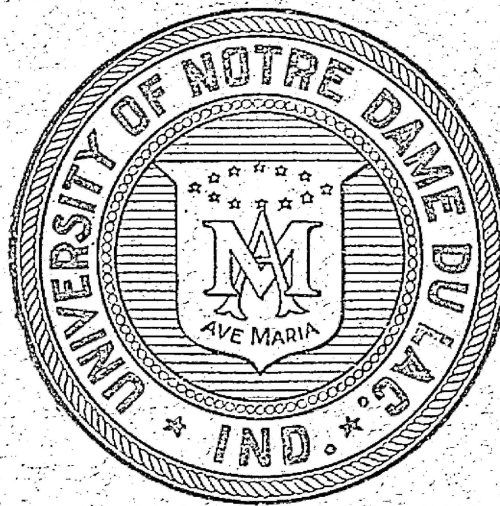


1907

SERIES II.
NUMBER IV.

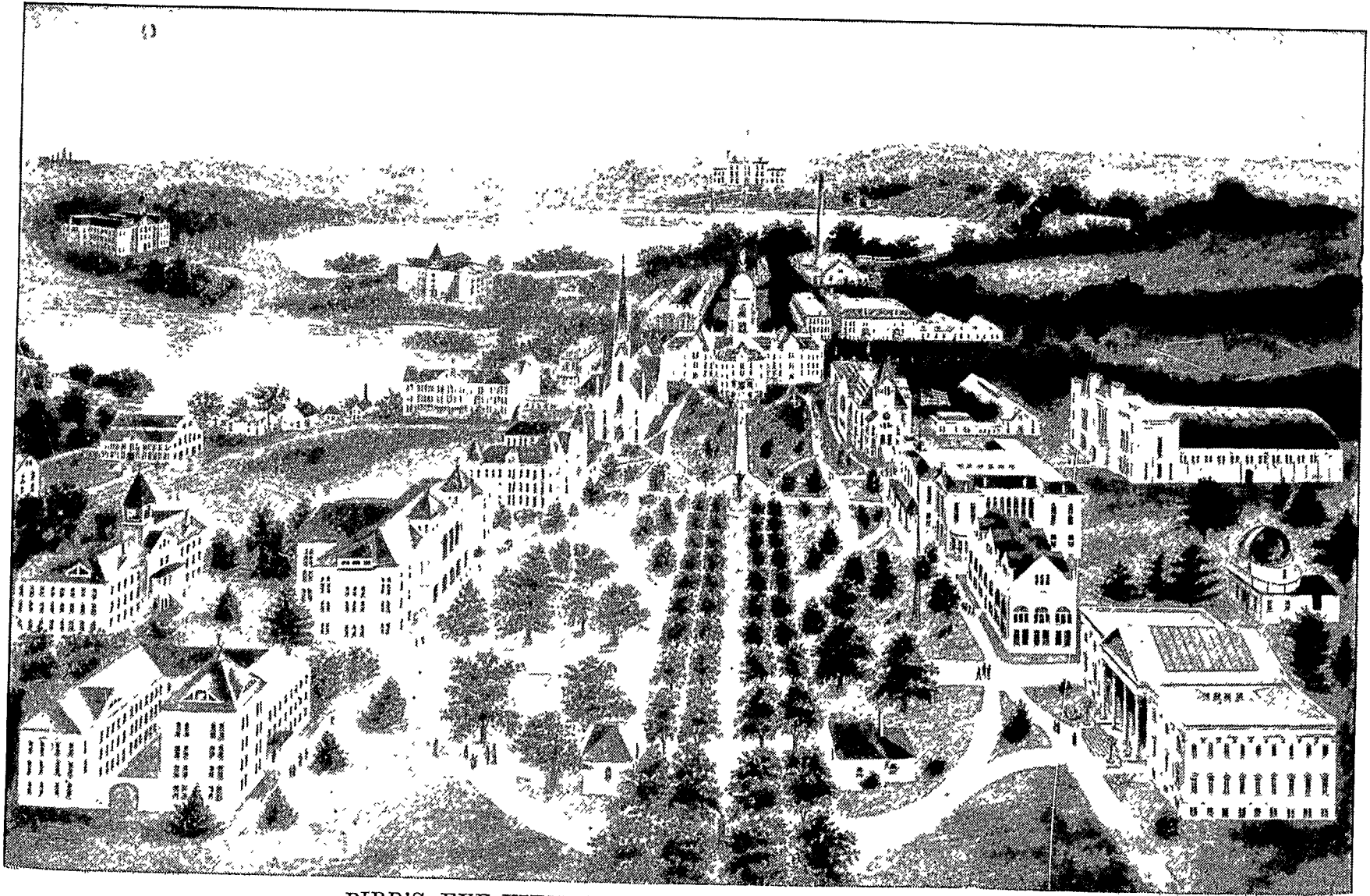
*Published Quarterly by
The University*

BULLETIN
OF THE
UNIVERSITY OF NOTRE DAME



DEPARTMENT OF PHARMACY

Entered as Second-Class Matter in the Postoffice at
Notre Dame, Indiana, July 17, 1905



BIRD'S-EYE VIEW OF UNIVERSITY OF NOTRE DAME.

Series II.

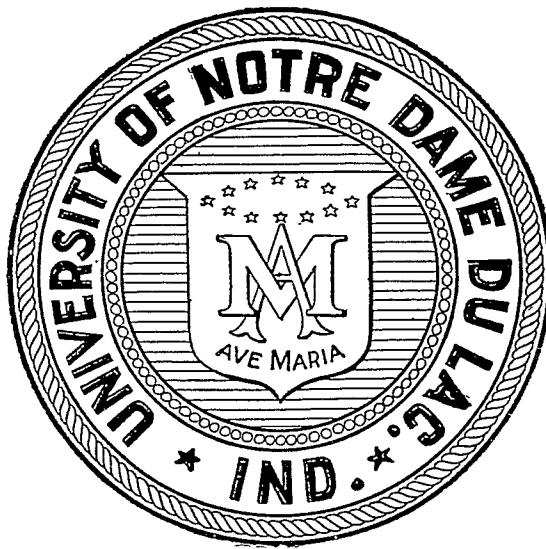
Number IV.

BULLETIN

OF THE

University of Notre Dame

NOTRE DAME, INDIANA



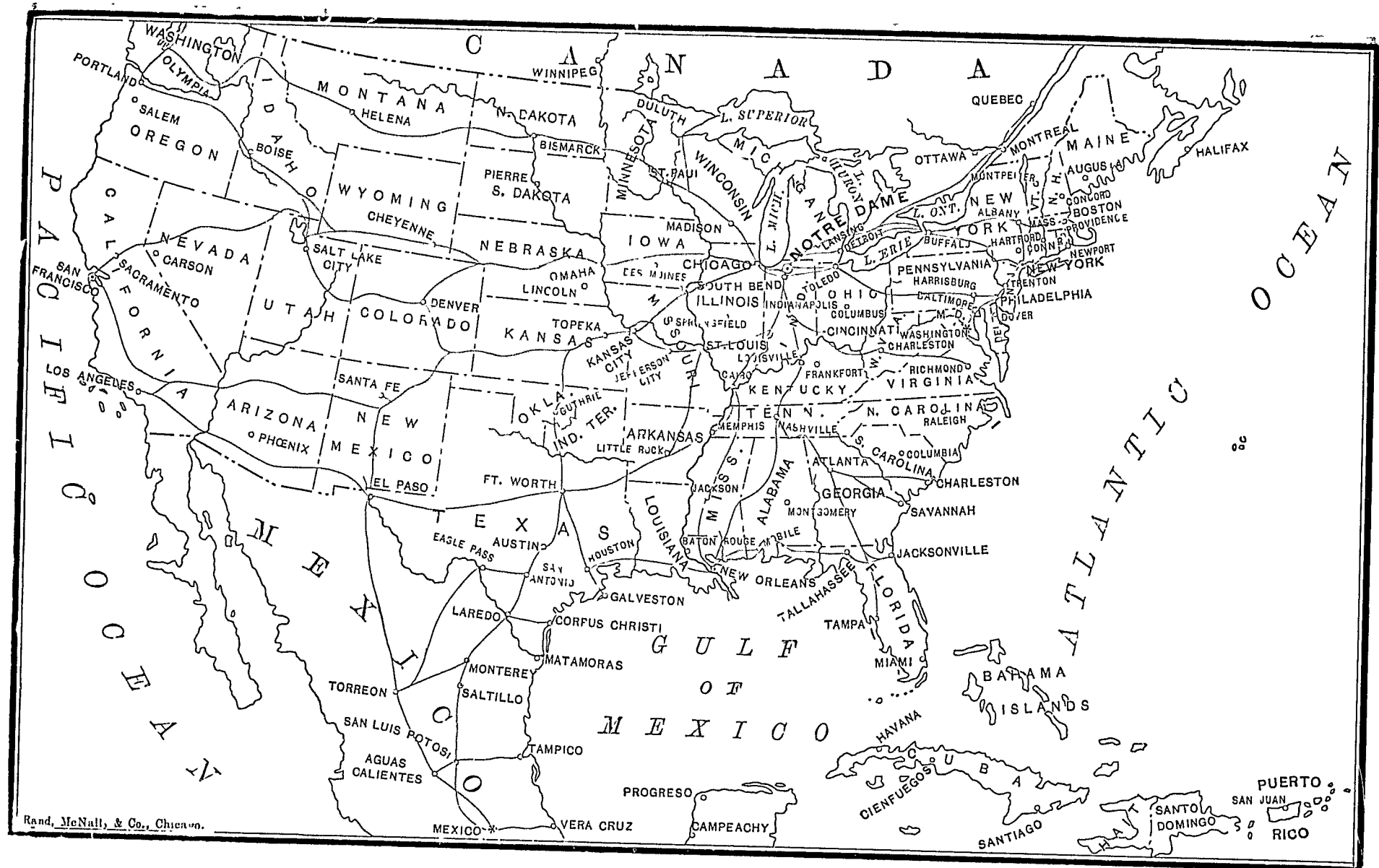
DEPARTMENT OF PHARMACY

PUBLISHED QUARTERLY AT NOTRE DAME

THE UNIVERSITY PRESS

APRIL, 1907

Entered at the Postoffice, Notre Dame, Indiana, as second class matter, July 17, 1905.



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
Chicago and Indiana Southern, and the Michigan Central
railways run directly into South Bend.

BOARD OF TRUSTEES

VERY REV. ANDREW MORRISSEY, C. S. C.,
PRESIDENT.

REV. JOHN CAVANAUGH, C. S. C.,
CHANCELLOR.

REV. DANIEL E. HUDSON, C. S. C.

REV. WILLIAM R. CONNOR, C. S. C.,
SECRETARY.

REV. JOSEPH A. MAGUIRE, C. S. C.

BRO. ALBEUS, C. S. C.,
TREASURER.

EXECUTIVE OFFICERS OF THE UNIVERSITY

REV. JOHN CAVANAUGH, C. S. C.,
PRESIDENT.

REV. THOMAS A. CRUMLEY, C. S. C.,
VICE - PRESIDENT.

REV. WILLIAM A. MOLONEY, C. S. C.,
DIRECTOR OF STUDIES.

REV. MARTIN REGAN, C. S. C.,
PREFECT OF DISCIPLINE.

BRO. PAUL, C. S. C.,
SECRETARY.

DIRECTORS OF HALLS

HOLY CROSS HALL

REV. JAMES J. FRENCH, C. S. C.

REV. GEORGE O'CONNOR, C. S. C.

SORIN HALL

REV. TIMOTHY MURPHY, C. S. C.

REV. LEO J. HEISER, C. S. C.

REV. GEORGE J. MARR, C. S. C.

CORBY HALL

REV. JOHN McMANUS, C. S. C.

MR. WILLIAM O'BRIEN, C. S. C.

MR. JOHN DELAUNAY, C. S. C.

BROWNSON HALL

BRO. ALPHONSUS, C. S. C.

BRO. HUGH, C. S. C.

BRO. CELESTINE, C. S. C.

BRO. VINCENT, C. S. C.

CARROLL HALL

BRO. JUST, C. S. C.

BRO. VITAL, C. S. C.

BRO. GEORGE, C. S. C.

BRO. LOUIS, C. S. C.

ST. JOSEPH'S HALL

BRO. FLORIAN, C. S. C.

BRO. CASIMIR, C. S. C.

ST. EDWARD'S HALL

BRO. CAJETAN, C. S. C.

BRO. CYRIL, C. S. C.

BRO. ERNEST, C. S. C.

FACULTY
OF THE DEPARTMENT OF PHARMACY

ROBERT L. GREEN, PH. G.,
Pharmacy and Materia Medica.

REV. ALEXANDER KIRSCH, C. S. C.,
Microscopy.

REV. JOSEPH A. MAGUIRE, C. S. C.,
Analytical Chemistry and Mineralogy.

REV. JULIUS A. NIEUWLAND, C. S. C.,
Organic Chemistry and Botany.

REV. LEO A. HEISER, C. S. C.,
Physiology and Bacteriology.

ARTHUR S. FUNK, B. S.,
General Chemistry and Physics.

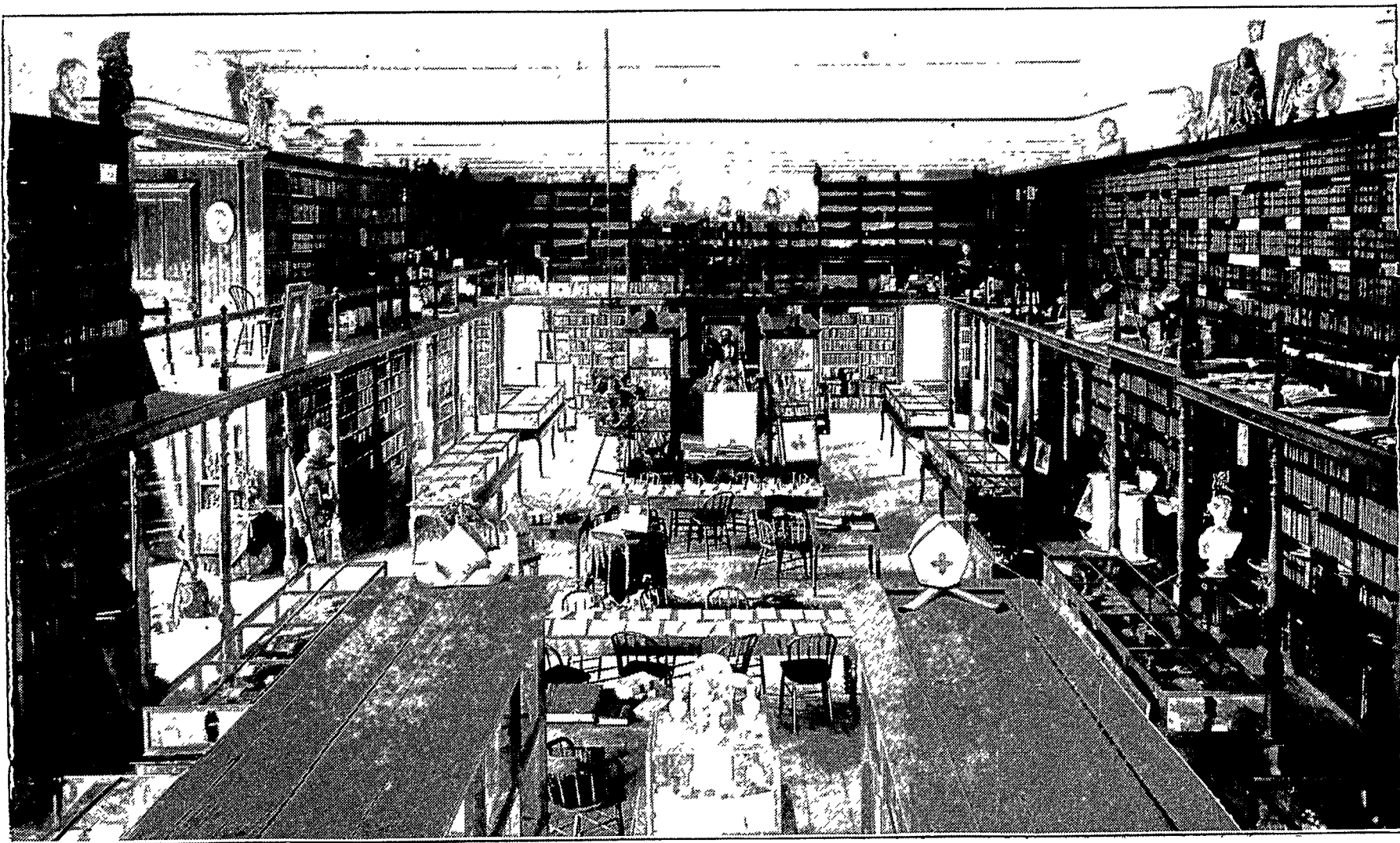


ADMINISTRATION BUILDING.

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 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 t're 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.”



MAIN LIBRARY.

UNIVERSITY BUILDINGS.

THE ADMINISTRATION 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 dining-rooms are in this building. The Library and the Bishops' Memorial Hall are also here temporarily. This building, like all the others of 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.

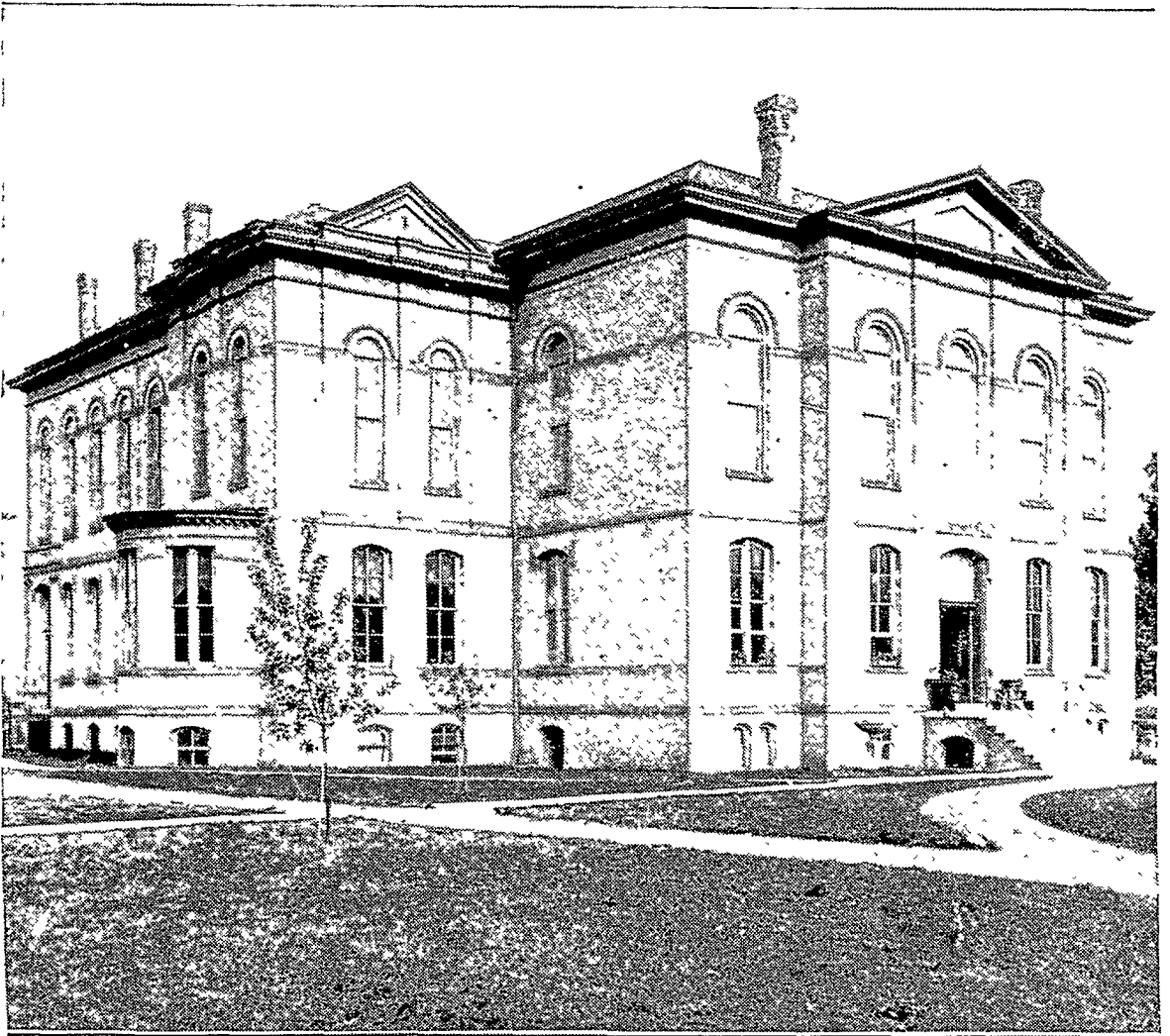
The Church of the Sacred Heart is 275 by 120 feet in ground dimensions and 125 in height from the floor to the roof-ridge. The interior is decorated by Gregori, and the architecture is Gothic. There is a large crypt and many chapels. In the tower are a chime of 32 bells and the great six-ton chief bell.

THE LIBRARY.

The Library contains 55,000 volumes of general literature. The departments of literary criticism, history, political science and the Greek and Latin classics are well represented. Special libraries containing reference works on technical subjects are provided in the Colleges of Engineering and Science. The College of Law has a complete library of its own. Ample reading room is provided in the main library. The best literary magazines and reviews, as well as the current numbers of scientific and technical journals are kept on file. Students have access to the Library from 8:00 a. m. to 9:00 p. m.

SCIENCE HALL

is situated a few steps south of Washington Hall. Its dimensions are 105 by 131 feet, and it is three stories in height. A large central space, the full height of the building, is occupied by a museum containing mineral,



fossil, and biological specimens. The departments of Physics, Electrical Engineering, Civil Engineering, Philosophy, Botany and Biology have recitation rooms and laboratories in this building. The equipment for each of these departments is extensive and complete.

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 graduate students. All the class rooms are furnished with



THE PHYSICAL CABINET

charts and models necessary in teaching the different courses. The arrangement of windows is such that the rooms can be easily darkened so that 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 the equipment 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 classrooms and laboratories for the courses in Geology and Mineralogy. The laboratories adjoining the classrooms 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 collec-

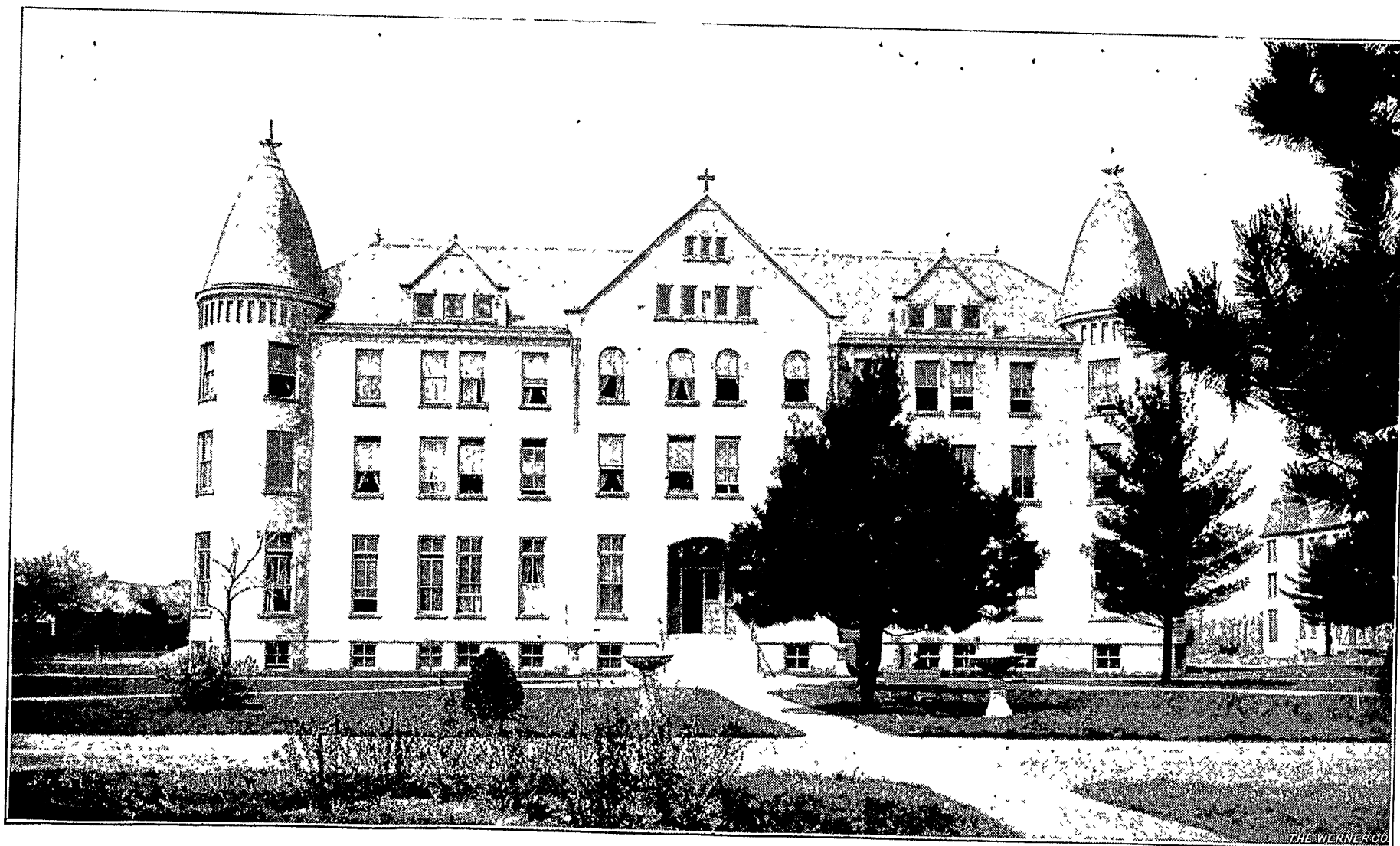


MUSEUM.

tion ; some of the specimens here are of the rarest fossil remains of animal and plant life.

ENGINEERING HALL

This building is situated in the southern part of the grounds and is a large two story brick building, well lighted and heated. The lower floor contains the mechanical laboratory, machine shop, blacksmith shop and foundry. The second floor is given up to the wood shop and also contains a well lighted drawing room



THE WERNER CO.

SORIN HALL.

where students in designing may consult complete working drawings of the best steam engines and pumps to be found on the market.

THE CHEMICAL LABORATORIES

occupy a large three story building directly south of Science Hall. The entire first floor is devoted to advanced work and space is given to two large laboratories and lecture rooms. The second floor is occupied by the Department of Pharmacy, and contains a large well-equipped laboratory, a modern drug store, a lecture room and museum, a library for pharmaceutical publications, and a general stock room. The general inorganic, organic and elementary chemical laboratories are on the third floor. Each laboratory is provided with ample hood accommodations, and each desk is furnished with water, gas and suction.

SORIN HALL

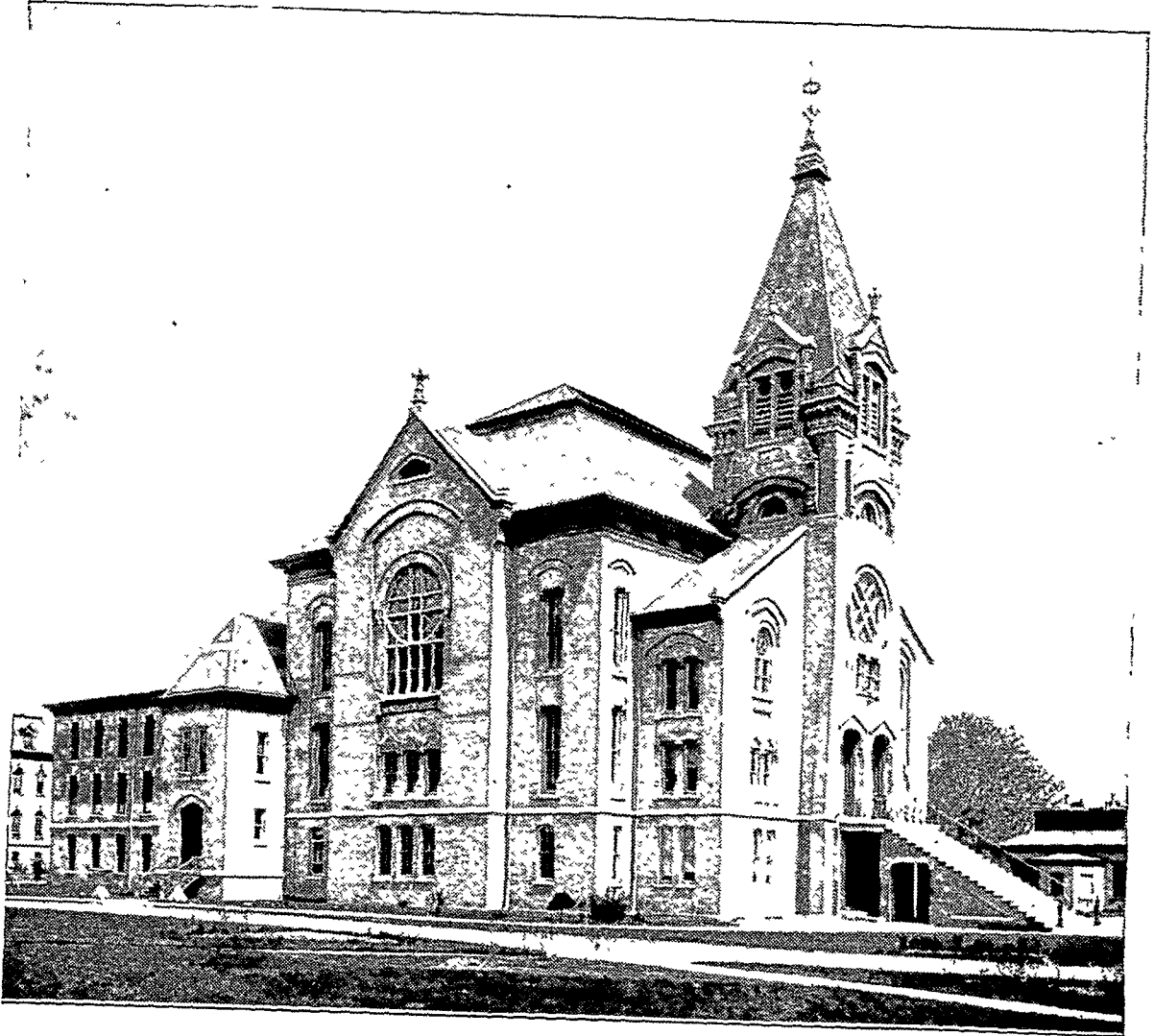
This building is 144 feet in length, with two wings 121 feet in depth. It has a basement and three high stories, and contains 101 private rooms for advanced students. These rooms are furnished, and students of Senior, Junior, or Sophomore standing in any of the Colleges are not required to pay rent. 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 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 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 cared for by Sisters of Holy Cross, and the University physician visits them daily.



MUSIC HALL.

This hall is 170 feet in length, 100 feet in width, and about 100 feet in height. It contains the rooms of the Department of Music, the reading rooms for Brownson and Carroll Halls, and the University Theater. The Theater is elaborately equipped with stage settings. It will seat 1,200 persons.

THE OBSERVATORY

This building is located near the Chemical Laboratories 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 GYMNASIUM

The Gymnasium which was burned 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 base ball practice, basketball and military drill. The gymnastic hall is 100 by 40 feet and is furnished with a full set of apparatus; below that are the offices, dressing-rooms and shower-baths. Friends of the University and the alumni contributed more than \$3,000 to the fund for rebuilding.

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 principal are: Saint Joseph's Hall, Holy Cross Hall, the Community House, the Presbytery, and Saint Edward's Hall

REGULATIONS GOVERNING ADMISSION TO THE COLLEGES

Candidates who wish to enter any of the Colleges must present evidence, either by examination or by a properly attested certificate, of ability to enter on the courses of the Freshman year. The specific subjects required for entrance will be found later in this catalogue.

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.

A candidate failing to pass satisfactory examinations in one or more of the subjects required for admission to any College Program may, at the discretion of the Faculty, be admitted to his class conditioned, 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.

Graduates of High Schools that are *fully accredited* to the State Universities, will be admitted without examination to the Freshman year of any program to which their preparatory studies entitle them.

Certificates of work done in public or private High 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 Faculty of the University are satisfied with the standing of the school.

Candidates for admission to advanced standing who are required to take examinations must 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 several programs of studies.

Applicants for advanced standing who 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 admitted to any course of the Senior year until all conditions have been cancelled.

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

DISCIPLINE

Official reports of each student's class standing will be sent to parents and guardians every two months.

The Faculty maintain 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 merely by 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 by experience to be salutary, 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 examinations, the use of intoxicating liquors, immorality, the use of profane and obscene language, and an unauthorized absence from the University limits* are among the causes for expulsion. In case of suspension or expulsion for such offences, *no fees shall 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 such students of Sorin, Corby and Brownson halls as have received from their parents written permission to use tobacco.

8. Continued violation of regulations in Sorin or Corby halls 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 University Church at stated times.*

10. The use of intoxicating liquors is positively 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.

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

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

14. All athletics are governed by a Faculty Board of Control which will be guided in its rulings by the regulations adopted by the Conference Colleges. The Vice-President of the University and six 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. Among those who have addressed the University in the past few years may be noted four Apostolic Delegates: Cardinals Satolli and Martinelli, and Monsignors Falconio and Agius; Archbishops Ireland, Riordan, Keane, Glennon and Christie, and Bishops Spalding, Alerding, McQuaid, O'Gorman and Shanley. There were also such noted European churchmen as the Abbé Felix Klein and the foremost of living English historians, Dom Gasquet, besides men of letters like Marion Crawford, Maurice Francis Egan, Henry Van Dyke, Seumas MacManus, William Butler Yeats, James Jeffrey Roche, Hamilton Wright Mabie, Opie Read and Henry James, and such men of affairs as Senator Taft, ex-Senator Hill, Senator Beveridge, Attorney General Charles Jerome Bonaparte, Representative Adam Bede, William P. Breen and Bourke Cockran. Concerts are given frequently by organizations from without.

EXPENSES.

| | |
|---|----------|
| Matriculation Fee (payable on first entrance)..... | \$ 10.00 |
| BOARD, TUITION, 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 (payable 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).

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 \$400.00 covers the tuition fee, which is fixed at \$100.00 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 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—

| | |
|--|---------|
| Seniors, Juniors, and Sopnomores, Free; Freshmen ... | \$50.00 |
| Preparatory Students..... | \$80.00 |

While the 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 Instrument..... | \$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 |
| Lessons on Violin, Guitar, Flute, Cornet, Clarinet or Mandolin..... | 30.00 | Applied Electricity..... | 40.00 |
| | | Special Lecture and Concert 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, \$10.00; Commercial Course, \$5.00.

REMARKS.

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

Remittance should be made by draft, post office 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.

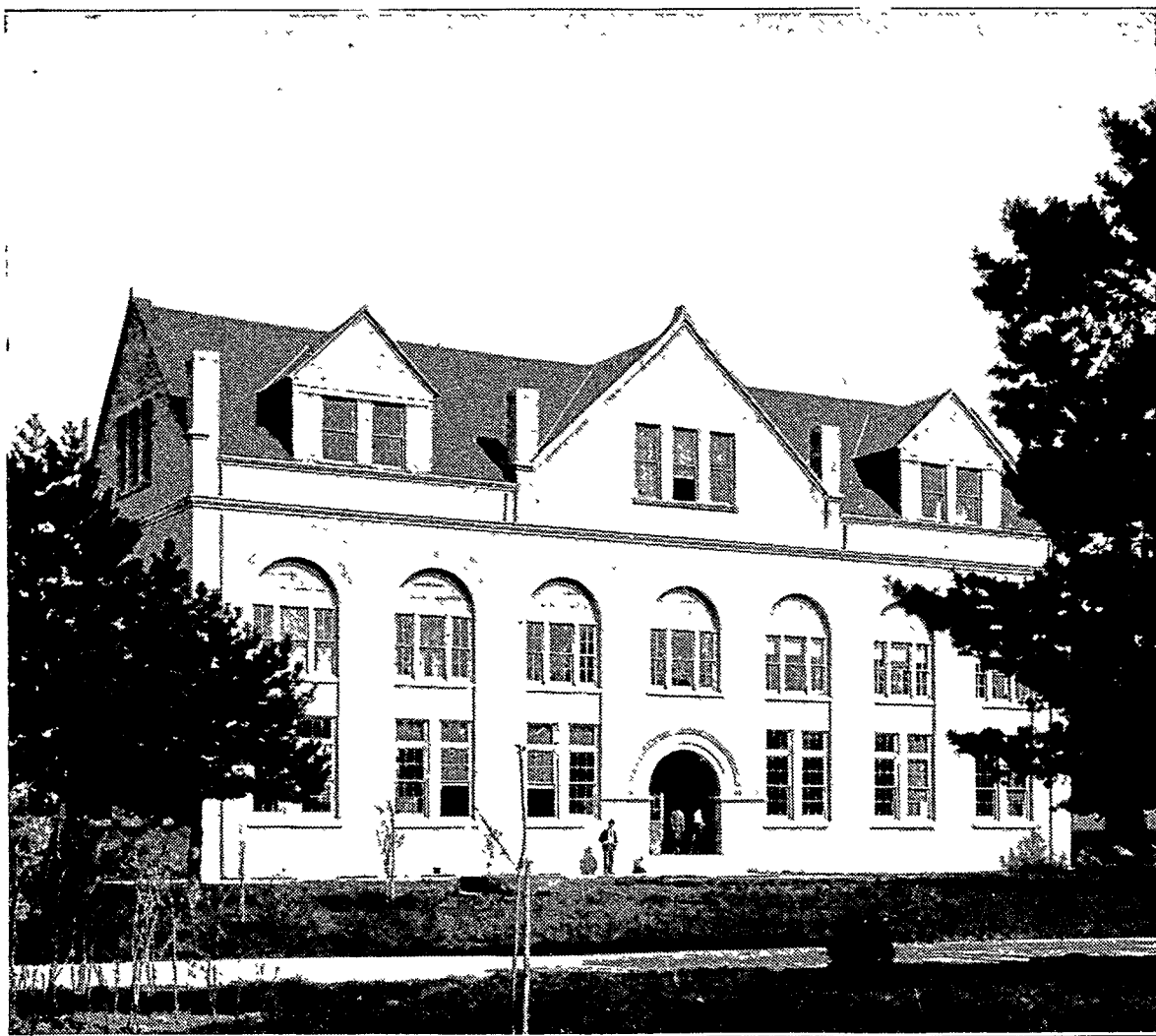
Term bills and other accounts are subject to sight draft if not paid within ten days after they have been rendered.

Sorin, Corby, Brownson and Carroll Halls are closed during the months of July and August. Students wishing to spend their Summer Vacation under the care of the University authorities can be accommodated at San José 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 DEPARTMENT OF PHARMACY

The Department of Pharmacy of the University of Notre Dame was established in 1898. From the very beginning the department has enjoyed a healthy and satisfactory growth, a growth which gives every promise



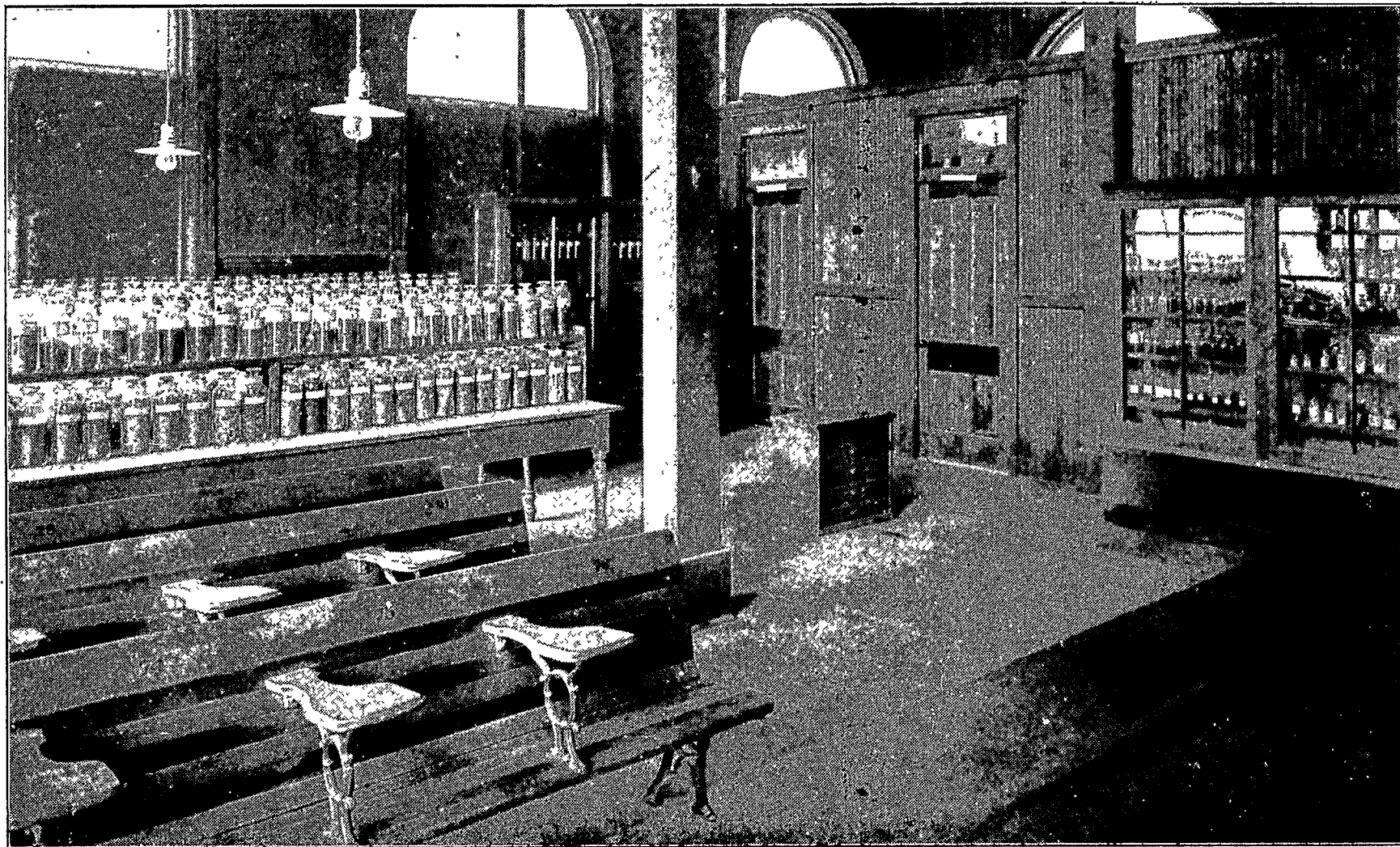
CHEMICAL LABORATORIES.

of continuance. The equipment and scope of the work have been enlarged from time to time in order to keep abreast of progress in pharmaceutical lines. This progressive policy will continue to be maintained. The aim

kept constantly in view is to furnish a broad, thorough, practical training in pharmacy, which will enable the student to take his place creditably in any of the varied branches of his calling. That this aim has been fully realized is attested by the fact that many of our graduates in pharmacy are occupying positions of responsibility in large drug houses,—wholesale, retail and manufacturing.

The location of the University is ideal. It is situated on the banks of two charming lakes, near the St. Joseph river, a river famous for its beauty as well as its history. The climate is agreeable and health-promoting, tempered in winter as well as in summer by Lake Michigan which is not far distant. The location of the University away from the immediate neighborhood of a large city is another great advantage. Removed from the distractions of city life the student can devote his whole attention undisturbed to his work and in consequence can make better progress than he could if he were subject to those distractions. The instructors, too, devote their whole time to teaching and this of course insures thoroughness.

That the advantage of a scientific training is being recognized more and more every day is proved by the increasing number of students choosing this line of work. The hand is trained as well as the mind, and thus is furnished an evenly balanced education. The thorough, systematic, painstaking work required by this study in the formative period of life exercises a wholesome effect on the character and establishes the clear and accurate method of thought and action which are so essential to success in this age of high pressure work. Besides its practical value, the pharmacy course offers exceptional opportunities for a training of this character owing to the large amount of laboratory work required.



PHARMACY LECTURE ROOM.

METHODS AND SCOPE OF THE WORK

The subject is presented in such a manner as to impart a thorough theoretical as well as a practical knowledge of pharmacy. The work commences with the simplest and gradually leads up to the most complicated processes. Lectures, demonstrations and discussions precede and accompany the practical work in the laboratory. The application of the theory to the manufacture of preparations firmly grounds the student in the principles of the study and gives him a comprehensive understanding of the subject.

Special attention is given to the little details which are so essential to success in any professional work, particularly 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 all preparations are required throughout the courses. A frequent and rigid inspection of apparatus and desks by the instructor does much to establish habits of order and neatness. To inculcate habits of caution and accuracy, which are of paramount importance in pharmacy, the student is required to fill out an order blank for his laboratory supplies for each preparation. The druggist in charge fills the order countersigns it and hands it to the instructor for verification. Mistakes are thereby easily located and trouble in the work too is often cleared up. This check exercises a wholesome restraining influence on the student and renders careless, slipshod work almost impossible.

Each student works independently in the laboratory under the supervision of the instructor. The work is done in three or more consecutive hours on consecutive

days. Continuity of effort is of unquestioned value as it insures more rapid progress and better work than brief periods with long intermissions. Many pharmaceutical processes require considerable time for their completion, and success in such cases can be attained only by uninterrupted attention. Besides the loss of time incident to the preparation both after and before work is reduced to a minimum.

The second year students take weekly turns in the drug store where they dispense supplies for the laboratory, order goods, invoice stock, write business letters,

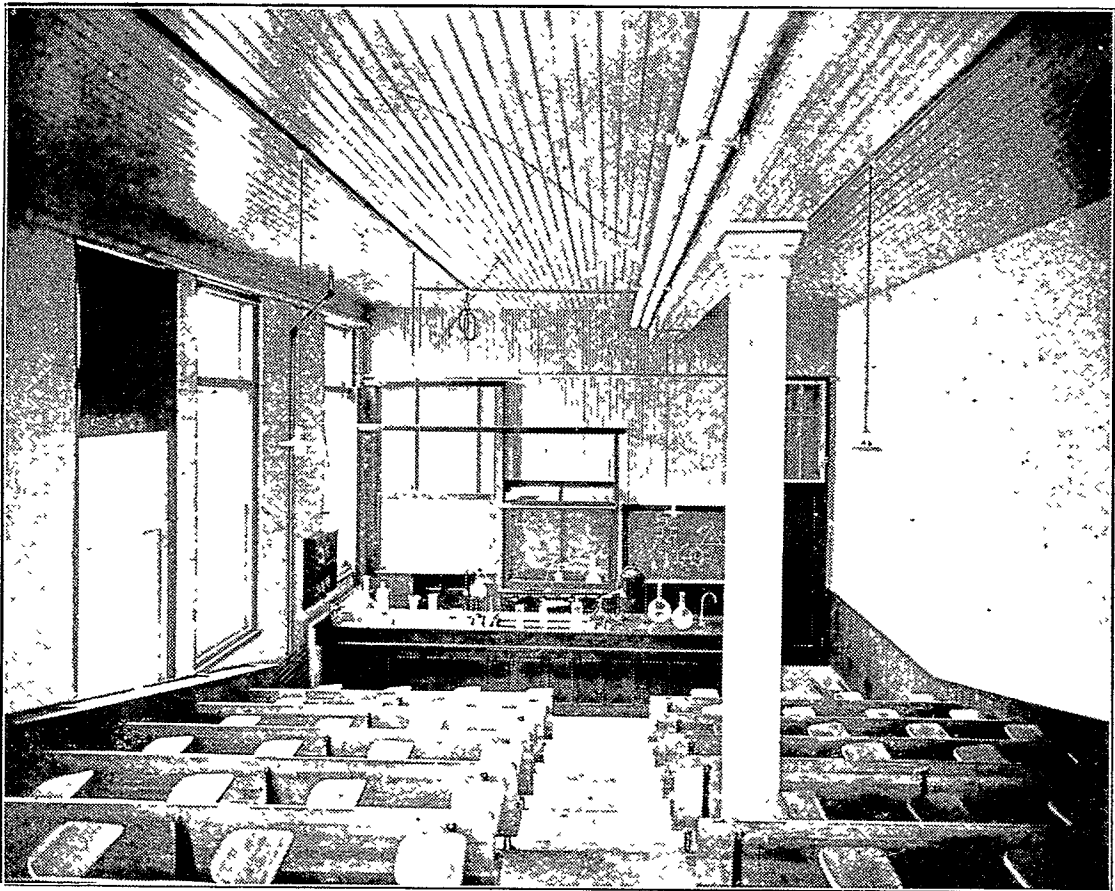


THE BALANCES.

etc. This work familiarizes the student with the general arrangement of stock and furnishes a training practically the same as that obtained in a retail store.

The following is a partial list of the pharmaceutical and chemical processes and preparations with which the student becomes familiar in his work in the laboratory: Assaying, clarification, crystallization, colation, carbonization, comminution, calcination, dilution, decantation, decoloration, deflagration, desiccation, dialysis, distillation, elutriation, expression, extraction, emulsification, filtration, fusion, granulation, ignition, incineration,

levigation, maceration, percolation, precipitation, scaling, standardizing, sublimation, solution, separation, testing, turbidation, volumetric and gravimetric estimations, polariscopic and spectroscopic estimations, manufacture of pills, trochees, lozenges, tablets, suppositories, plasters, ointments, cerates, powders and the various official preparations.



LECTURE ROOM.

The following text-books and reference works are used in the study of Pharmacy and Materia Medica: U. S. Pharmacopœia, U. S. Dispensatory, National Formulary, National Dispensatory, *Casparis' Pharmacy*, *Remington's Pharmacy*, *Scoville's Art of Compounding*, *Ruddimæn's Incompatibilities*, *Oldberg's Chemistry*, *Saure's Materia Medica and Pharmacognosy*, *Potter's Materia Medica and Therapeutics*, *White & Wilcox Materia Medica and Therapeutics*, *Sturmer's Pharmaceutical Arithmetic*.

ADMISSION

The department offers two programs of courses leading to degrees, one of two years leading to the degree of Graduate in Pharmacy (Ph. G.) and another of three years leading to the degree of Pharmaceutical Chemist (Ph. C.)

Applicants for admission to the two year program which leads to the degree of Graduate in Pharmacy

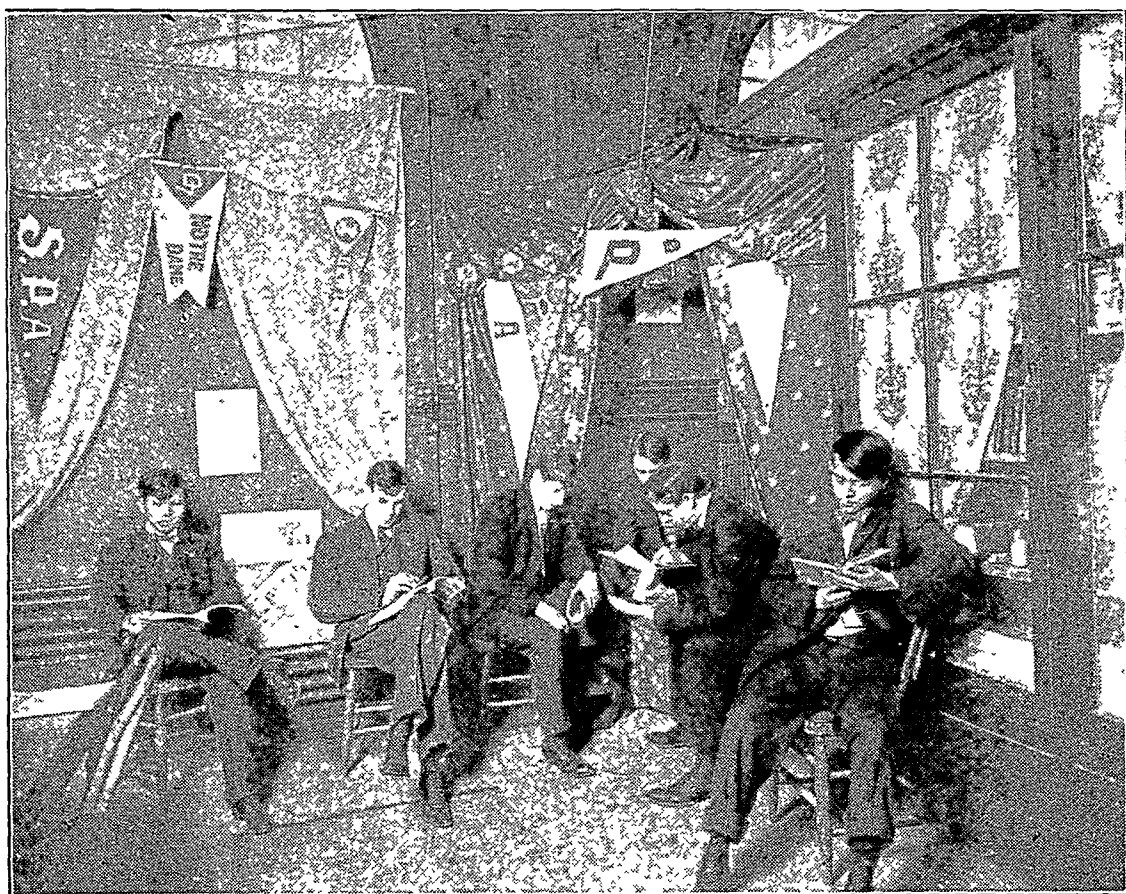


CORNER OF THE STOCK ROOM.

(Ph. G.) must be eighteen years (18) of age and must pass an examination in the subjects taught in the first year of a reputable high school. A certificate from the principal of such a school will be accepted in place of examination.

For admission to the long program, which leads to the degree of Pharmaceutical Chemist (Ph. C.), applicants

must be eighteen years (18) of age and must present satisfactory evidence by examination or certificate of having spent two years in a high school of the best grade. A certificate admitting to the third year of high school will be accepted instead of an examination. Among the subjects which must have been studied are Latin through Cæsar and Algebra as far as logarithms.

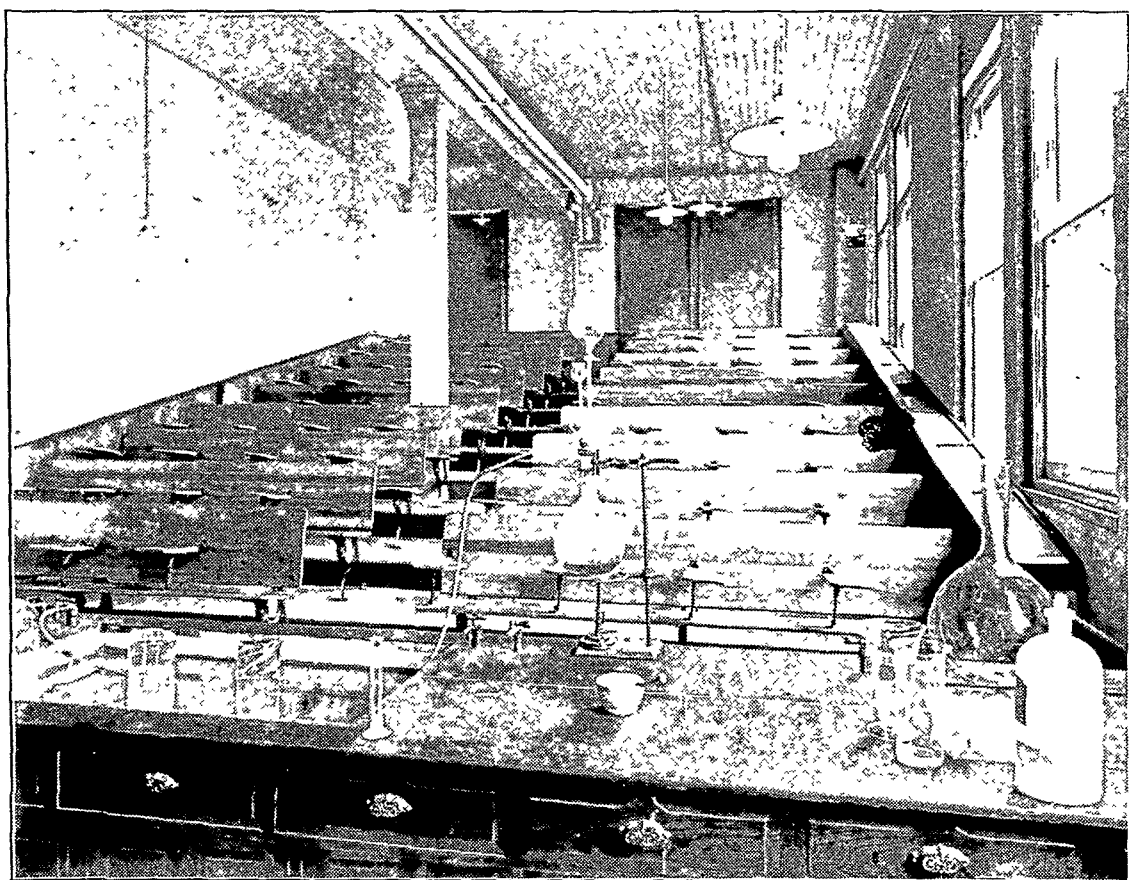


READING ROOM.

EQUIPMENT

The Equipment of the department is complete and modern. The laboratories for pharmaceutical work and for chemistry especially are large, roomy and well ventilated. Each of these laboratories, and there are five devoted to pharmacy and chemistry alone, measures 42 x 35 feet. They are twenty feet high and are lighted on three sides, insuring plenty of light and abundance of

air. The laboratories are furnished with hoods of good draught, drying ovens, chambers and water stills; the desks are provided with hot and cold water, suction, pressure, acetylene, electricity, gas and the necessary reagents. There are separate laboratories for microscopy, botany, bacteriology, mineralogy and assaying, and physics. The apparatus is of the most approved type. Instruments of the latest design and appliances of modern



LECTURE ROOM CHEMISTRY.

manufacture are provided for the students. Each desk is supplied with all the apparatus necessary for ordinary work. Special apparatus such as spectrosopes, polariscopes, tablet machines, specific gravity apparatus, etc., are 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 compound those requiring special manipulation. The reading room is supplied with all the leading pharmaceutical and chemical journals and books of reference. The pharmacognosy room contains specimens of all the official and a great many unofficial drugs for study and identification.

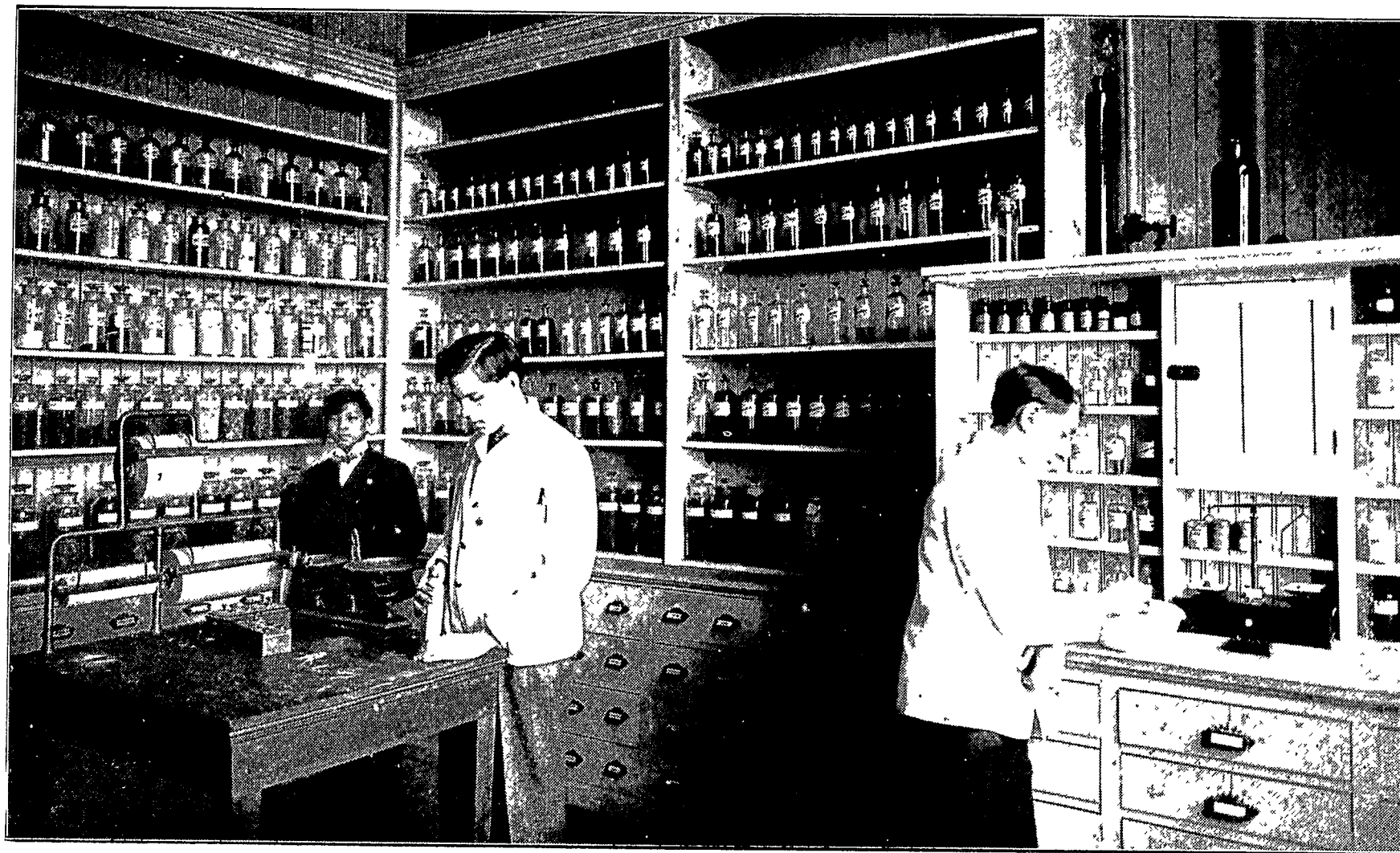
THESIS.

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.

EXPENSES.

In addition to the charges for tuition, board, lodging, etc., which will be found on pages 26 and 27, the following laboratory fees are special to students of the Department of Pharmacy:

| | |
|---|---------|
| Pharmaceutical Laboratory II..... | \$10.00 |
| Pharmaceutical Laboratory IV..... | 20.00 |
| Pharmaceutical Laboratory VI. and VII. each | 10.00 |
| Chemistry I..... | 5.00 |
| Chemistry IV., V. and VI. each, | 10.00 |
| Physics | 5.00 |
| Microscopy | 2.50 |



DRUG STORE.

PROGRAMS IN DEPARTMENT OF PHARMACY

DEGREE: PH. G.

| 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 | 41 | I | Pharmacy | 6 | 41 | I, II |
| Arithmetic | 3 | 43 | IX | Physics | 5 | 57 | I |
| Botany | 5 | 53,54 | I, II | Chemistry | 2 | 49 | X |
| Microscopy | 2 | 55 | I | Botany | 5 | 53,54 | I, II |
| Chemistry | 5 | 45 | I | Mat'ra Medica | 2 | 43 | VIII |

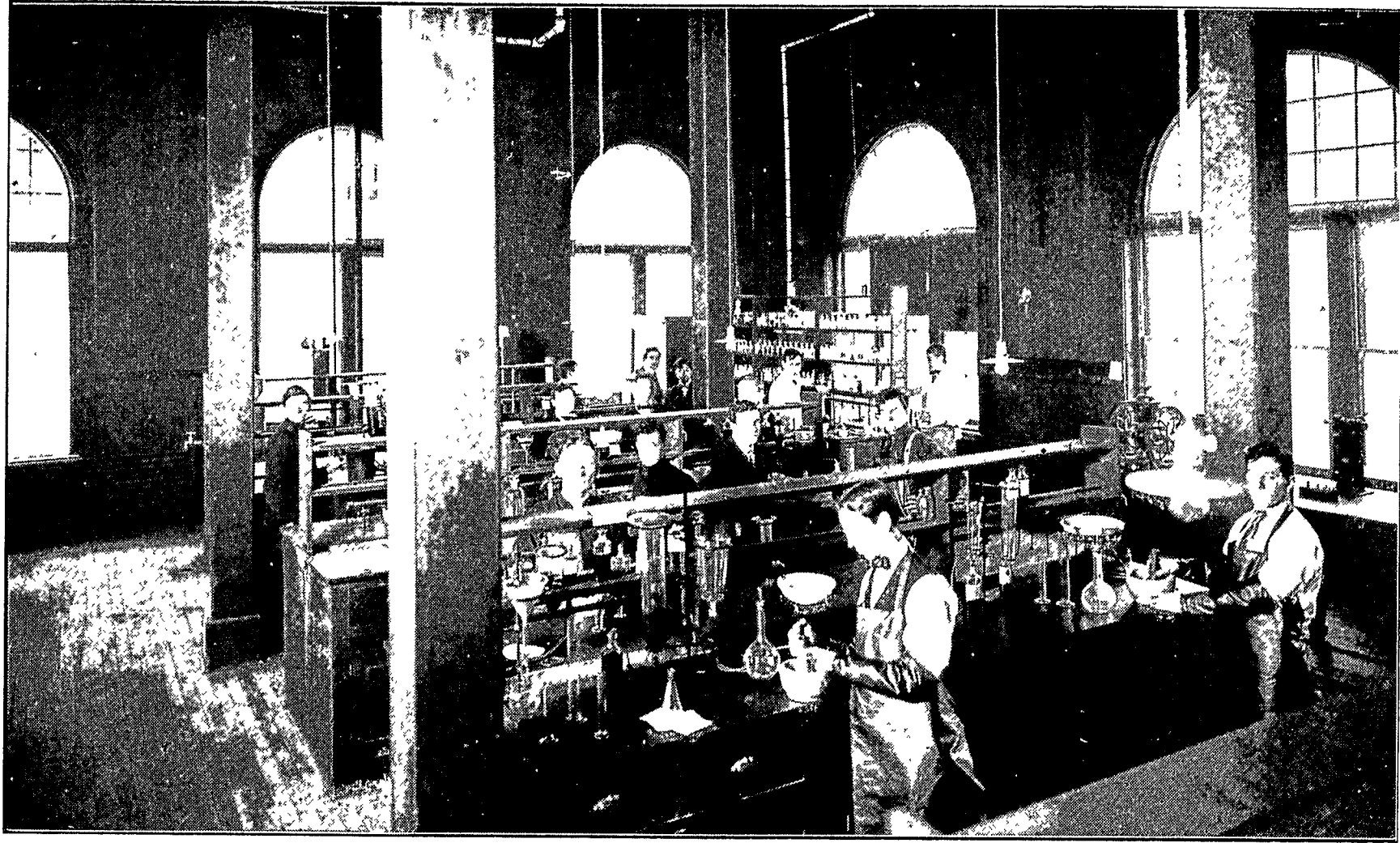
| SECOND YEAR | | | | | | | |
|---------------|---|----|---------|---------------|---|-------|-------|
| Pharmacy | 8 | 41 | III, IV | Pharmacy | 8 | 41,42 | V, VI |
| Chemistry | 4 | 46 | IV | Chemistry | 4 | 46 | V |
| Mat'ra Medica | 3 | 43 | VIII | Mat'ra Medica | 3 | 43 | VIII |
| Bacteriology | 3 | 56 | I | Pharmacog'y | 3 | 43 | X |
| | | | | Physiology | 4 | 60 | I |

DEGREE: PH. C.

| FIRST YEAR | | | | | | | |
|------------|---|-------|-------|---------------|---|-------|-------|
| Pharmacy | 3 | 41 | I | Pharmacy | 6 | 41 | I, II |
| Arithmetic | 3 | 43 | IX | Physics | 5 | 57 | I |
| Botany | 5 | 53,54 | I, II | Chemistry | 2 | 49 | X |
| Microscopy | 2 | 55 | I | Botany | 5 | 53,54 | I, II |
| Chemistry | 5 | 45 | I | Mat'ra Medica | 2 | 43 | VIII |

| SECOND YEAR | | | | | | | |
|---------------|---|----|---------|---------------|---|-------|-------|
| Pharmacy | 8 | 41 | III, IV | Pharmacy | 8 | 41,42 | V, VI |
| Chemistry | 4 | 46 | IV | Chemistry | 4 | 46 | V |
| Mat'ra Medica | 3 | 43 | VIII | Mat'ra Medica | 3 | 43 | VIII |
| Bacteriology | 3 | 56 | I | Pharmacog'y | 3 | 43 | X |
| | | | | Physiology | 4 | 60 | I |

| THIRD YEAR | | | | | | | |
|------------|---|----|----|---------------|---|----|---------|
| Pharmacy | 5 | 42 | VI | Pharmacy | 5 | 42 | VII |
| Chemistry | 5 | 47 | VI | Chemistry | 5 | 51 | XIV |
| Mineralogy | 2 | 59 | I | Urinary Anal. | 3 | 47 | VII (a) |
| Thesis | 1 | | | Toxicology | 3 | 47 | VII (b) |
| Elective | 5 | | | Thesis | 2 | | |
| | | | | Elective | 5 | | |



PHARMACY LABORATORY.

COURSES IN PHARMACY

I.

ELEMENTS OF PHARMACY—Lectures and recitations on the art and science of pharmacy, and demonstrations of the various pharmaceutical processes.

[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.

[Three hours a week for one term.]

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.

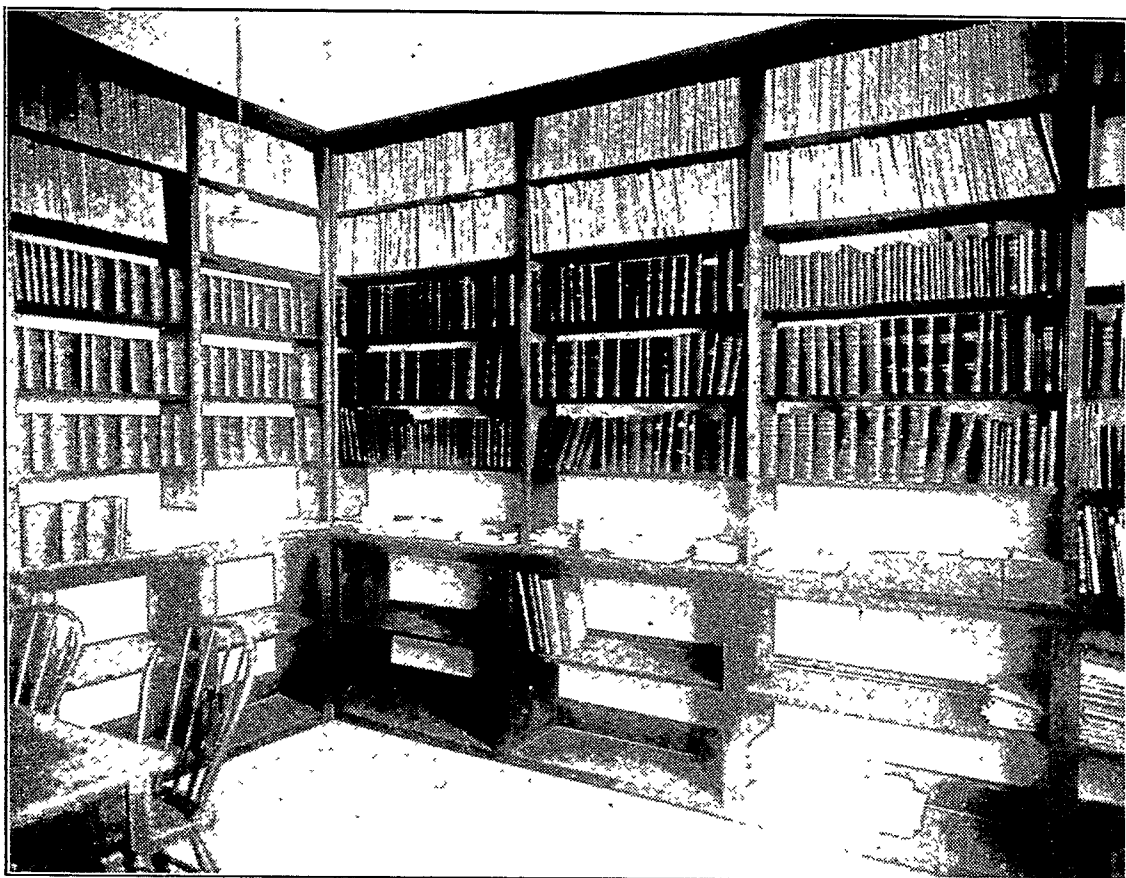
MAGISTRAL PHARMACY—Includes the manifold methods of extemporaneous pharmacy with consideration of incompatibility, posology, and the principles of elegant pharmacy. Dispensing and prescription practice.

[Three hours a week for one term.]

VI.

PHARMACEUTICAL CHEMISTRY—Chiefly assaying, testing and manufacturing. Determination of melting and boiling points, and solubilities. Some attention is given, also, to toilet and commercial preparations with a view to the invention and development of original formulas.

[Five hours a week for one term.]



LIBRARY.

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—This work embraces a detailed consideration of botanical drugs, their pharmaceutical definition and description, constituents, habitat, therapeutic action, use, dose and antidote. Attention is given also to mineral drugs and those of animal origin. They are studied individually at first then in classes or groups. The grouping is so arranged as to make the subject comparatively easy for the student.

[Three hours a week for three terms.]

IX.

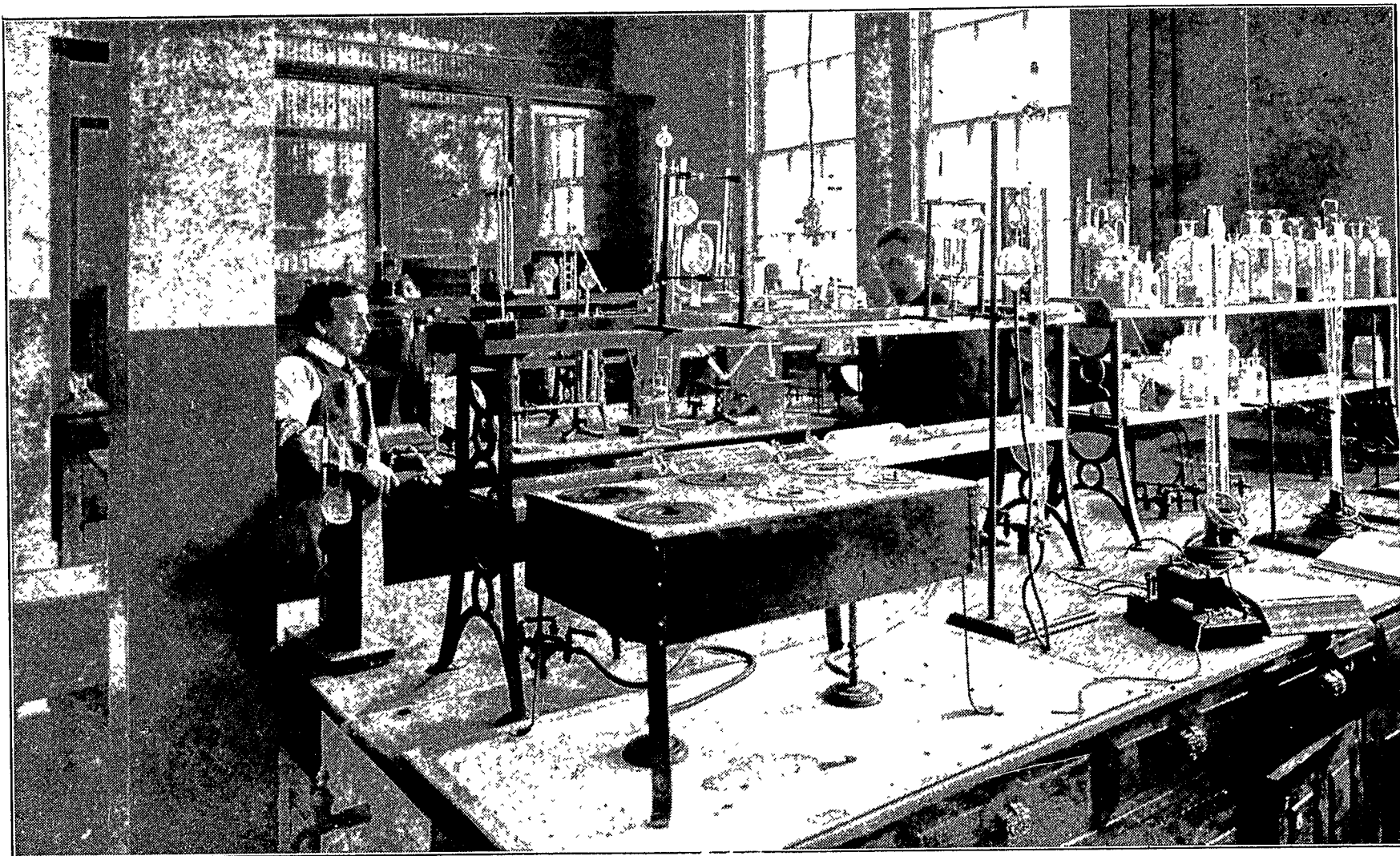
PHARMACEUTICAL ARITHMETIC—This work includes a study of weights and measures, percentage, relationship of systems, reducing and enlarging formulas, alligation and chemical problems.

[Three hours a week for one term.]

X.

PHARMACOGNOSY—The identification of preparations and crude drugs by their physical properties with special reference to quality and detection of adulteration. Attention is also given to the methods of preventing loss by improper storage or by the ravages of insects. Important drugs are studied under the microscope in cross section and in powder form.

[Three hours a week for one term.]



LABORATORY QUANTITATIVE ANALYSIS.

COURSES IN CHEMISTRY

I.

(a) GENERAL CHEMISTRY—A minor course dealing with the general principles of chemistry and embracing a study of only the commoner elements and their typical compounds. Text-book *Remsen's Elements of Chemistry*.

[Three hours a week for two terms.]

(b) A LABORATORY COURSE covering in the laboratory the work of the Lecture Course (I. a) and designed to accompany it. *Laboratory Manual, Maguire*.

[Two hours 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 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 III. (a), 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 subjects such as earths, ores, ashes, etc. Text-book, *Perkin*, supplemented by lectures.

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



CORNER OF PRIVATE LABORATORY.

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, with partial analysis of many complex substances. Text-books, *Appleton* and *Schimpf*.

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

VI.

(a) ELEMENTARY ORGANIC CHEMISTRY—Lectures and recitations. A systematic study of the hydrocarbons and their derivatives, and the investigation of their properties. Special attention is given to the Aliphatic and Aromatic series. Text-book, *Remsen*.

[Three hours a week for one term.]

(b) EXPERIMENTAL ORGANIC CHEMISTRY—A course fitted to accompany the preceding, involving the preparation by the student in the laboratory of the most important and typical organic compounds and the investigation of their properties. Text-book, *Gatterman's Manual*.

[Two hours a week for one term.]

VII.

(a) URINARY ANALYSIS—A course of laboratory exercises in the methods employed in the detection and estimation of the constituents of urine, pathologic as well as normal. Text-book, *Holland*.

[Three hours a week for one term]

(b) TOXICOLOGY—Symptoms and treatment of poisoning. A chemical and physical examination of the common poisons to familiarize the student with their properties. Attention is also given to their separation from food and animal tissue. Text-book, *Holland*.

[Three hours a week for one term.]

VIII.

TECHNICAL CHEMICAL ANALYSIS—Advanced courses intended for students specializing in Chemistry. Special courses, at the option of the student in

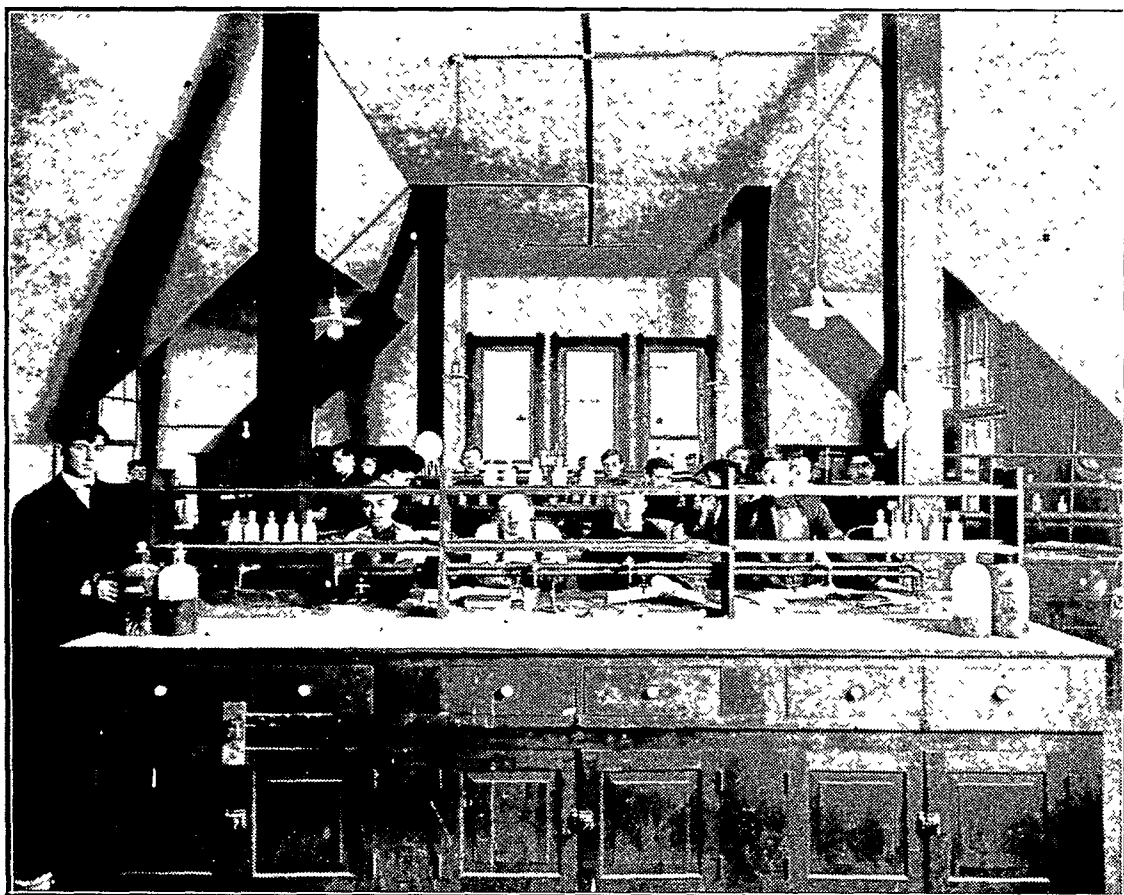
- I. GAS ANALYSIS.
- II. WATER ANALYSIS.
- III. SUGAR ANALYSIS.
- IV. COMMERCIAL ORGANIC ANALYSIS.
- V. OILS AND FATS.

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

IX.

(a) ADVANCED ORGANIC CHEMISTRY—An advanced course, intended for students specializing in chemistry. Lectures, recitations and discussions of special subjects of organic chemistry, synthetic chemistry, isomerism, and stereochemistry. Text-books, *Cohen* and special reference works.

[Two hours a week for one term.]



LABORATORY INORGANIC CHEMISTRY.

(b) ADVANCED ORGANIC LABORATORY—(1) The first term of this course is spent principally in the making of organic preparations by methods demanding special care, skill and accuracy in the student. (2) The second term is devoted to ultimate organic analysis, qualitative and quantitative; analysis of carbon, hydrogen, the halogens, sulphur and nitrogen in organic compounds by the various methods; also in the determi-

nation of molecular weights of organic compounds.
Text-books, general notes and reference works.

[Ten to fifteen hours a week for two 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*.

[Two hours a week for one term.]

XI.

(a) ELECTROCHEMISTRY—Lectures, experiments and recitations on the principles of electrochemistry and their application in the chemical industries, separation of metals, the preparation of chemical elements and electrosynthesis of compounds. Text-books, *Classen* and *Lüpke*.

[Two hours a week for one term.]

(b) ELECTROCHEMICAL LABORATORY—A laboratory course accompanying Course XI. (a). Experiments demonstrating the laws and principles of electrochemistry, electrolysis, electrosynthesis and electrometallurgy. Quantitative determination of metals electrolytically. Text-books, *Lüpke* and *Classen*.

[Two hours a week for one term.]

XII.

HISTORY OF CHEMISTRY—The subject is divided into topics and epochs of special interest in the development of chemistry as a science. These are discussed at length, together with the biographies of the men who aided in their development. Lectures and recitations. Seminar and journal work for advanced students. Text-book, *Meyer*. References to chemical periodicals.

[Three hours a week for one term.]



LABORATORY QUALITATIVE ANALYSIS.

XIII.

(a) PHYSICAL CHEMISTRY—Lectures, recitations and demonstrations, experiments on the subjects of gas density, solutions, chemical dynamics, the Phase Rule, thermochemistry, photochemistry, etc. Text-book, *Van Deventer*.

[Two hours a week for one term.]

(b) EXPERIMENTAL PHYSICAL CHEMISTRY—Laboratory work to accompany Course XIII. (a). Vapor density methods, calorimetric demonstrations by the freezing and boiling point methods, etc.

[One hour a week for one term.]

XIV,

INDUSTRIAL CHEMISTRY—Lectures, recitations and laboratory work. The consideration of chemical manufacture, fuels, etc., and the preparation in the laboratory of chemically pure substances, organic and inorganic. Special reference books and journals.

[Five hours a week for two terms.]

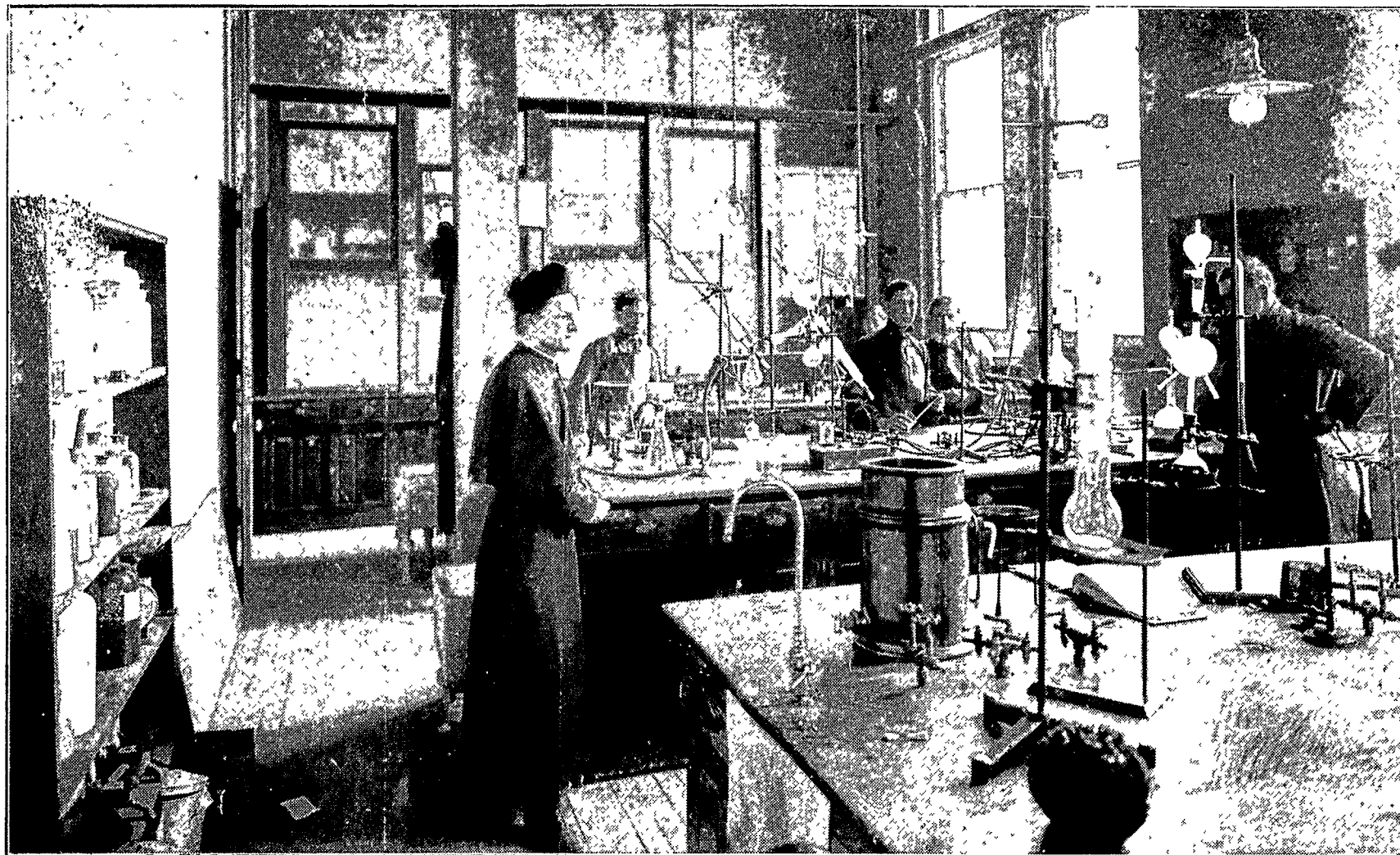
XV.

ADVANCED QUANTITATIVE—Mostly laboratory work in special methods for gravimetric and volumetric determinations of inorganic substances. Special reference work.

[Five hours a week for one term.]

XVI.

RESEARCH WORK—Special facilities are offered to graduate students desiring to do original research work in chemistry, preparatory to the Master's or Doctor's degree.

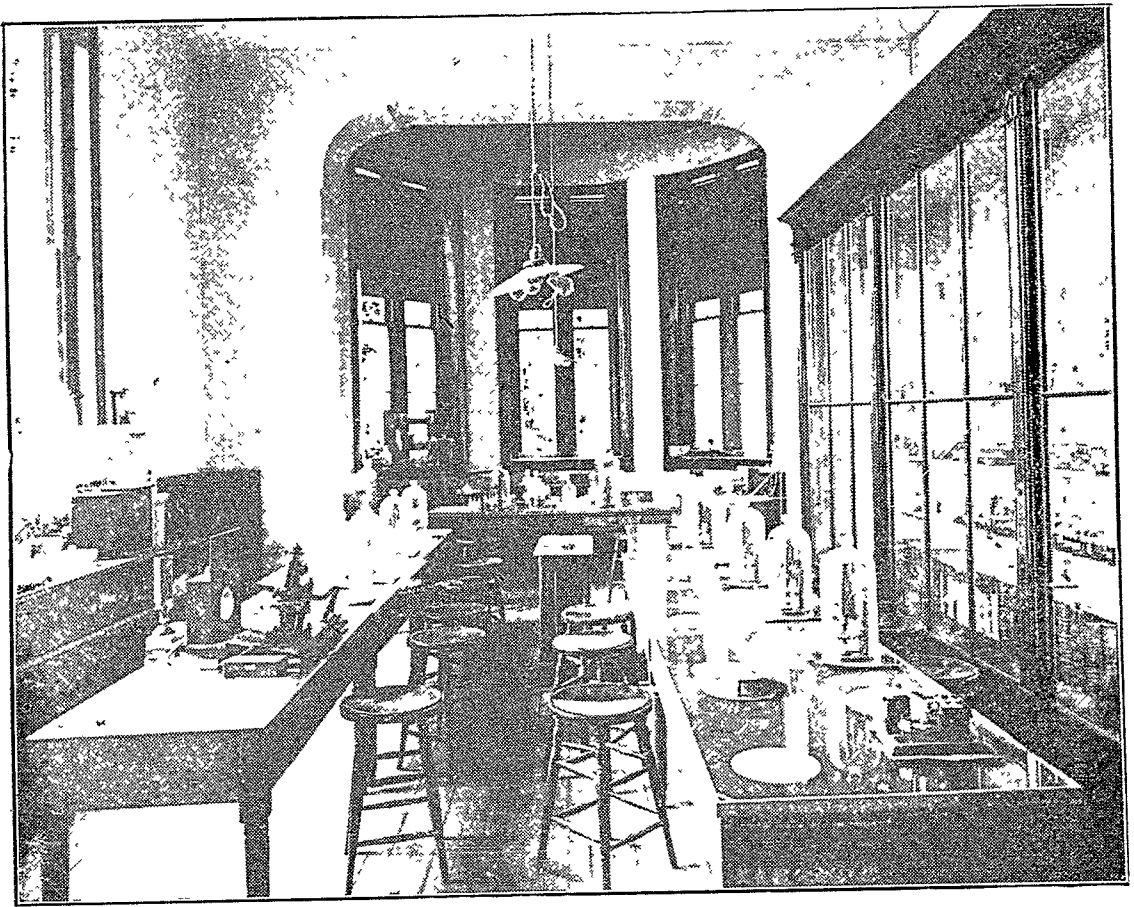


LABORATORY ORGANIC ANALYSIS.

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



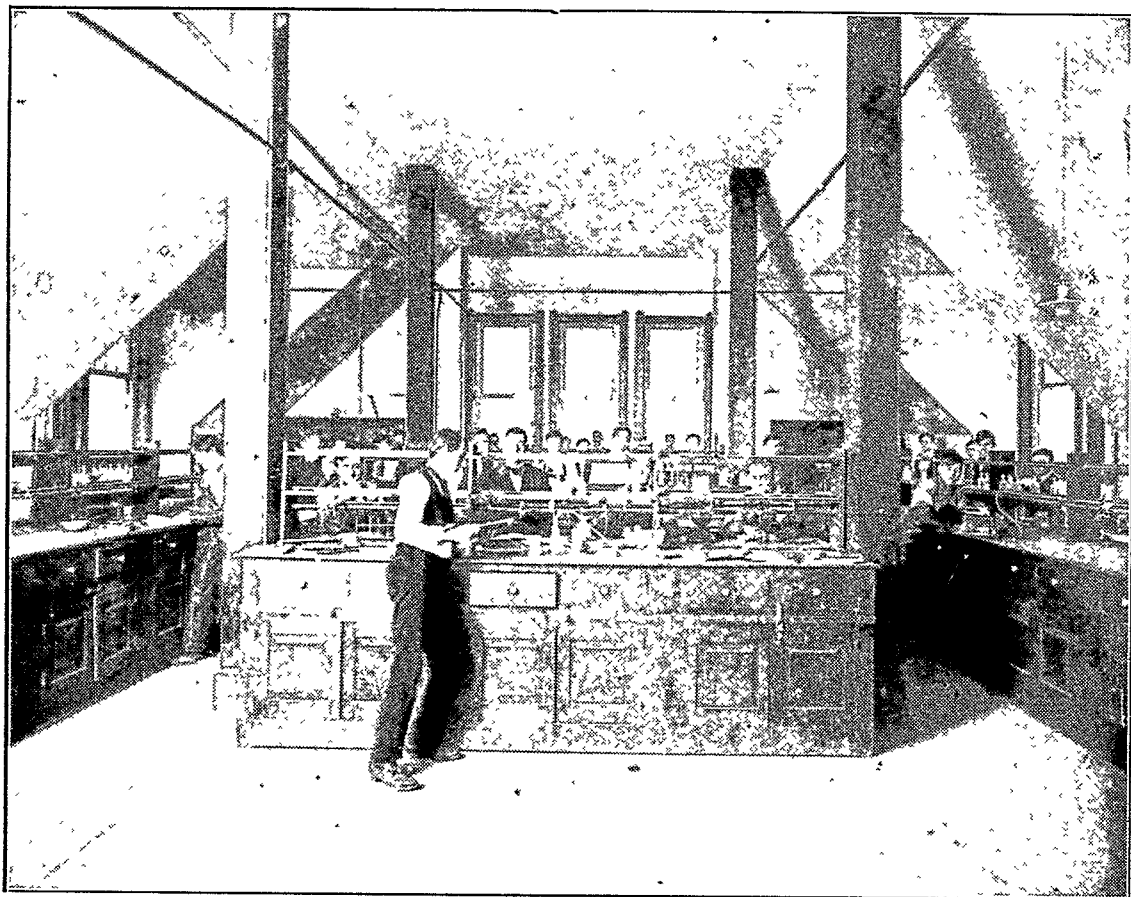
BOTANICAL LABORATORY

its products, of cell formation, of plant tissues and the various physiological phenomena; the structure, growth, reproduction and general classification of the algæ, fungi, lichens, mosses, ferns, and the higher plants. Text-book, *Bastin's College botany*.

[Four hours a week for two terms.]

II.

BOTANICAL LABORATORY—Supplementary to Course I. Special microscopical study of thallophyta, bryophyta, pteridophyta and spermaphyta referred to in Course I. Drawings must be made of all plants examined. Plants under these headings are collected and put before the student that he may become familiar



GENERAL CHEMISTRY LABORATORY.

with their morphology, structure and classification. The course is to accompany or precede Course I. Provision is also made in this course for students in pharmacy to take a special laboratory course in pharmaceutical botany. Study of the determination and classification of the simpler official plants. The analysis of the phanerogams occupies the time during the spring months and

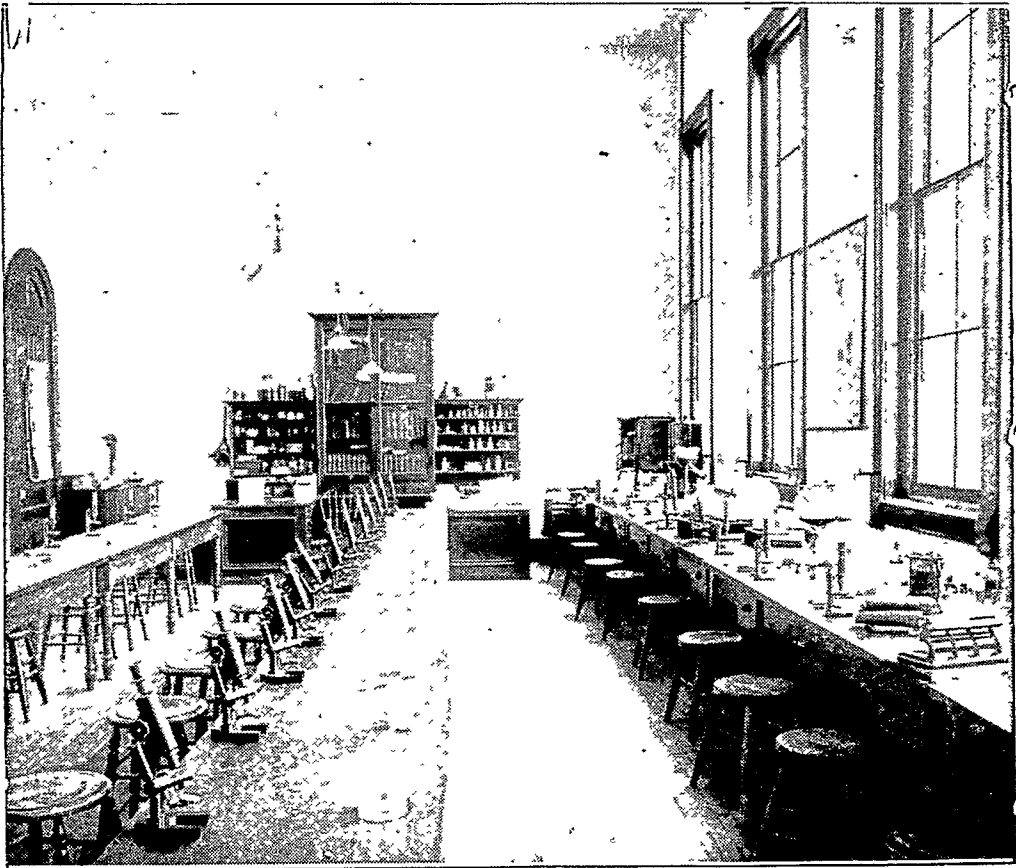
the student is made familiar with the habitat and characteristics of the local flora. Text-book for classification of plants, *Britton's Manual*.

[One hour a week for two terms.]

COURSES IN MICROSCOPY

I.

MICROSCOPY—Lectures and laboratory work. Refraction and dispersion of light and illumination. The index



MICROSCOPY LABORATORY.

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*.

[Two 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, cleaning and mounting tissues and organs.

[One laboratory hour a week for one term.]

COURSE IN BACTERIOLOGY

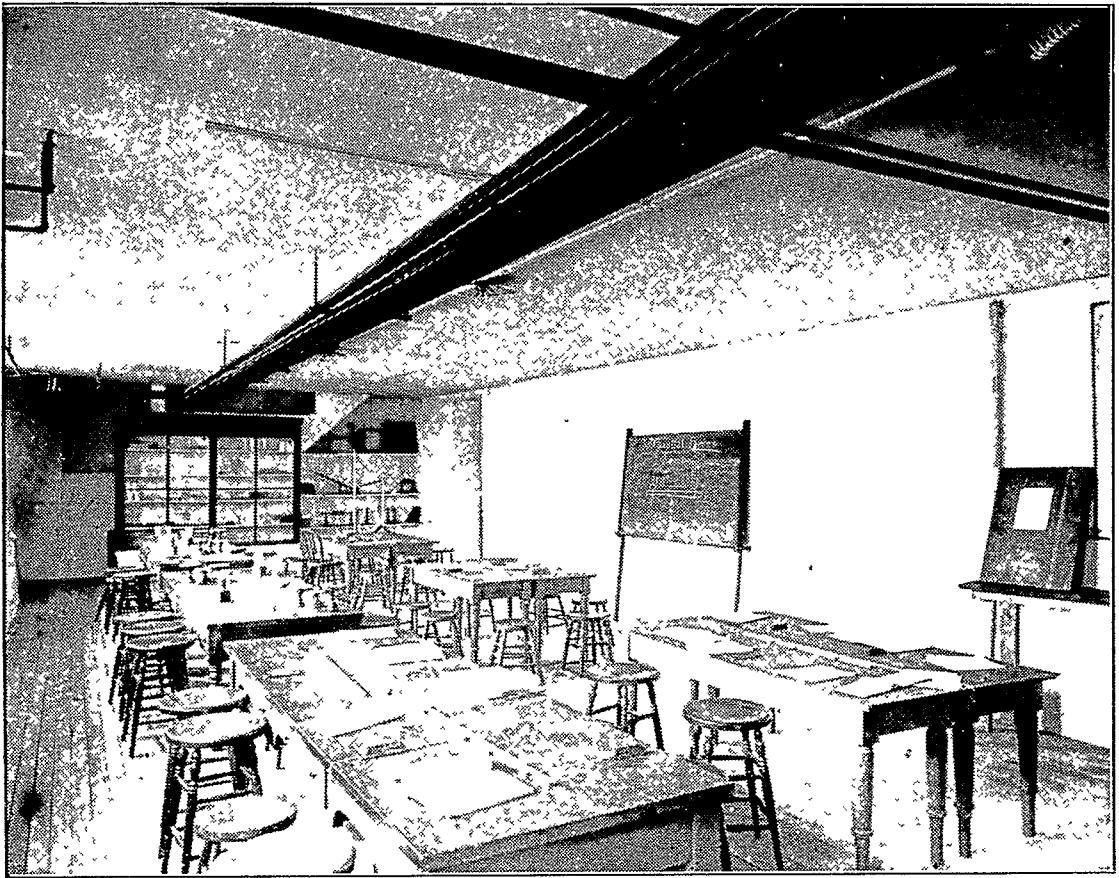
LECTURES AND LABORATORY WORK—Lectures on the form, structure, reproduction and classification of bacteria. The relations of bacteria to disease, etc. The



BACTERIOLOGICAL LABORATORY.

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 micro-

scopic 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



LABORATORY PHYSICS.

and soil. Text-book, *Abbott's Principles of Bacteriology*.
[Three laboratory hours a week for one term.]

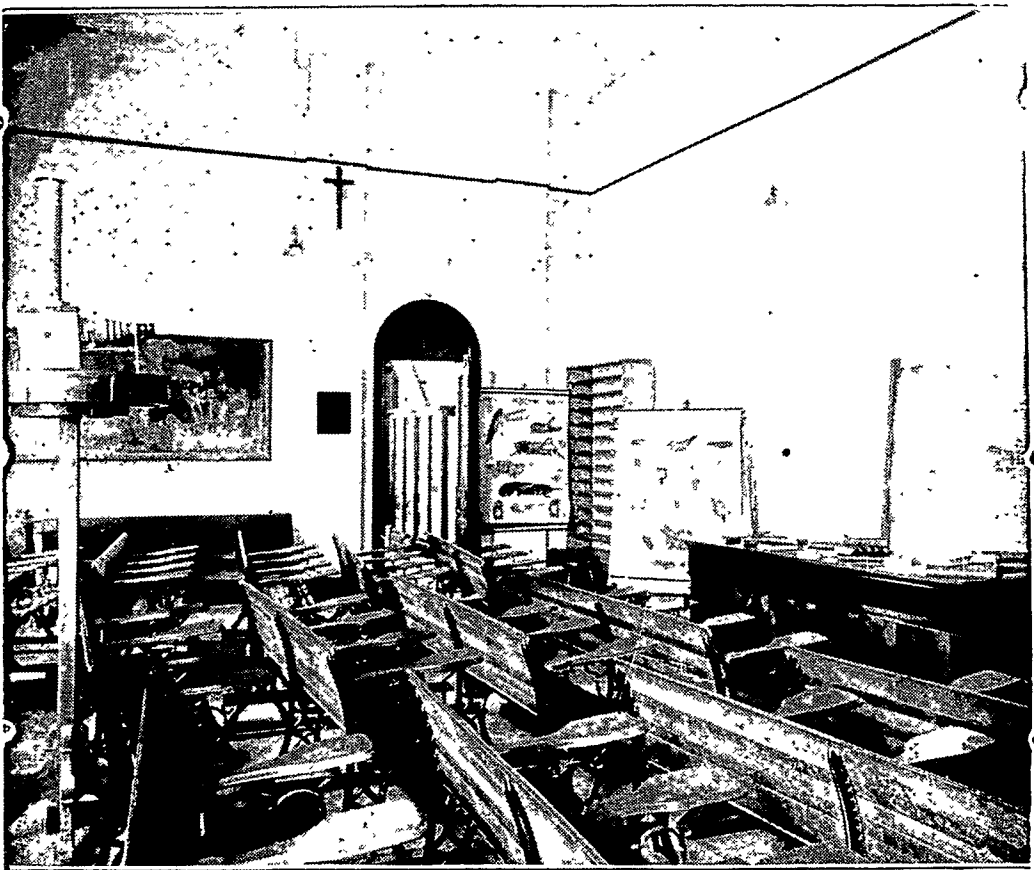
COURSE IN PHYSICS

(a) PHYSICS—Instruction in 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. Text-book, *Carhart and Chute*.

[Three hours a week for two terms.]

(b) THE LABORATORY WORK of this course consists of a series of experiments which verify and apply prac-



LECTURE ROOM PHYSIOLOGY.

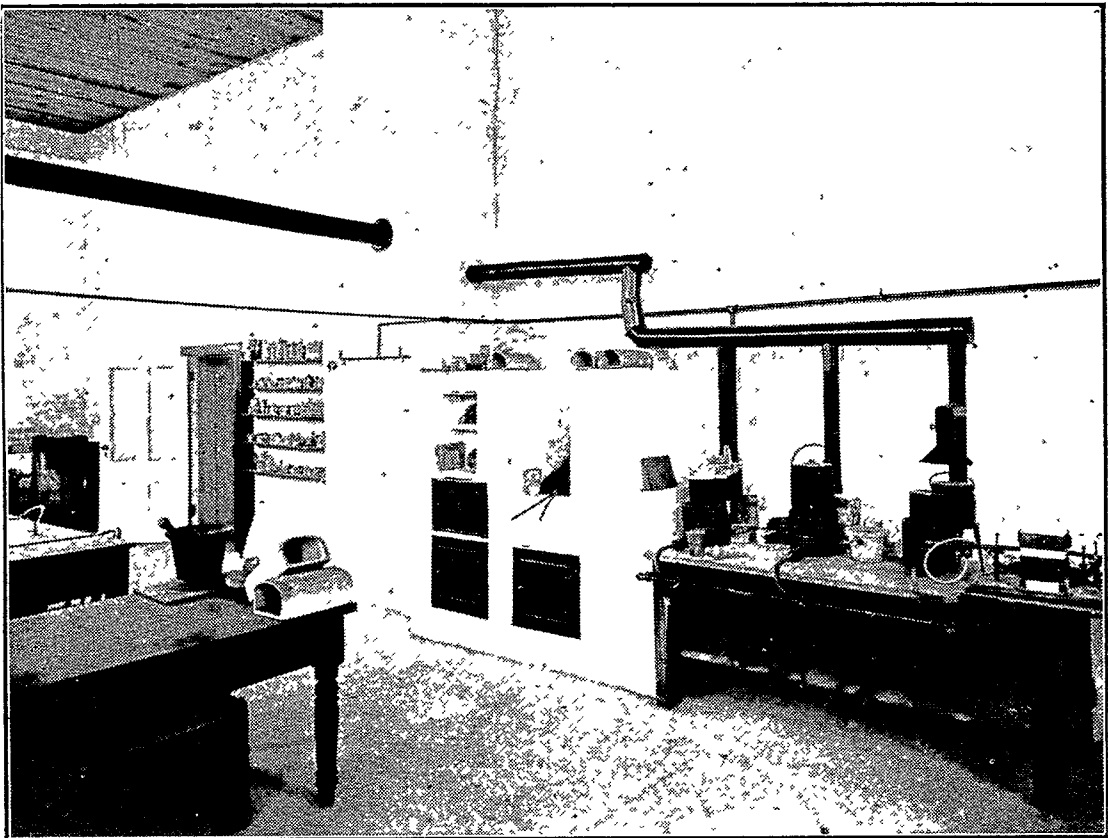
tically the fundamental principles of physics. The student also receives instruction in the use and careful handling of apparatus, accurate observation, and correct deduction of results. Neat and concise reports of all experiments are kept by each student and form the basis for the grades in his work.

[Two hours each week for two terms.]

COURSES IN MINERALOGY

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



MINERALOGY LABORATORY.

the ores. Blow-pipe analysis. Text-book, *Crosby*.
[Two hours a week for one term.]

II.

ASSAYING—Chiefly laboratory work. Furnace assaying of the ores of gold silver and lead. Text-book, *Ricketts*.

[Two hours a week for one term.]

COURSES IN HUMAN PHYSIOLOGY

I.

(a) This course comprises lectures, recitations and demonstrations based upon *Thornton's Text-book of Human Physiology*. A liberal supply of models, charts and manikins are at hand to facilitate all demonstrations required.

(b) Laboratory work consisting of a selected number of experiments so arranged as to give the student a fair insight into modern experimental physiology.

(c) A limited number of microscopical preparations are required to be made by each student, and he must examine a set of typical preparations in order to acquire a fair knowledge of the microscopical structure of the tissues and organs of the human body.

(d) During the course special lectures will be given upon personal, domestic and municipal hygiene.

[Three recitations and one laboratory period for two terms.]

N. B.—Students of Pharmacy must take sections (a) and (d) but may select either (b) or (c).



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 are over three thousand (3,000) Catholic students in 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 who 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.

Foundations for Scholarships are a very pressing need.

We lack money for a library building, and for two more dwelling halls like Sorin Hall.

There is no Library Fund for the purchase of new books.

The names of the 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 incorporated under the laws of the State of Indiana, and located at Notre Dame, Indiana.....



