

University of Maryland

FOUNDED 1807

DEPARTMENT OF PHARMACY

THE MARYLAND COLLEGE OF PHARMACY

(1841-1904)

Sixty-Fifth Annual Announcement, 1908-1909



N. E. COR. LOMBARD AND GREENE STREETS
BALTIMORE, MARYLAND

DEPARTMENTS
OF THE
UNIVERSITY OF MARYLAND.

THE UNIVERSITY is represented by five departments, each having a distinct Faculty of Instruction.

1st. THE COLLEGE OF LIBERAL ARTS at Annapolis, Maryland. St. John's College, Annapolis, Md., founded in 1696, has by affiliation become the Department of Arts and Sciences. The curriculum leads to the degree of Bachelor, or Master of Arts or Sciences.

2nd. THE SCHOOL OF MEDICINE, in Baltimore, Md. This school was established in Baltimore, Md., in 1807, and offers a high-grade course in medicine, extending over a period of four years, and leading to the degree of Doctor of Medicine. It represents the *Department of Medicine*.

3rd. THE SCHOOL OF LAW in Baltimore, Md. The school was opened in 1865 and is designed by means of a course of study covering three years to qualify its students for the degree of Bachelor of Laws and for an intelligent practice of the Law. It represents the *Department of Law*.

4th. THE DEPARTMENT OF DENTISTRY was founded in 1870, and is designed to teach the art of dentistry as an integral part of the School of Medicine. The course of study leading to the degree of Doctor of Dental Surgery covers a period of three years.

5th. THE DEPARTMENT OF PHARMACY was established in 1840 as the Maryland College of Pharmacy, and affiliated with the School of Medicine in 1904. The course of study, including thorough training in the art of dispensing and methods of proper selection of drugs, covers two years and leads to the degree of Doctor of Pharmacy.

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The object of this council is to formulate the scheme of studies to be pursued by students desiring both an academic and a professional, or scientific degree.

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CALENDAR OF SESSION.

1908-1909.

The Session will open September 21, 1908, and close about June 1, 1909.

1908.

September 21.		Chemistry, 9 A. M. Pract. Chemistry, 3 P. M.
September 22.	{ Fall examinations for admission to the Senior Class.	Vegetable Histology, 9 A. M. Pharmacy, 3 P. M.
September 23.		Botany and Materia Medica, 9 A. M.

September 24—Presentation of Credentials for Matriculation.

September 28, 9 A. M.—Regular Instruction begins.

November 26—College closed (Thanksgiving Day).

December 23—Christmas Recess begins, 5:30 P. M.

1909.

January 4—College reopens, 9 A. M.

January 26—Intermediate Examinations begin.

April 8 to 12, inclusive—Easter Recess.

May 17—Final Examinations begin.

June 1 (about)—Commencement Day.

Schedule of hours for lectures and laboratory work will be ready for distribution about September 15, 1908.

INTRODUCTORY.

Many incidents occurring in connection with the recent centennial celebration of the founding of the University of Maryland and the references made thereat to its long, honorable career, and to the prominence and achievements of its alumni, render conspicuous the forceful aid the University has lent to the growth, progress and honor of the old commonwealth, the name of which it proudly bears, and leave no doubt as to the elevating and helpful effect it has had upon the professional life of the nation, and especially of the South, during the last hundred years. These evidences of its high and dignified character and of its continuous effort to advance science and increase professional abilities, together with records showing a commendable readiness to adopt advanced educational methods and add the facilities necessary to keep in close touch with modern progressive methods, may be found in greater detail in the "History of the University of Maryland," by Eugene F. Cordell, A. M., M. D., ('68) lately published by Lewis & Co., of New York.

The group of professional schools, including the departments of Medicine, Law, Dentistry and Pharmacy, linked with the venerable and most worthy department of Arts and Sciences, (St. John's College at Annapolis) makes a comprehensive whole that effectively conduces to helpful university life and offers that variety and elasticity of curricula and such economy of time as is impossible to secure through separated schools. Especially should this opportunity to enlarge their curricula appeal to students of pharmacy, since it is of material advantage to pharmacists to possess, at least, a fundamental knowledge of anatomy, physiology, and possibly, bacteriology, that they may more intelligently meet the demands of physicians, and be competent to maintain a more creditable relationship with the members of the medical profession around them to whom pharmacists should be closely allied.

The stimulating college spirit pervades all departments of the University and the recognition of the several faculties and the various classes as one great family, ensures cordial, sympathetic and encouraging associations; all students may participate in the affairs of the University Branch of the Young Men's Christian Association, the Athletic Association, Glee Club and Fraternities, while the graduates of all departments are eligible to membership in the general Alumni Association.

DEPARTMENT OF PHARMACY.

This Department was organized in 1840 largely at the instance of members of the Faculty of Medicine, and, for a time, the lectures were delivered at the medical school. Later it became separated and continued an independent organization until, as the Maryland College of Pharmacy, it, finally, became an actual part of the University. With but one short intermission, previous to 1856, it has continuously exercised its functions as a teaching school of pharmacy.

Reference to its records shows it to have been among the first, in every instance, to adopt advanced methods and the standards it has always set and maintained have equaled the highest. It was the first school of pharmacy to employ separate professors for all branches taught; it is the pioneer in establishing laboratories for practical teaching and exercise; it took the initiative in providing adequate buildings for advanced teaching; it was among those which early added Plant Histology, Pharmacognosy, Volumetric Analysis and Alkaloidal Assay as distinct branches and the first to add a separate chair of Commercial Pharmacy and Dispensing, whereby students may be given better and larger experimental knowledge of the actual practice of pharmacy than can be obtained at the average drug store.

No matter what the special line may be—whether it is in science, literature, manufacture, collecting or dispensing—if it is in pharmaceutical matters that success has been attained, this School is conspicuous by the influence it has lent.

POLICY.

From the very beginning of its career until now the chief purpose of this School has been to prepare its matriculants for the intelligent practice of Pharmacy as it appears in the modern retail drug store. It does not, however, overlook the fact that there exist three distinct divisions of the profession—collection, preparation and dispensing—the jobber, manufacturer and retailer—that all need to be scientifically taught, and that each will secure, through a few years of properly directed study, information which a life-long experience will fail to give. With a full understanding of the kind of scientific knowledge required for each of these several branches, the Department of Pharmacy has so arranged its curriculum that it may, by promulgating ac-

cepted theories and unmistakable facts, build for the students a well-ordered foundation upon which the accomplished pharmaceutical specialist can be best elaborated.

PRACTICAL EXPERIENCE.

While four years of *employment* in a drug store is still upheld by some colleges as a requisite for graduation, it is believed it will be found upon close investigation that shop training, although valuable, should not be made a requirement for degree in a professional school. In schools of medicine and dentistry no such experience is required; in fact, could not be furnished if required; but in these schools, as in the schools of pharmacy of the present day, practical training is furnished in the respective laboratories and clinics. Consequently the Department of Pharmacy several years ago abolished, as an essential, the apprenticeship requirement, which had been established at a time when practical instruction did not form a part of the college curriculum, and which oftentimes had prevented the apprentice and future pharmacist from securing even a good, common-school education. If we would meet demands of the times, have educated matriculants, we should not make this impossible by compelling the prospective student to withdraw from the academy when he has scarcely passed its doors, to spend these precious years doing errands and janitor work in a drug store.

It is not intended, however, to lead prospective students of pharmacy to underestimate the advantages accruing from a knowledge of the contents and appliances of a drug store or familiarity with its daily routine, but to urge them to secure employment, if possible, in a well-equipped pharmacy for a year or two before entering college, and especially during the summer vacation.

TWO AND THREE YEAR COURSES.

Much confusion may exist in the minds of prospective students regarding their respective values. At first glance it would appear as if a three-year course offered 50 per cent. more instruction than one of two years. Such, however, is not the case, since the annual sessions of a three-year course extend over but six or six and one-half months, as against seven to eight months of a two-year course. In addition, the total number of hours devoted to compulsory

instruction, as a requisite to graduation, varies from 600 to 1036 in the three-year courses, and from 1130 to 1271 in the two-year courses, showing conclusively that the actual time demanded for lectures and laboratory instruction in the three-year courses is from 10 to 50 per cent. less than that required in the two-year courses. Attendance upon optional or elective studies at a college cannot be taken into consideration, as this will vary greatly with the inclination of the student, and is never a requirement for the diploma. Moreover, the two-year colleges also offer one or more elective branches to their students in addition to the regular curriculum.

Those contemplating the study of Pharmacy should not be misled by the statement of the number of years over which a full college course is spread, but should study carefully the "Announcement," especially the hours of compulsory instruction, in order to ascertain where they may derive the greatest value for the expenditure of time and money.

The Department of Pharmacy, after very careful reflection, will continue the two-year courses of instruction, because, for the present at least, it appears to be for the best interests of the students, both from an educational and financial point of view. *The sessions of the Junior and Senior Courses are extended to cover a period of 32 weeks each, and the possible instruction, both didactic and practical, during two such terms is considered to be fully equal, and in some cases superior, to that imparted during the shorter sessions of a three-year course, with their attendant interruptions, while for the former the student expends very much less money for tuition, in traveling and for board.*

REQUIREMENTS FOR MATRICULATION.

Ample preliminary education is insisted upon as a requirement for matriculation; indeed, this is considered, by the authorities of the University, to be of much more importance, as the groundwork upon which to rear a pharmaceutical education than is the meagre shop experience usually secured by apprentices.

The requirements for matriculation of students of Pharmacy are as follows:

- (A) The applicant must be at least 17 years of age.

(B) In order to be admitted without examination, the applicant must present as evidence of possessing sufficient education:

1. The diploma of an academy, college or high school, based upon not less than four years' instruction.
Or, in place of the diploma,
2. A certificate issued by a State Department of Education, or a legally authorized State Examining Board, covering the required subjects (see below).
Or,
3. A certificate showing the successful completion of one year's work in an approved high school or its equivalent. This certificate must be officially signed by the principal or registrar of the school.

The words "its equivalent" in the preceding paragraph are to be construed as meaning that the applicant must present a certificate covering at least 20 points, apportioned as follows:

ENGLISH.—Including Composition (2 points) and Grammar (2 points).

HISTORY AND CIVICS.—2 points each.

GEOGRAPHY.—Commercial and Physical, 2 points.

MATHEMATICS.—Including Arithmetic, 3 points, covering fractions, decimals, interest, proportion, square root and cube root; Algebra, 3 points, covering factoring, fractions, and equations to quadratics.

LANGUAGES.—German, French, Spanish, Latin or Greek, 4 points. Either one or more of these languages may be counted in making up the necessary weekly periods.

With the exception of Arithmetic, Algebra and Languages, any of the branches named may be substituted by Rhetoric (2 points), English Literature (2 points), Plane Geometry (3 points), Solid Geometry (2 points), Trigonometry (2 points), Physiology and Hygiene (2 points), Botany, Biology or Zoology (2 points), Astronomy (1 point), Geology (1 point).

One point signifies 1 weekly period of not less than 45 minutes, during a scholastic year of not less than 36 weeks or 2 weekly periods during 18 weeks.

An applicant may be admitted to the School of Pharmacy conditionally, provided his credentials meet at least 16 points assigned to the subjects named above, with the distinct understanding that the conditions, 4 points or less, must be removed by satisfactory examination before he is allowed to enter the Senior Course.

The examination of credentials of applicants for matriculation at the coming session will begin on September 24. Applicants who have passed their Junior examinations in other schools of pharmacy must present a proper certificate to that effect before they will be permitted to become members of the Senior class.

In the absence of a duly authenticated certificate, the applicant will be required to stand an examination in the branches enumerated to the extent of securing the required 20 points. The valuation of credentials, other than the diplomas and certificates above mentioned, and the examination of applicants have been placed in the hands of Dr. Edward Deichmann, Principal of the Gymnasium School, 714 N. Howard Street, Baltimore, Md.

CURRICULUM AND DEGREES.

As now arranged, the curriculum of this School must be acknowledged to be a most complete and creditable one. It is comprehensive and practical, and comprises only such studies as will give to the student that kind of knowledge and practice which will enable him to intelligently meet the requirements of his profession. It contemplates as a foundation or beginning, the thorough teaching of the general sciences upon which a pharmaceutical education is to be built. These are Chemistry, Physics, Botany, Vegetable Histology, and to them are added the special branches: Pharmacy, in its most comprehensive form, including both theory and practice; Materia Medica, organic and inorganic; Therapeutics, Posology and Toxicology.

A full course consists of attendance upon all lectures and reviews, and performance of the laboratory work required during a Junior and Senior session. The Senior attendance must be at this school, and the Junior work must be done at a school or college which has membership in the American Conference of Pharmaceutical Faculties.

The degree of Doctor of Pharmacy (Phar. D.) will be conferred upon students who have attended the full prescribed course and have attained the required rating in all examinations.

Any Alumnus of this School holding a diploma as Graduate in Pharmacy may obtain the degree of Doctor of Pharmacy upon the successful completion of those courses or parts of courses in the present curriculum which were not

taken or were not offered during his attendance at this School, and the payment of the required fee.

A full course of instruction consists of two sessions of 32 weeks each—a Junior Course and a Senior Course. The details of the subjects in these courses are given farther on.

Students should not fail to be present at the opening of the session, in order to derive full benefit from the earliest lectures.

To meet the wishes and conveniences of those who desire to spend more time in drug-store employment while attending this Department, students are permitted to extend their studies over three or more years, passing off certain subjects each year. A successful examination in these subjects will be final. This arrangement applies to both Junior and Senior students.

CONDITIONS.

Both sessions will be divided into semesters, and to ascertain the progress made by students, as well as for the purpose of being better able to advise them, the Faculty will hold examinations at the end of the first semester in all branches, the record of which, together with the reports from the laboratories and reviews, will become a part of the final record of the student in the particular class to which he belongs. If, from the result of the examinations and the reports, at the end of the first semester of the Junior class, the Faculty find students who, because of imperfect preliminary training or for any other reason, are incapable of pursuing the course, the authorities of the University reserve the right to deny to such students the privilege of proceeding further that year. Such students as fail to secure the endorsement of the Faculty may enter the Junior class of any subsequent year, provided they have made up all deficiencies and any money originally paid will be allowed on the dues of that year.

From the examinations at the end of the first semester of the Senior year the Faculty will decide which students will be allowed to become candidates for graduation. Those who fail to satisfy the Faculty that they are fitted for such candidacy will be required to take another year in the Senior work.

CHEMISTRY—Prof. Base.

Assisted by H. A. B. Dunning, Phar. D.

Provision for a complete course, both theoretical and practical, is made. The benefit of such chemical training is of incalculable value to the Pharmacist. It includes a study of the fundamental properties of matter, the natural laws controlling it, and besides familiarizing him with the nature and manufacture of a great number of the most important medicinal agents, it enables him to verify the purity and value of such articles as are constantly passing through his hands.

All lectures in this department are amply illustrated by experiments, and no effort is spared to render the course thoroughly instructive, the main object being to present the science as a whole, and, at the same time, point out those facts which bear a special relation to Pharmacy.

JUNIOR COURSE.—Several lectures at the beginning of the course will be devoted to a brief study of Physics, in which the fundamental properties of matter, the phenomena of heat, along with their application and service in Pharmaceutical and General Chemistry, will be treated. The remainder of the course will embrace a study of the non-metallic and the greater number of metallic elements, including the consideration of their compounds, with special reference to those of interest to the Pharmacist. At proper intervals during the study of the elements, those laws and theories will be introduced in logical order which are necessary to a proper understanding of the science of Chemistry. *Two lectures and one review weekly.*

SENIOR COURSE.—At the beginning of the course a number of lectures will be devoted to a consideration of Volumetric Analysis, which is a very important and at the same time easily applied branch of Analytical Chemistry, its importance to the Pharmacist being enhanced by its incorporation among the requirements of the United States Pharmacopœia. This will be followed by the study of carbon compounds or Organic Chemistry, which constitutes the major portion of the Senior Course. The general features and constitution of the groups of compounds, as alcohols, ethers, acids, fats, sugars, etc., will be pointed out and important members studied in detail. The formation in nature and manufacture of substances will be given due consideration. By gradual stages of advance Organic Chemistry is thus simplified, and the student acquires a fair working knowl-

edge of this highly-developed and important field of chemistry. Stress will be laid on the poisonous nature of certain chemicals, their detection and antidotes. The subject of chemical incompatibilities, of such great importance in pharmacy, will receive due attention. *Two lectures and one review weekly.*

BOTANY—Prof. Culbreth.

Assisted by Chas. H. Ware, Ph. G.

No one denies that materia medica has a certain dependence upon botany, and that some specific knowledge of the latter is essential for the best conception of the former. In order to meet this condition the first half of the Junior year is devoted to descriptive or structural botany (organography), including stems, buds, roots, leaves, trichomes, flowers, fruits, seeds, pollination, fertilization, anthotaxy, embryos, germination, etc. While the chief aim is to give the students a familiarity with the various forms under each division, yet a less important object is borne in mind—a perfect acquaintance with the botanic language (nomenclature) as employed in the Pharmacopœia and other scientific works, without which much of value would be obscure in a degree unintelligible. *Two lectures and one review weekly during the first semester.*

PHARMACY—Prof. Caspari.

Assisted by E. F. Kelly, Phar. D.

JUNIOR COURSE.—This will comprise an historical review of several pharmacopœias and a study of the weights and measures in authoritative use by pharmacists in the United States, Great Britain, Germany and France. The principles of specific gravity will be elucidated and illustrated by practical applications demonstrating its usefulness in pharmacy. The various manipulations to which crude drugs are subjected during the process of preparation for dispensing and administration will be treated at length. These include the various methods of pulverization, separation, etc. Extemporaneous Pharmacy will be given full consideration farther on in the course, when the most recent improvements in apparatus and methods of working will be discussed. In this course, those pharmaceutical preparations in the production of which no chemical processes are resorted to—*i. e.*, emulsions, mixtures, pills, syrups, tinctures, ointments, etc.—will be studied. *Two lectures and one review weekly.*

SENIOR COURSE.—The lectures on Pharmacy to the Senior Class will be devoted principally to Pharmaceutical Chemistry. At the opening of the course the work of the Junior Course will first be briefly reviewed, in order to bring it again to the attention of the student. Fluid and solid extracts and oleoresins will next be studied in detail. Subsequent lectures on Pharmaceutical Chemistry will embrace a study of chemicals from the mineral, the vegetable and the animal kingdoms to the extent of their pharmaceutical interest, their consideration from a purely chemical standpoint being left to the department of Chemistry. In the lectures on the mineral preparations, mineral acids, the salts and other combinations of the alkalies, alkaline earths, earths and heavy metals will be included. The preparation of all important pharmaceutic chemicals will be discussed with accompanying explanations of the various tests of purity. All of the more important medicinal chemicals derived from the vegetable kingdom will be studied in their proper order, special attention being given to those official in the United States Pharmacopœia. The concluding lectures will be devoted to the consideration of those medicinal agents which are products of the animal economy. *Two lectures and one review weekly.*

MATERIA MEDICA—Prof. Culbreth.

Assisted by J. W. Westcott, Ph. G.

JUNIOR COURSE.—The latter half of the Junior session is devoted to Materia Medica, the lectures embracing the several methods of classifying medicinal agents, defining pharmaceutic preparations and therapeutic terms, describing medical properties, outlining the conditions modifying the action and dose, and treating as many vegetable drugs as possible. The sequence followed is that of families or natural orders, accepting the system of Engler and Prantl in their "Die Natürlichen Pflanzenfamilien," modified occasionally to bring it into nearer conformity with that of Britton and Brown's "Illustrated Flora." *Two lectures and one review weekly during the second semester.*

SENIOR COURSE. — This is devoted entirely to Materia Medica, the organic drugs (vegetable and animal) being studied also according to family sequence. The leading points considered are: Botanic or zoölogic source, habitat, family or natural order, commercial history, including—how obtained, physical properties and characteristics of official

parts, constituents or composition, preparations, doses, medicinal properties and uses, antidotes and treatment for poisonous quantities, etc. The inorganic drugs are treated from the sequence of chemical relationship — the points dwelt upon being the mode of manufacture, tests, doses, medicinal properties, uses, and antidotes for poisonous quantities. Although only a few synthetic compounds are official, yet quite a number are growing in favor with both the public and the profession, consequently these receive consideration so far as their chemistry, mode of manufacture, dose and medicinal properties are concerned. *Two lectures and one review weekly.*

CLASS REVIEWS.

The great advantages to be derived from frequent and thorough reviews of lectures, in the nature of a "Quiz," are too well known to all educators and students to require further comment.

With the arrangements perfected through the appointment of three competent instructors as assistants to the professors, students will be enabled to derive the greatest possible benefit from a system of weekly class reviews in each of the three branches upon which lectures are delivered. Attendance thereon has been made compulsory for both Junior and Senior students.

The instructors will keep in close touch with the lecturers, and full records will be kept of each student's attendance and rating at the weekly reviews, in order to stimulate all to aid in elevating the character of the work done by the class. These records will be duly considered at the meetings of the Faculty, with the view of properly advising those students who appear derelict in their duties, or who are unable to keep up with the progress of the lectures.

LABORATORY COURSES.

It is scarcely necessary at this day, when laboratory work is so highly commended by all leading scientists, to call attention to the advantages presented by this form of teaching.

The laboratories of the University are commodious, well lighted and completely equipped. The "Dispensary," which approaches as nearly as practicable the modern drug store, makes the service as complete, we believe, as that possessed by any other school of pharmacy.

PHARMACOGNOSY—Assoc. Prof. Westcott

The object sought is to so familiarize students with the appearance and physical characteristics of the various drugs, that they may be able to detect adulterations or admixtures of foreign substances which might possibly be found in commercial drugs of vegetable origin. That this may be possible, each student is supplied, without expense to himself, with liberal samples of nearly all the official drugs, certain ones of which must be mounted on cards and described in an acceptable manner. A careful record of this work will be kept, which will add to or detract from the general standing.

All candidates for graduation are required to pass a written and practical examination in this branch, which consists in identifying and describing a number of specimens of native and foreign drugs and admixtures.

PRACTICAL CHEMISTRY—Prof. Base.

Assisted by H. L. Troxel, Phar. D.

Chemistry is a science resting on a foundation of facts which can be readily verified by practical demonstrations. Whilst many such demonstrations are given during the lectures, yet it is of great importance that the student familiarize himself with the various modes of chemical operations, apply the knowledge acquired during the lectures to a practical test, and demonstrate for himself the truth and accuracy of the assertions.

The value of such practical training in chemical manipulations cannot be overestimated, and the means for obtaining it are afforded to the student in the well-equipped chemical laboratory provided by this School.

Each student, in both Junior and Senior Course, is required to keep a record in his laboratory note book of all work done, which is examined and corrected at intervals during the session.

The JUNIOR COURSE will embrace a number of experiments bearing on general chemistry and the analytical reactions of the acids and metals. Every attention will be given to students, and full explanation of the work done will be given each day. *Three periods of three hours each weekly, during the second semester.*

The SENIOR COURSE will begin with the preparation of volumetric solutions. These will then be used in determining the strength of official chemicals, which will be given

as unknown substances to the student, who must first make a qualitative analysis to learn their nature, after which the methods of assay and tests for impurities as given in the Pharmacopœia will be carried out. The student thus will acquire a good practical knowledge and the ability to interpret the statements of the Pharmacopœia. Towards the end of the course urinary analysis will be taken up, and any further available time will be devoted to the preparation of a few simple organic chemicals or to the qualitative study of some of the official organic chemicals. *Three periods of three hours each weekly, during the first semester.*

**VEGETABLE HISTOLOGY—Prof. Base and Associate
Professor Charles C. Plitt.**

A knowledge of the use of the microscope and of the structure of plant tissues will prove a most valuable aid to the pharmacists in the study of drugs, and is really imperative for a proper investigation of their structure, adulterations, etc.

For these reasons a practical course in Vegetable Histology has been made obligatory for all students. This embraces a study of the mechanism of the microscope and its theory of action; practical manipulations of the instrument; the art of cutting "sections," staining and making mounts of them; the study of the lower plant organisms, as yeast, bacteria, fungi and algæ; the study of the primary vegetable cell and its numerous subsequent modifications, which form the various "tissues" as found in the higher plants, and relative arrangement of these which give rise to the various kinds of stems, roots and leaves.

Another part of the work consists in the study of powdered drugs for their own structure, as well as for adulterations. This is of considerable importance, since the majority of drugs are furnished to the pharmacist at the present day in powdered condition, in which form spurious parts cannot be detected by mere inspection, but only by the use of the microscope.

For those students who signify a desire to take up the study of urinary sediments, for normal and abnormal constituents, a number of exercises will be provided. The University Hospital gives an ample supply of material for this purpose.

At this time when physicians often look to pharmacists for information regarding microscopes and accessories and solutions and stains for histological work, the student will do well to give careful attention to these subjects. During the course a few periods will be devoted to a consideration of the more usual stains employed in animal histology.

During the Junior Year one period of three hours weekly during one semester is required. Such part of the course as is not covered during the Junior Year will be finished in the Senior Year.

PHARMACEUTICAL MANIPULATIONS—Prof. Caspari.

Assisted by J. J. Barnett, Phar. D.

By the departure of many pharmacists from the practice of producing their own pharmaceutical preparations, relying, instead, exclusively upon the wholesale manufacturer for a supply, many young men are deprived, in the store, of the opportunity to become skilled in the various pharmaceutical operations or possessed of that important and necessary qualification—self-confidence.

The Pharmaceutical Laboratory was established by this School to supply a remedy for this growing evil, and it offers a place for practice under the guidance of a competent instructor. The laboratory is conveniently arranged and well lighted, and great pains were taken in its full equipment and complete arrangement. Each table is supplied with gas, water and a closet for the safe-keeping of apparatus, finished and unfinished preparations. The student assumes personal charge of the table and closet assigned him, and thus secures his labors against interference during laboratory exercises.

THE JUNIOR COURSE will embrace manipulations, such as the use of apothecary and metric weights and measures; the finding of specific gravity of liquids and adjustment of the same; the testing of alcohol and medicinal wines; filtration; purification of certain salts; preparations of infusions, decoctions, aromatic waters, glycerites, detannated wine, tinctures, syrups, emulsions, triturations, powders, lozenges, pills, ointments, the sealing of wafers, etc. *Two periods of three hours each weekly, during the second semester.*

THE SENIOR COURSE will be devoted to the preparation of fluid and solid extracts, elixirs and oleates, and such chemicals and their solutions as the competent apothecary can

make with pecuniary advantage to himself; also instruction in the official and other methods of assay of vegetable drugs and their preparations, by means of which students will be made practically familiar with the pharmacopœial requirements, and become able to better determine the quality of crude drugs and galenicals they may desire to purchase.

The value of such a course of instruction must be apparent to all, and the examinations thus far have given evidence of good results therefrom. *Two periods of three hours each weekly, during the first semester.*

DISPENSING—Prof. Hynson.

Assisted by J. Carlton Wolf, Phar. D.

The Dispensary offers students opportunity and means by which they may apply the complete knowledge to be gained in other departments, guided and assisted by actual practitioners. It is intended to have them make practical use of their theoretical knowledge of laws, principles and scientific details, fully taught elsewhere, in the daily doings of the busy pharmacist. The instruction will be closely confined to subjects of real value to the dispenser.

These dispensary exercises will be highly appreciated by those who desire proficiency in pharmaceutic practice and wish to become finished dispensers, as through this work students may secure that extended and comprehensive experience in every detail of compounding and dispensing, which was formerly to be had in drug stores, but which has lately become difficult to obtain.

The JUNIOR COURSE will be devoted to preliminary work, familiarizing students with the utensils, appliances and material used in dispensing and in giving them elementary training in dispensing technique, including the proper selection of containers; the writing and attaching of labels; the making and wrapping of packages; the folding of powders and filters, etc., that they may be prepared to meet the actual demands of the modern drug store, and become fitted for the greater requirements of prescription filling. *Two periods of three hours each weekly, during the first semester.*

The SENIOR COURSE will be devoted entirely to the discussion, preparation and finishing of physicians' prescriptions, as they appear in modern pharmacies, and great pains will be taken to make the course so comprehensive that it will include types of all classes of these.

A careful record of the work of each student will be kept by the demonstrator, Dr. Wolf, and this record will constitute a part of the student's general standing. *Two periods of three hours each weekly, during the second semester.*

COMMERCIAL PHARMACY—Prof. Hynson.

Assisted by J. Carlton Wolf, Phar. D.

In connection with the Dispensary service, in the Junior Course, considerable time will be taken to carefully instruct students regarding business forms and practices, especially as they apply to the affairs of the pharmacist. Actual exercises will be given in Bookkeeping, Correspondence, Banking, Salesmanship, Stockkeeping, Inventories, Insurance and Contracts. The Course will also include the discussion of pharmaceutical ethics and such commonplace subjects as cleanliness, personal address, store manners, etc., that students may obtain extended knowledge of the commercial as well as the professional side of their future vocation.

The desirability of this kind of knowledge and practice cannot be questioned. The introduction of such teaching into the curricula of the schools of pharmacy has been very generally endorsed by practical and successful pharmacists, and particularly by the leading credit men of the wholesale and manufacturing drug trade. It is thought by them that the want of success of many very excellent pharmacists is due to their lack of good business training; this the University of Maryland, Department of Pharmacy, seeks to supply by the most practical methods.

A final examination in this branch will be held at the end of the first semester of the Junior year, which will be final. Students failing in their Junior year may, however, take up this work again during the Senior year.

ELECTIVE COURSES.

For the benefit of students desirous of obtaining familiarity with those branches of medicine closely allied to Pharmacy, arrangements have been made with the Medical Department of the University whereby attendance upon lectures may be enjoyed without cost, and laboratory instruction in Anatomy, Physiology and Physiological Chemistry may be secured at very reasonable rates.

LOCATION OF THE UNIVERSITY BUILDINGS.

The Department of Pharmacy has been assigned, for laboratory instruction and delivery of lectures, several large, well-lighted and thoroughly-equipped halls in the various University buildings at the northeast corner of Lombard and Greene streets. The Dean's office is located on the second floor of the new Dental and Pharmaceutic Building.

The University is easily reached by electric cars of the Towson and Catonsville line, which pass the grounds, and transfers to which may be obtained from the conductors of all car lines passing railroad depots and steamboat landings in the city.

EXPENSES.

The personal expenses of students are as low in Baltimore as in any large city in the United States, and in many cases are far lower, but will, of course, vary according to the habits and desires of the individual. Good board and lodging can be had for \$3.50 or \$4 per week and upwards, particularly if two or three persons room together. Besides the tuition fees given elsewhere, the expenses of students of Pharmacy need not exceed the sum of \$140, or \$190, for the season of 32 weeks, apportioned as follows:

Board and Lodging.....	\$112 00	\$148 00
Laundry	12 00	18 00
Laboratory Incidentals.....	5 00	8 00
Sundry Expenses.....	11 00	18 00
	<hr/>	<hr/>
	\$140 00	\$190 00

In addition to the above, the cost of necessary textbooks during the full course of two sessions may amount to \$15.

Information regarding good boarding-houses in the neighborhood of the University may be obtained from the janitor, who will furnish applicants with a list, giving location, conveniences and rates.

EMPLOYMENT.

It is very desirable, on account of the large number of hours required for laboratory work, lectures and study, that students should come prepared to sustain themselves during their collegiate term, as is the case in medical and dental schools, yet a number annually succeed in finding suitable employment in retail drug stores of this city. The Faculty of the School stand ever ready to aid in securing positions for those students to whom employment is desirable.

TABLE OF FEES.*

<i>Matriculation, paid but once</i>	\$ 5 00
<i>General Lecture and Laboratory Ticket:</i>	
For Junior Students.....	100 00
For Senior Students.....	100 00
Graduation Fee (returned in case of failure).....	15 00

These tickets entitle the holders to a full term of instruction in the Junior and Senior Course, respectively, including lectures on Pharmacy, Chemistry, Botany, Materia Medica and Pharmacognosy; weekly reviews in all of these branches; Laboratory instruction in Practical Pharmacy, Analytical Chemistry and Vegetable Histology; service in the Dispensary and Commercial Practice.

SPECIAL TICKETS OF ADMISSION.

FOR EITHER JUNIOR OR SENIOR STUDENTS.

To any one of the Lecture Courses.....	\$17 50
To any one of the Reviews	5 00
To Pharmaceutical Laboratory:	
Junior Division.....	12 50
Senior Division.....	20 00
To Chemical Laboratory.....	12 50
To Microscopical Laboratory.....	7 00
To Dispensary.....	12 50

Students who find it desirable or necessary to repeat a course will be expected to take out a Renewal Ticket. This rule has been adopted to stimulate students to take advantage of opportunities before them and to discourage tendency to put off making proper efforts to pass the various examinations.

RENEWAL TICKETS.

FOR JUNIOR OR SENIOR STUDENTS.

To any of the Lecture Courses	\$10 00
To any of the Reviews.....	5 00
To Laboratories.....	Full fees as above.

*NOTE—The Matriculation Tickets may be procured at the office of the Dean, and must be taken out at the opening of the session. The fees for Lecture and Laboratory Tickets are payable in two equal instalments, October 1, 1908, and January 4, 1909. Students applying for Senior Course Tickets must present proof of having passed the Junior examinations.

TEXT BOOKS.

U. S. Pharmacopœia, Simon's Manual of Chemistry, Caspari's Treatise on Pharmacy, Culbreth's Pharmaceutic Botany, Rusby and Jelliffe's Morphology and Histology of Plants, Culbreth's Materia Medica and Pharmacology, Base's Elements of Vegetable Histology, Gray's Manual of Botany.

BOOKS OF REFERENCE—National Standard Dispensatory, United States Dispensatory, Remsen's Theoretical and Organic Chemistry, Beal's Chemical Arithmetic, Prescott & Johnson's Qualitative Analysis, Scoville's Art of Compounding, Gray's New Lessons in Botany.

EXAMINATIONS.

SPECIAL EXAMINATIONS for admission to the Senior Class will be held on September 21, 22 and 23, (see calendar, page 5). These examinations are held for the benefit of those Junior students who may have failed in one or more branches at the regular spring examinations of this or some other school of pharmacy.

REQUISITES FOR GRADUATION.

A diploma is granted only after all the requirements herein mentioned have been complied with, and when the candidate shall have attained the age of 21 years.

1. The candidate must possess a good moral character.
2. He must have attended two full courses of lectures at a school of pharmacy, the last *in all instances*, at this school.
3. He must have attended a full course in Practical Pharmacy and Dispensing at this school.
4. He must have passed an examination in Practical Chemistry, Pharmaceutical Manipulations, Dispensing, Pharmacognosy and Vegetable Histology; also written examinations in Chemistry, Pharmacy and Materia Medica.
5. On or before May 1 the candidate must present the graduation fee and a letter from his parents or some authorized person certifying to his age.

CERTIFICATE OF EXAMINATION.

Any student under 21 years of age may apply for final examination at the expiration of the full collegiate course. Should the examination prove successful, he will receive a Certificate of Examination, to be subsequently exchanged for the diploma when the age requirement has been met.

PRIZES.

GENERAL.—A Gold Medal will be awarded at each Annual Commencement to the candidate for graduation who during his or her stay at this school shall have acquitted himself or herself creditably and at the final examinations shall have attained the highest rating, which latter must not fall below the meritorious grade.

Certificates of honor will be presented to the three students standing next highest in order of merit after the prize student.

Special prizes will also be awarded as follows:

CHEMISTRY.—Dr. Wm. Simon, for many years Professor of Chemistry in the Maryland College of Pharmacy, has generously placed at the disposal of this School a sum of money, the income of which is to be used annually in procuring a special gold medal to be awarded for superior proficiency in the field of Practical and Analytical Chemistry. This medal will be known as the Simon Prize, and, in accordance with stipulations fixed by the donor, the recipient must stand high in all branches and must have the endorsement of the whole faculty. In recommending a student for the prize the Professor of Chemistry will be guided in his judgment of the student's ability as much by observation and personal contact as by marks made in examinations.

PHARMACY.—In order to give greater stimulus to the study of Practical Pharmacy, an appropriate prize will be presented to that member of the Senior Class who shall make the highest record in both Theoretical and Practical Pharmacy.

VEGETABLE HISTOLOGY.—The Alumni Association, to stimulate diligent study, will each year give a medal to the member of the graduating class who attains the greatest proficiency in Vegetable Histology.

JUNIOR.—A Gold Medal is annually awarded to the most successful Junior student, and Honorable Mention will be made of the five next best in succession.

IMPORTANT NOTICE.

The rules and conditions stated in this Prospectus will govern students until the next succeeding issue, after which time they will be governed by the conditions stated in the latter.

A copy of this circular will be mailed to any address upon application. Address

CHAS. CASPARI, JR., DEAN,
Dep't Pharmacy, University of Maryland,
BALTIMORE, MD.

ROLL OF STUDENTS—Session 1907-1908.

Amman, Frederic C.....	Louisiana	Leeds, Roscoe A.....	Maryland
Balmert, Clemens A.....	Ohio	Ligon, A. Towers.....	S. Carolina
Benitez, Carmen.....	Porto Rico	Lisk, Daniel C.....	N. Carolina
Blocher, Llewellyn V.....	Maryland	Lopez, Augusto R.....	Porto Rico
Borcherding, William E.....	Maryland	Mallén, Maria F.....	San Domingo
Bramble, Henry S.....	Maryland	Marecki, Michael M.....	Maryland
Brown, Douglas W.....	S. Carolina	Massenburg, George Y.....	Maryland
Cannatella, Lawrence W.....	Maryland	Mauldin, John McH.....	S. Carolina
Codd, John N.....	Maryland	Mullikin, John F.....	Maryland
Cutehin, Walter M.....	Maryland	Nattans, Ralph A.....	Maryland
Dirickson, James B.....	Maryland	Neubauer, Clarence G.....	Maryland
Elphinstone, Lewis M.....	Maryland	Parelhoff, Maurice I.....	Maryland
Ephraim, Hyman.....	Maryland	Patti, John S.....	Maryland
Farlow, Oscar B.....	Maryland	Pilson, Robert W.....	Maryland
Fehler, J. Frederick.....	Maryland	Powers, Edward A., Jr.....	Maryland
Felser, Isidore W.....	Maryland	Quinn, James L.....	Maryland
Fields, William A.....	Maryland	Rauschenbach, Chas. W.....	Maryland
Frailey, Carson P.....	Maryland	Renehan, John L.....	Connecticut
Gakenheimer, William F.....	Maryland	Repass, Clarence A.....	Virginia
Gibbons, George, Jr.....	Pennsylvania	Salley, Frank M.....	N. Carolina
Goldman, Samuel M.....	Maryland	Sandler, Joseph L.....	Maryland
Grusendorf, Henry C.....	Maryland	Sappenfield, W. Alfred.....	N. Carolina
Gwinn, Charles N. J.....	Maryland	Spangler, Paul C.....	W. Virginia
Haelbig, Frank L. A.....	Texas	Stall, George A.....	Maryland
Hancock, Herman F.....	Maryland	Seward, Webster W.....	Maryland
Hihn, John B., Jr.....	Maryland	Smith, William H.....	Maryland
Hinton, George H.....	Virginia	Stam, Donald F.....	Maryland
Houck, Roy L.....	Pennsylvania	Snowden, William E.....	N. Carolina
Ivins, Harry O.....	Maryland	Stefanski, Michael L.....	Maryland
Jones, Webster B.....	Maryland	Swain, Robert L.....	Delaware
Kammer, William H.....	Maryland	Talbott, Charles L.....	Maryland
Kantner, Leahmer M.....	W. Virginia	Thomas, John B., Jr.....	Maryland
Karlinsky, Isador H.....	Maryland	Toula, Jaroslav J.....	Bohemia
Keller, Bayard T.....	Maryland	Vogel, Walter W.....	Maryland
Kelly, Bernard V.....	Maryland	Werckshagen, Waldo A.....	Maryland
Kennedy, Leland McD.....	S. Carolina	Wich, Henry E.....	Maryland
Korb, Katherine.....	W. Virginia	Williams, Lawrence S.....	Maryland
Kramer, Edith A.....	Maryland	Winslow, Edwards F.....	Maryland
Zayat, Tewfic Z.....	Egypt		

ROLL OF GRADUATES.

June 1st, 1908.

Balmert, Clemens A.....	Ohio	Houck, Roy L.....	Pennsylvania
Blocher, Vincent L.....	Maryland	Kammer, William H.....	Maryland
Borcherding, William E.....	Maryland	Keller, Bayard T.....	Maryland
Codd, John N.....	Maryland	Ligon, A. Towers.....	S. Carolina
Cutchin, Walter M.....	Maryland	Massenburg, George Y.....	Maryland
Dirickson, James B.....	Maryland	Mauldin, John McH.....	S. Carolina
Frailey, Carson P.....	Maryland	Parelhoff, Maurice I.....	Maryland
Gibbons, George, Jr.....	Maryland	Powers, Edward A., Jr.....	Maryland
Goldman, Samuel M.....	Maryland	Rauschenbach, Chas. W.....	Maryland
Grusendorf, Henry C.....	Maryland	W. Alfred Sappenfeld.....	S. Carolina
Gwinn, Charles N. J.....	Maryland	Seward, Webster W.....	Maryland
Haelbig, Frank L. A.....	Texas	Stam, Donald F.....	Maryland
Hancock, Herman F.....	Maryland	Zayat, Tewfic Z.....	Egypt

The degree of Doctor of Pharmacy was also conferred upon Milton R. Walter (Ph. G., 1890).

HONOR ROLL, Session 1907-1908.

Senior Class.

General Prize—Clemens A. Balmert; Practical Pharmacy Prize—Frank L. A. Haelbig; Simon Prize in Practical Chemistry—Chas. W. Rauschenbach; Alumni Prize in Vegetable Histology—Chas. N. J. Gwinn; Certificates of Honor (in order of merit)—Frank L. A. Haelbig, Chas. N. J. Gwinn; Chas. W. Rauschenbach.

Junior Class.

College Prize for General Excellence—Robert Lee Swain; Honorable Mention (in order of merit)—Henry E. Wich, Jaroslav J. Toulas, George H. Hinton, Edwards F. Winslow, Leland McD. Kennedy.

DEPARTMENT OF ART AND SCIENCES.

ST. JOHN'S COLLEGE, ANNAPOLIS, MD.

St. John's College has entered into an affiliation with the Schools of Medicine, Law, Dentistry and Pharmacy of the University of Maryland.

The Operation of these working relations is outlined as follows:

First. Seniors in St. John's College may elect twelve requisite hours a week in the Law School of the University. The degree of Bachelor of Arts or Bachelor of Science is conferred upon such students at the end of the year. The Professional Degree may be reached in two years more.

Second. Students who have completed the Junior Year in St. John's College and who have made an approved choice of electives may if they desire it do the entire work of the Senior Year in the Medical School of the University. If they successfully complete the work of the first medical year they are graduated with their class with the degree of A. B. from St. John's College.

By taking advantage of this privilege a man may complete the Undergraduate and Medical courses in seven years.

During three of these years or until he has completed the work of the Junior Class he is a resident student in St. John's College and for four years he is a resident in the Medical School in Baltimore.

At the end of the fourth year he receives the A. B. degree and at the end of the seven years the M. D. degree, but credit from the Medical School cannot be accepted in subjects for which credit has already been given in the College of Liberal Arts.

FACULTY.

- THOMAS FELL, A. M., Ph. D., LL. D., President, Professor of Moral Science.
- B. VERNON CECIL, M. A., (Graduate of St. John's College). Vice-President and Professor of Chemistry and Physics.
- JOHN B. WHITE, B. A., M. A., (Graduate of Geneva College). Professor of Greek and Latin.
- B. H. WADDELL, M. A., (Graduate of Washington and Lee University). Professor of Mathematics.
- C. W. STRYKER, B. A., (Graduate of Union College, New York). Professor of History and Political Economy.
- JOHN BROCKWAY RIPPERS, B. A., (Graduate of Wesleyan University). Professor of Latin.
- ROYAL J. DAVIS, B. A., (Graduate of Harvard University). Professor of English Language and Literature, and Logic and Oratory.
- E. BERKELEY IGLEHART, U. S. A., (Lieutenant of the United States Army). Professor of Military Science and Tactics, and Lecturer on International and Constitutional Law.
- F. J. von SCHWERDTNER, (Graduate of Royal Academy of War, Berlin). Professor of French and German.
- BARTGIS MCGLOTH, B. A., Ph. D., (Graduate of Johns Hopkins University). Professor of Biology.
- A. W. WOODCOCK, JR., B. A., M. A., (Graduate of St. John's College). Assistant Professor of Mathematics.
- S. ROLAND HOPKINS, B. A., (Graduate St. John's College). Instructor in English and Science.
- CHARLES A. JACOBI, B. A., (Graduate of St. John's College). Instructor in Mechanical Engineering and Drawing.

DENTAL DEPARTMENT.

The regular Winter Session begins on October 1 of each year, and continues until the following May.

The Annual Catalogue contains Course of Study, Terms, etc. Attendance upon three regular Winter Sessions will be required before the final examinations for the degree of Doctor of Dental Surgery. Any candidate for graduation who fails to pass at the final examinations will have the privilege of a second examination in the following September without further attendance at a regular session.

The requirements for admission are the same as in all other reputable dental colleges.

FACULTY:

FERDINAND J. S. GORGAS, A. M., M. D., D. D. S., Professor of Principles of Dental Science, Oral Surgery and Dental Prosthesis.

JAMES H. HARRIS, M. D., D. D. S., Professor of Operative and Clinical Dentistry.

R. DORSEY COALE, A. M., Ph. D., Professor of Chemistry and Metallurgy.

RANDOLPH WINSLOW, A. M., M. D., Clinical Professor of Oral Surgery.

J. HOLMES SMITH, A. M., M. D., Professor of Anatomy.

JOHN C. HEMMETER, M. D., Ph. D., LL. D., Professor of Physiology.

TIMOTHY O. HEATWOLE, M. D., D. D. S., Professor of Materia Medica and Therapeutics.

ISAAC H. DAVIS, M. D., D. D. S., Professor of Operative Dentistry and Orthodontia.

JOHN C. UHLER, M. D., D. D. S., Associate Professor of Prosthetic Dentistry.

J. S. GEISER, D. D. S., Demonstrator of Operative Technics.

HOWARD EASTMAN, D. D. S., Demonstrator of Prosthetic Dentistry and Technics.

L. WHITING FARINHOLT, D. D. S., Demonstrator of Operative Dentistry and Porcelain Inlay Work.

CLYDE V. MATTHEWS, D. D. S., Demonstrator of Anæsthesia.

J. W. HOLLAND, M. D., Associate Professor and Demonstrator of Anatomy.

AND FIFTEEN ASSISTANT DENTAL DEMONSTRATORS.

Matriculation and Tuition Fees, per Session, \$150.00.

For Information and Annual Catalogue, Address

F. J. S. GORGAS, M. D., D. D. S., Dean, Baltimore, Md.

LAW DEPARTMENT.
THIRTY-NINTH ANNUAL SESSION.
THE BOARD OF INSTRUCTION.

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JUDGE HENRY D. HARLAN, Constitutional Law and Domestic Relations.

WILLIAM T. BRANTLY, Esq., Personal Property, Bailments and Contracts.

JOSEPH C. FRANCE, Esq., Corporations and Elementary Common Law.

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JOHN C. ROSE, Esq., Jurisdiction and Procedure of the Federal Courts, Admiralty and Bankruptcy.

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ELI FRANK, Esq., Title to Real Property and Conveyancing.

ALBERT C. RITCHIE, Esq., Commercial Law and Shipping.

For Catalogue Containing Full Information, Address
**HENRY D. HARLAN, Secretary of Law Faculty, 1061 Calvert
Building, Baltimore, Md.**

MEDICAL DEPARTMENT.

The One Hundred and Second Annual Course of Lectures will
Commence October 1st, 1908.

FACULTY.

SAMUEL C. CHEW, M. D., LL. D., Professor of Principles and Practice of
Medicine and Clinical Medicine.

R. DORSEY COALE, Ph. D., Professor of Chemistry and Toxicology.

RANDOLPH WINSLOW, M. D., Professor of Surgery.

L. E. NEALE, M. D., Professor of Obstetrics.

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For Circulars and Further Information, Apply to

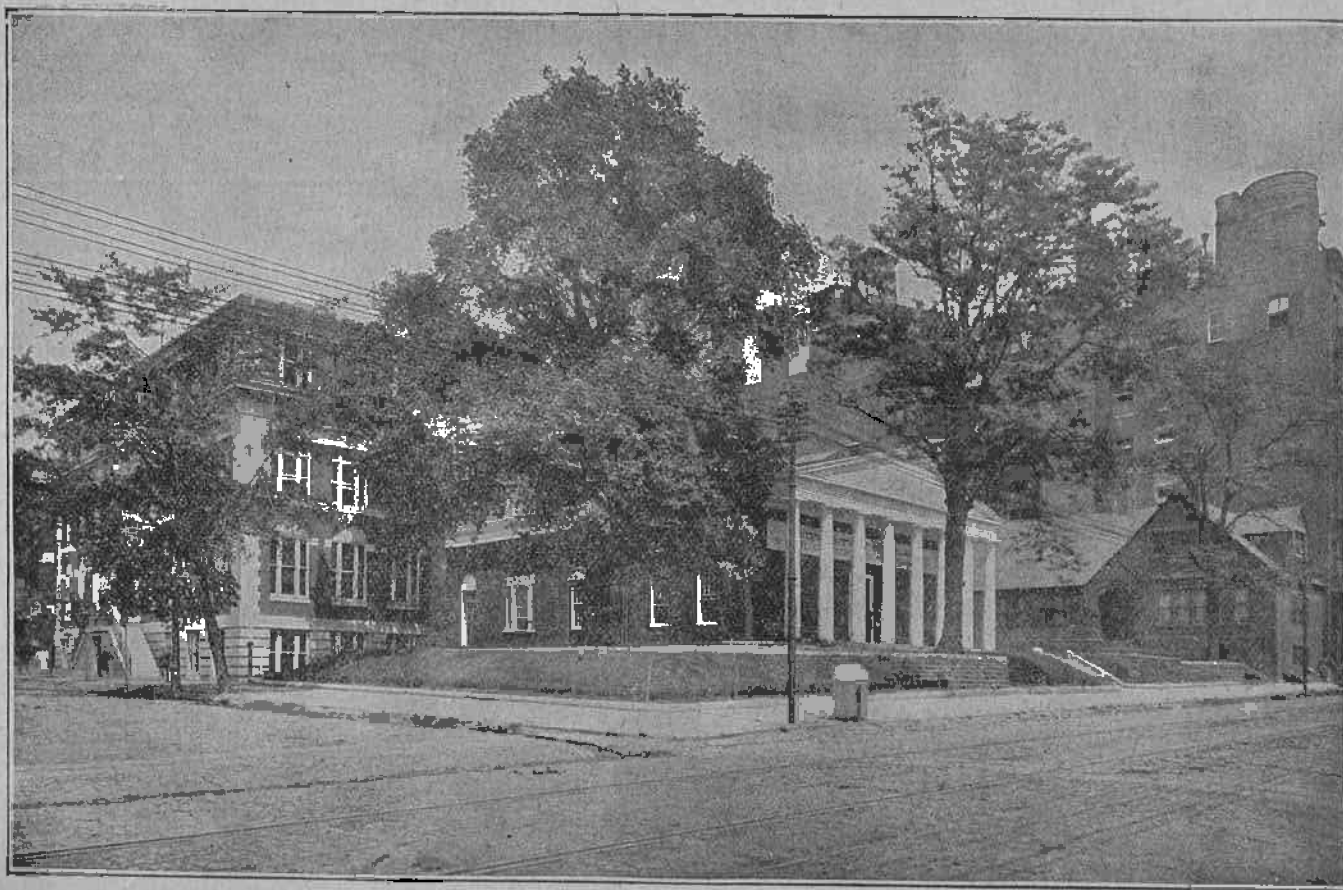
R. DORSEY COALE, Ph. D., Dean,

Medical Department,

University of Maryland.



NEW DENTAL AND PHARMACEUTICAL BUILDING OF THE
UNIVERSITY OF MARYLAND



UNIVERSITY OF MARYLAND—GENERAL VIEW