FOR DESCRIPTION	
		Page	Course			Page	Course
Latin, - - -	5	39	I.	Latin, - - -	5	39	II.
Greek, - - -	4	35	I.	Greek, - - -	4	35	II.
English, - - -	4	41	I.	English, - - -	4	41	I.
History, - - -	4	45	I.	History, - - -	4	45	I.
Elocution, - - -	2	44	VIII.	Elocution, - - -	2	44	VIII.
Elective, - - -	5			Elective, - - -	5		

SOPHOMORE YEAR.

Latin, - - -	5	39	III.	Latin, - - -	5	39	IV.
Greek, - - -	4	35	III.	Greek, - - -	4	35	IV.
English, - - -	4	42	II.	English, - - -	4	42	II.
History, - - -	3	45	II.	History, - - -	3	45	II.
Elocution, - - -	2	44	VIII.	Elocution, - - -	2	44	VIII.
Philosophy, - - -	5	31	I.	Philosophy, - - -	5	31	I.

JUNIOR YEAR.

Latin, - - -	5	40	V.	Latin, - - -	5	40	VI.
Greek, - - -	5	35	V.	Greek, - - -	5	36	VI.
English, - - -	4	42	III.	English, - - -	4	42	III.
Philosophy, - - -	5	31	II.	Philosophy, - - -	5	31	II.
Elocution, - - -	2	44	VIII.	Elocution, - - -	2	44	VIII.
Economics, - - -	4	46	I.	Elective, - - -	5		

SENIOR YEAR.

Latin, - - -	5	40	VII.	Latin, - - -	5	41	VIII.
Greek, - - -	5	37	VII.	Greek, - - -	5	38	VIII.
English, - - -	4	42	IV.	English, - - -	4	42	IV.
Philosophy, - - -	5	32	III.	Philosophy, - - -	5	33	IV.
Elocution, - - -	2	44	VIII.	Elocution, - - -	2	44	VIII.

Studies Prescribed in the English Course.

(DEGREE: LITT. B.)

FRESHMAN YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	SEE FOR DESCRIPTION		SUBJECTS: SECOND TERM.	Hrs. a Week	SEE FOR DESCRIPTION	
		Page	Course			Page	Course
English, - -	4	41	I.	English, - -	4	41	I.
Latin, - - -	5	39	I.	Latin, - - -	5	39	II.
French or - -	3	48	II.	French or - -	3	48	II.
German, - - -	3	51	II.	German, - - -	3	51	II.
History, - - -	4	45	I.	History, - - -	4	45	I.
Elocution, - -	2	44	VIII.	Elocution, - -	2	44	VIII.
Elective, - - -	5			Elective, - - -	5		

SOPHOMORE YEAR.

English, - -	4	42	II.	English, - -	4	42	II.
Latin, - - -	5	39	III.	Latin, - - -	5	39	IV.
French or - -	2	49	III.	French or - -	2	49	III.
German, - - -	2	51	III.	German, - - -	2	51	III.
History, - - -	3	45	II.	History, - - -	3	45	II.
Elocution, - -	2	44	VIII.	Elocution, - -	2	44	VIII.
Philosophy, - -	5	31	I.	Philosophy, - -	5	31	I.

JUNIOR YEAR.

English, - -	4	42	III.	English, - -	4	42	III.
Latin, - - -	5	40	V.	Latin, - - -	5	40	VI.
Philosophy, - -	5	31	II.	Philosophy, - -	5	31	II.
Elocution, - -	2	44	VIII.	Elocution, - -	2	44	VIII.
History, - - -	5	45	III.	History, - - -	5	45	III.
Elective - - -	3			Elective, - - -	3		

SENIOR YEAR.

English, - -	4	42	IV.	English, - -	4	42	IV.
Latin, - - -	5	40	VII.	Latin, - - -	5	41	VIII.
Philosophy, - -	5	32	III.	Philosophy, - -	5	33	IV.
Economics, - -	4	46	I.	History, - - -	5	46	IV. b.
Elocution, - -	2	44	VIII.	Elocution, - -	2	44	VIII.

Course in History and Economics.

(DEGREE: PH. B.)

FRESHMAN YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	SEE FOR DESCRIPTION		SUBJECTS: SECOND TERM.	Hrs. a Week	SEE FOR DESCRIPTION	
		Page	Course			Page	Course
History, - -	6	45	I.	History - -	6	45	I.
English, - -	4	41	I.	English, - -	4	41	I.
French or - -	3	48	II.	French or - -	3	48	II.
German, - -	3	51	II.	German, - -	3	51	II.
Spanish, - -	4	49	I.	Spanish, - -	4	49	I.
Polit'l Science,	4	46	I.	History, - -	4	46	IV. a
Elocution, - -	2	44	VIII.	Elocution, - -	2	44	VIII.

SOPHOMORE YEAR.

History, - -	5	45	II. a	History - -	5	45	II. a
Polit'l Science,	3	47	II.	Polit'l Science,	3	47	II.
Philosophy, -	5	31	I.	Philosophy, -	5	31	I.
English, - -	4	42	II.	English, - -	4	42	II.
German or - -	2	51	III.	German or - -	2	51	III.
French, - -	2	49	III.	French, - -	2	48	II.
Elocution - -	2	44	VIII.	Elocution - -	2	44	VIII.

JUNIOR YEAR.

History, - -	9	45	II.bIII.	History - -	9	45	II.bIII
Polit'l Science,	4	47	III.	Polit'l Science,	4	47	IV.
Philosophy, -	5	31	II.	Philosophy, -	5	31	II.
English - -	4	42	III.	English, - -	4	42	III.
Elocution, - -	2	44	VIII.	Elocution - -	2	44	VIII.

SENIOR YEAR.

History, - -	3	46	IV. b	History, - -	3	46	IV. b
Polit'l Science,	6	47	V. VI. VII.	Polit'l Science,	6	47	VI. VII VIII,
Philosophy, -	5	32	III.	Philosophy, -	5	33	IV.
English, - -	4	42	IV.	English, - -	4	42	IV.
Elocution, - -	2	44	VIII.	Elocution, -	2	44	VIII.

COURSE IN JOURNALISM.

This is strictly a post-graduate course and is open only to those who have completed the Course in History and Economics described on page 104. The purely academic training afforded by that Course is here supplemented by a year's practical experience in newspaper work under the immediate supervision of an experienced journalist. Abundant opportunity for practice is offered by the newspapers of Chicago (all of which have regular correspondents at the University) and of other large cities. In addition to the routine work of this Course, each student is expected to contribute to special departments in newspapers and magazines, and diplomas will not be issued to those who have failed to find a market for at least some of their work. The classes in this Course are :

Journalism — Lectures and recitations on the history of journalism. Critical comparative study of home and foreign newspapers. The law of newspaper libel. Copyright and postal regulations. Daily exercises in reporting, and frequent exercises in editorial writing; department work; musical and dramatic criticism and book reviews. Editing copy, proofreading and "making up" a newspaper. Lectures on topics of current interest, and exercises in the treatment of them. Required reading of Dana's *Art of Newspaper Making*, Shuman's *Steps into Journalism*, Hudson's *History of Journalism*, Luse's *Writing for the Press*, any good treatise on the law, libel and slander, and the biographies of famous journalists. Discussion of the business side of newspaper work, advertising, circulation, etc.

Theology — Wilhelm and Scannell's *Manual of Dogmatic Theology*.

Phonography and Typewriting — Ordinary Course.

Political History of the 19th Century.

SCHOOL OF SCIENCE.

Three courses are given, one a course in General Science, one in Chemistry, and one course in Biology.

REQUIREMENTS FOR ADMISSION.

Candidates for the Freshman class of these courses must be prepared to pass an examination in the branches named below, unless satisfactory assurance of their proficiency is given.

Physical Geography, Elementary Zoology, Botany, and Civics.

History—General outlines of Ancient, Mediaeval and Modern History.

Algebra—The whole subject as far as logarithms, as given in Wentworth's *College Algebra*, or an equivalent in the larger treatises of other authors.

Geometry—Plane and Solid, including the solution of simple original problems and numerical examples, as given in the works of Wentworth, Chauvenet, Newcomb, or an equivalent in treatises by other authors.

Trigonometry—Plane and Spherical.

Astronomy—Descriptive.

Chemistry—A course of at least fifty experiments in elementary chemistry actually performed by the pupil.

German—A two years course in German is required. Ability to translate at sight easy German into English, and easy English sentences into German.

English—Part of the examination time is given for answering questions upon books required to be read in the

preparatory courses in English (See page 164); the remainder for writing an essay.

Physics—Elementary. The preparation on this subject should include a course of lectures, illustrated by experiments, and recitations from a text-book similar to Carhart and Chute's or Gage's. Laboratory work is recommended, but is not required.

Latin—Grammar, complete; Cæsar: four books of the Gallic War; Translation of English into Latin based on text of this author.

CHEMICAL LABORATORY FEES.

Chemistry I., VII., each.....	\$ 5.00
Chemistry II, III., (e) IV., V., VI., (9) VIII., IX., XI., XIII., each.....	10.00

Introduction to the Course in General Science.

The Course in General Science is calculated to afford such an acquaintance with the methods and facts of modern science as will best enable the student to fit himself, either for further study of a technical or professional kind, or for the activities of business life. The Natural and Physical Sciences constitute the primary studies of this Course. Grouped about these are those studies in English, mathematics, and Modern Languages, which experience has shown to be necessary for the intelligent pursuit of science and for the attainment of the object of the Course.

Two essays on scientific topics are required of every student during the Sophomore Year and two during the Junior Year.

The scientific work of the Senior Year is elective. Advanced Courses may be chosen in Physics, Chemistry, Biology, or Mathematics.

Every candidate for a degree in the Course of General Science is required to submit, at least six weeks before the final examination, a written thesis upon some subject connected with the elective work of the Senior Year. The subject chosen must have the approval of the professor in the course elected. The thesis shall contain no less than six thousand words, and must be satisfactory in matter and treatment.

Students that complete the required courses, pass the final examination, and present a satisfactory thesis will receive the degree of Bachelor of Science.

In the schedule an "hour" means two sixty minute periods of laboratory work or one of lecture or recitation. (The facilities for instruction in this Course are described on pages 13 and 17. For Laboratory Fees, see pages 107-112-118.)

Studies Prescribed in Course in General Science.

(DEGREE: B. S.)

FRESHMAN YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	SEE FOR DESCRIPTION		SUBJECTS: SECOND TERM.	Hrs. a Week	SEE FOR DESCRIPTION	
		Page	Course			Page	Course
Zoology, - -	5	85	I.	Zoology, - -	5	85	I.
Chemistry, - -	4	79	III.	Chemistry, - -	4	79	III.
Algebra, - -	5	51	I.	Anal. Geom., -	5	52	II.
French, - -	5	48	I.	French, - -	5	48	I.
Drawing - -	2	76	I.	Drawing, - -	4	76	II.
Physiology, -	5	89	I.	Physiology, -	5	89	I.

SOPHOMORE YEAR.

Botany, - - -	5	84	I.	Botany, - - -	6	84	I., II.
Chemistry, - -	5	79	IV.	Physics, - - -	5	83	II., III.
Physics, - - -	5	83	II., III.	Calculus, - -	5	52	IV.
Calculus, - -	5	52	III.	Drawing, - -	2	76	II.
Drawing, - -	2	76	II.	Elective, - -	5		

JUNIOR YEAR.

Geology, - -	2	90	I.	Geology, - -	5	91	III.
Astronomy, -	3	60	I.	Astronomy, -	3	60	I.
English, - -	4	41	I.	English, - -	4	41	I.
Elective, - -	5			Elective, - -	5		
Philosophy, -	5	31	I.	Philosophy, -	5	31	I.

SENIOR YEAR.

Philosophy, -	5	31	II.	Philosophy, -	5	31	II.
Three Electives in Science, -	9-15			Three Electives in Science, -	9-15		
French or Ger. Scientific Readings, -	I			French or Ger. Scientific Readings, -	I		

Introduction to the Course in Chemistry.

This course is intended for those students who wish to obtain such a knowledge of Chemistry as may fit them for professional work either in the laboratory or class room. Though fixed to a great extent, the schedule of work admits in the Junior and Senior year of some elective study.

Every candidate for a degree in Chemistry is required to write an essay in the Junior year on some subject connected with Chemistry and must submit, at least four weeks before the final examination, a written thesis on work covered in his Senior Year. This thesis must contain at least three thousand words.

The degree of Bachelor of Science in Chemistry is given to those students who have written an approved thesis and have passed a satisfactory examination.

In this schedule, an "hour" means two sixty minute periods of laboratory work or one of lecture or recitation. For laboratory fees see page 107.

Studies Prescribed in Course in Chemistry.

(DEGREE: B. S.)

FRESHMAN YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	SEE FOR DESCRIPTION		SUBJECTS: SECOND TERM.	Hrs. a Week	SEE FOR DESCRIPTION	
		Page	Course			Page	Course
Chemistry, -	5	79	III.	Chemistry, -	5	79	III.
Algebra, - -	5	51	I.	Anal. Geom. -	5	52	II.
French, - -	5	48	I.	French, - -	5	48	I.
Physics, - -	5	83	II., III.	Physics, - -	5	83	II., III.

SOPHOMORE YEAR.

Chemistry, -	5	79	IV.	Chemistry, -	5	80	V.
Calculus, - -	5	52	III.	Calculus, - -	5	52	IV.
Mineralogy, -	3	90	I.	Geology, - -	5	91	III.
Chemistry, -	5	80	VI.	Chemistry, -	5	81	IX.
Gas Analysis, -	3	81	VIII.				

JUNIOR YEAR.

Chemistry, -	5	82	XIII	Chemistry, -	7	81 82	XI. XIII
Chemistry Elective, -	5			Chemistry Elective, -	5		
Elective, - -	5			Assaying, - -	3	91	II.
English, - -	5	41	I.	English, - -	5	41	I.

SENIOR YEAR.

Philosophy, -	5	31	II.	Philosophy, -	5	31	II.
History of Chemistry, -	3	82	XII.	Chemistry Elective, -	5		
Elective, - -	5			Scientific Readings in German and French, - -	2		
Scientific Readings in German and French, - -	2			Thesis, - - -			

Introduction to the Course in Biology.

The course in Biology has been designed for students that wish to devote their time largely to biological pursuits, either as an immediate preparation for the study of medicine or veterinary science, or with a view to teaching or otherwise engaging in biological research. The students in this course are required to prepare an essay during the first term of the Junior Year on some subject pertaining to biology. Every candidate for a degree must submit a written thesis accompanied with original drawings. This thesis must be presented two weeks before the final examinations. Students not preparing themselves for a medical course may substitute for the advanced Courses in Anatomy and Physiology equivalents from either Mathematics, Physics, or English Literature.

LABORATORY FEES.

Biological Laboratory — <i>Biology II</i>	\$ 5.00
Biological Laboratory — <i>Zoology III., IV., V.</i>	5.00
Botanical Laboratory — <i>for Botany I. and II.</i>	5.00
Microscopy — <i>for Courses I. and II.</i>	2.50
Bacteriological Laboratory — <i>Bacteriology</i>	10.00
Use of Apparatus in Biological Laboratory for Courses in Zoology and Botany in Preparatory Department each.....	2.50

(The facilities for instruction in this course are described on
page 17.)

Studies Prescribed in the Course in Biology.

(DEGREE: B .S.)

FRESHMAN YEAR.

SUBJECTS: FIRST TERM.	Hrs a Week	SEE FOR DESCRIPTION		SUBJECTS: SECOND TERM.	Hrs. a Week	SEE FOR DESCRIPTION	
		Page	Course			Page	Course
Zoology, - -	5	85	I.	Zoology - -	5	85	I.
Chemistry, -	4	79	III.	Chemistry, -	4	79	III.
Microscopy, -	3	87	I.	English, - -	4	41	I.
English, - -	4	41	I.	French, - -	5	48	I.
French, - -	5	48	I.	Microscopy, -	2	88	II.
Drawing, - -	2	77	VIII.	Drawing, - -	2	77	VIII.

SOPHOMORE YEAR.

Physiology, -	5	89	I.	Physiology, -	5	89	I.
Botany, - -	5	84	I.	Botany, - - -	6	84	I. II.
Gen. Biology, -	6	87	I., II.	Gen. Biology,	6	87	I. II.
Chemistry, -	5	79	IV.	Chemistry, -	5	80	V.
Drawing - -	2	77	IX.	Drawing, - -	2	77	IX.

JUNIOR YEAR.

Anatomy, - -	3	88	III.	Anatomy, - -	3	88	III.
Bacteriology, -	6	90	I.	Botany, - -	8	84	III.
Geology, - -	2	90	I.	Geology, - -	5	91	III.
Botany, - -	8	84	III.	Philosophy, -	5	31	I.
Philosophy, -	5	31	I.	Chemistry, -	5	80	VI.

SENIOR YEAR.

Anatomy, - -	7	88	II.III.	Anatomy, - -	3	88	III.
Physiology, -	5	89	II.III.	Physiology, -	5	89	III.
Zoology, - -	7	85	II.	Zoology, - -	10	85-86	III.
Thesis, - - -				Thesis, - - -			IV., V.

SCHOOL OF PHARMACY.

There are two courses in Pharmacy; one of two years, leading to the degree *Graduate in Pharmacy*, (*Ph. G.*); and another of three years leading to the degree, *Pharmaceutical Chemist*, (*Ph. C.*)

ADMISSION.

Applicants for admission to the Short Course must be 18 years of age; and must pass an examination in the Common English branches. A certificate of admission to a high school will be accepted instead of an examination.

The requirements for the long course are the same, except that an examination in Latin and Algebra as far as logarithms must be passed. Satisfactory evidence of having spent two years in a high school of the best grade will be accepted instead of an examination.

METHODS

The subjects studied in this department are intended to impart a thorough theoretical as well as a practical knowledge of Pharmacy, the work commencing with the simplest and gradually leading up to the most difficult and complicated processes.

Special attention is given to the little details, which are essential to success, in any professional work and particularly so in Pharmacy. The student is carefully drilled in store etiquette, business hints, prescription work, and dispensing. Neatness and order in all the operations and extreme care in the manufacture of preparations are required throughout the course.

Attention is given to Animal Extracts, Serum-Therapy, Antitoxins, new Synthetic Remedies and Alkaloidal Medication.

EQUIPMENT.

Each desk is supplied with all the apparatus necessary for ordinary work. Special apparatus is furnished as required.

The department contains a fully equipped Drug Store in which the student obtains practically the same experience that he would get in actual business.

A second year student is placed in full charge. He is required to furnish supplies for the department, order material, write business letters, invoice stock, etc. Then at the end of a specified time he delivers the store in good order to his successor.

About 2,000 recent prescriptions written by physicians, and taken from the files of a drug store, constitute a very important part of the equipment. Under supervision of the instructor each student is required to read them and to compound those requiring special manipulation. The reading room is supplied with all the leading pharmaceutical journals and books of reference. The Pharmacognosy Room contains specimens of all the official and a great many unofficial drugs for study and identification.

THESIS.

During the third year the student is required to spend at least two hours a week in original research on a subject within the domain of Pharmacy. The results of this work are carefully recorded and must be typewritten and presented to the faculty as a requirement for graduation.

LABORATORY FEES.

In addition to the regular tuition fee covering cost of board, room, etc., the student is required to pay:

Pharmaceutical Laboratory II.....	\$20.00
Pharmaceutical Laboratory II. and IV.....	20.00
Pharmaceutical Laboratory EI. and VII.....	40.00

Courses in Pharmacy.

(DEGREES: Ph. G., Ph. C.)

FIRST YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	SEE FOR DESCRIPTION		SUBJECTS: SECOND TERM.	Hrs. a Week	SEE FOR DESCRIPTION	
		Page	Course			Page	Course
Pharmacy, - -	3	91	I.	Pharmacy, -	6	91	I., II.
Arithmetic, -	5	93	IX.	Physics, - -	5	172	F.
Botany, - - -	5	84	I.	Chemistry, - -	4	81	X.
Microscopy, -	3	87	I.	Botany, - - -	5	84	I.
Chemistry, -	5	78	I.	Materia Medica	2	92 93	VIII. (1, 2.)

SECOND YEAR.

Pharmacy, - -	8	92	III. IV.	Pharmacy, -	10	92	IV. V.,
Chemistry, - -	5	79	IV.			80	VI.
Materia Medica	3	92	VIII. (1, 3.)	Chemistry, -	5	93	V.
Bacteriology, -	3	90	I.	Materia Medica	2		VIII. (2, 3.)
				Physiology, -	5	89	I.

THIRD YEAR.

Pharmacy, -	5	92	VI.	Pharmacy, - -	5	92	VII.
Chemistry, - -	6	80	VI.	Chemistry, - -	5	80	VI.
Geology, - - -	2	90	I.	Toxicology and			
Thesis, - - -	2			Urinary Analy's	5	80	VII.
Elective, - -	5			Thesis, - - -	2		
				Elective, - -	5		

SCHOOL OF ENGINEERING.

Three regular courses are offered ; one leading to the degree of Civil Engineer, one to the degree of Mechanical Engineer, and another to the degree of Mechanical Engineer in Electrical Engineering.

A special Short Course in Electrical Engineering is offered to accommodate those that wish to fit themselves for practical work in the shortest possible time.

A student should not take up any one of these courses unless he has a natural aptitude for mathematics. A liking for machinery and tools is of great advantage in Mechanical and Electrical Engineering.

Special attention is given to the practical work of Engineering in the laboratories and draughting rooms. The exercises in calculating, designing and constructing are made to conform as nearly as possible to the best modern engineering practice.

The various laboratories are equipped with the most approved forms of instruments and appliances and considerable time is given to technical work.

(For list of available apparatus, see pages 13-19)

In the schedule of studies one hour credit is given for each recitation or lecture which requires from one to two hours' preparation. Two hours actual time in laboratory work or drawing are required for each hour on the schedule.

EXPENSES.

In addition to the regular fee for matriculation, board, tuition, lodging, etc., as given on page 28, the regular students in the three Engineering Courses are required to pay laboratory fees to cover, in part, the cost of materials consumed and the deterioration of the apparatus used, as follows :

LABORATORY FEES.

Physical Laboratory III.....	\$ 5.00
Physical Laboratory IV.....	15.00
Electrical Laboratory, I., II	15.00
Electrical Laboratory V.....	20.00
Shopwork, all four-hour courses per term.....	15.00
Chemistry I.....	5.00
Chemistry II., IV., V., each.....	10.00

ADMISSION.

Candidates for admission to the Freshman Year must be at least 17 years of age. For advanced standing there must be a corresponding increase in the age limit.

ENTRANCE EXAMINATIONS.

Written examinations on the following subjects required for admission will be held at the University on the first two days of the Fall Term at the beginning of the school year.

Arithmetic — Complete, including the metric system of weights and measures. Special importance is attached to accuracy in calculations and the practical application of rules.

Algebra — Fundamental operations, simple equations, involution and evolution, radicals, radical equations and quadric equations, including everything up to logarithms, as given in Wentworth's *College Algebra*, or an equivalent in the larger treatises by other authors.

Geometry — Plane and Solid, including the solution of simple original problems and numerical examples, as given in the works of Wentworth, Chauvenet, Newcomb, or an equivalent in treatises by other authors.

Trigonometry — Plane and Spherical.

Astronomy — Descriptive.

Civics — Elementary.

History — General outlines of Ancient, Mediaeval and Modern History.

Geography — Physical, as much as is contained in the ordinary text-books.

Physics — Elementary. The preparation on this subject should include a course of lectures, illustrated by experiments, and recitations from a text-book similar to Carhart and Chute's or Gage's. Laboratory work is recommended, but is not required.

Chemistry — The elements of Inorganic Chemistry, as given in a high school.

Botany, Physiology and Zoology — As given in elementary text-books.

Modern Language — Engineering students must present a two years course in German.

English — Part of the examination time is given for answering questions upon books required to be read in the preparatory courses in English (See page 164); the remainder for writing an essay.

If the applicant passes these examinations satisfactorily he may begin at once the regular Freshman work; but if he is deficient in one or more subjects he may enter conditionally and make up his deficiency as soon as possible in the Preparatory Department.

Introduction to the Course of Civil Engineering.

The courses of instruction are designed to prepare students for a thorough and systematic training in the sciences and in the principles of Civil Engineering, to perform intelligently the duties of their profession either in the office or in some of the responsible positions superintending the construction and operating of public works. To secure these results the student is given, not only a sound theoretical training in the studies of the courses, but he is also required to study the practical applications of the principles upon which the theory is based. The first two years are devoted to the study of mathematics and the theoretical branches. The last two years are given to the study of applied courses—practical work in the laboratory and field, as much as possible, being required throughout the course.

Sufficient instruction is given in French and German to enable the student to read easily and understandingly professional works in these languages; while the study of English is pursued until the student is qualified to prepare acceptable themes on professional subjects. Instruction based upon standard text-books is given throughout the course by means of lectures, recitations, practice in laboratory, drawing room and field. This work is largely supplemented by assigning to the student, for solution, practical problems bearing directly upon the subject matter discussed in the class room and requiring original investigation, thus training the student to habits of independence and awakening his interest in the works of his course.

The Department is provided with all the instruments necessary for effective work in the different branches of

field Engineering. After the student is taught the use and adjustment of the instruments, surveys, elementary in character, are commenced and continued progressively until the more difficult principles and methods are understood. In a similar manner is instruction given in the Courses in Sanitary Engineering, Hydromechanics, Resistance of Materials, Bridges and Roofs, etc., thus familiarizing the student with practical Engineering subjects, and the most improved method of execution and designing.

A thesis on some approved subject connected with the course of study, is required of each student as a condition of graduation. The thesis must embody the results of original research.

Studies Prescribed for Civil Engineering.

(DEGREE: C. E.)

FRESHMAN YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	SEE FOR DESCRIPTION		SUBJECTS: SECOND TERM.	Hrs. a Week	SEE FOR DESCRIPTION	
		Page	Course			Page	Course
Algebra, - -	5	51	I.	Anal. Geom. -	5	52	II.
English, - -	5	41	I.	Surveying, - -	5	54	II.III.
French, - -	5	48	I.	English, - -	5	41	I.
Chemistry, -	3	78	II.	French, - -	5	48	I.
Drawing, - -	3	76	I.	Chemistry, -	3	78	II.

SOPHOMORE YEAR.

Calculus, - -	5	52	III.	Calculus, - -	5	52	IV.
Des. Geometry,	3	54 76	I. III.	Dif. Equations.	5	53	V.
R. R. Surveying	5	55 56	VI. VII.	Des. Geometry	3	54 76	I. III.
Physics, - -	5	83	II. III.	Adv. Surveying,	5	55	IV., V.
Drawing, - -	3	76	II. III.	Physics, - -	5	83	II. III.
				Drawing, - -	3	76 77	III. V.

JUNIOR YEAR.

Analytic				Mechanics of			
Mechanics, -	5	56	VIII.	Materials, -	5	56	IX.
Geodesy, - -	4	60	XVI.	Astronomy, -	3	60	I.
English, - -	4	42	II.	English, - -	4	42	II.
Geology, - -	4	90	I.	Geology, - -	4	91	III.
Drawing, - -	2	77	VI.	Drawing, - -	3	77	VII.
Stereotomy, -	1	59	XIV.				

SENIOR YEAR.

Engineering, -	5	58	XII.	Engineering, -	5	58	XII.
Drawing, - -	3	77	VII.	Hydromechan.,	3	59	XV.
Bridges, Roofs,	5	57	X.	Graph. Stat.,	5	57	XII.
Sanitary Eng.,	2	58	XIII.	Sanitary Eng.,	2	58	XIII.
Hydromechan,	3	59	XV.	Steam Boilers,	3	62	IV.
				Thesis Work,			

Introduction to the Course in Mechanical Engineering.

The Course in Mechanical Engineering, leading to the degree of Mechanical Engineer, is given to those young men that wish to prepare themselves for the designing of machinery, with its appurtenances, and for the successful management of power-plants. As the Course requires a thorough knowledge of pure and Applied Mathematics, as well as of Physics, only those capable of adapting themselves to these requirements should take it up. The Course is modeled in the twofold belief that a thorough fundamental training is best secured by a study of the practical application of the principles involved, as well as of the theoretical principles.

The work of the department, conducted in connection with other departments elsewhere described, consists of the study, by text-book or lectures, of the materials used in Mechanical Engineering, accompanied by the science of pure mechanical kinematics, which traces the motions of connected parts without reference to the cause of such motions or to the work done by energy transmitted. This is succeeded by machine design, which is a direct development of kinematics, and the Course continues throughout the Junior and Senior Years.

The Courses in Shopwork are most complete. The first year's work is confined to practice in the woodshop, in which the principles of carpentry, turning, and pattern-making are taught. When the students have become sufficiently skilled in woodwork, they take up the work of the foundry, blacksmith shop, and machine shop. A systematic course of training is provided, which advances

the student by each step until he has mastered all the details of the art.

The latter part of the Senior Year is largely taken up in the preparation of a Graduating Thesis. Here especially the student is taught to depend as much as possible upon his own resources and abilities in exercising his ingenuity. This is the culminating effort of the course, embodying its chief results, and is expected to show considerable originality.

(For the equipment of the shops in which the courses are given, see page 20.)

Studies Prescribed for Mechanical Engineering. II

(DEGREE: M. E.)

FRESHMAN YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	SEE FOR DESCRIPTION		SUBJECTS: SECOND TERM.	Hrs. a Week	SEE FOR DESCRIPTION	
		Page	Course			Page	Course
Algebra, - -	5	51	I.	Analyt. Geom.,	5	52	II.
French, - -	5	48	I.	French, - -	5	48	I.
Drawing, - -	3	76	I.	Drawing, - -	3	76	II.
Chemistry, -	3	78	II.	Chemistry, -	3	78	II.
Shopwork, -	3	65	XIV.a	Shopwork, -	3	65	XIV.b

SOPHOMORE YEAR.

Calculus, - -	5	52	III.	Calculus, - -	5	52	IV.
Des. Geometry,	3	54 76	I. III.	Des. Geometry,	3	54 76	I. III.
Drawing, - -	3	76	III.	Drawing, - -	3	76	III.
Chemistry, -	5	79	IV.	Chemistry, -	5	80	V.
Physics, - -	5	83	II. III.	Physics, - -	5	83	II. III.
Shopwork, -	3	65	XIV.c	Shopwork, -	3	66	XIV.d

JUNIOR YEAR.

Anal. Mechanics	5	56	VIII.	Mech's of Mat.,	5	56	IX.
Kinematics, -	5	62	V.	Machine Design	3	63	VI.
English, - -	5	41	I.	Valve Gears, -	2	63	VII.
Drawing, - -	3	76	IV.	English, - -	5	41	I.
Physics, - -	3	83	IV.	Drawing, - -	3	76	IV.
Shopwork, -	3	66	XIV.e	Shopwork, -	3	66	XIV.f

SENIOR YEAR.

Materials of Engineering,	2	61	II.	Steam Engine Design, - -	5	62	III.
Thermodynam,	5	61	I.	Steam Boilers,	3	62	IV.
Steam Engine Design, - -	5	62	III.	Thesis, - - -	12	64	IX.
Mechani'l Lab.,	3	63	VIII.				
Shopwork, -	3	66	XIV.f				

Two Year Course in Mechanical Engineering.

Theory, Design and Operation of Gas, Oil and Vapor Engines.

This course is devoted exclusively to the study of explosive motors and embraces it in theory, design, construction and operation.

The rapid progress made in recent years in the design of gas engines together with their adaptation to the supplying of power for almost every requirement has led to the establishment of this course for those young men wishing to make a special study of this branch of engineering.

The essential work of the first year consists of a general descriptive study of the different types of engines with discussions on the general management, operation, care and special uses to which this type of motor may be applied. During the second year the general theory of the gas engine is studied and the design of an engine for a specific purpose is undertaken by each student.

The laboratory work will consist in part of indicator practice, determination of mechanical and thermodynamic efficiency, speed regulation and economy. Experiments in flame, electric and hot tube ignition, operation of vaporizers and carburettors, construction of spark coils with management and care of motors will complete the work.

The courses in shopwork are intended to give practical application to the theories advanced in the class room by the complete building and testing of a gas engine of a design to be selected by the demonstrator. Each student is required to prepare the patterns and core-boxes, machine the castings and forgings, assemble the complete

engine and submit a comprehensive report of a test on the machine constructed. If the report proves satisfactory, a certificate of proficiency in the field is given to the student and the gas engine become his own property.

For admission to this course the student must certify by examination or certificate, his ability to pursue the studies of the first year.

Two-Year Course in Mechanical Engineering.

FIRST YEAR.

SUBJECTS:	Hrs. a Week	SEE FOR DESCRIPTION		SUBJECTS:	Hrs. a Week	SEE FOR DESCRIPTION	
		Page	Course			Page	Course
Algebra, - -	5	168	C.	Mathematics, -	5	169	F & G.
Geometry, - -	5	169	E.	Trigonometry,	5	170	H.
Drawing, - -	3	76	I.	Drawing, - -	3	76	II.
Shopwork, - -	3	65	XIV.a	Shopwork, - -	3	65	XIV.a
Physics, - -	5	83	I.	Chemistry, - -	5	78	I.
Gas Engines, -	5	64	XI.	Vapor Engines,	5	64	XI.

SECOND YEAR.

Motor Design,	5	65	XII.	Motor Design,	5	65	XII.
Shopwork, - -	6	65	XIV.g	Shopwork, - -	6	65	XIV.g
Laboratory, -	10	65	XIII.	Laboratory, -	10	65	XIII.

Introduction to the Course of Electrical Engineering.

The remarkable development of electrical industries during the past few years has created a demand for men skilled in the theory and practice of Electrical and Mechanical work. The study of the subjects arranged on the following page is intended to give a general education as well as special training in the technical branches involved in the various practical applications of electricity in industrial operations.

General theory is given in lectures and by recitations from standard text-books. In the laboratories and shops the operations explained in the class room are performed by the student, in doing which he acquires some skill in handling tools and instruments, and obtains a working knowledge of the principles involved. Careful records of the work done in laboratories are kept by the student and are handed in for suggestions and corrections at the end of every week.

The University is located near a great manufacturing center in the growth of which electricity is taking a very prominent part. Electric power generated by steam is now being distributed and utilized in several large plants, some using the three phase alternating system while others are using the direct current. One of the largest water power developments in the middle west is situated within a few miles of the University. From this establishment we receive three phase alternating currents which furnish light for our buildings and grounds and power for driving motors in our shops and printing offices, etc., all of which are operated by electricity.

There are numerous other transmission lines and electrical power stations operated by water power within a short

distance. Our students visit all of these plants, accompanied by an instructor who points out the applications of the text-book theory in the design of electrical apparatus and its operation under actual working conditions.

(For requirements for admission, degree, etc., see pages 117-119.)

THESIS.

Each candidate for graduation must present at the end of the Senior Year an acceptable Thesis embodying the results of an extended original research on an Engineering subject, chosen at the beginning of the year, with the approval of the head of the department. The descriptive part must be typewritten on ledger paper, and bound in book form together with the drawings.

Studies Prescribed for Electrical Engineering.

DEGREE: M. E. in E. E.

FRESHMAN YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	SEE FOR DESCRIPTION		SUBJECTS: "SECOND TERM.	Hrs. a Week	SEE FOR DESCRIPTION	
		Page	Course			Page	Course
Algebra, - -	5	51	I.	Analyt. Geom.	5	52	II.
French, - - -	5	48	I.	French, - -	5	48	I.
Drawing, - -	4	76	I.	Drawing, - -	4	76	II.
Chemistry - -	3	78	II.	Chemistry, - -	3	78	II.
Shopwork, - -	3	65	XIV.a	Shopwork, - -	3	65	XIV.b

SOPHOMORE YEAR.

Calculus, - -	5	52	III.	Calculus, - -	5	52	IV.
Des. Geometry,	3	54 76	I. III.	Des. Geometry,	3	54 76	I. III.
Chemistry, - -	3	79	IV.	Physical Prob.,	2	83	III.
Physics, - - -	3	83	II.	Physics, - - -	3	83	II.
Shopwork, - -	3	65	XIV.c	Shopwork, - -	3	66	XIV.d
Physical Prob.,	2	83	III.	Drawing, - -	2	76	III.

JUNIOR YEAR.

Analytical				Mech's of Mat.	5	56	IX.
Mechanics,	5	56	VIII.	Machine Design	5	63	VI.VII.
Kinematics, -	5	62	V.	English, - -	5	41	I.
English, - - -	5	41	I.	Physics, - -	3	83	IV.
Physics, - - -	3	80	IV.	Shopwork, - -	3	66	XIV.f
Shopwork, - -	3	66	XIV.e				

SENIOR YEAR.

Dynamo				Dynamo			
Machinery,	5	67	III.	Machinery,	5	67	III.
Thermodynam,	5	61	I.	Electrical Lab.,	5	68	IV.
Electrical Lab.,	5	68	IV.	Designing, - -	3	68	V.
Designing, - -	3	68	V.	Thesis, - - -			
Thesis, - - -				Hydraulics, -	3	61	I.

Short Course in Applied Electricity.

Students that do not wish to take the languages and higher mathematics required in the regular four-year course should enter this shorter course, which may be completed in two years. It is arranged to give an accurate knowledge of the fundamental theories of electricity and magnetism, as well as a certain amount of skill in handling electrical machinery and appliances. Algebra, geometry, trigonometry, and elementary physics are included, for they are necessary in order to carry on successfully the practical work of designing, manufacturing and testing or operating electrical apparatus. Training in this practical work is given in the drafting room, the machine shops, and in the electrical and physical laboratories.

The actual conditions of the commercial application of electricity to the distribution of light and power are learned by testing, repairing, and making additions to the University plant and by visiting the numerous electric plants in the vicinity, accompanied by an instructor.

The study of the principles of mechanical drawing is taken up early in the course and sufficient practice is given to enable the student to make work drawings and to follow them in the construction of apparatus in the shops and laboratories.

Applicants for admission to this course should be at least 17 years of age. They should have a fair knowledge of the subjects taught in the common schools, especially arithmetic and algebra as far as quadratics.

When the required studies have been satisfactorily completed, a certificate stating that fact is issued.

Studies Prescribed for Short Course in Applied Electricity.

FIRST YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	SEE FOR DESCRIPTION		SUBJECTS: SECOND TERM.	Hrs. a Week	SEE FOR DESCRIPTION	
		Page	Course			Page	Course
Algebra, - -	5	168	C.	Geometry, - -	5	169	D.
Drawing, - -	3	76	I.	Drawing, - -	3	76	II.
Shopwork, - -	3	65	XIV.a	Shopwork, - -	3	65	XIV.b
Physics, - -	5	83	I.	Physics, - -	5	83	I.
Applied Electricity, -	5	66	I.	Applied Electricity, -	5	66	I.

SECOND YEAR.

Trigonometry,	5	170	H.	Engines and			
Drawing, - -	3	68	V.	Boilers,	3	64	X.
Shopwork, - -	3	65	XIV.c	Drawing, - -	3	68	V.
Dynamo				Shopwork, - -	3	66	XIV.d
Machinery, -	5	67	III.	Dynamo			
Applied				Machinery,	5	67	III.
Electricity, -	5	67	II.	Applied			
				Electricity,	5	67	II.

The laboratory fees for students that are taking the regular work in this course, according to the above schedule, after they have finished *all* the work required for entrance, shall be as given on page 118.

All others are special students and for them the fee is as given on page 29 for Applied Electricity.

COURSE IN ARCHITECTURE.

This course has been introduced as a natural outgrowth of the splendid engineering course and is designed to work in harmony with it.

The course in Architecture has thus (in the Freshman and Sophomore years) all the advantages of complete education in mathematics combined with the elementary studies of Architecture, together with the full course of Architecture in the Junior and Senior years.

The studies are arranged in the college year to correspond with the progress of other large colleges.

The work of the professors in this course is under the direct supervision of a practising architect.

Course in Architecture.

(DEGREE: Bachelor of Science in Architecture.)

FRESHMAN YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	SEE FOR DESCRIPTION		SUBJECTS: SECOND TERM.	Hrs. a Week	SEE FOR DESCRIPTION	
		Page	Course			Page	Course
Algebra, - -	5	51	I.	Analytic Geom.,	5	52	II.
English, - -	5	41	I.	English, - -	5	41	I.
French or German, -	5	48 51	I.	French or German, -	5	48 51	I.
Freehand Draw.	2	74	Ia. Ib.	Freehand Draw.	2	74	Ia. Ib.
History of Arch.	2	68	Ia.	History of Arch.	2	68	Ia.
Arch. Orders,	4	69	II.	Arch. Orders.	4	69	II.

SOPHOMORE YEAR.

Calculus, - -	5	52	III.	Calculus, - -	5	52	IV.
Des. Geom., -	3	54 76	I.III.	Des. Geom., -	3	54 76	I.III.
Physics, - -	3	83	II.III.	Physics, - -	3	83	II.III.
El. Design, -	4	75	III.	El. Design, -	4	75	III.
History of Arch.	2	68	Ia.	History of Arch.	2	68	Ia.
Freehand Draw.	3	74	IIa.	Freehand Draw.	3	74	IIa.
Pen and Ink,	1	78	XII.	Pen and Ink,	1	78	XII.
Water Colors,	2	77	X.	Materials, -	2	71	VIII.

JUNIOR YEAR.

Analytic Mech.,	3	56	VIII.	Mech. of Mat'ls	3	56	IX.
Freehand Draw.	4	74	IIb.	Freehand Draw.	4	74	IIb.
Arch. Research,	3	69	Ib.	Arch. Research,	3	69	Ib.
Pen and Ink,	1	78	XII.	Pen and Ink,	1	78	XII.
Heat and Vent.,	3	70	IV.	Roof-Trusses,	5	72	XI.
Specifications,	2	71	VII.	Specifications,	2	71	VII.
Design, - -	5	69	III.	Design, - -	5	69	III.
Struct. Design,	1	71	IX.				

SENIOR YEAR.

Adv. Design,	10	69	III.	Theory Arches,	2	71	VI.
Adv. Cons. Des.,	8	70	V.	Hist. of Orn'm't	1	72	X.
Rendering,	2	78	XI.	House Sanit'n,	2	72	XII.
House Sanit'n,	2	72	XII.	Thesis Work,	18	72	XIII.

School of Law.

LAW FACULTY.

VERY REV. ANDREW MORRISSEY, C. S. C.,
President of the University.

WILLIAM HOYNES, LL. D.,
Dean of Law Faculty.

LUCIUS HUBBARD, LL. D.,
Professor of Law.

TIMOTHY E. HOWARD, LL. D.,
Professor of Law.

ARTHUR L. HUBBARD, A. M., LL. B.,
Professor of Law.

ANDREW ANDERSON,
Professor of Law.

SHERMAN STEELE, Litt. B., LL. B.,
Professor of Law.

JOHN B. RENO, A. M., LL. B.,
Lecturer on Parliamentary Law.

REV. MATTHEW SCHUMACHER, C. S. C.,
Lecturer on Ethics and Natural Law.

SCHOOL OF LAW.

For several years a systematic movement has been in progress under the auspices of the bench and bar of the country to elevate the standing and promote the efficiency of the legal profession, and make it as learned in fact as it is in name. The most essential preliminary step to this end, as lawyers generally agree, is to prescribe requirements and examinations more comprehensive and rigorous as a test of qualifications for

ADMISSION TO THE BAR.

Upon the law departments of universities, or law schools, as they may collectively be called, the profession must mainly depend for co-operation and success in this laudable undertaking. In fact, due acknowledgment of the importance of their services is made as follows in a former report of the Committee on Legal Education of the American Bar Association:

“The benefits which law schools offer are easily suggested, and are of the most superior kind. They afford the student an acquaintance with general principles, difficult if not impossible to be otherwise obtained; they serve to remove difficulties which are inherent in scientific and technical phraseology, and as a necessary consequence they furnish the student with the means for clear conception and accurate and precise expression. They familiarize him with leading cases, and the application of them to discussion. They give him the valuable habit of attention, teach him familiar maxims and offer him the priceless opportunities which result from contact and generous emulation. They lead him readily to survey the law as a science, and imbue him with the principles of ethics as its true foundation. Disputing, reasoning, reading, and discoursing becomes his constant exercise; he improves remarkably as he becomes acquainted with them, and obtains progress otherwise beyond his reach.”

According to the late Chief Justice Waite, of the United States Supreme Court, “Law schools are now a necessity;”

and, in his work entitled "The American Commonwealth," Professor Bryce attributes the progress in learning and professional attainments of American lawyers "to the extraordinary excellence of many of the law schools."

It is well that the Professor qualifies his statement by using the word "many," instead of "all," for some of them unfortunately permit persons wanting even in the rudiments of a liberal education to become candidates for diplomas. Such of these persons as manage without further preparation to secure admission to the bar necessarily commit gross mistakes in the technical work of the profession; and, in consequence, clients are misled, judges embarrassed and courts delayed. While it is true that many of them abandon the practice after a precarious experience and turn to pursuits for which they are better qualified, yet the step is attended in some measure with disappointment and humiliation, not to mention the comparative loss of time and means incident to preparing for examination and waiting vainly for success.

The movement in progress to protect and promote the interests of the legal profession has become an obstacle to the continuance of these abuses, exceptional though they be.

It is becoming more difficult year by year to meet successfully the requirements and pass the examinations prescribed for admission to the bar, and law schools are bound to take cognizance of the fact and correspondingly broaden and strengthen their courses of instruction.

METHODS OF INSTRUCTION.

And here it may be in order to refer more particularly to the prevailing methods of instruction in the different law schools. In some of them the text-book system is exclusively followed, and the students read and recite daily an assigned lesson of a given number of pages; in others the lecture system obtains, as in European universities, and stu-

dents familiar with phonography may take notes and sufficiently study the same to be able in subsequent examinations to answer questions bearing upon the subjects studied ; in a few others the study of cases, or case reading, is the favored system, and the students read books of selected cases treating of different branches of the law, with a view to reciting them in outline or writing a brief digest of the points involved ; in certain other schools an effort has been made to combine some of the distinctive features of case reading, text-book work and lecturing, and a mixed or eclectic system is the result. At Notre Dame none of these systems is exclusively followed, although there is a near approach to the last. With careful discrimination the best features of all are comprised in the curriculum here preferred.

The study of cases is usually begun in September and continues long enough to enable students to understand, analyze and criticize the decisions assigned to them for study and recitation. The difficulties encountered by beginners in the work are readily surmounted by the aid of lectures and explanations. In a comparatively short time they become familiar with a number of the leading cases and learn to recognize features of strength or weakness in the opinions of the courts. They learn also to distinguish dicta from the logical sequence of thought in dealing with the proper subjects of judicial determination, and recognize promptly the qualifying or weakening effect of a dissenting opinion. After thus familiarizing themselves with cases, they are advised and expected to read the authorities cited daily in class, whether in the text-books, lectures or quizzes. In the preparation also of written theses from month to month, comprising on an average of fifteen pages of legal cap, they must necessarily consult and cite them. In moot-court work likewise they are incited by the foretaste of forensic contests to make a

careful study not only of the cases in the reports, but also of the pertinent portions of text-books, digests, etc., and thus they are enabled intelligently to marshal the authorities upon which they depend for success in the maintenance of their respective contentions.

In examinations for admissions to the bar the courts of some States require applicants to furnish lists of the text-books they studied, and such as have merely attended lectures or studied cases, instead of reading text-books, encounter danger of being declared ineligible to appear for examination. If they undertake to explain how the law may be learned without studying a certain number of text-books, they find the examiners inclined to listen incredulously, if not openly to express doubt. And if they ask credit for the work done, it is likely to be given so sparingly as to cause disappointment and discouragement. As many law students come from States in which this test is applied, the use of text-books is deemed advisable, if not necessary. But there are other reasons for using them. It has been found, for example, that so many mistakes are made by the average student in committing lectures to writing that his notes are frequently unintelligible or misleading, and consequently worthless for future reference. While it is true that this objection might be overcome by resorting to the slow, if not tedious process of dictation, yet this method of instruction would manifestly be impracticable under present conditions in a domain so extensive as the law. Moreover, the books used by students become peculiarly serviceable in their subsequent practice. Remembering at least in a general way the contents, they can turn more readily than they could with books they had not studied to the pages that elucidate the questions with which they may afterwards have to deal at the instance of courts, clients, and opposing counsel. In some law schools lectures have been

taken in full by certain students skilled in phonography, and then typewritten and sold at so much a page to other members of the class, but this practice has fallen into disuse, having proved to be very unsatisfactory and more costly than text-books.

The lecture or dictation system alone may be pronounced antiquated and impracticable for the reasons already stated, but, in combination with text-book work, case reading and daily examinations, its great value and utility cannot be overestimated. At Notre Dame it forms an important factor in the law curriculum. Each subject is fully covered by lectures, text-book work, daily and bi-monthly examinations, monthly theses, the reading of pertinent cases and formal trials in the moot and other courts of the University.

This course of instruction is comprehensive, thorough and practical. The earnest and industrious student can accomplish twice as much in a given time at Notre Dame as he can in an office or at home. With comparative immunity from the distractions and temptations of city life, he can give his entire time to study and necessary recreation. In short, he can here study a greater number of hours and do more class work day by day than probably anywhere else in the entire country.

The authorities of the University are sincerely in sympathy with the efforts now making in educational and legal circles to raise to the highest plane practicable

THE STANDARD OF PROFICIENCY

for graduation in law and admission to the bar. And yet they aim to be guided in the matter by the dictates of common sense. They know that a great number of worthy and capable young men who desire to qualify themselves for the legal profession are prevented by circumstances from completing the studies of a collegiate course. Such

young men, many of whom may be actively engaged in business, in teaching, journalistic work, and the like, are almost necessarily driven to the chaotic and discouraging study of the law in offices, if denied indulgent consideration by our law schools.

It is conceived to be the duty of a university to do all the good it can to as many as possible, consistently with its curricula and standing; and to that end it ought to aid and encourage worthy and upright, honest and capable young men who manifest an earnest desire to qualify themselves for a useful and creditable career in professional life. With a view to doing its full share in this regard, the University of Notre Dame will welcome to its halls and its classes every deserving young man who desires to pursue and become proficient in the study of the law. But if his standing in collegiate work or general education be not sufficiently advanced he may qualify himself by attending for a period the classes of the preparatory course in which he is found to be deficient.

The earnest student may count upon deriving exceptional advantages from studying law at a university. There the educational atmosphere is elevating, broadening, invigorating. It awakens a wholesome spirit of emulation. It encourages the exercise of all the faculties and intellectual powers. It serves as a potent and salutary force in the development of mind and body. The impressive lesson it inculcates relative to the past, the present and the future—the manifold duties of life—necessarily directs the thoughtful to the paths of knowledge and usefulness. It awakens life-directing forces that else would perhaps ever lie dormant. It tends to turn thought and action toward high ideals, the acquisition of useful knowledge, sturdy self-reliance and a strong sense of moral obligation in the consciousness of increasing power and influence at the bar.

Students who do not intend to become candidates for the degree of LL. B., but wish simply to add to their educational acquirements a knowledge of the

FUNDAMENTAL PRINCIPLES OF THE LAW

may at any time during the year have their names enrolled on the list of special students in law. No extra expense is thereby incurred. Yet they must be sufficiently advanced in age and education to justify the belief that they can understand and appreciate instruction in the law.

The number of such students is likely to increase steadily, for year by year it is becoming more manifest that an education is not complete without a knowledge of at least the elementary legal principles. Many a man in trade has had to face financial ruin on account of want of acquaintance with these principles. Although in theory, at least, every person is presumed to know the law, yet many a man has, by an inconsiderate act due to his ignorance of it, forfeited claim to the protection of the courts and the vindication of his rights. Many a person has been forced to do exactly the contrary of what he intended through his failure to understand the essential elements of a contract. Many a one has been compelled to pay heavy damages for personal injuries caused by negligence, or failure to perform a duty, or improper performance of it, where no liability would exist if the law of torts had been known and observed. As the law is over and around every creature from the first moment of his being until the grave closes upon him and his estate is settled, it would be impossible to overestimate its vital interest and importance. Indeed, there is no study that can at all compare with it in practical utility, in training the mind to accuracy of observation, in strengthening the judgment and in imparting to the faculties the power of discernment implied in what may be called good common sense.

A period of three years is prescribed for undergraduates in the

COURSE OF STUDY

in the Law Department of this University. It leads when satisfactorily completed to the degree LL. B. The Postgraduate course comprises an additional or fourth year, and leads to the degree of LL. M. By its charter this University is empowered to confer these and all other degrees appertaining to the courses of study in educational institutions of the highest rank. There is no university that has greater power under the law in this respect.

The undergraduate law students are divided into three classes, corresponding to each year of the course leading to the degree of LL. B. The Postgraduate course is for students who have received that degree and aim at attaining by further study and practical work to a higher grade of proficiency. A full year of study in each class is obligatory. Moreover, the student must pass a satisfactory general examination at the close of each academic year. Candidates for the degree of LL. B. may be from 18 to 30 or more years of age, and their educational equipment must register at least high school graduation or collegiate standing. Graduates entitled to vote are admitted to the bar on motion by the Supreme Court of Indiana.

In arranging the course of study it is sought to take subjects in their logical sequence. The less difficult, though by no means the less important, come in the First year, while the more technical are dealt with in the Second and Third, or Junior and Senior years, except pleadings and evidence. A knowledge of these renders moot-court work intelligible and profitable, and hence they enter early into the plan of instruction. The moot court practice is an important factor in the course of instruction for all the classes, and there can be no question regarding the advisability of learning and applying its rules of

pleading and evidence at as early a date as practicable. Following are the chief subjects of study and the names of some of the authors of text-books dealing with them:

The Common and Statutory Laws, with Exercises in Case Reading and Statutory Construction.

Black on Interpretation of Laws, Bishop's Written Law, Sutherland on Statutory Construction, Curtis's Federal Statutes.

Law Dictionaries.

Anderson, Black, Bouvier, Shumaker & Longsdorf.

Persons and Domestic Relations.

Tiffany, Dwight, Schouler, Reeves, Rodgers.

The Law of Contracts.

Hammon, Clark, Lawson, Bishop, Beach, Anson, Parsons.

The Law of Torts.

Hale, Jaggard, Cooley, Hilliard, Addison, Bishop's Non-Contract Law, Barrows.

Criminal Law and Procedure.

Clark, Bishop, Heard, May, Hawley & McGregor, Washburn, Wharton, Stephen, Clark & Marshall.

Medical Jurisprudence.

Reese, Dean, Beck, Taylor.

Common Law Pleadings.

Shipman, Gould, Stephen, Shinn, Heard, Chitty, Perry, Bryant.

Code Pleadings and Practice.

Bliss, Maxwell, Boone, Phillips, Thompson on Trials, Elliott's General Practice, Elliott's Appellate Procedure, Foster's First Book of Practice, Estes' Pleadings, Blashfield's Instructions to Juries.

Evidence.

Jones, Underhill, Greenleaf, Wharton, Reynolds, Roscoe, Starkie, Stephen, Best, Lawson, on Expert and Opinion Evidence.

Sales.

Tiffany, Tiedeman, Benjamin, Burdick.

Insurance.

Vance, May, Elliott, Wood, Bliss, Joyce, Kerr.

Agency.

Reinhard, Mechem, Evans, Story, Wharton.

Partnership.

Bates, Shumaker, George, Lindley, Parsons, Pollock.

Equity Jurisprudence.

Fetter, Tiedeman, Eaton, Snell, Story, Adams, Merwin,

Equity Pleadings and Practice.

Fletcher, Shipman, Shinn, Lube, Shipp & Daish.

International Law.

Glenn, Hall, Story, Vattel, Grotius, Woolsey, Wheaton, Halleck, Davis.

Constitutional Law.

Black, Cooley, McClain, Von Holst, Desty, Story, Hamilton, Madison, and Jay in the Federalist.

Private and Municipal Corporations.

Marshall, Clark, Elliott, Beach, Field, Angell & Ames, Dillon, Tiedeman, Wild, Ingersoll.

Personal Property.

Tiedeman, Darlington, Schouler, Smith, Williams.

Real Property.

Hopkins, Tiedeman, Williams, Washburn, Willard, Boone.

Wills, Executors and Administrators.

Gardner, Croswell, Redfield, Jarman, O'Hara, Wigram.

Bailments and Common Carriers.

Hale, Hutchinson, Edwards, Schouler, Story.

Negotiable Instruments or Commercial Paper.

Norton, Tiedeman, Daniel, Chalmers, Randolph.

Suretyship and Guaranty.

Pingrey, Brandt, Baylies, De Colyar, Pitman.

The subdivisions of the principal subjects indicated in the preceding list are, of course, included in the general terms designating those subjects, and it is unnecessary specially to enumerate them. For example, it would be superfluous to refer specifically to Arbitration, Demand, Estoppel, Injunction, Insolvency, Assessment, Taxation, Mandamus, Quo Warranto, Ultra Vires, Recoupment, Set-off, Counterclaim, Debtor and Creditor, and the like, for they are carefully considered and fully explained in connection with the broader subjects to which they relate.

The subjects of study are not necessarily taken, one by one, in consecutive order, as given in the list. Three or four of them may engage the attention at the same time.

By the system of study followed at Notre Dame it is sought to keep each subject before the mind of the student until he firmly grasps and understands it. The practice of teaching to the same class one subject one day, another the next, and still another the day following, as where non-resident professors, each with a different theme, follow daily one the other, is not here favored. Such blending of subjects and intermingling of principles manifestly tend to confusion of thought and chaos of subject-matter. It is admittedly very difficult in such case to comprehend and understand the law as a symmetrical whole—a system majestic and beautiful in its harmonious entirety.

POSTGRADUATE COURSE — FOURTH YEAR.

Only graduates in law are admitted to the Postgraduate course. But these may be from any other university in good standing, as well as from our own Law School. A year can very profitably be given to the work prescribed for graduation in it. The degree conferred is that of Master of Laws. The work of this course is eminently practical and of the greatest possible utility to those who intend to engage in the practice of the profession on their own account at an early date, and not to give two or three years of probation to the drudgery of a clerkship at small salary in some office.

Every year of study greatly increases the interest of the student in the law and his power to understand it. If bright and industrious, he ought to do as much effective work while a Senior as he did during the two preceding years, and his capacity to learn ought to increase in corresponding ratio in the Postgraduate course. By working earnestly and devotedly during the year he can review the studies of the preceding three years and confidently reach out in other directions to acquire additional knowledge. The nature of his work and the subjects of his study may here be briefly indicated :

Study of the Statutes and System of Pleadings of his State.

Practice in taking Depositions.

Frequent participation in Moot-Court Trials.

Arguments on Motions for New Trials.

Preparation of Bills of Exceptions, Briefs, Records and Abstracts of Records in Appeals.

The Framing of Arguments for a Rehearing.

Duties of Masters in Chancery, Referees and Arbitrators.

Duties of Assignees and Receivers; also, of Public Officers.

Examination of Abstracts of Title and the Making of Deeds, Mortgages, Leases, etc., in Conveyancing.

A Critical Study of Pleadings with Reference to Forms and Substance.

Jurisdiction of the Courts, State and Federal.

The Roman Law and Comparative Jurisprudence.

The exercises of the class in office work are attended not only by the students of the Postgraduate course, but also by the Seniors. From a practical point of view, these exercises are highly important, and the change in them annually is sufficient to suggest novelty and make them very interesting and instructive to the students of succeeding years. While even one year of study in this class is admittedly very helpful, if not actually necessary, a second year cannot fail to be singularly beneficial.

THE COMMON LAW

is taught primarily at Notre Dame. This is the law generally prevailing throughout the Union—the law that obtains in the States. It addresses itself to almost all the relations of life. In fact, about nineteen out of every twenty cases tried in our courts are decided in accordance with its principles. It is generally uniform in its operation. But the statutory enactments of State legislators overcome and displace it, so far as in conflict with its provisions. These enactments differ materially in the different States, owing to unlike conditions and local differences. Thus it is that the laws of certain States are so radically unlike the laws of other States. Of course, there are instances in which statutes are passed to cover acts and conditions not provided for by the common law; but in most instances the existing statutes simply declare, qualify or render inoperative some of its rules.

In view of these facts, thorough instruction is here given in the common law. Neither lawyers nor judges pretend to know the statutes of States other than those in which they reside. In fact, a knowledge of the statutes of

different States would be more confusing and bewildering than profitable to judges, lawyers and students. Moreover, they are liable to be radically changed from time to time by legislative bodies representing diverse interests and opinions. In an examination for admission to the bar of this or any other State, no question is put and nothing is said relative to the statutes of sister States. In fact, the States are treated as foreign to one another in law. There are, however, certain fundamental statutory enactments that exist without material diversity in almost all the States. Again, other statutes somewhat less important and fundamental in character exist in groups of States. Such statutes as these may be profitably studied in class, in connection with the common law; but it would be worse than useless for a student to attempt to investigate and study the mazes of statutory differences in the several States. Hence, it is suggested as advisable for each of the Senior and Postgraduate students to procure and have with him for independent study when he comes in September a copy of the revised statutes of his State or the State in which he intends to practice.

THE LAW DEBATING SOCIETY

holds its meetings on Wednesday evenings. All students of the Department are members of it. They are required, each in his turn, to participate in its debates and other exercises. The debates commonly deal with questions germane to the law. But subjects of history, political economy, and the like, are also in favor. An excellent opportunity is afforded at the meetings of the society to develop skill, power and fluency in public speaking. The graces of the elocutionist and the persuasive powers of the orator may here be cultivated and improved. All can increase in force and fluency of thought and expression by attending regularly and participating in the exercises of

this society. Officers are elected twice yearly by the students themselves. They select also a competent critic to note the mistakes made in pronunciation or otherwise by the speakers at each meeting. One of the professors usually presides and aids the members with his counsel and suggestions. A Parliamentary Law meeting, with exercises in elocution and debating, takes place each Wednesday afternoon.

THE LAW LIBRARY

adjoins and communicates directly with the Lecture Room, in Sorin Hall. Students have uninterrupted access to it at all reasonable hours. They may frequent it as often as they choose for the purpose of studying cases, preparing for moot-court trials, finding authorities for their monthly theses, referring to the cases cited in the text-books and lectures, or reading the standard treatises. Every decision rendered for many years by the State, Territorial and Federal courts may here be found. Consequently, students are not required to purchase as many law books as they are obliged to have in other places. The books in the Library may be used by the law students in common as freely as can reasonably be wished, and without charge. The same is true in respect to the vast collection of miscellaneous books in the Lemonnier Library. Law books may be taken from the Library to the Lecture Room for use in moot-court trials, but must afterward be returned. All students have an equal right to use them, being as it were tenants in common in that regard ; but any disposition to invade the common right, whether through selfishness or thoughtlessness, by attempting to make exclusive use of them, as in placing them under cover in desks or taking them to private rooms, is vigilantly guarded against and uniformly discountenanced. Students have an undoubted right to expect that when they need any particu-

lar book they can find it in the Library, and not be compelled to lose valuable time in making inquiry or searching for it elsewhere. All text-books needed by students can be purchased at Notre Dame. They are sold here at the lowest market prices.

No discrimination is made between law students and students of the regular collegiate courses in the matter of

EXPENSES.

The fee for tuition, board, lodging, washing, mending, etc., is fixed at \$400 for the scholastic year. This covers all necessities, and, considering the excellent accommodations, is believed to be exceptionally reasonable. It is said that students elsewhere must pay from \$450 to \$500 a year for like services and accommodations. The cost of books may be estimated approximately at \$25 a year. Students have but little occasion or opportunity to spend money or to cultivate expensive habits; for they study, board and lodge at the University—in an atmosphere favorable for earnest work, and quite apart from the associations and temptations of city life. Terms of payment and other pertinent information may be found elsewhere in this catalogue, under the general caption “Expenses.” No additional charge is made for attending or becoming students of classes in any of the collegiate courses. A special law announcement containing additional information will be mailed free to any address on application to the President of the University.

DISCIPLINE.

The Law students, as well as all others, are expected to be earnest and industrious in the performance of the duties devolving upon them, and to secure this end and the fullest possible utilization of time the same rules of discipline apply to all students. These rules require

promptitude and regularity in class attendance, uprightness in conduct and manliness in deportment. Obedience to them tends to strengthen character, establish wholesome habits and nourish in heart and mind the qualities that mark the true gentleman and persevering scholar, the honored citizen and successful lawyer, the independent thinker and firm believer in the illimitable possibilities of industry, perseverance and self-reliance to win the crown of illustrious achievements in the domain of life.

COMMERCIAL COURSE.

When the character and needs of the country are considered, this course will appear the most practical, and one of the most important that an educational institution can offer.

Those, therefore, who have not the time or means to take a complete college course in the Classics or Sciences, would do well to enroll themselves in the Commercial Course. No plan of study is more injudicious than a haphazard selection of such studies as an inexperienced young man may fancy. The training resulting from a fixed course of studies is of the utmost benefit to the student.

The Commercial Course at Notre Dame has always received the most careful attention from the officers and the Commercial Faculty. Notre Dame claims to give the graduates of this course a more complete business training than can be obtained in any purely commercial college. The authorities require that those entering this course—which may be completed in one year—should be at least 16 years of age and should have completed two years of a regular High school course or its equivalent. Special arrangements, however, will be made for young men who have had no High School training, but who may have had practical business or office experience. Should a pupil desire to pursue any other studies in which he may be interested, and for which he has time, he will have liberty to do so. (All classes in this course are taught daily.)

SENIOR YEAR.

FIRST TERM.

1. **Arithmetic**—Percentage; Ratio and Proportion; as far as Involution and Evolution. Normal Union Arithmetic, *Brooks*.

2. **Bookkeeping**—Preparatory instruction and definitions; Initiatory Sets by Double Entry; Retailing by Double Entry; special practice in writing Business Paper and Business forms. New complete Bookkeeping, *Williams and Rogers*.

3. **Business Practice and Office Work** daily.

4. **English**—Study of the Theory of English Composition; frequent exercise in Essays. The foundation of Rhetoric.

5. **Shorthand and Typewriting**.*

6. **Penmanship**.

SECOND TERM.

1. **Arithmetic**—Percentage, Ratio and Proportion (reviewed); Involution and Evolution; Arithmetical and Geometrical Series; Higher Percentage; Mensuration; Arithmetical Analysis. Higher Arithmetic, *Brooks*.

2. **Bookkeeping**—Single Entry, changing Single to Double Entry; Retailing; Wholesaling; Shipping and Commission; Jobbing; Manufacturing; Installment and State Agencies; Joint Stock Companies; Banking; Railroading. New Complete Bookkeeping, *Williams and Rogers*.

* The shorthand is free to commercial students. A moderate fee is charged for use of typewriter.

3. **Business Practice and Office Work daily.**
4. Special class in Business Correspondence and Commercial Orthography.
5. **Commercial Law**—General principles of Contracts; Agency; Partnership; Corporations; Guaranty; Sale of Goods; Negotiable Paper. *Richardson.*
6. **Penmanship.**
7. **Shorthand and Typewriting continued.**

Preparatory Department.

For the Classical, English and Economic Courses.

[For description of courses see pages 163-174.]

FIRST YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	COURSE	SUBJECTS: SECOND TERM.	Hrs. a Week	COURSE
Latin, - - -	5	A	Latin, - - -	5	A
English, - - -	5	A	English, - - -	5	A
History, - - -	3	A	History, - - -	3	A
Mathematics, -	5	A	Mathematics, -	5	B
Science, - - -	5	B	Science, - - -	3	D

SECOND YEAR.

Latin, - - -	5	B	Latin, - - -	5	B
Greek, - - -	4	A	Greek, - - -	4	A
English, - - -	5	B	English, - - -	5	B
History, - - -	3	B	History, - - -	3	B
Mathematics, -	5	C	Mathematics, -	5	D

THIRD YEAR.

Latin, - - -	5	C	Latin, - - -	5	C
Greek, - - -	4	B	Greek, - - -	4	B
English, - - -	5	C	English, - - -	5	C
History, - - -	3	C	History, - - -	3	C
Mathematics, -	5	E	Science, - - -	3	C
Science, - - -	2	G	Science, - - -	2	G

FOURTH YEAR.

Latin, - - -	5	D	Latin, - - -	5	D
Greek, - - -	4	C	Greek, - - -	4	C
English, - - -	4	D	English, - - -	4	D
Ger. or French	5		Ger. or French	5	
Science, - - -	5	E	Science, - - -	5	F

Students in the English and Economic Courses will begin German or French in the second year instead of Greek and continue it during the two remaining years.

Students that begin French in the second year will take up German in the fourth year. Students that begin German in the second year will take up French in the fourth year. Classical Students will begin French or German in the fourth year.

For the Biological and General Science Courses.

[For description of courses see pages 163-174.]

FIRST YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	COURSE	SUBJECTS: SECOND TERM.	Hrs. a Week	COURSE
English, - -	5	A	English, - -	5	A
Mathematics, -	5	A	Mathematics, -	5	B
Latin, - - -	5	A	Latin, - - -	5	A
Drawing, - -	3	A	Drawing, - -	3	B
Science, - -	5	A	Science, - -	5	D

SECOND YEAR.

English, - -	5	B	English, - -	5	B
Mathematics, -	5	C	Mathematics, -	5	D
History, - -	3	A	History, - -	3	A
Science, - -	5	B	Science, - -	5	C
Latin, - - -	5	B	Latin, - - -	5	B

THIRD YEAR.

English, - -	5	C	English, - -	5	C
Mathematics, -	5	E	Mathematics, -	5	F
German, - -	5	A	German, - -	5	A
Science, - -	5	E	Science, - -	5	E
History, - -	3	B	History, - -	3	B

FOURTH YEAR.

English, - -	5	D	English, - -	5	D
German, - -	3	B	German, - -	3	B
Science, - -	5	F	Science, - -	5	F
Science, - -	2	G	Science, - -	2	G
History, - -	3	C	History, - -	3	C
Civil Gov'n'm't	2	A	Civil Gov'n'm't	2	A

General Science Students will take Trigonometry in the fourth year instead of Civil Government.

Biological Students will take four hours of Drawing in the second term of the third year instead of Mathematics F.

For the Engineering and Architectural Courses.

[For description of courses see pages 163-174.]

FIRST YEAR.

SUBJECTS: FIRST TERM.	Hrs. a Week	COURSE	SUBJECTS: SECOND TERM.	Hrs. a Week	COURSE
English, - -	5	A	English, - -	5	A
Mathematics, -	5	A	Mathematics, -	5	B
History, - -	3	A	History, - -	3	A
Science, - -	5	A	Science, - -	5	D
Drawing, - -	3	A	Drawing, - -	3	B

SECOND YEAR.

English, - -	5	B	English, - -	5	B
Mathematics, -	5	C	Mathematics, -	5	D
History, - -	3	B	History, - -	3	B
Science, - -	5	B	Science, - -	5	C
Civil Gov'rnm't	2	A	Civil Gov'rnm't	2	A

THIRD YEAR.

English, - -	5	C	English, - -	5	C
Mathematics, -	5	E	Mathematics, -	5	F
German, - -	5	A	German, - -	5	A
Science, - -	5	E	Science, - -	5	E
History, - -	3	C	History, - -	3	C

FOURTH YEAR.

English, - -	5	D	English, - -	5	D
Mathematics, -	5	G	Mathematics, -	5	H
German, - -	3	B	German, - -	3	B
Science, - -	5	F	Science, - -	5	F
Science, - -	2	G	Science, - -	2	G

PREPARATORY COURSE.

COURSES IN LATIN.

A.

Grammar—Etymology, *Bennett*.

Exercises—Rudiments of Latin, *Reynolds*.

[*Five hours a week for one year.*]

B.

Grammar—Review of Etymology, Syntax, *Bennett*.

Caesar—Books I.—IV.; or, Junior Latin Book.

Prose Composition—Based on Caesar.

[*Five hours a week for one year.*]

C.

Grammar—Syntax, *Bennett*.

Nepos—Selected Lives.

Sallust—Catiline.

Cicero—Orations I.—III., Against Catiline.

Prose Composition—Based on Authors read.

[*Five hours a week for one year.*]

D.

Grammar—Complete Review.

Cicero—Three Orations, including Pro Lege Manilia.

Vergil—Aeneid, Six Books. The explanations cover peculiarities of Syntax, Figures, Mythology.

Prosody—Study of Hexameter Verse.

Prose Composition—Based on Cicero.

[*Five hours a week for one year.*]

COURSES IN GREEK.

A.

Grammar — Etymology, *Goodwin*.

Exercises — First Greek Book, *White*.

Epitome of the New Testament — Part I., *Stoffel*.

[*Four hours a week for one year.*]

B.

Grammar — Etymology Reviewed, Syntax, *Goodwin*.

Xenophon — Anabasis, Four Books.

Prose Composition — Based on Anabasis.

Epitome of the New Testament — Part II., *Stoffel*.

[*Four hours a week for one year.*]

C.

Grammar — Syntax, *Goodwin*.

Xenophon — Memorabilia, or Hellenica.

Prose Composition.

Homer — Iliad, Six Books. Homeric language and verse. Grammatical explanations.

Epitome of the New Testament — Part III., *Stoffel*.

[*Four hours a week for one year.*]

COURSES IN ENGLISH.

A.

(a) Meiklejohn's *Art of Writing English*, with daily exercises in class. Two themes a week.

(b) The elements of versification. Scansion, one hour a week. Weekly exercises in writing verse. Memory work.

(c) Required reading : Poe's *Poem's*, *Evangeline*, *Fior-etti*, *Snow-Bound*, *The Vision of Sir Launfal*, *Ancient Mariner*, *The Sketch Book*, *Robinson Crusoe*, Poe's *Tales*, *Treasure Island*, *The Merchant of Venice*, *Julius Caesar*.

(Some of these works to be thoroughly studied, at the discretion of the teacher.)

[*Five hours a week for one year.*]

B.

(a) Hill's *Principles of Rhetoric*. Part I., with daily exercises in class. Two themes a week.

(b) The simpler verse-forms. Weekly exercises. Memory work.

(c) Required reading : *The Lady of the Lake*, *Silas Marner*, *The Princess*, *The Flight of the Tartar Tribes*, *The Courtship of Miles Standish*, *Ivanhoe*, *As You Like It*, *Macbeth*.

(Some of these works to be thoroughly studied, at the discretion of the teacher.)

[*Five hours a week for one year.*]

C.

(a) Hill's *Principles of Rhetoric*, Part II., with daily exercises in class. Fortnightly theme.

(b) Verse-forms continued. Weekly exercises. Memory work.

(c) Required reading : *The Golden Treasury of English Lyrics*, Milton's Minor Poems, Macaulay's Essay on Milton, Sir Roger de Coverley, Macaulay's Essay on Addison, Burke's Speech on the Conciliation of America, Webster's Bunker Hill Oration, Lincoln's Gettysburg Oration, *A Midsummer Night's Dream*, *King Lear*.

(Some of these works to be thoroughly studied, at the discretion of the teacher.)

[*Five hours a week for one year.*]

D.

(a) Genung's *The Working Principles of Rhetoric*, Part I., with daily exercises in class. Monthly essay.

(b) Verse-forms concluded. Weekly exercises. Memory work.

(c) Required reading: Selections from *Paradise Lost*, Cary's Dante and Pope's Homer, *The Idyll's of the King*, *The Dream of Gerontius*, Aubrey de Vere's Poems, *The Tempest*, *Hamlet*, Gates' *Selections from Newman*, *The House of the Seven Gables*.

(Some of these works to be thoroughly studied, at the discretion of the teacher.)

[*Four hours a week for one year.*]

COURSES IN HISTORY.

A.

Ancient History — Fisher's *Outlines of Universal History*. The Oriental Nations. The History of Greece and of the Empire of Alexander. The Story of Rome. The Establishment of the Empire, and the rise of Christianity.

[*Three hours a week for one year.*]

B.

Mediaeval History — Fisher's *Outlines*. The Barbarians and their Kingdoms. Mahommedanism and the Saracen Caliphs. The Holy Roman Empire. The Invasion of the Northmen and the Magyars. The Empire and the Papacy. The Crusades. The Great Schism and the rise of the nations of Modern Europe.

[*Three hours a week for one year.*]

C.

Modern History—Fisher's *Outlines*. The Renaissance. The Age of Discovery. The Protestant Reformation. The Power of Spain. The Strifes of France with Spain and Germany. The age of Louis XVI., and the rise of Russia. The Spanish and Austrian Successions. The Empire of England. The American Revolution. The French Revolution and the Wars of Napoleon. The Revolutions and the Spirit of Nationality. The Formation of Germany and Italy.

[*Three hours a week for one year.*]

COURSE IN CIVIL GOVERNMENT.

A.

This is a study of the science of government in connection with American institutions, and is intended to give the student some knowledge of the general principles of government and of the American Constitution. The subject begins by defining government; then is considered the object and necessity of government; origin of civil society; the principle of suffrage; different forms of government defined and compared; theories of representation. These topics necessarily are treated briefly, as the principal part of the course consists of a study of the Colonial governments, the Articles of Confederation and their defects, the formation of the Constitution and its adoption. Now the study comprises a critical analysis of each article and section of the American Constitution, thus enabling the student to acquire a clear conception of the division of powers of the National Government and the duties and responsibilities of each department.

[*Two hours a week for one year.*]

COURSES IN MATHEMATICS.

A.

Algebra — This course for beginners in Algebra includes a study of the primary fundamental principles necessary to the courses which follow. The subjects dwelt upon in particular are Factoring, Highest Common Factor and Least Common Multiple, which are afterward applied in their relation to Fractions and the reduction of Complex Fractions. In as far as possible, concrete examples of their applications to kindred scientific subjects are supplied by the teacher.

[Five hours a week for one term.]

B.

Algebra — In this course the study of Equations is begun and continued through equations of the first degree. Fractional Equations, Systems of Simultaneous Equations, Involution, Evolution, Radicals and Exponents complete the course which is supplemented wherever possible with problems of practical application.

[Five hours a week for one term.]

C.

Algebra — This course begins with Quadratic Equations, Pure and Affected, followed by Systems of Simultaneous Quadratic Equations and those forms of Radical Equations of Higher Degree which may be solved by quadratic methods. Ratio and Proportion, Indeterminate Equations, Surds, Imaginaries, Inequalities, the Progressions and the Binomial Theorem finish the work in this course. As in the preceding courses, special stress is placed upon the application of the theory to such examples as will show its application to elementary scientific subjects.

[Five hours a week for one term.]

D.

Geometry — This subject is completed as far as the end of Plane Geometry and includes a study of the theorems with proofs of exercises and original propositions. The habit of independent thinking is cultivated to some extent by the solution of special problems to concrete nature intended to exhibit the relation of the processes studied to practical examples.

[Five hours a week for one term]

E.

Geometry — The study of Solid Geometry is taken up in this term, the course being an extension of that of the preceding term. Planes, Solid Angles, Polyhedrons, the Cyclinder, Cone and Sphere are all studied in detail and the solution of original exercises and propositions of application is made a feature of the course.

[Five hours a week for one term.]

F.

Algebra and Geometry — This course which continues through one scholastic year is designed especially for those students who wish to take up the study of Engineering. As this necessitates a thorough ground work in mathematics, the first half of the year is given to a review of Algebra and Geometry, three hours and two hours per week respectively. The most important theorems and subjects are again studied and a more comprehensive view of the subject is attained in the generalizing of many theorems and extending the range of others.

[Five hours a week for one term.]

G.

Algebra and Geometry — The work of this term is entirely given up to an elementary exposition of the appli-

cation of mathematics to scientific problems and to analysis. In lectures and class work actual problems representing existing and practical conditions will be taken up, and the derivation of approximate formulæ and an elementary study of curves derived from experiment are included.

[Five hours a week for one term.]

H.

Trigonometry — A half year is given to this subject which includes both Plane and Spherical Trigonometry. The work done is the equivalent of that in most of the elementary text-books. Special attention is given to Goniometry on account of its application to Calculus, and examples of a concrete nature are abundantly supplied.

[Five hours a week for one term.]

COURSES IN SCIENCE.

A.

Physical Geography — An introductory and elementary study of the earth and its environments. The student will be led into a closer sympathy with the world about him. The various types of plant and animal life together with topographical and climatic conditions will be considered.

[Five hours a week for one term.]

B.

Physiology — Lectures, recitations and demonstrations with the stereopticon. The study of the human skeleton including the physiology and hygiene of the bones. The action, relation, structure and hygiene of muscles. The digestive, circulatory and excretory systems demonstrated

by models and charts. The anatomy and structure of the nervous system and simple experiments on the same. Text-book, Martin.

[*Five hours a week for one term.*]

C.

Elementary Botany—A course for beginners in this subject; it includes a study of the higher plants with reference to structure of root, stem, leaf, flower and seed. An introduction to the lower forms of plant life and their classification is also given. Text-book, Bastin's *Elements of Botany*.

[*Three hours a week for one term.*]

D.

Elementary Zoology—Includes an introduction to the subjects with studies of representative forms and their classification in the different groups of the animal kingdom. The subject is taught by recitations and laboratory work. Text-book, Chapin and Rettger.

[*Three hours a week for one term.*]

E. *

(a) **Elementary Chemistry**—An introductory Course of experimental lectures on familiar subjects such as water, the air and its constituents, common salt, etc., leading up to discussions of the more important elements and their properties, and the fundamental laws and phenomena of Chemistry. Reference-book, Remsen.

(b) **Experimental Chemistry**—A Laboratory Course to accompany Course (a). A series of exercises to be performed by each student, and having as their main object the cultivation of the student's powers of observation and faculty of inductive reasoning. These exercises comprise a study of the principal metallic elements, including their

preparation, properties and more familiar compounds. The directions for each experiment are made as brief as possible, the observation of facts and the drawing of correct conclusions therefrom being left, so far as the nature of the experiment will permit, to the pupil.

F. *

Elementary Physics—Instruction in the Elementary Physics is given by lectures and recitations in which the general laws of Mechanics, Heat, Acoustics, Optics, Electricity and Magnetism are presented. The course is intended to meet the needs of those who desire a general knowledge of the subject, as well as to lay the foundations for advanced work. Particular attention is paid to the correct statement of principles so that in his advanced work the student will have nothing to unlearn or relearn.

[Three hours a week for one year.]

The Laboratory Work of this course consists of a series of experiments which verify and apply practically the fundamental principles of Physics. The student also receives instruction in the use and careful handling of apparatus, accurate observation, and correct deduction of results. Neat and concise reports of all experiments are kept by each student and form the basis for the grades in this work.

[Two hours (four hours of actual work) each week for one year.]

G.

Astronomy - Descriptive—This course is intended to give students as much knowledge of astronomical facts as

* For the Preparatory School of Arts and Letters this course consists of four hours of class work and one hour (two hours of actual work) each week for one-half year.

can be obtained with only an elementary training in mathematics. The study consists of a description of the earth; its form, size, density and motion; a study of the moon and her motions; the sun and its relation to the earth; an account of eclipses, refraction and aberration of light. A description of the planets, their distances, dimensions and physical conditions; a study of parallax, diurnal and annual; an account of meteors and comets. A study of the stars and constellations; instruction is given to enable students to name and locate the more prominent. The subject of Cosmogony is considered briefly as well as an explanation of the different systems of Astronomy. The subject is given both by lectures and text-book.

[*Two hours a week for one year.*]

COURSES IN FRENCH.

A.

Houghton's *French by Reading*. *Un Cas de Conscience*.
Super's *Reading from French History*.

[*Five hours a week for one year.*]

B.

French Composition. *L'Avare*, *Le Voyage de M. Perichon*. *Le Roi des Montagnes*.

[*Three hours a week for one year.*]

C.

La Poudre aux Yeux. *Athalie*. *Hernani*. *Les Confessions d'un Ouvrier*. *Le Barbier de Seville*. *Le Malade*

Imaginaire. Les Fourberies de Scapin. Pourceaugnac. Les Facheux. L'Amour Medecia. Le Misanthrope. Cinna. Polyeucte.

[*Two hours a week for one year.*]

COURSES IN GERMAN.

A.

Grammar — *Joynes - Meissner*. Deutches Lesebuch, *Bone*.

Themes — Original and imitative work.

[*Five hours a week for one year.*]

B.

Special Course for students in the English and Scientific Courses.

Grammar — *Joynes - Meissner*.

Readings from scientific and literary works.

[*Three hours a week for one year.*]

C.

Readings from scientific and literary works.

[*Two hours a week for one year.*]

COURSES IN DRAWING.

A.

This work is based on the rudiments of drawing and consists of the training necessary for the hand and the eye. Sketching is also done from simple objects of various forms.

[*Three hours a week for one term.*]

B.

Advance work in sketching from objects such as the plaster cast of flowers and suitable ornaments which afford the study of light and shade.

[Three hours a week for one term.]

GRAMMAR SCHOOL WORK.

The Studies of the Preparatory Department here outlined are equivalent to those of a High School. There is also a Junior Preparatory Department in which are taught all the branches of a Grammar School, the students have every opportunity of preparing themselves as rapidly as possible for High School and collegiate work.

MINIM DEPARTMENT.

For the care and training of boys under the age of thirteen years, there has been established a department to which the most scrupulous attention has always been paid by the college authorities: it is known as the Minim Department.

Thorough and comprehensive instruction in all the elementary branches of an English education is here imparted, together with a rudimentary knowledge of Latin, French and German. Vocal Music and Drawing involve no extra charge. The pupils of this department are taught by Sisters of the Holy Cross.

DISCIPLINE.

The following is the order of the day: Rising at 6:40 A. M., toilet, etc.; seven, breakfast, after which there is a short time given for exercise on the campus; half-past seven, study; half-past nine, luncheon; ten, study; a quarter to twelve, toilet; twelve, dinner, followed by recreation; half-past one, study; half-past three, recreation and luncheon; half-past six, supper and recreation; half-past eight, retiring. From this it may be seen that while the minims devote less than six hours a day to study, they are never more than two hours in succession in the class-room. The recreation and exercise in the fresh air after each two hours of study, unbend the mind and prepare the boys to return to their classes refreshed and ready for work.

The Minims are always under supervision during the hours of recreation as well as in the class-room and the study-hall. The presence, however, of the prefect, is far

from being a restraint on the amusement of the boys; for while it is the duty of the prefects to insist that their young charges shall always keep within the limits of the strictest propriety, they, at the same time, take part in all sports, organize games, and do everything in their power to foster the love for exercise. The play-ground is a broad, level, five-acre field, well supplied with turning poles, swings, ladders, rings, parallel-bars, and all other necessary gymnastic apparatus. That the boys make good use of them can be seen from their healthy, happy appearance, which invariably attracts the notice of visitors. Connected with the play-ground is a brick play-hall, 160 feet long and heated by steam. In this hall the boys play in rainy or cold weather.

The sisters preside at the toilet; they clean and mend the clothing; see to all the needs and to the comfort and convenience of the Minims. Baths are taken every few days. Underclothing is changed regularly. Great care is taken that the boys be neatly dressed, and that the clothing be suitable for the season.

SOCIETIES.

There are two societies in the Minim Department; that of the Guardian Angels of the Sanctuary, which has for its object to supply servers for the Church offices; and the Sorin Association, which has been established with a view to give the pupils a start, as early as possible, in elocution. The society is presided over by one of the professors, who finds it a pleasant duty to draw out the talent of these interesting young orators. Meetings are held once a week, after school hours. These meetings are a source of pleasure as well as of profit. The members prepare original compositions, deliver declamations, are trained to debate, etc. Only the best behaved and more advanced in studies are admitted to membership. To encourage this

young Literary Society, a Gold Medal for Elocution is annually awarded at Commencement to the most deserving member.

GENERAL REMARKS.

The discipline to which the Minims are subjected is much milder than that which is suited to students more advanced in age. Recourse is scarcely ever had to punishment. Those in charge endeavor to govern by kindness and gentleness, and by appealing to the boys' sense of honor. The names of all whose conduct and application to studies are satisfactory appear under the heads of Roll of Honor and Class Honors. To find his name mentioned in these rolls, is found to be as great a reward for the deserving pupil, as its non-appearance is a punishment for the undeserving.

Then, too, there is a Gold Medal awarded at the end of two full years to those whose deportment has been unexceptionable during that period. As this fact is made known to the Minim immediately after his entrance, he generally endeavors to shape his conduct with a view to receiving an "Honor." The greatest care is taken to form their young hearts to habits of virtue, and to inculcate the practice of refined manners. Every effort is made to foster respect and affection for parents, to whom they are expected to write at least once a week.

Not the least of the advantages enjoyed by the Minims, is their complete separation from the larger students. A commodious building, known as St. Edward's Hall, affording ample accommodations for over one hundred pupils, is devoted to their use. It is four stories in height, one hundred and fifty feet long, and forty-five feet wide; heated by steam, supplied throughout with the Edison incandescent electric light, and provided with hot and cold water. The ceiling in the study-hall, class-rooms and sleeping

apartments is fifteen feet high. The windows are large and numerous, affording abundant light and ventilation. The Study-Hall commands a charming view from each of its eleven large windows. It is tastefully decorated with statuary, pictures, plants, etc. Beside the pleasure the Minims derive from studying in this bright, cheerful hall, their tastes are cultured by coming in contact with objects so refining. Fronting the building is a handsome park, which, with its fountains, rare trees and flowers, adds not a little to the beauty of St. Edward's Hall as well as to the happiness of its inmates.

These remarks, which have been made to satisfy parents and others who frequently write for more detailed information, will show that, while the Minims have every advantage to aid them in acquiring a foundation for future study, they have a home, where they enjoy the same ease and freedom that they would enjoy under the care of their mothers. For further information regarding the Minim Department apply for a special catalogue.

EXPENSES, MINIM DEPARTMENT.

(For Students under Thirteen Years of Age.)

Matriculation Fee (First year only).....\$ 10.00
 TUITION, BOARD, WASHING, MENDING, BED and
 BEDDING, etc., per session of nearly ten months, 250.00
 PAYABLE IN ADVANCE, as follows:

FIRST PAYMENT: On Entrance in September:

Matriculation Fee.....\$ 10.00
 Board and Tuition..... 150.00
 Deposit on Book and Stationery Account..... 5.00
 Gymnasium..... 2.50
 Lecture and Concert Course..... 1.00
 Music (optional). For rates see below.

SECOND PAYMENT: On January 15th:

Balance on Board and Tuition.....\$100.00

The charge per session of ten months for Piano lessons, and the use of instrument in this department is \$35; for Violin, Guitar or Mandolin, \$20.

Pupils who remain during the two Summer Vacation Months are charged \$40.

Accounts are subject to sight draft, without notice, if not paid within ten days after they have been rendered.

Each pupil requires six shirts or waists, four suits of underwear, three night shirts, twelve pocket handkerchiefs, six pairs of stockings, six towels, two hats or caps, two pairs of shoes, a pair of rubbers, three suits of clothes, an overcoat, toilet set, blacking brush, soap, and a hand mirror. This direction concerning clothing is a suggestion, not a regulation. Any of the above supplies can be procured through the Students' Office at the University.

CATALOGUE OF STUDENTS

Matriculating during the Scholastic Year from
September, 1904, to June, 1905.

Ade, Glen C.....	Indiana
Adams, Harry E.....	Indiana
Aguero, Wm. P.....	Cuba
Ahern, John F.....	Illinois
Ansoategui, Santiago.....	Puerto Rico
Anderson, Robert E.....	Ohio
Althen, Casper A.....	Illinois
Altgelt, Herman E.....	Texas
Abell, Walter R.....	Maryland
Arnold, Arthur.....	Illinois
Barry, Richard.....	Illinois
Bagby, Claude A.....	Colorado
Brenneck, Charles H.....	Illinois
Byrne, Thomas A.....	Illinois
Beers, Herbert A.....	Ohio
Butler, Thomas P.....	Pennsylvania
Berteling, John F.....	Indiana
Bollu, Henry J.....	Wyoming
Baumgartner, Fred M.....	Indiana
Bradway, Omar F.....	Iowa
Barsatti, Victor.....	Illinois
Babbitt, Bertram H.....	Arizona
Beckmann, Rafael A.....	Mexico
Brennen, Francis.....	Pennsylvania
Brennan, Martin.....	Missouri
Bach, James H.....	Minnesota
Battle, Evaristo R.....	Philippine Islands
Bracken, Robert.....	Illinois
Beacom, Patrick A.....	Iowa
Bosler, Wm. N.....	Kentucky
Burns, Raymoud J.....	Pennsylvania
Borja, Victorino S.....	Philippine Islands
Byrne, Francis P.....	Massachusetts
Baker, Howard S.....	Michigan
Brogan, John F.....	Oregon
Brown, Arthur A.....	Indiana

Brooks, Wm. H.....	Illinois
Bradway, Mark W.....	Iowa
Burke, Cornelius J.....	Indiana
Brodman, Howard C.....	Illinois
Brady, James S.....	Illinois
Beilstein, Coyt E.....	Ohio
Burt, Fidelis N.....	Illinois
Burt, Millard M.....	Illinois
Brown, Lyndon M.....	New York
Brennen, Joseph.....	Pennsylvania
Byrns, Ashton V.....	Michigan
Byrns, William N.....	Michigan
Blakeslee, Raymond S.....	Michigan
Byrne, Paul V.....	Illinois
Brinkmann, Clemens U. F.....	Illinois
Broderick, Lester R.....	Indiana
Baca, Horacio C de.....	Colorado
Baca, Alfredo C de.....	Colorado
Bunn, Edward L.....	Illinois
Broad, Charles Mark.....	Illinois
Bucher, Edmund V.....	Indiana
Beam, Carlos R.....	Illinois
Branen, George D.....	Illinois
Boyle, Joseph A.....	Iowa
Berriault, Arthur J.....	Indiana
Bolger, William A.....	Michigan
Brennan, Daniel P.....	Indiana
Buenger, George A.....	Ohio
Burke, Eugene P.....	Illinois
Burke, Thomas E.....	Illinois

Cleary, Edward P.....	Illinois
Clifford, John E.....	Indiana
Cunningham, James V.....	Illinois
Cunningham, John J.....	Illinois
Collier, Francis T.....	Canada
Clear, C. Eugene.....	Illinois
Clark, J. Raymond.....	Illinois
Corbett, John K.....	Indiana
Cullinan, Edward J.....	Pennsylvania
Connolly, Edward J.....	Illinois
Creveling, Thomas F. H.....	Missouri

Clarke, Matthew G.....	Indiana
Conover, Huntington St. Clair.....	Illinois
Casparis, William R.....	Ohio
Cressy, Sidney A.....	Indiana
Cortina, Manuel A.....	Mexico
Concha, M. Francisco,.....	Peru, South America
Corbett, James J.....	Illinois
Cannon, Dominic J.....	Pennsylvania
Carolin, Ralph J.....	Michigan
Carey, William A.....	Wisconsin
Corcoran, Wendell P.....	Illinois
Cunningham, William B.....	Illinois
Callicrate, Dominic L.....	Indiana
Clarke, Robert R.....	Illinois
Campbell, Matthew A.....	West Virginia
Church, Durant.....	District of Columbia
Coontz, J. Leo.....	Missouri
Canedo, Ignacio.....	Mexico
Canedo, Enrique O.....	Mexico
Cushing, John F.....	Illinois
Cosgrove, Terence B.....	Illinois
Carrigan, Joseph F.....	California
Coryell, Perry C.....	Colorado
Cartier, Antoine.....	Illinois
Cotter, William E.....	Illinois
Connolly, Raymond A.....	Illinois
Cahill, James R.....	Illinois
Comerford, John M.....	Illinois
Comerford, George L.....	Illinois
Carroll, Walter ^d	Ohio
Carroll, Dewey.....	Ohio
Comstock, Walter.....	Illinois
Cullinan, Daniel A.....	Pennsylvania
Cahill, Kieron.....	Minnesota
Craig, Leo F.....	South Dakota
Colahan, Wm. P.....	Pennsylvania
Cruz, Jose L.....	Mexico
Carroll, Richard J.....	West Virginia
Carroll, William.....	Ohio
Caceres, Federico.....	Peru, South America
Corcoran, John J.....	Michigan
Condon, Edward J.....	New York

Cooke, Arthur J.....	New York
Cohen, Samuel A.....	Indiana
Coad, Richard W.....	Nebraska
Curtice, W. H.....	Kentucky
Caparo, Angel.....	Peru, South America
Casparis, Kenneth E.....	Ohio
Cole, Charles E.....	Tennessee
Cahill, James L.....	Illinois
Cain, Patrick C.....	Illinois
Conron, Raymond F.....	Illinois
Dubbs, James A.....	Illinois
Draper, William A.....	Illinois
Duque, Alberto.....	Peru, South America
Donovan, William J.....	South Dakota
Devine, Clement L.....	Ohio
Dwan, Joseph A.....	Illinois
Diebold, Howard J.....	Pennsylvania
Dawson, Joseph P.....	West Virginia
Denniston, Francis P.....	Illinois
Duque, Carlos A.....	Peru, South America
Dunfee, Calvin L.....	Illinois
Drew, Chas. B. P.....	Illinois
Donnelly, Ambrose B. C.....	Michigan
Duarte, Adolfo M.....	Colombia, South America
Dupen, Francis L.....	Wisconsin
Derrick, Frank.....	Pennsylvania
Devaney, Andrew J.....	Indiana
Donovan, Harmor V.....	Pennsylvania
Dechant, William E.....	Ohio
Dinan, Robert L.....	Indiana
Daly, Byrne M.....	Ohio
Drumm, Arthur G.....	Pennsylvania
Dierssen, Herbert O.....	Illinois
Duncan, Walter.....	Illinois
Dirks, John F.....	Colorado
Duckett, Wm. W.....	Michigan
Del Valle, Manuel F.....	Mexico
Dee, Simon R.....	Pennsylvania
Dee, Wm. T.....	Illinois
DuBrul, Clarence J.....	Ohio
DuBrul, Telford A.....	Ohio

Dunn, Richard E.....Arkansas
 Dowling, Herbert P.....Kentucky
 Del Rio, Ignacio.....Mexico
 Donovan, Richard W.....Illinois
 Daschback, Raymond J.....Pennsylvania
 Dent, Alfred C.....Minnesota
 Downs, Morris A.....New York
 Downs, William R.....New York
 Donnelly, Thomas V.....Texas
 Donahue, Wesley J.....Illinois
 Devers, John A.....Pennsylvania
 Durcan, Patrick J.....Illinois
 Donahue, Joseph A.....Indiana
 Donahoe, Leo A.....Michigan
 Dalton, Richard W.....Indiana
 Dempsey, John F.....Ohio
 Duffey, John F.....Wisconsin
 Duffey, Mark M.....Wisconsin

Enriquez, Eduardo W.....Mexico
 East, Carrol W.....Indiana
 Evans, Wm. H.....Massachusetts
 Ehrmann, Frank P.....Ohio
 Esch, August W.....Indiana
 Emerson, William J.....California
 Escher, Edward P.....Pennsylvania
 Eckart, John J.....Oklahoma
 Engledrum, Harry C.....Indiana
 Eden, Clifford D.....Michigan
 Eberhart, Ralph J.....Illinois

Fiffe, Arthur A.....Kansas
 Fitzgibbon, Gerald I.....Illinois
 Frossard, Emil.....Indian Territory
 Freudenstein, Benjamin M.....Mexico
 Fox, John McD.....Wisconsin
 Fansler, Michael L.....Indiana
 Fahey, Bernard S.....Georgia
 Feeley, William P.....Illinois
 Fisher, Harold P.....Kentucky
 Fansler, George D.....Indiana
 Funk, Arthur S.....Wisconsin

Follansbee, Russell C.....	Illinois
Follett, Judson G.....	Iowa
Fanning, Lloyd A.....	Illinois
Fanning, Francis E.....	Illinois
Falvey, Mark D.....	Indiana
Feldbausch, Jacob A.....	Michigan
Feig, Ralph S.....	Indiana
Francisco, Luis.....	Luzon, Philippine Islands
Fox, Mark H.....	Wisconsin
Fransioli, Walter J.....	Tennessee
Franchere, John E.....	Iowa
Farrell, Francis T.....	Illinois
Fox, Oscar A.....	Indiana
Fanger, John C.....	Ohio
Flaherty, James J.....	Illinois
Foik, Paul J.....	Canada
Finnegan, Edward P.....	Illinois
Finnegan, George J.....	New York
Forrestal, Peter P.....	Wisconsin
Galligan, William P.....	Arkansas
Gallart, Juan B.....	Cuba
Garrity, Leo F.....	Illinois
Grande, Rafael F.....	Mexico
Guerra, Arturo L.....	Mexico
Grove, Wm. H.....	Illinois
Garcia, Manuel.....	Mexico
Gray, Neil.....	Michigan
Gray, Reid B.....	Michigan
Gloeckler, Harold C.....	Illinois
Gotfredson, Robert B.....	Wisconsin
Gering, Charles.....	Illinois
Gruber, Earl F.....	Indiana
Gaul, John C.....	Michigan
Golden, Clayton C.....	Michigan
Geoghegan, Harry J.....	New York
Guerra, Samuel J.....	Mexico
Gannon, Thomas J.....	Massachusetts
Gallart, Jose P.....	Cuba
Griffin, Peter M.....	New York
Cowrie, William A.....	Cuba
Gavagan, Francis J.....	Colorado

Genrich, Murl F.....	Michigan
Greene, Thomas E.....	Illinois
Gottran, John F.....	Ohio
Gerrard, Simon D.....	Indiana
Geary, Arthur M.....	Pennsylvania
Gallagher, Martin.....	Michigan
Greene, Clarence W.....	Illinois
Goulden, George B.....	Illinois
Gray, Richard D.....	Michigan
Gagen, Harry E.....	Indiana
Guthrie, David J.....	Illinois
Gehlert, Thomas J.....	Michigan
Guerra, Gustavo I.....	Mexico
Galligan, James J.....	New York
Gorka, Stanislaus J.....	Indiana
Gruza, Stanislaus A.....	Indiana
Gavin, Stephen A.....	Pennsylvania
Hammer, Thomas A.....	New York
Hill, Edwin W.....	Illinois
Harris, Thomas M.....	Illinois
Healy, Thomas F.....	Illinois
Hidalgo, F. Arturo.....	Peru, South America
Hannigan, John J.....	Michigan
Hutzell, Oscar D.....	Indiana
Haney, Charles E.....	Indiana
Hartzer, Francis W.....	Indiana
Hughes, John J.....	Illinois
Hoban, Martin C.....	Indiana
Hughes, Wm. M.....	Nebraska
Hogan, Leo J.....	Ohio
Hart, Laurence A.....	Pennsylvania
Houser, Benjamin J.....	Indiana
Harrison, Edmund H.....	New Mexico
Harrison, George M.....	New Mexico
Hilton, Carl H.....	New Mexico
Heeb, Louis B.....	Illinois
Hirtenstein, Joseph.....	Illinois
Hickman, Harold E.....	New York
Hill, Forest R.....	Iowa
Hilton, Albertus A.....	Illinois
Holliday, Charles J.....	Illinois

Hanzel, Francis J.....	Minnesota
Hoff, Albert S.....	Wisconsin
Hermann, George A.....	Illinois
Hurst, Roscoe P.....	Illinois
Hudson, Thomas L.....	Ohio
Harbin, Frank W.....	Tennessee
Harman, Robert W.....	West Virginia
Hunt, Andrew L.....	Ohio
Higgins, Harry C.....	Illinois
Herr, Stephen H.....	Illinois
Harrington, Raymond R.....	Illinois
Hickey, Karl F.....	Ohio
Hilton, Hoyt W.....	Illinois
Hartnett, Wm. A.....	New York
Halloran, James P.....	South Dakota
Heyl, Wm. J.....	Pennsylvania
Hazinski, Alexander S.....	Indiana
Harman, John D.....	West Virginia
Hague, Harry G.....	Illinois
Hennessey, William J.....	Colorado
Hagerty, Timothy P.....	Indiana
Hagerty, Cornelius J.....	Indiana
Haggerty, Patrick J.....	Pennsylvania
Hanyz, Martin J.....	Indiana
Heiser, Allen J.....	Indiana
Horworth, George J.....	Indiana
Hebert, Alfred J.....	Michigan
Hebert, Peter X.....	Michigan
Hosinski, Sylvester A.....	Indiana
Ill, Alphonse P.....	Ohio
Joyce, Walter L.....	Wisconsin
Jaskowiak, Wenceslaus I.....	Indiana
Jordan, James D.....	Pennsylvania
Jamieson, William D.....	Illinois
Jones, Edward H.....	Iowa
Jones, Harrod M.....	Iowa
Jarquín, Manuel E.....	Cuba
Jennings, James E.....	Indiana
Johnson, Charles H.....	South Dakota
Keach, Leroy J.....	Indiana

King, Charles B.....	Pennsylvania
Kennedy, Alexander J.....	Illinois
Kasper, Francis P.....	Illinois
Kemper, Henry M.....	Illinois
Knox, DeWitt.....	Utah
Knox, George G.....	Utah
Kamm, Adolph X.....	Indiana
Kelley, Clarence J.....	Illinois
Kyle, Joseph F.....	Illinois
Kuhn, Henry T.....	Michigan
Kinney, John E.....	Ohio
Kenney, James L.....	Ohio
Kelley, Charles H.....	Minnesota
Knauf, Arthur R.....	Wisconsin
Krost, Gerard N.....	Indiana
Knight, Edgar L.....	Michigan
Kasper, Wm. H.....	Illinois
Keefe, Daniel J.....	Michigan
Kelley, Louis J.....	Indiana
Kenny, Edward J.....	Pennsylvania
Kennedy, Clarence J.....	Illinois
Keefe, Edward J.....	Michigan
Kotte, Albert A.....	Ohio
Kasper, Robert A.....	Illinois
Keefe, James T.....	Iowa
King, Thurman P.....	Wisconsin
Kelly, Paul W.....	Indiana
Kuhn, Adelbert J.....	Michigan
Koenig, Norman H.....	Michigan
Kelly, John W.....	Indiana
Kenefick, Matthew J.....	Indiana
Kenny, Thomas J.....	Pennsylvania
Krembs, Moritz.....	Wisconsin
Kuhn, Ferdinand J.....	Michigan
Kranz, Chester R.....	Iowa
Kranz, Wilbur C.....	Iowa
Kranz, Donald A.....	Iowa
Kranz, Herbert E.....	Iowa
Krause, Edmund E.....	Illinois
Kobak, Edgar.....	Illinois
Kasper, Simeon M.....	Illinois
Kesselhuth, Howard W.....	Wisconsin

Kavanaugh, John R.....	Illinois
Landenberger Carl S.....	Illinois
Lawler, Francis J.....	Kentucky
Lawler, William C.....	Kentucky
Lennertz, William A.....	Ohio
Lahey, Thomas A.....	Indiana
Lucas, Philip H.....	Indiana
Lewis, Joel C.....	Illinois
Lange, Bernard H.....	Pennsylvania
Lunden de, Charles.....	Belgium
Lynch, John D.....	Illinois
Lantry, Joseph T.....	Illinois
Lally, Addis E.....	Iowa
Lyons, Thomas D.....	South Dakota
Loughran, Francis J.....	Illinois
Little, Josiah.....	Illinois
Lawrence, Roscoe E.....	Illinois
Louisell, Clifton M.....	Alabama
Langdon, J. LeRoy.....	Nebraska
Langendorf, Samuel.....	Illinois
Lynch, John J.....	Illinois
Lamb, Rex E.....	Michigan
Lawless, John C.....	Illinois
Lannan, Dennis E.....	Illinois
Lechleitner, George J.....	New York
Medrano, Joachim H.....	Cuba
Murphy, Daniel L.....	Illinois
Moran, Joseph A.....	Indiana
Mallman, Ludwig.....	Wisconsin
Morazzani, Antonio S.....	Puerto Rico
Murphy, John P.....	Indiana
Murphy, Michael C.....	Pennsylvania
Monaghan, Edward J.....	Pennsylvania
Madden, Daniel L.....	Illinois
Moran, John B.....	Michigan
Maguire, Thomas O.....	Illinois
Miller, Hugh E.....	Ohio
Milius, George A.....	New York
Mahoney, Henry C.....	New York
Martin, Lester G.....	Missouri

May, Henry F.....	Rhode Island
Miltner, Charles C.....	Michigan
Mannion, Thomas L.....	Canada
Mathis, Michael A.....	Indiana
Miller, Paul J.....	Indiana
Misch, Edgar J.....	Ohio
Marshall, Charles J.....	Ohio
Maher, Thomas F.....	Indiana
Malony, William J.....	Indiana
Moore, John E.....	Illinois
Malloy, Bernard J.....	Illinois
Munoz, Manuel D.....	Colombia, South America
Munoz, Gonzalo.....	Colombia, South America
Munoz, Ignacio C.....	Colombia, South America
Milner, Jay S.....	Utah
Muriel, Manuel.....	Mexico
Murray, Francis J.....	Illinois
Marquez, Miguel J.....	Cuba
Martinez, Hermilo.....	Mexico
Miller, Earl F.....	Wisconsin
Madden, Ralph C.....	Illinois
Muriel, Jose.....	Mexico
Malloy, Patrick M.....	Iowa
Murphy, William V.....	Illinois
Miller, Adolph S.....	Colorado
Mangan, Louis A.....	North Dakota
Medrando, Higinio.....	Cuba
Minotti, Charles R.....	West Virginia
Martinelli, Gregorio E.....	Peru, South America
Mahoney, Daniel F.....	New York
Martin, James J.....	Illinois
Morrison, Denis A.....	Iowa
Maroney, Joseph J.....	Indiana
Mooney, Edward L.....	Minnesota
Molina, Alejandro E.....	Peru, South America
Milne, Guy W.....	Illinois
McCullough, John A.....	Illinois
McFarland, Clarence J.....	Ohio
McMann, George W.....	Illinois
McAleenan, Howard W.....	Illinois
McDermott, Edward L.....	Pennsylvania
McMorran, William E.....	Illinois

McKindley, Daniel E.....	Indiana
McCaffrey, John M.....	Indiana
McKindley, Hugh A.....	Indiana
McCawley, Francis J.....	Kentucky
McCauley, Hugh B.....	Rhode Island
McGinn, John C.....	Rhode Island
McQuaid, William A.....	Indiana
McElhone, Francis J.....	Pennsylvania
McGlew, Henry J.....	Indiana
McFadden, George J.....	Iowa
McKearney, William A.....	Ohio
McInerny, Joseph W.....	Indiana
McNerny, Lawrence ..	Illinois
McFarland, Alex. W.....	Ohio
McNabb, Clyde L.....	Illinois
McNair, John G.....	Missouri
McGinnis, Owen M.....	Illinois
McClung, James F.....	Indiana
McDermont, Horace G.....	New York
McCabe, Laurence B.....	Pennsylvania
McDonald, Lawrence.....	Illinois
McDonald, David.....	Illinois
McLoughlin, George G.....	Illinois
McCann, Charles A.....	Nebraska
McGuinness, Michael J.....	New Mexico
McGrath, Frank.....	Ohio
McBride, Edmund L.....	Pennsylvania
McNamara, Adrain A.....	New York
McGannon, Thomas P.....	New York
McIntyre, Palmer.....	Illinois
McCarty, Franklin B.....	Massachusetts
McDonald, Cassius M.....	Illinois
McDonald, Edwin A.....	Texas
McCarthy, Frank A.....	Iowa
McCarty, William H.....	Massachusetts
McDermont, Charles T.....	New York
McDermont, Chapman H.....	New York
McCaffrey, John A.....	Pennsylvania
McDermott, Charters M.....	Wisconsin
McEvoy, Thomas P.....	New York
Nieto, Francisco G.....	Mexico

Nugent, Fred G.....Illinois
 Nelson, John W.....Illinois
 Niedbalski, Stanislaus W.....Indiana
 Nabers, Theodore H.....Iowa
 Nieto, Alfredo G.....Mexico

O'Shea, John P.....Indiana
 O'Neill, John W.....Wisconsin
 O'Neill, John C.....Illinois
 O'Connor, Daniel J.....Illinois
 O'Connor, John J.....Indiana
 O'Gorman, Samuel.....Massachusetts
 Opfergelt, Edward A.....Illinois
 O'Donnell, T. Raymond.....Indiana
 Olston, Francis M.....West Virginia
 O'Reilly, Francis W.....Kansas
 O'Leary, James.....Illinois
 O'Brien, William C.....Ohio
 O'Donnell, Walter J.....Michigan
 O'Donnell, Charles L.....Indiana
 O'Shea, William J.⁹.....Indiana
 O'Shea, Denis A.....Illinois
 Oberst, Albert P.....Kentucky
 O'Brien, John F.....Indiana
 O'Brien, Karl P.....Pennsylvania
 O'Brien, Simon A.....New York
 O'Connell, Ambrose A.....Iowa
 O'Flynn, Edward F.....Montana
 Ortiz, Manuel I.....Puerto Rico
 O'Mara, John T.....Illinois
 O'Connor, Maurice P.....Indiana
 O'Connor, Charles B.....New York
 O'Donnell, Aloysius J.....Pennsylvania

Perce, William E.....Illinois
 Pino, Arturo.....Peru, South America
 Pohlman, John F.....Indiana
 Pryor, Francis J.....Colorado
 Pardo, Pedro.....Mexico
 Powers, Leo F.....New York
 Power, Leo E.....Illinois
 Papin, Henry L.....Ohio

Parish, Varnum A.....	Illinois
Paine, Robert E.....	Texas
Powell, William P.....	Illinois
Peterman, Franklin H.....	Louisiana
Probst, Rudolph O.....	Indiana
Perez, Juan P.....	Cuba
Palomar, Luis.....	Mexico
Paupa, Joseph.....	Illinois
Prada, Jose V.....	Mexico
Price, F. Marion.....	Missouri
Pulver, Herbert R.....	Illinois
Peil, Edward F.....	Wisconsin
Parker, George H.....	Michigan
Parker, John J.....	Virginia
Pagaduan, Wm.....	Philippine Islands
Popp, Thomas J.....	Pennsylvania
Quinn, John C.....	Pennsylvania
Quevedo, Manuel G.....	Mexico
Quiros, Franciso A.....	Mexico
Quinlan, Norbert A.....	Illinois
Quinlan, James J.....	Illinois
Quinlan, Joseph A.....	Illinois
Quigley, James F.....	North Dakota
Ryan, D. Arthur.....	Minnesota
Roach, Norman L.....	Ohio
Roach, Joseph A.....	Ohio
Roach, John W.....	Iowa
Reed, Penrose.....	Wyoming
Reisner, Benjamin A.....	Texas
Rousseau, Edward L.....	Nebraska
Railton, Raymond A.....	Illinois
Rush, Eugene A.....	Illinois
Riley, Thomas H.....	Indiana
Riley, William J.....	Indiana
Roan, Frank J.....	Ohio
Ryan, Ralph P.....	Minnesota
Roy, Charles J.....	Indiana
Riordan, Michael J.....	Michigan
Rozewicz, Anthony V.....	Indiana
Ryan, Thomas E.....	Illinois

Ryan, John P.....	Illinois
Rennacker, Roy G.....	Illinois
Riordan, Stephen F.....	Illinois
Rush, Charles E.....	Indiana
Rayneri, Virgilio N.....	Cuba
Roberts, Harry N.....	Illinois
Rabb, Donald S.....	Illinois
Rothinghouse, Ernest.....	Indiana
Rubio, Ramon G.....	Cuba
Ronin, Fred J.....	Illinois
Russell, William C.....	Illinois
Rousseau, Benjamin A.....	Illinois
Roberts, Thomas B.....	South Dakota
Rempe, George A.....	Illinois
Richmond, LeRoy A.....	Minnesota
Roe, Benjamin.....	Illinois
Roe, Maurice.....	Illinois
Rempe, Lester W.....	Illinois
Ryan, Wm. P.....	Illinois
Richmond, Wilfred A.....	Minnesota
Robertson, John M.....	Colorado
Roberts, Godfrey M.....	South Dakota
Reasoner, Cherry.....	Tennessee
Rubio, Marcelino G.....	Cuba
Rubio, Manuel G.....	Cuba
Robinson, Wm. F.....	Mississippi
Rowan, George L.....	Iowa
Rico, Graciano.....	Philippine Islands
Rice, Wm. H.....	Pennsylvania
Reiss, Clemens A.....	Wisconsin
Smith, Leonard F.....	Indiana
Singeon, Edgar J.....	Illinois
Schmitt, William C.....	Minnesota
Sullivan, George C.....	Illinois
Sheehan, John W.....	Illinois
Sariñana, Federico.....	Mexico
Schwab, Edward H.....	Pennsylvania
Saley, Robert L.....	Iowa
Suarez, Eladio.....	Cuba
Sullivan, William.....	Ohio
Symonds, Edward L.....	Illinois

Sorg, Claude A.....	Ohio
Sullivan, Francis J.....	Ohio
Schmitt, Alfred H.....	Ohio
Sawyer, John X.....	Pennsylvania
Schwartz, Frank A.....	Illinois
Sauerhering, Alolph L.....	Wisconsin
Symonds, Henry R.....	Illinois
Springer, Albert G.....	Colorado
Smith, Harry C.....	Illinois
Stout, Walter S.....	Canada
Schroeder, Henry J.....	Michigan
Sexton, Thomas G.....	Illinois
Schick, Francis.....	Indiana
Sariñana, Enrique.....	Mexico
Sariñana, Alfonso.....	Mexico
Smith, Charles J.....	Illinois
Schneider, Harold C.....	Illinois
Smith, F. Dickason.....	Illinois
Schmitt, Rudolph J.....	Ohio
Schmitz, Frank A.....	Illinois
Sanchez, Carlos.....	Mexico
Sloan, Thomas J.....	Illinois
Stueve, Winfred H.....	Ohio
Scott, Albert F.....	Illinois
Strauss, Fred H. A.....	Illinois
Scales, John J.....	New York
Stoakes, L. Mitchell.....	Pennsylvania
Scott, Robert E.....	Washington
Seidel, Frederick W.....	Indiana
Stuhlfauth, Jacob.....	Wisconsin
Sheedy, Joseph A.....	Canada
Steiner, William A.....	Pennsylvania
Szamecki, Stanislaus P.....	Indiana
Sypniewski, Stanislaus A.....	Indiana
Syzbowicz, Leo J.....	Indiana
Sobolewski, Wenceslaus C.....	Illinois
Shaughnessey, Francis J.....	Illinois
Sudheimer, Thomas W.....	Minnesota
Silver, Nathan.....	Illinois
Simon, Arturo T.....	Cuba
Shea, John F.....	Massachusetts
Shea, Michael J.....	Massachusetts

Salmon, Louis J.....New York
 Sinnott, Joseph D.....Oregon
 Stevens, Walter A.....Indiana
 Sheehan, Clarence J.....Illinois
 Stopper, Anthony J.....Pennsylvania
 Shenk, Robert R.....Ohio

Timmins, Charles J.....Pennsylvania
 Tillett, Grover C.....Indiana
 Thoward, Benjamin F.....Indiana
 Tufts, Irving S.....Michigan
 Tufts, John R.....Michigan
 Taylor, James A.....Illinois
 Tello, Manuel A.....Peru, South America
 Tello, Ricardo A.....Peru, South America
 Tyler, Carl B.....Ohio
 Terry, Clifford H.....Illinois
 Torre Franca, Cirilo.....Philippine Islands
 Trumbull, Selden.....Illinois
 Thompson, Roy S.....Illinois
 Taylor, Clifford V.....Illinois
 Talifero, William A.....Michigan
 Toth, Joseph M.....Indiana
 Tracy, Charles L.....Michigan
 Toba, Francisco.....Mexico
 Trevino, Ricardo A.....Mexico
 Trevino, Gustavo L.....Mexico
 Tobin, Thomas.....South Dakota
 Thompson, Edward A.....Michigan

Ungson, Rafael G.....Philippine Islands
 Uribe, Rafael.....Mexico
 Upman, Walter F.....Illinois
 Uhrich, Maurus J.....Washington

Vernaza, Guillermo O.....Colombia, South America
 Veazey, Oscar E.....West Virginia
 Vanderhoof, Edward F.....Indiana
 Vernaza, Carlos N.....Colombia, South America
 Vallejo, Vincente.....Colombia, South America
 Vallejo, Alfonso.....Colombia, South America
 Vallecilla, Leonardo.....Colombia, South America

Voigt, John R.....	Indiana
Vogel, Frank H.....	Ohio
Villanueva, Augustin P.....	Mexico
Villanueva, Luis S.....	Mexico
Van Rie, Leo P.....	Indiana
Woods, James A.....	Colorado
Weber, C. Russell.....	Illinois
Wessell, John H.....	Ohio
Wilce, Horace D.....	Illinois
Wessell, Herbert J.....	Ohio
Wittenberg, Jack C.....	West Virginia
Washburn, George E.....	Illinois
Williams, Lawrence A.....	Pennsylvania
Wessel, Charles H.....	Ohio
Warren, Homer S.....	Illinois
Welsh, Leo J.....	Illinois
Wilson, Richard B.....	Illinois
White, Wm. A.....	Illinois
Weist, John L.....	Washington
Weinman, Cletus A.....	Ohio
Woolverton, Earl E.....	Indiana
Watts, Leo.....	Ohio
White, Benjamin H.....	Illinois
Wunsch, Edmund G.....	Minnesota
Wenninger, Francis J.....	Indiana
Weisbecker, Aloysius J.....	Indiana
Wroble, John W.....	Indiana
White, G. Roy.....	Illinois
White, Robert L.....	Illinois
Whalen, Joseph M.....	Iowa
Watkins, James.....	Michigan
Wrape, Harold J.....	Missouri
Winter, Wm. J.....	Pennsylvania
Winter, August A.....	Pennsylvania
Winter, Charles A.....	Pennsylvania
Wagner, Louis E.....	Illinois
Waldorf, Rufus W.....	Illinois
Worden, John.....	New York
Wadden, John W.....	South Dakota
Welch, Thomas J.....	Illinois

Young, Elvie E.....	Indiana
Yrisarri, Jacobo J.....	Mexico
Yrisarri, Eduardo C.....	New Mexico
Zink, Frank A.....	Ohio
Zerhusen, Francis X.....	Kentucky

Sixty - First
Annual Commencement.

CONFERRING OF DEGREES.

The Degree of Doctor of Laws was conferred on

The Honorable Marcus Kavanagh, Chicago, Illinois.

The Degree of Master of Arts in Philosophy was conferred on

Michael J. Shea, Holyoke, Massachusetts.

The Degree of Bachelor of Arts was conferred on

Bernard S. Fahy, Rome, Georgia.

The Degree of Bachelor of Letters was conferred on

William Duffen Jamieson, Chicago, Illinois.

Henry M. Kemper, Chicago, Illinois.

The Degree of Bachelor of Philosophy was conferred on

Daniel J. O'Connor, Chicago, Illinois.

The Degree of Civil Engineer was conferred on

Louis J. Salmon, Syracuse, New York.

Virgilio N. Rayneri y Piedra, Havana, Cuba.

Walter A. Stevens, Logansport, Indiana.

John C. O'Neill, Chicago, Illinois.

The Degree of Mechanical Engineer in Electrical Engineering was conferred on

Ricardo A. Trevino y Barrera, Monterey, Mexico.

The Degree of Bachelor of Science in Biology was conferred on

John Worden, Ossining, New York.

John Read Voigt, Jeffersonville, Indiana.

Clarence J. Kennedy, Chicago, Illinois.

The Degree of Bachelor of Science was conferred on

John William O'Neill, Mineral Point, Wisconsin.

The Degree of Bachelor of Laws was conferred on

Durant Church, Washington, District of Columbia.

Earl F. Gruber, Union City, Indiana.

Francis J. Loughran, Joliet, Illinois.

William J. Mahoney, Brookfield, Massachusetts.

Henry J. McGlew, Notre Dame, Indiana.

Daniel L. Murphy, Odell, Illinois.

John J. O'Connor, Delphi, Indiana.

Edward H. Schwab, Loretto, Pennsylvania.

Thomas J. Welch, Moline, Illinois.

The Degree of Graduate in Pharmacy and Pharmaceutical Chemist was conferred on

Joseph Alfred Moran, Indianapolis, Indiana.

The Degree of Graduate in Pharmacy was conferred on

Patrick Ambrose Beacom, Sheldon, Iowa.

Charles A. M. Winter, Pittsburg, Pennsylvania.

Leo P. Van Rie, Mishawaka, Indiana.

Joaquin H. Medrano y Polanco, Guantanamo, Cuba.

Certificate for Short Course in Electrical Engineering was conferred on

Raymond J. Burns, Pittsburg, Pennsylvania.

Howard J. Diebold, Pittsburg, Pennsylvania.

COMMERCIAL DIPLOMAS.

Commercial Diplomas were awarded to

Thomas P. Butler, Allegheny, Pennsylvania.

George E. Washburn, Chicago, Illinois.

Herbert P. Dowling, Lexington Kentucky.

John C. Fanger, Cincinnati, Ohio.

Mark T. Falvey, San Pierre, Indiana.

Lawrence McDonald, Seward, Illinois.

David McDonald, Seward, Illinois.

John W. Nelson, Illiopolis, Illinois.

Manuel G. Rubio, Sancti Spiritus, Cuba.

Edward G. Wunsch, Morris, Minnesota.

Charles P. Holliday, Monmouth, Illinois.

James Allan Dubbs, Mendota, Ill.

PRIZE MEDALS.

The Quan Gold Medal, presented by Mr. Henry Quan, of Chicago, for the student having the best record in the Classical Course, senior year, was not awarded.

The Mason Gold Medal, presented by Mr. George Mason, of Chicago, for the student of Carroll Hall having the best record for the scholastic year was awarded to

Lawrence A. Williams, East Pittsburg, Pennsylvania.

The Meehan Gold Medal, for English Essays, presented by Mrs. James Meehan, Covington, Kentucky, was not awarded.

The Breen Gold Medal, for Oratory, donated by the Hon. William P. Breen, LL. D., '02 of Fort Wayne, was awarded to

Stephen A. Gavin, Scranton, Pennsylvania.

The Ellsworth C. Hughes Gold Medal, presented by Mr. A. S. Hughes, Denver, Colorado, for the best record in Mathematics (Civil Engineering Course) was not awarded.

The Chicago Alumni Association Gold Medal, for Christian Doctrine in Sorin Hall, was awarded to

Henry M. Kemper, Chicago, Illinois.

The Gold Medal for Christian Doctrine in Moral Course A, 1st Division, was awarded to

John J. Scales, Brooklyn, New York.

The Gold Medal for Christian Doctrine in Moral Course A, 2d Division, was awarded to

Frank A. McCarthy, Britt, Iowa.

The Quinn Gold Medal for Christian Doctrine in Moral Course B, 1st Division, presented by the Rev. John J. Quinn, A. B., '83, Pastor, St. John's Church, Peoria, Illinois, was awarded to Franklin B. McCarty, Lynn, Massachusetts.

The Fitzsimmons Gold Medal for Christian Doctrine in Moral Course B, 2d Division, presented by the Reverend M. J. Fitzsimmons, Rector of Holy Name Cathedral, Chicago, was awarded to Edward J. Condon, Dobbs Ferry, New York.

The Gold Medal for Christian Doctrine in Moral Course B, 3d Division, was awarded to John F. Brogan, The Dalles, Oregon.

The Mooney Gold Medal for Christian Doctrine in Carroll Hall, First Course, presented by the Rev. Nathan J. Mooney, '77, Rector of St. Columbkille's Church, Chicago, was awarded to Thomas P. Butler, Allegheny, Pennsylvania.

The Gold Medal for Christian Doctrine in Moral Course B, 4th Division, was awarded to David McDonald, Seward, Illinois.

The Barry Gold Medal for Christian Doctrine in Carroll Hall, Second Course, presented by the Rev. F. J. Barry, Chancellor of the Archdiocese of Chicago, was not awarded.

The Commercial Gold Medal for the best record in Senior Class, Commercial Course, was awarded to David McDonald, Seward, Illinois.

Gold Medal for the best record in the last two years of the Preparatory Latin Course was awarded to Thomas L. Mannion, Arin Prior, Canada.

Seventy-Five Dollars in Gold, presented in memory of the late Hon. Clement Studebaker, South Bend, Indiana, for debating work, was awarded as follows:

FORTY DOLLARS to William A. Bolger, Chicago.

TWENTY DOLLARS to Terrence B. Cosgrove, Seneca, Illinois.

FIFTEEN DOLLARS to Patrick A. Malloy, Salix, Iowa.

The Barry Elocution Medal in the Collegiate Department, donated by the Hon. P. T. Barry of Chicago, was awarded to

William Duffen Jamieson, Chicago, Illinois.

The Gold Medal for Elocution in the Preparatory Course was awarded to

Hoyt W. Hilton, Chicago, Illinois.

ST. EDWARD'S HALL.

The Abercrombie Gold Medal for General Excellence was awarded to

William P. Ryan, Lake Forest, Illinois.

The Sorin Elocution Gold Medal was awarded to Joseph Hirtenstein, Chicago, Illinois.

The Gold Medal for Composition was awarded to Francis Schick, Terre Haute, Indiana.

The Gold Medal for Letter -Writing was awarded to Jose V. Prada, Celaya, Mexico.

The Gold Medal for Penmanship was awarded to Carlos A. Duque, Cuzco, Peru, South America.

The Gold Medal for Politeness was awarded to
Horace G. McDermont, New York City.

The Gold Medal for Mandolin was awarded to
Edward F. Peil, Racine, Wisconsin.

The Gold Medal for Violin was awarded to
Herbert E. Kranz, Des Moines, Iowa.

The Gold Medal for Christian Doctrine was awarded to
Joseph Brennan, Philadelphia, Pennsylvania.

The Silver Medal for Violin was awarded to
Benjamin Roe, Chicago, Illinois.

The Silver Medal for Composition was awarded to
William E. Cotter, Chicago, Illinois.

The Silver Medal for Penmanship was awarded to
Paul V. Byrne, Lake Forest, Illinois.

The Silver Medal for Letter-Writing was awarded to
Lester W. Rempe, Chicago, Illinois.

The Silver Medal for Improvement in Letter-Writing was
awarded to
Antoine Cartier, Chicago, Illinois.

The Silver Medal for Improvement in Vocal Music was
awarded to
Ashton V. Byrns, Ishpeming, Michigan.

The Silver Medal for Improvement in Piano was awarded
to
J. LeRoy Langdon, Gretna, Nebraska.

FIRST HONOR AWARDS.

[First Honors are awarded to students of Sorin, Corby, Brownson, and St. Joseph Halls who have attained an average of at least 90 per cent. for scholarship and deportment during the scholastic year. The first honor awarded for the first year takes the form of a diploma; that awarded for two years of satisfactory work is a gold medal. This medal may be renewed from year to year.]

SORIN HALL.

First Honor Gold Medals were awarded to
Harold P. Fisher, Paducah, Kentucky.
Clarence J. Kennedy, Chicago, Illinois (renewal).
John Reed Voigt, Jeffersonville, Indiana.
Ricardo A. Trevino, Monterey, Mexico.
Evaristo R. Batlle, Barcelona, Spain (renewal).

CORBY HALL.

First Honor Gold Medals were awarded to
Edwin A. McDonald, Houston, Texas.
Henry M. Kemper, Chicago, Illinois (renewal).

BROWNSON HALL.

First Honor Gold Medals—none awarded this year.

ST. JOSEPH HALL.

First Honor Gold Medals were awarded to
Francis A. Zink, Canton, Ohio.
Varnum A. Parrish, Momence, Illinois.

SORIN HALL.

First Honor Diplomas were awarded to
Eduardo W. Enriquez, Chihuahua, Mexico.
William Duffen Jamieson, Chicago, Illinois.

Anthony J. Stopper, Williamsport, Pennsylvania.
John Francis Cushing, Chicago, Illinois.
Gustavo L. Trevino, Monterey, Mexico.

CORBY HALL.

First Honor Diplomas were awarded to

Herman E. Altgelt, New Braunfels, Texas.
Francis J. Hanzel, New Prague, Minnesota.
Thomas Paul McGannon, Corning, New York.
Franklin B. McCarty, Lynn, Massachusetts.
Frank A. McCarthy, Britt, Iowa.
Ambrose A. O'Connell, Ottumwa, Iowa.
William E. Perce, Hanover, Illinois.
John W. Sheehan, Springfield, Illinois.
Edward H. Schwab, Loretto, Pennsylvania.

BROWNSON HALL.

First Honor Diplomas were awarded to

James S. Brady, Chicago, Illinois.
Frank Derrick, Oil City, Pennsylvania.
Denis E. Lannan, Odell, Illinois.
Antonio S. Morazzani, Guayama, Puerto Rico.
Michael J. McGuinness, Old Albuquerque, New Mexico.
Lawrence McDonald, Seward, Illinois.
David McDonald, Seward, Illinois.

ST. JOSEPH HALL.

First Honor Diplomas were awarded to

Richard Barry, Chicago, Illinois.
Edward P. Cleary, Momence, Illinois.
James V. Cunningham, Chicago, Illinois.
John F. Dempsey, Zanesville, Ohio.
Patrick M. Malloy, Salix, Iowa.
Edward F. O'Flynn, Butte, Montana.

DEPARTMENT PRIZE MEDALS.

[Gold Medals for Department are awarded to pupils of Carroll and St. Edward's Halls who have spent two full years at Notre Dame and whose deportment during the whole time has been unexceptionable.]

CARROLL HALL.

Gold Medals for Department were awarded to Thomas P. Butler, William W. Duckett, Juan B. Gallart (renewal), John T. O'Mara, Robert R. Shenk, Edward L. Symonds (renewal), Richard B. Wilson, Thomas B. Roberts, Philip H. Lucas, Bertram H. Babbitt.

ST. EDWARD'S HALL.

Gold Medals for Department were awarded to James A. Woods, John R. Kavanaugh, Louis B. Heeb, Eduardo C. Yrisarri, Joseph Hirtenstein, Clemens U. F. Brinkmann, Oscar E. Veazey, Lester W. Rempe (renewal), Charles Gering.

[Silver Medals for Department are awarded to pupils of Carroll and St. Edward's Halls who have spent two full years at Notre Dame and whose deportment has given general satisfaction.]

CARROLL HALL.

Silver Medals for Department — none awarded this year.

ST. EDWARD'S HALL.

Silver Medals for Department were awarded to Lester R. Broderick, Irving S. Tufts, Raymond A. Connolly, F. Dickason Smith, Simeon M. Kasper, George H. Parker.

[Certificates are awarded to those pupils of Carroll and St. Edward's Halls who have followed the courses of the University at least two terms, and whose deportment during the whole time has been unexceptionable.]

CARROLL HALL.

Certificates for Department were awarded to Henry J. Bolln, Rafael A. Beckman, C. Eugene Clear, John K. Corbett, Arthur G. Drumm, Herbert O. Dierssen, Walter Duncan, Gerald I. Fitzgibbon, Leo F. Garrity, Andrew L. Hunt, Stephen H. Herr, Karl F. Hickey, William J. Heyl, Adolph X. Kamm, Edgar L. Knight, Bernard H. Lange, Gregorio E. Martinnelli, Edward L. McDermott, Alfredo G. Nieto, Thomas H. Riley, William J. Riley, Frank J. Roan, Ernest Rothinghouse, Ramon G. Rubio, Carlos N. Vernaza, George E. Washburn, Lawrence A. Williams, Charles H. Wessel.

ST. EDWARD'S HALL.

Certificates for Department were awarded to Forest R. Hill, Carlos A. Duque, Guillermo O. Vernaza, Manuel A. Tello, Ricardo A. Tello, Josiah Little, Chester R. Kranz, Wilbur C. Kranz, William H. Grove, Fidelis N. Burt, Millard M. Burt, J. LeRoy Langdon, Albertus A. Hilton, George L. Comerford, F. Marion Price, C. Russell Weber, Edgar Kobak, Walter Carroll, T. Raymond O'Donnell, James R. Cahill, Manuel Garcia, Alfonso Sariñana, Enrique Sariñana, George M. Harrison, Edmund H. Harrison, Lyndon M. Brown, Harold C. Gloeckler, Neil Gray, Herbert R. Pulver, George A. Milius, Francis M. Olston, Carl H. Hilton, Charles J. Smith, Henry C. Mahony, Clifton M. Louisell, John H. Wessel, Herbert J. Wessel, John G. McNair, Francis W. O'Reilly, Owen M. McGinnis, Godfrey M. Roberts, Antoine Cartier, Edward F. Peil, Horace G. McDermont.

NEEDS OF THE UNIVERSITY.

Visitors to Notre Dame judge from the appearance of the buildings and grounds that the University has no need of money. It is, nevertheless, absolutely without endowment, and its work is seriously hampered because it has no resources except the fees of students. There are two scholarships and the interest from these foundations is used in educating and boarding two students.

There were in 1901 1,452 Catholic students in 6 per centum of the non-Catholic colleges of America, and very many of these will lose their faith, and all will be weakened in that faith, because our people look upon collegiate institutions as the property of private corporations which are to be left to take care of themselves.

Notre Dame asks for scholarships for boys that can not pay the expense of education, and who therefore are obliged to go to non-Catholic colleges to the detriment of their faith. A foundation of \$8,000 will educate and board a student as long as the University exists. As one bursar is graduated another can take his place. The founder of the scholarship, of course, always has the privilege of appointing the student.

We lack money for a library building, and for two more dwelling-halls like Sorin Hall.

Foundations for scholarships are also a pressing need.

There is no Library fund for the purchase of new books.

The names of benefactors will be given to all foundations.

BEQUESTS SHOULD BE MADE IN THIS FORM:

UNIVERSITY OF NOTRE DAME DU LAC.

I give, devise and bequeath to the UNIVERSITY
OF NOTRE DAME DU LAC, an institution incor-
porated under the laws of the State of Indiana, and
located at Notre Dame, Indiana

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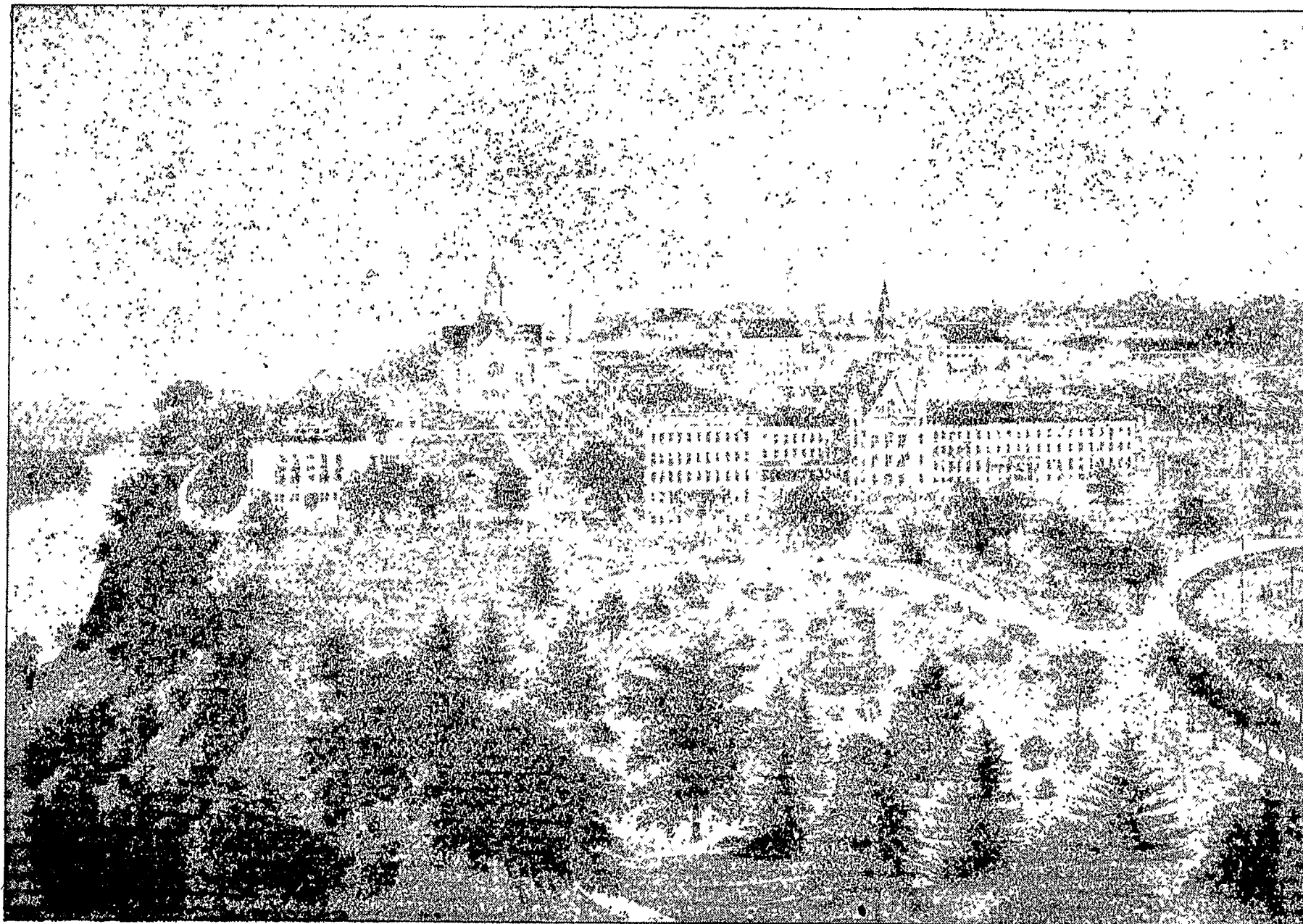
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