

1921

Old School Catalog 1921-22, The School of Pharmacy

Valparaiso University

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VALPARAISO UNIVERSITY BULLETIN

VOL. XLVII

JULY, 1921

No. 5

ARCHIVES
VALPARAISO UNIVERSITY

The School *of* Pharmacy

TWENTY-NINTH ANNUAL
ANNOUNCEMENT, 1921-22



PUBLISHED BY VALPARAISO UNIVERSITY
VALPARAISO, INDIANA

UNIVERSITY CALENDAR

FALL QUARTER, 1921

September 16, 17, 19, Friday, Saturday, Monday. Registration days.
Arrearage and entrance examinations.

September 20, Tuesday. FALL QUARTER BEGINS. All classes meet.
First Chapel Assembly, 8:30 A. M.

November 24, Thursday. Thanksgiving Day: a holiday.

October 6, Thursday. FOUNDERS DAY.

December 5, Monday. Examinations begin.

December 8, Thursday. Fall Quarter ends.

WINTER QUARTER, 1921-22

December 9, 10, 12, Friday, Saturday, Monday. Registration days.

December 13, Tuesday. WINTER QUARTER BEGINS. All classes meet.

December 24, 25, 26. Christmas Recess.

December 27, Tuesday. Work resumed.

February 27, Monday. Examinations begin.

March 2, Thursday. Winter Quarter ends.

SPRING QUARTER, 1922

March 3, 4, 6, Friday, Saturday, Monday. Registration days.

March 7, Tuesday. SPRING QUARTER BEGINS. All classes meet.

May 22, Monday. Examinations begin.

May 25, Thursday. SPRING COMMENCEMENT. Spring Quarter ends.

SUMMER QUARTER, 1922

May 26, 27, 29, Friday, Saturday, Monday. Registration days.

May 30, Tuesday. SUMMER QUARTER BEGINS. All classes meet.

August 13, Sunday. Baccalaureate Address.

August 14, Monday. Examinations begin.

August 16, Wednesday. Class day.

August 17, Thursday. FORTY-NINTH ANNUAL COMMENCEMENT. Alumni
Dinner and Reunion.

The School of Pharmacy of Valparaiso University

SCHOOL YEAR, 1921-22

THE FACULTY

JOHN EDWARD ROESSLER, A. B., A. M., LITT. D., *President of the University*

OLIVER PERRY KINSEY, A. M., *President Emeritus*

ALPHEUS AMERICUS WILLIAMS, B. S., A. M., SC. D., *Vice President*

HUGH CORNELIUS MULDCON, B. S., PH. G., *Dean of the Faculty and Professor of Chemistry*

FRANK V. MORGAN, PHARM. D., *Professor of General Chemistry*

CYRUS L. COX, PH. C., B. S., *Professor of Pharmacy and Advanced Analytical Chemistry*

HELEN STAUFFER CARPENTER (MRS.), B. S., PH. C., *Professor of Analytical Chemistry*

GEORGE C. SCHICKS, JR., PH. C., *Professor of Materia Medica and Pharmacognosy*

BERTON ARTHUR HOWLETT, M. S., *Professor of Physics*

MASON L. WEEMS, B. S., A. M., *Professor of Botany and Physiology*

GEORGE R. DOUGLAS, PH. B., M.D., *Professor of Therapeutics and Toxicology*

JOHN L. SAHM, PH. G., *Professor of Commercial Pharmacy*

MIL0 JESSE BOWMAN, A. M., LL. B., *Professor of Pharmaceutical Jurisprudence*

EDGERTON WILLIAM AGAR, B. S., LL.B., J. D., *Professor of Business Law*

MERVYN G. HUMPHREY, B. C. S., *Professor of Accounting*

BERNICE PLETTE, B. S., *Instructor in Inorganic Chemistry*

MAURICE DUNAY, PH. C., *Assistant in Organic Chemistry and Pharmacy*

RUSSEL R. BATTERSHELL, *Instructor in Chemistry*

BENJAMIN RACZ, *Assistant in Inorganic Chemistry*

MAXIMILLIAN WUNDERLICH, *Assistant in Materia Medica and Pharmacy*

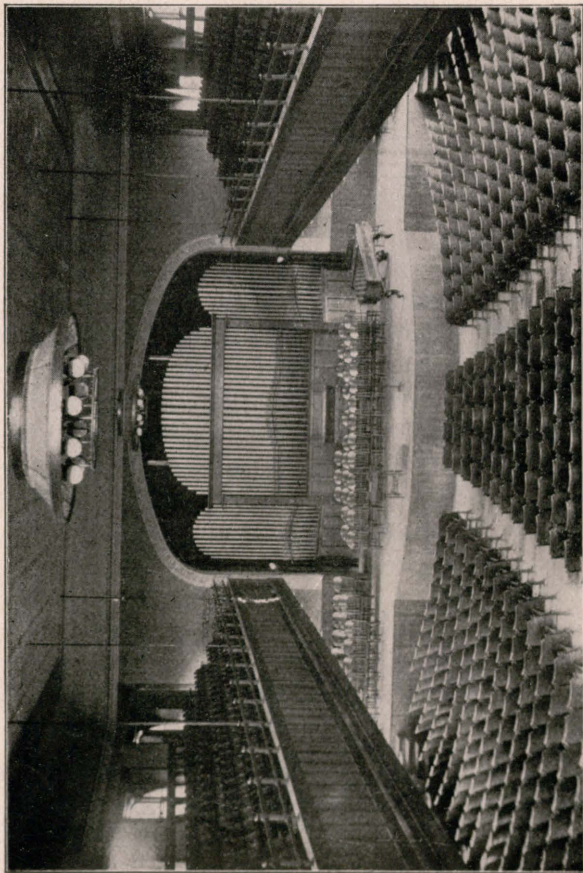
NOTE.—Courses in Mathematics, English, Foreign Languages, etc., are offered by members of the Faculty of Arts and Sciences.

THE UNIVERSITY

Valparaiso University was founded in 1873 by Henry Baker Brown with the design of giving every person an opportunity to obtain a thorough and practical education at the least possible expense. Under the guidance of Mr. Brown, who served as its president until his death in 1917, and of Oliver Perry Kinsey, after 1881 its Vice President, the school became one of the largest institutions of learning in the United States. More than one hundred twenty-five thousand students from all parts of the world have participated in the educational opportunity which it extends.

The organization of the University comprises the College of Arts and Sciences, the School of Education, the School of Music, the Law School, the Engineering School, the Commercial School, the School of Pharmacy, the Pre-Medical School, the Medical School (affiliated), the University High School, and the University Elementary School. Its equipment includes sixteen buildings, ten laboratories capable of accommodating twelve hundred students daily, general and departmental libraries containing thirty-five thousand bound volumes, workshops for various departments, three large dining halls, and an athletic field.

The University is located at Valparaiso, Indiana, a beautiful residence city forty-four miles southeast of Chicago, in a rich farming country adjacent to the greatest industrial region of the middle west. The city is on the main lines of three railways, the Pennsylvania, the Grand Trunk, and the New York Central and St. Louis, making it easily accessible from all points. It has paved streets, cement walks, sewerage system, gas and electricity, interurban line and an excellent water supply. Chicago, Gary, Hammond, Indiana Harbor, South Bend, and other great industrial cities are within an hour's ride. Opportunities for employment at times when the student is not in residence are ordinarily abundant. Many students earn sufficient during the sum-



UNIVERSITY AUDITORIUM

mer to pay a great part of their expenses for a year. Inspection trips to the great industries of the Calumet region in Indiana and to Chicago, Detroit, and Indianapolis form a part of the work in the technical courses of instruction. The location of the University thus combines the advantages of a quiet and inexpensive small city with those of a metropolis.

THE SCHOOL OF PHARMACY

The School of Pharmacy graduated its first class in 1893. It offers a thorough and practical training in all subjects pertaining to pharmacy, and prepares students for the various duties of prescriptionists, manufacturing chemists, food and drug inspectors, analysts in pharmaceutical lines of research, and for general analytical work in various fields of industrial chemistry.

The stringent laws governing pharmacists in effect in many states, the Federal Pure Food and Drug Act and similar state statutes, and a general public awakening to the need for technical training, have made demands upon pharmacists which can be met only by college trained men. It is the aim and desire of the School of Pharmacy to promote the interests of pharmaceutical education, and to cooperate with other institutions, state boards of pharmacy, and pharmaceutical associations in the various states in maintaining a high standard for the profession.

EQUIPMENT

There are eight separate laboratories in which students of the School do their work. The main chemical laboratory is equipped for two hundred ninety students working at different hours. The special pharmacy laboratory similarly accommodates two hundred fifty students. The dispensing laboratory is furnished with twenty-two regular dispensing cabinets having the appurtenances of the modern type of prescription case. Cabinets extending around the

room are filled with the shelf ware of a retail pharmacy. The materia medica room is fitted with individual desks and lockers for pharmacognosy, and contains also display cabinets of chemicals, crude drugs, and pharmaceutical apparatus. A good working library containing the latest publications and the more important pharmaceutical journals is kept in the building.

THE DRUG GARDEN

The serious reduction in the supply of medicinal plants at the outbreak of the World War caused botanists of this country to make earnest study of the culture of important plants for medicinal use. As a small part of this movement the School began its medicinal plant garden. The enterprise received the assistance of the Bureau of Plant Industry of the United States and many important drug plants have been collected and planted. A great variety of conditions in the garden, from full sun to full shade, and many kinds of soil, have made possible a good collection of important plants. The garden has proved to be a valuable supplement to the equipment in pharmacy.

THE FACULTY

The Faculty consists of men of scientific attainment who have had experience in practical pharmacy. This assures those who attend the School that neither the theoretical nor the practical side of the profession will be overlooked.

ADVANTAGES

The School of Pharmacy, being located in a small city, is free from the influences which detract from a close attention to study. Thus more can be accomplished in a given time than is possible when the student's time is divided between school work and outside employment. It is not considered desirable for students to find employment in drug stores for any considerable part of their time while pursuing the work of the School. The practical side of pharmacy is in no way underrated, but it is to the student's best interest to give the

greater part of his time to his studies. Living expenses being much lower than in a large city, students may complete a course of study with less actual outlay of money, even without taking outside employment, than in the larger cities with such employment. There are, however, numerous opportunities for employment in the University or other establishments, whereby students may defray part of their expenses.

STUDY TRIPS

An annual inspection trip to manufacturing plants, chemical and pharmaceutical, is arranged for by the faculty, and all students are expected to attend. In this way practical information is acquired regarding the preparation of chemicals and galenicals upon a commercial basis. Itineraries are so arranged that several plants are visited each trip so that maximum benefit is obtained at minimum expense. Each year a visit is planned to the large pharmaceutical laboratories and manufacturing plants of Detroit or Indianapolis. Proximity to Chicago as well as to the great oil refineries, iron and steel producing plants, cement works, *etc.*, offers special inducement to those interested in the industrial applications of chemistry and pharmacy.

THE VALPARAISO PHARMACEUTICAL ASSOCIATION

This organization has for its object the promotion of social fellowship and the stimulation of professional interest among the students of pharmacy. It is purely a student organization, and any student in the School is eligible for membership. The society meets twice monthly, and the programs are both interesting and instructive. In addition to student programs and lectures by the faculty, the Association is addressed during the year by men of prominence in pharmaceutical circles.

The student library in Science Hall was made possible by this society. A nucleus of one hundred dollars, originally donated from its treasury, has since been added to very materially, both by the Association and by the University, thus

establishing a good working library to which the student has convenient access.

POSITIONS

While the School does not attempt to provide positions for its graduates, an employment registry is maintained for the convenience of employers and students and graduates. The demand for registered graduates of the School is always in excess of the supply.

THE QUARTER SYSTEM

The year in the School is divided, as in the other schools of the University, into four quarters, each twelve weeks in length. Students may enter at the beginning of any quarter, but are advised to begin with the Fall Quarter, if possible.

CURRICULA OF STUDY

The School offers the following curricula:

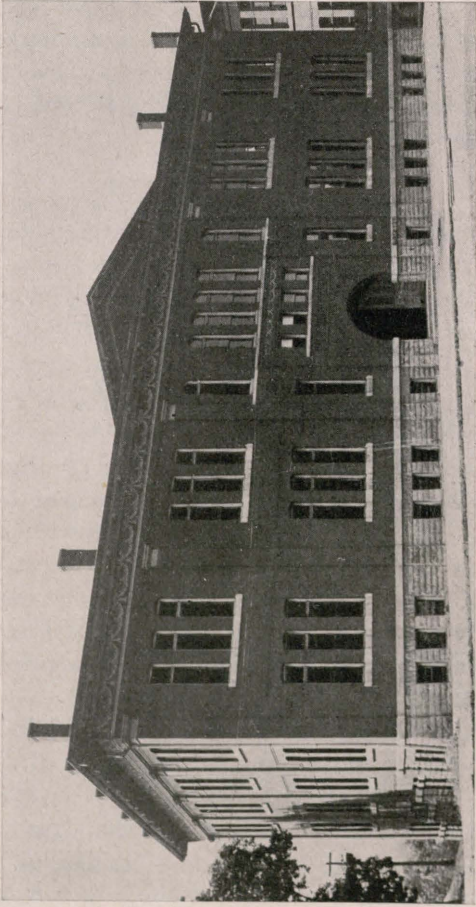
1. A curriculum comprising two years of three quarters each (72 weeks), and leading to the degree of *Graduate in Pharmacy*, Ph. G. One quarter must intervene between the closing of the first year and the opening of the second.

2. A curriculum comprising two years of four quarters each (96 weeks), and leading to the degree of *Pharmaceutical Chemist*, Ph. C. This curriculum closely approximates the usual three-year curriculum in other schools.

3. A curriculum comprising three years of four quarters each (144 weeks), and leading to the degree of *Bachelor of Science in Pharmacy*, B. S. (Phar.). This is really a four-year curriculum completed in three calendar years.

4. A one-year elective curriculum leading to no degree.

THE GRADUATE IN PHARMACY COURSE is designed to prepare the student for the duties of the retail pharmacist. The curriculum is so arranged that the subjects first pursued prepare the student for all studies to be taken up in succeeding quarters. It is also arranged in conformity to the outline given in the *Pharmaceutical Syllabus*. In every instance, how-



SCIENCE BUILDING

ever, there is offered and required a greater number of hours than is indicated in the outline given by the National Committee. To a limited extent, students may elect branches in other schools of the University, without extra charge except for private lessons in music, public speaking, *etc.*

THE PHARMACEUTICAL CHEMIST COURSE has been arranged to furnish a more thorough training than is possible in the Ph. G. course of seventy-two weeks. Graduates of this course are well prepared for all kinds of pharmaceutical and general chemical work. They are especially qualified in the different phases of analytical chemistry which will enable them to fill positions in pharmaceutical laboratories, food laboratories, and in various manufacturing establishments.

THE BACHELOR OF SCIENCE IN PHARMACY COURSE is designed to add scholastic and additional business training to the work in pharmacy proper and is arranged to include the work of the Ph. C. course. The Ph. C. course gives ample training in chemistry, pharmacy, materia medica and closely allied scientific subjects. To this are added courses which aim to give a broad business foundation and fit the student for a successful career in the higher fields of business effort. The electives may be taken in Education if a teacher's training is sought, or in Zoology, Physics, Foreign Languages, or such other departments as may be desired.

THE ELECTIVE COURSE. Students may enter this course at any time and select work for which they are fitted. The course affords opportunity for review to those who have been out of touch with school work for some time. Because of the fact that subjects may be selected with regard to the needs of the individual, it makes a course preparatory to board examinations. Non-registered pharmacists may avail themselves of this opportunity for reviewing particular subjects in which they feel themselves least qualified. Students enter the regular classes but college credit is not given unless the student has satisfied the requirement for admission.

ADMISSION OF STUDENTS

Men and women are admitted to all classes upon equal terms.

Applicants for admission to the first-year class as candidates for a degree must be at least seventeen years of age, must be of good moral character, and must present certificates of graduation from a recognized high school offering a four years' course, or the equivalent as shown by properly certified credentials. At least fifteen high school units are required, of which three units must be in English, two units in mathematics, one unit in one science, two units in one foreign language, and one unit in history. The remaining six units may be selected from certain subjects ordinarily taught in high schools. Further information regarding entrance requirements and the manner of admission are stated in the first section of the General Catalog.

Students are not admitted as candidates for a degree subject to the removal of entrance conditions.

Though highly desirable it is not essential that students shall have had practical experience in a drug store before taking up the work of the pharmaceutical courses.

ADMISSION WITH ADVANCED STANDING

Credits are accepted from other institutions whose admission requirements and character of work conform to the standards of this School. In order to be eligible to a degree, students admitted with advanced standing must have spent at least one year in residence and must have completed at least one year's work in this School.

DEGREES

The degree of Graduate in Pharmacy is conferred upon students who satisfactorily complete the seventy-two weeks curriculum; the degree of Pharmaceutical Chemist, upon students who satisfactorily complete the ninety-six weeks curriculum; and the degree of Bachelor of Science in Phar-

macy upon students who satisfactorily complete the required one hundred forty-four weeks curriculum.

Graduates in liberal arts and science, in medicine, in dentistry, in veterinary medicine and from other professional and technical schools under no circumstances receive degrees in pharmacy from this school in less than the required time, since no allowance whatever is made in the period of study for work not done in a recognized school of pharmacy.

EXAMINATIONS

Examinations are given at the end of each quarter upon the subjects covered during that quarter. There are also final examinations in Chemistry, Materia Medica, and Pharmacy. The general regulations pertaining to examinations, grades, and credits are stated in the first section of the General Catalog.

THE UNIT OF CREDIT

In evaluating credits the unit for measuring the amount of work done is the *term-hour*, or *hour*. An hour is one 55-minute period (net) of prepared classroom work, or three such periods of laboratory work, each week for one quarter (twelve weeks). In the School of Pharmacy from sixteen to eighteen hours, thus defined, constitutes full work for a quarter, designed to occupy the time of the student. For completion of the Ph. G. course, 98 hours are required; for completion of the Ph. C. Course, 138 hours; for completion of the B. S. (Phar.) Course, 204 hours.

PH. G. CURRICULUM

FIRST YEAR

Fall Quarter

| Courses | Hours per week | | | Credit- hours | Fee |
|--|----------------|------|--|------------------|--------|
| | Class | Lab. | | | |
| Phys. 1 Elementary Physics I - - - | 3 | 3 | | 4 | \$2.00 |
| Chem. 1 Inorganic Chemistry I - - - | 3 | 3 | | 4 | 4.00 |
| Phar. 30 Pharmaceutical Botany I - - - | 3 | 3 | | 4 | 2.00 |
| Phar. 6 Pharmaceutical Latin - - - | 3 | .. | | 3 | ..... |

Winter Quarter

| | | | | | | |
|-----------|--------------------------|-----------|---|----|---|-------|
| Phys. 2 | Elementary Physics II | - - - | 3 | 3 | 4 | 2.00 |
| Chem. 2 | Inorganic Chemistry II | - - - | 3 | 3 | 4 | 4.00 |
| Phar. 13 | Accounting | - - - - - | 3 | .. | 3 | ..... |
| Phar. 14a | Business Law | - - - - - | 2 | .. | 2 | ..... |
| Phar. 31 | Pharmaceutical Botany II | - - - | 2 | 6 | 4 | 2.00 |

Spring Quarter

| | | | | | | |
|----------------|----------------------------|---------|----|----|----|-------|
| Chem. 11 | Arithmetical Chemistry | - - - | 3 | .. | 3 | ..... |
| Chem. 12 | Pharmaceutical Chemistry | - - - | 3 | 6 | 5 | 7.00 |
| Phar. 32 | Histological Pharmacognosy | - .. | | 4 | 2 | 1.50 |
| Chem. 14 | Qualitative Analysis | - - - - | 2 | 6 | 4 | 4.00 |
| Chem. 3 | Inorganic Chemistry III | - - - | 2 | .. | 2 | ..... |
| Total for year | | | 35 | 37 | 48 | |

SECOND YEAR

Fall Quarter

| | | | | | | |
|----------|------------------------|-----------|---|----|---|-------|
| Phar. 1 | Theoretical Pharmacy I | - - - | 3 | .. | 3 | ..... |
| Phar. 4 | Arithmetical Pharmacy | - - - | 2 | .. | 2 | ..... |
| Phar. 34 | Materia Medica I | - - - - - | 3 | .. | 3 | ..... |
| Phar. 38 | Physiology | - - - - - | 3 | 2 | 4 | 2.00 |
| Chem. 16 | Quantitative Analysis | - - - - | 2 | 9 | 5 | 7.00 |

Winter Quarter

| | | | | | | |
|----------|-----------------------------|-----------|---|----|---|-------|
| Phar. 2 | Theoretical Pharmacy II | - - - | 5 | - | 5 | ..... |
| Chem. 4 | Organic Chemistry I | - - - | 3 | 3 | 4 | 4.00 |
| Phar. 35 | Materia Medica II | - - - - - | 3 | .. | 3 | ..... |
| Phar. 5 | Manufacturing Pharmacy | - - .. | | 6 | 2 | 7.00 |
| Phar. 36 | Therapeutics and Toxicology | - 3 | | .. | 3 | ..... |

Spring Quarter

| | | | | | | |
|----------------|--------------------------|-----------|----|----|----|--------|
| Phar. 3 | Theoretical Pharmacy III | - - - | 5 | .. | 5 | ..... |
| Chem. 5 | Organic Chemistry | - - - - | 3 | 3 | 4 | \$4.00 |
| Phar. 7 | Dispensing | - - - - - | 2 | 9 | 6 | 7.00 |
| Chem. 19 | Alkaloid Analysis | - - - - | .. | 6 | 3 | 3.50 |
| Total for year | | | 27 | 38 | 50 | |

TOTAL FOR PH. G. COURSE 72 75 98

In addition to the above, a series of lectures on Commercial Pharmacy covering twenty-five lecture-hours is given throughout the second year, on Tuesdays and Thursdays of every third week.

SUMMARY OF HOURS IN PH. G. CURRICULUM

| | |
|---------------------------------|---|
| First Year: | Classroom hours, 420; Laboratory, 444; Total, 464 |
| Second Year: | Classroom hours, 444; Laboratory, 456; Total, 900 |
| TOTAL FOR PH. G., 864 900 1,764 | |

PH. C. CURRICULUM

FIRST YEAR

Fall Quarter

| Courses | Hours per week | | | Credit- hours | Fee |
|----------|--------------------------------------|-------------|----|------------------|--------|
| | Class | Lab. | | | |
| Phys. 1 | Elementary Physics I | - - - 3 | 3 | 4 | \$2.00 |
| Chem. 1 | Inorganic Chemistry I | - - - 3 | 3 | 4 | 4.00 |
| Phar. 30 | Pharmaceutical Botany I | - - 3 | 3 | 4 | 2.00 |
| Phar. 6 | Pharmaceutical Latin | - - - - 3 | .. | 3 | ..... |
| | Foreign Language or Mathe- matics | - - - - - 5 | .. | 5 | ..... |

Winter Quarter

| | | | | | |
|----------|--------------------------------------|-------------|----|---|-------|
| Phys. 2 | Elementary Physics II | - - - 3 | 3 | 4 | 2.00 |
| Chem. 2 | Inorganic Chemistry II | - - - 3 | 3 | 4 | 4.00 |
| Phar. 31 | Pharmaceutical Botany II | - - 2 | 6 | 4 | 2.00 |
| | Foreign Language or Mathe- matics | - - - - - 5 | .. | 5 | ..... |

Spring Quarter

| | | | | | |
|----------|--------------------------------------|-------------|----|---|-------|
| Chem. 3 | Inorganic Chemistry III | - - 2 | .. | 2 | ..... |
| Chem. 12 | Pharmaceutical Chemistry | - - 3 | 6 | 5 | 7.00 |
| Phar. 32 | Histological Pharmacognosy | - .. | 4 | 2 | 1.50 |
| Chem. 14 | Qualitative Analysis | - - - - 2 | 6 | 4 | 4.00 |
| | Foreign Language or Mathe- matics | - - - - - 5 | .. | 5 | ..... |

Summer Quarter

| | | | | | |
|-----------|-----------------------|-------------|----|----|-------|
| Phar. 40 | Bacteriology | - - - - - 2 | 4 | 4 | 5.00 |
| Phar. 33 | Microscopy | - - - - - 1 | 4 | 3 | 2.50 |
| Chem. 16 | Quantitative Analysis | - - - - 2 | 9 | 5 | 7.00 |
| Chem. 18 | Water Analysis | - - - - - 1 | 4 | 2 | 2.50 |
| Phar. 13 | Accounting | - - - - - 3 | .. | 3 | ..... |
| Phar. 14a | Business Law | - - - - - 2 | .. | 2 | ..... |
| | Total for year | 57 | 58 | 77 | |

SECOND YEAR

Fall Quarter

| | | | | | |
|----------|--------------------------------|-------------|----|---|-------|
| Phar. 1 | Theoretical Pharmacy I | - - - 3 | .. | 3 | ..... |
| Phar. 4 | Arithmetical Pharmacy | - - - 2 | .. | 2 | ..... |
| Phar. 34 | Materia Medica I | - - - - 3 | .. | 3 | ..... |
| Phar. 38 | Physiology | - - - - - 3 | 2 | 4 | 1.50 |
| Chem. 17 | Advanced Quantitative Analysis | 2 | 9 | 5 | 7.00 |

Winter Quarter

| | | | | | | |
|-------|----|-----------------------------|---------|----|---|-------|
| Phar. | 2 | Theoretical Pharmacy II | - - 5 | .. | 5 | ..... |
| Chem. | 4 | Organic Chemistry I | - - - 3 | 3 | 4 | 4.00 |
| Phar. | 34 | Materia Medica II | - - - 3 | .. | 3 | ..... |
| Phar. | 5 | Manufacturing Pharmacy | - - .. | 6 | 2 | 7.00 |
| Phar. | 36 | Therapeutics and Toxicology | - 3 | .. | 3 | ..... |

Spring Quarter

| | | | | | | |
|-------|----|--------------------------|------------|----|---|-------|
| Phar. | 3 | Theoretical Pharmacy III | - - 5 | .. | 5 | ..... |
| Chem. | 5 | Organic Chemistry II | - - - 3 | 3 | 4 | ..... |
| Phar. | 7 | Dispensing | - - - - 2 | 9 | 5 | 7.00 |
| Chem. | 19 | Alkaloid Analysis | - - - - .. | 6 | 2 | 3.50 |

Summer Quarter

| | | | | | | | |
|-------|----|-----------------------------|-----------|----------------|----|-------|----|
| Phar. | 9 | Advanced Pharmacy | - - - - 2 | 6 | 4 | ..... |  |
| Chem. | 6 | Synthetic Organic Chemistry | - 1 | 6 | 3 | 7.50 | |
| Chem. | 20 | Food and Drug Analysis | - - .. | 20 | 10 | 12.00 | |
| | | | | Total for year | 40 | 67 | 60 |

In addition to the above, a series of lectures on Commercial Pharmacy covering twenty-five lecture-hours is given throughout the second year, on Tuesdays and Thursdays of every third week.

B. S. (PHAR.) CURRICULUM**FIRST AND SECOND YEARS**

For the first two years, this curriculum is identical with the Ph. C. Curriculum. The final year is as follows:

THIRD YEAR

| Fall Quarter | | Winter Quarter | |
|---------------------------|--------------|--------------------------------|--------------|
| <i>Courses</i> | <i>Hours</i> | <i>Courses</i> | <i>Hours</i> |
| Business Psychology I | - - - 3 | Psychology of Salesmanship | - 3 |
| English Composition I | - - - 3 | English Composition II | - - - 3 |
| Economics I | - - - - 3 | Economics II | - - - - 3 |
| Foreign Language | - - - - 5 | Foreign Language | - - - - 5 |
| Elective | - - - - 3 | Public Speaking, Sales Address | 2 |
| Spring Quarter | | Summer Quarter | |
| Psychology of Advertising | - 3 | Thesis | - - - - - 3 |
| Sales Correspondence | - - - 3 | Drug Garden | - - - - - 3 |
| Executive Management | - - 3 | Foreign Language | - - - - 5 |
| Alkaloidal Assay | - - - 3 | Elective | - - - - - 5 |
| Foreign Language | - - - - 5 | | |

As the Ph. C. Curriculum gives ample training in Physics, Chemistry, and Botany, it is recommended that the electives be chosen in Zoology and Geology.

THE ELECTIVE CURRICULUM

This course comprises one year of nine months and is made up of courses selected to meet the need of each individual student. This does not imply that the student is to have less than a complete program for each day. He must take as many hours work per day as the regular student of pharmacy.

COURSES OF INSTRUCTION

CHEMISTRY

1. **Inorganic Chemistry I.**—A college course in Chemistry dealing with the theories and laws underlying the science. Class, 3 hours; laboratory, 3 hours. Smith's *College Chemistry*. Fall Quarter; Spring Quarter. *Four hours*.

Laboratory fee, \$4.00.

2. **Inorganic Chemistry II.**—A continuation of Chemistry 1, treating of the acid forming elements. Class, 3 hours; laboratory, 3 hours. Smith's *College Chemistry*. Winter Quarter; Summer Quarter. *Four hours*.

Laboratory fee, \$4.00.

3. **Inorganic Chemistry III.**—This course completes the classroom work in Inorganic Chemistry, and treats of the metals. Class, 2 hours. Smith's *College Chemistry*. Fall Quarter; Spring Quarter. *Two hours*.

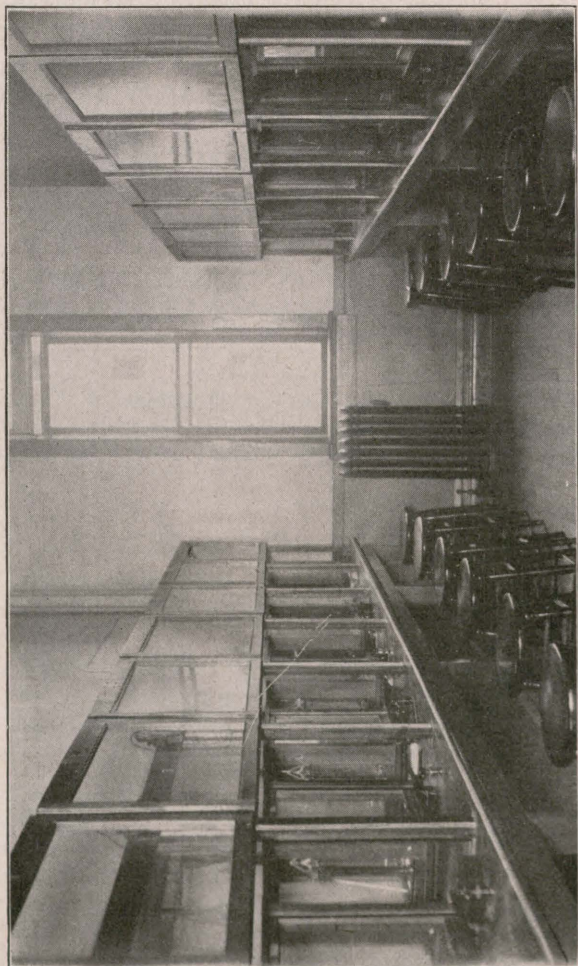
4. **Organic Chemistry I.**—A general course in Organic Chemistry covering the points of physical chemistry essential to the subject and dealing with the aliphatic series. Class, 3 hours; laboratory, 3 hours. Prerequisite: Chemistry 3. Stoddard's *Organic Chemistry*. Winter Quarter. *Four hours*.

Laboratory fee, \$4.00.

5. **Organic Chemistry II.**—The study of the aliphatic series is completed, and the remaining time is given to the aromatic series. Special attention is given to the needs of students of medicine and pharmacy. Class, 3 hours; laboratory, 3 hours. Prerequisite: Chemistry 4. Stoddard's *Organic Chemistry*. Spring Quarter. *Four hours*.

Laboratory fee, \$4.00.

6. **Synthetic Organic Chemistry.**—The preparation and properties of important organic compounds are taken up in this work. The purpose of the course is practical training in the manufacture of



BALANCE ROOM

certain organic chemicals. A good library gives the student an opportunity to develop along original lines. Class, 1 hour; laboratory, 6 hours. Prerequisite: Chemistry 5. Cohen's *Practical Organic Chemistry*. Summer Quarter. *Three hours*.

Laboratory fee, \$7.50.

8. History of Chemistry.—A study of the development of chemical theories from the earliest times to the present day. Considerable time is spent on the biographies of men who have contributed most to the development of Chemistry during the past century. Class, 3 hours. Prerequisite: Chemistry 5. Moore's *History of Chemistry*. Winter Quarter. *Three hours*.

11. Arithmetical Chemistry.—This is arranged to cover practical chemical problems. It is quite essential for the student who wishes to become proficient in any branch of Chemistry. Prerequisite: Chemistry 1. Estebrook and Baskerville's *Problems in Chemistry*, Class, 3 hours. Spring Quarter. *Three hours*.

12. Pharmaceutical Chemistry.—A course devoted, primarily, to the needs of pharmacy and premedical students. Special stress is laid upon the inorganic chemicals of Pharmacopoeia. These are discussed from the standpoint of mineral sources, methods of manufacture, physical and chemical properties, identification and uses. The student has access to samples of important salts and is expected to be able to identify these by means of their physical properties. Many of these salts are manufactured in the laboratory work accompanying this course. Class, 3 hours; laboratory, 6 hours. Prerequisite: Chemistry 1, 2. Arny's *Principles of Pharmacy*. Spring Quarter. *Five hours*.

Laboratory fee, \$7.00.

14. Qualitative Analysis.—An elementary course in chemical analysis dealing with solutions of common metallic salts, and the determination of positive and negative radicals. Class, 2 hours; laboratory, 6 hours. Prerequisite: Chemistry, 2. Timmon's *Qualitative Analysis*. Every quarter. *Four hours*.

Laboratory fee, \$4.00.

15. Advanced Qualitative Analysis.—Attention is given to the methods of dry analysis and to the examination of organic compounds. The determination of fifty inorganic unknowns completes the course. Class, 2 hours; laboratory, 6 hours. Morgan's *Qualitative Analysis*. Winter Quarter; Summer Quarter. *Four hours*.

Laboratory fee, \$4.00.

16. Quantitative Analysis.—This is a course majoring gravimetric and volumetric work. The general processes of gravimetric analysis are studied, and volumetric analyses illustrating the processes of neutralization, precipitation, and oxidation and reduction are carried out. Class, 2 hours; laboratory, 9 hours. Prerequisite: Chem. 14. Clowes and Coleman's *Quantitative Analysis*. Fall Quarter; Summer Quarter. *Five hours*.

Laboratory fee, \$7.00.

17. Advanced Quantitative Analysis.—In this course is given the quantitative analysis of iron, steel, slag, cement, limestone, and the common ores. Technique is emphasized. The blowpipe is used to identify the ores analyzed. Class, 2 hours; laboratory, 9 hours. Prerequisite: Quantitative Analysis. White's *Metalurgical Analysis*. Fall Quarter. *Five hours*.

Laboratory fee, \$6.00.

18. Water Analysis.—A laboratory course devoted to the chemical examination of water. Class, 1 hour; laboratory, 4 hours. Prerequisite: Quantitative Analysis. Mason's *Examination of Water*. Summer Quarter. *Three hours*.

Laboratory fee, \$2.50.

19. Alkaloid Analysis.—A laboratory course including both qualitative and quantitative work in the chemistry of the alkaloids. Free use is made of the chemistry library, to which the student has easy access. Laboratory, 6 hours. Prerequisite: Organic Chemistry. Spring Quarter. *Two hours*.

Laboratory fee, \$3.50.

20. Food and Drug Analysis.—This course includes the examination of a variety of foods and drugs with a view to detecting adulteration. It covers such a wide range of chemical technique that it should not be elected by any who are not well advanced in chemistry. It includes the microscopic examination of drugs, chemicals and foods, as well as their chemical examination. Laboratory, 20 hours. Prerequisite: Organic Chemistry, Quantitative Analysis. Leach's *Food Inspection and Analysis*. Summer Quarter. *Ten hours*.

Laboratory fee, \$12.00.

27. Electrochemistry.—A course in theoretical and applied electrochemistry, with emphasis on the technical side of the subject. A breakage fee is added to each laboratory fee. This will be returned less individual breakage. Class, 5 hours. Prerequisite: Chemistry 1, 2. Spring Quarter. *Five hours*.

28. Alkaloidal Assay.—A laboratory course in the chemical assay of various drugs and preparations to determine percentage of alkaloidal or other active constituent. Among the assays are included those of cinchona, nux vomica, belladonna, opium, ipecac, guarana, jalap, pepsin, and pancreatin. Laboratory, 6 hours. Prerequisite: Chemistry 3, 5, 14, 16. Spring Quarter. *Three hours.*

Laboratory fee. \$5.00.

29. Urinalysis.—A course in the chemical analysis of urine devoted to the detection and determination of both normal and abnormal constituents. Consideration is given to the microscopic appearance of the sediments or normal and pathological urines. Classroom, 1 hour; laboratory, 2 hours. Prerequisite: Chemistry 3, 14, 16. Rockwood's *Physiological Chemistry*. Winter Quarter. *Two hours.*

Laboratory fee: \$2.00.

Note.—Other courses in Chemistry which may be taken as electives are described in the announcements of the College of Arts and Sciences.

PHYSICS

1. Elementary Physics I.—A first course in Physics covering the subjects of mechanics and heat, designed for students who have not presented Physics for admission. Class, 3 hours; laboratory, 3 hours. Every quarter. *Four hours.*

Laboratory fee: \$2.00.

2. Elementary Physics II.—A continuation of course 1, covering electricity, sound and light. Class, 3 hours; laboratory, 3 hours. Every quarter. *Four hours.*

Laboratory fee: \$2.00.

Note.—Courses in Physics which may be taken as electives are described in the announcements of the College of Arts and Sciences.

PHARMACY

1. Theoretical Pharmacy I.—A course intended to introduce to the student the subject of Pharmacy. The United States Pharmacopoeia and the National Formulary are thoroughly discussed with regard to history, scope and purpose. The Dispensatories are also considered. Then are taken up in turn the subjects of metrology, specific gravity, heat and its applications to pharmacy, distillation, methods of comminution, solution, crystallization, percolation, maceration and filtration. A variety of pharmaceutical apparatus is available for demonstration purposes. Class, 3 hours. *Arny's Principles of Pharmacy*. Fall Quarter. *Three hours.*

2. Theoretical Pharmacy II.—This course covers the subject of galenical pharmacy. Each of the classes of pharmaceutical preparations, such as waters, solutions, infusions, decoctions, mucilages, mixtures, emulsions, syrups, wines, elixirs, spirits, tinctures, fluid-extracts, extracts, oleoresins, collodions, oleates, liniments, ointments, plasters, suppositories, and others are taken up in turn. All of the Pharmacopoeial and many of the National Formulary preparations belonging to these classes are considered individual'y. Class, 5 hours. *Army's Principles of Pharmacy*. Winter Quarter. *Five hours*.

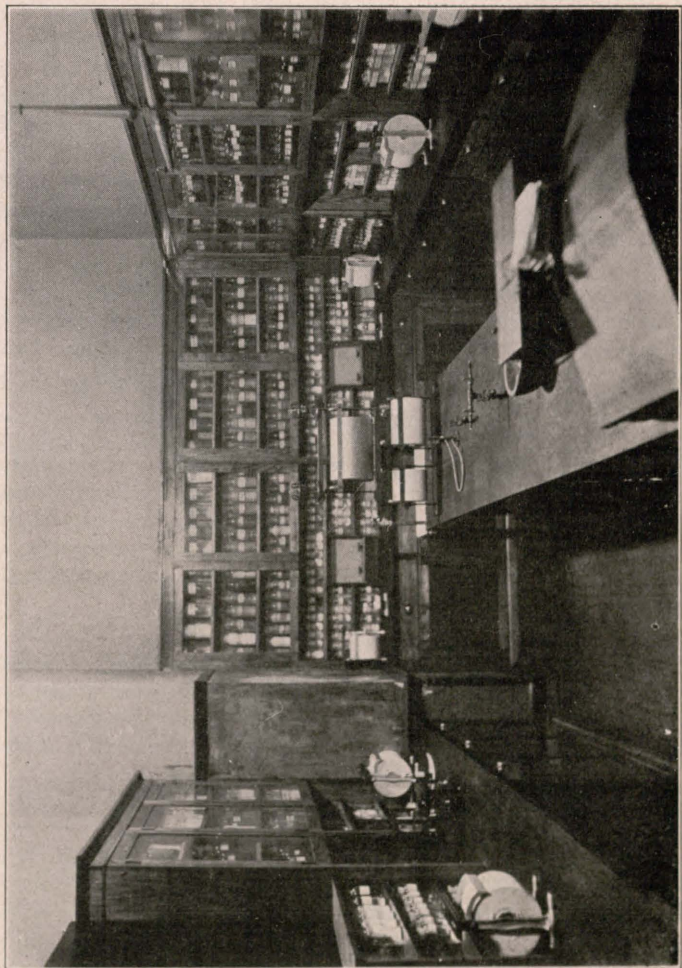
3. Theoretical Pharmacy III.—A systematic study of the Pharmacopoeia and the National Formulary. Coming during the last term of work, it serves the purpose of a very thorough review not only of pharmacy proper, but of materia medica and pharmaceutical chemistry. Class, 5 hours. *United States Pharmacopoeia and National Formulary*. Spring Quarter. *Five hours*.

4. Arithmetical Pharmacy.—A course which provides a thorough training in the calculations which necessarily accompany many pharmaceutical operations. The student is thoroughly familiarized with all of the systems of weights and measures used in this country. The problems presented also cover the subjects of specific gravity determinations by all of the important methods, conversion of thermometer readings, percentage solutions, alligation, etc. Class, 2 hours. *Steven's Arithmetic of Pharmacy*. Fall Quarter. *Two hours*.

5. Manufacturing Pharmacy.—This is a laboratory course. Galenical preparations are taken up in the following order: Waters, spirits, solutions, mucilages, syrups, elixirs, glycerites, collodions, oleates, infusions, decoctions, tinctures, fluidextracts, mixtures, emulsions, liniments, and powders. From one to eight preparations of each class are made and their difficulties of manufacture, uses, and incompatibilities are discussed. Several alkaloids and resins are purified and volatile oils are distilled. Spirit of nitrous ether is manufactured and assayed by a method which is practicable for any drug store. An individual quiz is given each student on each preparation as it is submitted for inspection. *United States Pharmacopoeia*, *National Formulary*, *United States and National Dispensatories* are used as references. Laboratory, 6 hours. *Army's Principles of Pharmacy*. Winter Quarter. *Two hours*.

Laboratory fee, \$7.00.

6. Pharmaceutical Latin.—A drill in pharmaceutical and medical terms, prescription reading and writing from the standpoint of the



DISPENSING LABORATORY

Latin commonly used. Muldoon's *Pharmaceutical Latin*. Fall Quarter; Winter Quarter. *Three hours*.

7. Dispensing.—The first part of the course is devoted to the manufacture of preparations generally made extemporaneously, such as ointments, cerates, emulsions, suppositories, troches, compressed tablets, tablet triturates, pills, solution of magnesium citrate and seidlitz powders, followed by actual prescription work. The prescriptions compounded are carefully selected with a view to familiarizing the student with dispensing difficulties. Practice is given in dispensing remedies in the form of powders, in capsulating both solids and liquids, and in dispensing cachets and wafers. The conditions under which the student works approximate closely those found in the prescription pharmacy. Every prescription dispensed is labeled and wrapped as in actual practice. The laboratory work is accompanied by lectures and recitations in which dispensing problems are thoroughly discussed. The subject of incompatibilities receives careful attention. Class, 2 hours; laboratory, 9 hours. Scoville's *Art of Compounding*. Spring Quarter. *Five hours*.

Laboratory fee, \$7.00.

9. Advanced Pharmacy.—A study of some of the more unusual incompatibilities encountered in dispensing practice. Certain pharmaceutical operations requiring special apparatus are carried out, and cold creams, lotions, tooth preparations, and other toilet requisites are manufactured. Class, 2 hours; laboratory, 6 hours. Summer Quarter. *Four hours*.

Laboratory fee, \$6.00.

10. Thesis.—Candidates for the degree of Bachelor of Science in Pharmacy are required to present a thesis embodying original research along pharmaceutical lines. The subject must be approved by the professor in charge. At least six hours per week must be devoted to its development. Summer Quarter. *Three hours*.

COMMERCIAL PHARMACY

12. Commercial Pharmacy.—Lectures on the subjects of clerks, clerkship and relation to employer; establishing a business; buying, selling and advertising methods; collections; manufacturing; relation to laity and to the physician; business and professional ethics. Twenty-five lecture hours, extending throughout the entire year. No text required. Reference: O'Connor's *Commercial Pharmacy*.

13. Accounting.—The student is taught to journalize business transactions, to post same, to close the ledger, and to keep a cash book and a set of books especially recommended for a retail drug

store. The forms and methods of commercial correspondence are also taught. Class, 3 hours. Winter Quarter. *Three hours.*

14a. Business Law.—The fundamental principles of the law governing business transactions with especial attention given to sales of personal property, negotiable instruments, partnership, corporations, insurance, real property, banking, and bankruptcy. Class, 2 hours. Spencer's *Commercial Law*. Winter Quarter. *Two hours.*

14b. Pharmaceutical Jurisprudence.—A series of five lectures during the second year, supplementing course 14a and dealing particularly with the law affecting the pharmacist in the conduct of his business.

15. Commercial Pen Lettering.—Instruction and practice, with the ordinary commercial pen and special lettering pens. Optional.

16. Business Psychology.—General principles of psychology are discussed in order to bring before the students a comprehensive view of the operation of the adult mind; an analysis of business practice and an effort to understand from a psychological standpoint some of the causes of business successes and failures. The purpose of the course is to present the fundamental laws of self-development. Among topics discussed are attention, memory, imagination, reason, instincts, emotion, and the will. Emphasis is placed upon business ethics and conduct. Fall Quarter. *Three hours.*

17. Psychology of Salesmanship.—General laws of psychology as applied to the problems of sales-management; analysis of the fundamental principle of salesmanship; mental law of sale; ability to understand human nature, to organize, manipulate and control it; "mutual profit" idea. Winter Quarter. *Three hours.*

18. Psychology of Advertising.—A knowledge of advertising has been recognized as advantageous, if not essential, to any general course in business training. It is the purpose of this course to set forth advertisements which appeal to human instincts. Spring Quarter. *Three hours.*

20. Principles of Political Economy I.—Fundamental principles; production and exchange; the money and tariff systems considered from both the historical and the scientific viewpoints. Text, supplemented by lectures. Prerequisite: one year of college work. Fall Quarter. *Three hours.*

21. Principles of Political Economy II (continuation of course

20).—Distribution and consumption. Text, supplemented by lectures. Prerequisite: Economics 1. Winter Quarter. *Three hours.*

22. English Composition.—The aim of this course is to train students in the use of correct and forceful English. Fall Quarter. *Three hours.*

23. English Composition (continuation of course 22). Winter Quarter. *Three hours.*

BOTANY AND PHARMACOGNOSY

30. Botany I.—The course in Botany includes a study of the morphology of the seeds, roots, stems, leaves, flowers and fruits, together with the various physiological processes of germination, food absorption, photosynthesis, assimilation, transpiration, respiration, pollination, fertilization and dispersal of plants. Attention is given to the identification, classification and preservation of many of the common medicinal plants; the student acquires a knowledge of the plant kingdom as a whole, together with the origin and development of each group and the principles and theories of organic evolution, plant breeding, the economical value of plants, and problems of weed extermination. Bastin's *College Botany*. Class, 3 hours; laboratory, 3 hours. Fall Quarter. *Four hours.*

Laboratory fee, \$1.50.

31. Botany II.—The student is taught the technique of preparing and mounting for examination various sections of plant tissue, with the view of making acquaintance with the minute parts of plant anatomy in their regular arrangement so that the tissue fragments as found in powdered drugs will be readily recognized and hence the powder quickly identified. Greenish's *Food and Drugs*. Class, 2 hours; laboratory, 6 hours. Winter Quarter. *Four hours.*

Laboratory fee, \$1.50.

32. Histological Pharmacognosy.—This work follows the courses in Botany and deals with the microscopical study of drugs. Cells, tissues, hairs, granules, crystals, etc., as they occur in plant parts, in section, powder, and precipitate are studied under the microscope. By comparing samples with standards the student is taught to identify the histological elements as an aid to their identification and to the detection of adulterants. Laboratory, 4 hours. Spring Quarter. *Two hours.*

Laboratory fee, \$1.50.

33. Microscopy.—A laboratory course devoted to the microscopical examination of powdered foods and drugs. Many crude vegetable drugs purchased by pharmacists are in a comminuted condition, and in this state adulterants are difficult to detect except by microscopical examination. Hence it becomes necessary that the pharmacist who would be assured of the quality of the vegetable drugs used in the manufacture of his preparations, be prepared to use the microscope intelligently. The ninth revision of the Pharmacopoeia devotes considerable space to the description of the appearance of powdered drugs as viewed under the microscope. Greenish, *Foods and Drugs*. Class, 1 hour; laboratory, 4 hours. Summer Quarter. *Three hours*.

Laboratory fee, \$1.50.

MATERIA MEDICA

34. Materia Medica I.—The study of organic drugs. The vegetable drugs are taken up in the order of their botanical classification, commencing with those derived from the lower forms of plant life. Careful attention is given to methods of collection and preparation for market, commercial varieties, methods of detecting adulterants, active principles and properties of drugs. The school is equipped with a good collection of vegetable drugs, and students are provided with samples for examination and study. Culbreth's *Materia Medica and Pharmacology*. Class, 3 hours. Fall Quarter. *Three hours*.

35. Materia Medica II (continuation of course 34).—The study of vegetable drugs is completed and drugs from animal sources are studied. A considerable time is devoted to the study of oils, both fixed and volatile. Culbreth's *Materia Medica and Pharmacology*. Class, 2 hours. Winter Quarter. *Three hours*.

36. Therapeutics and Toxicology.—These subjects given late in the course enable the instructor to apply to advantage the knowledge already gained of chemistry and materia medica. A systematic classification is made of drugs according to their therapeutic properties, and of poisons according to their action and methods of antidoting. Outlines given by the instructor. Sollman's *Action of Drugs*. Class, 3 hours. Winter Quarter. *Three hours*.

PHYSIOLOGY

38. General Physiology.—An elementary course in anatomy, physiology and hygiene. Class, 3 hours; laboratory, 2 hours. Every quarter. *Four hours*.

Laboratory fee: \$1.50.



MATERIA MEDICA LECTURE ROOM

BACTERIOLOGY

40. Bacteriology.—The preparation of culture media, the isolation and identification of a number of the non-pathogenic and pathogenic forms of micro-organisms, the bacteriology of water, milk, and other foods, sterilization, inoculation, infection, immunity, toxins, antitoxins, *etc.* Class, 2 hours; laboratory, 4 hours. Prerequisite: Botany 1, Physiology 1, or Zoology 1. Winter Quarter; Summer Quarter. *Four hours.*

Laboratory fee: \$1.50.

MODERN LANGUAGES

If modern language is elected for the Pharmaceutical Chemist degree, not less than three terms will be accepted, and not less than four terms of modern language will be accepted for the Bachelor of Science degree. The work must be in a single language. The aim of the work in modern language is to acquire sufficient mastery to enable one to read the scientific literature and text books published in that language. Attention is called to the descriptions of the courses in French, Spanish, and German, given in the announcements of the College of Arts and Sciences.

GENERAL INFORMATION

CARE OF STUDENTS

BOARD AND LODGING

The University furnishes rooming and boarding accommodations for a large proportion of the students. There are in addition about twenty dormitories and many boarding places conducted by individuals, several restaurants in the University section of the city and numerous private house-holders who supply board and rooms to students. The University has a list of approved boarding and rooming places, and reserves the right to provide rules under which its students shall board or room in dormitories, chapter houses, and with private families. Men and women who are students of the University do not room in the same house unless they are relatives of the family.

Each of the University rooming halls for men is in charge of a secretary, appointed by the University, who looks after the comfort and interest of the men. Similar provision is made in the larger halls conducted by individuals.

Each of the University halls occupied by women is in charge of an experienced matron whose sole duty is the care of the tenants.

PROVISION FOR WOMEN

The Dean of Women gives attention to the needs of women students and advises with them concerning their welfare. No woman is permitted to take rooms not approved by the Dean. All social functions attended by women, or by men and women, are under her supervision.

MEDICAL ATTENTION

Cases of sickness among the students are given immediate and careful attention. If necessary the student is taken to the hospital, or a nurse is provided, at a moderate expense to the student. For the care of contagious diseases an isolation hospital is maintained by the University. Parents and guardians are promptly notified of serious cases. No fear need be entertained that a student will be neglected or that his sickness will be kept secret.

RELIGIOUS INFLUENCES

The pastors and members of the eight churches of Valparaiso take a personal interest in the students, welcome their attendance, and endeavor to make them feel at home at all services.

The University Y. M. C. A. maintains Bible and mission study classes, voluntary lecture courses in religious education, men's meetings, and other social and religious activities. The Association Cottage, which is owned by the Association, is located near the Administration Building, and is a religious and social center for the men of the University. Though it has

become inadequate in size for the attendance of recent years, it provides dormitory rooms for a limited number of men, reading and social rooms, and shower baths. The Y. M. C. A. also keeps a directory of available rooms in the City and conducts an employment bureau for all men of the University. The work of the Association is maintained by voluntary contributions. Its privileges are free to every man in the University.

The University Y. W. C. A. is devoted to a similar service for women students. Besides ministering to the religious life, it provides recreation, entertainment and wholesome social relations.

STUDENT ACTIVITIES

GOVERNMENT

Matters pertaining to government and discipline are under the supervision of the President and Faculty. Regulations concerning the conduct of students are not elaborate. The University authorities rely in a large measure upon the good sense of the students. Students are expected to pursue their work diligently, to attend classes regularly, and to conduct themselves as self-respecting men and women. Those who fall seriously below this standard after admonition are eliminated from attendance.

STUDENT ORGANIZATIONS

In addition to a number of national and local fraternities and sororities, there are numerous social, literary, and scientific organizations. Among these are the Bethany Society, the Catholic Society, the Menorah Society, the Southern Society, the Lithuanian Society, the Student Congress, the Acacia Club, the Commercial Society, the Pharmaceutical Association, the student chapter of the American Association of Engineers, the Physics Club, the Spanish-American Society, and many state societies.

STUDENT PUBLICATIONS

"The Torch" is a weekly college newspaper published by the students. Besides being a live and interesting purveyor of college news, it affords students who are interested in newspaper work practical experience in newspaper writing.

"The Record" is an annual publication, written, illustrated and arranged by students elected from the Senior classes of the different schools, and contains a record of the principal events of the University year. It is the "year book" of the Senior Class and is much prized by graduates.

ENTERTAINMENTS

A large number of entertainments, lectures, addresses, plays, concerts, oratorios, *etc.*, are given every year by students, members of the faculty, and men and women of eminence from all parts of the world.

ATHLETICS

The University has departmental and varsity teams in football, basketball, baseball and track. University Field comprises fifteen acres and contains a quarter-mile cinder track, football field, baseball diamond, and tennis courts. Adjoining the field is the gymnasium, which offers excellent facilities for basketball and other student events. The building seats 1,500 people.

EXPENSES

TUITION FEE

The tuition fee is \$30 per quarter (12 weeks) payable at the beginning of the quarter, or \$115 for a year of 48 weeks, if paid in advance. For the entire Ph. G. Course (six quarters), the fee is \$170, if paid in advance; for the Ph. C. Course (eight quarters), \$225, if paid in advance.

In case a student takes advantage of the reduction and later decides to withdraw from the University, all fees are returned

except for the preceding and current quarters, the regular quarter rates being charged for the time in school including the quarter in which he withdraws.

LABORATORY FEES

| Courses for Ph. G. | Additional Courses for Ph. C. |
|------------------------------------|------------------------------------|
| Manufacturing Pharmacy .....\$7.00 | Organic Chemistry II.....\$1.00 |
| Inorganic Chemistry I..... 4.00 | Physiology 1.50 |
| Inorganic Chemistry II..... 4.00 | Bacteriology 3.50 |
| Pharmacy Botany I..... 2.00 | Water Analysis 2.50 |
| Pharmacy Botany II..... 2.00 | Microscopy 2.00 |
| Physics I 2.50 | Advanced Quantitative |
| Physics II 2.50 | Analysis 6.00 |
| Pharmaceutical Chemistry.... 7.00 | Industrial Chemistry 4.00 |
| Histological Pharmacognosy 1.50 | Food and Drug Analysis....12.00 |
| Qualitative Analysis I..... 4.00 | Synthetic Organic |
| Organic Chemistry I..... 4.00 | Chemistry 7.50 |
| Quantitative Analysis 7.00 | Additional Course for B. S. |
| Alkaloid Analysis 3.50 | (Phar.) |
| Dispensing 7.00 | Alkaloidal Assay 3.50 |

These fees pay for all gas, water, chemicals, and the use of apparatus. A charge is made for filters, towels, vials, *etc.* which become the individual property of the student. In certain courses a breakage deposit is required, which is returned at the end of the course less individual breakage. Laboratory fees are subject to change without notice.

SPECIAL FEES

LIBRARY FEE.—The library fee is fifty cents each quarter.

STUDENT PAPER FEE.—A fee of \$1 for the support of The Torch is paid at the beginning of each quarter except the Summer Quarter, in return for which the student receives the paper weekly.

EXTRA WORK FEE.—The fee for each term-hour of work elected in excess of the normal amount in any school is \$2.

SPECIAL EXAMINATION FEE.—The fee for each re-examina-

tion taken for removal of a condition, for each examination for admission, and for each examination for advanced standing, is \$3.

GRADUATION FEE.—The general graduation fee, including diploma, is \$10.

ROOMS, BOARD, AND GENERAL EXPENSE

ROOMS.—The rent of rooms in the University rooming halls is from \$15 to \$28 per quarter (12 weeks) for each student. A charge of 25 to 50 cents a week is added to this rate when rooms are rented by the week. At the lower rate, two students have a single room with closet or wardrobe; at the higher rate, two students have a suite of rooms, consisting of a study room and bedroom with closet or wardrobe. The newer halls have hot and cold water in the rooms, and all the halls have bath rooms, steam heat, and electric light. All rooms, whether single or in suite, are furnished with bed, bedding, study-table, chairs, bureau, mirror, and bookcase. In the larger halls there are laundries where students may do their own laundry at negligible expense.

In addition to the halls maintained by the University there are near the University a number of rooming halls conducted by individuals in which the accommodations and the rates are similar to those of the University halls. Numerous householders supply rooms to students at the same or somewhat higher rates.

BOARD.—The University furnishes two grades of board: \$54 and \$63 per quarter, paid at the beginning of the quarter. When paid by the week the price is \$4.75 and \$5.50 per week, payable in advance. Private boarding halls give good board at similar rates. During the past year considerable reductions in the cost of board were made. With declining prices it is expected that further reductions can be made in 1921-22.

GENERAL EXPENSES.—In addition to these charges a stu-

dent's expenses will include matters of personal expenditure, which vary with the means and habits of the individual. Except for books, these need not be more than at home. The price of books, new, is about twenty-five dollars a year.

SUMMARY.—An idea of the chief items of expense may be had from the following:

| | One Quarter | | Three Quarters | | Four Quarters | |
|---------------|-------------|-------|----------------|-------|---------------|-------|
| | Low | High | Low | High | Low | High |
| Tuition | \$ 30 | \$30 | \$ 90 | \$ 90 | \$115 | \$115 |
| Board | 54 | 63 | 162 | 189 | 216 | 252 |
| Room | 15 | 28 | 45 | 84 | 60 | 112 |
| | — | — | — | — | — | — |
| Total | \$99 | \$121 | \$297 | \$363 | \$391 | \$479 |

When tuition, board and room for four quarters are paid in advance, the above rates will be further reduced to \$385 and \$468, respectively.

The University authorities have given years of thought and well directed effort to the problem of reducing the cost to the student. Low rates have not been made by sacrificing the quality of instruction or the reasonable comforts of life, but by applying business principles to the cost of living. The large attendance, wholesale buying, a location near favorable markets, and an expert knowledge of the markets have made it possible to reduce cost without diminishing quality. Accommodations are equal to those ordinarily costing much more. Buildings have been planned for service and comfort and not display. Social life is relatively simple and individual extravagance is not encouraged. Lectures and entertainments of a high grade are provided free or at a nominal expense. Athletics are encouraged but are not predominant. The tuition fee has been made the lowest possible.

For further information pertaining to the School of Pharmacy, address the Dean of the School of Pharmacy, Valparaiso University, Valparaiso, Indiana.

DEGREES, 1920-21

DEGREE OF PHARMACEUTICAL CHEMIST

- | | |
|---------------------|---|
| Blanco, Simon | Miskowiec, Adelbert <i>May 27, 1920</i> |
| Coffey, William H. | Ochoterena, Fausto |
| Conover, Vera | Rudzik, Lawrence |
| Czys, Felix | Schultz, Jerome K. <i>held on Com program</i> |
| Dunay, Maurice | Shoemaker, Harold A. |
| (Lempke, Curtis C.) | Steinhart, Benjamin |
| McDonald, Archibald | Sweeney, Clement |
- graduated Aug 13, 1920*

DEGREE OF GRADUATE IN PHARMACY *(May 24 1921)*

- | | |
|----------------------|--------------------------|
| Bauer, Charles W. | Mahanna, Raymond W. |
| Bliza, Charles | Marczak, Clement S. |
| Buresch, Edward W. | Moore, George L. |
| Coff, Samuel M. | Nelson, Dupree Y. |
| Domeika, Anthony P. | Peschel, Peter L. |
| Eicher, Leroy E. | Porter, Edward L. |
| Farrell, Albert C. | Rowan, Earl B. |
| Ganzer, Charles W. | Sievers, John, Jr. |
| Gray, Charles C. | Smolensky, Louis E. |
| Grayheck, Jay W. | Smolensky, Mrs. Mathilde |
| Hughes, Guy L. | Strauss, Anna |
| Jellison, Russell L. | VanVoorhees, Clara F. |
| Johnston, Venable E. | Voke, Myron V. |
| Larner, Fane | Waitzel, Sarah |
| Loo, Y. Sann | Watson, Ruth |

STUDENTS, 1920-21

BACHELOR OF SCIENCE IN PHARMACY COURSE

| | |
|-----------------------------|------------------|
| Battershell, Russell R..... | Hector, Minn. |
| Coffey, William H..... | Pitkin, La. |
| Dunay, Maurice | New York, N. Y. |
| McDonald, Hermon..... | Hegira, Ky. |
| Watson, Ivan D..... | New London, Ind. |

PHARMACEUTICAL CHEMIST COURSE
SECOND YEAR

| | |
|-------------------------------|-------------------|
| Bauer, Charles W..... | Sugar City, Idaho |
| Brennan, Walter J..... | Augusta, Maine |
| Buresch, Edward W..... | Lakefield, Minn. |
| Campbell, Donald J..... | Caledonia, N. Y. |
| Dunay, Maurice..... | New York, N. Y. |
| Durizzi, Marie..... | Chicago, Ill. |
| Lempke, Curtis C..... | Algonac, Mich. |
| Lewis, Clifford J..... | Genesee, Pa. |
| Loo, Y. Sann..... | Oahu, Hawaii |
| Marczak, Clement S..... | Attleboro, Mass. |
| Smolensky, Louis E..... | Clifton, N. J. |
| Smolensky, Mrs. Mathilde..... | Clifton, N. J. |
| Thompson, Mrs. J. W..... | Garden City, Kan. |

FIRST YEAR

| | |
|--------------------------|-----------------|
| Barone, Joseph..... | Chicago, Ill. |
| Chevrie, Otto J..... | Altmont, Mich. |
| Johnston, Venable E..... | Prentiss, Miss. |
| Keiser, Charles F..... | Greenwich, Ohio |
| Shafor, Gordon H..... | Hamilton, Ohio |
| Williams, Ike C..... | Sheridan, Ind. |

GRADUATE IN PHARMACY COURSE

SECOND YEAR

| | |
|--------------------------|------------------------|
| Bauer, Charles W..... | Sugar City, Idaho |
| Bliza, Charles..... | Chicago, Ill. |
| Borak, Harry..... | Chicago, Ill. |
| Borak, Max..... | Chicago, Ill. |
| Buresch, Edward W..... | Lakefield, Minn. |
| Coff, Samuel M..... | Valparaiso, Ind. |
| DeSilver, Frank C..... | Chicago, Ill. |
| Domeika, Anthony P..... | Detroit, Mich. |
| Eicher, Leroy..... | Valparaiso, Ind. |
| Farrell, Albert C..... | Clarksburg, W. Va. |
| Ganzer, Charles W..... | Chicago, Ill. |
| Gray, Charles C..... | Weldon, Ill. |
| Grayheck, Jay W..... | Pittsburgh, Pa. |
| Guevarra, Paciano H..... | St. Tomas, Philippines |
| Hughes, Guy L..... | Robinson, Ill. |

| | |
|-------------------------------|-------------------------------|
| Jacquet, Roger F..... | Salem, W. Va. |
| Jellison, Russell L..... | Ridgeville, Ind. |
| Johnston, Venable E..... | Prentiss, Miss. |
| Kalb, Samuel W..... | Daytona, Fla. |
| Kascht, Ray..... | Chicago, Ill. |
| Knight, Charles M..... | Chicago, Ill. |
| Larner, Fane..... | Paris, Texas |
| Llewellyn, Edward..... | Old Forge, Pa. |
| Loo, Y. Sann..... | Oahu, Hawaii |
| Mahanna, Raymond W..... | Hoxie, Kan. |
| Marczak, Clement S..... | Attleboro, Mass. |
| McDermott, Julian L..... | Emmington, Ill. |
| Meyer, Fritz M..... | Bridgeport, Conn. |
| Moore, George L..... | Jasper, Ark. |
| Nelson, Dupree Y..... | Ripley, Tenn. |
| O'Brien, George E..... | Chicago, Ill. |
| Peschel, Peter L..... | Mountain Iron, Minn. |
| Porter, Edward L..... | Boykins, Va. |
| Rowan, Earl B..... | White Sulphur Springs, W. Va. |
| Sievers, John, Jr..... | Valparaiso, Ind. |
| Smolensky, Louis E..... | Clifton, N. J. |
| Smolensky, Mrs. Mathilde..... | Clifton, N. J. |
| Strauss, Anna..... | New York, N. Y. |
| Teasdale, George L..... | Milwaukee, Wis. |
| Thompson, Mrs. J. W..... | Garden City, Kan. |
| VanVoorhees, Clara F..... | Valparaiso, Ind. |
| Voke, Myron V..... | Rockford, Ohio |
| Waitzel, Sarah..... | Chicago, Ill. |
| Washburn, Irving..... | Monroe, Utah |
| Watson, Ruth..... | Norton, Va |

(not
on
program)

FIRST YEAR

| | |
|--------------------------|-------------------|
| Adkins, Ceron..... | Wayne, W. Va |
| Anderson, James..... | Sheldon, Iowa |
| *Atlas, Mrs. Herman..... | Valparaiso, Ind |
| Chernikoff, Max J..... | Chicago, Ill. |
| Eberman, Abraham..... | Brooklyn, N. Y. |
| Gibson, William D..... | Elk Valley, Tenn. |
| Hilsenhoff, Leslie..... | Tamaroa, Ill. |
| Jenkins, Harry..... | Chicago, Ill. |

*Matriculated only.

| | |
|---------------------------|----------------------|
| Kessel, Harry H..... | Ripley, W. Va. |
| Liph, David R..... | Chicago, Ill. |
| Littell, Leroy | Colby, Kan. |
| Lykins, Noah H..... | Louisville, Ky. |
| Lynch, Aloysius C..... | Mildred, Pa. |
| Marshall, James T..... | Siloam Springs, Ark. |
| Massenberg, Lucy | Palacios, Texas |
| Montgomery, Mildred | Middletown, Ohio |
| Nudelman, Max | Chicago, Ill. |
| Parker, Erwin G..... | Warroad, Minn. |
| Parker, Julius | Chicago, Ill. |
| Quegg, William B..... | Stratford, Iowa |
| Ruman, George E..... | Gary, Ind. |
| Rupich, John | Chisholm, Minn. |
| Sievers, Carroll | Valparaiso, Ind. |
| Simmons, Carey | Wesson, Ark. |
| Slazinski, Edward A..... | Bay City, Mich. |
| Stuckman, Edgar O..... | New Paris, Ind. |
| Talley, Merle | Dalton, Ohio |
| Williams, Ike C..... | Sheridan, Ind. |
| Wyckoff, Delmar D..... | Saybrook, Ill. |
| Young, Royal A..... | Monroe City, Mo. |

SPECIAL STUDENTS

| | |
|-------------------------------|-------------------|
| Adams, Ray R..... | Woods Cross, Utah |
| Barnett, Novell | Hornbeak, Tenn. |
| Burkholder, Charles R..... | New Castle, Ind. |
| Colsten, William H..... | Muncie, Ind. |
| Cosgrove, Isabel | Old Forge, Pa. |
| Cowan, Isaac B..... | Bristol, Va. |
| Fernandez, Escolastica | Placetas, Cuba |
| Foster, Raymond K..... | Scottsville, Ky. |
| Foster, Wilburn E..... | Scottsville, Ky. |
| Ivy, Theophilus F..... | Waco, Texas |
| Junarvis, Stephen | Gary, Ind. |
| Ladd, Ralph | Rockford, Ill. |
| Laughlin, Robert E..... | Valparaiso, Ind. |
| Linkous, Alton C..... | Bluefield, W. Va. |
| Malachowskas, John | Chicago, Ill. |
| McGough, Joseph M..... | Dubuque, Iowa |
| Oshman, Lazarus | Chicago, Ill. |
| Phillips, Raymond | Greencastle, Ind. |
| Schwartz, Herbert, Ph. G..... | Royalton, Minn. |
| Weishew, H. E..... | Philadelphia, Pa. |

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