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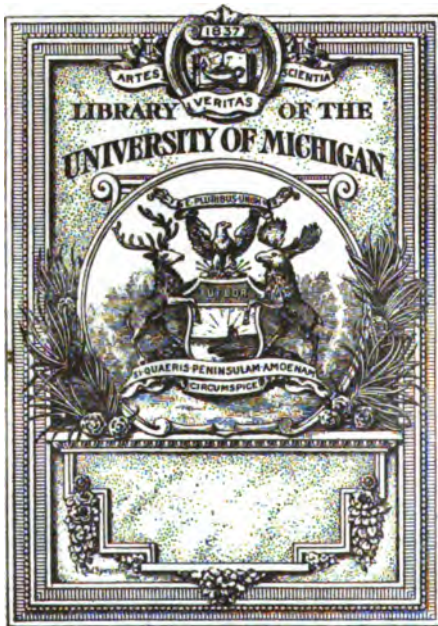
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THE UNIVERSITY BULLETIN

SIXTH SERIES: NO. 2—PART 2

UNIVERSITY OF PENNSYLVANIA CATALOGUE

1905-1906



Founded 1740

PHILADELPHIA

PUBLISHED BY THE UNIVERSITY

DECEMBER, 1905

BI-MONTHLY



Arabic.

line.



CATALOGUE

OF THE

UNIVERSITY OF PENNSYLVANIA



Founded 1740

1905-1906

PHILADELPHIA

PRINTED FOR THE UNIVERSITY

DECEMBER, 1905

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PART I



THE UNIVERSITY

THE UNIVERSITY.

General Information.

LOCATION.

The buildings of the University of Pennsylvania, thirty in number, are situated in Philadelphia, on property covering an area of over fifty-nine acres. The University may be reached from the various railroad stations as follows: From the West Philadelphia station of the Pennsylvania Railroad, on foot west on Woodland avenue, a walk of less than ten minutes; from the Philadelphia and Reading Terminal station, by the electric cars on Market street west to Thirty-fourth street, thence on foot south to Woodland avenue, a trip of about fifteen minutes; or from the Baltimore and Ohio Railroad station by a walk of one square south to Walnut street, thence by car over the bridge west to Thirty-fourth street, a ride of about five minutes.

APPLICATIONS FOR CATALOGUES, ETC.

Applications for copies of the annual University Catalogue (published in December) should be addressed to the Secretary of the University of Pennsylvania, Philadelphia, Pa. *The Catalogue is sold at twenty-five cents a copy.*

Special announcements, relating either to the separate Departments of the University, or to the various courses (liberal and scientific) offered in the College proper, *will be mailed free to anyone upon receipt of name and address.* Such applications should be addressed to the Deans of the several Departments.

All letters of inquiry regarding the internal regulations and requirements in each separate Department of the University should be addressed to the Dean of that Department (see *Administrative Officers*, following) and *not* to the Secretary of the University.

ACCOMMODATIONS FOR STUDENTS.

Lodging for students to the number of over six hundred is provided in the present dormitory system, which comprises an extended group of contiguous houses fronting upon three open courts. Plans of the dormitories, prices, and other details may be obtained upon application to the Bursar of the University, College Hall.

A large temporary dining hall, or "Commons," is situated on a plot of ground adjacent to the Dormitories.

Board and lodging may be obtained also in the immediate vicinity of the University. Upon application at the offices of the Deans of the several Departments (see *Administrative Officers*, following), lists of approved boarding-houses may be seen.

1905.							1906.																		
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9	10	11	12	13	14	15	14	15	16	17	18	19	20	15	16	17	18	19	20	21					
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31	30	31						
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CALENDAR FOR 1905-1906.

Meetings of the Corporation are held on the first Tuesday in each month.

1905.

- Sept. 29, Friday Session begins: College, 10 A. M.; Department of Law, 11 A. M.; Departments of Medicine and Veterinary Medicine, 8 P. M.
- Sept. 30, Saturday Session begins: Department of Philosophy, 3 P. M.
- Oct. 2, Monday Session begins: Department of Dentistry, 8 P. M.
- Nov. 29, Wednesday Thanksgiving Recess begins: all Departments, 6 P. M.
- Dec. 4, Monday Thanksgiving Recess ends: all Departments, 9 A. M.
- Dec. 22, Friday Christmas Recess begins: all Departments, 6 P. M.

1906.

- Jan. 3, Wednesday Christmas Recess ends: all Departments, 9 A. M.
- Jan. 22, Monday Mid-Year Examinations: College, 9 A. M.
- Jan. 29, Monday Second Term begins: College, 9 A. M.
- Feb. 22, Thursday University Day: Recess, all Departments.
- April 12, Thursday Easter Recess begins: all Departments, 6 P. M.
- April 16, Monday Easter Recess ends: Departments of Law, Medicine, Dentistry and Veterinary Medicine, 9 A. M.
- April 23, Monday Easter Recess ends: College, and Department of Philosophy, 9 A. M.
- May 1, Tuesday Last day for receipt of Theses, Prize Essays, and Reports: College, and Departments of Law and Medicine.
- May 7, Monday Post-Graduate Course begins: Department of Medicine, 9 A. M.
- May 28, Monday, Final Examinations: College, and Department of Law, 9 A. M.
- June 13, Wednesday Commencement, 11 A. M.
- June 14, Thursday Registration of Candidates for Admission: College, and Department of *Medicine, 9 A. M. to 11 A. M.

* Registration of candidates for admission by examination only.

- June 14, Thursday Entrance Examinations: College, and Departments of Law, Medicine and Veterinary Medicine, 11 A. M.
- July 5, Thursday Summer School Session begins: College, 9 A. M.
- Aug. 16, Thursday Summer School Session ends: College, 6 P. M.

SUMMER RECESS.

- Sept. 21, Friday Re-examination of Conditioned Students: College, 9 A. M.
- Sept. 21, Friday Competitive Examination for Dental Scholarships, 11 A. M.
- Sept. 21, Friday Registration of Candidates for Admission: College, and Department of *Medicine, 9 A. M. to 11 A. M.
- Sept. 21, Friday Entrance Examinations: College, and Departments of Law and Medicine, 11 A. M.
- Sept. 24, Monday Competitive Examination for Medical Scholarships, 10 A. M.
- Sept. 24, Monday Re-examinations, and Examinations for Admission to Advanced Standing: Department of Medicine, 2 P. M.
- Sept. 25, Tuesday Entrance Examinations: Department of Veterinary Medicine, 10 A. M.
- Sept. 25, Tuesday Entrance Examinations: Department of Dentistry, 9 A. M.
- Sept. 25, Tuesday Re-examination of Conditioned Students, and Examinations for Admission to Advanced Standing: Department of Dentistry, 2 P. M.
- Sept. 28, Friday Session begins: College, 10 A. M.; Department of Law, 11 A. M.; Departments of Medicine and Veterinary Medicine, 8 P. M.
- Sept. 29, Saturday Session begins: Department of Philosophy, 3 P. M.
- Oct. 1, Monday Session begins: Department of Dentistry, 8 P. M.
- Nov. 28, Wednesday Thanksgiving Recess begins: all Departments, 6 P. M.
- Dec. 3, Monday Thanksgiving Recess ends: all Departments, 9 A. M.
- Dec. 21, Friday Christmas Recess begins: all Departments, 6 P. M.

* Registration of candidates for admission by examination only.

UNIVERSITY OF PENNSYLVANIA.

CHRONOLOGICAL TABLE.

- 1740—"Charity School" founded.
1749—The "Academy" established, with which the Charity School was combined.
1753—Charter granted by Thomas and Richard Penn, incorporating "The Academy and Charitable School."
1755—"Confirmatory Charter" granted by Thomas and Richard Penn, incorporating "The College, Academy and Charitable School."
1765—Medical School founded.

From September, 1777, to June, 1778, owing to the occupation of Philadelphia by British troops, recitations and lectures were suspended.

- 1779—Withdrawal of the chartered rights and privileges of The College by the State Assembly, and incorporation of the "University of the State of Pennsylvania."
1789—Restoration of its chartered rights and privileges to The College.
1790—Law School founded (re-established in 1850).
1791—Union of the University of the State of Pennsylvania with The College, under the title of the UNIVERSITY OF PENNSYLVANIA.
1874—University Hospital established.
1875—Towne Scientific School founded.
1877—Department of Music established.
1878—Dental School founded.
1881—Wharton School of Finance and Commerce founded.
1882—Department of Philosophy (Graduate School) founded.
1884—Veterinary School founded.
1885—Veterinary Hospital established.

- 1885—Department of Physical Education established.
- 1889—Department of Archæology established.
- 1892—Laboratory of Hygiene established.
- 1892—Wistar Institute of Anatomy and Biology established.
- 1894—Teachers' Courses established.
- 1896—Houston Club organized.
- 1896—Flower Astronomical Observatory opened.
- 1904—Summer School (College) established.

HISTORICAL SKETCH.

On November 13, 1749, soon after the publication of a pamphlet written by Benjamin Franklin, and entitled, "Proposals relating to the Education of Youth in Pensilvania," twenty-four public-spirited citizens of Philadelphia associated themselves for the purpose of establishing an Academy, and "laying a Foundation for Posterity to erect a Seminary of Learning more extensive and suitable to their future Circumstances." One of their first acts was to negotiate for the possession of a building constructed under a trust established in 1740, and intended to be used for a "Charity School" and as a "House of Publick Worship." This building had been used for the second purpose as early as November, 1740, when the celebrated Whitefield first preached in it; but the charity school had never been set in operation. The Trustees, recognizing the opportunity to have the full purpose of their trust carried out, and "in order that said building may at length be applied to the good and pious uses originally intended," conveyed it on February 1, 1750, to the Trustees of the Academy by an Indenture, which bound the latter to place, erect, found, establish, or keep a "House of Publick Worship" and also "one free school for the instruction, teaching and education of poor children or scholars within two years from the date of these presents"; and which further provided that they "shall have full power to found, erect, establish and continue in and upon the said house and premises such other school, Academy, college or other seminary of learning" as should not conflict with the original objects of the elder trust. Under these agreements—which in due time were faithfully fulfilled—the Trustees of the Academy took possession of the "New Building," as it was then called, fitted it up for its enlarged uses, engaged a Rector and sub-

ordinate instructors, and formally opened the Academy in the presence of a distinguished company on January 7, 1751. So successful was the undertaking that in 1753 the Trustees secured a Charter for the Academy in the following terms:—

“THOMAS PENN and RICHARD PENN, true and absolute proprietaries and governors in chief of the province of Pennsylvania and counties of Newcastle, Kent and Sussex, on Delaware, To all persons to whom these presents shall come, greeting: *Whereas*, the well-being of a society depends on the education of their youth, as well as, in great measure, the eternal welfare of every individual, by impressing on their tender minds principles of morality and religion, instructing them in the several duties they owe to the society in which they live, and one towards another, giving them the knowledge of languages, and other parts of useful learning necessary thereto, in order to render them serviceable in the several public stations to which they may be called. *And whereas*, it hath been represented to us by Thomas Lawrence, William Allen, John Inglis, Tench Francis, William Masters, Lloyd Zachary, Samuel M'Call, junior, Joseph Turner, Benjamin Franklin, Thomas Leech, William Shippen, Robert Strettell, Philip Syng, Charles Willing, Phineas Bond, Richard Peters, Abraham Taylor, Thomas Bond, Joshua Maddox, William Plumsted, Thomas White, William Coleman, Isaac Norris, and Thomas Cadwalader, of our city of Philadelphia, gentlemen, that for the erecting, establishing, and maintaining an academy within our said city, as well to instruct youth for reward, as poor children whose indigent and helpless circumstances demand the charity of the opulent part of mankind, several benevolent and charitable persons have generously paid, and by subscriptions promised hereafter to pay, into their hands as trustees, for the use of the said academy, divers sums of money, which sums already paid, they, the said trustees, have expended in the purchase of lands well situated, and a building commodious for the uses aforesaid, within our said city, in maintaining an academy there as well for the instruction of poor children on charity, as others whose circumstances have enabled them to pay for their learning, for some time past, and in furnishing the said academy with books, maps, mathematical instruments, and other necessaries of general use therein, according to the intentions of the donors. *And whereas*, the said trustees, to facilitate the progress of so good a work, and to perfect and perpetuate the same, have humbly besought us to incorporate them and their successors.

“*Now know ye*, That we favoring such pious, useful, generous, and

charitable designs, hoping, through the favor of Almighty God, this academy may prove a nursery of virtue and wisdom, and that it will produce men of dispositions and capacities beneficial to mankind in the various occupations of life; but more particularly suited to the infant state of North America in general, and for other causes and considerations us hereto specially moving, *have* granted, ordained, declared, constituted, and appointed, and by these presents *we do* for us, our heirs and successors, grant, ordain, declare, constitute, and appoint, That the said Thomas Lawrence, and others, as before recited, and such others as shall be from time to time chosen, nominated or elected in their place and stead, shall be one community, corporation and body politic, to have continuance for ever, by the name of The Trustees of the Academy and Charitable School in the Province of Pennsylvania.

"*In witness* whereof, we have caused these our letters to be made patent; in the twenty-seventh year of the reign of our sovereign lord, George the second, who now is king of Great Britain, France, and Ireland, etc., and in the year of our Lord, one thousand seven hundred and fifty-three."

Under the skilful training of the learned Rev. William Smith, the highest class in this Academy attained that proficiency which, in a College course, would entitle it to a Degree. Accordingly, two years later the Proprietaries were again petitioned to convert the Academy into a College with the power of conferring collegiate degrees. The petition was granted substantially as follows:

"THOMAS PENN and RICHARD PENN, true and absolute proprietaries of the province of Pennsylvania, etc., to all persons to whom these presents shall come, greeting:

"*And whereas*, the said trustees have represented, That since our granting our said recited charter, the academy therein mentioned, by the blessing of Almighty God, is greatly improved, being now well provided with masters, not only in the learned languages, but also in the liberal arts and sciences, and that one class of hopeful students has now attained to that station in learning and science, by which, in all well-constituted seminaries, youth are entitled to their first *degree*. *Now know ye also*, That we do hereby, for us, our heirs and successors, give and grant full power and authority to the said trustees and their successors, to constitute and appoint a Provost and Vice-Provost of the said college and academy, who shall be severally named and styled Provost and Vice-Provost of the same. And also to nominate and appoint professors in all the liberal arts and sciences, the ancient languages and

the English tongue, which Provost, Vice-Provost, and Professors, so constituted and appointed, shall be known and distinguished as one body and faculty, by the name of *The Provost, Vice-Provost, and Professors of the College and Academy of Philadelphia, in the Province of Pennsylvania*; and by that name shall be capable of exercising such powers and authorities as the said trustees and their successors shall think necessary to delegate to them, for the discipline and government of the said college, academy, and charitable school: *Provided always*, That the said trustees, the Provost and Vice-Provost, and each Professor, before they shall exercise their several and respective powers or authorities, offices, and duties, do and shall take and subscribe the three first written oaths appointed to be taken and subscribed, in and by one act of Parliament, passed in the first year of the reign of our late sovereign lord, George the first, intituled, An Act for the further security of his Majesty's Person and Government; and the Succession of the Crown in the Heirs of the late Princess Sophia, being protestants, and for extinguishing the hopes of the pretended Prince of Wales, and his open and secret abettors; and shall also make and subscribe the declaration appointed to be made and subscribed by one other act of parliament, passed in the twenty-fifth year of the reign of king Charles the second, intituled, An Act for preventing dangers which may happen, etc. excepting only the people called Quakers, who, upon taking, making, and subscribing the affirmations and declarations appointed to be taken, made, and subscribed, by the acts of General Assembly of the province of Pennsylvania to qualify them for the exercise of civil offices, shall be admitted to the exercise of all and every the powers, authorities, offices, and duties above mentioned, any thing in this provision to the contrary notwithstanding. *And we do hereby*, at the desire and request of the said trustees, constitute and appoint the Reverend William Smith, M. A., to be the first and present Provost of the said college and academy, and the Reverend Francis Allison, M. A., to be the first and present Vice-Provost of the same. *And we do further, for us, our heirs and successors, give and grant to the trustees of the said college and academy*, That for animating and encouraging the students thereof to a laudable diligence, industry, and progress in useful literature and science, they and their successors, met together on such day or days as they shall appoint for that purpose, shall have full power and authority, by the provost, to admit any of the students within the said college and academy, or any other person or persons meriting the same, to any degree or

degrees, in any of the faculties, arts, and sciences, to which persons are usually admitted, in any or either of the universities or colleges in the kingdom of Great Britain. . . . *Provided always*, and it is hereby declared to be our true meaning and express will, That no student or students, within the said college and academy, shall ever, or at any time or times hereafter, be admitted to any degree or degrees, until such student or students have been first recommended and presented as worthy of the same, by a written mandate, given under the hands of at least thirteen of the trustees of the said college and academy. . . .

"In testimony whereof, we have caused these our letters to be made patent, and the great seal of our said province to be hereunto affixed . . . this fourteenth day of May, in the twenty-eighth year of the reign of our sovereign lord, George the second, king of Great Britain, France, and Ireland, etc., and in the year of our Lord, one thousand seven hundred and fifty-five."

The First Commencement was held May 17, 1757, when Paul Jackson, Jacob Duché, Francis Hopkinson, Samuel Magaw, Hugh Williamson, James Latta, and John Morgan received the Degree of Bachelor of Arts. In the agitated times that followed, during the wars with the French, the Provost, Mr. Smith, opposed so vehemently the non-resistance policy of the legislature of Pennsylvania, that by an arbitrary stretch of power he was thrown into prison. In faithfulness to his duties as Provost, however, he received his classes in gaol, and continued his instructions to them there while still a prisoner. Finally he was set at liberty, for the purpose of going to England to make a personal appeal to the king, and his kindly reception there was not lessened by the strain to which his loyalty at home had been put. Oxford conferred on him the Degree of Doctor of Divinity. On his return home so highly did his fellow-citizens rate his influence abroad, that when in 1761 the Trustees were hard bested, they sent him back to England to raise funds for an endowment. It happened that King's College (now Columbia) in New York was in similar straits, and had resolved on similar efforts. The two commissioners met in England and amicably resolved to "divide the land between them" and share the proceeds. Through the influence of the Archbishop of Canterbury they received a circular letter from the king to all the churches, and succeeded in raising a very considerable endowment for each college.

On Dr. Smith's return, as it appears on the minutes of the 14th of June, 1764, a letter was received from the Archbishop of Canterbury, Thomas and Richard Penn, and the Rev. Samuel Chandler,

D. D., addressed to the trustees, in which the trustees are congratulated on the success of Dr. Smith's, the Provost's, collection in England, and advised of what would be further necessary to the due improvement of the collection and the future prosperity of the institution. "That the institution was originally founded and carried on for the general benefit of a mixed body of people—that on the king's brief it is represented as a seminary that would be of great use for securing capable instructors and teachers, as well for the service of the society for propagating the gospel in foreign parts, as for other protestant denominations in the colonies.—That at the time of making the collection, the provost was a clergyman of the Church of England—the vice-provost, a Presbyterian—a principal professor, a Baptist, with other useful professors and tutors, all carrying on the education of youth with great harmony, and people of various denominations have heretofore contributed liberally and fully.—That jealousies had arisen lest the foundation should be narrowed, and some party exclude the rest, or put them on a worse footing than they have been or were at the time of the collection, which would be unjust and productive of contentions unfriendly to religion." It was therefore recommended to the trustees, by the writers of the letter (who had a principal share in procuring the collection), to make a fundamental rule or declaration, to prevent inconvenience of this kind, and in doing which, they were advised that the more closely they kept in view the plan on which the seminary was at the time of the royal brief, and on which it was carried on from the beginning, so much the less cause would any party have to be dissatisfied.

A committee having been appointed to frame a fundamental *Resolue* or declaration, in consequence of the letter, the following was reported and adopted:

"The trustees being ever desirous to promote the peace and prosperity of this seminary, and to give satisfaction to all its worthy benefactors, have taken the above letter into their serious consideration, and perfectly approving the sentiments therein contained, do order the same to be inserted in their books, that it may remain perpetually *declaratory* of the present *wide* and excellent plan of this institution, which hath not only met with the approbation of the great and worthy personages above mentioned, but even the royal patronage of his majesty himself. They further *declare* that they will keep this plan closely in their view, and use their *utmost endeavors* that the same be not narrowed, nor the members of the church of England, or those dissenting from them (*in any future*

election to the principal offices mentioned in the aforesaid letter,) be put on *any worse footing* in this seminary, than they were *at the time of obtaining the royal brief*. They subscribe this with their names, and ordain that the same be read and subscribed by every new trustee that shall hereafter be elected, before he takes his seat at the board."

Perhaps no more striking instance can be given of the distortion to which men's minds were subject in those days of political commotion, than the fact that in 1779 this resolution was construed by the Legislature into a "narrowing of the foundation," and seized as a pretext for confiscating all the rights and properties of the College, which were bestowed upon a new organization called in its charter the "Trustees of the University of the State of Pennsylvania." Ten years later, these rights and properties were all restored, and in 1791 an act was passed amalgamating the old College with the new University, as follows:

WHEREAS, the trustees of the University of the State of Pennsylvania, and the trustees of the College, Academy, and Charitable School of Philadelphia, in the commonwealth of Pennsylvania, by their several petitions have set forth, that they have agreed to certain terms of union of the said two institutions, which are as follows:

First: That the name of the institution be "*The University of Pennsylvania,*" and that it be stationed in the city of Philadelphia.

Second: That each of the two boards shall elect, from among themselves, twelve persons, who, with the governor for the time being, shall constitute the board of trustees of the University of Pennsylvania; and that the governor shall be president.

* * * * *

And the said trustees by their several petitions have prayed, that a law may be passed to enable them to carry the said terms of union into effect, and to incorporate them in one body, according to the purpose and intention expressed in the said terms of union.

Sec. 1. *Be it therefore enacted by the Senate and House of Representatives of the commonwealth of Pennsylvania in general assembly met, and it is hereby enacted by the authority of the same,* That, in pursuance of the second article of the said terms of union, the trustees of the University shall elect twelve persons from among themselves to be trustees of the said University after the union, and shall cer-

tify the names of the said twelve persons, so elected, to the governor of this commonwealth, on or before the first day of December next; and that the trustees of the said College, Academy, and Charitable School, shall elect twelve persons from among themselves, to be trustees of the said University, after the union, and shall certify the names of the said twelve persons, so elected, to the governor of this commonwealth, on or before the first day of December next.

Sec. 2. *And be it further enacted by the authority aforesaid,* That from and after such certificates of the elections being so made to the governor, as aforesaid, the said twenty-four persons so elected and certified, together with the governor for the time being, who shall always be president, and their successors duly elected and appointed as herein and by the said terms of union is directed, be, and they are hereby made and constituted a corporation and body politic, in law and in fact, to have continuance forever by the aforesaid name, style, and title of "The Trustees of the University of Pennsylvania," and that the said University shall at all times be stationed in the city of Philadelphia.

For the guidance of those who may desire—during life, or by testamentary bequest—to make benefactions to the University, the following information is given:

- (1) The corporate name is: THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA.
- (2) The sum of \$100,000 is the amount necessary to found a full Professorship in any one of the Departments. This Catalogue gives the names of all those who hold full Professorships in the College and Professional Schools. The principal is invested and the income alone used, and the donor has the privilege of naming the Professorship.
- (3) The sum of \$50,000 is the cost of a dormitory house; the contributor having the privilege of naming the house. There can be no more substantial or beneficent memorials than such additions to the University's beautiful, but incomplete, dormitory system.
- (4) The sum of \$10,000 is the principal sum to establish a Fellowship in any one of the Departments; the income being paid to the Fellow, who devotes his time to original work

and study; with the privilege of a very moderate amount of teaching work, under the permission of the Dean of the Department.

- (5) The sum of \$5,000 endows a Free Scholarship in the College, or in any one of the Professional Schools. The income of this sum remits tuition fees, and the donor has the right, during life, to nominate to the Scholarship, subject to all the rules of the University.
- (6) A like sum (\$5,000) endows a Free Bed in the Hospital of the University; and
- (7) The sum of \$10,000 endows a Private Room in the Hospital.

The Provost of the University will be glad to give full information upon any question relating to Foundations, as above stated, to any person or persons who may desire more detailed knowledge.

The University of Pennsylvania comprehends the following departments:

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 - THE WHARTON SCHOOL OF FINANCE AND COMMERCE.
 - THE COURSES FOR TEACHERS.
 - THE SUMME SCHOOL.
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- THE DEPARTMENT OF LAW.
- THE DEPARTMENT OF MEDICINE.
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- THE UNIVERSITY HOSPITAL.
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- THE LABORATORY OF HYGIENE.
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Ophthalmologist—WILLIAM CAMPBELL POSEY, M. D., 1835 Chest-
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Demonstrator of Mechanical Dentistry.

BENJAMIN FRANKLIN STAHL, M. D.,
Lecturer on the Dietetics of the Sick, and Instructor in Physical
Diagnosis.

JOHN DURBIN THOMAS, D. D. S.,
Lecturer on Nitrous Oxide.

MILTON BIXLER HARTZELL, M. D.,
Associate in Dermatology.

JOHN PERCY MOORE, PH. D.,
Instructor in Zoölogy.

JOHN WILLIAM HARSHBERGER, PH. D.,
Instructor in Botany, General Biology and Zoölogy.

CHARLES SOWER POTTS, M. D.,
Associate in Neurology.

- EDWIN STANTON MUIR, V. M. D.,
Instructor in Veterinary Materia Medica and Pharmacy.
- JOHN JAY MORRIS,
Instructor in Mechanical Engineering.
- JAMES GRANT LANE, D. D. S.,
Demonstrator of Mechanical Dentistry.
- HERMAN BRYDEN ALLYN, M. D.,
Associate in Medicine.
- DANIEL LINCOLN WALLACE,
Instructor in Analytical Chemistry.
- WILLIAM SCHLEIF, M. D.,
Demonstrator of Practical Pharmacy.
- BENJAMIN FRANKLIN SENSEMAN, V. M. D.,
Demonstrator of Veterinary Anatomy.
- PHILIP POWELL CALVERT, PH. D.,
Instructor in Zoölogy.
- CHARLES WINSLOW DULLES, M. D.,
Lecturer on the History of Medicine.
- GEORGE WALTER DAWSON,
Instructor in Drawing.
- HUGH WINSTON McCONNELL,
Instructor in Mechanical Engineering.
- FRANZ ENGE,
Demonstrator of Forging and Horseshoeing.
- DANIEL WEBSTER FETTEROLF, M. D.,
Demonstrator of Chemistry.
- THOMAS HARVEY DOUGHERTY,
Assistant Instructor in Zoölogy.
- ROBERT JOHNSTON SEYMOUR, D. D. S.,
Demonstrator of Mechanical Dentistry.
- MEYER LOUIS RHEIN, M. D., D. D. S.,
Lecturer on Dental Pathology.
- DAVID RIESMAN, M. D.,
Associate in Medicine.

- FRANK ALLISON HAYS,
Instructor in Pen-and-Ink Rendering.
- HENRY DORRANCE BEYEA, M. D.,
Associate in Gynecology.
- WILLIAM ALEXANDER NEWMAN DORLAND, M. D.,
Assistant Instructor in Obstetrics.
- MILTON EVERARD CONARD, V. M. D.,
Lecturer on Veterinary Obstetrics, and Demonstrator of Veterinary Surgery.
- JOHN HARPER GIRVIN, M. D.,
Instructor in Obstetrics.
- *WARD FREMONT SPRENKEL, M. D.,
Assistant Instructor in Obstetrics.
- SAFFORD GOODWIN PERRY, D. D. S.,
Lecturer on Operative Dentistry.
- CLARENCE JAMES MARSHALL, V. M. D.,
Demonstrator of Clinical Veterinary Medicine.
- JOHN DUTTON STEELE, M. D.,
Associate in Medicine.
- ANDREW SWANTON BURKE, D. D. S.,
Demonstrator of Mechanical Dentistry.
- JOSEPH REX HOBENSACK, M. D.,
Assistant Demonstrator of Anatomy.
- ALOYSIUS OLIVER JOSEPH KELLY, M. D.,
Associate in Medicine.
- JAMES AUGUSTINE DOWDEN, D. D. S.,
Demonstrator of Mechanical Dentistry.
- WILLIAM COOPER MARSH, D. D. S.,
Demonstrator of Operative Dentistry.
- FREDERICK EHRENFELD, PH. D.,
Instructor in Geology and Mineralogy.
- THOMPSON SEISER WESTCOTT, M. D.,
Associate in Pediatrics.
-

* Resigned.

- LEWIS HARRY ADLER, JR., M. D.,
Prosector to the Professor of Anatomy.
- LEON ALONZO RYAN, PH. D.,
Assistant Demonstrator of Chemistry.
- EDWIN BURKET TWITMYER, M. S., PH. D.,
Instructor in Psychology.
- WILLIAM HORACE HOSKINS, D. V. S.,
Instructor in Veterinary Jurisprudence, Ethics and Business
Methods.
- WILSON ZERFING, D. D. S.,
Demonstrator of Operative Dentistry.
- AUGUSTUS OTTO KOENIG, B. S., M. D.,
Demonstrator of Dental Metallurgy.
- HORATIO C WOOD, JR., M. D.,
Demonstrator of Pharmacodynamics.
- HENRY AUSTIE NEWBOLD, M. D.,
Assistant Deimonstrator of Practical Pharmacy.
- GEORGE DOUGLAS MORTON, M. D.,
Assistant Instructor in Surgery.
- GEORGE FETTEROLF, A. B., M. D.,
Acting Demonstrator of Anatomy.
- THOMAS TURNER THOMAS, M. D.,
Assistant Instructor in Surgery.
- GEORGE JANVIER PAYNTER, D. D. S.,
Demonstrator of Tooth Modeling.
- WILLIAM RUFUS NICHOLSON, PH. B., M. D.,
Assistant Instructor in Obstetrics.
- JOHN JOSEPH ROBRECHT, M. D.,
Assistant Demonstrator of Anatomy.
- JOSEPH SAILER, M. D.,
Associate in Medicine.
- SHERBOURNE WILLIAM DOUGHERTY, A. B., M. D.,
Instructor in Physical Diagnosis.
- HENRY DRAPER JUMP, M. D.,
Instructor in Medicine.

- FREDERICK WILLIAM ALLEN, D. D. S.,
Demonstrator of Operative Technics.
- RICHARD FRANCIS GERLACH, M. D.,
Assistant Demonstrator of Anatomy.
- WILLIAM PEPPER, M. D.,
Instructor in Medicine.
- WALTER GRAY ELMER, M. D.,
Assistant Instructor in Medicine.
- NORMAN GREY,
Lecturer on New Jersey Practice.
- REV. FLORIAN JULIEN CHARLES VURPILLOT, B. A., B. D.
Instructor in French.
- CHARLES FRANCIS OSBORNE,
Instructor in the History of Architecture.
- JOHN ANDREW McCLAIN, D. D. S.,
Demonstrator of Operative Dentistry.
- JOSEPH GARRETT HICKEY, D. D. S.,
Assistant Demonstrator of Physiology.
- JOHN FRANCIS WALSH, M. D.,
Assistant Prosector to the Professor of Anatomy.
- BROOKE MELANCTHON ANSPACH, M. D.,
Instructor in Gynecology.
- EDWARD LODHOLZ, M. D.,
Demonstrator of Physiology.
- WALTER SCOTT HANLEY, M. D.,
Assistant Demonstrator of Physiology.
- ROBERT NEWTON WILLSON, A. B., M. D.,
Instructor in Physical Diagnosis, and Students' Physician.
- JOHN MULCHINOCK CRUICE, M. D.,
Instructor in Medicine.
- HENRY KUHN RATH PANCOAST, M. D.,
Lecturer on Skiagraphy, and Assistant Instructor in Surgery.
- CLARENCE GILBERT HOAG, A. M.,
Instructor in English.

- NATHANIEL GILDERSLEEVE, M. D.,
First Assistant in Bacteriology.
- NORMAN BEECHEY GWYN, M. B.,
Instructor in Medicine.
- ALBERT PHILIP FRANCINE, A. M., M. D.,
Instructor in Medicine.
- WILLIAM EDWARD QUICKSALL, M. D.,
Assistant Demonstrator of Anatomy.
- MAURICE OSTHEIMER, A. B., M. D.,
Instructor in Pediatrics.
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Instructor in Gynecology.
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Instructor in Surgery.
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Demonstrator of Orthodontia.
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Assistant Demonstrator of Applied Anatomy.
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Lecturer on New Jersey Practice.
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Lecturer on Materia Medica.
- WILLIAM GUY BRYAN HARLAND, M. D.,
Instructor in Laryngology.
- HOLMES WALKER, M. D.,
Instructor in Laryngology.
- HORACE PUGH FRY, B. S. in E. E.,
Instructor in Mechanical Drawing.
- WILLIAM THOMAS LYLE, C. E.,
Instructor in Civil Engineering.

* Resigned.

- FREDERICK HOLLISTER SAFFORD, A. M., PH. D.,
Instructor in Mathematics.
- JOSEPH HALL HART, PH. D.,
Instructor in Physics.
- JOHN FRANKLIN MEYER, A. M., PH. D.,
Instructor in Physics.
- JOHN THOMAS CARPENTER, M. D.,
Lecturer on Ophthalmology.
- ALBERT WADE JARMAN, D. D. S.,
Demonstrator of Prosthetic Dentistry.
- WALTER WARNER MCKAY, D. D. S.,
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Assistant Instructor in Surgery.
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Instructor in Mechanical Engineering.
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Instructor in Commerce.
- CHESTER EDWARD DIMICK, A. B.,
Instructor in Mathematics.
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Instructor in Iron Work.
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Instructor in Physics.
- HAROLD CHARLES BARKER, B. S., A. M.,
Instructor in Physics.

- AUTHOR HENDRIX GILL, M. E.,
Instructor in Mechanical Engineering.
- THOMAS DENIS BOLGER, B. S.,
Instructor in English.
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Instructor in Neurology.
- THEODORE HERMAN WEISENBURG, M. D.,
Instructor in Neurology and in Neuro-pathology.
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Instructor in Ophthalmology.
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Instructor in Surgery.
- JOHN WEAVER LUTHER, M. D.,
Instructor in Gynecology.
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Demonstrator of Physiological Chemistry.
- ELIJAH HOLLINGSWORTH SITER, M. D.,
Instructor in Genito-Urinary Diseases.
- WALTER STEWART CORNELL, B. S., M. D.,
Demonstrator of Osteology, and Assistant Demonstrator of
Anatomy.
- WILLIAM TAYLOR CUMMINS, M. D.,
Assistant Demonstrator of Pathology.
- HENRY RIHL ALBURGER, M. D.,
Acting Demonstrator of Pathology.
- CHARLES JAMES HATFIELD, A. M., M. D.,
Assistant Instructor in Medicine.
- CHARLES HOMER JACO, D. D. S.,
Demonstrator of Operative Dentistry.
- ALFRED PYLE LEE, D. D. S.,
Demonstrator of Operative Dentistry.
- GEORGE PAUL MÜLLER, M. D.,
Instructor in Surgery.
- *CHARLES LOUIS McKEEHAN, A. B., LL. B.,
Lecturer on Law.

* Resigned.

- JOSEPH SPRAGG EVANS, JR., A. B., M. D.,
Instructor in Medicine.
- *BERNARD KOHN, M. S., M. D.,
Assistant Instructor in Medicine.
- GEORGE MORRIS DORRANCE, M. D.,
Assistant Demonstrator of Anatomy, and Assistant Instructor
in Surgery.
- CARL DUDLEY CAMP, M. D.,
Assistant in Neuro-pathology.
- MYER SOLIS-COHEN, A. B., M. D.,
Instructor in Physical Diagnosis.
- HEILNER MAXWELL LANGDON, M. D.,
Instructor in Ophthalmology.
- JOHN COOKE HIRST, M. D.,
Assistant Instructor in Obstetrics.
- GEORGE BYRON GORDON, Sc. D.,
Instructor in Anthropology.
- HENRY WOLF BIKLÉ, A. M., LL. B.,
Lecturer on Law.
- PHILIP RICHARDSON WHITNEY, S. B.,
Instructor in Architecture.
- JOHN FRAZER, B. S. in Chem., A. M.,
Instructor in General Chemistry.
- THOMAS POTTER McCUTCHEON, JR., A. B.,
Instructor in Chemistry.
- WARD WRIGHT PIERSON, B. S.,
Instructor in Political Science.
- EDWARD PRESTON MOXEY, JR., B. S. in Econ.,
Assistant in Accounting.
- JOHN CHRISTIE DUNCAN, M. S.,
Assistant Instructor in American Industries.
- SOLOMON HUEBNER, M. S., Ph. D.,
Instructor in Commerce and Insurance.

* Resigned.

- EDWARD ZIEGLER DAVIS, PH. D.,
Instructor in German.
- ROLAND GRUBB KENT, A. M., PH. D.,
Instructor in Greek and Latin.
- WILLIAM MELLOR,
Instructor in Wood Working.
- HENRY GEBHART, B. S. in E. E.,
Instructor in Mechanical Engineering.
- WORRALL ELIZABETH SHARPLESS TEMPLE, B. S. in E. E.,
Instructor in Electrical Engineering.
- WILLIAM EDWARD BARROWS, JR., B. S. in E. E.,
Instructor in Electrical Engineering.
- DANIEL ROBERTS HARPER, 3d, B. S.,
Instructor in Physics.
- LOUIS KRAUTTER, JR., B. S. in Biol.,
Assistant in Botany.
- EDWIN MILLER FOGEL, A. B.,
Assistant in German.
- EDWARD BROWNING MEIGS, M. D.,
Assistant in Physiology.
- HENRY STRAUSS WIEDER, M. D.,
Assistant Demonstrator of Anatomy, and of Surgical Pathology.
- SAMUEL LEOPOLD, M. D.,
Assistant Demonstrator of Pathology
- PHILIP SAMUEL STOUT, M. D.,
Voluntary Assistant Demonstrator of Pathology.
- ASTLEY PASTON COOPER ASHHURST, A. B., M. D.,
Prosector to the Associate Professor of Applied Anatomy.
- MICHAEL THOMAS BARRETT, D. D. S.,
Demonstrator of Mechanical Dentistry.
- FREDERICK AUSTIN PEESO, D. D. S.,
Lecturer and Special Instructor in Crown-and-Bridge Work.
- REUBEN ARNOLD BOGIA, M. D.,
Assistant in Physiology.

- JOHN BUSCH, M. D.,
Assistant Instructor in Surgery.
- JEAN JACQUES ABRAM VAN KAATHOVEN, M. D.,
Assistant Instructor in Surgery.
- I VALENTINE LEVI, M. D.,
Assistant Instructor in Pediatrics.
- JACK CLAXTON GITTINGS, M. D.,
Assistant Instructor in Pediatrics.
- THOMAS STOTESBURY GITHENS, M. D.,
Voluntary Assistant Demonstrator of Pathology.
- ALEXANDER AUGUSTUS UHLE, M. D.,
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- EWING TAYLOR, A. B., M. D.,
Associate in Anatomy.
- WILLIAM HENRY FITZGERALD ADDISON, B. A., M. B.,
Demonstrator of Normal Histology.
- RUFUS BELL SCARLETT, M. D.,
Voluntary Assistant Demonstrator of Pathology.
- WILKIE NELSON COLLINS, A. B.,
Assistant in English.
- HERMAN CLAUDE BERRY, A. B., B. S. in C. E.,
Instructor in Civil Engineering.
- HAROLD EZRA HILTS, B. S. in C. E.,
Instructor in Civil Engineering.
- ALBERT WILLIAM KIEFER, B. S. in C. E.,
Instructor in Civil Engineering.
- ALBERT JOSEPH HOULE, E. M., B. S.,
Instructor in Civil Engineering.
- RAYMOND C SEMPLE,
Assistant in Civil Engineering.
- ROGER CLARK WELLS, Ph. D.,
Instructor in Physical Chemistry.
- DUNLAP JAMISON McADAM, A. M.,
Assistant in Chemistry.

- WILLIAM MILTON BARR, B. S., M. A.,
Assistant in General Chemistry.
- GEORGE EMERSON CROFOOT, B. S. in M. E.,
Instructor in Mechanical Engineering.
- CHARLES ARTHUR FULLER, B. S. in M. E.,
Instructor in Mechanical Engineering.
- WILLIAM JOHNSON PAYNE, A. M., B. M. E.,
Instructor in Mechanical Engineering.
- MARTIN AUGUSTUS DOYLE, B. M. E.,
Instructor in Mechanical Engineering.
- EARL DEAN HOWARD, Ph. M.,
Instructor in Banking.
- JOSEPH ALBERT BECK, B. S. in Econ.,
Assistant in Political Science.
- ENOCH MARVIN BANKS, Ph. D.,
Instructor in Economics.
- LOUIS WILLIAM FLACCUS, Ph. D.,
Instructor in Philosophy.
- HENRY LAMAR CROSBY, Ph. D.,
Instructor in Greek.
- MAURICE JEFFERIS BABB, B. S.,
Instructor in Mathematics.
- WALTER KELLER HARDT, B. S. in Econ.,
Assistant in Accounting.
- GEORGE BENJAMIN MANGOLD, A. M.,
Instructor in Sociology.
- JOSEPH HENRY STANNARD, JR.,
Instructor in Drawing.
- THOMAS CONWAY, JR., B. S. in Econ.,
Assistant in Finance.
- GEORGE WILLIAM KELLER,
Assistant in Drawing.
- LIVINGSTON CORSON, B. S.,
Assistant in English.

- PERCY VAN DYKE SHELLY, B. S.,
Assistant in English.
- JACOB LYNFORD BEAVER, E. E.,
Instructor in Electrical Engineering.
- PHILIPPE DE LA ROCHELLE, B-ès-L.,
Assistant in French.
- JOHN JAMES SULLIVAN, A. M., LL. B.,
Instructor in Commercial Law.
- LOUIS HENRY LOSSE, B. S. in C. E.,
Instructor in Civil Engineering.
- FRANCIS MARKOE RIVINUS, A. B.,
Assistant in English.
- LEWIS BURTON HESSLER, A. B.,
Assistant in English.
- HUGER ELLIOTT, B. S.,
Instructor in Architecture.
- ELON KANAGA, D. D. S.,
Demonstrator of Crown-and-Bridge Work.
- NORMAN LOREY ROBERTS, D. D. S.,
Demonstrator of Operative Dentistry.
- HOWARD CHILDS CARPENTER, M. D.,
Instructor in Pediatrics.
- PENN-GASKELL SKILLERN, JR., M. D.,
Assistant Demonstrator of Normal Histology.
- HAROLD BACON WOOD, M. D.,
Assistant Demonstrator of Normal Histology.
- CLIFFORD BAILEY FARR, A. B., M. D.,
Instructor in Physical Diagnosis.
- DAVID KAPP,
Assistant Demonstrator of Pathology.
- WILLIAM WARDER CADBURY, A. M., M. D.,
Assistant Demonstrator of Pathology and of Pharmacodynam-
amics.

RALPH S LAVENSON, M. D.,
Assistant Demonstrator of Gross Morbid Anatomy.

JOHN SPEESE, M. D.,
Voluntary Assistant Demonstrator of Surgical Pathology.

THOMAS BEAVER HOLLOWAY, M. S., M. D.,
Instructor in Ophthalmology.

CHARLES ANDREW FIFE, A. B., M. D.,
Instructor in Pediatrics.

NAEFIE EPRIGHT SUTPHEN,
Instructor in Wood-working.

PART II

FACULTIES AND DEPARTMENTS OF INSTRUCTION

THE COLLEGE.

FACULTY.

CHARLES C. HARRISON, LL. D., PROVOST.

EDGAR F. SMITH, PH. D., Sc. D., LL. D., VICE-PROVOST, and
Professor of Chemistry.

GEORGE F. BARKER, M. D., Sc. D., LL. D., Emeritus Professor
of Physics.

HUGH A. CLARKE, Mus. Doc., Professor of the Science of
Music.

JOSEPH T. ROTHROCK, B. S., M. D., Professor of Botany.

MORTON W. EASTON, PH. D., Professor of English and Com-
parative Philology.

JOHN BACH McMASTER, A. M., LITT. D., LL. D., Professor of
American History.

ADAM SEYBERT Professor of Intellectual and Moral Philosophy.

REV. HERMANN V. HILPRECHT, PH. D., D. D., LL. D., CLARK
Research Professor of Assyriology, and Professor of Semitic
Philology and Archæology.

MORRIS JASTROW, JR., PH. D., Professor of Semitic Languages.

HENRY W. SPANGLER, M. S., WHITNEY Professor of Dynamical
Engineering.

WILLIAM A. LAMBERTON, A. M., LITT. D., Professor of the
Greek Language and Literature.

SIMON N. PATTEN, PH. D., LL. D., Professor of Political
Economy.

FELIX E. SCHELLING, A. M., PH. D., LITT. D., JOHN WELSH
CENTENNIAL Professor of History and English Literature.

ARTHUR W. GOODSPEED, PH. D., Professor of Physics.

EDWIN S. CRAWLEY, PH. D., THOMAS A. SCOTT Professor of
Mathematics.

GEORGE E. FISHER, A. M., PH. D., Assistant Professor of
Mathematics.

EDWARD P. CHEYNEY, A. M., Professor of European History.

- WARREN P. LAIRD, Professor of Architecture.
- HUGO A. RENNERT, PH. D., Professor of Romance Languages and Literatures.
- EDGAR MARBURG, C. E., Professor of Civil Engineering.
- JOHN M. MACFARLANE, D. Sc., Professor of Botany.
- MARTIN G. BRUMBAUGH, A. M., PH. D., LL. D., Professor of Pedagogy.
- AMOS P. BROWN, PH. D., Professor of Mineralogy and Geology.
- *HERBERT E. EVERETT, Professor of the History of Art.
- LIGHTNER WITMER, PH. D., Professor of Psychology.
- WILLIAM ROMAINE NEWBOLD, PH. D., Professor of Philosophy.
- HENRY GIBBONS, A. M., Professor of Latin Literature.
- CHARLES L. DOOLITTLE, C. E., Sc. D., FLOWER Professor of Astronomy.
- MARION D. LEARNED, PH. D., L. H. D., Professor of the Germanic Languages and Literatures.
- EDWIN G. CONKLIN, PH. D., Professor of Zoölogy.
- JOSIAH H. PENNIMAN, PH. D., Professor of English Literature, and DEAN OF THE FACULTY.
- EMORY R. JOHNSON, PH. D., Professor of Transportation and Commerce.
- LEO S. ROWE, PH. D., Professor of Political Science.
- SAMUEL McC. LINDSAY, PH. D., Professor of Sociology.
- †ALEXANDER C. ABBOTT, M. D., PEPPER Professor of Hygiene and Bacteriology.
- ISAAC J. SCHWATT, PH. D., Assistant Professor of Mathematics.
- DANIEL B. SHUMWAY, PH. D., Assistant Professor of the Germanic Languages and Literatures.
- WILLIAM EASBY, JR., B. S., C. E., Assistant Professor of Civil Engineering.
- *WILLIAM N. BATES, PH. D., Assistant Professor of Greek.

* Absent on leave.

† Absent on Public Business.

- CLARENCE G. CHILD, Ph. D., L. H. D., Assistant Professor of English.
- JOHN C. ROLFE, A. M., Ph. D., Professor of the Latin Language and Literature.
- HERMAN V. AMES, A. M., Ph. D., Assistant Professor of American History.
- EDGAR A. SINGER, JR., Ph. D., Assistant Professor of Philosophy.
- WILLIAM E. LINGELBACH, Ph. D., Assistant Professor of European History.
- WALTON B. McDANIEL, A. M., Ph. D., Assistant Professor of Latin.
- J. VERNE STANFORD, B. S., M. E., Assistant Professor of Mechanical Engineering.
- DAVID H. BERGEY, A. M., M. D., Assistant Professor of Bacteriology.
- Rev. ALBERT T. CLAY, Ph. D., Assistant Professor of Semitic Philology and Archæology.
- HERBERT S. JENNINGS, Ph. D., Assistant Professor of Zoölogy.
- PAUL P. CRET, Arch. Diplômé du Gouvernement Français, Assistant Professor of Design.
- HOWARD C. IVES, Ph. B., C. E., Assistant Professor of Civil Engineering.
- EDWARD C. WESSELHOEFT, A. M., Assistant Professor of German.
- HORACE CLARK RICHARDS, Ph. D., Assistant Professor of Physics.
- GEORGE H. HALLETT, A. M., Ph. D., Assistant Professor of Mathematics.
- ARTHUR H. QUINN, Ph. D., Assistant Professor of English.
- JAMES T. YOUNG, Ph. D., Assistant Professor of Administration, and Director of the WHARTON School of Finance and Commerce.
- ERIC DOOLITTLE, C. E., Assistant Professor of Astronomy.
- CORNELIUS WEYGANDT, Ph. D., Assistant Professor of English.

- EDWARD S. MEADE, PH. D., Assistant Professor of Finance.
THOMAS NOLAN, M. S., A. M., Assistant Professor of Architecture.
CARL KELSEY, B. A., PH. D., Assistant Professor of Sociology.
HENRY B. EVANS, M. E., PH. D., Assistant Professor of Mathematics.
ARTHUR C. HOWLAND, PH. D., Assistant Professor of Medieval History.
HAROLD W. BROWN, B. S., Assistant Professor of Electrical Engineering.
OWEN L. SHINN, PH. D., Assistant Professor of Chemistry.
WALTER T. TAGGART, PH. D., Assistant Professor of Chemistry.

INSTRUCTORS.

- J. PERCY MOORE, PH. D., Instructor in Zoology.
JOHN W. HARSHBERGER, PH. D., Instructor in Botany.
JOHN J. MORRIS, Instructor in Mechanical Engineering.
DANIEL L. WALLACE, Instructor in Analytical Chemistry.
PHILIP P. CALVERT, PH. D., Instructor in Zoology.
GEORGE WALTER DAWSON, Instructor in Drawing.
HUGH W. McCONNELL, Instructor in Mechanical Engineering.
T. HARVEY DOUGHERTY, Assistant Instructor in Zoology.
FRANK ALLISON HAYS, Instructor in Pen-and-Ink Rendering.
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JOHN FRAZER, B. S. in Chem., A. M., Instructor in General Chemistry.
THOMAS P. McCUTCHEON, JR., A. B., Instructor in Chemistry.
WARD W. PIERSON, B. S., Instructor in Political Science.
EDWARD P. MOXEY, JR., B. S. in Econ., Assistant in Accounting.
JOHN C. DUNCAN, M. S., Assistant Instructor in American Industries.
SOLOMON HUEBNER, M. S., PH. D., Instructor in Commerce and Insurance.
EDWARD Z. DAVIS, PH. D., Instructor in German.
ROLAND G. KENT, A. M., PH. D., Instructor in Greek and Latin.
WILLIAM MELLOR, Instructor in Wood Working.
HENRY GEBHART, B. S. in E. E., Instructor in Mechanical Engineering.
WORRALL E. S. TEMPLE, B. S. in E. E., Instructor in Electrical Engineering.
WILLIAM E. BARROWS, JR., B. S. in E. E., Instructor in Electrical Engineering.
D. ROBERTS HARPER, 3d, B. S., Instructor in Physics.
LOUIS KRAUTTER, JR., B. S. in Biol., Assistant in Botany.
EDWIN M. FOGEL, A. B., Assistant in German.
WILKIE N. COLLINS, A. B., Assistant in English.

- HERMAN C. BERRY, A. B., B. S. in C. E., Instructor in Civil Engineering.
- HAROLD E. HILTS, B. S. in C. E., Instructor in Civil Engineering.
- ALBERT W. KIEFER, B. S. in C. E., Instructor in Civil Engineering.
- ALBERT J. HOULE, E. M., B. S., Instructor in Civil Engineering.
- RAYMOND C. SEMPLE, Assistant in Civil Engineering.
- ROGER C. WELLS, PH. D., Instructor in Physical Chemistry.
- DUNLAP J. McADAM, A. M., Assistant in Chemistry.
- WILLIAM M. BARR, B. S., M. A., Assistant in General Chemistry.
- GEORGE E. CROFOOT, B. S. in M. E., Instructor in Mechanical Engineering.
- CHARLES A. FULLER, B. S. in M. E., Instructor in Mechanical Engineering.
- WILLIAM J. PAYNE, A. M., B. M. E., Instructor in Mechanical Engineering.
- MARTIN A. DOYLE, B. M. E., Instructor in Mechanical Engineering.
- EARL D. HOWARD, PH. M., Instructor in Banking.
- JOSEPH A. BECK, B. S. in Econ., Assistant in Political Science.
- ENOCH M. BANKS, PH. D., Instructor in Economics.
- LOUIS W. FLACCUS, PH. D., Instructor in Philosophy.
- HENRY L. CROSBY, PH. D., Instructor in Greek.
- MAURICE J. BABB, B. S., Instructor in Mathematics.
- WALTER K. HARDT, B. S. in Econ., Assistant in Accounting.
- GEORGE B. MANGOLD, A. M., Instructor in Sociology.
- JOSEPH H. STANNARD, JR., Instructor in Drawing.
- THOMAS CONWAY, JR., B. S. in Econ., Assistant in Finance.
- GEORGE W. KELLER, Assistant in Drawing.
- LIVINGSTON CORSON, B. S., Assistant in English.
- PERCY V. D. SHELLY, B. S., Assistant in English.
- JACOB L. BEAVER, E. E., Instructor in Electrical Engineering.

PHILIPPE DE LA ROCHELLE, B-ès-L., Assistant in French.
 JOHN J. SULLIVAN, A. M., LL. B., Instructor in Commercial Law.
 LOUIS H. LOSSE, B. S. in C. E., Instructor in Civil Engineering.
 F. MARKOE RIVINUS, A. B., Assistant in English.
 LEWIS B. HESSLER, A. B., Assistant in English.
 HUGER ELLIOTT, B. S., Instructor in Architecture.
 NEAFIE E. SUTPHEN, Instructor in Wood-working.

ACADEMIC COUNCIL.

ANCIENT LANGUAGES.—Professor LAMBERTON.
 MODERN LANGUAGES.—Professor RENNERT.
 ENGLISH.—Professor SCHELLING.
 PHILOSOPHY.—Professor WITMER.
 HISTORY.—Professor McMASTER.
 ECONOMICS.—Professor PATTEN.
 MATHEMATICS—ASTRONOMY.—Professor C. L. DOOLITTLE.
 PHYSICS.—Professor GOODSPEED.
 CHEMISTRY.—Professor SMITH.
 BIOLOGY.—Professor CONKLIN.
 ARCHITECTURE.—Professor LAIRD.
 MECHANICAL ENGINEERING.—Professor SPANGLER.
 CIVIL ENGINEERING.—Professor MARBURG.

FACULTY STANDING COMMITTEES.

1. ON SCHOOLS AND ENTRANCE REQUIREMENTS.—Professor CRAWLEY, Professor GOODSPEED, Professor LINGELBACH.
2. ON THE ADMISSION OF SPECIAL AND PARTIAL STUDENTS.—Professor MARBURG, Professor LAIRD, Professor C. L. DOOLITTLE, Professor MACFARLANE.
3. ON ADVANCED STANDING AND ON SPECIAL AND PARTIAL STUDENTS.—Professor CRAWLEY, Professor McDANIEL, Professor RICHARDS.

4. EXECUTIVE COMMITTEE.—The DEAN, Professor SPANGLER, Professor CONKLIN.
5. ON STUDENTS' RESIDENCES.—Dr. SHINN, Dr. HARSHBERGER.
6. ON ATHLETIC ORGANIZATIONS.—Professor SMITH.
7. ON NON-ATHLETIC ORGANIZATIONS.—Professor CHILD.
8. ON ROSTER.—Professor SINGER, Professor LAIRD, Professor EASBY, Professor YOUNG, Professor STANFORD, Professor EVANS, Dr. CALVERT, Dr. SHINN.
9. ON LIBRARY.—Professor LAMBERTON, Professor CHEYNEY, Professor NEWBOLD, Professor C. L. DOOLITTLE.
10. ON SCHOLARSHIPS.—Professor SMITH, Professor BROWN, Professor FISHER.
11. ON COURSES FOR TEACHERS.—Professor BRUMBAUGH, Professor WITMER, Professor ROLFE.
12. ON NOMINATIONS.—The DEAN, Professor SPANGLER, Professor CONKLIN, Professor SCHELLING, Professor MARBURG, Professor LAMBERTON.

DIVISIONS OF THE COLLEGE.

The College Faculty conducts the following courses:

I.—(IN THE SCHOOL OF ARTS.)

1. The Course in Arts and Science.
2. The Courses in Biology.*
3. The Course in Music.*

II.—(IN THE TOWNE SCIENTIFIC SCHOOL.)

1. The Courses in Architecture.
2. The Courses in Mechanical and in Electrical Engineering.
3. The Course in Civil Engineering.
4. The Course in Chemistry.
5. The Course in Chemical Engineering.

III.—(IN THE WHARTON SCHOOL OF FINANCE AND COMMERCE.)

1. The Course in Finance and Commerce.
2. The Evening School of Accounts and Finance.

IV.—THE COURSES FOR TEACHERS.*

V.—THE SUMMER SCHOOL COURSES.*

I.—COURSES IN THE SCHOOL OF ARTS.

1. *The Course in Arts and Science.*—This course leads to the degree of Bachelor of Arts or Bachelor of Science, according to the languages studied. Those students who present Latin and Greek for admission, and who take in College Greek 331, and Latin 431 and 432, receive the degree of Bachelor of Arts; other students receive the degree of Bachelor of Science.

2. *The Course in Biology.*—This course embraces a certain amount of required work in biological studies, and in English, Mathematics, Languages, Physics, Chemistry, etc. In the latter portion of the course the elective principle is active. Graduates receive the degree of Bachelor of Science in Biology.

* Open to both men and women.

2a. *A Special Course in Biology.*—This course extends over two years, and embraces principally studies in Botany, Zoology and Anatomy. It leads to a certificate of proficiency.

3. *The Course in Music.*—This course extends over four years and leads to a certificate of proficiency. Those who obtain such certificate may proceed after further study to the degree of Bachelor of Music. *The course is open to special students only.*

II.—COURSES IN THE TOWNE SCIENTIFIC SCHOOL.

Candidates intending to take any one of the technical courses in the College are strongly recommended to devote, if possible, at least one year to general studies, before taking up their technical work.

(a). *If the candidate presents for admission the requirements for the course in Arts and Science, he enters that course for one or more years, during which period he takes the additional Mathematics and Physics required for admission to the technical courses, and pursues such other studies as he may elect. Only those students, however, who have studied Plane Trigonometry prior to entering College may take Physics as a part of the course in the first year. Students intending to take only one year in the course in Arts and Science before entering a technical course are advised, therefore, to offer Physics for admission, if possible, in addition to the regular entrance requirements to the course in Arts and Science, if such students have not previously taken Plane Trigonometry.*

(b). *If the candidate presents for admission the requirements for the technical courses, and wishes to spend a year in general studies, it is suggested that he take, in the course in Arts and Science, the following subjects:*

<i>History</i>	<i>four hours a week.</i>
<i>Economics</i>	<i>two hours a week.</i>
<i>Foreign Languages (2)</i> ..	<i>about six hours (three in each).</i>
<i>English</i>	<i>three hours a week.</i>
<i>Public Speaking</i>	<i>one hour a week.</i>
<i>Accounting</i>	<i>three hours a week.</i>

It is not intended that the list of studies here outlined shall be prescribed, in the sense that no variations will be permitted.

1. *The Course in Architecture.*—This course extends over four years, devoted principally to technical studies in Architecture, and

leads to the degree of Bachelor of Science in Architecture. By a prescribed combination of subjects in this course with those offered in the course in Arts and Science, a candidate for the A. B. degree may obtain also the Bachelor's degree in Architecture by devoting six years of work to both courses.

1a. *A Special Course in Architecture.*—This course extends over two years, and embraces technical studies in Architecture. It leads to a certificate of proficiency.

2. *The Course in Mechanical Engineering.*—This course extends over four years, devoted principally to technical studies in Mechanical Engineering, and leads to the degree of Bachelor of Science in Mechanical Engineering.

3. *The Course in Electrical Engineering.*—This course extends over four years, devoted principally to technical studies in Electrical Engineering, and leads to the degree of Bachelor of Science in Electrical Engineering.

4. *The Course in Civil Engineering.*—This course extends over four years, devoted principally to technical studies in Civil Engineering, and leads to the degree of Bachelor of Science in Civil Engineering.

5. *The Course in Chemistry.*—This course extends over four years, devoted principally to studies in theoretical and practical Chemistry. It leads to the degree of Bachelor of Science in Chemistry.

6. *The Course in Chemical Engineering.*—This course extends over four years, and embraces technical studies selected from the courses in Chemistry and Mechanical Engineering. It leads to the degree of Bachelor of Science in Chemical Engineering.

III.—COURSES IN THE WHARTON SCHOOL OF FINANCE AND COMMERCE.

1. *The Course in Finance and Commerce.*—This course embraces studies in Economics, Political and Social Science, Business Law, Banking and Finance, History, English Language, etc. The work is designed to equip students for definite careers in business, the study of law, the public service, social work and teaching. Graduates receive the degree of Bachelor of Science in Economics.

1a. *A Special Course in Business Practice and Banking.*—This course extends over two years, and leads to a certificate of proficiency.

2. *The Evening School of Accounts and Finance.*—This course of three years, four evenings in each week, is intended for those who are prevented by business occupations during the day from taking regular college work. For the current year the work consists of studies in Business Law, Accounting, Finance and Industrial Management.

IV.—THE COURSES FOR TEACHERS.

These courses are specially arranged to meet the needs of teachers who wish to pursue work in one or more subjects. The classes meet on Saturdays at hours convenient to the students who attend them. They lead to no degree, but a certificate of study is awarded upon the satisfactory completion of any course. The Courses for Teachers are open to both men and women.

V.—THE SUMMER SCHOOL COURSES.

During the summer of 1905 the College Faculty offered courses of instruction in the following subjects: Architecture, Botany, Chemistry, English, French, German, Greek, History, Latin, Mathematics, Music, Physics, Political Science, and Psychology.

Students who pursue Summer School courses with satisfaction to the instructors, and pass the assigned examinations, receive certificates of study. No entrance examinations are required, and all courses are open to both men and women.

ADMISSION TO COLLEGE.

Candidates for admission to the Freshman Class of the College enter either (1) by examination; or (2) upon diplomas of public high schools. Such diplomas may be accepted as complete or partial certificates in lieu of entrance examinations. For the regulations governing the admission of public high school graduates, see next page.

(1) **ADMISSION BY EXAMINATION:** Candidates may attend either the examinations conducted by the University, or those conducted by the College Entrance Examination Board. The following are the portions of the Board's requirements which correspond, as nearly as may be, to the College requirements as defined on pp. 66-70.

English A and B;
 History A (= A and B), C (= C) and D (= D);
 Latin A, B, C, D, L and M;
 Greek A, B, C, F and G;
 French A (= A and B);
 German A (= A and B);
 Mathematics A, C, D, E;
 Physics; (in the College requirement, as it stands at present, no laboratory work is included.)

(2) **ADMISSION ON PUBLIC HIGH SCHOOL DIPLOMAS***: The diploma should bear date of the year in which the candidate proposes to enter College; or, if it bear an earlier date, should be accompanied by a letter from a teacher, certifying that the candidate has been engaged in study during the twelve months immediately preceding his proposed entrance to College.

With the diploma an official statement from the high school must be presented, giving in detail, by subjects and portions of subjects, the course pursued by the individual candidate in the high school to obtain the diploma, and the marks or grades he received from the school in his several subjects and portions of subjects during at least the last year of his attendance in the high school. These official statements should mention the amount of ground covered in each subject, as well as the time devoted to it.

In addition to the above, it is required that specific information be given with regard to the course pursued by the candidate in each of the subjects required for admission, as stated below.

In **ENGLISH**, state whether the reading prescribed by the New England Association of Colleges and Preparatory Schools, or by the Association of Colleges and Preparatory Schools of the Middle States and Maryland, has been completed, or give the list of books read in the course.

In **HISTORY**, state what histories have been studied, what textbooks have been used, and the total number of study periods devoted to each subject.

In **MATHEMATICS**, state whether the course in Algebra has been to quadratic equations, or has included quadratic equations, proportion and the progressions; whether that in Geometry has covered

* Academic diplomas issued by the Regents of the University of the State of New York are accepted as high school diplomas, and are credited according to the "counts" covered by them. "Counts" not accompanied by a diploma are not accepted.

Plane Geometry, or Plane, Solid and Spherical Geometry; whether Plane, or Plane and Spherical Trigonometry, have been studied. Give the names of the text-books used.

In FOREIGN LANGUAGES, give the names of the authors and works read and the number of books (in Ancient Languages) or pages (in Modern Languages) in each work.

In PHYSICS, the text-book used and the character of the work done should be stated.

Blank forms, which may be used by high school principals in making out the statement of work done by candidates for admission, may be had upon application to the Dean of the College.

ENTRANCE EXAMINATIONS.

Entrance examinations are held in June and September. Circulars stating the days and the subjects of examinations for each day can be had, after April 1, on application to the Dean of the College. In addition to the examination held at the University, examinations for entrance are held simultaneously in June in a number of places outside of Philadelphia. Information regarding the places and dates of these examinations in 1906 may be obtained upon application to the Dean.

Every candidate for admission is required to furnish a testimonial of honorable dismissal from the school or college which he last attended, or from the tutor with whom he has studied. He must also refer to two persons, preferably his teachers or employers, from whom information may be obtained. *Testimonials and references must be sent to the Dean not later than the first day of the entrance examinations in June and September (June 14 and September 21, respectively, in 1906).*

Candidates who do not desire to take all their examinations in June or September may take part at one time and part at the other, making such division as they may elect; or they may take a part of their examinations one year in advance of their admission to College, as follows:

PRELIMINARY EXAMINATIONS.

Candidates may present themselves one year in advance of their admission to College for examination in any portion of the subjects required for admission to the course they propose to enter, provided at least four topics are so offered. *Every candidate for such preliminary examinations must present to the Dean of the College a certificate of preparation from the head master of his school, or from his*

tutor, naming the subjects in which he is prepared, before he can be admitted to the examinations. When a candidate, however, has been in regular attendance at a school or academy during the year preceding his application for admission, a certificate from a private tutor will not in itself be sufficient.

Blank certificate forms may be obtained upon application to the Dean.

Candidates may take preliminary examinations in June or September. In cases where such examinations are to be taken at one of the authorized places outside of Philadelphia, certificates of preparation must be forwarded to the Dean of the College in time to reach him ten days before the first day set for the entrance examinations.

No certificate giving credit for subjects passed at a preliminary examination will be issued unless the candidate passes in at least four subjects.*

A candidate who presents himself for preliminary examinations in June may not present himself at the entrance examinations in the September following with the view of taking examinations in addition to those stated in the preliminary certificate received from his school in June. This rule, however, is not to be construed as forbidding a candidate for admission in any year from dividing his examinations between June and September of that year, if he so desires.

REQUIREMENTS FOR ADMISSION TO EACH COURSE.

FOR THE COURSE IN ARTS AND SCIENCE:

All of the subjects contained in I†, and two of the languages contained in II†. (Candidates for the degree of A. B. are required to present Latin and Greek.)

FOR THE COURSE IN FINANCE AND COMMERCE (WHARTON SCHOOL):

All of the subjects contained in I, and two of the languages contained in II.

Or,

All of the subjects contained in I and III†, and one of the languages contained in II.

* The word "subject" as here used refers to the subdivision of the examinations in the different branches designated by letters, as: English A, Mathematics C, Greek D., etc.

† These Roman numerals refer to subdivisions of the list of subjects in which entrance examinations are held. See pp. 66-70.

FOR THE COURSE IN BIOLOGY:

All of the subjects contained in I, and two of the languages contained in II.

FOR THE COURSE IN MUSIC (see under Admission to Special and Partial Courses).**FOR THE COURSE IN ARCHITECTURE:**

All of the subjects contained in I; French or German as contained in II; Mathematics D, and Physics, as contained in III.

N. B.—It is *strongly recommended* that candidates offer *French* rather than German for admission to this course.

FOR THE COURSES IN MECHANICAL, ELECTRICAL, CIVIL, AND CHEMICAL ENGINEERING:

All of the subjects contained in I; French or German as contained in II; and all of the subjects contained in III.

FOR THE COURSE IN CHEMISTRY:

All of the subjects contained in I; French or German as contained in II; and all of the subjects contained in III.

SUBJECTS OF EXAMINATION.

The subjects of examination are in part the same for all candidates, in part dependent upon the course that the candidate desires to pursue. Under the captions I, II and III, following, is given a list of all subjects in which entrance examinations are held. No candidate is required to pass in all of these subjects. The requirements for each course are given in detail on the preceding page, and above.

I.

ENGLISH.

No candidate will be accepted in English whose work is notably defective in spelling, punctuation, idiom or division into paragraphs.

A. (1) GRAMMAR and ANALYSIS (as in Abbott's *How to Parse*, or Murray's *Advanced Lessons in English Composition, Analysis and Grammar*). (2) The writing of several paragraphs, correct in spelling, punctuation, grammar and expression, written on subjects

taken from the following works, a general knowledge of which is required:

For 1906, 1907 and 1908: Shakespeare's *Macbeth* and *The Merchant of Venice*; *The Sir Roger de Coverley Papers in The Spectator*; Irving's *Life of Goldsmith*; Coleridge's *Ancient Mariner*; Scott's *Ivanhoe* and *The Lady of the Lake*; Tennyson's *Gareth and Lynette*, *Lancelot and Elaine* and *Passing of Arthur*; Lowell's *Vision of Sir Launfal*; George Eliot's *Silas Marner*.

B. A special knowledge of the subject-matter, form and structure of the following works:

For 1906, 1907 and 1908: Shakespeare's *Julius Cæsar*; Milton's *Lycidas*, *Comus*, *L'Allegro* and *Il Penseroso*; Burke's *Speech on Conciliation with America*; Macaulay's *Essay on Addison* and *Life of Johnson*.

HISTORY.

Each candidate is examined in two of the four subjects, A, B, C, D.

Outline maps will be furnished for the questions in historical geography which will form a part of each paper.

Extra credit will be given for student note-books giving abstracts of collateral reading, notes of lectures, or digests of the text-book used. Such books should be certified by the candidate's teacher.

A. GREEK HISTORY to the death of Alexander, with due reference to Greek life, literature and art.

B. ROMAN HISTORY to the accession of Commodus, with due reference to literature and government.

C. ENGLISH HISTORY, with due reference to social and political development.

D. AMERICAN HISTORY. The questions will be upon the four following topics:

1. Historical geography. Questions are to be answered by drawing on an outline map certain geographical boundaries.
2. The Colonial period.
3. The Revolutionary period.
4. The Constitutional period. Under this topic will be a few questions on civil government.

MATHEMATICS.

A. Algebra to Quadratics. The four fundamental operations for rational algebraic expressions; factoring; highest common factor; lowest common multiple; fractions, including complex fractions,

ratio and proportion; linear equations, both numerical and literal, containing one or more unknown quantities; problems depending on linear equations; radicals, including the extraction of the square root of polynomials and of numbers; fractional and negative exponents.

B. Quadratics, and beyond. Quadratic equations, and equations containing one or more unknown quantities that can be solved by the methods of quadratic equations; problems depending upon such equations; the binomial theorem for positive integral exponents; arithmetical and geometrical progressions, with applications.

C. Plane Geometry. The usual theorems and constructions of good text-books, including the general properties of plane rectilinear figures; the circle, and the measurement of angles; similar polygons; areas; regular polygons, and the measurement of the circle. The solution of numerous original exercises, including loci problems. Applications to the mensuration of lines and plane surfaces.

II.

GREEK.

NOTE.—No separate grammar paper will henceforth be set: instead, questions on inflection, derivation, composition of words and on syntax will be asked under B and C.

B. Xenophon: The first four books of the *Anabasis*.

C. Homer: The first three books of the *Iliad* (omitting II: 484-end).

D. Prose composition: continuous prose based upon Xenophon and other Attic prose of similar difficulty.

E. Sight translation; based on prose of no greater difficulty than Xenophon's *Anabasis*.

LATIN.

NOTE.—In place of special papers, questions will hereafter be asked in connection with B, C and D on the inflection, derivation, and composition of words, on syntax, and on geography, history, and mythology.

B. Cæsar: Four books of the *Gaulic War*, preferably the first four.

C. Cicero: Six Orations. The order of preference is indicated in the following list: The four against Catiline, those for Archias, the

Manilian Law, Marcellus, Sextus Roscius, Milo, Sestius, Ligarius, the fourteenth Philippic.

D. Vergil: the first six books of the *Aeneid*, with the scanning of the dactylic hexameter.

F. Translation at sight: prose of no greater difficulty than the easier passages in Cicero's *Orations*.

G. Latin prose composition: the translation into Latin of continuous English prose based upon passages of moderate difficulty in Caesar or Cicero.

FRENCH.

A. GRAMMAR. The conjugation of the regular verbs and of the more frequently recurring irregular verbs; the forms and positions of the various pronouns and pronominal, demonstrative and interrogative adjectives; the inflections of nouns and adjectives; the use of the articles and the partitive constructions. This will be tested by the translation into French of sentences, or of a short connected passage. Questions upon points of grammar may be asked.

The satisfactory completion of this subject will involve the reading of at least one hundred duodecimo pages out of the four hundred prescribed under B.

B. SIGHT TRANSLATION. Ability to render into good English a passage of nineteenth century prose. The passage set will be adapted to the proficiency of students who have read not less than four hundred duodecimo pages from at least three authors.

GERMAN.

A. GRAMMAR. The declension of nouns, articles (according to the historical classification), adjectives, pronouns; the conjugation of both strong and weak verbs (including the modal auxiliaries); the elementary rules of syntax and word order. The test will consist in part of direct grammatical questions, and in part of translation of simple English into German.

The satisfactory completion of this subject will involve the reading of at least one hundred duodecimo pages out of the two hundred prescribed under B.

B. SIGHT TRANSLATION. The translation at sight of easy German prose into idiomatic English. The passages set will be selected from not less than *three representative nineteenth century prose writers*, and will presuppose the reading of not less than two hundred duodecimo pages of easy German.

III.

MATHEMATICS.

D. Solid Geometry. The usual theorems and constructions of good text-books, including the relations of planes and lines in space; the properties and measurement of prisms, pyramids, cylinders and cones; the sphere and the spherical triangle. The solution of numerous original exercises, including loci problems. Applications to the mensuration of surfaces and solids.

E. Trigonometry. Plane Trigonometry, including the definitions and relations of the six trigonometrical functions as ratios; proof of important formulas; theory of logarithms and use of tables; solution of right and oblique plane triangles.

PHYSICS.

As in Carhart and Chute's, or Gage's, *Elements of Physics*.

ADMISSION TO ADVANCED STANDING.

(1) Students who present themselves for admission to advanced standing will be examined (a) in the subjects required for admission to the Freshman Class, and (b) in those subjects in the course for which the applicant desires to receive advance credit.

At its option, the Committee on Admission to Advanced Standing may accept, in the case of students who come from other colleges, the work done at such colleges in any subject or subjects in lieu of examination, provided a statement is submitted properly certified by the authorities of such colleges, stating in detail the extent and character of the work done, and the grades attained.

(2) Every applicant for admission to advanced standing who comes from another college must present a letter of honorable dismissal from such college. Applicants who do not come from other colleges must conform in this regard to the regulations governing candidates for admission to the Freshman Class.

(3) A graduate of another college of sufficient standing may be admitted without examination to the Senior Class as a regular student, provided (a) that his previous course has been such that in the judgment of the Committee on Admission to Advanced Standing he will be able to complete in one year the work required for the Bachelor's degree, in the course which he proposes to enter; and (b) that the professors in charge of the subjects which he proposes to take find that he has had the requisite preparation.

(4) No student may be admitted as a candidate for a degree after the beginning of the Senior year.

ADMISSION TO SPECIAL AND PARTIAL COURSES.

Every applicant for admission as a Special or Partial student is required to fill out a blank containing such questions as may seem necessary to determine his general educational fitness, the reasonableness of his application, and the propriety of entertaining it. The Committee on Admission to Special and Partial Courses may make supplementary inquiries of former teachers of the applicant, and of others to whom it may be referred.

In the case of special courses for which technical requirements are prescribed, or partial courses involving subjects requiring technical preparation, the head of the department concerned decides whether these requirements are satisfied. His decision on this point is final.

The Committee, with this additional evidence, accepts or rejects the application, or makes the admission of the candidate conditional on his passing such entrance examinations as it may see fit to prescribe.

The requirements for admission to the several authorized special courses are as follows:

SPECIAL COURSE IN ARCHITECTURE.

Candidates for admission to the two-year Special Course in Architecture must be at least twenty-one years of age (unless graduates of public high schools), and must have spent two years at work in the office of a practicing architect; or must have had such other technical training as may, in the judgment of the Professor of Architecture, be considered an equivalent.

They must further pass examinations in Mathematics A, C and D, and in Freehand and Instrumental Drawing. Those who desire to take the optional work in Mechanics of Materials are required to pass entrance examinations also in Mathematics E.

Candidates who do not, at the time of admission, satisfy fully the requirements in Mathematics A, C and D, and in Freehand Drawing, must postpone work for which these are directly preparatory until a subsequent examination is passed.

SPECIAL COURSE IN BIOLOGY.

The candidate must be at least eighteen years of age, and must satisfy the requirements for admission to the regular course, except in Latin, when only B and C or D are required. (For admission to the regular course in Biology see p. 66.)

SPECIAL COURSE IN BUSINESS PRACTICE AND BANKING.

A two-year Special Course is offered in Business Practice and Banking.

A candidate must satisfy one of the following requirements:

1. He must be at least twenty-one years old, and must satisfy the professors in charge that he is qualified to take the work.
2. He must be at least eighteen years old, and must show either:
 - (a) that he has completed a public high school course of three years, or its equivalent, of a grade satisfactory to the Committee on Finance and Commerce, or
 - (b) that he is a graduate of a normal school.

SPECIAL COURSE IN MUSIC.

The qualifications required to enter the course are, *first*, a knowledge of the rudiments of music; *second*, the ability to play on some instrument—preferably the piano or organ; and *third*, that portion of the entrance requirements designated as English A.

GENERAL INFORMATION.
STATUS AND CLASSIFICATION OF STUDENTS.

A student under the College Faculty may be a Full Student, Special Student or Partial Student.

A **FULL STUDENT** is one who pursues, in the manner prescribed by the Academic Council, one of the courses leading to a degree.

A **SPECIAL STUDENT** is one who pursues a course laid down by a professor or professors with the approbation of the Academic Council, with a view to a certificate of proficiency on the completion of that course. (See page 71 and above.)

A **PARTIAL STUDENT** is one who, under certain provisions, is permitted to pursue such individual subjects as he is competent to take.

Full students in the courses in Arts and Science, Finance and Commerce, and in Biology are graduated upon the satisfactory completion of sixty (60) units of work, a unit of work being one hour a week of attendance at lecture or recitation, or two hours of laboratory work a week for one year. Full students in other courses which lead to a degree are graduated upon the satisfactory completion of the prescribed work.

(a) IN THE SCHOOL OF ARTS.

A student with less than twelve (12) units of work to his credit at the beginning of any college year shall be classed as a Freshman.

A student who has to his credit at the beginning of any college year more than eleven (11) and less than twenty-four (24) units of work shall be classed during that year as a Sophomore.

A student who has to his credit at the beginning of any college year more than twenty-three (23) and less than thirty-nine (39) units of work shall be classed during that year as a Junior.

A student who has to his credit at the beginning of any college year from thirty-nine (39) to forty-seven (47) units of work shall be classed during that year as a Junior, unless he gives notice of his intention to try for his degree that year, in which case he shall be classed as a Senior.

A student with forty-eight (48) or more units of work to his credit at the beginning of any college year shall be classed as a Senior.

(b) IN THE TOWNE SCIENTIFIC SCHOOL.

A student in a course in the Towne Scientific School will be advanced to the next higher class if, at the opening of the college year, he has credit in 60 per cent. of the total number of hours scheduled in the University Catalogue as the work of the preceding class.

FEES AND DEPOSITS.

The amounts noted in the appended schedule are for *Regular and Special Students*, and are for the full academic year. Tuition fees are payable in two equal parts, on October 1 and February 1, respectively. Remittances should be in cash, or by bank draft, certified cheque or postal money order, drawn for the exact amount due, made payable to the University of Pennsylvania, and sent to E. W. Mumford, Bursar, Room 102 College Hall. An addition is made to fees not paid within thirty-one days.

COURSE.	AMOUNT.
Arts and Science	\$150 00
Finance and Commerce } see statement on next page.	150 00
Biology	150 00
*Biology (Two-year Course)	150 00

* The fee for students in the two-year course in Biology who are registered at the same time in the Department of Medicine, is \$200.

COURSE.	AMOUNT.
Architecture	\$150 00
Mechanical or Electrical Engineering.....	200 00
Civil Engineering	200 00
Chemical Engineering	200 00
Chemistry	200 00
Music	30 00

**TUITION FEES FOR THE COURSES IN ARTS AND SCIENCE,
FINANCE AND COMMERCE, AND BIOLOGY.**

The tuition fees for the courses in Arts and Science, Finance and Commerce, and Biology, are six hundred dollars (\$600.00) for the period of instruction leading to the degree, one hundred and fifty dollars (\$150.00) being paid by a regular student in each of the four years of his course. Students taking five years to finish the course may not be required to pay more than six hundred dollars (\$600.00). Students who finish the course in less than four years will, nevertheless, pay a total of six hundred dollars tuition before the degree is granted. Special arrangements as to fees will be made upon application in cases of students admitted to advanced standing on credits from other institutions.

FEE FOR GYMNASIUM AND HOUSTON CLUB.

A fee of ten dollars (\$10.00) is added to the tuition fee of every male student in the college, for the privileges of the Gymnasium and the Houston Club. This fee is payable in two equal parts in October 1 and February 1. Students in the (special) Music and Teachers' Courses are not required to pay this fee.

FEES OF PARTIAL STUDENTS.

The tuition fees of a Partial student in any course of the College are ten dollars (\$10.00) a term for each hour a week, or, in the case of laboratory or drawing-room work, ten dollars (\$10.00) a term for each two hours a week.

FEE FOR RE-EXAMINATION.

A fee of five dollars (\$5.00) is charged for every re-examination, after the first, that the student is permitted to take.

DEPOSITS.

Each student (except students in Music and in the Teachers' Courses) is required to deposit on entering College ten dollars (\$10.00) to cover loss of books, keys, etc., breakage in the laboratories, or damage to University property. Students in Music deposit five dollars (\$5.00). Students in Teachers' Courses, unless they take work in laboratories, are not required to make a deposit. For students in the courses in Chemistry, and in Civil, Mechanical, Electrical or Chemical Engineering, the required deposit at entrance is twenty-five dollars (\$25.00). Special and Partial students in these courses deposit twenty dollars (\$20.00). Any balance is returned on graduation or withdrawal from College.

GRADUATION AND CERTIFICATE FEES.

A graduation fee of twenty dollars (\$20.00) is charged to each candidate for a baccalaureate degree, and of ten dollars (\$10.00) to each candidate for the degree of Master of Science in Architecture. A like fee of ten dollars (\$10.00) is charged to each candidate for the technical degree of Civil Engineer, Mechanical Engineer, Chemical Engineer, or Electrical Engineer. The fee for Certificates of Proficiency in Special Courses is ten dollars (\$10.00). *No student will be recommended for a degree or certificate until all fees due the University have been paid.*

BOARD AND LODGING.

Accommodation for students is provided in the Dormitories. Plans, prices, and all other information relating to the Dormitories may be had upon application to the Bursar. In order to make sure of rooms, students are advised to apply as early as April 1 if possible.

A large temporary Dining Hall, or "Commons," is located at the corner of Spruce and Thirty-sixth streets, where about seven hundred students may obtain board, at the rate of \$3.50 a week.

Students who prefer to take board and lodging elsewhere than in the Dining Hall and Dormitories, may obtain accommodations in houses near College Hall for \$5.00 a week and upwards. A printed list of approved lodgings may be obtained at the Dean's office, College Hall, after September 15. The average price paid by students in such quarters is \$5.50 a week. The figures given herewith are based upon the cost of living either in the Dormitories and Dining Hall, or in a boarding-house.

	Min.	Max.
Board and lodging—thirty-seven weeks	\$185 00	\$350 00
Tuition and other fees (according to the character and year of the course)	160 00	210 00
Text-books (estimated)	10 00	25 00
Graduation or Certificate Fee	10 00	20 00
	<hr/>	<hr/>
	\$365 00	\$605 00

DIVISION OF SESSIONS.

The College year is divided into two terms of about eighteen weeks each. The first term began in 1905, on September 29, at 10 o'clock A. M. The second term will begin on January 29, 1906, at 9 o'clock, and will end with Commencement on June 13. The examinations for entrance will begin on June 14 and September 21. The next College year will begin on September 28, 1906, at 10 A. M.

TERM EXAMINATIONS.

Examinations are held at the close of each term. Students are given a term "standing" in each study pursued during that term. These "standings" are *d* (distinguished), *g* (good), *p* (passed), *n* (not passed, or deficient), and *a* (absent). If a student is deficient in one or more subjects, he is attached to his class conditionally until the deficiency or deficiencies are made up.

THESES.

The theses required of candidates for the Bachelor of Science and technical degrees must be sent to the Dean on or before May 1 in each year.

DEGREES.

The degree of *Bachelor of Arts (A. B.)* is conferred on graduation upon students in the Arts and Science courses who have presented Latin and Greek for admission and who have completed in College Greek 331, and Latin 431 and 432.

The degree of *Bachelor of Science (B. S.)* is conferred on graduation (1) upon students in the Arts and Science courses who have not taken Latin and Greek in College for at least one year three hours a week each.

The degree of *Master of Science in Architecture (M. S. in Arch.)* is conferred upon students who complete satisfactorily the work of the fifth, or graduate, year in the course in Architecture.

The degree of *Bachelor of Science in Economics* is conferred on graduation upon students in the course in Finance and Commerce.

The degree of *Bachelor of Science in Chemistry, Architecture, Civil Engineering, Chemical Engineering, Mechanical Engineering, Electrical Engineering or Biology* is conferred on students who complete the four-year course in one of these subjects.

The technical degrees of *Civil Engineer (C. E.)*, *Mechanical Engineer (M. E.)*, *Electrical Engineer (E. E.)* and *Chemical Engineer (Ch. E.)* are conferred not less than three years after receipt of the baccalaureate degree, upon graduates of the four-year courses in these subjects who have successfully pursued their professions during such period, and who have also presented original theses acceptable to the Academic Council.

The degree of *Bachelor of Music*.—None but holders of Certificates of Proficiency in Music may proceed to this degree, which is conferred only upon satisfaction of the following requirements: (1) At least one year must elapse after the receipt of the Certificate before presentation of the thesis for the degree; (2) Candidates must pass an examination, both oral and written, in Harmony, Counterpoint, Composition and Orchestration; (3) They must submit (as thesis) an original composition in the form of a cantata, of such length as to require at least twenty minutes for its performance. The composition must be for *solis* and chorus. It must include at least one tonal fugue, and must be scored for full orchestra with a short orchestral prelude.

CERTIFICATES OF PROFICIENCY.

Certificates of Proficiency are awarded to students who pursue, and complete satisfactorily, the several authorized Special Courses offered by the College Faculty. (See pp. 71 and 72).

Students who have pursued Partial Courses, and who have completed satisfactorily the individual subjects selected in each case, are entitled to an official *Statement of Study*, signed by the Dean of the College.

SCHOLARSHIPS.

Scholarships open to undergraduates in the College may be divided into two groups: first, those which may be held only by students from certain localities; and second, those which are general in their allotment. All candidates for scholarships must present themselves for the usual entrance examinations, excepting

those who may be admitted to College on satisfactory diplomas granted by public high or normal schools.

No award of scholarships will be made until after the entrance examinations in June. Only such persons will be eligible for scholarships as have been admitted to the College without conditions in June preceding the opening of the College year for which the scholarship is sought.

All candidates for scholarships (*except those awarded by the Philadelphia Board of Public Education*) in the College must transmit their applications and credentials to the Dean *on or before the 15th day of May* preceding the opening of the academic year in which they desire to enter.

Special attention is called to the fact that, while possession of a scholarship entitles the holder to free tuition, such holders are bound by all College rules and regulations equally with pay students; and any infraction of these regulations will render a holder liable to the forfeiture of his privileges.

GROUP I.

1. THE PENN SCHOLARSHIPS, two in number, founded in 1816, are filled by the Governor of the State from time to time as vacancies occur. They exist by virtue of a privilege confirmed to the heirs of Thomas Penn, one of the original Proprietaries of the Province of Pennsylvania.

2. THE PHILADELPHIA FREE CITY SCHOLARSHIPS.—Under an agreement with the City of Philadelphia, of date 1882, fifty free scholarships exist in the University for the benefit of graduates from the public schools. Of these, THE BENJAMIN FRANKLIN SCHOLARSHIPS, three in number, were endowed by the late Dr. William Pepper, and THE SAMUEL V. MERRICK SCHOLARSHIP by J. Vaughan Merrick, Esq. Candidates are examined by the Board of Public Education, and the scholarships, according to the number becoming vacant at the end of each academic year, are awarded to those who reach the highest grade in examination, provided that such grade be at least sixty-five per cent. Each scholarship entitles the holder to free tuition in any regular course in any department of the University. *All inquiries concerning the City Scholarships should be addressed to the Secretary of the Board of Public Education, City Hall.*

3. THE PENNSYLVANIA STATE SCHOLARSHIPS.—In addition to the Philadelphia City Scholarships, five free competitive scholarships are open annually to students from the graduating classes of public

high schools in the State of Pennsylvania *outside of Philadelphia*. Examination papers must be marked as in competition for the Pennsylvania Scholarships. The examinations may be taken at any place where the University holds examinations through its representatives. Successful candidates may elect to enter any regular course in the College.

4. THE GENERAL ALUMNI SOCIETY SCHOLARSHIPS.—Under the terms of this Foundation, Scholarship No. 1, the first of a limited number of prize scholarships to be established by the General Society, became available in 1899. Award is made to that applicant resident in, or preparing at any school located in, the following counties of the State of Pennsylvania: Blair, Cambria, Indiana, Westmoreland, Beaver, Allegheny or Washington. The only special requirement is that the applicant shall obtain the highest average among such candidates in these counties as may take the regular examinations.

GROUP 2.

1. THE BAIRD SCHOLARSHIP, founded in 1889 by Mrs. Matthew Baird, provides free tuition for one student.

2. THE MUHR SCHOLARSHIPS, founded in 1895 by the late Simon Muhr, provide free tuition for three students.

3, 4 and 5. THE JAMES LATTA (founded by William J. Latta, Esq.), ROBERT MORRIS and JOHN LOGAN SCHOLARSHIPS, established in 1900, provide free tuition for three students.

6. THE LOUISE HARRISON SCHOLARSHIP, founded in 1900 by Thomas S. Harrison, Esq., provides free tuition for one student in the Department of Chemistry.

7. THE THOMAS S. STEWART SCHOLARSHIP, founded in 1901 by Mrs. Thomas S. Stewart and the Messrs. Thomas S. and Ralph C. Stewart, provides free tuition for one student in Architecture. In the event of no suitable person presenting himself at any time in Architecture, the scholarship may be awarded in other departments of the College.

8. THE HARTMAN KUHN SCHOLARSHIP, founded in 1901 by C. Hartman Kuhn, Esq., in memory of his grandfather, of the Class of 1800, College.

9. THE THOMAS H. POWERS SCHOLARSHIP, founded in 1901 by Mrs. Mary Powers Harris, in memory of her father.

10. THE CHARLES BRINTON COXE SCHOLARSHIP, founded in 1901 by Eckley Brinton Coxe, Jr., in memory of his father, of the Class of 1862, College.

11. THE E. OTIS KENDALL SCHOLARSHIP, founded in 1901 by the Class of 1879, College, in memory of the late Vice-Provost of the University.

12. THE CADWALADER SCHOLARSHIP, founded in 1901 by John Cadwalader, Esq.

13. THE STEPHEN GREENE SCHOLARSHIP, founded in 1901.

14. THE CLASS OF 1878 MEMORIAL SCHOLARSHIP, founded in 1903.

15. THE ARCHITECTURAL ALUMNI SCHOLARSHIP, founded in 1903, provides free tuition for one student in Architecture, the nomination being vested in the Architectural Alumni Society of the University of Pennsylvania.

16. THE GEORGE SCHLEICHER SCHOLARSHIP.—Under the will of the late George Schleicher, of Philadelphia, the German Society of Pennsylvania holds in trust a fund for maintaining in this University a perpetual scholarship named after the testator. The income from \$5,000 is awarded annually to assist any worthy person of German birth or descent in the pursuit of his studies at Pennsylvania in any branch of learning except religion.

17. THE ALBERT MONROE WILSON SCHOLARSHIP, founded in 1904 by the Alumni of the College, in memory of the late Janitor of College Hall, and as a tribute to his zealous fidelity to duty during nearly fifty years of service in the University.

18. THE GEORGE BARNETT SCHOLARSHIP in Mechanical Engineering, founded in 1904 by his daughter, Mrs. Irene Barnett Halstead.

19. THE ECKLEY B. COXE SCHOLARSHIP, founded in 1904 by Mrs. Eckley B. Coxe, in memory of her husband, of the Class of 1858, College.

20. A TRAVELING SCHOLARSHIP, established in 1904 by the Philadelphia Group of the Alliance Française, awarded annually upon the recommendation of the Department of French to that student in the College considered best prepared for study at some one of the French universities.

21. THE MARTHA AUSTIN McDOWELL SCHOLARSHIP, founded in 1905 by J. Austin McDowell, in memory of his wife, to be awarded without limitation as to department.

22. UNIVERSITY SCHOLARSHIPS.—In place of the sixteen scholarships given each year to members of the entering class, and heretofore known as University Scholarships, the University will, beginning with September, 1906, grant to sixteen students of the entering class, eight in the School of Arts, and eight in the Towne Scientific School, the privilege of postponing tuition fees until after graduation. The terms upon which this privilege will be granted may

be had from the Chairman of the Faculty Committee on Scholarships, who will provide a blank form of application. The Committee will ask the applicant to furnish satisfactory evidence of creditable scholarship standing, seriousness of purpose, and inability to pay any part of his fees during his course.

PRIZES.

FRESHMAN ENTRANCE PRIZES.

1. THE EUGENE DELANO PRIZE of fifty dollars for the best special examination in the French and German required for entrance to College.

2. A prize of fifty dollars, offered by THE CLASS OF 1880, for the best special examination in Mathematics by a candidate for admission to the course in Arts and Science.

The following prizes are offered annually:

NOTE.—All essays in competition for prizes must be handed to the Dean on or before May 1 in each year, must be signed with a fictitious name, and be accompanied by a sealed envelope, on which is written the fictitious name, and in which are enclosed the writer's real name and address. No prize will be awarded unless the work done for it reaches a high standard of excellence. Unless otherwise stated, the prizes are open to full students only.

I. FACULTY PRIZES:

1. A prize of thirty dollars for the best Essay in Intellectual and Moral Philosophy by a member of the Senior Class. Subject: *What are the Axioms of Logic?*

2. A prize of ten dollars for the best examination by a member of the Freshman Class on Greek Prose Composition with the Accents.

3. A prize of thirty dollars to a member of the Senior Class for the most meritorious work in the German Language and Literature over and above the regular course.

4. A prize of thirty dollars to a member of the Senior Class for the most meritorious work in the French Language and Literature over and above the regular course.

5. A first prize of fifteen dollars, and a second prize of ten dollars, for the best examination on the *Lectures on Quaternions* given to the voluntary Junior Class.

6. A prize of thirty dollars for the best Essay in History and English Literature by a member of the Senior Class. Subject: *Political Satire of the Revolution.*

7. A prize of twenty dollars for the best Essay in English Literature by a member of the Junior Class. Subject: *College Verse in the University of Pennsylvania.*

8. A prize of twenty-five dollars, to be divided among the best three speakers in the annual Sophomore-Freshman contest in debate, the contest being open to the public.

9. A first prize of twenty-five dollars, and a second prize of fifteen dollars, for the best and second best preparations illustrating the anatomy of any vegetable. Open only to students in the Biological courses in Botany. The conditions are as follows: (a) Ten alcoholic preparations, illustrating stages in the germination and seedling growth of at least seven plants; (b) A complete set of microscopic slides, illustrating the year's work in Botany; (c) An identified collection of the *Algæ* of Fairmount Park, prepared as dried specimens, and mounted as slides.

10. A first prize of twenty-five dollars, and a second prize of fifteen dollars, for the best and second best preparations illustrating the anatomy or embryology of any animal. Open only to students in the Biological courses in Zoölogy. The conditions are as follows: (a) Four dissections illustrating the anatomy of any simple Invertebrate; (b) Four dissections illustrating the comparative neurology of four Invertebrate types; (c) A complete series of mounted slides illustrating the histology or embryology of any animal; (d) Three preparations of distinct organic systems of from one to three species of Invertebrata.

11. A prize of ten dollars to the member of the Sophomore Class who shall pass the best special examination in sight reading of Latin.

12. A prize of ten dollars to the member of the Sophomore Class who shall pass the best special examination in sight reading of Greek.

II. PRIZES FOUNDED BY ORGANIZATIONS:

1. THE HENRY REED PRIZE, founded by the SOCIETY OF THE ALUMNI (College) for the best English Essay by a member of the Senior Class, entitles the successful competitor to one year's interest on six hundred dollars, and to a diploma of merit. Essays in competition for this prize are handed to the Dean for transmission to a committee of the Board of Trustees, by whom the prize is awarded. Subject: *The Plays of John Wilson*.

2. A prize for the best, and a prize for the second best, Latin Essay by a member of the Graduating Class, offered by the SOCIETY OF THE ALUMNI (College). The first prize of forty dollars, and the second prize of twenty-five dollars, are awarded by a committee of the Society.

3. THE JOSEPH WARNER YARDLEY PRIZE, founded by THE CLASS of 1877 in memory of their classmate, for the best Thesis in Political Economy by a member of the Senior Class. It entitles the successful competitor to one year's interest on five hundred dollars. Subject: *The Effect of the High Price of Coal on Manufactures in Eastern Pennsylvania.*

4. A prize founded by the PHI KAPPA SIGMA FRATERNITY in honor of their founder, Samuel Brown Wylie Mitchell, M. D., of the Class of 1852, for the most meritorious work done in the course in English Composition of the second year. It entitles the successful competitor to one year's interest on four hundred dollars.

5. THE ASSAYERS AND MINERS GANGUE offers a prize of the value of twenty-five dollars in books or apparatus, to Post-Seniors in Chemistry and to Seniors in Chemistry (four-year course); the prize to be awarded by the Gangue with the advice of the professor in charge.

6. THE NATIONAL SOCIETY OF THE SONS OF THE AMERICAN REVOLUTION offers annually a Silver Medal for the best essay on some subject connected with American Revolutionary History. The essay receiving the Medal will be sent to the officers of the Society, and will come in competition with the prize essays from other colleges and universities, the best of these receiving a Gold Medal. Open only to Juniors. Subject: *The Principles Fought for in the Revolution.*

7. THE PRIESTLEY CLUB, composed of Alumni of the Chemical Department, offers a prize of twenty dollars each year to that member of the Graduating Class (Post-Senior or Senior, four-year course, Regular or Special), whose work for that year is most satisfactory. The award of the prize is to be determined by the Director of the John Harrison Laboratory of Chemistry, based upon the student's application, the grades obtained by examination and the presentation of a satisfactory thesis.

8. A prize of fifty dollars is offered annually by THE SOCIETY OF COLONIAL WARS, for the best essay presented by any member of the Junior and Senior Classes in the College, on a subject relating to pre-Revolutionary Colonial History, and approved by the Society. Award is made by a committee of judges appointed by the Department of History, the successful essay to become the property of the Society. The prize will not be awarded to a member of the Senior Class who may have won it as a member of the Junior Class. Subject: *Colonial Taxation and the American Revolution.*

9. THE T-SQUARE CLUB OF PHILADELPHIA offers annually two prizes of membership in the organization. They are granted in October of each year to those two members of the Senior and Second-year Special Classes in Architecture, respectively, who shall have attained the highest standing in the preceding years of their courses, and who comply with the Club's general regulation regarding the submission of drawings. These prize memberships cover the period of the student's connection with the University without the payment of dues.

10. THE DANTE SOCIETY offers annually a prize of one hundred dollars for the best essay on a subject drawn from the life and works of Dante. Competition is open to all students, and graduates of not more than three years' standing, of any college or university in the United States. The judges of the essays submitted are a committee of the Society. For further information address the Secretary of the Society, Prof. F. N. Robinson, Longfellow Park, Cambridge, Mass.

III. PRIZES FOUNDED BY INDIVIDUALS:

1. A prize founded by HENRY LABARRE JAYNE, ESQ., of the Class of 1879, for the best English Composition by a member of the Freshman Class. It entitles the successful competitor to one year's interest on two hundred dollars. Subject: *The Last Fight of the "Revenge."*

2. A prize, originally founded by the late D. VAN NOSTRAND and generously continued by his business successors, for the member of the Junior Class in Civil Engineering who attains the highest general average of scholarship during the Junior year. The prize consists of twenty-five dollars.

3. THE GEORGE ALLEN MEMORIAL PRIZES, founded by JOSEPH G. ROSENGARTEN, ESQ., of twenty dollars each, are offered to members of the Junior Class taking the Greek and Latin courses as follows: In Greek, for the best examination on the *Oration of Demosthenes on the Crown*, read as an extra subject; and in Latin, for the best examination upon selections from Latin Literature of the Empire (Seneca Rhetor, Quintilian, Pliny the Younger and Suetonius), to be read as an extra subject.

Second prizes of ten dollars each are offered by the Faculty in both of these branches.

4. TWO DEBATING PRIZES, established by WILLIAM WEST FRAZIER, JR., a first prize of seventy-five dollars and a second prize of

twenty-five dollars, to be awarded in a public debating contest, governed by the following conditions:

a. Any student of the University of Pennsylvania who is a candidate for a degree may become a competitor.

b. A committee appointed annually by the Provost of the University shall select from the whole body of competitors, in such manner as it may deem best, the debaters, not to exceed ten in number, who shall take part in the final competition.

c. The question for debate shall be selected by the Provost of the University, and shall be publicly announced by him at least four weeks before the date set for the final competition.

d. The prizes shall be awarded by a committee of three judges, not officers of instruction of the University, appointed by the Provost, to those competitors who shall be deemed by them the most effective debaters, account being taken both of thought and its expression.

5. **THE FRAZIER PRIZE.**—**GEORGE H. FRAZIER, ESQ.**, of the Class of 1887, offers annually a prize of a standard work in literature, to be chosen by him, and of a value of one hundred dollars, to the student in the College of the University of Pennsylvania, who, being a member of the Football team, Baseball team, Track team, or of the Crew, shall attain the highest standing in scholarship.

6. **THE ARTHUR SPAYD BROOKE MEMORIAL PRIZE** in the School of Architecture, of a cash value of fifty dollars, is awarded annually, in the form of medals, for meritorious work in Design, as follows: for the best record of distinguished rank, a Gold Medal of about forty dollars in value; for records of second and third place and of superior excellence, a Silver and a Bronze Medal, respectively. This prize has been established by **MARIA WHARTON BROOKE**, as a memorial to her son, **ARTHUR SPAYD BROOKE**, a graduate in Architecture of the Class of 1897.

7. **THE J. S. H. PRIZES.**—The following prizes are offered annually to students in the courses in Biology:

a. A prize of twenty-five dollars is offered to the student in the first-year class in the four-year course, or the two-year course, who, having taken the entrance examinations without condition, shall have the highest standing in the class; the term standing and conduct to be determining factors, as well as the standing in examinations.

b. A prize of fifty dollars to the student, in the second year of the above-named courses, who shall stand first in the class, under similar conditions.

c. A prize of seventy-five dollars to the third-year student in the above-named courses, who shall stand first in the class, under similar conditions.

d. Beginning with the year 1904-05, and thereafter annually until further notice, a prize of two hundred and fifty dollars to the fourth-year student in the four-year course, who shall stand first in the class, under similar conditions, the standing for the whole four years to be taken into account.

8. A prize of fifty dollars is offered annually, through the generosity of DR. S. WEIR MITCHELL, for the best thesis on *The Autumnal Coloration of Plant Parts*. Competition is open to advanced undergraduate and graduate students in Botany, investigations to be pursued for not longer than two years.

9. THE MULFORD PRIZE, established through the generosity of WILLIAM H. MULFORD, ESQ., of the Class of 1902, is awarded annually to that member of the Graduating Class who shall attain the highest excellence in the expressive reading of Latin Prose and Verse, as shown by a special examination. The value of the prize is twenty-five dollars.

10. THE GEORGE SCHLEICHER PRIZE.—Under the will of the late GEORGE SCHLEICHER, of Philadelphia, the German Society of Pennsylvania holds in trust a fund for maintaining in perpetuity a prize to be named after the testator. This prize is of a value of fifty dollars, and is awarded annually to the best student—of whatever nationality he may be—in the German Language, or German Literature, or both.

11. THE JOHN STEWARDSON MEMORIAL SCHOLARSHIP IN ARCHITECTURE.—The value of this scholarship (established in 1897) is one thousand dollars, and the holder is required to spend one year in travel and in the study of Architecture in Europe under the direction of the Managing Committee. Candidates must be architectural students or practitioners—under thirty years of age, resident in the State of Pennsylvania for at least one year immediately preceding the date of preliminary examinations, which must be passed unless acceptable certificates therefor are presented. The award is made annually to that candidate successful in the final examination in Design.

12. THE ALUMNI FELLOWSHIP IN ARCHITECTURE.—Open only to Pennsylvania Alumni: of a cash value of one thousand dollars, the holder being required to spend not less than one year in foreign travel and study, under a program arranged with the Professor of

Architecture, and approved by the Provost. Persons who have taken either the degree of the four-year course or the certificate of the two-year special course, and who have neither secured another traveling scholarship nor admission to the Ecole des Beaux Arts, are eligible to the competitions, which are held annually. Established in 1902-03, and to continue for five years.

I.—THE SCHOOL OF ARTS.

COURSES IN ARTS AND SCIENCE, IN BIOLOGY, AND IN MUSIC.

In the courses in Arts and Science, and in Biology, a student will graduate upon the successful completion of sixty (60) units of work; a unit of work being the amount involved in attendance upon lectures or recitations for one hour a week for one year, or upon laboratory work for two hours a week for one year.

The curricula have been planned with the view of making it possible for a student to complete the course in three, four or five years, at his option. Fifteen units of work a year will normally constitute full work for a student who wishes to complete the course in four years; but students wishing to complete the course in the minimum time will take twenty (20) units of work each year, while those wishing to devote five years to the course will take twelve (12) units of work each year. Students will not ordinarily be permitted to take less than twelve (12) units of work in one year.

THE COURSE IN ARTS AND SCIENCE.

The work of this course consists of required studies, group work and free electives. The required studies amount to twenty-two (22) units of work, the group studies to eighteen (18) units, and the remaining twenty (20) units are made up of free electives.

No restrictions are laid upon the student as to the order in which he shall take any of the subjects in the course, excepting such as may follow from the natural sequence of related subjects, and from the limitations of the roster. The student usually will take as the required work in each of the branches named below the most elementary subjects offered, as these form in most cases the necessary basis for further advance in the same subjects.

Required Studies.—Each student must take in

Chemistry	2 units.
English	6 "
Foreign Languages: 3 units in each of two, amounting to	6 "

History	2 units.
Logic and Ethics	2 "
Mathematics	2 "
Physics	2 "

NOTE.—The required work in Foreign Language may consist of work in any two foreign languages in which instruction to the extent of three units of work each is offered; but no student will be permitted to take in satisfaction of such requirement either French 281, German 321, Greek 343 (and 343 A), or Latin 430 (and 430 A, B, C).

Logic and Ethics will be found listed under the general title PHILOSOPHY.

Group Work.—Each student elects for his group either two or three of the eighteen subjects mentioned below. If he elects two, he is required to do nine units of work in each; if he elects three, he is required to do six units of work in each. After choosing the branches which shall constitute his group, the student is at liberty to select any subjects from the list of those offered in these branches to make up the required six or nine units, except in so far as his choice may be restricted by the necessary sequence of studies and by the roster. Students are advised to plan their work in consultation with the professors in charge of the different branches.

Astronomy,	French,	Mathematics,
Botany,	Geology,*	Philosophy,†
Chemistry,	German,	Physics,
Economics,	Greek,	Political Science,
English,	History,	Sociology,
Fine Arts,	Latin,	Zoölogy.

Free Electives.—The required studies and group work, together, amount to forty (40) units of work. The student takes the remaining twenty (20) units in free electives. Any subject open to a student in the course in Arts and Science may be taken as a free elective, provided the student's previous work qualifies him to pursue the subject, and the roster permits.

The subjects open to students in the course in Arts and Science are given in the list of subjects of instruction under the following heads: Anthropology, Astronomy, Botany, Chemistry, Economics

* This title covers also Metallurgy and Mineralogy.

† This title covers also Psychology and Pedagogy.

(except as otherwise noted), English, Fine Arts, French, Geology, German, Greek, Hebrew, History, Italian, Latin, Linguistics, Mathematics, Metallurgy, Mineralogy, Pedagogy, Philosophy, Physics, Political Science (except as otherwise noted), Psychology, Sanskrit, Sociology (except as otherwise noted), Spanish, Zoölogy.

NOTE.—*It is recommended that students who desire to complete the course in three years enter with credits for six (6) units in Foreign Language, Mathematics, or History.*

Roster.—See folding sheet facing p. 128.

Degrees.—Students in the course in Arts and Science who present Latin and Greek for admission, and who take in College Greek 331, and Latin 431 and 432, receive on graduation the degree of Bachelor of Arts. Other students receive on graduation the degree of Bachelor of Science.

COMPOSITE YEAR IN MEDICINE.

A student in the course in Arts and Science may, in his Senior year, register also as a regular student in the First-year Class in the Department of Medicine. Students wishing to avail themselves of this privilege are required to do only fifty-two (52) units of purely College work, the other eight (8) units required for graduation being credited to them from the studies of the First-year Class in Medicine. The fifty-two (52) units taken in the College by such students must include at least sixteen (16) units in Biology, and three (3) units in Chemistry, in addition to the prescribed Chemistry.

COMBINED COURSES IN ARTS AND SCIENCE AND IN ARCHITECTURE.

The course in Arts and Science and the course in Architecture may be so combined that a student at the end of the *fourth* year may receive his Bachelor's degree in Arts, and at the end of the *sixth* year his Bachelor's degree in Architecture. During the first two years of the combined courses, his work will be wholly in the course in Arts and Science; during the next two years, partly in both courses; and during the last two years, entirely in the course in Architecture.

THE COURSES IN BIOLOGY.*

FOUR-YEAR COURSE.

Required Studies.—All students take the following subjects, amounting to 48½ units of work:

Subjects.	Hours a week.	Units of Work.	Page where description is found.
English, 231, 232, 233, 234, 235, 257	6	6	155-7
German, 322, 323, } or } German, 322, French, 282 }	6	6	164
Mathematics, 462	3 (one term)	1½	164-159 181
Physics, 601	2	2	198
Geology, 293	2	2	161
Chemistry, 91, 92	9	5	143
Botany, 71, 72, and 73-74, or 75	18	12	140-1
Zoology, 681, 682, 683, 684, 685, 686	21	14	202

Elective Studies.—The remaining 11½ units, which the student must complete before graduation, are to be made up from the following list:

Subjects.	Hours a week.	Units of Work.	Page where description is found.
Botany, 73	3	2	140
" 74	3	2	140
" 75	6	4	141
" 76	6	4	141
" 77	3	2	141
" 78	3	2	141
" 79	6	4	141
" 80	3	2	141
" 81	3	2	141
" 82	2	2	141
Mathematics, 461	3 (one term)	1½	180
Zoology, 687	4	3	202
" 688	6	4	203
" 689	6	4	203
" 690	6	4	203
" 691	3	2	203
" 692	2	2	203
Research Work in Botany or Zoology	8	4	—

* Open to both men and women.

Subjects.	Hours a week.	Units of Work.	Page where description is found.
Chemistry, 93	5	3	143
" 95	5	3	144
Physics, 602	4	3	198
Psychology, 582	3	1	195
" 583	3	1	195
" 584	3	1	195
" 585	3	1	195
German, 327, 328			165
Pedagogy, 591			196

Arrangement of Work.—In planning his course, the student must observe carefully the necessary sequence of studies as set down in the tables giving the lists of subjects in the different branches. Apart from the restriction thus imposed, and from the limitations of the roster, the subjects may be taken in any order the student may prefer.

Roster.—See folding sheet facing p. 128.

Degree.—Graduates of this course receive the degree of Bachelor of Science in Biology.

NOTE.—It is recommended that students who desire to complete the course in three years enter with advanced credits for one and a half (1½) units in Mathematics and three (3) units in Foreign Language; and that they do at least one summer's work in Botany or Zoölogy under provisions approved by the Committee of Instruction in Biology.

TWO-YEAR SPECIAL COURSE.

This course is designed for students who are unable to take the regular course leading to a degree, and especially for those who intend later to take up the study of Medicine. A certificate of proficiency is granted to those who complete the course satisfactorily.

The work for the first year is the same for all students. In the second year alternative courses are offered. One is a continuation of the work of the first year in the Natural Sciences; the other consists of the first year's work in Medicine, together with certain specified subjects given in the College. Human Anatomy, Bacteriology and Physiological Chemistry are given in the Department of Medicine; Histology, Embryology and Chemistry, in the College.

Students who choose the second alternative, and who are also registered as regular first-year students in the Department of Med-

icine, are, on passing the required examinations, advanced with their class to the second year in Medicine. Men only are admitted to the courses in the Department of Medicine.

Requirements for Admission.—The candidate must be at least eighteen years of age, and must satisfy the requirements for admission to the regular course, except in Latin, in which B and C or D are the required topics.

FIRST YEAR.

Subjects.	No. of hours a week.	
	1st Term.	2d Term.
Botany, 71	6	6
General and Invertebrate Zoology, 681 and 682	6	6
Mammalian Anatomy, 683	6	—
Vertebrate Morphology, 684	—	6
General Chemistry, 91	4	4
German, 322	3	3
<i>Elective.</i>		
*Physics, 621	2	2

SECOND YEAR.

I.

<i>First Alternative.</i>		
Botany, 72	6	6
Embryology and Histology, 686	6	6
Physiology, 685	3	3
Chemical Analysis, 92	6	6
Psychology, 582	2	2
<i>Elective.</i>		
Any other Biological course for which students are prepared and can find the time.		

* Trigonometry is a prerequisite for the course in Physics

II.

Subjects.	No. of hours a week.	
	1st Term.	2d Term.
<i>Second Alternative.</i>		
Embryology and Histology, 686.....	6	6
Chemical Analysis, 92	6	—
*Physiological Chemistry	—	9
*Human Anatomy (about).....	13	13
*Bacteriology.....	3	3
<i>Elective.</i>		
Botany, 72	6	6

* Given in the Department of Medicine.

THE COURSE IN MUSIC.

The course in Music extends over a period of four years, and is open to both men and women. The qualifications for admission are as follows: (a) a thorough knowledge of the rudiments of Music; (b) the ability to play on some musical instrument—preferably the piano or organ; and (c) that portion of the requirements for admission to the College designated as English A (see pp. 66 and 67.)

The session begins on the first Monday in October, and is divided into two terms of fifteen weeks each, during which lectures are delivered twice a week. Examinations are held at the close of each year. A certificate of proficiency is awarded to those students who complete the course and pass the final examinations satisfactorily. The fee for each term is fifteen dollars (\$15.00), and a further fee of ten dollars (\$10.00) is required prior to the award of the certificate.

OUTLINE OF INSTRUCTION.†

FIRST YEAR.—Harmony. Combinations and successions of sounds.

SECOND YEAR.—Melody. The use of Unharmonized Dissonances. Forms of accompaniment. The simpler "Forms" of Composition. The Five Species of Strict Counterpoint in two, three and four parts. Instruction will also be given in the Elements of Rhetoric and Versification.

† For description in detail, see pp. 191 and 192.

THIRD YEAR.—The larger "Forms" of Composition. Modern Counterpoint, Fugue, Canon.

FOURTH YEAR.—The Orchestra. Instrumentation. The scoring of some of the exercises already written, together with the composition and scoring of the graduation exercise.

DEGREE OF MUS. BAC.*

None but holders of certificates, awarded as above, may proceed to the degree of *Bachelor of Music*, which is conferred only upon satisfaction of the following requirements:

1. At least one year must elapse after the receipt of the certificate before presentation of the thesis for the degree.
2. Candidates must pass an examination both oral and written in Harmony, Counterpoint, Composition and Orchestration.
3. They must submit (as thesis) an original composition in the form of a cantata, of such length as to require at least twenty minutes for its performance. The composition must be for *solis* and chorus. It must include at least one tonal fugue, and must be scored for full orchestra with a short orchestral prelude.

Candidates for the degree of Mus. Bac. will be required to pass an examination in English equivalent to that demanded of all students for admission to College (English A and B); and also to take courses in English Composition and Literature as offered to students in the Courses for Teachers, amounting to two hours a week throughout the year.†

Candidates are recommended to take a course of two years in Physics, the equivalent of that offered in the Courses for Teachers, as well as the course in the History of Music.†

For further information, address Professor HUGH A. CLARKE, 223 South Thirty-eighth street.

* The degree of *Doctor of Music (Mus. Doc.)* is conferred *honoris causa* only, upon composers who may have attained distinction in the field of Music by the production of some notable work in one or more of the larger "Forms."

† See index, Teachers, Courses for.

II.—THE TOWNE SCIENTIFIC SCHOOL.

A regular scientific course leading to a degree has existed in the College since the year 1852. In 1872, this course was enlarged and organized as a Department of Science, which, in 1875, was in large part endowed under the provisions of the will of the late JOHN HENRY TOWNE, a trustee of the University. In honor of his memory the Department of Science was named *The Towne Scientific School*, which now comprehends the courses in Architecture, in Mechanical Engineering, in Electrical Engineering, in Civil Engineering, in Chemistry, and in Chemical Engineering. A brief description of the several courses offered therein will be found on pp. 60 and 61, while the requirements for admission are set forth in detail on pp. 66 to 70.

NEW ENGINEERING BUILDING.

A separate building is now in course of erection for the accommodation of the Mechanical, Electrical, Civil and Chemical Engineering departments of the Towne Scientific School. The building is 300 feet long and 160 feet deep, with a wing 50 feet wide and 40 feet long at one end, the total floor-space being approximately 128,000 square feet. The construction is fireproof throughout.

The building, which will be ready for occupancy during the current academic year, will contain extensive laboratories equipped with the best modern apparatus for experimental work pertaining to mechanical, electrical, civil engineering; including the testing of steam and gas engines; boilers; electric and hydraulic motors; dynamos, transform and electrical apparatus; pumps and fans; refrigerating apparatus; the investigation of the physical properties of the materials of engineering; the study of the laws governing the flow and discharge of water through orifices, weirs and tubes; facilities for calorimetric and geodetic work, etc. Ample provision will be made for practical instruction in wood and iron working, forge and foundry work.

THE COURSES IN ARCHITECTURE.

OFFICERS.

- CHARLES C. HARRISON, LL.D., *Provost.*
 EDGAR F. SMITH, PH.D., SC.D., LL.D., *Vice-Provost.*
 JOSIAH H. PENNIMAN, PH.D., *Dean of the College.*
 WARREN POWERS LAIRD, *Architecture: Professor in Charge.*
 *HERBERT E. EVERETT, *Drawing and History of Painting.*
 PAUL P. CRET, A. D. G. F., *Design.*
 GEORGE WALTER DAWSON, *Drawing.*
 FRANK ALLISON HAYS, *Pen-and-Ink Rendering.*
 THOMAS NOLAN, M. S., A. M., *Architectural Engineering.*
 CHARLES F. OSBORNE, *Architectural History.*
 PHILIP R. WHITNEY, S. B. in Arch., *Architecture.*
 HUGER ELLIOTT, B. S. in Arch., *Design.*

The University offers three separate courses in Architecture. These are: the four-year course, leading to the degree of Bachelor of Science in Architecture; the graduate year, leading to the degree of Master of Science in Architecture; and a two-year special course leading to a certificate of proficiency.

An option in Architectural Engineering is offered, also, in the four-year course, and to qualified special students.

Tuition fees for the courses in Architecture are one hundred and fifty dollars (\$150.00) a year.

COMBINED COURSE IN ARTS AND SCIENCE AND IN ARCHITECTURE.

A candidate for the A. B. degree may secure also the Bachelor's degree in Architecture by devoting six years of work to both courses. To effect this, the first two years are given to subjects in the course in Arts and Science; the next two to the completion of this course (upon which the A. B. degree is granted), and to the first part of the course in Architecture; and the final two years to the completion of the latter, upon which the degree of B. S. in Arch. is granted. For the details of this arrangement, see schedule of work on pp. 106 and 107.

OUTLINE OF INSTRUCTION.

THE FOUR-YEAR COURSE.

The aim of this course is to secure to its graduates the general training prerequisite to the demands of the best professional prac-

* Absent on leave.

tice. To that end its scheme of study combines a full course of sound technical instruction with the essentials of a liberal education. The purely technical work is so arranged as to lay a broad and solid foundation for the future needs of the practicing architect, while incidentally preparing the student to become, upon graduation, of immediate usefulness as an architect's assistant. The liberal elements of the course include both those studies essential to a general college education, and those forming that part of the professional curriculum in which special stress is laid on the esthetic side of architecture.

The course of study is organized upon the principle that architecture is primarily a fine art. The study of design is therefore emphasized, the student being required to give to it and to its preparatory and accessory subjects the greater portion of his time throughout four years. Supporting this line of study and broadening the general view of the student are the history courses, covering exhaustively the field of architecture and giving general treatment to that of painting. Careful study is given to the nature of building materials, and the theory and practice of construction and of sanitation. Draughtsmanship receives constant attention throughout the course, not only in the courses in design, but also in various lines of instruction in pure drawing.

The professional work thus outlined covers some three-fourths of the time required of the student. The remainder is devoted to general studies, which are pursued during the first half of the course, and which include two years each of English composition, rhetoric and literature; of French or German; and of Mathematics (Trigonometry, Analytic Geometry and the Calculus); and one year each of Chemistry and of Physics. The instruction is that given also in the course in Arts and Science.

In point of material equipment the School of Architecture possesses a working library of about eight hundred volumes; a large file of American and foreign periodicals; some twenty thousand mounted photographs, plates, illustrations, and lantern slides, classified for ready reference; numerous autograph drawings and models; and a collection of casts. The school occupies the third floor of College Hall, using a suite of fourteen rooms for library, draughting, lectur, studio and other purposes.

THE OPTION IN ARCHITECTURAL ENGINEERING SUBJECTS.

The subjects forming this course are offered to architectural students desiring to specialize in that field of construction whose

problems, relating to buildings, are comprehended under the general term "Architectural Engineering." This course is a differentiation from the advanced work in the four-year course in architecture, by which regular work in design, drawing, etc., gives place to structural design and kindred subjects, and may be elected in the fourth year. No change in the regular course is necessary previous to the fourth year.

THE GRADUATE YEAR.

The fifth year in Architecture provides opportunities for specialization not to be found in undergraduate courses.

If the student can devote a final year of study to that particular field toward which his tastes and abilities direct him, the value of his technical training cannot but be greatly enhanced. The nature of this fifth-year course is such that it can be adjusted to the needs either of those who may desire to specialize, or of those who wish to round out broadly the work of the four-year course by advanced training and research.

THE TWO-YEAR SPECIAL COURSE.

Architectural draughtsmen of experience, desiring to supply deficiencies in technical training and unable to give the time necessary to the completion of the four-year course, are admitted as Special students, if eligible under certain requirements indicated on p. 71. Such students pursue a definite course of study, arranged to permit the completion, in two years, of much of the advanced technical work of the four-year course; and they may, when prepared, elect work in the Architectural Engineering option.

A satisfactory completion of this course is recognized by the award of a certificate of proficiency.

ADVANCED STANDING.

College graduates may, upon presentation of their diplomas, secure advanced standing in the four-year course. In all such cases the University reserves the right to decide whether the diploma presented covers satisfactorily the academic work required. Such persons who have had, in addition, a requisite technical preparation may secure the degree in Architecture by two years of study. This preparation (comprising architectural subjects 1, 3, 6, 7, 9, 11, 13 and 15) can be secured in the Summer School. (See index.)

THE ATELIER.

This course, for the study of design alone, is open to practicing architects and to "principal" draughtsmen in charge of designing. It affords an opportunity of exceptional character in which work may be done under the criticism of Professor CRET, upon subjects adapted to the needs and tastes of the individual, and with the full resources of the School of Architecture at command.

As the course is intended for the mature architect, its work is conducted apart from that of the undergraduate student body, the members of the Atelier receiving criticism in quarters set aside for their use. Here also those who prefer to work at the University will find facilities for so doing either day or evening, although studies may be developed elsewhere and brought to the University for criticism. This will be given any weekday afternoon but Saturday, during the hour from 4 to 5.

The current season opened November 15, 1905, and will comprise two terms of three months each, closing May 15, 1906. Work may be taken up at any time and carried forward as convenient. Fees are nominal, a charge of five dollars a month or ten dollars a term, payable in advance, being made to cover incidental expenses.

Inquiries for further information and applications for membership should be addressed to Professor WARREN P. LAIRD, University of Pennsylvania.

PRIZES AND SCHOLARSHIPS.

The following Prizes, Scholarships, etc., are open to students in the School of Architecture, or to its graduates, and are briefly described elsewhere:

THE ALUMNI FELLOWSHIP IN ARCHITECTURE, pp. 86 and 87.

THE JOHN STEWARDSON MEMORIAL SCHOLARSHIP IN ARCHITECTURE, p. 86.

THE ARTHUR SPAYD BROOKE MEMORIAL PRIZE, p. 85.

THE T-SQUARE CLUB PRIZE MEMBERSHIPS, p. 84.

THE THOMAS S. STEWART SCHOLARSHIP, p. 79.

THE ARCHITECTURAL ALUMNI SOCIETY SCHOLARSHIP, p. 80.

THE FOUR-YEAR COURSE.

The requirements for admission to this course are: English A and B; History A, B, C, D (any two of these four); Mathematics A, B, C, D.; French A and B, or German A and B, and Physics. *It is*



strongly recommended that French be the language offered. For details, see pp. 62-70.

This course leads to the degree of Bachelor of Science in Architecture.*

FRESHMAN YEAR.

Subjects.	Hours a week.		Units of Work.	For description, see	
	1st Term.	2d Term.		page	number
Architectural Drawing.....	} 24	} 24	1	134	1
Freehand Drawing.....			1	134	2
Elements of Architecture...			1 & 4	134	3
Descriptive Geometry.....			2	134	6
Shades and Shadows.....			1	134	7
Perspective.....			1	134	9
English Composition.....	1	1	1	155	231
English Language.....	—	2	1	155	232
English Literature.....	2	—	1	155	234
French..... { one only }	3	3	3	159	282
German..... { required }	3	3	3	164	322
Pl. and Spher. Trigonometry	3	—	1½	181	462
Analytical Geometry.....	—	3	1½	181	480
Chemistry.....	4	4	2	143	91A

SOPHOMORE YEAR.

Order Problems.....	14	—	3	134	11
Design.....	—	14	2	134	13
Freehand Drawing.....	4	4	2	134	15
Architectural History:					
Ancient.....	6	—	2	134	17
Medieval.....	—	6	2	135	19
Summer Work.....	—	—	1	135	20
English Composition.....	1	1	2	155	235
English Literature.....	2	2	2	155-7	233, 257
French..... { one only }	3	3	3	159	283
German..... { required }	3	3	3	164	323, A&B
Calculus, with applications†	2	2	2	182	487
Physics†.....	3	3	2	198	601

* The degree in Architecture of the University of Pennsylvania is accepted by the American Institute of Architects in lieu of its examination for membership.

† After 1905-06, Physics 601 will be substituted by Architecture 32 and 46 and by an increase in hours of Architecture 11 and 13; Elementary Physics being required for admission, and the applications of Physics given in connection with the Calculus 184.

JUNIOR YEAR.

Subjects.	Hours a week.		Units of Work.	For description, see	
	1st Term.	2d Term.		page	number
Design	20	28	4½ & 6½	135	21
Freehand Drawing:					
Historic Ornament	—	4	1	135	23
Antique	4	—	1	135	24
Water-Color Drawing	3	3	1	135	25
Pen-and-Ink Rendering	2	2	1	135	26
Architectural History:					
Renaissance and Modern.	6	—	2	135	19
Mechanics of Materials.....	3	—	1½	135	30
Graphic Statics	—	3	1½	135	31
Building Construction*	1	1	1	135	32
Sanitary Engineering of Buildings:					
Hygiene				174	392
Heating and Ventilation	1	1	1	135	
Plumbing and Drainage				135	
Summer Work	—	—	1	135	35

SENIOR YEAR.

Design	30	30	7 & 3	135	36
Thesis Design	—	30	4	136	38
Freehand Drawing: Life	4	4	2	136	40
Water-Color Rendering	3	3	1	136	41
Pen-and-Ink Rendering	2	2	1	136	42
History of Painting†.....	1	1	1	136	44
Building Construction*	1	1	1	136	46
Professional Practice	1	1	1	136	47
Special Lectures	1	1	1	136	48
Summer Work	—	—	1	135	50

* 32 required of Juniors and Seniors in 1905-06; 46 of Sophomores, Juniors and Seniors in 1906-07; and 32 of Sophomores and Juniors in 1907-08.

† Taken in 1904-05 by Juniors and Seniors; to be taken in 1906-07 by Seniors.

GRADUATE YEAR.

Subjects.	Hours a week.		Units of Work.	For description, see	
	1st Term.	2d Term.		page	number
Design	36	36	15	137	51
Freehand Drawing: Life	4	4	2	137	53
Water-Color Rendering	5	5	2	137	55
History of Architecture: Research and Conference	2	2	2	137	57
Fine Arts: History or Theory; Research and Conference..	1	1	1	137	59

THE OPTION IN ARCHITECTURAL ENGINEERING SUBJECTS.

Students taking this option will omit in the Senior year, Design 36, Thesis Design 38, Freehand-Life 40, Water-Color Rendering 41, Pen-and-Ink Rendering 42, History of Painting 44, a total of 19 units; and will substitute for these the following subjects:

SENIOR YEAR.

Subjects.	Hours a week.		Units of Work.	For description, see	
	1st Term.	2d Term.		page	number
Arch. Eng.: Design	26	—	5	137	60A
Arch. Eng.: Thesis	—	30	6	137	60B
Arch. Eng.: Theory	9	9	4	137	60C
Masonry and Foundations ...	3	—	1	138	60D
Specifications, Estimates and Contracts	—	3	1	138	60E
Materials of Construction ...	2	—	1	150	141
Testing Laboratory	3	3	1	150	142

The foregoing Senior subjects, together with those taken by all fourth-year men (32 or 46, 47, 48 and 50; 4 units) constitute the Senior year's work for students graduating under the Option in Architectural Engineering.

THE TWO-YEAR SPECIAL COURSE.

For the detailed requirements under which candidates are admitted to this course, see p. 71. A certificate of proficiency is awarded upon its satisfactory completion.

FIRST YEAR.

Subjects.	Hours a week.		Units of Work.	For description, see	
	1st Term.	2d Term.		page	number
Elements of Architecture . . .	18	—	5	134	3
Order Problems	—	18	2	134	11
Design	—	18	2½	134	13
Shades and Shadows	3	—	1	134	7
Perspective	—	3	1	134	9
Freehand Drawing:					
Historic Ornament	—	4	1	135	23
Antique	4	—	1	135	24
Water-Color Drawing	3	3	1	135	25
Pen-and-Ink Rendering	2	2	1	135	26
Architectural History:					
Ancient	6	—	2	134	17
Medieval	—	6	2	134	19
Graphic Statics	—	3	1½	135	31
Building Construction*	1	1	1	135	32
Sanitary Engineering of Buildings:					
Hygiene				174	392
Heating and Ventilation	1	1	1	135	
Plumbing and Drainage				135	
Mechanics of Materials†	3	—	1½	135	34
(Elective for students who have had the Mathematics of the four-year course).					30

* 32 required of first and second year Special students in 1905-06; 46 in 1906-07.

† Students who have taken entrance Algebra and Trigonometry (Mathematics A and B) may attend classes in this subject as auditors.

SECOND YEAR.

Subjects.	Hours a week.		Units of Work.	For description, see	
	1st Term.	2d Term.		page	number
Design: Junior	28	—	6	135	21
Design: First-term Senior ...	—	36	8	135	36
Freehand Drawing: Life	4	4	2	136	40
Water-Color Rendering	3	3	1	136	41
Pen-and-Ink Rendering	2	2	1	136	42
Architectural History:					
Renaissance and Modern.	6	—	2	135	28
Building Construction*	1	1	1	136	46
Professional Practice	1	1	1	136	47
Special Lectures	1	1	1	136	48
Summer Work	—	—	1	137	50

* 32 required of first and second year Special students in 1905-06; 46 in 1906-07.

SCHEDULE OF THE COMBINED COURSES IN ARTS AND
ARCHITECTURE.

(Concluded on opposite page.)

Providing for their completion in six years; the degree of A. B. being conferred at the close of the fourth year, and that of B. S. in Architecture two years later.

	FIRST YEAR. Freshman Year in Arts.		SECOND YEAR. Sophomore Year in Arts.		THIRD YEAR. Junior Year in Arts. Freshman Year in Architecture.	
	Subject. No.	Units.	Subject. No.	Units.		Units.
REQUIRED SUBJECTS.	Math.*. $\left\{ \begin{array}{l} 461 \\ \text{and} \\ 462 \end{array} \right\}$	3	Greek 331	3	Freshman Archi- tectural Sub- jects 10 Plus Courses 17 and 19 4 (See footnote.)	
	Latin . . . $\left\{ \begin{array}{l} 431 \\ 432 \end{array} \right\}$	3	English . $\left\{ \begin{array}{l} 233 \\ 235 \\ 257 \end{array} \right\}$	3		
	English . $\left\{ \begin{array}{l} 231 \\ 232 \\ 234 \end{array} \right\}$	3	Logic and $\left\{ \begin{array}{l} 561 \\ \text{Ethics } 562 \end{array} \right\}$	2		
	History . . 363	2	Physics . . . 601	2		
	Chemistry 91	2				
Required Units	.....	13	.....	10	.....	14
GROUP WORK and FREE ELECTIVES .	Number of Units needed	6	Number of Units needed	9	Third Year** . . . (See opp. page.)	7
Total Units in Year . . . . .	.....	19	.....	18	.....	21

It is advised that the Freehand Drawing of the third and fourth years—2½ units—be transferred to first and second years.

* These three subjects, and Mathematics 462 and 487, are required for the degree in Architecture.

SCHEDULE OF THE COMBINED COURSES IN ARTS AND SCIENCE AND IN ARCHITECTURE.

(Concluded from *opposite* page)

Detailed information concerning the course in Arts and Science is given on pages 88-90, and concerning the course in Architecture on pages 97-100.

FOURTH YEAR. Senior Year in Arts. Sophomore Year in Architecture.		FIFTH YEAR. Junior Year in Architecture.		SIXTH YEAR. Senior Year in Architecture.		
	Units.		Units.		Units.	
Sophomore Ar- chitectural Subjects Minus Courses 17 and 19	6	Junior Architec- tural Subjects Minus Course 28.....	20	Senior Architec- tural Subjects Minus Course 44.....	21	REQUIRED SUBJECTS.
Plus Course 28.. (See footnote.)	2	Plus Course 44..	1			
.....	8	.....	21	.....	21	Required Units
Fourth Year**..	13					GROUP WORK and FREE ELECTIVES.
.....	21	.....	21	.....	21	Total Units in Year.

** In the third and fourth years, 20 units in Group and Free Elective subjects are needed, and are best distributed as here shown.

THE COURSES IN MECHANICAL AND IN ELECTRICAL ENGINEERING.

OFFICERS.

- CHARLES C. HARRISON, LL. D., *Provost.*
 EDGAR F. SMITH, PH. D., Sc. D., LL. D., *Vice-Provost.*
 JOSIAH H. PENNIMAN, PH. D., *Dean of the College.*
 HENRY W. SPANGLER, M. S., *Dynamical Engineering: Professor in Charge.*
 J. VERNE STANFORD, B. S., M. E., *Mechanical Engineering.*
 HAROLD W. BROWN, B. S., *Electrical Engineering.*
 JOHN J. MORRIS, *Shop Work.*
 HUGH W. MCCONNELL, *Iron Working.*
 HORACE P. FRY, B. S. in E. E., *Mechanical Drawing.*
 HENRY E. EHLERS, B. S. in M. E., *Mechanical Engineering.*
 SOMERS F. RANDOLPH, *Iron Working.*
 AUTHOR H. GILL, M. E., *Mechanical Engineering.*
 WILLIAM MELLOR, *Wood Working.*
 HENRY GEBHART, B. S. in E. E., *Mechanical Engineering.*
 WORRALL E. S. TEMPLE, B. S. in E. E., *Electrical Engineering.*
 WILLIAM E. BARROWS, JR., B. S. in E. E., *Electrical Engineering.*
 JOSEPH H. STANNARD, *Mechanical Drawing.*
 WILLIAM J. PAYNE, A. M., B. M. E., *Mechanical Engineering.*
 GEORGE E. CROFOOT, B. S. in M. E., *Mechanical Engineering.*
 MARTIN A. DOYLE, B. M. E., *Mechanical Engineering.*
 CHARLES A. FULLER, B. S. in M. E., *Mechanical Engineering.*
 GEORGE W. KELLER, *Mechanical Drawing.*
 JACOB L. BEAVER, E. E., *Electrical Engineering.*
 NEAFIE E. SUTPHEN, *Wood Working.*

The course in Mechanical Engineering covers a period of four years, and leads to the degree of Bachelor of Science in Mechanical Engineering.

The course in Electrical Engineering covers a period of four years, and leads to the degree of Bachelor of Science in Electrical Engineering.

Graduates of either of these courses who continue in the practice of their profession receive the appropriate technical degree three years after the Bachelor's degree has been conferred, upon presentation of an acceptable thesis. (See p. 77.)

New students are admitted to advanced standing, provided they have pursued similar courses elsewhere.

The tuition fee for the courses in Mechanical and in Electrical Engineering is two hundred dollars (\$200.00) a year.

METHODS AND EQUIPMENT.

The technical instruction in the class-room is carried on chiefly with the aid of text-books, lectures being given only by way of supplementary aid.

A short course in nomenclature renders the student familiar with the names and uses of the various kinds and parts of machinery. The subject of Applied Mechanics is taught under the heads of graphic statics, statics, hydrostatics and hydrodynamics, kinematics and dynamics. The work in Steam Engineering covers the subject of thermodynamics, and the designing of steam engines and boilers. In Hydrodynamics, the object of the course is to teach the theory and practice of building water-wheels and turbines. In Electrodynamics, the general methods of generating, transmitting and using the electric current, together with the details of the apparatus required, are covered in the course.

Students taking Electrical Engineering are given more extended drilling in electrical subjects than those taking Mechanical Engineering; although the object of the instruction is to give to every student such a fundamental knowledge of the various methods of developing, transmitting and utilizing power that he will be able to take up any of the general divisions of Mechanical or Electrical Engineering.

The technical work is carried on in the Engineering Laboratory, and in the north building of the Randal Morgan Laboratory of Physics, there being about sixteen thousand square feet of floor-space devoted exclusively to technical training. The apparatus used for laboratory work has been greatly increased during the past years, and is ample in quantity for the work to be done.

The department library is equipped with the latest works relating to Mechanical and Electrical Engineering, together with the best technical and trade journals.

THE COURSE IN MECHANICAL ENGINEERING.

The requirements for admission to this course are: English A and B; History A, B, C, D (any two of these four); Mathematics A, B, C, D, E and F; Physics; and French A and B, or German A and B. For details, see pp. 62-70.

This course leads to the degree of B. S. in Mechanical Engineering at the end of the Senior year. The technical degree of M. E. is conferred under the provisions stated on page 77.

FRESHMAN CLASS.

Subjects.	Number of hours a week.		For a brief description, see	
	1st Term	2d Term	page	number
Descriptive Geometry	2	2	187	491
Elementary Drawing	3	3	187	492
Steam Engine	—	2	187	495
Shop Work	6	3	188	500
English Composition	1	1	155	231
English Language	2	—	155	232
English Literature	—	2	155	234
French	3	3	159	282
German	3	3	164	322
Trigonometry	4	—	181	483
Algebra	—	4	181	481
Physics	2	2	198	618
Chemistry	4	4	143	91A

SOPHOMORE CLASS.

Mechanical Drawing and Sketching	3	3	187	493
Kinematics	3	—	187	496
Advanced Shop Work	6	6	188	502
English Composition	1	—	155	235
English Literature	—	2	155	233
French	3	3	159	287
German	3	3	165	327
Analytic Geometry	5	—	181	484
Calculus	—	5	182	485
Physics	3	3	198	619
Analytic Mechanics	—	2	198	602
Chemistry (Qualitative)	4	4	143	92

JUNIOR CLASS.

Subjects.	Number of hours a week.		For a brief description, see	
	1st Term.	2d Term.	page	number
Working Drawings, Kinematic Design	3	3	187	494
Statics	2	2	187	497
Hydraulics	—	3	187	498
Graphics	4	—	188	508
Thermodynamics	—	3	188	509
Mechanical Laboratory	3	3	189	511
Electrodynamics	2	2	189	521
Alternating Currents	—	2	190	523
Electrical Laboratory	3	3	190	529
*Calculus	3	—	182	486
Physical Measurements	4	4	198	602
Analytic Mechanics	2	—	198	626
Metallurgy	—	2	162	311

* Given in the Junior year, 1905-06.

SENIOR CLASS.

Hydrodynamics	2	2	188	499
Engine Calculations	2	—	188	504
Engine Design	—	2	188	505
Boiler Calculations	2	—	188	506
Boiler Design	—	2	188	507
Applied Thermodynamics	2	—	188	510
Advanced Mechanical Laboratory	6	3	189	514
† Marine Engines	1	1	189	515
† Naval Architecture	1	1	189	516
Machine Design	3	3	189	517
Shop Visits	3	—	189	518
Specifications	—	1	189	519
Thesis	—	9	189	520
Advanced Electrodynamics	3	—	190	524
Electrical Measurements	2	—	190	525
Electricity and Magnetism	—	3	190	528
Electrical Testing	3	3	190	531
Business Law	1	1	212	205

† Alternate years. 516 omitted in 1905-06.

THE COURSE IN ELECTRICAL ENGINEERING.

ADMISSION, ETC.

The requirements for admission to this course are the same as for the course in Mechanical Engineering. (See page 110.)

This course leads to the degree of B. S. in Electrical Engineering at the end of the Senior year. The technical degree of E. E. is given under the provisions stated on page 77.

FRESHMAN CLASS.

Same as course in Mechanical Engineering. (See page 110.)

SOPHOMORE CLASS.

Same as course in Mechanical Engineering. (See page 110.)

JUNIOR CLASS.

Subjects.	Number of hours a week.		For a brief description, see	
	1st Term	2d Term	page	number
Working Drawings, Kinematic Design	3	3	187	494
Statics	2	2	187	497
Hydraulics	—	3	187	498
Graphics	4	—	188	508
Thermodynamics	—	3	188	509
Mechanical Laboratory	3	3	189	511
Electrodynamics	2	2	189	521
Telegraphy and Telephony	2	2	189	522
Alternating Currents	—	2	190	523
Electrical Laboratory	3	3	190	529
*Calculus	3	—	182	486
Physical Measurements	4	4	198	602
Analytic Mechanics	2	—	198	626

* Given in the Junior year, 1905-06.

SENIOR CLASS.

Subjects.	Number of hours a week.		For a brief description, see	
	1st Term	2d Term	page	number
Hydrodynamics	2	2	188	499
Engine Calculations	2	—	188	504
Boiler Calculations	2	—	188	506
Applied Thermodynamics	2	—	188	510
Advanced Mechanical Laboratory	3	3	189	513
Machine Design	3	3	189	517
Shop Visits	3	—	189	518
Specifications	—	1	189	519
Advanced Electrodynamics	3	—	190	524
Electrical Measurements	2	—	190	525
Dynamo Design	—	2	190	526
Alternating Current Applications	1	1	190	527
Electricity and Magnetism	—	3	190	528
Electrical Testing	6	3	190	532
Thesis	—	9	190	533
Business Law	1	1	212	205

THE COURSE IN CIVIL ENGINEERING.

OFFICERS.

CHARLES C. HARRISON, LL. D., *Provost.*

EDGAR F. SMITH, PH. D., SC. D., LL. D., *Vice-Provost.*

JOSIAH H. PENNIMAN, PH. D., *Dean of the College.*

EDGAR MARBURG, C. E., *Civil Engineering: Professor in Charge.*

WILLIAM EASBY, JR., C. E.,

HOWARD C. IVES, C. E.,

WILLIAM T. LYLE, C. E.,

HERMAN C. BERRY, A. B., B. S. in C. E.,

LOUIS H. LOSSE, B. S. in C. E.,

ALBERT J. HOULE, E. M., B. S.,

HAROLD E. HILTS, B. S. in C. E.,

ALBERT W. KIEFER, B. S. in C. E.,

RAYMOND C. SEMPLE,

} *Civil
Engineering.*

The Course in Civil Engineering extends over a period of four years, and leads to the degree of Bachelor of Science in Civil Engi-

neering. The tuition fee is two hundred dollars (\$200.00) a year. Graduates who continue in the practice of their profession may receive the technical degree of Civil Engineer under the provisions stated on page 77.

The requirements for admission to this course are: English A and B; History A, B, C, D (any two of these four); Mathematics A, B, C, D, E; Physics; and German A and B, or French A and B. For details, see pp. 62-70.

METHODS AND EQUIPMENT.

The course in Civil Engineering is designed to meet, as thoroughly as practicable, the demands of modern engineering practice. The studies are sufficiently advanced and comprehensive to ensure to the graduate that broad technical training essential to the successful prosecution of his subsequent professional work.

Text-books are used in general as a basis of instruction. Supplemental matter is given in the form of notes and lectures. The aim is to keep the class work intimately in touch with the methods of current practice.

The equipment of surveying instruments includes a theodolite reading to single seconds, and a level of precision, in addition to an extensive outfit of transits, levels, sextants, etc. After the students have been made familiar with the adjustment and use of the various instruments, complete surveys are undertaken. During the first term a special farm survey is made, in connection with the regular weekly field practice. During the summer, two entire weeks are devoted to a topographic and hydrographic survey, and a like period to the survey of a railroad line. The data collected in the field serve as a basis for subsequent class-room instruction in the preparation of drawings and estimates.

The courses in the Theory of Stresses are supplemented by courses covering the practical application of the principles involved. Complete designs, accompanied by detail drawings, are made of a plate-girder and a pin-connected truss bridge.

Similarly, the courses in the Theory of Hydraulics, Sanitary Engineering, Railroad Engineering, and Masonry are followed by courses in the general design of a distributing system for a municipal water-supply; the sewerage of a town; the elements of the design of railroad yards, terminals and track details; and the design of masonry structures.

The instruction relating to the materials of construction is supplemented by work in the Civil Engineering Testing Laboratory.

The latter is equipped with one 100,000 pounds and two 30,000 pounds universal testing machines suitable for making tensile, compressive and transverse tests of steel, iron, stone, timber, etc. Cement and mortar tests are made on three machines of different types, having each a capacity of 2,000 pounds. Special apparatus is provided for the testing of paving brick. Instruction is given to all students in making the more common tests of materials. The apparatus is further at the disposal of advanced students in connection with experimental thesis work.

The facilities for testing materials will be largely increased in the equipment of the new engineering building, which will be ready for occupancy before the beginning of the fall term, 1906. Provision is also made in this building for a large and completely equipped hydraulic laboratory.

Tours of inspection to manufacturing plants and to engineering works, completed or in course of construction, are made from time to time during the year, but only in so far as they have a direct bearing on the work of the class-room.

During the summer vacation following the Sophomore and Junior years, each student is required to prepare a memoir descriptive of some engineering work or manufacturing plant, based on his direct personal inquiries and observation.

A thoroughly elaborated thesis on a professional subject is required of every candidate for a degree. These theses must embody either a design or a review of an engineering plant, process or structure; or the results of an experimental investigation. They must be fully illustrated by drawings and models, where needed, and upon graduation the latter must be deposited with the University.

The department library contains an excellent collection of the most recent technical works, supplementing the very complete collection of bound volumes of engineering journals and of the transactions of engineering societies in the Evans Rogers collection in the University Library. The leading technical journals are kept on file.

FRESHMAN CLASS.

Subjects.	Number of hours a week.		For a brief description, see	
	1st Term	2d Term	page	number
Pen Topography	—	2	149	114
Lettering	2	—	148	111
Projections	2	—	149	120
Descriptive Geometry	—	3	149	121
Mechanical Drawing	4	4	148	112
Trigonometry	4	—	181	483
Algebra	—	4	181	481
Physics	2	2	198	618
English Composition	1	1	155	231
English Language	—	2	155	232
English Literature	2	—	155	234
German	3	3	164	322
French	3	3	159	282
Chemistry	4	4	143	91A

SOPHOMORE CLASS.

Colored Topography	—	4 (1st half)	149	115
Mechanical Drawing	2	—	149	113
Stereotomy	2	—	149	122
Surveying, Theory	4	—	149	125
Surveying, Practice	4	4	149	126
		and two entire weeks.		
Railroad Surveying, Theory	—	3	149	127
Railroad Surveying, Practice	—	3 (2d half)	149	128
		and two entire weeks.		
English Composition	—	1	155	235
English Literature	2	—	155	233
German	3	3	165	327
French	3	3	159	287
Analytic Geometry }	5	5	181	484
Calculus }	—	2	198	
Analytic Mechanics	—	2	198	626
Physics	3	4	198	619-2
Chemistry (Qualitative)	4	4	143	92

JUNIOR CLASS.

Subjects.	Number of hours a week.		For a brief description, see	
	1st Term	2d Term	page	number
Mechanics of Materials	4	—	150	140
Graphic Statics	—	1	150	145
Framed Structures	—	5	150	146
Bridge Design	—	2	151	148
Masonry	—	3	151	150
Railroad Construction and Maintenance	2	—	149	129
Railroad Office Work	2	—	149	130
Hydromechanics	—	3	150	135
Water-Supplies	—	2	150	136
Sanitary Engineering	—	2	150	137
Roads and Pavements	1	—	151	155
Map Drawing	2	—	149	116
Calculus	4	—	182	486
Physical Measurements	4	4	198	602
Analytic Mechanics	2	—	198	626
Mineralogy	2	2	162	306
Business Law	1	1	212	205

SENIOR CLASS.

Materials of Construction	2	—	150	141
Testing Laboratory	3	3	150	142
Framed Structures	2	—	150	147
Bridge Design	4	4	151	149
Railroad Economics	1	—	150	131
Railroad Design	2	—	150	132
Geodesy, Theory	—	1	150	133
Geodesy, Practice	—	3	150	134
Hydraulic Works Design	5	—	150	138
Masonry Design	—	2	151	151
Inspection Tours	at hours assigned		151	156
Thesis	—	6	151	159
Steam Engines and Boilers	2	2	190	540
Applied Electricity	2	2	190	539
Astronomy	3	—	138	61
Practical Astronomy and Geodesy	—	4	138	62
Metallurgy	—	2	162	311
Geology	2	—	162	299

THE COURSE IN CHEMISTRY.

OFFICERS.

CHARLES C. HARRISON, LL. D., *Provost.*

EDGAR F. SMITH, PH. D., SC. D., LL. D., *Vice-Provost: Chemistry; and Director of the JOHN HARRISON Laboratory of Chemistry.*

JOSIAH H. PENNIMAN, PH. D., *Dean of the College.*

OWEN L. SHINN, PH. D.,

WALTER T. TAGGART, PH. D.,

DANIEL L. WALLACE,

THOMAS P. McCUTCHEON, B. S.,

JOHN FRAZER, B. S., A. M.,

ROGER C. WELLS, PH. D.,

WILLIAM M. BARR, B. S., M. A.,

DUNLAP J. McADAM, JR., A. M.,

} *Chemistry.*

The Course in Chemistry extends over a period of four years, and leads to the degree of Bachelor of Science in Chemistry. The tuition fee is two hundred dollars (\$200.00) a year.

The requirements for admission to this course are: English A and B; History A, B, C, D (any two of these four); Mathematics A, B, C, D and F; Physics; and either French A and B, or German A and B. For details, see pp. 62-70.

METHODS AND EQUIPMENTS.

The work of the first year consists in the execution of a somewhat extended series of experiments upon the metals and non-metals. The student omits only those of greater difficulty, and such as require a skilled manipulator for their performance. In addition, he attends lectures and recitations, and solves numerous examples based upon the various reactions that he conducts practically. The skill and familiarity with chemical methods acquired in this way will fully prepare him for the work of the second year, which is mainly analytical, though considerable time is allotted to the preparation of a selected series of inorganic salts.

In quantitative analysis he is given every opportunity to familiarize himself with purely scientific methods in gravimetric, electrolytic and volumetric analysis; also with gas analysis, the use of the spectroscope, and the methods of technical analysis applied in the various branches of Chemistry. The instruction in Theoretical Chemistry is given by lectures; that in Applied Chemistry by lectures,

supplemented by frequent visits to chemical plants in Philadelphia and adjacent cities. The lectures and recitations in Organic Chemistry are conducted parallel with practical work upon this subject. The aim is to have the student prepare typical substances from the whole field of Organic Chemistry. The most recent methods of analysis peculiar to this field receive due attention. In the last year the student pursues advanced work in the direction of Pure Inorganic, Organic, or Technical Chemistry. The solution of some problem in one of these branches will constitute the thesis that must be prepared before presenting himself for the final examination.

The JOHN HARRISON Laboratory of Chemistry provides a complete modern equipment for the prosecution of chemical studies, both undergraduate and graduate. A pamphlet containing plans of the Laboratory will be mailed upon application to the Director.

FRESHMAN CLASS.

Subjects.	Number of hours a week.		For a brief description, see	
	1st Term	2d Term	page	number
General Chemistry	9	9	143	91A
Algebra	—	4	181	481
Solid Geometry	3	—	180	461
German	3	3	164	322
French	3	3	159	282
English Composition	1	1	155	231
English Literature	2	—	155	234
English Language	—	2	155	232
Freehand Drawing	2	2	134	2A
Physics	3	3	198	620

SOPHOMORE CLASS.

Qualitative Analysis	18	18	143	92A
English Composition	1	1	155	235
English Literature	2	2	155-7	233-57
German	3	3	164	323
Scientific German	2	2	165	328
French	3	3	159	283
Scientific French	2	2	159	287
Mineralogy	2	2	162	301
Physics	4	4	198	602
Optional—Mathematics, Botany, Physics.				

JUNIOR CLASS.

Subjects.	Number of hours a week.		For a brief description, see	
	1st Term	2d Term	page	number
Quantitative Analysis	13	13	143	93
Organic Chemistry	2	2	143	94A
Assaying	4	4	144	102
Ethics	—	2	104	562
German	2	2	165	329
French	2	2	159	288
English Literature	2	2	155	251-3
Mineralogy, Descriptive	2	2	162	302
Mineralogy, Determinative	2	1	162	303
Metallurgy	—	2	162	311
Optional—Physics, Microscopic Botany. . .				

SENIOR CLASS.

Organic Chemistry	2	2	144	94B
Practical Organic Chemistry	12	12	144	96
*Applied Chemistry	2	2	144	97
Analysis of Foods	10	—	144	98
Theoretical Chemistry	1	1	144	99
Electro-Chemistry	1	1	144	100
Practical Electro-Chemistry	—	10	144	105
Physical Chemistry	1	1	144	106
Economics	2	2	194	161
Geology	2	2	161	203
Business Law	1	1	212	205

* Omitted in 1905-06.

THE COURSE IN CHEMICAL ENGINEERING.

OFFICERS.

CHARLES C. HARRISON, LL. D., *Provost.*

EDGAR F. SMITH, PH. D., SC. D., LL. D., *Vice-Provost: Chemistry; and Director of the JOHN HARRISON Laboratory of Chemistry.*

JOSIAH H. PENNIMAN, PH. D., *Dean of the College.*

HENRY W. SPANGLER, M. S., *Dynamical Engineering.*

J. VERNE STANFORD, B. S., M. E., *Mechanical Engineering.*

- HAROLD W. BROWN, B. S., *Electrical Engineering.*
 OWEN L. SHINN, PH. D.,
 WALTER T. TAGGART, PH. D.,
 DANIEL L. WALLACE,
 JOHN FRAZER, B. S., A. M.,
 THOMAS P. McCUTCHEON, B. S.,
 WILLIAM M. BARR, B. S., A. M.,
 DUNLAP J. McADAM, JR., A. M.,
 JOHN J. MORRIS, *Wood Working.*
 HUGH W. McCONNELL, *Iron Working.*
 HORACE P. FRY, B. S. in E. E., *Mechanical Drawing.*
 HENRY E. EHLERS, B. S. in M. E., *Mechanical Engineering.*
 WILBUR F. SMITH, *Mechanical Drawing.*
 AUTHOR H. GILL, M. E., *Mechanical Engineering.*
 SOMERS F. RANDOLPH, *Iron Working.*
 WILLIAM MELLOR, *Wood Working.*
 HENRY GEBHART, B. S. in E. E., *Electrical Engineering.*
 WORRALL E. S. TEMPLE, B. S. in E. E., *Electrical Engineering.*
 JULIUS G. KIRBY, B. S. in M. E., *Mechanical Engineering.*
 WILLIAM E. BARROWS, JR., B. S. in E. E., *Electrical Engineering.*

} *Chemistry.*

The Course in Chemical Engineering covers a period of four years, and leads to the degree of Bachelor of Science in Chemical Engineering. The tuition fee is two hundred dollars (\$200.00) a year. Graduates who continue in the practice of their profession may receive the technical degree of Chemical Engineer under the provisions stated on page 77.

The chemical studies introduced into this course will not only give the student a thorough acquaintance with the fundamental principles of chemical science, but will also afford him a complete drill in analysis, and in the preparation of inorganic and organic products. Instruction in technical analysis and applied chemistry is reserved until the last year. Frequent excursions are made to adjacent plants for the purpose of studying practical processes in operation, and examining in detail the mechanical appliances in use.

The requirements for admission to this course are: English A and B; History A, B, C, D (any two of these four); Mathematics A, B, C, D, E; Physics; and German A and B, or French A and B. For details, see pp. 62-70.

FRESHMAN CLASS.

Subjects.	Number of hours a week.		For a brief description, see	
	1st Term	2d Term	page	number
General Chemistry	9	9	143	91A
Drawing	3	3	187	492
Steam Engine	—	2	187	495
Shop Work	3	3	188	501
English Composition	1	1	155	231
English Language	2	—	155	232
English Literature	—	2	155	234
French	3	3	159	282
German	3	3	164	322
Trigonometry	4	—	181	483
Algebra	—	4	181	481
Physics	2	2	198	622-3

SOPHOMORE CLASS.

Analytical Chemistry (Qualitative)	10	10	143	92A
Mechanical Drawing and Sketching	3	3	187	493
Kinematics	3	—	187	496
Shop Work	3	3	188	503
English Composition	1	—	155	235
English Literature	—	2	155	233
French	3	3	159	288
German	3	3	165	327
Analytic Geometry }	5	—	181	} 484
Calculus }	—	5	182	
Physics	3	3	198	624-5
Analytic Mechanics	—	2	198	626

JUNIOR CLASS,

Subjects.	Number of hours a week.		For a brief description, see	
	1st Term	2d Term	page	number
Analytical Chemistry (Quantitative)	7	7	143	93
Assaying	4	4	144	102
Statics	2	2	187	497
Hydrostatics	—	3	187	498
Electrodynamics	2	2	189	521
Mechanical Laboratory	3	3	189	511
Electrical Laboratory	3	3	190	529
Graphic Statics	4	—	188	508
Thermodynamics	—	3	188	509
Physical Measurements	4	4	198	602
Metallurgy	—	2	162	311
Calculus	4	—	182	486
Analytic Mechanics	2	—	198	626

SENIOR CLASS.

Organic Chemistry	2	2	144	94B
Practical Organic Chemistry	12	12	144	96
*Applied Chemistry	2	2	144	97
Electro-Chemistry	1	1	144	100
Steam Engine	2	—	188	504
Steam Boilers	2	—	188	506
Thermodynamics	2	—	188	510
Designing	3	3	189	517
Electrodynamics	3	—	190	524
Electricity and Magnetism	—	3	190	528
Electrical Laboratory	3	3	190	531
Business Law	1	1	212	205

* Omitted in 1905-06.

III.—THE WHARTON SCHOOL OF FINANCE AND COMMERCE.

The Wharton School of Finance and Commerce was founded by JOSEPH WHARTON, Esq., of Philadelphia, in 1881, to provide instruction and special training in Finance and Commerce. The founder expressed the desire that the School should offer facilities for obtaining: (1) "An adequate education in the principles underlying successful civil government"; (2) "a training suitable for those who intend to engage in business or to undertake the management of property." The course has been constructed in accordance with these ideals.

Recent years have witnessed the growth of a great mass of systematized knowledge concerning business facts, methods and principles. At the same time the increasing tendency toward narrow specialization in active life has made it more difficult for a young man in a subordinate position to obtain a broad, general knowledge of business principles. It is therefore essential to secure adequate training in the fundamentals of business science before entering into active practice.

In addition to the training for industry, commerce and finance, the courses in the Wharton School prepare young men for the study of the law, for entrance into the public service, and for teaching.

The work of the first two years is mainly prescribed; that of the last two is elective, and is specialized along the lines selected by each student for his chosen career. In all courses, emphasis is laid upon original research work. The degree of Bachelor of Science in Economics (B. S. in Econ.) is conferred upon satisfactory completion of 60 units of work. A Special Two-Year Course in Business Practice and Banking, leading to a certificate of proficiency, is also given in the Wharton School.

The Evening School of Accounts and Finance of the Wharton School offers courses in Accounting, Money and Credit, Commercial Law and Industrial Management, to those who are occupied during the regular college hours. For details and description, see later pages.

All subjects taken by students in the Wharton School of Finance and Commerce are grouped under three heads, as follows:

I. FRESHMAN REQUIRED WORK.

No.	Subjects.	Hours a week.	Page where description is found.
161	Economics	2	208
171	Physical Geography*.....	2	208
191	Race Development	2	210
201	Accounting.....	3	211
631	Government of the United States	2	215
231	} English.....	3	155
232			
234			
91	Chemistry.....	2	143
	or		
217	Money, Credit and Foreign Exchange.....	2	214

2. SOPHOMORE REQUIRED WORK.

162	Advanced Economics	2	208
233	Nineteenth Century Novelists.....	1	155
257	Modern Essayists	1	157
235	Composition	1	155
632	Citizenship—Federal and State.....	2	215
	In addition to these, six units in Foreign Language and two units in History must be taken before graduation.		

3. ELECTIVES.†

163	English Civilization	2	208
172	Political Geography	F 2	209
181	Commercial and Economic Geography ..	S 2	209
182	American Commerce and Commercial Re- lations.....	S 2	209
183	Commercial Policy	S 2	209
184	Transportation	2	209
185	Railway Rates and Traffic.....	2	209
186	Organization of International Commerce	S 2	210
192	Social Reform	2	210
193	Charities and Correction	S 2	210

* 172 may be taken instead of 171.

† Subjects marked "F" may be elected by Freshmen or other students. Subjects marked "S" may be taken by Sophomores, Juniors or Seniors. Subjects not marked either "F" or "S" may only be taken by Juniors and Seniors. No subject may be taken by a student who has not had the necessary preparation.

3. ELECTIVES—Continued.

No.	Subjects.	Hours a week.	Page where description is found.
194	Sociology	2	211
195	American Social Problems..... S	2	211
196	Criminology	2	211
197	Social and Vital Statistics	2	211
198	Sociological Field Work	2	211
199*	Tariff History of the United States..... S	1	211
202	Industrial Processes..... F	2	212
203	Industrial Management	2	212
204*	Marketing of Products.....	2	212
205	Business Law..... F	2	212
206	Advanced Accounting	3	212
207*	Cost Accounts	4	212
210	Life Insurance..... S	2	213
211	Fire, Marine and Fidelity Insurance S	2	213
212*	The Law and Practice of Insurance	2	213
214	Investments	3	213
216	Practical Banking.....	3	213
217	Money, Credit and Foreign Exchange .. F	2	214
218	Public Finance	F	214
219	Corporation Finance.....	2	214
225	Real Estate	2	214
634	City Government and City Problems ... S	2	215
635	Public Administration	S	215
636	Current Political Problems	S	215
637	Colonies and Dependencies	2	216
638	International Law.....	2	216
639*	Foreign Policy of the United States S	2	216
641	The Police Power	2	216
642	Blackstone's Commentaries..... S	2	217
651	Government Regulation of Industry and Commerce	S	217
652	Labor Legislation	S	217
653*	Comparative Governments..... S	2	217

* Omitted in 1905-06.

Sixty units of work are required for the degree of Bachelor of Science in Economics. Of these sixty, eight units of elective work may be taken from the courses offered primarily to the students in Arts and Science. Gymnasium work is not counted as part of the sixty units which are necessary for the degree.

TWO-YEAR SPECIAL COURSE IN BUSINESS PRACTICE AND BANKING.

The Two-Year Course in Business Practice and Banking is designed to meet the needs of those who are prevented, by lack of time, from taking the regular course for a degree. All the subjects in the two-year course are required. The satisfactory completion of the course entitles the student to a certificate of proficiency.

FIRST YEAR.

No.	Subjects.	Hours & Week.	Page where description is found.
201	Accounting.....	3	211
171	Physical Geography.....	2	208
217	Money, Credit and Foreign Exchange.....	2	214
161	Economics.....	2	208
218	Public Finance.....	2	214
631	Government of the United States.....	2	215
231	Composition.....	1	155
232	English Language.....	1	155
234	History of English Literature.....	1	155

SECOND YEAR.

219	Corporation Finance.....	3	214
205	Business Law.....	2	212
182	American Commerce.....	2	209
202	American Industry.....	2	212
203	Industrial Management.....	2	212
233	Nineteenth Century Novelists.....	2	155
235	Composition.....	1	155

SUBJECTS OF INSTRUCTION

OFFERED BY

THE COLLEGE FACULTY.

ANTHROPOLOGY.	HYGIENE.
ARCHITECTURE.	ITALIAN.
ASTRONOMY.	LATIN.
BOTANY.	LINGUISTICS.
CHEMISTRY.	LOGIC (<i>see</i> PHILOSOPHY).
CIVIL ENGINEERING.	MATHEMATICS.
ECONOMICS (<i>see also</i> FINANCE AND COMMERCE).	MECHANICAL ENGINEERING.
ELECTRICAL ENGINEERING (<i>see</i> MECH. ENG.).	METALLURGY (<i>see</i> GEOLOGY).
ENGLISH.	MINERALOGY (<i>see</i> GEOLOGY).
ETHICS (<i>see</i> PHILOSOPHY).	MUSIC.
FINANCE AND COMMERCE (<i>see</i> pp. 204-217).	PEDAGOGY (<i>see</i> PHILOSOPHY).
FINE ARTS.	PHILOSOPHY, PSYCHOLOGY AND PEDAGOGY.
FRENCH.	PHYSICS.
GEOLOGY, METALLURGY AND MINERALOGY.	POLITICAL SCIENCE (<i>see also</i> FINANCE AND COMMERCE).
GERMAN.	PSYCHOLOGY (<i>see</i> PHILOSOPHY).
GREEK.	SANSKRIT.
HEBREW.	SOCIOLOGY (<i>see also</i> FINANCE AND COMMERCE).
HISTORY.	SPANISH.
	ZOOLOGY.

N. B. The Roman numerals I and II denote that a subject is given in the first or second term only.
 Small Roman numerals in parenthesis (i), (ii), etc., denote the hours for different sections of the class in the same subject.
 Subjects marked W are exclusively for students in the Course in Finance and Commerce.
 Subjects marked B are exclusively for students in the Course in Biology.

Anthropology
Astronomy
Botany
Chemistry
Economics
English
French
{ Geology { Mineralogy
German
Greek
History
Latin
Mathematics
Philosophy (Psychology) (Pedagogy)
Physics
Political Science
Zoology
Other subj

ANTHROPOLOGY.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
701	<i>General Anthropology.</i> Gordon.	2	2	2	
702	<i>American Archæology and Ethnology.</i> Gordon.	—	2	1	701
703	<i>Ethnology of Europe.</i> Gordon.	2	—	1	701.

DESCRIPTION.

701. *General Anthropology.*—The principles of somatology; man's position in the animal kingdom; races and varieties of man. Prehistoric archæology; the evidence of man's antiquity; the time and place of his origin; his distribution in geological time and his movements down to the historical period; physical characteristics and types of culture in the prehistoric period. Ethnology: social life of primitive man; origin and development of the utilitarian and esthetic arts; theories of language. Illustrated by collections in the University Museum and by lantern slides.
702. *American Archæology and Ethnology.*—The remains of prehistoric man in America and their relation to the historic peoples of this continent; the characteristics of aboriginal American culture, and its bearing on the question of origin. The linguistic stocks and their affiliations; mode of life, domestic arts, social organizations and religious beliefs of the Indian tribes. Illustrated by collections in the University Museum and by lantern slides.
703. *European Ethnology.*—The races of Europe; the paleolithic and neolithic cultures; the physical characters, racial relationships and early migrations of the several elements forming the European population. The social and industrial development of prehistoric Europe. The ethnic affinities of the modern population.

ARCHITECTURE.

No.	Subjects.	Hours a week.		Units of Work.	Remarks.	
		1st Term.	2d Term.			
1	<i>Architectural Drawing.</i> Whitney.	Twenty-four hours each week in these subjects for each term, comprising time required for lectures, preparation, recitations and drawing.		1		
2	<i>Freehand Drawing.</i> Dawson.			1		
2A	(See following 60E)					
3	<i>Elements of Architecture.</i> Laird. Whitney. Elliott.			6	1st term, 1½ units; 2d term, 4½ units. (Special students, 5 units.)	
6	<i>Descriptive Geometry.</i> Whitney.			2		
7	<i>Shades and Shadows</i> Whitney.			1		
9	<i>Perspective</i> Whitney.			1		
11	<i>Order Problems</i> Elliott.			14	—	2½ (Special students, 2 units.)
13	<i>Design</i> Elliott. Laird.			—	14	2½
15	<i>Freehand Drawing.</i> Dawson.			4	4	2
17	<i>Architectural History; Ancient.</i> Osborne.	6	—	2		
19	<i>Architectural History; Medieval.</i> Osborne.	—	6	2		
20	<i>Summer Work</i> Laird.	—	—	1		

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
21	<i>Design</i> Cret. Laird.	20	28	11	1st term, 4½ units; 2d term, 6½ units. (Special students, 6 units.)
23	<i>Freehand Drawing; Historic Orna- ment.</i> Dawson.	—	4	1	
24	<i>Freehand Drawing; Antique.</i> Dawson.	4	—	1	
25	<i>Water-Color Draw- ing.</i> Dawson.	3	3	1	
26	<i>Pen-and-Ink Ren- dering.</i> Hays.	2	2	1	
28	<i>Architectural His- tory; Renaissance and Modern.</i> Osborne.	6	—	2	
30	<i>Mechanics of Ma- terials.</i> Nolan.	3	—	1½	Math. 462, 480 and 487.
31	<i>Graphic Statics</i> Nolan.	—	3	1½	
32	<i>Building Construc- tion.</i> Nolan.	1	1	1	
	<i>Sanitary Engineer- ing of Buildings</i> (392, 33, 34).	1	1	1	For description of Hygiene (392), see p. 174.
392	<i>Hygiene</i> Bergey.	—	—	—	Ten lectures.
33	<i>Heating and Venti- lation.</i> Nolan.	—	—	—	Ten lectures, follow- ing 392.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
34	<i>Plumbing and Drainage.</i> Nolan.	—	—	—	Ten lectures, following 33.
35	<i>Summer Work</i> Laird.	—	—	1	
36	<i>Design</i> Cret.	30	30	10	1st term, 7 units; 2d term (minor part), 3 units. (Special students, 8 units.)
38	<i>Thesis Design</i> Cret.	—	30	4	Major part of 2d term.
39	<i>Historic Ornament (Design).</i> Everett.	9	9	4	Omitted in 1905-06.
40	<i>Freehand Drawing (Life).</i> Dawson.	4	4	2	
41	<i>Water-Color Rendering.</i> Elliott.	3	3	1	
42	<i>Pen-and-Ink Rendering.</i> Hays.	2	2	1	
44	<i>History of Painting.</i> Everett.	1	1	1	Omitted in 1905-06.
46	<i>Building Construction.</i> Nolan.	1	1	1	
47	<i>Professional Practice.</i> Laird.	1	1	1	
48	<i>Special Lectures</i> ...	1	1	1	See description for topics and speakers in 1904-05.
50	<i>Summer Work</i> Laird.	—	—	1	

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
51	<i>Design</i> Cret.	36	36	15	
53	<i>Freehand Drawing (Life)</i> . Dawson.	4	4	2	
55	<i>Water-Color Rendering</i> . Elliott.	5	5	2	
57	<i>History of Architecture: Research and Conference</i> . Osborne.	2	2	2	
59	<i>Fine Arts: History or Theory. Research and Conference</i> . Elliott.	1	1	1	
60A	<i>Architectural Engineering: Design</i> . Nolan.	26	—	5	
60B	<i>Architectural Engineering: Thesis</i> . Nolan.	—	30	6	
60C	<i>Architectural Engineering: Theory</i> . Nolan.	9	9	4	
60D	<i>Masonry and Foundations</i> . Nolan.	3	—	1	
60E	<i>Specifications, Estimates and Contracts</i> . Nolan.	—	3	1	These subjects, with those numbered 141 and 142, constitute the Option in Architectural Engineering.
2A	<i>Freehand Drawing</i> . Dawson.	2	2	1	For Freshmen in Chemistry.

DESCRIPTION.

1. *Architectural Drawing*.—Exercises in instrumental drawing, brush work and lettering, with particular application to architectural subjects.
2. *Freehand Drawing*, from simple and common forms, in pencil and charcoal.
- 2A. *Drawing in Pencil from the Object*.—Taken by Freshmen in Chemistry.
3. *The Elements of Architecture*.—Lectures on the nature of architecture, the Order as a type of architectural form, the Classic Orders, the Five Orders, their affiliated forms and derivatives and other elements of Renaissance design. Exercises in drawing and rendering the Orders, and problems in elementary design involving the use of Orders and other elements. Memory exercises and written recitations.
6. *Descriptive Geometry*.—Orthographic projections; revolutions; single and double curved surfaces of revolution; intersections of lines, planes and solids; tangents and developments. Lectures and exercises. (The subjects of shades and shadows and perspective are separately treated, as follows:)
7. *Shades and Shadows*.—Lectures upon principles, accompanied by exercises, with especial reference to architectural practise.
9. *Perspective*.—Lectures upon principles, accompanied by exercises, with especial reference to architectural practise.
11. *Order Problems*.—I, Exercises in composition and rendering. II, Sketch problems in the elementary design of the small ensemble.
13. *Design*.—Problems in the elementary design of the small ensemble involving the application of the principles of architectural drawing; problems in the design of architectural motifs, two to four weeks each. Exercises in memory and imagination.
15. *Freehand Drawing*.—Drawing from the cast; elementary architectural ornament and parts of the human figure; in pencil and charcoal.
17. *History of Ancient Architecture*.—Comprising the study of the monuments of architecture from prehistoric times to the time of the Emperor Diocletian. Lectures, two hours; research, four hours.

19. *History of Medieval Architecture*.—From the fall of the Roman Empire to the Fifteenth Century. Lectures two hours; research, four hours.
20. 35 and 50. *Summer Work*, consisting of the preparation of a certain number of drawings or sketches; or of work for a definite period in the employ of a practicing architect, as specified in a program.
21. *Design*.—Problems in (a) the design of component motifs of architectural composition, (b) the design of the ensemble; three to four weeks each. One-day sketch problems in the plan of the larger ensemble. Exercises in the analysis of architectural form.
23. *Freehand Drawing*.—From motifs in historic ornament, involving composition.
24. *Freehand Drawing from the Antique*.
25. *Water-Color Drawing*.—Drawing in water color from still life and from nature.
26. *Pen-and-Ink Rendering*.—Theory of the composition of line drawings and rendering of architectural drawings in pen and ink.
28. *History of Renaissance and Modern Architecture*.—From Brunelleschi to the close of the Nineteenth Century. Lectures, two hours; research, four hours.
30. *Mechanics of Materials*.—Strength of the materials of construction; application of the principles of mechanics to girders, columns, trusses, arches and to structural form in general.
31. *Graphic Statics*.—The application of graphic methods to the analysis of stresses in trusses, piers, arches and abutments.
32. *Building Construction*.—Nature and properties of woods used in buildings. Carpentry, heavy framing and mill construction. Lectures and drawings. (32 and 46 form a two-year course, 32 being given in 1905-06).
- 33 and 34. *Sanitary Engineering of Buildings*—33, Heating and Ventilation; 34, Plumbing and Drainage. Preceded by Hygiene, 392. Scientific principles of Sanitary Engineering and their application in building practise.
35. See 20.
36. *Design*.—Problems in the composition of the ensemble, four to five weeks each; in plan composition, one week each;

- and in the composition of interiors, one week each. One-day sketch problems in decorative architecture.
38. *Thesis Design*.—An extended problem in the composition of the ensemble with descriptive memoir, upon a subject chosen by the student with the approval of the Professor of Architecture.
 39. *Design in Historic Ornament*.—Problems in the composition of ornament. Elective as a substitute for nine hours in courses 36 and 38 and, in the case of Special Students, course 21. Omitted in 1905-06.
 40. *Freehand Drawing from the Life*.
 41. *Water-Color Rendering*.—Studies in rendering: first, from archæological fragments; second, from architectural drawings.
 42. *Pen-and-Ink Rendering*.—Advanced studies in the rendering of architectural drawings in pen and ink.
 44. *History of Painting*.—A course of lectures upon the history of painting. (Taken by Juniors and Seniors in 1904-05, and omitted in 1905-06. To be resumed for Seniors in 1906-07.)
 46. *Building Construction*.—Masonry and foundations: iron and steel work. Lectures and drawing. (46 and 32 form a two-year course, 32 being given in 1905-06.)
 47. *Professional Practice*.—I, Aspects and problems of practice; professional ethics, competitions, preliminary cost computations, utilities in the planning of schools, libraries, courthouses, etc., etc. Lectures and research. II, Current practice as reflected in technical periodicals; summaries, reports and discussions.
 48. *Special Lectures on Architectural and Allied Subjects* (as given in 1904-05.)

Design and History.—Ten lectures, viz:

The history and technique of Heraldry and of Tapestry, four lectures, Charles E. Dana, C. E., Sometime Professor of Art, University of Pennsylvania; President Antiquarian and Numismatic Society.

Recent Municipal Improvements in the United States, one lecture, Frank Miles Day, B. S., Vice-President American Institute of Architects.

Qualitative Engineering, one lecture, Henry Hornbostel, Ph. B. in Arch., A. D. G. F., Architect East River Bridges, New York.

- The Domestic Life of the Greeks, two lectures, William A. Lamberton, A. M., Litt D., University of Pennsylvania.
- The Domestic Life of the Romans, two lectures, Walton B. McDaniel, A. M., Ph. D., University of Pennsylvania.
- Construction and Practice.*—Seventeen lectures, viz:
- Some Legal Questions Confronting the Architect, one lecture, Henry Wolf Biklé, A. M., LL. B., University of Pennsylvania.
- The Weathering of Building Stones, two lectures, Amos P. Brown, Ph. D., University of Pennsylvania.
- The Execution of the Design, two lectures, John McArthur Harris, A. M., Architect.
- Reinforced Concrete, four lectures, Mr. Emile G. Perrot, Architect.
- Electrical Installation, four lectures, Clayton W. Pike, S. B., Electrical Engineer.
- Ventilation, four lectures, Wm. G. Snow, S. B., Steam Heating Engineer.

50. See 20.

51. *Design.*—Problems in the composition of the large ensemble, permitting special lines of study.

53. *Freehand Drawing from the Life.*

55. *Water-Color Rendering.*—Advanced studies in the rendering of architectural perspectives.

57. *Historical Research.*—Research, conference and memoir in special fields of architectural history.

59. *The Fine Arts.*—Special lines of study in the theory or history of the Fine Arts. Research and conference.

The following subjects, together with those numbered 141 and 142, constitute the Option in Architectural Engineering.

60A. *Architectural Engineering: Design.*—Practical problems of four to five weeks each in architectural constructive design. Buildings designed and analyzed as structural units and the details in each problem carefully worked out.

60B. *Architectural Engineering: Thesis.*—An extended problem in architectural constructive design, consisting of a subject chosen by the student with the approval of the Professor of Architecture. Descriptive memoir and specification accompanying the design.

60C. *Architectural Engineering: Theory.*—Typical skeleton struc-

tures. Plans of column, girder, and beam framing. Details of framed metal connections. Plate and box girders. Wind-bracing Truss design and details.

60D. *Specifications, Estimates and Contracts*.—General and special clauses of specifications for the different kinds of material and labor. Forms of contracts and their relations to building operations. Examination and comparison of typical and model forms. Practice in writing. Methods of estimating cost of work.

60E. *Advanced Masonry and Foundations*.—Consideration of special problems relating to foundations for heavy buildings. Pile foundations. Grillage. Caissons. Cantilever foundations. Foundations under water. Walls, arches, domes.

ASTRONOMY

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
61	<i>Astronomy</i> C. L. Doolittle.	3	—	1½	Mathematics 461 and 462.
62	<i>Practical Astronomy and Geodesy</i> . C. L. Doolittle.	—	4	2	61, and Mathematics 465 and 467.
63	<i>Practical Astronomy</i> E. Doolittle.	3	3	3	62.
64	<i>Theoretical Astronomy</i> . E. Doolittle.	3	3	3	61, and Mathematics 465 and 467. A reading knowledge of French and German is desirable.

DESCRIPTION.

61. *Astronomy*.—Young's *Manual of Astronomy*.

62. *Practical Astronomy and Geodesy*.—Doolittle's *Practical Astronomy*. Lectures. Use of sextant, transit and zenith telescope in determination of time, latitude and azimuth. Method of Least Squares, with applications.

63. *Practical Astronomy*.—Continuation of 62
 64. *Theoretical Astronomy*.—Orbit determination based upon
 Watson's *Theoretical Astronomy* and Oppolzer's *Lehr-
 buch zur Bahnbestimmung*, Vol. I.

BOTANY.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
71	<i>Structure and Functions of Plants.</i> Macfarlane. Krautter.	6	6	4	
72	<i>Systematic Study of Plants.</i> Harshberger.	6	6	4	71.
73	<i>Comparative Histology of Plants.</i> Macfarlane. Krautter.	3	3	2	71. Omitted in 1905-06.
74	<i>Comparative Taxonomy of Plants.</i> Harshberger.	3	3	2	71 and 72. Omitted in 1905-06.
75	<i>Irritability and Nutrition.</i> Macfarlane. Krautter.	6	6	4	71.
76	<i>Morphology of the Gymnospermia.</i> Macfarlane.	6	6	4	71 and 72
77	<i>Morphology of the Fungi.</i> Harshberger.	3	3	2	71 and 72. Omitted in 1905-06
78	<i>Morphology of the Algae.</i> Harshberger.	3	3	2	71 and 72.
79	<i>Morphology of the Angiospermia.</i> Macfarlane.	6	6	4	71. Omitted in 1905-06.

No.	Subjects	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
80	<i>Morphology of the Bryo-Pteridophyta.</i>	3	3	2	71 and 72. Omitted in 1905-06.
81	<i>Ecology and Distribution.</i> Harshberger.	3	3	2	71.
82	<i>Plant Life and Plant Economics.</i> Macfarlane. Harshberger. Krautter.	2	2	2	

DESCRIPTION.

71. *Structure and Functions of Plants.*—Lectures and laboratory work. Study of two leading types of higher plants, cell structure and history, tissue formation, structure and functions of root, stem and leaf organs of the Spermatophyta. A large part of the work in plant physiology is performed in the greenhouses or in the Physiological Laboratory.
72. *Systematic Study of Plants.*—Lectures and laboratory work. Special types are studied, beginning with the simplest and advancing to the most complex. In the lectures the leading lines of morphological evolution from type to type are traced. During the second term a comparative study is made of twenty-five orders of flowering plants, and species belonging to these are identified by the aid of manuals.
73. *Comparative Histology of Plants.*—Lectures and laboratory work. Cell units, tissue differentiation, special histology of the Pteridophyta and Spermatophyta, the relation of tissue formation to physiological and environmental conditions, are considered.
74. *Comparative Taxonomy of Plants.*—Lectures and laboratory work. The principal native and exotic orders of plants are studied from living and alcoholic material. Con-

stant use is made of specimens from the garden, and groups of plants systematically arranged there are examined.

75. *Irritability and Nutrition*.—Lectures and laboratory work. Advanced work on the phenomena of irritability and irritable contractility of plants; their reactions to changed environmental surroundings; the sources of food, its utilization, transformations and ultimate assimilation or decomposition.
76. *Comparative Morphology of the Gymnospermia*.—Two hours lecture, four hours laboratory and seminary work.
77. *Comparative Morphology and Taxonomy of the Myxomycetes and Fungi*.—One hour lecture, four hours laboratory and seminary work.

Study of the structure and development of the fungi, including culture methods with study of the diagnostic characters of the principal families.

78. *Comparative Morphology and Taxonomy of the Algae*.—One hour lecture, two hours laboratory work.

The principal groups of fresh-water and marine Algae, with special reference to their microscopic structure, evolution and relationship.

79. *Comparative Morphology of the Angiospermia*.—Two hours lecture, four hours laboratory and seminary work.

80. *Comparative Morphology of the Bryophyta and Pteridophyta*.

81. *Comparative Plant Ecology and Distribution*.—Lecture one hour; laboratory work two hours.

The adaptive structure of plants and the methods of ecology will be studied, as well as plant formations, plant associations, and the philosophy of plant distribution. The course necessitates constant use of the microscope, alcoholic specimens, material afforded by the herbarium, greenhouses, and garden, and plant formations in the vicinity of the city.

82. *Plant Life and Plant Economics*.—Two hours lecture work, and lecture-laboratory study.

The life history of important economic plants, their geographical distribution, mode of culture, and their products.

CHEMISTRY.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
91	<i>General Inorganic Chemistry.</i> E. F. Smith. Shinn. Frazer.	4	4	2	This subject must precede all other work in Chemistry.
91A	<i>General Inorganic Chemistry.</i>	9	9	6	Prescribed for Freshmen in Chemistry and in Chemical Engineering.
92	<i>Analytical Chemistry.</i> E. F. Smith. McCutcheon.	5	5	3	91. Recitation, 1 hr. Laboratory, 4 hrs.
92A	<i>Analytical Chemistry.</i>	10-18	10-18	5½-10	91A. Prescribed for Sophomores in Chemistry and in Chemical Engineering.
93	<i>Analytical Chemistry.</i> E. F. Smith Wallace.	5	5	3	92. Recitation, 1 hr. Laboratory, 4 hrs.
94A	<i>Organic Chemistry.</i> Taggart.	2	2	2	93.
94B	<i>Organic Chemistry.</i> Taggart.	2	2	2	94A. Given in conjunction with 98.
95	<i>Organic Chemistry.</i> (Minor Course.) Taggart.	5	5	3	91. Recitation, 1 hr. Laboratory, 4 hrs.
96	<i>Practical Organic Chemistry.</i> Taggart.	6	6	3	93. Must be accompanied by 94A or 95.
97	<i>Applied Chemistry.</i> Shinn.	2	2	2	93, 95. Omitted in 1905-06.
98	<i>Analysis of Foods, etc.</i> Taggart.	6	6	3	93.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
99	<i>Theoretical Chemistry.</i> E. F. Smith.	1	1	1	91, 92, 93, 94A.
100	<i>Electro-Chemistry ..</i> E. F. Smith.	—	1	1	93.
101	<i>Seminary.....</i> E. F. Smith.	—	1	1	•
102	<i>Assaying.....</i> Wallace.	4	4	2	91.
103	<i>Gas Analysis</i> (Minor Course.) McCutcheon.	—	4	1	91.
104	<i>Organic Chemistry.</i> E. F. Smith.	1	1	1	91.
105	<i>Practical Electro-Chemistry.</i> E. F. Smith.	1	1	1	100.
106	<i>Physical Chemistry</i> Wells.	1	1	1	93.

DESCRIPTION.

91. *General Inorganic Chemistry.*—Recitation, conversational lectures and laboratory work. Experiments illustrating the principles of Chemistry.
- 91A. Same as 91. Given in greater detail. Intended for students pursuing Chemistry as a major subject.
92. *Analytical Chemistry.*—Qualitative analysis. Laboratory practice with recitations. Preparation of a series of inorganic salts.
- 92A. This course is to 92 what 91A is to 91.
93. *Analytical Chemistry.*—Quantitative analysis. Gravimetric and volumetric analysis, with drill in mineral analysis. Inorganic preparations continued.
- 94A. *Organic Chemistry (Elementary Course).*—Illustrated lecture

- course, preliminary to 94B. It is intended to give the student a general knowledge of the carbon compounds. Special attention is paid to practical application.
- 94B. *Organic Chemistry* (Advanced).—Can only be taken by those who have completed 94A.
95. *Organic Chemistry* (Minor Course).—Lectures and laboratory work.
96. *Practical Organic Chemistry*.—Preparation of a series of typical organic compounds, together with ultimate analysis.
97. *Applied Chemistry*.—Lectures upon subjects pertaining both to Inorganic and Organic Chemistry, supplemented by regular excursions to chemical plants.
98. *Analysis of Foods and Technical Products*.—Analysis of milk, butter, bread, honey, coffee, chocolate, sugar (with the use of the polariscope), pepper, water, soaps, cast-iron, steel, lubricating oils, paints, tanning materials, etc., etc. Lectures and recitations, with practical exercises.
99. *Theoretical Chemistry*.—Lectures and recitations.
100. *Electro-Chemistry*.—Lectures, setting forth the theoretical side of the subject, with applications of the electric current to analysis, and to the preparation of chemical products.
101. *Seminary*.—The hour devoted to this feature of the instruction is given to the reading of current chemical literature, to the discussion of papers on special topics in Chemistry, or to lectures delivered by advanced students.
102. *Assaying*.—Gold, silver, lead, iron and coal assays. Laboratory.
103. *Gas Analysis* (Minor Course).—Determination of the constituents of furnace and illuminating gas. Practice in the use of the Hempel and the Orsat gas apparatus.
104. *Organic Chemistry*.—Lectures.
105. *Practical Electro-Chemistry*.—Laboratory.
106. *Physical Chemistry*.—Lectures, one hour a week, dealing with relations between theories and facts, as well as with the properties, and phase and energy relations of matter. Laboratory, three hours a week, measurement of densities of gases and liquids, boiling points, freezing points, practice with spectrometer, polarimeter, refractometer and various physico-chemical apparatus.

CIVIL ENGINEERING.

No.	Subjects.	Hours a week.		Preparation required, remarks, etc.
		1st Term.	2d Term.	
111	<i>Lettering</i> Easby. Lyle. Houle.	2	—	
112	<i>Mechanical Drawing</i> ... Houle. Hilts. Kiefer.	4	4	
113	<i>Mechanical Drawing</i> ... Easby. Losse. Kiefer.	2	—	112.
114	<i>Pen Topography</i> Houle. Losse. Hilts.	—	2	
115	<i>Colored Topography</i> ... Houle. Hilts.	2	4 (1st half)	114.
116	<i>Map Drawing</i> Lyle. Hilts.	2	—	112, 114, 126.
120	<i>Projections</i> Houle. Losse. Kiefer.	2	—	
121	<i>Descriptive Geometry</i> ... Losse. Houle. Hilts. Kiefer.	—	3	120.
122	<i>Stereotomy</i> Lyle. Houle. Kiefer.	2	—	121.

No.	Subjects.	Hours a week.		Preparation required, remarks, etc.
		1st Term.	2d Term.	
125	<i>Surveying: Theory</i> Ives. Lyle. Hilts.	4	—	
126	<i>Surveying: Practice . . .</i> Ives. Lyle. Houle. Hilts. Kiefer.	4	4 and 2 w'ks.	Concurrent with 125.
127	<i>Railroad Surveying: Theory.</i> Ives. Hilts. Kiefer.	—	3	126.
128	<i>Railroad Surveying: Practice.</i> Ives. Losse. Hilts. Kiefer.	—	3 2d half and 2 w'ks.	Concurrent with 127.
129	<i>Railroad Construction and Maintenance.</i> Ives. Hilts.	2	—	127, 128.
130	<i>Railroad Office Work . . .</i> Ives. Losse. Kiefer.	2	—	Concurrent with 129.
131	<i>Railroad Economics . . .</i> Ives.	1	—	129.
132	<i>Railroad Design</i> Ives. Hilts.	2	—	129, 130.
133	<i>Geodesy: Theory</i> Ives.	—	1	126.

No.	Subjects.	Hours a week.		Preparation required, remarks, etc.
		1st Term.	2d Term.	
134	<i>Geodesy: Practice</i> Ives. Hilts. Kiefer.	—	3	126.
135	<i>Hydromechanics</i> Easby. Lyle.	—	3	486.
136	<i>Water Supply</i> Easby. Lyle.	—	2	486. Concurrent with 135.
137	<i>Sanitary Engineering</i> .. Easby. Lyle.	—	2	Concurrent with 135.
138	<i>Hydraulic Works De- sign.</i> Easby. Lyle.	5	—	135, 136, 137.
140	<i>Mechanics of Materials.</i> Marburg. Berry. Losse.	4	—	485.
141	<i>Materials of Construc- tion.</i> Marburg. Berry.	2	—	140.
142	<i>Testing Laboratory</i> Marburg. Berry. Losse.	3	3	Concurrent with or fol- lowing 141.
145	<i>Graphic Statics</i> Marburg. Berry.	—	1	Concurrent with 146.
146	<i>Framed Structures</i> Marburg. Berry.	—	5	140.
147	<i>Framed Structures</i> Marburg.	2	—	146.

No.	Subjects.	Hours a week.		Preparation required, remarks, etc.
		1st Term.	2d Term.	
148	<i>Bridge Design</i> Marburg. Losse.	—	2	146.
149	<i>Bridge Design</i> Marburg. Losse.	4	4	148.
150	<i>Masonry</i> Lyle. Berry.	—	3	140.
151	<i>Masonry Design</i> Ives. Lyle.	—	2	150.
155	<i>Roads and Pavements</i> .. Easby.	1	—	
156	<i>Inspection Tours</i> Marburg. Easby. Ives.	At hours assigned.		
157	<i>Summer Memoir</i> Marburg. Easby. Ives.	Vacation work.		
158	<i>Summer Memoir</i> Marburg. Easby. Ives.	Vacation work.		
159	<i>Thesis</i> Marburg. Easby. Ives.	—	6	

DESCRIPTION.

111. *Lettering*.—Freehand lettering.
112. *Mechanical Drawing*.—Drafting instruments and operations; elementary projection; line shading; coloring; graining; representation of earthwork and masonry.
113. *Mechanical Drawing*.—Drawings based on sketches and measurements of objects.

114. *Pen Topography*.—Conventional methods of representation. Elementary exercises.
115. *Colored Topography*.—Conventional methods of representation. Elementary exercises.
116. *Map Drawing*.—Map of hydrographic and topographic survey made during the previous summer.
120. *Projections*.—Elementary plane problems. Orthographic projections in one quadrant. Isometric and oblique projections. Elementary problems in shades and shadows, and linear perspective.
121. *Descriptive Geometry*.—Problems of the point, line and plane; single-curved, double-curved and warped surfaces; intersections, tangencies and developments. Shades and shadows. Perspective.
122. *Stereotomy*.—Stone cutting. Determination of the forms and sizes of stones in masonry constructions.
125. *Surveying: Theory*.—Theory relating to the use and adjustments of the instruments; theory of topographic, hydrographic, mining and city surveying.
126. *Surveying: Practice*.—Practice in the adjustment and use of field and office instruments.
Four hours a week are devoted to field practice throughout the year, including a special farm survey which is made during the first term; and, at the end of the second term, two entire weeks are devoted to an extended topographic and hydrographic survey.
127. *Railroad Surveying: Theory*.—Simple, compound, reversed and transition curves. Turn-outs and switches. Theory of the computation of earthwork.
128. *Railroad Surveying: Practice*.—Practice in staking out curves, cross-sectioning, setting of slope stakes, etc.
In addition to three hours a week during the latter half of the second term, two entire weeks, at the end of that term, are devoted to field practice in laying out a short line of railroad; including reconnaissance, preliminary survey, location, determination of grades, cross-sectioning, drawing of the map and profile.
129. *Railroad Construction and Maintenance*.—Trestles, tunnels, signaling, etc. Maintenance of railway track and structures. Rolling stock and train resistance.
130. *Railroad Office Work*.—Computation and distribution of

- earthwork. Paper location of a line of railroad; construction of the profile; estimates of quantities and cost.
131. *Railroad Economics*.—General theory of the inception and completion of railroad projects; probable volume of traffic and its probable growth; effect of details of alignment on operating expenses and revenue.
 132. *Railroad Design*.—Elements of the design of yards, terminals and sidings; slip-switches, crossings and track details.
 133. *Geodesy: Theory*.—Study of the instruments and field methods used in geodetic surveying.
 134. *Geodesy: Practice*.—Practice in the use of instruments of precision for the measurement of base-lines, angles, and differences of level.
 135. *Hydromechanics*.—Pressure and energy of fluids. Flow by orifices, tubes and weirs. Flow in pipes, conduits, canals and natural streams. Current meters. Hydraulic motors. Measurement of water-power.
 136. *Water-Supplies*.—Consumption by municipalities. Yields from various sources. Examination of water-supplies. Impounding reservoirs. Purification. Distribution.
 137. *Sanitary Engineering*.—Sewers and drains. Construction and ventilation. Disposal of sewage.
 138. *Hydraulic Works Design*.—The designing of water and sewerage works.
 140. *Mechanics of Materials*.—The resistance and elasticity of materials. Theory of flexure applied to beams and columns. Torsion. Effect of impact. Resilience, fatigue, etc.
 141. *Materials of Construction*.—Physical characteristics of the materials of construction, and the conditions by which these are influenced.
 142. *Testing Laboratory*.—Tests for determining the physical properties of the materials of engineering.
 145. *Graphic Statics*.—Graphic methods applied to the determination of stresses, bending moments, shears, etc.
 146. *Framed Structures*.—Determination of stresses by analytic methods. Relative merits of different types of bridge and roof trusses. Skeleton construction of buildings, viaducts, turn-tables, stand-pipes, etc. Details of construction.
 147. *Framed Structures*.—Stresses in cantilever, arch, swing and suspension bridges.

148. *Bridge Design*.—Complete design of a plate-girder bridge. Computations and detail drawings.
149. *Bridge Design*.—Complete design of a railroad bridge, Pratt truss. Computations and detail drawings.
150. *Masonry*.—Foundations, dams, retaining walls, piers, abutments, culverts, arches and concrete constructions.
151. *Masonry Design*.—General design of a variety of masonry structures, including estimates of quantities and cost.
155. *Roads and Pavements*.—Construction, maintenance and cost. Consideration of the relative merits of the various types.
156. *Inspection Tours*.—Visits to engineering works and manufacturing establishments.
157. *Summer Memoir*.—A memoir of not less than twelve hundred words, prepared during the summer vacation following the Sophomore year, descriptive of some engineering work or manufacturing plant, based on direct personal inquiries and observations.
158. *Summer Memoir*.—A memoir of not less than sixteen hundred words, prepared during the summer vacation following the Junior year, descriptive of some engineering work or manufacturing plant, based on direct personal inquiries and observations.
159. *Thesis*.—Thesis on a professional subject.

ECONOMICS.*

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
161	<i>Economics</i> Banks. Howard.	2	2	2	
162	<i>Advanced Economics</i> . Patten.	2	2	2	161.
163	<i>English Civilization</i> Patten.	2	2	2	162.

* Courses 161, 162, 163, 171, 172, 181 and 186 are the only courses in Economics open to Arts and Science students as elective or group subjects. For courses in Economics open *only* to Wharton School students, and for a description of *all* courses in Economics, see *WHARTON SCHOOL OF FINANCE AND COMMERCE* (pp. 204-217).

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
171	<i>Physical Geography</i> J. R. Smith.	2	2	2	
172	<i>Political Geography</i> Johnson.	2	2	2	
181	<i>Commercial and Economic Geography.</i> J. R. Smith.	2	2	2	171.
186	<i>Organization of International Commerce.</i> J. R. Smith.	2	2	2	171.

ENGLISH.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
231	<i>Composition</i> Child. Quinn. Weygandt. Hoag. Bolger. Shelly. Collins. Rivinus Hessler. Corson.	1	1	1	A and B (admission).
232	<i>English Language.</i> Easton. Child. Quinn. Bolger.	—	2	1	A and B (admission).
233	<i>Nineteenth Century Novelists.</i> Schelling. Quinn. Weygandt.	2	—	1	A and B (admission).

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
234	<i>History of English Literature.</i> Child. Weygandt. Hoag.	2	—	1	A and B (admission).
235	<i>Composition</i> Child. Quinn. Weygandt. Hoag. Bolger. Shelly. Collins. Corson. Rivinus.	1	1	1	231.
236	<i>Public Speaking</i> . . . Hoag.	1	1	1	May be taken simultaneously with 231-235.
237	<i>Newspaper Writing.</i> Weygandt.	1	1	1	May be taken simultaneously with 231-235.
238	<i>Anglo-Saxon</i> Easton.	2	2	2	231, 232, 234.
239	<i>Composition</i> Child. Quinn. Weygandt.	1	1	1	232, 233, 234, 235.
240	<i>Age of Elizabeth</i> . . . Schelling.	—	2	1	231, 232, 234. Alternate years. Omitted in 1905-06.
241	<i>Seventeenth and Eighteenth Century Literature.</i> Schelling.	2	—	1	231, 232, 234. Alternate years. Omitted in 1905-06.
242	<i>Literature of the United States.</i> Quinn.	—	2	1	231, 232, 234. Alternate years. Omitted in 1906-07.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
243	<i>Poetics</i> Quinn.	2	—	1	231, 232, 234. Alternate years. Omitted in 1905-06.
244	<i>Anglo-Saxon and Middle English Literature.</i> Child.	—	2	1	231, 232, 234. Alternate years. Omitted in 1905-06.
245	<i>Chaucer</i> Child.	—	2	1	231, 232, 234. Alternate years. Omitted in 1906-07.
246	<i>Nineteenth Century Drama.</i> Weygandt.	2	—	1	231, 232, 234. Alternate years. Omitted in 1906-07.
247	<i>English Philology</i> .. Easton.	2	2	2	238.
248	<i>Composition</i> Quinn. Weygandt.	1	1	1	239.
249	<i>Debating</i> Hoag.	2	2	2	236 or its equivalent.
250	<i>English Bible</i> Penniman.	2	—	1	231, 232, 234. Alternate years. Omitted in 1906-07.
251	<i>Elizabethan Dramatists.</i> Schelling.	2	—	1	231, 232, 234. Alternate years. Omitted in 1906-07.
252	<i>Elizabethan Grammar.</i> Easton.	2	—	1	231, 232, 234.
253	<i>Seventeenth Century Drama.</i> Schelling.	—	2	1	231, 232, 234. Alternate years. Omitted in 1906-07.
254	<i>Nineteenth Century Poets.</i> Schelling.	2	—	1	231, 232, 234. Alternate years. Omitted in 1905-06.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
255	<i>Contemporary Poets.</i> Weygandt.	—	2	1	231, 232, 234. Alternate years. Omitted in 1905-06.
257	<i>English Essayists.</i> Schelling.	—	2	1	231, 232 234.

DESCRIPTION.

Three objects are contemplated in the arrangement of the undergraduate work in English: (1) proficiency in writing, with some practice in speaking and debate; (2) a general acquaintance with English Literature; (3) a study of the nature and history of the language.

231. *Composition.*—Weekly themes on assigned subjects, popular and literary, corrected and commented on by the instructor in charge.
232. *English Language.*—An historical treatment of the English Language. Recitations, followed by lectures on the English vocabulary, the nature of language, the history of the alphabet and allied subjects.
233. *Nineteenth Century Novelists.*—Development of the Novel through the century. Lectures, recitations, writing of papers based on readings in the works of the authors discussed.
234. *History of English Literature.*—From Anglo-Saxon times to the present day. Lectures, collateral reading, preparation of papers.
235. *Composition.*—Weekly themes: descriptive, narrative, expository, argumentative; read and discussed in class; corrected by the instructor and returned with individual criticism.
236. *Public Speaking.*—Practice in the preparation and delivery of speeches and debates.
237. *Newspaper Writing.*—Weekly or bi-weekly themes. Reporting, correspondence, special articles, editorials, dramatic criticism, book-reviewing.
238. *Anglo-Saxon.*—Sweet's *Anglo-Saxon Primer*. Cock's *First Book in Old English*. This subject involves a compara-

- tive study of Anglo-Saxon, Middle English and Modern English, and the elements of Phonetics.
239. *Composition*.—Themes on popular and literary subjects assigned, with special reference to the gathering and ordering of material.
240. *The Age of Elizabeth*.—English Literature from the Revival of Learning to Milton. Lectures with collateral reading and reports.
241. *Seventeenth and Eighteenth Century Literature*.—English Literature from Waller to Cowper. Lectures with collateral reading and reports.
242. *Literature of the United States*.—Its history and relation to national life and thought, with brief introduction on English Literature in the colonies. Lectures.
243. *Poetics*.—Nature of English poetry and structure of English verse, with an historical treatment of English metres. Lectures, with study of poetical forms and practice in scanning.
244. *Anglo-Saxon and Middle English Literature*.—History of the language from the earliest period to Chaucer, and its relation to the historical and social development of the people.
245. *Literary Study of Chaucer*.—Reading and critical study of selected works. Lectures on Chaucer's life, his relation to his time, the sources of his works, etc.
246. *Nineteenth Century Drama*.—The development of the stage from Sheridan to Pinero; plays of the Romantic Revival; Robertson and his school; the influences of Dumas, Ibsen and Maeterlinck.
247. *English Philology*.—Middle English texts (generally Chaucer, and Skeat's *Piers Plowman*).
248. *Composition*.—Themes, creative and expository; individual criticism by the instructor.
249. *Debating*.—Practice in the preparation and delivery of debates.
250. *The English Bible*.—Form and structure of the various books; study of the kinds of poetry in the Psalms.
251. *Elizabethan Dramatists*.—Lectures on the origins and growth of the English Drama from its beginning to the close of the reign of Queen Elizabeth. Preparation of papers involving the principles of dramatic construction, comparison, and origins.

252. *Elizabethan Grammar*.—Study of an Elizabethan text (generally a play of Shakespeare). Abbot's *Shakespearean Grammar*.
253. *Seventeenth Century Drama*.—Lectures on the history of English Drama from the death of Queen Elizabeth to the closing of the theatres in 1642. Preparation of papers as in 251.
254. *Nineteenth Century Poets*.—The Romantic Revival; Poetry of Revolt; Wordsworth, Keats, Tennyson, Browning, Whitman and Swinburne. Lectures; recitations; collateral reading and discussion.
255. *Contemporary Poetry*.—Meredith, Dobson, Robert Bridges, Henley, Kipling, Davidson, William Watson, Yeats, Phillips, and others. Lectures.
257. *Modern Essayists*.—The nature and growth of the modern literary and critical essay. Collateral reading and discussions.

FINE ARTS.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
271	<i>History of Painting</i> . Everett.	2	2	2	Omitted in 1905-06.
272	<i>Principles of Design</i> . Everett.	2	2	2	Omitted in 1905-06.
273	<i>History of Architecture</i> . Osborne.	2	2	2	

DESCRIPTION.

271. *History of Painting*.—Introduction on Greek and Roman Painting, and extended treatment on that of Europe from early Renaissance to modern times.
272. *Principles of Drawing and Painting*.—Practical work in drawing in pencil and charcoal, and painting in water color and oils from objects and life, with criticism and collateral reading involving the universal principles underlying all art.

273. *History of Architecture*.—Lectures on the great historical styles in their order of development. The subject is treated from the sociological and architectural points of view, and includes an analysis of the principles of composition as applied to architectural design. This course does not require any previous knowledge of drawing or construction, and is intended primarily to stimulate a correct appreciation of architecture.

FINANCE AND COMMERCE.

(See WHARTON SCHOOL OF FINANCE AND COMMERCE, pp. 204 - 217.)

FRENCH.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
*281	<i>Elementary French</i> . Rochelle.	4	4	4	May not be taken to remove conditions in A and B (admission).
282	<i>Modern French</i> . . . Vurpillot.	3	3	3	A and B (admission).
283	<i>Modern French</i> . . . Vurpillot.	3	3	3	282.
284	<i>Classical Drama</i> . . . Rennert.	3	3	3	283.
285	<i>Old French</i> Rennert.	3	3	3	284.
286	<i>Classical Drama</i> . . . Rennert.	2	2	2	283.
287	<i>Scientific French</i> . . . Vurpillot.	2	2	2	282.
288	<i>Scientific French</i> . . . Vurpillot.	3	3	3	282.
289	<i>Scientific French</i> . . . Vurpillot.	2	2	2	283 or 287.

* See note near top of p. 89.

DESCRIPTION.

281. *Elementary French*.—For beginners.
282. *Modern French*.—A. France, *Le Crime de Sylvestre Bonnard*; Bruno; *Le Tour de la France*; Jules Verne, *Vingt mille lieues sous les mers*. Sight reading of French plays. Grammar and prose composition.
283. *Modern French*.—Taine, *Origines de la France contemporaine*; Ste. Beuve, *Les causeries du lundi*. Sight reading of French plays. Prose composition, and review of grammar.
284. *Classical Drama*.—Corneille, Racine, Molière; language of the sixteenth century; Darmesteter and Hatzfeld, *Le XVIIe Siècle en France*. History of French Literature: Petit de Julleville, *Leçons de Littérature Française*.
285. *Old French*.—Toynbee, *Specimens of Old French*; Historical Grammar; Toynbee-Brachet, *French Grammar*. Reading of an Anglo-Norman Text. History of French Literature: Petit de Julleville, *Leçons de Littérature Française*.
286. *Classical Drama*.—Selected plays of Racine, Molière, Corneille. Exercises in grammar.
287. *Scientific French*.—Herdlér, *Scientific French Reader*.
288. *Scientific French*.—Foncin, *Le Pays de France*.
289. *Scientific French*.—*La Revue Scientifique*.

GEOLOGY, MINERALOGY, METALLURGY.

GEOLOGY.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
291	<i>Lithology</i> A. P. Brown.	2	—	1	It is desirable that 301 or 305 precede or accompany 291.
292	<i>Petrography</i> A. P. Brown.	2	2	1	291.
293	<i>General Geology</i> ... A. P. Brown.	2	2	2	It is desirable that 301 or 305 precede or accompany 293.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
294	<i>Field Work</i> A. P. Brown.	—	3	1	It is desirable that 291 or 293 precede or accompany 294.
295	<i>Dynamic Geology</i> .. Ehrenfeld.	4	—	1½	
296	<i>Physiographic Geology</i> . Ehrenfeld.	—	4	1½	295.
297	<i>Economic Geology</i> .. Ehrenfeld.	2	—	1	301 or 305.
298	<i>Invertebrate Paleontology</i> . B. Smith.	3	3	2	
299	<i>Inorganic Geology</i> .. Ehrenfeld.	2	—	1	Chemistry 91. For Civil Engineering students only.

MINERALOGY.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
301	<i>Mineralogy</i> A. P. Brown.	2	2	2	Chemistry 91.
302	<i>Mineralogy</i> A. P. Brown.	2	2	2	301.
303	<i>Determinative Mineralogy</i> . A. P. Brown. Ehrenfeld.	2	2	1	301 or 305, and Chemistry 91. It is desirable that this subject be preceded or accompanied by Chemistry 92.
304	<i>Physical Mineralogy</i> . A. P. Brown.	2	—	1	301 or 305, and Physics 601.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
305	<i>Mineralogy</i> Ehrenfeld.	2	2	2	Chemistry 91.
306	<i>Mineralogy</i> Ehrenfeld.	2	2	2	Chemistry 91.

METALLURGY.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
311	<i>Theory of Metallurgical Processes.</i> A. P. Brown.	—	2	1	Chemistry 91.

DESCRIPTION.

GEOLOGY.

Students electing a group containing Geology may take work in Mineralogy and Metallurgy, counting it toward the group work in Geology.

291. *Lithology*.—Lectures on the classification of rocks, and their determination in hand specimens.
292. *Petrography*.—Laboratory work. Practice in the preparation of thin sections of rocks, and their examination with the microscope. Preparation of photomicrographs of rocks.
293. *General Geology*.—Stratigraphy of the rock systems in connection with paleontology. Laws of dynamic geology. Structural geology of North America with reference to that of Europe. The principal economic minerals and fossils and distribution of metals, ores and fuels.
294. *Field Work*.—Examination of rock structures in the field, and practice in geological surveying.
295. *Dynamic Geology*.—An account of the nature and methods

- of work of the forces, inorganic and organic, which, operating at the surface or underground, lead to the formation, alteration or disturbance of rocks. Two hours lecture, two hours laboratory work.
296. *Physiographic Geology*.—A study of the history of the birth, growth and decay of forms of land and the existing surface features of the earth as the result of geologic forces. Two hours lecture, two hours laboratory work.
297. *Economic Geology*.—Lectures on the naturally occurring geologic products of economic importance.
298. *Invertebrate Paleontology*.—A study of characteristic types representing the more important orders of fossil Invertebrata.
299. *Inorganic Geology*.—Dynamic, structural and physiographic geology, with descriptions of the occurrence of ores and other economic minerals.

MINERALOGY.

301. *Mineralogy*.—Crystallography, native elements, sulphides, chlorides, fluorides, oxides.
302. *Mineralogy*.—Carbonates, silicates, sulphates, phosphates, etc.
303. *Determinative Mineralogy*.—Laboratory work. Determination of minerals by pyrognostic and chemical properties.
304. *Physical Mineralogy*.—Determination of minerals by physical properties, use of contact and reflecting goniometer, polariscope, stauroscope, refractometer, etc.
305. *Mineralogy*.—Embraces salient points of 301 and 302, but only such minerals as are of economic importance are considered.
306. *Mineralogy*.—Short course in Descriptive and Determinative Mineralogy.

METALLURGY.

311. *Theory of Metallurgical Processes*.—The dressing and metallurgical treatment of ores.

GERMAN.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
*321	<i>Elementary German.</i> Fogel.	4	4	4	
322A	<i>Prose Reading</i> Wesselhoeft. Davis. Fogel. Wiehr.	2	2	2	A and B (admission), or an approximate equivalent.
322B	<i>Composition</i> Wesselhoeft. Davis. Fogel. Wiehr.	1	1	1	
323A	<i>Schiller's Dramas.</i> Learned.	2	—	1	322 A and B.
323B	<i>Historical Prose</i> . . . D. B. Shumway.	—	2	1	
323C	<i>Composition and Conversation.</i> Wesselhoeft.	1	1	1	
324A	<i>Modern German Novel.</i> Learned.	2	—	1	323 A and B. Open to students other than those taking the German group.
324B	<i>Lessing's Dramas</i> . . D. B. Shumway.	—	2	1	
324C	<i>Composition and Conversation.</i> Wesselhoeft.	1	1	1	
325A	<i>Modern German Lyrics.</i> Learned.	—	2	1	323 A and B.
325B	<i>Goethe's Dramas</i> . . . D. B. Shumway.	2	—	1	

* See note near top of p. 89.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
325C	<i>German Essays</i> Wesselhoeft.	1	1	1	
326A	<i>Goethe's Faust</i> D. B. Shumway.	2	—	1	
326B	<i>History of the Modern German Drama.</i> Learned.	—	2	1	323 A and B. Open to students other than those taking the German group.
326C	<i>Selected Plays</i>	—	2	1	
327A	<i>Scientific Reading</i> Davis.	2	2	2	322 A and B.
327B	<i>Prose Reading</i> Davis.	1	1	1	
328	<i>Scientific Reading</i> Wesselhoeft.	2	2	2	322 A and B.
329	<i>Advanced Scientific Reading.</i> D. B. Shumway.	2	2	2	328.

DESCRIPTION.

321. Elementary German. Grammar and reading.
- 322A. Reading of literary prose and eighteenth century drama.
- 322B. Grammar and composition. Written and oral exercises.
- 323A. Lectures on Schiller's life and works, and the literary movements of his time. Reading of selected texts.
- 323B. Reading of selected historical prose.
- 323C. German composition and conversation.
- 324A. Lectures on the rise and development of the German novel of the nineteenth century, and its relation to the contemporary novel of other countries. Reading of selected texts.
- 324B. Reading and discussion of Lessing's more important dramas.
- 324C. Writing of essays in German. German conversation.

- 325A. Lectures on the modern German lyric and reading of selected texts. Goethe's lyrics.
- 325B. Goethe's dramas. Lectures and reading of texts.
- 325C. Original German essays and discussions in German.
- 326A. Goethe's *Faust*. Lectures on the genesis of the drama, and interpretation of the text. Reading of selected plays discussed in 326B.
- 326B. History of the Modern German drama. Lectures on the development of the German drama of the nineteenth century, and reading and discussion of selected plays.
- 326C. Selected plays of Kleist, Grillpazer, Sudermann or Hauptmann.
- 327A. Scientific Reading.
- 327B. Prose Reading.
328. Scientific Reading.
329. Advanced Scientific Reading.

GREEK.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
331	Lamberton.	3	3	3	B, C, D, E (admission).
332*	Bates.	3	3	3	331.
333*	Bates.	2	2	2	331. May be taken with 332.
334*	Bates.	2	2	2	332 or 333. Alternate years. Omitted in 1906-07.
335	Lamberton.	2	2	2	332 or 333. May be taken by term or by year. Omitted in 1905-06.
336	Crosby.	2	2	2	332 or 333. May be taken by term or by year.

* During the absence on leave of Professor BATES (1905-06), courses marked (*) are given by Dr. HOWARD L. CROSBY.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
337	_____ Lamberton.	2	2	2	332 or 333. May be taken by term or by year. Alternate years.
338	<i>Greek Literature</i> ... Lamberton.	2	—	1	Alternate years.
339	<i>Greek Life</i> Lamberton.	2	—	1	Alternate years. Omitted in 1905-06.
340	_____ Lamberton.	—	2	1	332 or 333. Offered primarily for the George Allen Prize. When so taken it does not count towards a degree.
341	<i>Archæology</i> Bates.	2	2	2	332 or 333. Alternate years. Omitted in 1905-06.
342	_____ Lamberton.	2	2	2	331. May be taken by term or by year.
343*	_____ Kent.	3	3	3	
343A	_____ Kent.	3	3	3	343.
344	_____ Lamberton.	2	2	2	332 or 333. May be taken by term or by year. Alternate years. Omitted in 1905-06.

* See note near top of p. 89.

DESCRIPTION.

331. *Lysias, Selected Orations; Plato, Apology and Crito; Homer, Selections from the Odyssey.* Greek Composition.
332. *Plato, Laches; Euripides, Iphigenia Among the Taurians;*

- Aristophanes, *Acharnians*; Andocides, *de Mysteriis*. Greek Composition.
333. Course in rapid reading. Herodotus, Book II; Lucian, *Vera Historia*, and Dialogues.
334. Sophocles, *Oedipus Rex*, and *Oedipus Coloneus*; Pindar; Bacchylides.
335. Euripides, *Hippolytus*; Thucydides; private reading, Plutarch, *Nicias*; Sophocles, *Philoctetes*.
336. Æschylus, *Agamemnon*; Demosthenes, *Philippics*; private reading, Plutarch, *Pericles*; Sophocles, *Antigone*.
337. Theocritus; Plato, *Gorgias*.
338. Greek Literature. Jevons, *Greek Literature*, with lectures.
339. Greek Life. Blümner, *Life of the Ancient Greeks*, with lectures.
340. Demosthenes, *de Corona*.
341. Archæology. Lectures and conferences. Architecture, sculpture, terra cottas, vase painting. History of Greek Archæology.
342. New Testament: Acts of the Apostles and an Epistle of St. Paul.
343. } Elementary Greek: a two-year course, covering the
343A. } entrance requirements.
344. Aristophanes, *Wasps* and *Frogs*.

HEBREW.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
351	Clay.	2	2	2	
352	Clay.	2	2	2	351.

DESCRIPTION.

351. For beginners. Exercises in reading and pronunciation. Outlines of the grammar. Reading of historical chapters. Davidson's *Hebrew Grammar*.
352. Review of Davidson's *Hebrew Grammar*. Syntax. Reading of selections from historical and poetical books. Sight reading.

HISTORY.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
361	<i>Material Development of the United States.</i> McMaster.	2	2	2	Omitted in 1905-06.
362	<i>Political History of the United States.</i> Terry.	2	2	2	
363	<i>American Colonial History.</i> Ames.	2	2	2	
364	<i>Medieval History . .</i> Howland.	2	2	2	
365	<i>Europe in the Nineteenth Century.</i> Lingelbach.	2	2	2	
366	<i>Studies in United States History.</i> McMaster.	2	2	2	361, 362, or 363. Alternate years. Omitted in 1905-06.
367	<i>Studies in History of Our Own Time.</i> Terry.	2	2	2	361, 362, or 363. Alternate years.
368	<i>Constitutional History of the United States.</i> Ames.	2	2	2	See note.
369	<i>Foreign Relations of the United States.</i> Ames.	2	2	2	Alternate years. See note.
370	<i>The Civil War and Reconstruction.</i> Ames.	—	2	1	Alternate years. Omitted in 1905-06. See note.
371	<i>History of American Political Ideas.</i> Ames.	2	—	1	Alternate years. Omitted in 1905-06. See note.

NOTE.—One of courses 361, 362, 363, 364, 365 is a prerequisite.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
372	<i>Roman History</i> Howland.	2	2	2	Alternate years. See note.
374	<i>Church History</i> Howland.	2	2	2	Alternate years. Omitted in 1905-06. See note.
375	<i>English Constitutional History.</i> Cheyney.	3	3	3	Alternate years. Omitted in 1905-06. See note.
376	<i>English Social History.</i> Cheyney.	3	3	3	Alternate years. See note.
377	<i>England and the Continent.</i> Cheyney	2	2	2	Alternate years. Open only to Juniors and Seniors. Omitted in 1905-06. See note.
378	<i>Rise of the British Empire.</i> Cheyney.	2	2	2	Alternate years. Open only to Juniors and Seniors. See note.
379	<i>The Renaissance</i> . . . Lingelbach.	2	—	1	Alternate years. Omitted in 1905-06. See note.
380	<i>The Reformation.</i> Lingelbach.	—	2	1	Alternate years. Omitted in 1905-06. See note.
381	<i>Europe from 1648 to 1789.</i> Lingelbach.	2	—	1	Alternate years. See note.
382	<i>The French Revolution and Napoleon.</i> Lingelbach.	—	2	1	Alternate years. See note.
383	<i>The Rise of Prussia.</i> Lingelbach.	2	2	2	Alternate years. See note.

NOTE—One of courses 361, 362, 363, 364, 365 is a prerequisite.

DESCRIPTION.

361. *Material Development of the United States, 1783-1883.*—This subject comprises (a) lectures, (b) supplementary reading with synopsis of books, speeches and documents, (c) maps and diagrams, (d) essays. The lectures are confined to the history of the social, economic, financial and industrial growth of our country.
362. *Political Parties, Leaders, Issues, Platforms, 1783-1877.*—The system followed is the same as in 361; but the subject of the lectures is political history, and not that covered in 361. An elementary knowledge of our political history is expected, the work being chiefly with the sources.
363. *American Colonial and Revolutionary History.*—The beginnings of the American nation; European inheritance; development of American institutions; expansion of English colonies, rivalry of French and English; underlying causes of the Revolution; growth toward independence and union; formation and dissolution of the Confederation. Lectures, collateral reading, map work, and written exercises. An outline is prepared for the class.
364. *Medieval History.*—The history of Europe from 395 to 1300. The disintegration of the Roman Empire; the German tribes and their settlement in the Empire; the church and its influence; Charlemagne; feudal institutions; the crusades; the church at the end of the Middle Ages; commerce and the rise of cities; rise of the modern nations. Text-book, lectures and required reading.
365. *Europe in the Nineteenth Century.*—Europe after the overthrow of Napoleon; the restorations and reaction; the struggle for constitutional government and the rights of nationality; the Greek revolution; the revolutions of 1830 and 1848; the Crimean war and the Eastern Question; Cavour and Italian unification; Bismarck and the founding of the German Empire; France under the Third Republic; the dual monarchy of Austria-Hungary; the expansion of Russia and the far Eastern Question; the partition of Africa, and the main characteristics of contemporary European history. Text-book, lectures and required readings.

366. *Studies in the History of the United States.*—An advanced course. The topics selected for special study will be different each year. No student is admitted to this course who has not taken some one of courses 361-363.
367. *Studies in the History of Our Own Times, 1860-1900.*—Also an advanced course, and as far as possible will treat of our history as it bears on current issues. No student is admitted to this course who has not taken some one of courses 361-363.
368. *Constitutional History of the United States to 1860.*—Preliminary survey of colonial governments and development during colonial and revolutionary periods. Formation of State and Federal Constitutions; growth of nationality; broad *versus* strict construction; influence of the judiciary; conflict between States and Federal Government; theory and practice of nullification; the slavery struggle; amendments to the Federal Constitution; evolution of State Constitutions. Lectures, special reports and required reading.
369. *The Foreign Relations of the United States.*—A survey of the chief questions connected with the history of our foreign relations, from the appointment of the Committee on Foreign Relations in the Continental Congress to the present time, with especial reference to the last half century.
370. *The Civil War and Reconstruction.*—The Constitution during the Civil War; theories and actual process of reconstruction; the new amendments and their interpretation; constitutional results of the war; the "undoing" of reconstruction; new problems of the last quarter of the century.
371. *History of American Political Ideas.*—Chief topics: written constitutions, the constitutional convention, the nominating convention, the electoral college, the suffrage, instruction of representatives, development of the executive, legislative and judicial departments, the veto, the right of the judiciary to pronounce on the constitutionality of a legislative act, the initiative and referendum, territorial government, extension of individual rights.
372. *Roman History.*—History of the Roman Republic and the Roman Empire from the reforms of the Gracchi (133 B. C.) to the death of Theodosius (395 A. D.). Form

- of the Roman constitution in the second century B. C.; economic and social problems of the Republic; the struggle between the orders; formation of the principate; imperial rule; social conditions in the Empire; spread of Christianity; causes of the weakness of the imperial government. Lectures, required reading, etc.
374. *Church History*.—To the beginning of the fifteenth century. Early organization of the church; the persecutions; Christianity as the state religion; rise of the papacy; monasticism and the conversion of Europe; nature of the medieval church; its powers, jurisdiction and influence; heresies; the popes at Avignon; the Great Schism. Lectures, required reading, etc.
375. *English Constitutional History*.—Political organization of England in the Anglo-Saxon period; development of the forms of the constitution as shown in the principal documents; constitutional changes of the seventeenth, eighteenth and nineteenth centuries. Outline study of the general narrative history of England.
376. *English Social History*.—Organization of society in early England; the rural manor, the town guilds, fairs, and foreign trading; popular movements of the fourteenth century; changes from medieval to modern times; industrial revolution, and the other principal changes in subsequent periods. Outline study of the general narrative history of England.
377. *England and the Continent*.—Comparison of the economic, political, ecclesiastical, and intellectual development of England with that of the principal continental countries from the thirteenth to the sixteenth century. Chief topics: the Hanse League; the Staple; the Florentine bankers; trade with Venice and the Far East; rise of Parliament and the Estates General; Jacquerie and peasant rebellions of England and Germany; organization of the church; statutes of Provisors and Præmunire; Lollards and Hussites; invention of printing; the renaissance.
378. *Rise of the British Empire*.—England and the growth of her colonies from the sixteenth to the nineteenth century; explorations of the period of Elizabeth; growth of the commercial companies; colonial settlements; wars with Holland, Spain and France; Empire of India; attain-

- ment of self-government by the colonies; changes in England most closely related to this external development. Lectures and required reading.
379. *The Renaissance*.—Italian city republics; renaissance in Italy, the Medici and Savonarola; the papacy; centralization of governments; geographical discoveries, changes in trade routes, inventions and displacement of capital; renaissance north of the Alps.
380. *The Reformation*.—Economic and ecclesiastical conditions underlying the Reformation; Luther and the Reformation in Germany; wars of religion in France; Counter-Reformation and the Thirty Years' war. Lectures and required reading.
381. *Europe from 1648 to 1789*.—Europe at the Peace of Westphalia; dynastic and colonial aggrandizement; Louis the Fourteenth; England; rise of Prussia and Russia; diplomatic revolution; Seven Years' war; enlightened despotism; partitions of Poland; Eastern Question. Lectures and required reading.
382. *The French Revolution and Napoleon*.—French society and state before the Revolution; States General; the Revolution; foreign wars; Reign of Terror and reaction; constitution of 1795; Directory and Napoleon. Text-book, lectures and required reading.
383. *The Rise of Prussia*.—Geography and climate of northern Germany; the electorate of Brandenburg, the Teutonic Knights, union of Brandenburg and Prussia; the Great Electors and rise of the Prussian monarchy; Frederick the Great and the leadership of Prussia; overthrow of Prussia by Napoleon; regeneration; the Zollverein, and its significance; struggle for constitutional government; Schleswig-Holstein question; war with Austria; the Franco-German war and the attainment of German unity; Germany of to-day.

HYGIENE.

No.	Subjects.	Hours a week.		Preparation required, remarks, etc.
		1st Term.	2d Term.	
391	<i>Bacteriology</i> Abbott. Bergey.	1	12	Preliminary to Architecture 33 and 34.
392	<i>Hygiene</i> Bergey.	1	—	

DESCRIPTION.

391. *Bacteriology*.—First-year Bacteriology of the Medical Course. Open to men only. For details and roster, see announcement of the Department of Medicine, elsewhere.
392. *Hygiene*.—Lectures, with special reference to application in architectural practice.

ITALIAN.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
421	_____ Rennert.	2	2	2	Latin 431 or French 282.

DESCRIPTION.

421. *Young's Italian Grammar*. Pellico, *Le Mie Prigioni*. Goldoni, *La Locandiera*. Prose Composition.

LATIN.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
*430	_____ Kent.	3	—	1½	
430A	_____ Kent.	—	3	1½	

* See note near top of p. 89.

COURSES IN THE COLLEGE.

175

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
430B	Kent.	3	—	1½	
430C	Kent.	—	3	1½	
431	Rolfe. McDaniel. Kent.	3	—	1½	B, C, D, F, G. (Three sections.)
432	Gibbons.	—	3	1½	431. (Three sections.)
432A	Rolfe.	—	2	1	431. Omitted in 1906-07.
433	Rolfe. Gibbons.	3	—	1½	432. (Two sections.)
434	McDaniel.	—	3	1½	433. (Two sections.)
435	McDaniel.	3	—	1½	434. Omitted in 1906-07.
435A	McDaniel.	3	—	1½	434.
436	Gibbons.	3	—	1½	434.
437	McDaniel.	—	3	1½	434.
438	Gibbons.	—	3	1½	434.
439	McDaniel.	3	—	1½	434. Omitted in 1906-07.
440	Gibbons.	3	—	1½	434.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
441	Rolfe.	—	3	1½	434. Omitted in 1906-07.
442	Gibbons.	—	3	1½	434.
442A	Gibbons.	—	3	1½	434. Omitted in 1906-07.
443	Gibbons.	2 or 3	—	1 or 1½	434.
444	Rolfe.	—	3	1½	434.
444A	Rolfe.	—	3	1½	434. Omitted in 1906-07.
445	Rolfe.	—	2	1	434.
446	Gibbons.	2	—	1	434. Omitted in 1906-07.
447	McDaniel.	—	3	1½	434. Omitted in 1906-07.
448	McDaniel.	2	—	1	434.

DESCRIPTION.

430. Elementary Latin.

430A. Cæsar.

430B. Cicero.

430C. Vergil

431. Livy, Selections from Books I, XXI and XXII. Latin writing.

432. Cicero, *De Senectute* and *De Amicitia*. Roman history and antiquities.

432A. Rapid reading of easy Latin.

433. Horace, *Odes* and *Epodes*. Metres; poetic usage; mythology.

434. Horace, *Satires* and *Epistles*.
 435. Plautus, selected comedies.
 435A. Terence, selected comedies.
 436. Cicero, *Tusculanæ*. Lives of the Philosophers.
 437. Pliny, *Letters*. Illustrated lectures on Roman private life.
 438. Horace, *Ars Poetica*. Latin writers on Rhetoric. Juvenal, *Satires*. Roman society in the time of the Twelve Cæsars.
 439. Elegiac Poetry. Selections from Catullus, Tibullus, Propertius and Ovid.
 440. Tacitus, *Agricola* and *Germania*. Provincial policy of the Roman government. Martial, *Epigrams*.
 441. Ovid. The *Fasts*, with studies in Roman topography and mythology.
 442. Cicero, *De Officiis*. Seneca, Latin works on Ethics and their sources.
 442A. Petronius, *Cena Trimalchionis*. Lectures on the Latin language.
 443. Vergil. Metrical translations. Expressive reading of Latin verse. Uses of mythology in literature and art.
 444. Suetonius. Selected *Lives*, with studies in Roman history and political institutions.
 444A. Tacitus, selections from the *Histories* and *Annals*.
 445. Latin Prose Composition.
 446. Latin Prose Composition.
 447. The Private Life of the Romans. Lectures illustrated by the stereopticon.
 448. The Earliest Literature concerning Christianity. Minucius Felix, the *Octavius*.

LINGUISTICS.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
451	<i>Linguistics</i> Easton.	—	2	1	

DESCRIPTION.

451. Nature and growth of language; roots, stems, inflections, characteristics of various languages and literatures;

classification of languages; methods of writing, etc. Whitney, *Language and the Study of Language*. Lectures and recitations.

MATHEMATICS.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
461	<i>Solid Geometry</i> Crawley. Hallett. Dimick. Babb.	—	3	1½	A, B, C.*
462	<i>Plane Trigonometry</i> Crawley. Hallett. Safford. Dimick. Babb.	3	—	1½	A, B, C.*
463	<i>Algebra</i> Schwatt.	—	4	2	A, B, C.*
464	<i>Analytic Geometry.</i> Babb.	4	—	2	461 and 462.
465	<i>Differential and Integral Calculus.</i> Fisher.	—	4	2	463 and 464.
466	<i>Theory of Equations and Determinants.</i> Hallett.	2	2	2	463 and 464.
467	<i>Advanced Plane Trigonometry, and Spherical Trigonometry.</i> Crawley.	—	3	1½	461 and 462.
468	<i>Introduction to Higher Algebra and the Galois Theory of Equations.</i> Hallett.	—	3	1½	466, and preferably preceded or accompanied by 465. Alternate years. Omitted in 1905-06.

* See pp. 67 and 68.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
469	<i>Solid Analytic Geometry.</i> Crawley.	2	2	2	465 and 466. Alternate years. Given in 1905-06.
470	<i>Advanced Plane Analytic Geometry.</i> Crawley.	2	2	2	465 and 466. Alternate years. Omitted in 1905-06.
471	<i>Differential Equations.</i> Fisher.	2	2	2	465 and 466. Alternate years. Given in 1905-06.
472	<i>Advanced Calculus.</i> Fisher.	2	2	2	465. Alternate years. Omitted in 1905-06.
473	<i>Quaternions*</i> Fisher.	1	1	1	464, and should preferably be preceded or accompanied by 465.
474	<i>Infinite Series and Products.</i> Schwatt.	—	3	1½	Must be preceded by or taken simultaneously with 465. Alternate years. Given in 1905-06.
480	<i>Analytic Geometry .</i> Safford.	—	3	1½	A, B, C, D.†
481	<i>Algebra</i> Schwatt. Hallett. Evans. Dimick. Babb.	—	4	2	A, B, C.†

* Offered primarily to members of the Junior Class who are candidates for the Faculty Prize for special work in Mathematics. When so taken it does not count towards a degree.

† See pp. 67, 68 and 70

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, - remarks, etc.
		1st Term.	2d Term.		
483	<i>Plane and Spherical Trigonometry.</i> Schwatt. Hallett. Evans. Dimick. Babb.	4	—	2	A, B, C, D, E.*
484	<i>Analytic Geometry.</i>	5	5	5	481, and 483. A part of the first term (about fifty hours in all) is given to 484, and the rest of the first term and all of the second term (about 100 hours in all), is given to Calculus.
485	<i>Differential and Integral Calculus.</i> Crawley. Fisher. Schwatt. Evans. Safford. Dimick.				
486	<i>Integral Calculus.</i> Crawley. Fisher. Hallett. Evans. Safford.	3	—	1½	485. This will be withdrawn as a separate subject after 1905-06.
487	<i>Elements of Calculus, with Applications.</i> Safford.	2	2	2	462, 480.

* See pp. 67, 68 and 70.

DESCRIPTION.

NOTE.—Subjects 461 to 474 are offered primarily for students in the courses in Arts and Science, Biology, and in Finance and Commerce. Subjects 480 to 487 are offered primarily for students in the technical courses.

461. *Solid Geometry.*—Schultze and Sevenoak's *Geometry*, Books VI, VII, VIII.

462. *Plane Trigonometry*.—Crawley's *Elements of Trigonometry* (second edition), and *Tables of Logarithms*.
463. *Algebra*.—Fisher and Schwatt's *Higher Algebra*.
464. *Analytic Geometry*.—C. Smith's *Conic Sections*.
465. *Differential and Integral Calculus*.—Snyder and Hutchinson's *Differential and Integral Calculus*.
466. *Theory of Equations and Determinants*.—Burnside and Panton's *Theory of Equations*, with supplementary lectures.
467. *Advanced Plane Trigonometry and Spherical Trigonometry*. Crawley's *Elements of Trigonometry*, Chaps. VII to XII, supplemented by problem work, outside reading and lectures.
468. *Introduction to Higher Algebra and the Galois Theory of Equations*.—Lectures.
469. *Solid Analytic Geometry*.—C. Smith's *Solid Geometry*.
470. *Advanced Plane Analytic Geometry*.—Homogeneous co-ordinate systems as applied to the study of the Conics. C. A. Scott's *Analytic Geometry*.
471. *Differential Equations*.—Ordinary and partial differential equations. Forsyth's *Differential Equations*, and lectures.
472. *Advanced Calculus*.—Advanced work in differential and integral calculus.
473. *Quaternions*.—The elements of the theory of quaternions with applications to Geometry and Physics. Lectures. Open to properly qualified students in all courses in the College.
474. *Infinite Series and Products*.—Convergency and divergency of series. Expansion of trigonometric functions of manifold angles into infinite series and products. Hypergeometric series. Series of Fourier and Lagrange.
480. *Analytic Geometry*.—Briggs' *Analytic Geometry*. For students in the Course in Architecture.
481. *Algebra*.—Fisher and Schwatt's *Higher Algebra*. This subject differs from 463 mainly in the fact that more attention is given to the general theory of equations.
483. *Plane and Spherical Trigonometry*.—Crawley's *Elements of Trigonometry* (second edition), and *Tables of Logarithms*, supplemented by problems and exercises.
484. *Analytic Geometry*.—Bailey and Woods' *Analytic Geometry*. The fundamental properties of the Right Line, Circle

- and Conics, with an introduction to Solid Analytic Geometry.
485. *Differential and Integral Calculus*.—Snyder and Hutchinson's *Calculus*.
486. *Integral Calculus*.—Snyder and Hutchinson's *Calculus*, supplemented by problem work.
487. *Elements of Calculus with Applications*.—Merriman's *Elements of Mechanics*, and Hayes' *Calculus*. For students in the Course in Architecture.

MECHANICAL AND ELECTRICAL ENGINEERING.

No.	Subjects.	Hours a week.		Preparation required, remarks, etc.
		1st Term.	2d Term.	
491	<i>Descriptive Geometry</i> ... Spangler. Ehlers. Gill. Gebhart. Crofoot. Fuller.	2	2	
492	<i>Elementary Drawing</i> ... Fry. Stannard.	3	3	
493	<i>Mechanical Drawing</i> ... Fry. Stannard.	3	3	491 and 492.
494	<i>Working Drawings</i> Fry. Stannard.	3	3	493.
495	<i>Steam Engine</i> Spangler. Ehlers. Gill. Gebhart. Doyle. Fuller.	—	2	
496	<i>Kinematics</i> Spangler. Gebhart. Doyle. Crofoot. Payne.	3	—	495.

No.	Subjects.	Hours a week.		Preparation required, remarks, etc.
		1st Term.	2d Term.	
497	<i>Statics</i> Spangler. Stanford. Ehlers. Gill. Fuller. Doyle.	2	2	622, and concurrent with 486.
498	<i>Hydraulics</i> Stanford. Gebhart. Crofoot. Payne.	—	3	622, and concurrent with 486.
499	<i>Hydrodynamics</i> Stanford. Gebhart. Payne.	2	2	497, 498.
500	<i>Shop Work</i> Morris. McConnell. Randolph. Mellor. Sutphen.	6	3	
501	<i>Shop Work</i> Morris. McConnell. Randolph. Mellor. Sutphen.	3	3	
502	<i>Advanced Shop Work</i> .. Morris. McConnell. Randolph. Mellor. Sutphen.	6	6	491, 492, 495, 500.
503	<i>Advanced Shop Work</i> .. Morris. McConnell. Randolph. Mellor. Sutphen.	3	3	492, 495, 500.

No.	Subjects.	Hours a week.		Preparation required, remarks, etc.
		1st Term.	2d Term.	
504	<i>Engine Calculations</i> ... Stanford. Gill. Payne. Fuller.	2	—	493, 495, 497, 500, 623 92, 103.
505	<i>Engine Design</i> Stanford. Gill.	—	2	504.
506	<i>Boiler Calculation</i> Stanford. Gill. Payne. Doyle.	2	—	Same as 504.
507	<i>Boiler Design</i> Stanford. Gill.	—	2	506.
508	<i>Graphics</i> Spangler. Ehlers. Gebhart. Crofoot. Fuller.	4	—	493, 622.
509	<i>Thermodynamics</i> Spangler. Ehlers. Gill.	—	3	495, 485, 623.
510	<i>Applied Thermodynam- ics.</i> Spangler. Stanford. Ehlers.	2	—	509.
511	<i>Mechanical Laboratory.</i> Gebhart. Payne. Crofoot. Fuller. Doyle.	3	3	493, 496, 500 or 501, and concurrent with 486.
512	<i>Mechanical Laboratory.</i> Ehlers.	3	—	493, 496, and concu- rent with 500 or 501, and with 486.

No.	Subjects.	Hours a week.		Preparation required, remarks, etc.
		1st Term.	2d Term.	
513	<i>Advanced Mechanical Laboratory.</i> Stanford.	3	3	509, 511.
514	<i>Advanced Mechanical Laboratory.</i> Ehlers. Gill.	6	3	509, 511 or 512.
515	<i>Marine Engines</i> Spangler. Ehlers.	1	1	493, 495, 485.
516	<i>Naval Architecture</i> Spangler. Ehlers.	1	1	Same as 515.
517	<i>Machine Design</i> Fry. Stannard.	3	3	494, 496, 497, 502 or 503, 508.
518	<i>Shop Visits</i> Spangler. Doyle. Payne.	3	—	511, or 512, 521.
519	<i>Specifications</i> (volun- tary). Spangler.	—	1	205 (1st term).
520	<i>Mechanical Thesis</i>	—	9	498, 504, 506, 510, 511 or 512, and concu- rent with 513 or 514, and with 517.
521	<i>Electrodynamics</i> H. W. Brown. Temple. Barrows. Beaver.	2	2	624.
522	<i>Telegraphy and Teleph- ony.</i> Temple.	2	2	624.

No.	Subjects.	Hours a week.		Preparation required, remarks, etc.
		1st Term.	2d Term.	
523	<i>Alternating Currents</i> ... H. W. Brown. Temple. Barrows. Beaver.	—	2	624, and concurrent with 486.
524	<i>Advanced Electrody- namics.</i> H. W. Brown. Temple. Barrows. Beaver.	3	—	521.
525	<i>Electrical Measure- ments.</i> H. W. Brown. Barrows. Beaver.	2	—	521, 529 or 530.
526	<i>Dynamo Design</i> H. W. Brown. Barrows.	—	2	521, 524, 486.
527	<i>Alternating Current Ap- plications.</i> H. W. Brown.	1	1	521, 523.
528	<i>Electricity and Magnet- ism.</i> H. W. Brown. Temple. Barrows. Beaver.	—	3	624.
529	<i>Electrical Laboratory</i> ... H. W. Brown. Temple. Barrows. Beaver.	3	3	624, and concurrent with 521.
530	<i>Electrical Laboratory</i> ... H. W. Brown. Barrows.	—	3	624, and concurrent with 521.
531	<i>Electrical Testing</i> H. W. Brown. Temple.	3	3	529, and concurrent with 525.

No.	Subjects.	Hours a week.		Preparation required, remarks, etc.
		1st Term.	2d Term.	
532	<i>Electrical Testing</i> Barrows.	6	3	529, 523, and concurrent with 525 and 527.
533	<i>Electrical Thesis</i>	—	9	523, 524, 525, 529 or 530, and concurrent with 531 or 532, and with 528.
539	<i>Applied Electricity</i> H. W. Brown. Beaver.	2	2	624.
540	<i>Steam Engines and Boilers.</i> Stanford. Gill.	2	2	622, 623.

DESCRIPTION.

491. *Descriptive Geometry*.—Problems worked out to scale in the drawing-room. Faunce's *Descriptive Geometry*.
492. *Elementary Drawing*.—Use of instruments. Making simple mechanical drawings from working sketches. Freehand lettering.
493. *Mechanical Drawing*.—Continuation of 492. Sectioning, tinting and tracing detail drawings made from sketches. Blue printing. Machine sketching.
494. *Working Drawings*.—Making complete tracings of assembly drawing and details from sketches. Kinematic design.
495. *Steam Engine*.—Nomenclature of steam machinery. General principles of the construction of machines. Power measurement.
496. *Kinematics*.—Laws of motion. Combinations of pure mechanism. Pulleys and belts. Trains of gearing and forms of teeth of wheels. Link work, epicyclic trains, etc.
497. *Statics*.—Application of the principles of statics to rigid bodies. Elasticity and strength of materials. Forms of uniform strength. Design of beams, columns and shafts. Combined and repeated stresses.
498. *Hydraulics*.—Transmission of pressures. Determining cen-

- tres of amount and pressure. Depth of flotation and stability. Flow through orifices, over weirs, through tubes, pipes and conduits. Water meters and the measurement of water-power.
499. *Hydrodynamics*.—Theory of turbines and water wheels and turbine design.
500. *Shop Work*.—Elements of machine and wood working. Col-lateral reading and monthly examinations.
501. *Shop Work*.—Short course for Chemical Engineering students only.
502. *Advanced Shop Work*.—Pattern making. Use of machine tools. Principles of foundry practice. Laying out work.
503. *Advanced Shop Work*.—Short course for Chemical Engineer-ing students only.
504. *Engine Calculations*.—Determining the proper proportions for cylinders, valves, piston rods, shafts, fly wheels, etc. The design of the principal parts of an engine of a par-ticular type, calculating where a question of strength enters, and following the chosen type for proportions that are determined solely from experience.
505. *Engine Design*.—Completion of calculation and making assembly and working drawings of details.
506. *Boiler Calculation*.—Value of fuels, determination of proper proportions for grate and heating surfaces, height of chimney, thickness of shell, size of braces, etc.; the work following the general lines of course 504.
507. *Boiler Design*.—Working out details of boilers and making working drawings.
508. *Graphics*.—Principles of graphic statics and their application to cranes, bridges, roof trusses and other framed struc-tures. The graphics of machinery with and without friction, graphic combination of stresses in shafts, etc.
509. *Thermodynamics*.—Mechanical theory of heat. Work done and heat expended in expansion. Cycles of perfect gases and vapors. Expansion of steam, ammonia and carbonic acid, work done and heat required. Mixtures of vapors.
510. *Applied Thermodynamics*.—Heat engines, various efficiencies. Commercial results obtained and possibilities of develop-

- ment of steam, air, gas and oil engines. Refrigerating machines using air, ammonia, carbonic acid, etc. Flow of steam, injectors and condensers.
511. *Mechanical Laboratory*.—Testing mechanical apparatus: Adjusting scales, indicators, counters, gauges, etc. Determining the efficiency of various machines and the values of the materials of construction.
512. *Mechanical Laboratory*.—(Omitted after 1906.)
513. *Advanced Mechanical Laboratory*.—For Electrical Engineering students only.
514. *Advanced Mechanical Laboratory*.—Testing steam, gas and air engines, and boilers, determining duty of pumps, injectors, air compressors, measurement of flow of steam, calorimetric work.
515. *Marine Engines*.—History. Details of marine boilers, engines and accessories. Propulsion, safety devices, management of marine machinery. Compound and triple expansion engines.
516. *Naval Architecture*.—Displacement, stability, strength of structure, power required, water lines, fineness, etc.
517. *Machine Design*.—Applications of the principles of machine design to special machinery.
518. *Shop Visits*.—Students are required to visit machine shops, foundries, ship yards, and electric power stations; and to make reports on the general arrangement of plant, power distribution, handling of materials, etc., and on special tools and processes.
519. *Specifications*.—Methods of drawing specifications for engines, boilers, foundations, etc. Making estimates as to cost, weight, etc.
520. *Mechanical Thesis*.—Special work in Mechanical Laboratory.
521. *Electrodynamics*.—The construction of commercial instruments and of direct and alternating current dynamos and motors.
522. *Telegraphy and Telephony*.—Telegraph and telephone systems; duplex, quadruplex, multiplex, printing and messenger service telegraphs and signal systems. Simple, multiple and common battery telephone systems. Recitation; and drawing of diagrams of connections for various systems and switchboards, illustrated by modern apparatus and laboratory work in making connections.

523. *Alternating Currents*.—Time constant, impedance, reactance, lag, Fourier's expansion, form factor, measurement of power, currents in circuits having inductance and capacity.
524. *Advanced Electrodynamics*.—Principles and construction of motors, arc and incandescent lamps, secondary cells, transformers, photometry, circuits and meters.
525. *Electrical Measurements*.—The study of electrical and magnetic measurements and laboratory methods.
526. *Dynamo Design*.—Study of principles, and the development on the drawing board of a design of armature, commutator and field magnets, for a dynamo or motor.
527. *Alternating Current Applications*.—Mutual inductance, synchronous motors, parallel running, polyphase currents, rotating field, induction motors, power transmission and alternating networks.
528. *Electricity and Magnetism*.—A study and review of phenomena, principles and laws, and the derivation of units.
529. *Electrical Laboratory*.—Elementary measurement of resistance, potential and current, and calibration of commercial instruments.
530. *Electrical Laboratory*.—(Omitted after 1906.)
531. *Electrical Testing*.—For Mechanical and Chemical Engineering students only.
532. *Electrical Testing*.—Measurement of insulation resistance, capacity, induction, etc. Testing direct and alternating current dynamos, motors and transformers. Power measurements. Photometry.
533. *Electrical Thesis*.—Special work in Electrical Laboratory.
539. *Applied Electricity*.—Electricity and magnetism, as applied to industrial electrical apparatus and installations. For Civil Engineering students only.
540. *Steam Engines and Boilers*.—Short course for Civil Engineering students only.

MUSIC.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
541	<i>Harmony, Thorough-bass.</i> Clarke.	2	2	—	
542	<i>Melody, Rhythm, Strict Counterpoint.</i> Clarke.	2	2	—	541. Candidates who can pass an examination in Harmony may be admitted to this course.
543	<i>Larger "Forms," Suite, Modern Counterpoint.</i> Clarke.	2	2	—	542. Open to candidates who can pass an examination in 542.
544	<i>The Orchestra</i> Clarke.	2	2	—	543. Open to candidates who can pass an examination in 543.

DESCRIPTION.

541. *First Year.*—Harmony, intervals, scales (major). Chords of major scales; their progressions and inversions. Minor scale. Relation of scales. Dissonant groups; their origin, formation and progression. Modulation or transition. The course includes all that is embraced in the study of Harmony or Thoroughbass.
542. *Second Year.*—Melody. Rhythm. The harmonic basis of melody. The use of dissonances foreign to the harmony, *i. e.*, changing notes, passing notes, suspensions, retardations. Lyric or dance "form." The simpler forms developed from the Lyric. The origin of Strict Counterpoint. The rules for the combination of independent parts in the five species of Counterpoint, in two, three and four parts. Double Counterpoint.
543. *Third Year.*—Larger "Forms," Suite, Sonata, developed Rondo. Modern Counterpoint. Five species in two, three and four parts. "Imitation" Fugue (Real and Tonal), Fugue with Counter-subject. Canon.

544. *Fourth Year.*—The Orchestra. Compass and character of orchestral instruments. Rules for their combinations, with and without voices. Analysis of scores. Scoring for various combinations.

PEDAGOGY.

See under *Philosophy*.

PHILOSOPHY, PSYCHOLOGY AND PEDAGOGY.

No subject under these titles can be taken before a student's second year in College.

PHILOSOPHY.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
561	<i>Logic</i> Singer.	2	—	1	
562	<i>Ethics</i> Newbold.	—	2	1	
563	<i>History of Ancient Philosophy.</i> Newbold.	2	2	2	
564	<i>History of Modern Philosophy.</i> Singer.	2	2	2	563. Alternates with 563. Omitted in 1905-06.
565	<i>Philosophy of Nature.</i> Singer.	2	—	1	
566	<i>Philosophy of Nature.</i> Singer.	—	2	1	
567	<i>Contemporary Moralists.</i> Flaccus.	2	2	2	
568	<i>Readings in Ancient Philosophy.</i> Newbold.	2	—	1	

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
569	<i>Readings in Modern Philosophy.</i> Singer.	—	2	1	
570	<i>Plato's Metaphysics, Anthropology and Cosmology...</i> Newbold.	2	2	2	
571	<i>Analysis of Ethical Theories.....</i> Flaccus.	2	2	2	

PSYCHOLOGY.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
581	<i>General Psychology.</i> Witmer.	2	—	1	
582	<i>Analytic Psychology.</i> Witmer. Twitmyer.	3	—	1	
583	<i>Physiological Psychology.</i> Witmer. Twitmyer.	—	3	1	
584	<i>Genetic Psychology.</i> Twitmyer.	3	3	2	582 and 583.
585	<i>Experimental Psychology.</i> Witmer. Twitmyer.	3 or 5	3 or 5	2 or 3	582. May be taken for one term only.
586	<i>Abnormal Psychology.</i> Witmer.	—	2	1	

PEDAGOGY.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
591	<i>Pedagogy</i> Brumbaugh.	2	2	2	

DESCRIPTION.

PHILOSOPHY.

561. *Logic*.—Lectures and recitations.
562. *Ethics*.—A sketch of the history of ethical theory, designed as an introduction to the study of ethics. Lectures.
563. *History of Ancient Philosophy*.—Lectures, with readings from selected sources.
564. *History of Modern Philosophy*.—Lectures, with readings from selected sources.
565. *Philosophy of Nature*.—Types of ancient and medieval conceptions of nature.
566. *Philosophy of Nature*.—Development of the modern sciences.
567. *Contemporary Moralists*.—Readings and discussions. The work of the year 1905-06 is designed as an introduction to Idealistic Ethics, and will be based on Mackenzie, Palmer, and Muirhead.
568. *Readings in Ancient Philosophy*.—The texts selected will vary from year to year.
1905-06. Lucretius, (Munro's translation).
1906-07. Cicero, *de Natura Deorum*.
569. *Readings in Modern Philosophy*.—The texts selected will vary from year to year.
1905-06. Locke, *On the Human Understanding*.
Berkeley, *Principles of Human Knowledge*.
1906-07. Hume, *Treatise on Human Nature*.
Selections from Imill and Spencer.
570. *Plato's Metaphysics, Anthropology and Cosmology*.—Reading of the more important dialogues.
571. *Analysis of Ethical Theories*.—Based upon Sidgwick, *Methods of Ethics*.

PSYCHOLOGY.

581. *General Psychology*.—An elementary outline of the more important facts and theories concerning the human mind; the relation of the problems of modern psychology to certain of the other sciences, the arts and education. Lectures.
582. *Analytic Psychology*.—An introspective and experimental analysis of perception; the role of apperception, memory, attention and association; perceptions of space; the sense organs; the physical stimuli or objects of perception. Lectures and laboratory work.
583. *Physiological Psychology*.—Mind and body; the nature of the will, automatic and reflex movements, inherited instincts and acquired habits, impulse and emotion; the structure and functions of the human nervous system. Dissection of the brain and experimentation upon voluntary and reflex movements. Lectures and laboratory work.
584. *Genetic Psychology*.—Development and organization of the individual mind; permanent effects of sensation and movement upon the brain; sensory after-images; memory images; cerebration and association; organization of imagination and memory; the development of ideas, the intellect and reason; the growth of attention and the individual will. Lectures and laboratory work.
585. *Experimental Psychology*.—Outline of methods and results of measurement of mental processes. Problems assigned from the following topics: qualitative analysis of sensation-complexes, memory and simpler emotions; psychophysical methods and laws; specific sense energies; rate and force of voluntary movements; time of sensory-motor reaction, discrimination, association, etc.; variations in physiological processes affected by mental conditions. Lectures and laboratory work.
586. *Abnormal Psychology*.—The nature of hallucination, delusion, and illusion; suggestibility, automatism, and hypnotism; double consciousness and the development of secondary personalities: telepathy or thought transference; mental and emotional variability in relation to individual and race development; degeneration and arrest or retardation of mental development. Lectures.

PEDAGOGY.

591. *Pedagogy*.—A critical study of educational principles; their origin and comparative value; the present condition of educational systems in England, Germany, and the United States.

PHYSICS.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
601	<i>General Physics</i> ... Goodspeed. Meyer. H. C. Barker. Wenner.	3	3	2	Mathematics 462.
602	<i>Physical Measurements</i> . Meyer. Hart. Hough. H. C. Barker. Harper. Wenner.	4	4	2½	601, 620. or 622-623. Methods 1 hour, laboratory 3 hours.
603	<i>Advanced Laboratory Work</i> . Richards.	3 or 6	3 or 6	1½ or 3	602, and Mathematics 465, and must be preceded or accompanied by 604-607.
604	<i>Harmonic Motion and Sound</i> . Richards.	2	—	1	601, and Mathematics 464, and must be preceded or accompanied by Mathematics 465. Alternate years.
605	<i>Physical Optics</i> Richards.	—	3	1½	604. Alternate years.
606	<i>Theory of Heat</i> Hart.	2	—	1	Same as 604. Alternate years. Omitted in 1905-06.
607	<i>Electricity and Magnetism</i> . Richards.	—	3	1½	Same as 604. Alternate years. Omitted in 1905-06.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
608	<i>Theoretical Dynamics.</i> Goodspeed.	2	2	2	601, 610, and Mathematics 465. It is desirable that Mathematics 471 accompany or precede this.
609	<i>Theory of Potential.</i> Goodspeed.	2	—	1	601, and Mathematics 465. It is desirable that Mathematics 471 accompany or precede this.
610	<i>Elementary Dynamics.</i> Richards.	2	—	1	Mathematics 462.
618	<i>Dynamics, Sound, Heat, and Light.</i> Goodspeed. Hart.	2	2	2	Entrance Physics, and Mathematics E or 462.
620	<i>General Physics . . .</i> Goodspeed. H. C. Barker. Wenner.	3	3	3	Entrance Physics, and Mathematics E or 462.
624	<i>Electricity and Magnetism.</i> Hough. Harper.	3	—	1½	618.
625	<i>Electromagnetism and Radiation.</i> Hough. Harper.	—	3	1½	624, and Mathematics 484.
626	<i>Analytic Mechanics.</i> Richards. Meyer. H. C. Barker.	2	2	2	(This subject begins in the second term.) 618. Must be accompanied by Mathematics 485 and 486.

DESCRIPTION.

General Remarks.—Course 601 constitutes the required work in Physics, and is preliminary to all other courses. 620 may be substituted for it. Students electing Physics are advised to take 610 the same year as 601, as a desirable introduction to the other courses.

- 601 *General Physics.*—Descriptive Physics, lectures and recitations. J. S. Ames' *Theory of Physics*.
602. *Physical Measurements.*—The theory and practice of quantitative laboratory methods. Lectures and practical laboratory work.
603. *Advanced Laboratory Work.*—Experimental Physics.
- 604 to 607.—These subjects treat of special departments of Physics, They consist of experimental lectures and recitations, with an introduction to the mathematical theory.
608. *Theoretical Dynamics.*—Chiefly problems involving selected topics in both Statics and Kinetics. Walton's *Problems in Theoretical Mechanics*.
609. *Theory of Potential.*—The law of inverse squares in its various applications to Physics. Pierce's *Newtonian Potential Function*.
610. *Elementary Dynamics.*—A course in the fundamental principles of Dynamics, without the use of higher mathematics. Introductory to 608.
- 618 to 626.—These subjects are primarily for students in the technical courses.

POLITICAL SCIENCE.*

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
631	<i>Government of the United States.</i> Young. Pierson. Beck.	2	2	2	

* Courses 631, 632, 634, 635, 636, 638, 651 and 653 are the only courses in Political Science open to Arts and Science students as elective or group subjects. For courses in Political Science open *only* to Wharton School students, and for a description of all courses in Political Science, see WHARTON SCHOOL OF FINANCE AND COMMERCE (pp. 204-217).

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
632	<i>Citizenship: Federal and State.</i> Rowe.	2	2	2	631.
634	<i>City Government and City Problems.</i> Rowe.	2	2	2	631.
635	<i>Public Administration.</i> Young.	2	2	2	631.
636	<i>Current Political Problems.</i> Pierson.	2	2	2	631.
638	<i>International Law.</i> Rowe.	2	2	2	631.
651	<i>Government Regulation of Commerce and Industry.</i> Pierson.	2	2	2	631.
653	<i>Comparative Governments.</i>	2	2	2	631. Omitted in 1905-06.

SANSKRIT.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
661	Easton.	2	2	2	Alternate years. Omitted in 1906-07.
662	Easton.	2	2	2	661. Alternate years. Omitted in 1905-06.

DESCRIPTION.

661. Whitney's *Sanskrit Grammar*; Lanman's *Reader*.662. Lanman's *Reader*, continued.

SOCIOLOGY.*

No.	Subjects,	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
191	<i>Race Development</i> .. Lindsay, Mangold.	2	2	2	
192	<i>Social Reform</i> Mangold.	2	2	2	191.
193	<i>Charities</i> Kelsey.	2	2	2	191.
194	<i>Sociology</i> Kelsey.	2	2	2	191, and 192 or 193.
195	<i>American Social Problems</i> . Kelsey.	2	2	2	191, and 192 or 193.

* Courses 191, 192, 193, 194, and 195 are the only courses in Sociology open to Arts and Science students as elective or group subjects. For courses in Sociology open only to Wharton School students, and for a description of all courses in Sociology, see WHARTON SCHOOL OF FINANCE AND COMMERCE (pp. 204 to 217).

SPANISH.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
671	_____ Rennert.	2	2	2	Latin 431 or French 282.

DESCRIPTION.

671. Hills & Ford, *Spanish Grammar*; Le Sage, *Gil Blas de Santilana*; Alarcon, *El Capitan Veneno*; Valdes, *José*.

ZOOLOGY.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
681	<i>General Zoology</i> ... Conklin. Jennings. Moore. Calvert.	3	3	2	

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
682	<i>Invertebrate Zoology.</i> Calvert. Dougherty.	3	3	2	
683	<i>Mammalian Anatomy.</i> Moore.	6	—	2	
684	<i>Vertebrate Morphology.</i> Moore.	—	6	2	683.
685	<i>General Physiology.</i> Jennings.	6	6	4	681 or 682.
686	<i>Embryology and Histology.</i> Conklin.	6	6	4	683.
687	<i>Recent and Fossil Vertebrata.</i> Moore.	4	4	3	684. Primarily for graduates. Omitted in 1905-06.
688	<i>Comparative Embryology of the Vertebrata.</i> Moore.	6	6	4	684 and 686. Primarily for graduates. Given in alternate years with 687.
689	<i>Anatomy and Embryology of the Invertebrata.</i> Conklin. Calvert.	6	6	4	682 and 686. Primarily for graduates. Omitted in 1905-06.
690	<i>Anatomy and Physiology of the Cell.</i> Conklin.	6	6	4	686. Primarily for graduates. Given in alternate years with 689.
691	<i>Entomology</i> Calvert.	3	3	2	681 or 682.
692	<i>Animal Behavior</i> . . . Jennings.	2	2	2	
693	<i>Protozoa</i> Jennings.	3	3	2	681 or 682.

DESCRIPTION.

681. *General Zoology*.—Introduction to classification, morphology, physiology and natural history. Fundamental properties of animals. General anatomy and physiology. Relations of animals to their physical and organic environment. Types of reproduction. Principles of development, heredity and evolution. The work is conducted in the laboratory and vivarium.
682. *Invertebrate Zoology*.—Representatives of various groups of invertebrate animals are studied in the laboratory and vivarium with reference to their structure, functions, life history and classification.
683. *Mammalian Anatomy*.—Comparative morphology of the Mammalia, based upon the study of the anatomy of the cat. Attention is given to anatomical technique. Lectures, demonstrations and laboratory work.
684. *Vertebrate Morphology*.—Comparative morphology of the Vertebrata exclusive of the mammals. Lectures and laboratory work. The work is designed for prospective students in Medicine, as well as for those intending to teach or to pursue researches in this field.
685. *General Physiology*.—The processes occurring in living matter, and especially those common to all organisms. Physical and chemical factors in the activities of organisms. Physiology of metabolism, movement and development. This course is intended to lay a foundation for modern experimental work in biology, as well as to serve as an introduction to courses dealing with the special physiology of man. Lectures and laboratory.
686. *Embryology and Histology*.—A study of the development and microscopical anatomy of tissues and organs. (a) Typical cell structures and functions, egg and sperm, fertilization and cleavage. (b) Tissues and their differentiation from embryonic cells. (c) The development and microscopical anatomy of organs, as shown in the embryology of the frog, chick, and pig.
687. *Recent and Fossil Vertebrata*.—Advanced study of the comparative anatomy, taxonomy and paleontology of the Vertebrata. Anatomical features, geological and geographical distribution and phylogenetic relationships of the more important families.

688. *Comparative Embryology of the Vertebrata*.—Advanced course on the development of different classes of the Chordata. Lectures and laboratory.
689. *Anatomy and Embryology of the Invertebrata*.—Advanced course on the structure, development and phylogenetic relationships of various groups of Invertebrata, exclusive of Protozoa and Insecta.
690. *Anatomy and Physiology of the Cell*.—Comparative morphology of cell structures. Indirect and direct cell division, and chromatic reduction. Conjugation and fertilization, cleavage and differentiation, regeneration, degeneration. Lectures and laboratory.
691. *Entomology*.—The anatomy, physiology, development and classification of insects, including also some reference to the means of checking the ravages of injurious species.
692. *Animal Behavior*.—Comparative psychology of animals, beginning with a study of the movements and reactions of the lowest organisms and proceeding upward. An attempt is made to trace the development of instinct, intelligence, and other mental characteristics, so far as is possible in the present state of knowledge, and to point out the special fields where further investigation is needed.
693. *The Protozoa*.—The structure, development, and physiology of the unicellular organisms are treated in their bearing on numerous problems of general interest. Special attention is devoted to parasitism and the production of disease by Protozoa.

**THE WHARTON SCHOOL OF FINANCE AND
COMMERCE.**

The subjects offered in the Wharton School of Finance and Commerce are arranged under three main heads:

- * **ECONOMICS:** including Economic Science, Finance, Transportation, Commerce and Business.
- * **POLITICAL SCIENCE.**
- * **SOCIOLOGY.**

ECONOMICS.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
161	<i>Economics</i> Banks. Howard.	2	2	2	
162	<i>Advanced Economics.</i> Patten.	2	2	2	161.
163	<i>English Civilisation</i> Patten.	2	2	2	162.
171	<i>Physical Geography</i> J. R. Smith.	2	2	2	
172	<i>Political Geography.</i> Johnson.	2	2	2	
181	<i>Economic and Commercial Geography</i> J. R. Smith.	2	2	2	171 or 172.
182	<i>American Commerce and Commercial Relations.</i> Huebner.	2	2	2	171 or 172. Omitted in 1905-06.

* The courses enumerated below under these heads are open to Wharton School students only. For courses open to Arts and Science students as elective or group subjects, see pages as follows: Economics, pp. 151, 152; Political Science, pp. 198, 199; Sociology, p. 200.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
183	<i>Commercial Policy.</i> Johnson.	2	2	2	171 or 172. Omitted in 1905-06.
184	<i>Transportation</i> Johnson.	2	2	2	181.
185	<i>Railway Rates and Traffic.</i> Johnson.	2	2	2	184. Alternate years.
186	<i>Organization of International Trade.</i> J. R. Smith.	2	2	2	171.
187	<i>Stock and Produce Exchanges.</i> Huebner.	2	2	2	161.
199	<i>Tariff History of the United States.</i>	—	2	1	161. Omitted in 1905-06.
201	<i>Accounting</i> Moxey. Hardt.	3	3	3	
202	<i>Industrial Processes</i> Duncan.	2	2	2	
203	<i>Industrial Management.</i>	2	2	2	202.
204	<i>Marketing of Products.</i> Duncan.	2	2	2	203. Omitted in 1905-06.
205	<i>Business Law</i> Sullivan.	2	2	2	
206	<i>Advanced Accounting.</i> Moxey.	3	3	3	201.
207	<i>Cost Accounts</i> Moxey.	2	2	2	201. Omitted in 1905-06.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
210	<i>Life Insurance</i> Huebner.	2	2	2	161.
211	<i>Fire, Marine and Fidelity Insurance</i> Huebner.	2	2	2	210.
212	<i>Law and Practice of Insurance.</i> Huebner.	2	2	2	210. Omitted in 1905-06.
214	<i>Investments</i> Meade.	3	3	3	217, 219.
216	<i>Practical Banking</i> . Howard.	3	3	3	217.
217	<i>Money, Credit and Foreign Exchange</i> Conway.	2	2	2	Must be taken with 161, 171 and 201.
218	<i>Public Finance</i> Beck.	2	2	2	
219	<i>Corporation Finance</i> Meade.	3	3	3	217.
225	<i>Real Estate</i> Conway.	2	2	2	For Juniors.

POLITICAL SCIENCE.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
631	<i>Government: of the United States.</i> Young. Pierson. Beck.	2	2	2	
632	<i>Citizenship: Federal and State.</i> Rowe.	2	2	2	631.

No.	Subjects.	Hours a week		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
634	<i>City Government and City Problems.</i> Rowe.	2	2	2	631.
635	<i>Public Administration.</i> Young.	2	2	2	631.
636	<i>Current Political Problems.</i> Pierson.	2	2	2	631.
637	<i>Colonies and Dependencies.</i> Young.	2	2	2	631.
638	<i>International Law.</i> Rowe.	2	2	2	631.
639	<i>Foreign Policy of the United States.</i>	2	2	2	631. Omitted in 1905-06.
641	<i>The Police Power.</i> Pierson.	2	2	2	631.
642	<i>Blackstone's Commentaries.</i>	2	2	2	
651	<i>Government Regulation of Commerce and Industry.</i> Pierson.	2	2	2	631.
652	<i>Labor Legislation.</i> Young.	2	2	2	631.
653	<i>Comparative Governments.</i>	2	2	2	631. Omitted in 1905-06.

SOCIOLOGY.

No.	Subjects.	Hours a week.		Units of Work.	Preparation required, remarks, etc.
		1st Term.	2d Term.		
191	<i>Race Development</i> .. Lindsay. Mangold.	2	2	2	
192	<i>Social Reform</i> Mangold.	2	2	2	191.
193	<i>Charities</i>	2	2	2	191.
194	<i>Sociology</i>	2	2	2	191, 192 or 193.
195	<i>American Social Problems</i> . Kelsey.	2	2	2	191.
196	<i>Criminology</i>	2	2	2	191.
197	<i>Social and Vital Statistics</i> . Mangold.	2	2	2	191.
198	<i>Sociological Field Work</i> . Mangold.	2	2	1	191.

DESCRIPTION.

161. *Economics*.—Introduction. Seager's *Economics*, lectures and special reports.
162. *Advanced Economics*.—Designed primarily as an introduction to social philosophy. Mill's *Political Economy*. Each of the leading doctrines is traced through the various phases of its development until it assumes its final form in the writings of Mill.
163. *English Civilization*.—Social progress of England during the last three centuries. Facts in regard to each great industrial epoch are presented, and their influence on national life, thought and activity considered.
171. *Physical Geography*.—The development of the fundamental

physical factors necessary for man's industrial and social progress. The general agents of erosion, and the resulting earth forms, the character and formation of soils and useful minerals. The atmosphere, its circulation, the development of storms, the distribution of rainfall and of plant and animal life. The ocean, its currents and effect upon climate.

172. *Political Geography*.—A study of the geographic forces that have influenced the formation and development of the leading nations of the world. An examination of the geographic facts connected with recent and present international questions. The course is so conducted as to require the student to acquaint himself with the main facts of the geography of each country studied. Mill's *International Geography* and Longmans' *School Atlas*.
181. *Commercial and Economic Geography*.—Economic and commercial geography of the United States. Resources and leading industries of the different sections of the country, and the foreign trade to which these industries give rise. Basis of our foreign trade shown by examination of resources and industries in leading foreign countries.
182. *American Commerce and Commercial Relations*.—History of American commerce; commercial treaties in force between the United States and the leading foreign nations. The latter part of the course deals with commercial policy. Lectures, assigned readings and reports.
183. *Commercial Policy*.—A study of the commercial policy and commercial relations of European countries, with special reference to their relation to American commerce. Lectures, assigned readings and reports.
184. *Transportation*.—A study of the American railway system, the several branches of the railway service, and the questions of public aid and public control. A study of inland navigation and ocean shipping, with special reference to the United States. Johnson's *American Railway Transportation*. Lectures, assigned readings and reports.
185. *Railway Rates and Traffic*.—An examination of the actual organization and methods prevailing in the several branches of the railway service, in the manufacture of railway equipment, in ship brokerage, in the forwarding business, and in ship-building.

186. *Organization of International Commerce*.—A study of international trade and transportation. The organization of the ocean-carrying trade; line traffic, charter traffic, ocean trade routes and coaling stations. Leading continental routes of international trade. The theory and development of trade centres, and an examination of those of the present. The commercial activities within the trade centre. International payments and the balance of trade.
187. *Stock and Produce Exchanges*.—The evolution of stock and produce exchanges; the benefits growing out of such exchanges; the terminology used in the stock and produce market; stock and produce speculation; investment brokerage; the internal organization of an exchange; the tools and methods employed in the conduct of business on exchanges; the purpose and extent of dealing in "futures"; the warehouse and elevator systems and systems of inspecting and classifying commodities; the listing of securities; the clearing house system; the broker and his work; the law affecting brokers and their customers; and the relation of the stock and produce market to the money market.
191. *Race Development*.—Relations of physical and social environment to beliefs, social standards and social ideals of different races. Patten's *Development of English Thought*; Ripley's *Races of Europe*; Brinton's *Races and Peoples*. Lectures, syllabus and discussion of written reports.
192. *Social Reform in the Nineteenth Century*.—A study of the writings of four groups of social reformers: (a) the Utopists: Saint-Simon, Fourier, Owen, Bellamy and Hertzka; (b) the Moral and Ethical group: Kingsley, Maurice, Carlyle, Ruskin, William Morris and Henry George; (c) the Proletarian-Socialistic group: Blanc, Proudhon, Lassalle, Schultz-Delitsch, Marx, Engels, Bebel and Liebknecht; (d) the Government Meliorists: Shaftesbury, Nicholls, the Fabians and others.
193. *Charities and Correction*.—A study of social failures, and of the efforts to restore social-debtor classes and individuals to social efficiency. The causes of poverty; the problems of pauperism; the development and administration of charities and forward social movements; public and private agencies in dealing with pauperism, with particu-

- lar reference to existing American agencies for dealing with the various classes studied. Lectures, assigned readings, reports.
194. *Sociology*.—I. Ancient and modern social ideals, projected types of an ideal society. Social elements and history of sociological theories; modern theories concerning social organization. Plato's *Republic*, Aristotle's *Politics* and *Ideal Commonwealths*. II. Historical and existing societies; sociological theories; modern theories concerning social psychology, requisites of social survival, social efficiency, and social control. Lectures and assigned readings.
195. *American Social Problems*.—A study of the Negro, Indian, Chinese and other race problems. Immigration and race adjustment. Marriage and divorce, labor problems, etc. Lectures, assigned readings and reports.
196. *Criminology*.—A study of the criminal and the causes of crimes. An historical survey of the treatment of the criminal and a constructive criticism of existing legal and penal machinery. Lectures and assigned readings, reports.
197. *Social and Vital Statistics*.—The object of this course is to prepare the student to collect, arrange, and make practical use of the most important material in the fields of economic and sociological research. Special emphasis is laid upon the interpretation of statistical data. The course is open to Seniors and Graduate students.
198. *Sociological Field Work*.—A study of actual social conditions and of methods employed in the care of dependent and delinquent classes. The course consists largely of trips to various institutions for social betterment in and near the city, supplemented by class work and reports. Students are advised to take 193 and 196 as a preparation for this course.
199. *Tariff History of the U. S.*—A series of introductory lectures on the development of the "balance of trade" theory, followed by a survey of tariff legislation in the United States, and concluding with a summary of American and European tariff regulations.
201. *Accounting*.—Theoretical and practical bookkeeping; practice employed in different forms of business—mercantile, manufacturing and banking. Lectures and

- bookkeeping practice. Lectures on the elements of corporation accounting.
202. *Industrial Processes*.—The course consists of lectures and a number of visits to industrial plants in Philadelphia and vicinity. The subjects studied are the sources of power, the general ways in which power is applied in industry, followed by a description of the principal industries in the United States. On the visits of inspection students are required to observe the methods of production and the means of organizing the plant, and to make a written report on each trip.
203. *Industrial Management*.—An analysis of the chief influences and present tendencies in the location of industries, the situation of establishments, the arrangement of shops, methods of business organization and management, manufacturing methods and policy. Lectures, assigned readings, class discussions and quizzes.
204. *Marketing of Products*.—The methods now practiced in the organization and conduct of the selling branch of industrial and merchandising business. The principal subjects of study in this field are: publicity, agency, advertising, forms and correspondence, credit and discounts, and terms of sale. These are made the topics of lectures, assigned readings and investigation.
205. *Business Law*.—The study of the elementary principles of the law relating to the more common business transactions, including contracts, sales, promissory notes and bills of exchange, contracts of common carriers, agency, partnership and corporations.
206. *Advanced Accounting*.—Manufacturing partnership. Admission of new partner. Revenue accounts and balance sheets; treatment of depreciation, bad and doubtful debts, etc. Voluntary dissolution, accounts in dissolution, partnership adjustment. Involuntary dissolution, reorganization, relation of cost books to commercial books. Corporation accounts. Accounting systems of special forms of business.
207. *Cost Accounts*.—Cost accounts in a manufacturing business. Stores accounts. Manufacture of stock goods—direct and indirect costs—department costs. Manufacture of special orders—record of direct costs; distribution of superintendents', managers', financial, and other "on

- cost" charges. Valuation of goods in process of manufacture in constructing the balance sheet.
210. *Life Insurance*.—The history and financial development of life insurance; description of various types of policies and the calculation of the premium for each. A study of the surplus, reinsurance reserve and surrender values. A study of the different systems of life insurance, "old line," assessment, fraternal and industrial. Policy provisions and the policy contract. The law of life insurance. The investment of insurance funds. A study of the organization of the office, the work of the several departments, and the practice of the business. Relations of the business to the State as shown by an analysis of State statutes. The course will also include a study of (a) Accident and Health Insurance, and (b) Employer's Liability Insurance. Lectures, special reports and assigned readings. Instruction is reinforced by lectures delivered throughout the year by men prominent in the insurance business.
211. *Fire, Marine and Fidelity Insurance*. (Two units, two terms.)—A consideration of (a) the historical development; (b) the process of rate-making; (c) the policy contract; (d) various types of policies; (e) State statutes on policies; (f) the organization and management of the insurance system, and the practice of the business. In the study of fire insurance the course also deals with the subject of fire prevention. Lectures, special reports, assigned readings, and discussions by prominent insurance officials.
212. *The Law and Practice of Insurance*.—An advanced course designed for those who have taken courses 210 and 211. In this course an opportunity is given for special investigation in those branches of insurance which members of the class may wish to choose as a profession. The work will consist mainly of reports and assigned readings.
214. *Investments*.—The nature, methods and laws of investment, and of the relation of speculation to investment. The relative merits of railway stocks, bonds, farm mortgages, street railways, gas and water securities, municipal and county bonds, etc., as investments. Lectures, assignments and class discussion.
216. *Practical Banking*.—A study of the theory and practice of banking, including a thorough drill in the Law of Nego-

- tible Investments. (a) The National Bank. Organization; departments and duties of officers. Operations. Loans, discounts, deposits, commercial credit; collections; cheques and clearing machinery; circulation. Accounting system and records. Examinations, statements and reports. Bank failures. (b) State and Private Banks. (c) Foreign exchange and international banking. (d) Banking systems—American and European.
217. *Money, Credit and Foreign Exchange*.—The history and uses of money; the nature of credit, and the development of credit uses. The phenomena of the money market in their relation to trade, industry and speculation. The machinery of the domestic and foreign exchanges. Goschen's *Foreign Exchange*; Jevons' *Money and the Mechanism of Exchange*; McLeod's *Theory of Credit*; Clare's *A B C of Foreign Exchange*.
218. *Public Finance*.—Fall term: a topical study of the finances of the United States, including budgetary legislation, the customs and excise service, and the treasury as a fiscal agency. Spring term: a topical study of the principles of taxation—the nature of a tax, proportional and progressive taxation, apportionment, incidence, segregation and public credit.
219. *Corporation Finance*.—A study of the financial methods peculiar to the railroad and industrial corporation, and of the special advantages of the several financial methods that may properly be employed. A study of the financial operations in promotion, construction, operation and consolidation of manufacturing and railroad enterprises. Special attention is given to the methods employed in the financing of trusts. Lectures, assignments and class discussion. Dill's *New Jersey Corporations*; Meade's *Trust Finance*; Greenc's *Corporation Finance*.
225. *Real Estate*.—A course dealing with the legal and business problems connected with the sale, purchase and management of real property. After completing a study of the law and practice relating to titles, mortgages and ground rents, the remainder of the course is devoted to the consideration of particular classes of real estate. The valuation, management and location of office buildings and business properties, the development of suburban real estate, the work of the operative builder and the functions

performed by building and loan associations are considered.

631. *Government of the United States*.—A study of the theory and present practical operation of the Federal Constitution. Recent changes and present tendencies. Foreign governments compared with the American system. Growth of the federal form. Lectures and required readings.
632. *Citizenship: Federal and State*.—The acquisition and loss of citizenship. Protection to the rights of citizenship. The distinction between State and Federal citizenship. Protection to foreigners residing in the United States. Status of inhabitants of newly acquired territory, with special reference to Alaska, Hawaii, Porto Rico and the Philippines.
634. *City Government and City Problems*.—A comparative study of city government in Europe and the United States.
 Part I. The problems of city life in ancient and medieval times. Changes in political and social conditions accompanying the rise of the modern city. The political and social consequences of city growth.
 Part II. The form of municipal government in the United States as compared with England, France and Germany. The relation of the municipality to quasi-public works, such as street railways, gas and water supply. The social activities of the municipality. Shaw's *Municipal Government in Great Britain*; Goodnow's *City Government in the United States, Municipal Problems, and Municipal Home Rule*.
635. *Public Administration*.—A study of the executive power. Its position of leadership in modern government. The means by which the executive influences legislation, determines government policy, inspires public confidence and moulds public opinion. Industrial and Commercial reasons for growth of one-man power. The President, the Governor and the Mayor compared in relation to their powers and influence. The methods of organizing executive departments and the principal administrative problems of the present time. Lectures and essays.
636. *Current Political Problems*.—The present activities of political parties in the United States. A discussion of party organization and party regulations in County, State and Nation. An examination of the movements for political

- improvement, with special reference to nominating conventions, "primaries," compulsory voting, referendum, personal registration and proportional representation.
637. *Colonies and Dependencies*.—The dependencies of the United States and of foreign countries. Discussion of the economic and political conditions of Porto Rico, Hawaii, the Philippines and Cuba. The colonial systems of England, France, Germany and Holland. Special attention is paid to such questions as representative government, suffrage, colonial civil service, protectorates, relation of church and state, educational problems, etc.
638. *International Law*.—Nature and source of international law. The evolution of the rules of international law. Contributions of the United States to the development of international law. The law of peace with special reference to the rights and obligations connected with independence, jurisdiction and equality. The growth of the "European Concert" and of the primacy of the United States in American affairs. The law of neutrality with special reference to the duties of belligerent towards neutral states and of neutral states towards belligerent states. Discussion of blockade, contraband and unneutral service. The law of war with special reference to enemy, person and property on land and at sea. Lawrence's *Principles of International Law*; Scott's *Cases on International Law*.
639. *Foreign Policy of the United States*.—A study of the treaty-making power in its relation to the legislative power of Congress and to State legislation. Brief résumé of the history of foreign relations, followed by consideration of international questions in which the United States is interested, especially those concerning the Far East. Foster's *Century of American Diplomacy* and *American Diplomacy in the Orient*; Conant's *United States in the Far East*; Reinsch's *World Politics*.
641. *The Police Power*.—Lectures, cases and text-book. Freund's *Police Power* is used as a guide. A study of the common law and constitutional principles regarding the execution and enforcement of police legislation. Special emphasis is put upon State control of social and economic interests, particularly those restraints and regulations which promote the general welfare.

642. *Blackstone's Commentaries*.—Open to Seniors and Juniors in the Wharton School.
651. *Government Regulation of Industry and Commerce*.—Discussion of the relation between Federal and State regulation. Power of Federal Government under interstate and foreign commerce clause; interstate commerce act, anti-trust law, contracts in restraint of trade; regulation through the power of taxation. State corporation laws, legislation with reference to industrial and commercial combinations and consolidations.
652. *Labor Legislation*.—The more important recent laws and decisions affecting the protection of labor and the regulation of labor unions. The purpose of the course is to afford a general view of the relations of the government to labor interests.
653. *Comparative Governments*.—A comparative study of the federal governments of the United States, the Swiss Federation, the Australian Federation, the Dominion of Canada and the German Empire.

EVENING SCHOOL OF ACCOUNTS AND FINANCE.

The Evening School of Accounts and Finance was established in 1904, for the purpose of offering advanced instruction in financial and commercial subjects to men who are prepared to pursue University work, but who are prevented by their employment from attending the day classes in the Wharton School. The regular course covers a period of three years, and upon the satisfactory completion of twenty-four units of work, a certificate of proficiency is awarded.

Instruction is given by the following officers of the Wharton School:

Assistant Professor MEADE, *Director of the Evening School; Finance.*

Professor JOHNSON, *Transportation.*

Dr. J. RUSSELL SMITH, *Geography.*

Dr. S. HUEBNER, *Insurance, and Stock and Produce Exchanges.*

THOMAS CONWAY, JR., *Secretary of the Evening School; Real Estate.*

JOHN J. SULLIVAN, *Commercial Law.*

JOHN C. DUNCAN, *Industrial Management.*

EDWARD P. MOXEY, JR., *Accounting.*

WALTER K. HARDT, *Accounting.*

The following Special Lecturers also cooperate in the work of instruction:

HERBERT G. STOCKWELL, C. P. A., *Accounting.*

WILLIAM W. RORER, C. P. A., *Accounting.*

JOHN T. HOLDSWORTH, *Banking.*

ADMISSION.

Applicants for admission must be at least eighteen years of age. If over eighteen years, but less than twenty-one years, they must have pursued a preparatory course equivalent to three years in a High School or a Preparatory School. For candidates over twenty-one years of age, who have not pursued such a preparatory course of study, an amount of business experience sufficient to familiarize them with the ordinary forms, accounts and methods of business will be required. Each application will be given separate consideration.

TUITION FEES.

All tuition fees are payable in two instalments—on October 15 and March 1. The tuition charges for the regular course for the first year will be \$50; while for the second and third years, the fees will be \$65 each. The tuition fees for a single course will be \$25; for two courses, \$40, and for three courses, \$50. All other expenses, as for example, books and syllabi of lectures, are \$2.50 a course.

SUBJECTS OF INSTRUCTION.

FIRST YEAR.	Hours a week.
1. Accounting, I	2
2. Money, Credit and Foreign Exchange	2
3. Commercial Law, I	2
4. Business Geography and Industry	2

ACCOUNTING I.

Mr. MOXEY and Mr. RORER.

This course, which assumes that the student is already familiar with the ordinary processes of bookkeeping, consists largely of the consideration of special problems. The student is given practice in making up revenue accounts, realization and liquidation accounts, adjustment accounts in the dissolution of partnerships and corporations, accounts in insolvency and trustee accounts. These problems are supplemented by lectures upon such matters as treatment of depreciation, doubtful and bad debts, and anticipated discounts in the revenue accounts. Exercises are given illustrating accounts peculiar to corporate enterprises, the method of changing from the partnership to the corporate form, and the consolidation of corporations.

MONEY, CREDIT AND FOREIGN EXCHANGE.

Assistant Professor MEADE.

This course lays the ground work for a more advanced study in Finance and Banking. After describing the nature of money in its relation to credit, the nature of the demand for money, the considerations affecting its supply, and the factors which influence the rate of interest, the students are made familiar with the forces operating upon prices. Special attention is given to the nature of bank credit, the factors determining its amount, and its influence

upon prices of commodities and securities. The course concludes with a study of the foreign exchange market.

COMMERCIAL LAW, I.

Mr. SULLIVAN.

This course is intended to give a thorough grounding in the principles of law governing and directly affecting business transactions, and to give facility in the application of these principles. The technical terms, forms and details, a knowledge of which is necessary to the lawyer, but only confusing to a business man, are omitted. Most of the first year's work will be devoted to contracts and negotiable instruments. Under contracts are considered form and consideration; negotiation; capacity of parties; and the payment necessary to make a contract binding. Negotiable instruments are discussed under the following heads: the construction, form, capacity of parties to the instrument, and the liabilities of indorsers. The concluding lectures will be devoted to a study of the law of agency.

BUSINESS GEOGRAPHY AND INDUSTRY.

Dr. J. RUSSELL SMITH.

This course considers the geographical and climatic factors which determine the location of industry in the United States and the principles governing the location of a manufacturing plant. Special topics considered are, the location of the iron and steel industry, the change in the center of wheat cultivation, the causes determining the extension of manufacturing industry in the South and West and the location of industry in Philadelphia.

SECOND YEAR.		Hours a week
5. Accounting, II		2
6. Corporation Finance		2
7. Commercial Law, II		2
8. Railway Transportation		2
9. Real Estate		2
10. Banking		2
11. Stock and Produce Exchanges, and the Marketing of Products		2
12. Life Insurance		2
13. Fire Insurance		2
14. Industrial Management		2

Courses 5, 6 and 7 are required for all regular students. Besides these three courses, the regular student is required to elect one of the special courses enumerated above.

REGULAR COURSES.

ACCOUNTING, II.

Mr. MOXEY.

A continuation of Accounting, I, consisting of practical problems to be worked out by the student, supplemented by explanatory and critical lectures. The first sessions are devoted to the making up of revenue accounts of different kinds of business, especially of joint stock companies, and corporations; the disposition of profits and losses, the declaration and payment of dividends, and to the establishment and utilization of contingent and secret reserves. Cost accounts and forms of accounts for manufacturing, gas and electric companies, commercial and savings banks, insurance companies, accounts of parent and branch houses, and trustee and executorship accounts are considered and explained. The student is given practice in analyzing and interpreting railroad and other corporation reports.

CORPORATION FINANCE.

A study of the financial organization and conduct of corporations, especially railroads and industrials. The first lectures are devoted to a review of the Pennsylvania and New Jersey Corporation Laws, including the powers of a corporation, the procedure to be followed in the incorporation of a company, the rights and liabilities of stockholders, the various securities which may be issued, and the methods of corporation government. The methods of promotion, capitalization and underwriting; the methods of obtaining new capital, the management of floating debt and sinking funds, the determination of profits, the proper division of profits between surplus and dividends, the various methods of consolidation, and the causes of bankruptcy are considered. The provisions of corporate leases and mortgages, the legal position of the mortgage trustee, and the practice followed in receiverships and reorganizations are finally discussed.

COMMERCIAL LAW, II.

Mr. SULLIVAN.

A continuation of the first year's course, taking up the legal liability of common carriers; the rights and privileges of shippers;

the law relating to warehouses and commission merchants; guardian and ward; trustees and executors, and guarantee and suretyship.

ELECTIVE COURSES.*

RAILWAY TRANSPORTATION.

Professor JOHNSON.

An advanced course in railway transportation, comprising a study of the areas of production of the important commodities grown and manufactured in this country; of the railway systems that have developed to handle these commodities, and of the main traffic problems connected with each industry. This study is intended to familiarize the student with the peculiarities in the traffic of each of these great railroad systems. The theory and practice of making rates and fares, and the work of the traffic associations will receive careful analysis. Problems of securing and developing traffic on the important systems and the effects of traffic fluctuations on the income and balance sheet, are set forth. (Omitted in 1905-06.)

REAL ESTATE.

Mr. CONWAY.

A course dealing with the legal and business problems connected with the sale, purchase and management of real property. After completing a study of the law and practice relating to Titles, Mortgages and Ground Rents, the remainder of the course is devoted to the consideration of particular classes of real estate. The valuation, management and location of office buildings and business properties, the development of suburban real estate, the work of the operative builder and the functions performed by building and loan associations are considered.

BANKING.

Mr. HOLDSWORTH.

This course deals with the organization and management of banks and trust companies. After becoming familiar with the duties of the important officers and the organization and relation of the various departments, the remainder of the year is devoted to a study of the business of financial institutions. The considerations affecting the extension of credit; the process of discounting and collecting loans and other claims; the problems arising out of

* The right is reserved to withdraw any elective course at the beginning of the year, in case the registration for such course does not warrant its being given.

the management of deposits and reserves; and the different methods of clearings and collections are explained. The methods of the principal foreign banks are also discussed.

STOCK AND PRODUCE EXCHANGES, AND THE MARKETING OF PRODUCTS.

Dr. HUEBNER.

A study of the methods of transacting business on the leading stock and produce exchanges of the country. The course opens with a discussion of the requirements for listing stocks; the way in which margin transactions are financed, and the rules under which the members of the stock and produce exchanges do business. Next comes a review of the commercial aspects of the grain, coal, iron, steel, oil, lumber and packing industries. The various commercial agencies employed in the marketing of products are considered, and the methods of making payment, the system of inspecting, sampling and grading commodities, and the part played by storage warehouses are discussed. Special attention is given to the study of prices and the factors which determine values.

LIFE INSURANCE.

Dr. HUEBNER.

This course deals with the principles, methods and problems of Life, Accident and Employer's Liability Insurance. The several systems of Life Insurance are discussed, together with the assessment, fraternal, industrial and level premium plans; the mortality table; the fundamental principles of probabilities, and the provisions of the various types of policies. The factors determining the fixing of premium rates and the investment of insurance funds are next considered. The concluding lectures discuss the organization of the home office and the field force of a typical insurance company.

FIRE INSURANCE.

Dr. HUEBNER.

After becoming familiar with the theory of Fire Insurance, the process of rate making is considered. This involves the classification of losses, the organization and work of rating bureaus, the practice of co-insurance, and the various schedules used in rating risks (particularly the "Universal Mercantile Schedule" and the "A. F. Dean Schedule"), the types of insurance policies, and the organization and management of the companies.

INDUSTRIAL MANAGEMENT.**Mr. DUNCAN.**

A study of the practice of business in the collection of raw materials the location, arrangement, organization and management of manufacturing enterprises, and the marketing of products.

THIRD YEAR.

In the third year, besides the regular course in Investments, the student will be required to elect three courses, which he has not already taken in the second year. Students in Accounting will be required to take the course in Auditing as a part of their third year's work.

AUDITING.**Mr. STOCKWELL.**

After discussing the duties and qualifications of an auditor, the kinds of audits and the comparative advantages and disadvantages of each method, the various precautions to prevent and detect fraud are presented. The remainder of the course is devoted to a consideration of the audit from the trial balance to the balance sheet, with special reference to the subject of reserves for various purposes, the division and arrangement of the revenue accounts, valuation of property, and the valuation of goods in the process of manufacture.

INVESTMENTS.**Dr. MEADE.**

The course aims to qualify the student for that critical analysis of a security which is necessary to a conservative estimate of its value. The nature and value of government bonds; the factors determining the desirability of municipal bonds and the conditions affecting their legality will be treated. The investment position of railroad stocks and bonds will be determined, an extended examination being made of the influences of fluctuations in earnings upon the value of these securities. The securities issued by street railways, gas, electric lighting, telephone, telegraph and shipping companies will be next considered. The reasons for the unpopularity of mining stocks and the securities of other industrial corporations will be discussed. Attention will be given to the movement of stock and bond prices during the last fifteen years, in order that the student may get a definite idea of the various influences which act upon stock and bond values. (Omitted in 1905-06.)

COURSES FOR TEACHERS.

These courses are offered to teachers and prospective teachers who have had a normal or high-school training or its equivalent. They are given at times which do not conflict with the duties of the class-room, and are intended the better to fit those pursuing them for practical and progressive work in teaching and in superintending schools. In arranging these courses, the University has in view the needs of a definite class in the community; and, in offering them, it does not enter into competition with existing institutions or with private teachers in the field of secondary instruction. The courses embrace a wide range of topics, and aim to give the student an opportunity to carry on systematic work in one study, or in a group of studies, for periods of from two to four years.

No degree is offered, but satisfactory completion of any course entitles the student to a certificate of study.

ADMISSION.

The admission of candidates to these courses is in the hands of the following committee of the College Faculty:

Professor BRUMBAUGH, *Chairman*,
Professor WITMER,
Professor ROLFE.

Teachers and, in some cases, others, who can give satisfactory evidence of ability to pursue the work with profit, may be admitted upon application, which should be made to the Chairman of the above-named committee.

All candidates for admission are required to fill out the registration blank prescribed by the College for matriculating students. This must be done at the office of the Dean of the College, Room 103, College Hall. Students must complete registration and obtain matriculation cards before attending classes.

EXPENSES AND SESSION.

The tuition fees are as follows, the amount stated in each case being the fee for the full college year of two terms. If the course extends through only one term, or if the student is in attendance for but one term, one-half the amount stated will be the fee.

TEN DOLLARS: Any course of one hour a week throughout the year.

FIFTEEN DOLLARS: Latin (*a*), two hours; Sociology, two hours; Botany, two hours; European History, two hours.

TWENTY DOLLARS: Chemistry, three hours; Experimental Physics, three hours; Psychology, three hours; Zoology, three hours.

DEPOSITS REQUIRED: A deposit of \$10.00, to cover materials and possible damage, is required of all students taking courses in Chemistry and Psychology, and may be required of students in other laboratory courses.

Fees are payable at the Bursar's office, Room 102, College Hall, on October 1 and February 1 for the first and second terms, respectively. An addition is made to any fee not paid within one month. Students in arrears can receive no credit for work, and cannot be admitted to examinations.

NOTICE OF WITHDRAWAL from courses should be in writing, accompanied by the matriculation card, and should be sent, *not to the instructor*, but to the *offices of the Dean and Bursar*. When a student is registered for a course which is given in both terms, it is assumed that he wishes to continue work in the second term unless the office is notified to the contrary. Any change in courses should be approved by the Chairman of the Committee on Courses for Teachers, recorded in the office, and noted on the matriculation card.

THE SESSION OF 1905-06 opened on Saturday, September 30, 1905, and will close on Saturday, May 26, 1906. Instruction is given on Saturdays, between the hours of 9.15 A. M. and 5.15 P. M., unless the class and the instructor agree upon some other more convenient time. Lectures will not be given upon those Saturdays which fall within the Thanksgiving, Christmas and Easter recesses of the College, nor upon legal holidays.

If less than six students apply for any course, or if the number of students in a course falls below six, the course may be discontinued.

SUBJECTS OF INSTRUCTION.

Instruction is offered in the following branches:

Astronomy.	History.	Physics.
Botany.	Latin.	Political and Social
Chemistry.	Mathematics.	Sciences.
English.	Music.	Psychology.
French.	Pedagogy.	Zoology.
German.	Philosophy.	

ASTRONOMY.

Assistant Professor E. DOOLITTLE.

Descriptive Astronomy.—This course will include a general outline of observatory methods and results in Astronomy. The constellations will be studied with Young's *Uranography*, and collateral reading will be assigned. Young's *Manual of Astronomy* and Newcomb's *The Stars* will be used as texts. The students will use a small telescope or an opera-glass. 12.15-1.15, Room 109.

BOTANY.

Professor MACFARLANE, Dr. HARSHBERGER, Mr. KRAUTTER.
Biological Hall, 10.15-12.15.

During 1905-06 a study will be made of the life histories of some of the more important economic plants, including the apple, banana, bean, cherry, cabbage, clover, corn, cotton, oak, onion, orange, parsnip, pea, peach, pear, pine, plum, potato and sweet potato, rose, strawberry and tobacco. Each of these plants will be considered from the standpoint of nature-study, and with special reference to the needs of teachers who conduct classes in nature-study subjects. The course will consist of lectures and laboratory work, and will be abundantly illustrated by hand specimens and by microscopic and lantern demonstrations. The ample facilities furnished by the Botanic Garden and Greenhouses of the University will be utilized for practical demonstration, and walks will be taken through these as occasion requires. Saturday field excursions will be conducted during the spring and early summer months.

CHEMISTRY.

Professor SMITH, Dr. SHINN, Dr. TAGGART, Mr. WALLACE, Mr. McCUTCHEON, Mr. FRAZER. Four years; three hours, each course extending throughout a year. 9.15-12.15.

- (a) *General Chemistry.*—Lectures and practical work. Properties of elements and compounds. Determination of the weight of a liter of various elementary and compound gases, of the specific heat of several metals, of the atomic weight of one or two metals.
- (b) *Reaction of the Metals.*—Preparation of interesting and important salts.
- (c) *Quantitative Analysis.* Foods, salts and technical products, inorganic preparations.

- (d) *Organic Chemistry*.—Lectures, preparation of type compounds. Determinations of vapor density and molecular weight. History of the development of chemical theory.

ENGLISH.

Professor SCHELLING, Professor PENNIMAN, Assistant Professors CHILD, QUINN and WEYGANDT, and Mr. HOAG.

Three objects are contemplated in the courses in these subjects: (1) a year's study of the English Language; (2) a course in Composition; (3) a survey of the History of English Literature. The courses in Literature are graded to cover a period of three years; those in Composition, a period of two years.

- (a) *English Language*.—Assistant Professor QUINN. *First and Second Terms*. This course is designed to aid those who are teaching English Grammar, by giving them an insight into the earlier forms of the language, with some knowledge of the principles that have governed its later development. (Omitted in 1905-06.)
- (b) *Composition*.—*First Year*. Mr. HOAG. *First and Second Terms*. 11.15-12.15, Room 203. This course aims to develop readiness and accuracy of perception in matters of thought and style. It involves the preparation each week of a narrative, descriptive, expository or argumentative theme, which is read and discussed in class, and then returned with individual criticism.
- (c) *Composition*.—*Second Year*. Mr. HOAG. *First and Second Terms*. This course aims to develop an ability to collect and arrange materials. It continues the work of course (b), with minute attention to correct literary form. (Omitted in 1905-06.) Course (c) is open only to students who have satisfactorily completed course (b).
- (d) *The History of English Literature*, (e) *The English Novel* (f) *Modern Poets*, (g) *Modern Essayists*, (h) *The Drama of the Age of Elizabeth*, and (j) *English Literature in America*, courses formerly given, will be omitted until further notice.
- (k) *The Literary Study of the English Bible*.—Professor PENNIMAN. *First Term*. 10.15-11.15, Room 205. This course comprises a study of the form and structure of the various books. A study of the kinds of poetry found in the Book of Psalms, and the relation of the English Bible to English Literature in general.

- (l) *The Larger Literary Forms*.—Professors SCHELLING, PENNIMAN, CHILD, QUINN AND WEYGANDT. *Second Term*. 10.15–11.15, Room 205. Lectures on the epic, the ballad, the romance, the lyric, the drama, the novel, the short story and other forms.
- (m) *Elizabethan Literature*.—Professor SCHELLING. Lectures on the history of English Literature, from the accession of Elizabeth to the close of the reign of King James. (Omitted in 1905–06.)
- (n) *Contemporary Poetry*.—Assistant Professor WEYGANDT. Lectures on English Poetry, from the death of Mathew Arnold to the present day—the Wordsworthians, the Poets of Empire, the Celtic Renaissance, the Decadents. (Omitted in 1905–06.)

All of the courses in literature involve collateral reading, and the preparation of papers upon topics arising out of the lectures and the student's reading.

FRENCH.

Mr. VURPILOT. Three years.

These courses are intended to enable the student to read and to speak French. Only two courses are offered each year:

- (a) *Elementary French*.—Grammar and Reading. The object of the course is to prepare students to follow the more advanced courses. The work consists largely of translation from French into English, of sight reading of simple French, and of translation from English into French, with oral exercises illustrating the elementary rules of grammar and the simpler rules of syntax. Grandgent's *Essentials of French Grammar* (Heath & Co.); O. Kuhns' *French Reading for Beginners* (H. Holt & Co.). 9.15–10.15, Room 217.
- (b) *Intermediate French*.—Speaking, Reading, Composition. The objects of this course are to lead the student to understand both the spoken and the written language, to enable him to read easily at sight and to write with a fair degree of accuracy. The work consists of exercises in composition, illustrating the principles of the grammar and the more frequent rules of syntax, of short summaries of the books read, of translation of English into French, and of French into English, with oral reproductions of stories told by the instructor. A. H. Edgren's *French Grammar* (Heath & Co.); O. Guerlac's *Selections from*

Standard French Authors (Ginn & Co.). 11.15-12.15, Room 217.

- (c) *French Pronunciation*.—Conversation and reading. The chief object of this course is to fit advanced students for public speaking and reading of French, by giving them correctness both in pronunciation and elocution. (Omitted in 1905-06).

GERMAN.

Assistant Professor WESSELHOEFT.

The aim of the course is to enable students to master the principles of German grammar, to acquire a correct pronunciation, to read German at sight, and to interpret German masterpieces intelligently. The course will be so arranged that much of the work can be done as private reading. Only two courses are offered each year. Two hours.

- (a) *Grammar and Reading*.—*First Year*. Learned's *German Grammar*. Easy German reading. 11.15-12.15, Room 218.
 (b) *Composition and Reading*.—*Second Year*. Wesselhoeft's *German Composition*; Schiller's *Jungfrau von Orleans*. (Omitted in 1905-06.)
 (c) *Advanced Composition and Reading*.—*Third Year*. Jagemann's *German Composition*; Goethe's *Egmont*. Prose Reading. 12.15-1.15, Room 218.

HISTORY.

EUROPEAN HISTORY.

Professor CHEYNEY, Assistant Professors LINGELBACH and HOWLAND.

The courses in European history are arranged with the object of giving a suggestive outline of the period treated, with special attention to the more significant topics. The lectures will be supplemented by prescribed reading; one hour will be given to the lecture, and the remainder of the time to a study of some particular related question. Illustrations from original sources or by lantern views.

One course only will be given in each year. In 1905-06 course (a) will be given.

- (a) *Medieval History, A. D. 395-1453*.—11.15-12.15, Room 320. Assistant Professor HOWLAND. Chief topics: The Roman Empire in the fourth century; the civilization of the early

Germans and their settlement in the Empire; the gradual fusion of the two elements; the spread of Christianity and the earlier organization of the Church; foundation of the Medieval Empire; feudalism; the development of the Papacy and the struggle between church and state; the Crusades as an illustration of medieval ideals; economic and political development in the thirteenth and fourteenth centuries; the Hundred Years War; the fall of the Medieval Papacy and the attempt at reform within the Church.

- (b) *Modern History, 1453-1815*.—Assistant Professor LINGELBACH. The Renaissance; the Reformation; the wars of religion; Louis XIV. and the ascendancy of France; the rise of Prussia, and of Russia; the partitions of Poland; the Ancient Régime, the French Revolution, and Napoleon. (Omitted in 1905-06.)
- (c) *Europe in the Nineteenth Century*.—Assistant Professor LINGELBACH. The heritage of the French Revolution and Napoleon; the Congress of Vienna and the reaction; the struggle for constitutions and the rights of nationality; the Greek Revolution; Cavour and Italian unification; Bismarck and the founding of the German Empire; the Franco-German War; France under the Third Republic; problems of Austro-Hungary; the Eastern Question; Russian expansion and the question of the Far East. (Omitted in 1905-06.)
- (d) *English History*.—Professor CHEYNEY. Certain periods, movements and institutions will be chosen for study, leaving the connection between them to be worked out by the student. The subjects will be: the Race Origin of the English People, Roman Britain, the English Settlement, the Norman Conquest, English Feudalism, Henry II., Parliament, Manorial Life, Town and Guild Life, the Reformation, Puritanism, Greater Britain, the Factory System, the Reform Bill, Democracy. (Omitted in 1905-06.)

AMERICAN HISTORY.

Assistant Professor AMES and DR. WILLARD.

History of the United States in Recent Times.—10.15-11.15 A. M., Room 206. Topics in our domestic problems and in our foreign relations, chiefly since the Civil War, with especial reference to the work of Reconstruction and its undoing, and the development of the United States to its position as a world power.

LATIN.

Professor ROLFE and DR. KENT.

The following courses will be offered, provided they are elected by at least six students:

- (a) *Beginners' Course*.—Forms and Syntax, as in Bennett's *Foundations of Latin*. Cæsar, 20 to 25 pages. 11.15-1.15. Room 212.
- (b) *Teachers' Courses*.—In all these courses special attention will be given to the bibliography of the subject, and to the problems of instruction in secondary schools. In order to obtain credit, it will be necessary to do some reading outside of the classroom, to prepare such papers as are set, and to pass the required examinations. The courses will, however, be adapted also, as far as possible, to the needs of those who may be reading Cæsar, Cicero, or Vergil for the first time. Course (b), (2) or (b), (3) may possibly be given in 1905-06, in addition to (b), (1).
- (1) *Cæsar*.—Lectures and conferences on topics relating to the teaching and study of Cæsar. Reading of selections. Preparation of papers. 11.15-12.15. Room 210.
- (2) *Cicero*.—Lectures and conferences on topics relating to the teaching and study of Cicero. Reading of selections. Preparation of papers. (Omitted in 1905-06.)
- (3) *Vergil*.—Lectures and conferences on topics relating to the teaching and study of Vergil. Reading of selections. Preparation of papers. (Omitted in 1905-06.)

MATHEMATICS.

Assistant Professors FISHER and SCHWATT, and DR. HALLETT.

Each of the following courses (except b) occupies one year. Students are supposed to have studied algebra through quadratics, and plane geometry. This preparation will admit to (a) or (c). More advanced students will be admitted to any course for which their preparation fits them.

- (a) *Solid Geometry*.—*First Term*. Assistant Professor SCHWATT. Lines and planes in space; polyhedra; the cylinder, cone and sphere. (Omitted in 1905-06.)
- (b) *The Teaching of Elementary Mathematics*.—*Second Term*. Assistant Professor SCHWATT. Historical development of number. Number systems; in particular, the decimal and the duodecimal systems. The conception of number among sav-

ages and children. Different methods of presenting the subject of arithmetic, with special reference to Grube's method and the spiral system. In Algebra, special emphasis will be laid upon the importance of securing a better insight into the fundamental processes and results, equivalence of equations, multiplicity of roots, etc. The axioms of Geometry; Observational Geometry; Euclidean and Non-Euclidean Geometry; laboratory method of teaching elementary mathematics. The Perry movement. 11.15-12.15, Room 104.

- (c) *Algebra*.—Assistant Professor FISHER. Quadratic equations, ratio and proportion, series, theory of exponents and logarithms, permutations, combinations and simple probability, continued fractions, undetermined coefficients. (Omitted in 1905-06.)
- (d) *Plane and Spherical Trigonometry*.—Assistant Professor SCHWATT. The trigonometric functions, simplifications of trigonometric expressions, the solutions of right and oblique triangles. This course requires a knowledge of course (a).
- (e) *Theory of Equations and Determinants*.—Assistant Professor FISHER. General theory of rational, integral algebraic expressions, special theory and solutions of the cubic and biquadratic, theory of determinants and of symmetric functions. This course requires a knowledge of course (c). 10.15-11.15, Room 204.
- (f) *Analytic Geometry*.—Dr. HALLETT. The fundamental properties of the conic sections, with an introduction to solid analytic geometry and higher plane curves. This course requires a knowledge of courses (c) and (d). (Omitted in 1905-06.)
- (g) *Differential and Integral Calculus*.—Dr. HALLETT. The method of differentiation and integration, maxima and minima, areas, volumes, etc. This course requires a knowledge of course (f). 12.15-1.15, Room 111.

MUSIC.

Professor CLARKE. 10.15-11.15. University Library.

History of Music.—The object of this course is to give an historical and analytical account of the development of Music. It is designed primarily to meet the needs of those who are not special students of Music.

Sound as the material of music; the varieties of scales, primitive music; the beginning of organized music; the ecclesiastical scales,

or modes; the origin and growth of notation; the early attempts at combining sounds; counterpoint; the fusion of popular and scientific music; the growth of harmony; the modern tempered scale, modern music; opera and oratorio; the orchestra.

PEDAGOGY. .

Professor BRUMBAUGH.

- (a) *American Education, First Year*.—A study of the distinctive features of American educational development, followed by a study of school management. Text-books recommended: White's *Pedagogy*, White's *School Management*, Tompkin's *School Management*, Brumbaugh's *The Making of a Teacher*, Schaeffer's *Thinking and Learning to Think*. (Omitted in 1905-06.)
- (b) *English and Continental Education, Second Year*.—Principles will be exhibited as presented in Spencer's *Education*: a consideration of methods and the practice of the best schools will follow. Besides Spencer, the works of Payne, Fitch, and Laurie, with Sharpless' *English Education*, will be used. 9.15-10.15. University Library.

PHILOSOPHY.

Professor NEWBOLD and Assistant Professor SINGER.

- (a) *History of Ancient Philosophy*.—Professor NEWBOLD. Lectures. Hours to be arranged.
- (b) *History of Modern Philosophy*.—Assistant Professor SINGER. Lectures, and study of sources. Hours to be arranged.
- (c) *Logic*.—Assistant Professor SINGER. Jevons' *Lessons in Logic*, followed by lectures on the modern development of logic, *Second Term*. (Omitted in 1905-06.)
- (d) *Ethics*.—Professor NEWBOLD. Lectures. *First Term*. (Omitted in 1905-06.)

PHYSICS.*

- (a) *Dynamics, Sound, Heat and Light*.—One hour, first year.
- (b) *Electricity and Magnetism*.—One hour, second year, first term.
(a) and (b) together constitute a complete course in general physics, conducted in the class-rooms, and will be freely illustrated experimentally. Algebra and Plane Trigonometry are

* Given in the Randal Morgan Laboratory of Physics.

required for admission, and Analytic Geometry should be studied at the same time as course (a).

- (c) *Experimental Physics: Laboratory Course*.—Three hours. This course presupposes a knowledge of elementary general physics, and will be adapted to the qualifications and the needs of the students.

POLITICAL AND SOCIAL SCIENCES.

Professors PATTEN, LINDSAY, ROWE, and Assistant Professor YOUNG.

- (a) *Political Economy*.—A general course designed for beginners. During the second term, special attention will be given to the theory of money and the labor problem. Text-book and lectures. Two hours.
- (b) *Sociology*.—Historical development and present practical problems of social organization in the United States. Social classes in their relation to each other, and the social basis of the public school, its curriculum and its discipline. Education for citizenship and for industrial efficiency. The social basis of moral training in the public schools. The work consists of lectures, assigned reading, and reports by students, to be read and criticised in the class-room. Two hours.
- (c) *Modern Governments*.—An examination of the political systems of the United States, England, France and Germany, The structure of government and its practical operation, the political parties, their platforms and leaders; the relation of economic classes to political issues. Two hours.
- (d) *Political Science*.—The protection to personal and property rights under the Constitution. Comparisons with individual liberty in Germany, France and England. Two hours.

PSYCHOLOGY.

Professor WITMER and Dr. TWITMYER.

Psychological Laboratory, entrance west end of College Hall. Courses (a), (b) and (c) together constitute a general outline of Psychology. The lectures may be attended without taking the laboratory work; but students may not enter the Seminary for Practical Work in Comparative and Genetic Psychology unless they have taken both the lectures and laboratory work of courses (a), (b) and (c).

- (a) *Analytic Psychology*.—Dr. TWITMYER. An introspective and experimental analysis of perception: the role of apperception, memory, attention and association; perceptions of space; the sense organs; the physical stimuli or objects of perception. *First Term*. Lecture 10.15–11.15. Laboratory, two hours additional.
- (b) *Physiological Psychology*.—Dr. TWITMYER. Mind and body: the nature of the will, automatic and reflex movements, inherited instincts and acquired habits, impulse and emotion; the structure and functions of the human nervous system. Dissection of the brain and experimentation upon voluntary and reflex movements. *Second Term*. Lecture, 10.15–11.15. Laboratory, two hours additional.
- (c) *Genetic Psychology*.—Dr. TWITMYER. Development and organization of the individual mind: permanent effects of sensation and movement upon the brain; sensory after-images; memory images; cerebration and association; organization of imagination and memory; the development of ideas, the intellect and reason; the growth of attention and the individual will. (Omitted in 1905–06.)
- (d) *Advanced Course*.—Professor WITMER. Seminary for Practical Work in Comparative and Genetic Psychology. One hour. Intended to give instruction, and especially practice, in methods of observation and experimentation. A psychological clinic furnishes the opportunity for the study of retarded and abnormal mental development.

ZOOLOGY.

Professor CONKLIN, Assistant Professor JENNINGS, and Drs. MOORE and CALVERT. Biological Hall, 9.15–12.15.

General Zoology.—An introduction to the classification, morphology, physiology and natural history of animals. The work is conducted in the laboratory and vivarium, and comprises a study of fundamental life-processes as illustrated by the Protozoa, the general anatomy and physiology of the Metazoa, the relations of animals to their environment, types of reproduction, principles of development, heredity and evolution.

SUMMER SCHOOL.

SESSION OF 1905.

OFFICERS.**CHARLES C. HARRISON, LL. D.,** PROVOST.**EDGAR F. SMITH, PH. D., Sc. D., LL. D.,** VICE-PROVOST, and
Professor of Chemistry.**JOSIAH H. PENNIMAN, PH. D.,** Professor of English Literature,
and DEAN OF THE COLLEGE FACULTY.**ARTHUR H. QUINN, PH. D.,** Assistant Professor of English, and
DIRECTOR OF THE SUMMER SCHOOL.

During the summer of 1905 courses of instruction were offered
in the following subjects:

Architecture,	Greek,
Astronomy,	History,
Botany,	Latin,
Chemistry,	Mathematics,
English,	Music,
French,	Physics,
German,	Psychology.

The session of 1905 opened on Wednesday, July 5, and closed
on Saturday, August 12.

*During the summer of 1906, the session will be open on Thursday,
July 5, and close on Thursday, August 16.*

CREDITS.

In most of the courses lectures are given in periods of one hour
during every day in the week, except on Saturdays, and for such
courses of five hours a week one unit credit may be allowed. Lab-
oratory courses will be subject to special regulation.

Students who pursue courses with satisfaction to the instructors,
and pass the necessary examinations, receive certificates. No

entrance examinations are required for admission to the Summer School.

When, in the opinion of any department, the instruction offered in any subject in that department becomes equivalent to the instruction given in any specified subject in the regular College course, credit toward a degree may be given to those who pursue these Summer School subjects successfully, and who pass satisfactory examinations therein.

Regularly matriculated students in the University may remove their conditions by attendance upon the Summer School courses, and by passing satisfactory examinations therein, provided the work done covers substantially the same ground covered by the subject in which the condition was given.

GRADUATE WORK.

When courses are offered in any department of the grade of graduate work, students may receive credit for such work if they matriculate afterwards in the Department of Philosophy.

FEEES.*

For one lecture course of five hours a week.....	\$15 00
For each additional course	10 00
†Architecture { Courses 1, 3, 4 and 5	10 00
{ Courses 2, 6 and 7.....	20 00
Laboratory fees:	
Botany: Lecture course and two hours laboratory work..	\$20 00
Chemistry: Lecture course and three hours laboratory work	25 00
Physics: Lecture course and three hours laboratory work	25 00
Psychology: Lecture course and two hours laboratory work	20 00

ADDITIONAL INFORMATION.

For information as to particular courses, address the instructors in charge of those courses, at College Hall, University of Pennsylvania, Philadelphia, Pa.

For all other information, address the Director of the Summer School, College Hall, University of Pennsylvania, Philadelphia, Pa.

* Subject to change.

† No single fee in Architecture will exceed \$25.00.

OUTLINE OF COURSES—SESSION OF 1905.*

ARCHITECTURE.

PHILIP R. WHITNEY, S. B., Instructor in Architecture.

ARCHITECTURE 1. *Architectural Drawing*.—A course in instrumental drawing, brush-work and lettering as applied to architectural subjects.

ARCHITECTURE 2. *Elements of Architecture*.—A course of exercises in drawing and rendering the Orders.

ARCHITECTURE 3. *Graphics*.—A course in projections and intersections as required for the course in Shades and Shadows.

ARCHITECTURE 4. *Shades and Shadows*.—Problems peculiar to architectural subjects.

ARCHITECTURE 5. *Perspective*.—The principles employed in making architectural perspective drawings.

ARCHITECTURE 6. *Rendering and Order Problems*.—Exercises in rendering architectural drawings, with problems in elementary design.

ARCHITECTURE 7. *Design*.—Problems in elementary design of the small ensemble, involving the applications of the principles of architectural drawing.

ASTRONOMY.

ERIC DOOLITTLE, C. E., Assistant Professor of Astronomy.

ASTRONOMY 1.—Young's *Manual of Astronomy*, with informal lectures. An acquaintance with the elements of geometry, algebra, trigonometry and theoretical mechanics is desirable, although the last two are not essential. Daily, at 9.

BOTANY.

JOHN W. HARSHBERGER, PH. D., Instructor in Botany.

BOTANY 1. *The Structures and Functions of Plants, with Methods of Botanic Study and Preparation*.—The plant as a whole is described, followed by detailed study of forms and functions of root, stem, leaf, flower and fruit, and the bearing of these on classification. The preparation of objects for study; collecting, dissection, hand-sectioning, microtome-sectioning, staining and mounting; preparation and use of reagents. This course is equivalent to two units in the College. Daily, 10-1.

* A circular, containing descriptions of the courses offered in the Summer School session of 1906, will be ready on April 1.

CHEMISTRY.

EDGAR F. SMITH, Ph. D., Sc. D., LL. D., Vice-Provost of the University, and Professor of Chemistry.

OWEN L. SHINN, Ph. D., Assistant Professor of Chemistry.

DANIEL L. WALLACE, Instructor in Analytical Chemistry.

THOMAS P. McCUTCHEON, JR., A. B., Instructor in Analytical Chemistry.

CHEMISTRY 1. *Elementary Chemistry.*—The lectures consider the metals and non-metals. The laboratory work consists of careful drill in experimentation, with emphasis upon those points which are of fundamental value. Lecture daily, at 9. Professor SHINN.

CHEMISTRY 2. *Qualitative Analysis.*—This course is conducted with experiments by the instructor, accompanied by laboratory work on the part of the student. The aim is also to include as many of the rare metals as possible. Lecture daily, at 10. Mr. McCUTCHEON.

CHEMISTRY 3. *Quantitative Analysis.*—In addition to elementary drill in this subject, an opportunity is given all who are sufficiently advanced to acquaint themselves with mineral analysis, in order that the student may learn some of the more difficult methods of quantitative analysis. Professor SMITH and Mr. WALLACE.

CHEMISTRY 4. *Electro-Chemistry.*—This subject is given only to students who have had experience in chemistry. The course consists chiefly in practical laboratory work, with conversational lectures. Professor SMITH.

CHEMISTRY 5. *Assaying.*—Practical work, in the valuation of gold, silver and lead ores. Mr. WALLACE.

CHEMISTRY 6. *Preparations.*—Laboratory practice in the preparation of simple and complex inorganic bodies. Professor SHINN.

ENGLISH.

ARTHUR H. QUINN, Ph. D., Assistant Professor of English, and Director of the Summer School.

THOMAS D. BOLGER, B. S., Assistant in English.

ENGLISH 1. *Composition.*—This course affords practice in the four main forms of composition—narration, description, exposition and argumentation.

The work aims at the development of a feeling for style and the presentation of thought in clear, idiomatic English. Individual criticism, suited to each writer's particular case, is given on all work

presented; and an attempt is made to reduce to the simplest and most serviceable form all rules touching those general principles of judgment, arrangement and method that are the foregone requirements of good writing. These rules will be formulated on a basis of experience in teaching rather than on theoretic grounds. Daily, at 11. Mr. BOLGER.

ENGLISH 2. *College Entrance Requirements*.—This course consists of a careful study of the books in English prescribed for entrance to College. Papers are assigned from time to time.

For special study:—

Shakespeare's *Julius Cæsar*; Milton's *Lycidas*, *Comus*, *L'Allegro*, and *Il Penseroso*; Burke's *Speech on Conciliation with America*; and Macaulay's *Essay on Milton*, and *Life of Johnson*.

For general study:—

Shakespeare's *Macbeth*, and *Merchant of Venice*; *The Sir Roger de Coverley Papers* in *The Spectator*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe*, and *The Lady of the Lake*; Tennyson's *Gareth and Lynette*, *Lancelot and Elaine*, and *The Passing of Arthur*; Lowell's *Vision of Sir Launfal*; and George Elliot's *Silas Marner*. Daily, at 10. Mr. BOLGER.

ENGLISH 3. *Advanced Composition*.—This course consists of the writing of a limited number of themes upon topics suggested by the instructor. For example, the Sigurd and Brynhild story is studied in its development from the old Germanic myth to its modern treatment by Morris and Ibsen, and an essay written, in which special attention is paid to the arrangement of material and its presentation in an attractive form. Short stories are written, some verse forms are studied experimentally, and such objects as the modern movement toward a literary drama in prose and verse, are assigned. Daily, at 11. Professor QUINN.

ENGLISH 4. *Four Representative Essayists of the Nineteenth Century*.—The course consists of lectures and readings aiming at an appreciation of the literary style, the critical or interpretative attitude, and the principles of judgment of four great masters of thought in the nineteenth century,—De Quincey, the rhetorician; Carlyle, the moralist; Pater, the æsthete; and Stevenson, the romancer. Daily, at 12. Mr. BOLGER.

ENGLISH 5. *Literary History of America*.—This course consists of lectures on the history of the Literature of the United States, preceded by an introduction dealing with English Literature in the Colonies. It deals with the writings of the early discoverers and settlers; with the theological controversies of the eighteenth cen-

tury; the political satire of the Revolution; the works of Barlow, Dwight, Trumbull, and other writers of the late eighteenth century; and then proceeds to take up at greater length the writers of the nineteenth century. Particular attention is paid to the works of Charles Brockden Brown, Irving, Cooper, Bryant, Halleck, Drake, Willis, Simms, Poe, Emerson, Hawthorne, Longfellow, Lowell, Holmes, Whittier, Taylor, Thoreau, Lanier and Whitman. Daily, at 9. Professor QUINN.

FRENCH.

REV. FLORIAN J. C. VURPILLOT, B. A., B. D., Instructor in French.

FRENCH 1. *Elementary French*.—Intended for beginners, to enable them to read easy French and write simple sentences. The course consists of object-lessons, short sentences, outline of grammar, study of present, future and past indefinite tenses, personal pronouns, most common irregular verbs, with oral and written exercises. Text-book: E. S. Joynes' *Minimum French Grammar and Reader*. Daily, at 10.

FRENCH 2. *Intermediate French*.—Review of grammar, including translation. Study of past definite and imperfect tenses; subjunctive mood; partitive sign, uses of voices and auxiliary verbs; oral exercises and prose composition. Text-books: A. Muzzarelli, *A Brief French Course*; Jules Verne, *Vingt mille lieues sous les mers*; Labiche, *La Grammaire*. Daily, at 11.

FRENCH 3. *Advanced French*.—Study of the syntax. This course deals with the most specific differences between French and English grammar, special attention being given to the study of the idiomatic forms used in speaking and writing. Oral reproduction of stories by French writers, told by the instructor and so selected as to bring out the national aspects of French life. Text-books: A. H. Edgren, *French Grammar*; Labiche, *La cagnotte*. Daily, at 12.

FRENCH 4. *French Pronunciation, Elocution and Reading*.—The chief object of this course is to fit advanced students for public speaking and reading of French, by giving them correctness both in pronunciation and elocution. Daily, at 9.

GERMAN.

EDWARD C. WESSELHOEFT, A. M., Assistant Professor of German.

GERMAN 1. *Elementary German*.—This is intended for beginners, or for those who wish to review the elements of the language.

The instruction is practical, and consists of a thorough drill in the elements of the grammar and in pronunciation. Daily, at 11.

GERMAN 2. *Beginner's Course in Reading German*.—This course confines itself entirely to the reading of German, the aim being to give the beginner facility in reading independently. The reading in class is done partly after preparation, partly at sight. Daily, at 9.

NOTE.—Courses 1 and 2 cover in part the entrance requirements for College.

GERMAN 3. *Intermediate German*.—This course is designed for those who have already familiarized themselves with the elements of the language, and who are able to read at sight easy German prose. The study of grammar is continued, and the syntax of the various parts of speech carefully treated. Stress is laid on German prose composition. Reading of the classical drama and prose. Daily, at 10.

GERMAN 4. *Course in German Conversation*.—This is intended for beginners, or for more advanced students who wish to acquire facility in understanding and in speaking German. Students taking Courses 1, 2 or 3 are advised, if possible, to take this course in addition. Especial attention is paid in this course to the pronunciation of each individual student. Daily, at 12.

GERMAN 5. *Advanced German*.—Reading and discussion of some classical work. Writing of German essays and conversation. The entire course is conducted in German, and is adapted for students who have had some practice in understanding spoken German. Daily, at 3.

GERMAN 6. *Scientific German*.—This course consists of the rapid reading of texts, especially adapted for students who have a reading knowledge of easy German prose and wish to acquire facility in reading technical German. Daily, at 4.

GREEK.

ROLAND G. KENT, A. M., Ph. D., Instructor in Greek and Latin.

GREEK 1. *Beginners' Course*.—Grammar, with written exercises to ensure the mastery of the forms and of the more elementary principles of syntax. The aim will be to prepare the student as rapidly as possible for the reading of simple Greek texts. White's *First Greek Book*. Daily, at 9.

GREEK 2. Xenophon's *Anabasis*, Books III and IV. Literal and free translation, with study of the syntax and the forms as

illustrated by the text. The aim is to make the student able to render Greek prose texts into good idiomatic English. Goodwin and White's *Anabasis*, revised edition (1894); Goodwin's *Greek Grammar* (revised edition, 1892). Daily, at 10.

HISTORY.

WILLIAM E. LINGELBACH, Ph. D., Assistant Professor of European History.

ALBERT E. MCKINLEY, Ph. D., Professor of History at Temple College; Lecturer on American History.

HISTORY 1. *Europe from the Beginning of the Modern Period to the Overthrow of Napoleon.*—The object of this course is to give a thorough survey of the epochs of European history of this period beginning with the Renaissance in its varied manifestations in literature, art and architecture; and followed in order by the reformation, the counter-reformation and the religious wars, dynastic and colonial aggrandizement, Louis XIV, rise of Prussia and Russia, the Diplomatic Revolution and the Seven Years' War, Enlightened Despotism, the Partitions of Poland, the Ancient Régime, the French Revolution and Napoleon. Daily, at 9. Professor LINGELBACH.

HISTORY 2. *Europe in the Nineteenth Century.*—Europe immediately after the Napoleonic wars; the Congress of Vienna; the Holy Alliance and reaction; the struggle of the peoples for constitutional government and nationality; the Greek Revolution; the revolutions of 1830 and 1848; the rise of Bismarck, Prussian ascendancy in Germany and the establishment of the German Empire; Cavour and Italian unification; France under Louis Napoleon, the Franco-Prussian War and the Third Republic; the dual monarchy in Austria-Hungary, with its problems; the minor States; autocracy in Russia and Russian Expansion; the powers in Asia; the partition of Africa; survey of contemporary Europe. Daily, at 10. Professor LINGELBACH.

HISTORY 3. *Political History of the United States, 1765-1830.*—A study of the political organization and political customs which developed during the formative period of American History. Emphasis will be laid upon the political ideas as a factor in institutional growth, and upon economic life as furnishing a background for that development. Students are expected to possess a knowledge of the principal facts of the period. Daily, at 11. Dr. MCKINLEY.

HISTORY 4. *Colonial History; Institutional Development in the English Colonies.*—This course is designed to show the manner in which colonial institutions developed from English practices under the new world conditions. The principal topics treated will be the origin of colonial political organization both general and local, the growth of the representative system, the suffrage under colonial conditions, and the development of religious toleration. Daily, at 12. Dr. MCKINLEY.

LATIN.

HENRY GIBBONS, A. M., Professor of Latin Literature.

LATIN 1. *Beginners' Course.*—Essentials of grammar, with literal translation of fifteen or twenty pages of Cæsar's *Gallic War*. Daily, at 10.

LATIN 2. *Cicero's Orations.*—Part of the time will be devoted to rapid reading and translation, and part to the idiomatic translation, with more thorough grammatical and historical study, of the instructive passages. Daily, at 11.

LATIN 3. *Vergil's Æneid*, with translations into the best English, and with special attention to prosody, poetic usage and the derivation of words. Daily, at 12.

LATIN 4. *Advanced Course in Cæsar's Gallic War*, with selections from Nepos for rapid reading. Daily, at 2.

LATIN 5. *Latin Prose Composition.*—Daily, at 9.

MATHEMATICS.

EDWIN S. CRAWLEY, Ph. D., THOMAS A. SCOTT Professor of Mathematics.

GEORGE E. FISHER, Ph. D., Assistant Professor of Mathematics.

ISAAC J. SCHWATT, Ph. D., Assistant Professor of Mathematics.

GEORGE H. HALLETT, Ph. D., Assistant Professor of Mathematics.

FREDERICK H. SAFFORD, Ph. D., Instructor in Mathematics.

MATHEMATICS 1. *The Teaching of Elementary Mathematics.*—The historical development of numbers; integral and fractional, positive and negative, rational and irrational, real and imaginary. Number systems; in particular, the decimal and duodecimal systems. The conception of number with savages and children. A comparative study of different methods of presenting the subject of arithmetic, especially Grube's method and the spiral system. In algebra, emphasis is laid upon the importance of securing a better insight into fundamental processes and results. Observa-

tional geometry; the axioms of geometry; the differences between Euclidean and non-Euclidean geometry. Laboratory methods of teaching elementary mathematics. Consideration of the amount of mathematics to be given in each grade of elementary schools, and in secondary schools, with special reference to the tendency to uniform requirements for admission to colleges and universities. Daily, at 10. Professor SCHWATT.

Preparation required: Elementary Algebra and Plane Geometry.

MATHEMATICS 2. *Elementary Algebra*.—A rapid review of the fundamental processes of algebra, in respect to their logical development. Special attention is given to factoring, the reduction of complex fractions, surd and imaginary expressions, linear and quadratic equations and systems of such equations (including irrational equations), with emphasis upon the equivalence of equations. The course covers the ground of the entrance requirements to colleges and universities. Fisher and Schwatt's *Higher Algebra*. Daily, at 11. Professor FISHER.

MATHEMATICS 3. *Plane Geometry*.—A rapid review of the fundamental propositions, to be followed by the discussion and solution of a large number of original exercises. Chauvenet's *Geometry* (Byerly edition). Daily, at 9. Dr. SAFFORD.

Preparation required: Plane Geometry.

MATHEMATICS 4. *Solid Geometry*.—Special attention is given to the working out of original exercises and numerical problems. Chauvenet's *Geometry* (Byerly edition). Daily, at 12. Professor SCHWATT.

Preparation required: Plane Geometry.

MATHEMATICS 5. *Advanced Algebra*.—Permutations and combinations, probability, variables and limits; undetermined coefficients; continued fractions; summation of series; determinants; theory of the solution of numerical equations. Fisher and Schwatt's *Higher Algebra*. Daily, at 10. Professor HALLETT.

Preparation required: Algebra, through quadratic equations.

MATHEMATICS 6. *Trigonometry*.—Plane trigonometry, including some discussion of De Moivre's theorem and hyperbolic functions, and a brief introduction to spherical trigonometry. Particular attention will be given to exercises and drill in handling and reducing trigonometric expressions, and in the solution of problems involving the use of trigonometric functions. Crawley's *Elements of Trigonometry* (second edition) and *Tables of Logarithms*. Daily, at 9. Professor CRAWLEY.

Preparation required: Elementary Algebra and Plane Geometry.

MATHEMATICS 7. *Analytic Geometry*.—The fundamental properties of the conic sections, and a brief introduction to the geometry of three dimensions. Particular attention is given to the solution of problems. Bailey and Woods' *Analytic Geometry*. Daily, at 12. Dr. SAFFORD.

Preparation required: Algebra, through quadratics; and Plane Trigonometry.

MATHEMATICS 8. *Infinitesimal Calculus*.—Snyder and Hutchinson's *Differential and Integral Calculus*. The character of the course is indicated by the text-book used. Lectures based on the text. Daily, at 11. Professor HALLETT.

Preparation required: Plane Trigonometry; Analytic Geometry.

MATHEMATICS 9. *Differential Equations*.—Ordinary and partial differential equations, with applications to geometry and mechanics. Murray's *Differential Equations*. Daily, at 11. Dr. SAFFORD.

MATHEMATICS 10. *Definite Integrals*.—Integrability of continuous and discontinuous functions. Beta and Gamma functions, evaluation of definite integrals, expansion of functions and summation of series by means of definite integrals. The functions of Bessel, Laplace and Lamé. Applications to problems of mechanics. Daily, at 9. Professor SCHWATT.

MATHEMATICS 11. *Invariants and Covariants*.—The elements of the theory of invariants and covariants of binary forms and systems of forms, and briefly of ternary forms, with numerous applications. The symbolic method will be followed, in the main, but not exclusively. Lectures and collateral reading. Daily, at 12. Professor FISHER.

MATHEMATICS 12. *Theory of Numbers*.—Linear congruences, quadratic residues, the law of quadratic reciprocity, and theory of quadratic forms. Daily, at 10. Professor CRAWLEY.

MATHEMATICS 13. *Theory of Abstract Groups*.—The elements of the theory, including Abelian groups, the group of isomorphisms, actual construction of all groups of orders p^4 , pqr , p^2q , (p , q , r being prime numbers). Daily, at 1. Professor HALLETT.

MUSIC.

HUGH A. CLARKE, Mus. Doc., Professor of the Science of Music.

MUSIC 1. *Course in Harmony*.—Formation of scales, of chords and their inversions; of dissonant chords, their progressions and revolutions. Melody; accompaniment. The simpler lyric forms. The following subjects are treated in the appropriate places; the

acoustic basis of music; the history of the modern scales; the beginnings of harmony, the change from the "contrapuntal" to the "harmonic" method of musical construction. Daily, at 10.

PHYSICS.

ARTHUR W. GOODSPEED, Ph. D., Professor of Physics.

HORACE CLARK RICHARDS, Ph. D., Assistant Professor of Physics.

PHYSICS 1. *General Physics*.—A two-hour course is given, using Ames's *Theory of Physics* as a basis. The time each day is divided between a lecture and a recitation. The lectures are fully illustrated by experiments. A knowledge of Plane Trigonometry is recommended. Daily, 11-1.

PHYSICS 2. *Experimental Physics*.—This course presupposes some knowledge of General Physics as well as of Plane Trigonometry. The theory and practice of the various methods of physical measurement are developed by a daily lecture, followed by three hours of laboratory practice. Daily, 1.30-5.30.

PHYSICS 3. *Advanced Laboratory Work*.—For those who have had course 2, or its equivalent, an advanced laboratory course of three hours is offered. This course may be modified to suit the needs of the individual student. Experiments are taken up of a more advanced character than those given under course 2. Daily, 2.30-5.30.

PHYSICS 4. If there is sufficient demand, a laboratory course will be given covering the laboratory work required by the College Entrance Examination Board. One hour will be devoted to lectures and discussion of experiments, and two hours to work in the laboratory. Daily, 2.30-5.30.

PHYSICS 5. *Analytical Mechanics*.—A practical course in the principles of Statics and Kinetics consisting largely of problems. Bowser's *Analytical Mechanics* is used as a text-book. This course must be preceded or accompanied by a course on the Differential Calculus. Daily, at 9.

PHYSICS 6. *Heat*.—This comprises a descriptive course in Heat, with an introduction to the mathematical theory of Thermodynamics. A practical use of the Calculus is most desirable. Daily, at 10.

PHYSICS 7. *Harmonic Motion and Sound*.—The course will open with a detailed discussion of the properties of harmonic motion and of the composition of several such motions. The general properties of wave motion will then be investigated, preparatory

to acoustical and optical phenomena. The various divisions of acoustics are discussed, and the theory developed. Reference book: Poynting and Thomson's *Sound*. Tyndall's *Sound* is also recommended. Daily, at 10.

PHYSICS 8. *Optics*.—After an introduction on geometrical optics and photometry, the electromagnetic theory of radiation is outlined, and its consequences developed. Special stress is laid on the phenomena of interference, diffraction, and polarization, which are fully illustrated by experiments. References: Preston's *Theory of Light*, and Edser's *Light*. Daily, at 12.

PHYSICS 9. *Theory of Magnetism and Electricity*.—This course begins with a study of the magnetic field, followed by an investigation of the nature and phenomena of the electrostatic field in the light of Maxwell's theory. This leads up to the study of the electric current, and its properties. The laws of electromagnetism are then developed, and their applications illustrated. J. J. Thomson's *Elements of Electricity and Magnetism* is used as a reference. Daily, at 11.

PSYCHOLOGY.

EDWIN B. TWITMYER, M. S., Ph. D., Instructor in Psychology.

PSYCHOLOGY 1. *Modern Psychology*.—An introductory course of twenty-nine lectures; presenting an outline of the problems and theories of modern psychology. Daily, at 11.

- (a) *Analytic Psychology*.—An analysis of perception based upon the results of experimentation and introspection; the role of apperception; memory, attention and association; perceptions of space; the sense organs; the physical stimuli or objects of perception. Ten lectures.
- (b) *Physiological Psychology*.—Mind and body; the nature of the will; automatic and reflex movements, inherited instincts and acquired habits, impulse and emotion; the structure and functions of the human nervous system. Ten lectures.
- (c) *Genetic Psychology*.—Development and organization of the individual mind; permanent effects of sensation and movement upon the brain; sensory after-images; memory images; cerebration and association; organization of imagination and memory; the development of ideas, the intellect and reason; the growth of attention and the individual will. Nine lectures.

PSYCHOLOGY 2. *Experimental Psychology*.—The object of this

course is to demonstrate the fundamental facts and principles of psychology by the use of simple experiments. Under the direction of the instructor a series of illustrative experiments are performed by each student, and described and commented upon by him in a laboratory note-book. Supplementary work is given on the gross and minute structure of the nervous system. The human brain and that of the ox are dissected. In addition to the hours of class work, students are directed in the prosecution of as much individual work as each has time and inclination to do. Text-book: Witmer's *Analytical Psychology*. Daily, 2.30-4.30.

PSYCHOLOGY 3. *Individual Laboratory Work*.—The purpose of this course is to acquaint more advanced students with the general methods of experimentation. Selected topics are studied experimentally and original authorities and the results of recent research consulted. One hour seminar and two or four hours laboratory work. Hours will be arranged to meet the convenience of students. Text-book: Titchener's *Manual of Experimental Psychology*.

DEPARTMENT OF PHILOSOPHY.

FACULTY.

CHARLES C. HARRISON, LL. D., Provost.

EDGAR F. SMITH, PH. D., Sc. D., LL. D., VICE-PROVOST, and
Professor of Chemistry.

GEORGE F. BARKER, M. D., Sc. D., LL. D., Emeritus Professor
of Physics.

MORTON W. EASTON, PH. D., Professor of English and Com-
parative Philology.

*JOHN BACH McMASTER, A. M., LITT. D., LL. D., Professor
of American History.

REV. HERMANN V. HILPRECHT, PH. D., D. D., LL. D., CLARK
Research Professor of Assyriology, and Professor of Semitic
Philology and Archæology.

MORRIS JASTROW, JR., PH. D., Professor of Semitic Languages.

WILLIAM A. LAMBERTON, A. M., LITT. D., Professor of the
Greek Language and Literature.

SIMON N. PATTEN, PH. D., LL. D., Professor of Political Econ-
omy.

FELIX E. SCHELLING, A. M., PH. D., LITT. D., Professor of
English Literature.

ARTHUR W. GOODSPEED, PH. D., Professor of Physics.

EDWIN S. CRAWLEY, PH. D., Professor of Mathematics.

GEORGE E. FISHER, A. M., PH. D., Assistant Professor of
Mathematics.

EDWARD P. CHEYNEY, A. M., Professor of European History.

HUGO A. RENNERT, PH. D., Professor of Romanic Languages
and Literatures.

JOHN M. MACFARLANE, D. Sc., Professor of Botany.

MARTIN G. BRUMBAUGH, A. M., PH. D., LL. D., Professor of
Pedagogy.

AMOS P. BROWN, PH. D., Professor of Mineralogy and Geology.

* Absent on leave.

- LIGHTNER WITMER, PH. D., Professor of Psychology.
- WILLIAM ROMAINE NEWBOLD, PH. D., Professor of Philosophy.
- CHARLES L. DOOLITTLE, C. E., Sc. D., Professor of Astronomy.
- MARION D. LEARNED, PH. D., Professor of the Germanic Languages and Literatures.
- EDWIN GRANT CONKLIN, PH. D., Professor of Zoölogy.
- JOSIAH H. PENNIMAN, PH. D., Professor of English Literature.
- EMORY R. JOHNSON, PH. D., Professor of Transportation and Commerce.
- LEO S. ROWE, PH. D., Professor of Political Science.
- SAMUEL McC. LINDSAY, PH. D., Professor of Sociology.
- ISAAC J. SCHWATT, PH. D., Assistant Professor of Mathematics.
- DANIEL B. SHUMWAY, PH. D., Assistant Professor of the Germanic Languages and Literatures.
- *WILLIAM N. BATES, PH. D., Assistant Professor of Greek.
- CLARENCE G. CHILD, PH. D., L. H. D., Assistant Professor of English, and DEAN OF THE FACULTY.
- JOHN C. ROLFE, A. M., PH. D., Professor of the Latin Language and Literature.
- HERMAN V. AMES, A. M., PH. D., Assistant Professor of American History.
- EDGAR A. SINGER, JR., PH. D., Assistant Professor of Philosophy.
- WILLIAM E. LINGELBACH, PH. D., Assistant Professor of European History.
- WALTON B. McDANIEL, A. M., PH. D., Assistant Professor of Latin.
- REV. ALBERT T. CLAY, PH. D., Assistant Professor of Semitic Philology and Archæology.
- HERBERT S. JENNINGS, PH. D., Assistant Professor of Zoölogy.
- HORACE C. RICHARDS, PH. D., Assistant Professor of Physics.
- GEORGE H. HALLETT, A. M., PH. D., Assistant Professor of Mathematics.
- ARTHUR H. QUINN, PH. D., Assistant Professor of English.
- JAMES T. YOUNG, PH. D., Assistant Professor of Administration.

* Absent on leave.

- ERIC DOOLITTLE, C. E., Assistant Professor of Astronomy.
 CORNELIUS WEYGANDT, PH. D., Assistant Professor of English.
 EDWARD S. MEADE, PH. D., Assistant Professor of Finance.
 CARL KELSEY, B. A., PH. D., Assistant Professor of Sociology.
 ARTHUR C. HOWLAND, PH. D., Assistant Professor of Medieval History.
 OWEN L. SHINN, PH. D., Assistant Professor of Chemistry.
 WALTER T. TAGGART, PH. D., Assistant Professor of Chemistry.

LECTURERS.

- J. PERCY MOORE, PH. D., Zoology.
 JOHN W. HARSHBERGER, PH. D., Botany.
 PHILIP P. CALVERT, PH. D., Zoology.
 FREDERICK EHRENFELD, PH. D., Mineralogy and Geology.
 EDWIN B. TWITMYER, PH. D., Psychology.
 FREDERICK H. SAFFORD, A. M., PH. D., Mathematics.
 JOSEPH H. HART, PH. D., Physics.
 J. FRANKLIN MEYER, A. M., PH. D., Physics.
 J. RUSSELL SMITH, PH. D., Commerce.
 ALLEN ROGERS, PH. D., Chemistry.
 ROBERT H. HOUGH, PH. D., Physics.
 GEORGE B. GORDON, Sc. D., Anthropology.
 ROLAND G. KENT, A. M., PH. D., Greek.
 ROGER C. WELLS, PH. D., Chemistry.
 LOUIS W. FLACCUS, PH. D., Philosophy.
 HENRY L. CROSBY, PH. D., Greek.
 GEORGE B. MANGOLD, A. M., Sociology.

EXECUTIVE COMMITTEE.*

Assistant Professor CHILD, *Dean*, Chairman, *ex-officio*; Professor SMITH, *Vice-Provost*, *ex-officio*; Professor DOOLITTLE, Professor CONKLIN, Professor SCHELLING, Professor ROLFE, Professor ROWE.

* For 1905-06.

The Faculty of Philosophy (Graduate School) offers advanced instruction in the various branches of Literature and Science. The instruction is intended primarily for persons who have profited by the advantages of a full college course, and who are desirous of continuing their studies upon lines more strictly defined and specialized. Others, however, may be admitted to study in the Department under the provisions hereinafter specified.

The session of 1905-06 opened on Saturday, September 29, 1906.

ARRANGEMENT OF COURSES.

The courses of instruction offered in this Department are arranged under the sixteen following groups:

- I. Archæology and Ethnology.
- II. Astronomy.
- III. Botany and Zoölogy.
- IV. Chemistry.
- V. Classical Languages.
- VI. Economics, Politics and Sociology.
- VII. English.
- VIII. Geology and Mineralogy.
- IX. Germanic Languages.
- X. History.
- XI. Indo-European Philology.
- XII. Mathematics.
- XIII. Philosophy, Ethics, Psychology and Pedagogy.
- XIV. Physics.
- XV. Romanic Languages.
- XVI. Semitics.

All persons authorized to give instruction within a group constitute the "Group Committee." The several Group Committees have charge of the arrangement of courses, and the oversight of students taking their principal subject within the groups.

The instruction given within a group is classified under the headings, "lecture courses," "seminary courses," and "laboratory courses."

In stating the minimum requirements for residence and degrees a "standard" course is used as a unit: this is a lecture course of one hour a week for one academic year. The lecture courses as actually given may be either multiples or fractional parts of this standard. The credit value of seminary and laboratory courses in terms of the standard is variable, and is determined in each case by the Group Committee.

ADMISSION.

Students desiring to enter this Department must present themselves in person to the Dean.

Any person holding a baccalaureate degree in Arts, Letters, Philosophy, or in Pure or Applied Science, granted by the University of Pennsylvania, or by any college or university whose degrees are recognized by this University, will be admitted as a regular student by the Dean, provided he be found prepared to undertake the graduate work selected. Degrees in Law, Music, Theology, Medicine, Dentistry, Veterinary Medicine, or Pharmacy, are not included. *Admission to the Graduate School does not necessarily imply candidacy for a degree, but does imply that the student possesses the ability to pursue the work he undertakes with profit.*

Students already registered as candidates for a degree in other departments of the University are allowed to pursue courses in this Department, and regular students of this department are allowed to pursue courses in other departments, upon receiving the consent in writing of the Deans of the departments concerned.

After admission, each student will be furnished with a matriculation card: no student who cannot show his matriculation card will be allowed to take any course. Matriculation cards must be renewed at the beginning of each year. For such renewal, personal application must be made to the Dean.

Upon application to the Dean, a person who does not hold a satisfactory baccalaureate degree, but who is qualified to pursue a course or courses with profit, may be admitted as an "auditor" to any course, subject to the consent of the instructor in charge of the course. Auditors will not be permitted to become candidates for a higher degree.

CANDIDACY.

Regular students only are qualified to become candidates for degrees. Special application for admission to candidacy must be made to the Executive Committee.

A student who desires to become a candidate for the Master's degree should apply for candidacy as soon as possible after matriculation.

A student who is entering upon graduate work for the first time, and who desires to become a candidate for the Doctor's degree, should not apply for candidacy until he has worked for some months in the Department, and has become known to his instructors.

The application for candidacy for the Doctor's degree must be endorsed by the chairman of the Group Committee in which the applicant proposes to take his major subject, and must include certificates setting forth that he possesses a good reading knowledge of French and German.

RESIDENCE.

All candidates for higher degrees are required to spend at least one year in residence at this University. To be regarded as in residence at this University, a student must complete within one academic year not less than six standard courses or their equivalent.

Work done at other universities may be accepted by the several Group Committees in lieu of a part of the work required for a degree.

Leave of absence is granted by the Executive Committee under the following circumstances only:

(a) To a student who has completed all resident work required of him by the Group Committee with which he takes his major work, provided the total amount of his resident work be not less than twenty-four standard courses or their equivalent, and who now desires to prepare the thesis *in absentia* under conditions satisfactory to the Committee.

(b) To a student who, having had at least one year of work in this Department, is working in residence at another university, with the intention of returning to this University to take his degree.

(c) For a term, or part of a term, to a student presenting an application explaining the reasons for his proposed absence and affirming his intention to resume work the following term.

DEGREES.

The degrees conferred in the Faculty of Philosophy are Master of Arts (A. M.), Master of Science (M. S.), and Doctor of Philosophy (Ph. D.).

All recommendations for the higher degree must originate with the Group Committees under whose supervision the candidate has been pursuing his work. *No student can acquire a right to such recommendation merely by attending lectures, passing examinations, or by formal compliance with prescribed conditions.* The requirements hereinafter specified must therefore be regarded as *minimum requirements only*, the right remaining with any Group Committee to refuse to admit a student to examination for a higher degree.

THE MASTER'S DEGREE.

The work for the Master's degree must include one year in residence, as defined above. The candidate will be allowed to elect any courses offered by the Faculty, subject to the consent of the Dean. He will be required to complete not less than twelve standard courses, or their equivalent, to the satisfaction of the Committees offering them, but, except for the provision regarding residence, he need not pursue them simultaneously. He must then present himself for written examinations under the direction of his instructors. *The completion of the minimum requirement of twelve courses confers no right upon the student to be admitted to examination.* If he passes his examinations he will be presented by the Dean to the Faculty of Philosophy as a candidate for the Master's degree. The Faculty will inquire into his credentials, and, if these are found satisfactory, will recommend him to the Corporation for the degree.

THE DOCTOR'S DEGREE.

The degree of Doctor of Philosophy is conferred solely in recognition of marked ability and high attainments in some definite branch of learning.

The degree will in no case be conferred before the expiration of two years from the date of the candidate's baccalaureate degree, or upon any candidate who has not completed in this University, or in other universities, twenty-four standard courses or their equivalent. The aim of the latter requirement is to insure the candidate's having had the equivalent of at least two full academic years of resident study, under competent direction, as a foundation for the private reading and research which constitute the more important part of his work. A student of ability will usually be able to attain his degree in three years, but one who cannot devote his undivided attention to the work will require a longer period.

The candidate for the Doctor's degree must, upon entering the Department, elect the group within which he intends to do the greater part of his work, and will then pass under the jurisdiction of the Committee in charge of that group. He must designate, with the consent of the Committee, three branches of learning in which he desires to become proficient. One of these, known as his "major," or principal, subject, must lie within the group, although the Group Committee may direct him to courses given in other groups, and may allow them to be accounted part of the major work. The other two are termed his "minor," or subordinate, subjects. It is recommended that at least one minor be taken

outside the group in which the major lies, but in every case the minor subjects shall be so related to the major as to conduce to some approved end. The work done for the completion of each minor subject must comprise not less than four standard courses or their equivalent.

Every candidate for the Doctor's degree must possess a good reading knowledge of those languages which are adjudged by the Committee in charge of the major to be essential to the prosecution of his major work, in addition to a knowledge of French and German as required by the rules.

He must also present a thesis upon some topic in the line of his major subject, showing high attainment and power of independent research. This thesis must be presented to, and approved by, the Group Committee in which his major lies.

The thesis, if accepted, must be printed, and 250 copies must be delivered to the Dean before the candidate is recommended to the Board of Trustees for the degree. Exceptions to this rule may be made by the Executive Committee, but in no case will an exception be made unless the student be able to guarantee to the satisfaction of the Committee that the thesis will be printed within a limited period.

The candidate for the Doctor's degree must present himself for written examinations conducted by his instructors. Examinations in a minor may be held at any time approved by the Group Committee in charge of that minor. The examinations in the major will not be held until the candidate has completed all the resident and lecture work required by the rules of this Department and by the Group Committee in charge of the major; and no candidate will be admitted to these examinations who has not had one year of resident work in this University. But it is not required that the thesis be completed before the candidate is admitted to the final examinations in the major.

The completion of the minimum requirements of twenty-four hours confers no right upon the student to be admitted to examination. His acceptance, after the completion of the minimum requirements, depends solely upon his natural abilities and stage of scholarly advancement.

After his examinations have been passed, and the printed thesis has been delivered to the Dean, the candidate will be presented to the Faculty of Philosophy by a representative of the Group Committee in charge of his major work. The presenter will make a statement of the academic record of the candidate, and of the scope and value of his thesis, and will recommend him to the Faculty

on behalf of the Group Committee in question for the Doctor's degree. The Dean will certify that the candidate has complied with all the formal rules of the Faculty governing such cases. Any member of the Faculty will then be at liberty to ask of the candidate or of the presenter any questions he may desire. Upon this evidence the Faculty will then decide by vote whether the candidate shall or shall not be recommended to the Corporation for the degree.

FEES AND DEPOSITS.

TUITION FEES.—The fee for a "standard course" (see p. 254) is \$12.50 for the year. The fee for a course may be computed by multiplying this amount by the number of hours indicated, or by the number of "standard courses" it represents in cases where this number is specially designated.

LABORATORY FEES.—In addition to the tuition fee, a laboratory fee of \$5.00 an hour a week per annum is made for each laboratory hour included in a course in the five laboratories of Chemistry, Physics, Geology and Mineralogy, Botany and Zoölogy, Psychology. But the laboratory fee for work taken in any one of the five laboratories in any one year may not exceed a maximum charge of \$20.00. • The total amount of tuition and laboratory fees paid by any student shall not exceed \$150.00.

Bills for tuition and laboratory fees are rendered semi-annually.

All Fellows and Scholars are exempted from the payment of tuition fees, but must pay laboratory and graduation fees, and must make the usual deposits. Fellows for Research and Instructors in the University are exempt from the payment of all fees, with the exception of the graduation fee.

DEPOSITS.—All students must make a deposit with the Bursar, when matriculating, to cover breakage and all charges against the student not otherwise provided for. For the laboratories of Chemistry and of Physics the deposit is \$20.00. For the laboratories of Geology and Mineralogy, Botany and Zoölogy, and Psychology, the deposit is \$10.00. If courses are taken in two or more laboratories, the maximum deposit will be \$20.00. Students not working in any laboratory will make a deposit of \$5.00. After deducting charges, the balance remaining will be repaid at the close of the academic year. Should the charges against any student be found in the course of the year to exceed the amount of this deposit, he must make with the Bursar a second deposit equal in amount to the first. *Fellows for Research and Instructors in the University are not required to make deposits.*

The GRADUATION FEE is twenty-five dollars (\$25.00).

FELLOWSHIPS AND SCHOLARSHIPS.

This University recognizes three general classes of Fellowships and Scholarships:

1. Fellowships for Research.
2. Fellowships.
3. Scholarships.

These include the Fellowships for Research, Fellowships and Scholarships on the GEORGE LEIB HARRISON Foundation; Fellowships on the HECTOR TYNDALE, the JOHN FRIES FRAZER, the JOSEPH M. BENNETT, the FRANCIS SERGEANT PEPPER, and the MRS. BLOOMFIELD MOORE Foundations; and University Fellowships for Research Fellowships, and Scholarships especially created, or permanently established, by the Corporation.

GENERAL PROVISIONS.

Eligibility.—Men only are eligible to all Fellowships and Scholarships on the Harrison, Tyndale, and Frazer Foundations. Women only are eligible to the Fellowships upon the Bennett, Pepper, and Moore Foundations. Both men and women are eligible to all University Fellowships and Scholarships, and to all Fellowships and Scholarships established for a limited period of time, unless the contrary be specified by that act of the Trustees which created the Fellowship or Scholarship in question.

Appointment.—All appointments are made by the Board of Trustees. Under ordinary conditions the Board acts solely upon the recommendation of the Executive Committee of the Department of Philosophy. Applications for Fellowships and Scholarships for a given academic year are considered on and after March 1 of the year preceding, those received after March 1 being given consideration if any vacancies still remain. Applications should be addressed to the Dean of the Department of Philosophy.

THE GEORGE LEIB HARRISON FOUNDATION.

Through the generosity of the Provost, a permanent fund of Five Hundred Thousand Dollars has been presented to the University. This fund is known as the GEORGE LEIB HARRISON Foundation. The income, by the terms of the Foundation, is applied to the establishment of Fellowships and Scholarships, to the enrichment of the Library, to the support of courses of lectures by men of scientific eminence and to such other purposes as may promote the cause of advanced scientific study and research.

Under the provisions of this Foundation, there have been insti-

tuted in the Department of Philosophy eight Scholarships, nineteen Fellowships, and six Fellowships for Research.

FELLOWSHIPS FOR RESEARCH.

Upon the George Leib Harrison Foundation.

Of these Fellowships, six have been established.

(a) Five Fellowships-at-large for Research.

(b) One Fellowship for Research in Assyriology.

(a) The Fellowship-at-large for Research.

The title subjects of the five Fellowships-at-large for Research are determined by the Corporation each year, upon the recommendation of the Executive Committee.

The candidate must hold a Ph. D. degree granted under conditions satisfactory to the Executive Committee of the Department of Philosophy, and must submit plans for the prosecution of a line of research acceptable to that Committee. During his tenure of the Fellowship, the Fellow will be required to devote his entire time to his work. He may, further, give instruction in the Graduate School or in the College of this University, provided such instruction does not exceed four hours a week during any one year.

No individual can hold a Harrison Fellowship for Research for more than three academic years.

(b) The Fellowship for Research in Assyriology, 1902-07.

This Fellowship has been established for a period of five years, beginning September 1, 1902. The conditions of appointment and of tenure are identical with those of the Fellowships-at-large for Research, with the following exceptions: The work pursued by the Fellow is determined by Professor Hermann V. Hilprecht, in consultation with and subject to the approval of the Provost. The instruction which the Fellow may give is not restricted to four hours a week per annum. The Fellow is granted a vacation of two months in each year. The Fellowship may be held by one individual for more than three years.

The holder of a Fellowship for Research upon the GEORGE LEIB HARRISON Foundation receives a stipend of \$800 per annum. He is allowed unrestricted use of all the facilities of the Department of Philosophy, and of the Library, without payment of the usual fees, and without making the usual deposits. Men only are eligible.

University Fellowships for Research.

The Corporation will, from time to time, upon the recommendation of the Executive Committee create additional Fellowships

for Research. The applicant for such a Fellowship will be required to submit plans for the prosecution of a definite and practicable line of research. He will be granted the unrestricted use of the facilities afforded by the Department of Philosophy, and of the Library, without the payment of tuition or laboratory fees, and without making a deposit. As a rule he will not receive a stipend.

The University Fellowships for Research created for the current year will be found enumerated in the list of Fellows and Scholars.

FELLOWSHIPS

Upon the George Leib Harrison Foundation.

Nineteen Fellowships have been created upon the GEORGE LEIB HARRISON Foundation. The title subjects are determined from year to year by the Board of Trustees upon the recommendation of the Executive Committee. The candidate for such a Fellowship is required to hold a baccalaureate degree, and to have had one year of graduate work, both of which must be satisfactory to the Executive Committee. He must possess a good reading knowledge of French and German.

During the tenure of his Fellowship the Fellow must devote his undivided time to the prosecution of his studies. No teaching or other outside work is permitted.

A stipend of \$500 per annum is attached to each of these Fellowships. Holders are exempt from the payment of tuition fees, but are required to pay laboratory and graduation fees.

No individual can hold a Harrison Fellowship for more than two years. Men only are eligible.

The Harrison Fellowship Funds.

To each one of the nineteen Fellowships upon the GEORGE LEIB HARRISON Foundation is attached the additional sum of \$100 per annum. This sum is expended upon the equipment of the Department, with primary reference to the facilitation of the work of the Fellow. The manner in which each fund is to be expended is determined by the Provost, after consultation with the Dean and with the representatives of the Department in which the Fellow is to work.

Upon the Hector Tyndale Foundation: In Physics.

This Fellowship was endowed in 1885 by Professor John Tyndall. The candidate is required to hold a baccalaureate degree, and must

intend to pursue advanced studies in Physics. The holder of the Fellowship may, with the sanction of the Faculty, pursue his studies at any university here or abroad. He receives a stipend of \$500 per annum. He is exempt from the payment of tuition fees, but is required to pay laboratory and graduation fees.

No individual can hold this Fellowship for more than three years. Men only are eligible.

Upon the John Fries Frazer Foundation: In Physics.

This Fellowship has been established in memory of John Fries Frazer, Professor of Natural Philosophy and Chemistry in this University, 1844-72, by his daughter, Mrs. Thomas K. Conrad, and others of his kinsfolk. The conditions of appointment and of tenure are the same as those of the Harrison Fellowships.

FELLOWSHIPS FOR WOMEN

Upon the Joseph M. Bennett Foundation.

The late Colonel Joseph M. Bennett endowed two Fellowships for the use of women. They are assigned to the various subjects of instruction, from year to year, by the Board of Trustees as are the Harrison Fellowships. The holder is required to possess a baccalaureate degree satisfactory to the Executive Committee, and to qualify as a candidate for the Doctorate. She is required to reside, during her tenure of the Fellowship, at the University of Pennsylvania. She receives a stipend of \$225 per annum, is exempt from the payment of tuition fees, but is required to pay laboratory and graduation fees.

No individual can hold one of these Fellowships for more than three years.

Upon the Frances Sergeant Pepper Foundation.

This Fellowship was endowed by the late William Pepper, M. D., Provost of the University, 1881-94. The conditions of appointment and of tenure are identical with those of the Bennett Fellowships.

Upon the Mrs. Bloomfield Moore Foundation.

Two Fellowships for the use of women were endowed by the late Mrs. Bloomfield Moore. The conditions of appointment and of tenure are identical with those of the Bennett and Pepper Fellowships, excepting that the candidate must intend to become a teacher. The stipend is \$200 per annum.

UNIVERSITY FELLOWSHIPS.

The Corporation may, from time to time, upon the recommendation of the Executive Committee, create special University Fellowships for a year, or term of years, with or without a stipend, as the resolution creating the Fellowship may direct. Such Fellowships are usually created in consequence of a special endowment. Both men and women are eligible.

 SCHOLARSHIPS.

The Scholarships are assigned by the Board of Trustees annually to the various subjects of instruction.

A candidate for a Scholarship is required to hold a baccalaureate degree satisfactory to the Executive Committee. During the tenure of the Scholarship the holder is required to reside at the University of Pennsylvania, and to pursue to the satisfaction of his instructors not less than eight standard courses in each academic year. He is exempt from the payment of tuition fees, but is required to pay laboratory and graduation fees. He may or may not receive a stipend.

Upon the George Leib Harrison Foundation.

Eight Scholarships have been created upon the GEORGE LEIB HARRISON Foundation. The holder is entitled to free tuition, and to a stipend of \$100 per annum; he is allowed to engage in outside work only upon receiving the written consent of the Dean. No individual is permitted to hold a Harrison Scholarship for more than one year. Men only are eligible.

University Scholarships.

Thirty Scholarships have been created by the Corporation. Holders are exempt from the payment of tuition fees, but receive no stipend.

For blank forms of application for Fellowships and Scholarships, and for all further information concerning the Department of Philosophy, address

CLARENCE G. CHILD, Dean,
College Hall, University of Pennsylvania.

The Dean is in his office, 105 College Hall, daily, from 9 A. M. to 1 P. M.

COURSES OF INSTRUCTION.

The major subjects offered by each Group Committee represent those divisions of topics which are commonly recognized. Other divisions may be allowed in special cases.

Any arrangement of courses approved by the Group Committee offering them, may, with the consent of the Committee in charge of the major, be elected as a minor subject, provided it be equivalent to not less than four standard courses. But no student will be required to complete for a minor more than six standard courses.

Except where the contrary is stated, lecture or seminary courses of one hour or laboratory courses of two hours extending over a year, and lecture or seminary courses of two hours or laboratory courses of four hours extending over a term, are accounted standard courses.

The University reserves the right to make changes in the hours at which the courses are given, in the personnel of the teaching staff, and in the courses announced.

ADMINISTRATION: see *Economics*.

ANTHROPOLOGY: see *Archæology*.

ARABIC: see *Semitic Languages*.

ARAMAIC: see *Semitic Languages*.

I. ARCHÆOLOGY AND ETHNOLOGY.

Professor HILPRECHT, *Chairman*.

Professor ROLFE, Assistant Professors BATES*, MCDANIEL and CLAY, Dr. GORDON.

[For a full statement and description of the courses offered, see the special Fasciculus of the Department.]

A. SEMITIC ARCHÆOLOGY.

Professor HILPRECHT.

- | | Hours
a week. |
|---|------------------|
| 1. Babylonian Paleography. (Omitted in 1905-06) | 1 |
| 1. (a) Interpretations of the Collections of the Babylonian and General Semitic Museum. (One Term: every fortnight) | 1 |

Assistant Professor CLAY.

- | | |
|--|---|
| 4. Hebrew Archæology. (Omitted in 1905-06) | 1 |
|--|---|

* Absent on leave as Annual Professor of Greek in the American School of Classical Studies at Athens.

B. CLASSICAL ARCHÆOLOGY.**GREEK.**

Assistant Professor BATES*.

Hours
a week.

1. Greek Epigraphy. (Omitted in 1905-06)..... 2
2. Greek Inscriptions. (Omitted in 1905-06)..... 2

LATIN.

Professor ROLFE.

1. Introduction to Latin Paleography. (M., W., 4.15)... 3
2. Elements of Latin Epigraphy. (M., W., 4.15)..... 3
3. Roman Topography. (Omitted in 1905-06) 2

Assistant Professor MCDANIEL.

4. Private Antiquities. (Tu., 7.30) 2

C. ANTHROPOLOGY.

Dr. GORDON.

1. General Anthropology (M., W., 2.15) 2
2. American Archaeology and Ethnology (M., W., 3.15) 2

ASSYRIAN: see *Semitic Languages*.
II. ASTRONOMY.

Professor C. L. DOOLITTLE, *Chairman*; Assistant Professor
E. DOOLITTLE.

[For a full statement and description of the courses
offered, see the special Fasciculus of the Department.]

1. Method of Least Squares, historically and practically considered. (Omitted in 1905-06)..... 2
2. Reduction of stellar coördinates to a homogeneous system. Investigation of the constants of precession, nutation and aberration, and the variations of terrestrial latitude. (*First Term:* Tu., Th., 9.15 A. M.)..... 6
3. History of Astronomy. (*Second Term:* Tu., Th., 9.15 A. M.) 2
9. Observatory Practice. (*One Course*)..... 6
4. Practical Astronomy. (Th., S., 10.15)..... 2

Assistant Professor E. DOOLITTLE.

Hours
a week.

- | | |
|---|---|
| 5. Theoretical Astronomy (a) (M., 1.15; W, 2.15-4.15) | 3 |
| 6. Theoretical Astronomy (b) (Tu., 2.15) | 2 |
| 7. Astronomical Seminary. (F., 3.15) | 1 |
| 8. Secular Perturbations. (Omitted in 1905-06) | 3 |

NOTE.—The observatory, equipped with an 18-inch equatorial telescope and other instruments of the latest and most approved design, offers every facility to those students who wish to familiarize themselves with the practical details of astronomical work.

III. BOTANY AND ZOÖLOGY.

Professor CONKLIN, *Chairman*; Professor MACFARLANE,
Assistant Professor JENNINGS, Dr. MOORE,
Dr. HARSHBERGER, Dr. CALVERT.

Majors—Botany: Morphology and Physiology; Taxonomy and Distribution.

Zoölogy: Human Anatomy; Mammalian Osteology; Comparative Anatomy and Comparative Embryology.

[For a full statement and description of the courses offered, see the special Fasciculus of the Department.]

A. BOTANY.

Professor MACFARLANE.

73. Comparative Histology of Plants. Lecture one hour; laboratory work two hours (*Two Courses*). (Omitted in 1905-06).
75. Plant Irritability and Nutrition. One hour lecture, five hours laboratory and seminary work. (M., 10-1*) (*Three Courses*).
76. Comparative Morphology of the Gymnospermia. Two hours lecture, four hours laboratory and seminary work. (M., 2-5*) (*Four Courses*).

* Additional hours will be arranged to meet the convenience of instructors and students.

79. Comparative Morphology of the Angiospermia. Two hours lecture, four hours laboratory and seminary work (*Four Courses*). (Omitted in 1905-06).

Dr. HARSHBERGER.

74. Comparative Taxonomy of Plants. One hour lecture, two hours laboratory work (*Two Courses*). (Omitted in 1905-06).
77. Comparative Morphology and Taxonomy of the Myxomycetes and Fungi. One hour lecture, two hours laboratory and seminary work. (Omitted in 1905-06).
78. Comparative Morphology and Taxonomy of the Algae. One hour lecture, two hours laboratory work (Th., 2.15-5) (*Two Courses*).
81. Comparative Plant Ecology and Distribution. One hour lecture; two hours laboratory work (Tu., 2.15-5) (*Two Courses*).

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80. Comparative Morphology of the Bryophyta and Pteridophyta. (Omitted in 1905-06).

Graduate Botanical Club.

The instructors and advanced students in Botany meet on alternate Monday evenings, from 7.30 to 9.30, to present original communications, review recent papers, and discuss the general principles of plant evolution.

NOTE.—Students taking a major in Botany will be required, before presenting themselves for the Doctor's degree, to study for not less than eleven consecutive months in the Botanic Garden of the University or of some other institution possessing equal facilities for practical work in Botany.

B. ZOÖLOGY.

Dr. MOORE.

687. Recent and Fossil Vertebrata. One hour lecture, two hours laboratory or seminary work. (Omitted in 1905-06).
688. Comparative Embryology of the Vertebrata. One hour lecture, five hours laboratory or seminary work. (M., F., 9-12) (*Three Courses*).

Professor CONKLIN and Dr. CALVERT.

689. Comparative Anatomy and Embryology of the Invertebrata. One hour lecture, five hours laboratory or seminary work. (Omitted in 1905-06).

Professor CONKLIN.

690. Cytology. One hour lecture, five hours laboratory or seminary work. (Th., 9-1, 2-5) (*Three Courses*).

Dr. CALVERT.

691. Entomology. One hour lecture, two hours laboratory or seminary work. (W. 2-5) (*Two Courses*).

Assistant Professor JENNINGS.

692. Animal Behavior. Two hours lecture. (M., W., 4) (*Two Courses*).
693. The Protozoa. One hour lecture, two hours laboratory or seminary work. (Omitted in 1905-06).

NOTE.—Courses B 687, 688, 689, 690 are each equivalent to three standard courses; B 691, 692, 693 to two.

Professor CONKLIN, Assistant Professor JENNINGS, Dr. MOORE and Dr. CALVERT.

Zoölogical Seminary. (F., 4). (*No Credit*).

IV. CHEMISTRY.

Professor EDGAR F. SMITH, *Chairman*; Assistant Professors SHINN and TAGGART, Dr. WELLS.

Majors in Inorganic Chemistry; Organic Chemistry; Electro-chemistry.

Minors—1. Courses 1 and 8, with laboratory work, six hours.

2. Courses 3 and 5, with laboratory work, six hours.

[For a full statement and description of the courses offered, see the special Fasciculus of the Department.]

Professor EDGAR F. SMITH.

Hours
a week.

- | | |
|---|---|
| 1. Advanced Inorganic Chemistry. (M., 9.15; W., 12.15) | 2 |
| 2. Electro-chemistry (Tu., 11.15) | 1 |
| 3. Mineral Analysis (First Term: F., 9.15) | 1 |
| 3a. Determination of Atomic Weights (Second Term: F., 9.15) | 1 |
| 4. Seminar. (Tu., 12.15) | 1 |

Assistant Professor SHINN.

- | | |
|---------------------------------------|---|
| 5. Industrial Chemistry. (Th., 9.15) | 1 |
| 6. Analytical Chemistry. (Tu., 10.15) | 1 |

Assistant Professor TAGGART.

- | | |
|---|---|
| 7. Organic Chemistry. (M., 10.15; Th., 12.15) | 2 |
|---|---|

Dr. WELLS.

- | | |
|---|---|
| 8. Physical Chemistry. (M., 12.15) | 1 |
| 9. History of Chemistry. (First Term: F., 12.15) | 1 |
| 9a. Theories of Chemistry. (Second Term: F., 12.15) | 1 |

The above schedule comprises mainly lecture courses. Much practical work is given in connection with all but Courses 2, 2(a) and 10. This is carried on in the John Harrison Laboratory of Chemistry, which is thoroughly equipped for graduate study. After the student has received that training in the several departments of Chemistry which will give him a broad outlook in the science, and has displayed evidence of ability to follow research under guidance, he may be permitted to undertake investigation in his major subject (or in a minor topic if approved by the chairman of the Group Committee). Special research rooms are set aside for advanced students. They have also for use all modern apparatus necessary for the application of physico-chemical methods, for gas analysis and spectroscopy. The opportunities offered for thorough drill in practical electro-chemistry are had in laboratories especially arranged for this branch of chemical science. The rarer elements receive more than ordinary attention.

V. CLASSICAL LANGUAGES.

Professor LAMBERTON, *Chairman*; Professor ROLFE,
Assistant Professors BATES* and McDANIEL,
Dr. KENT and Dr. CROSBY.

Majors—Greek; Latin.

The authors and works read in the group vary from year to year in such wise as to enable each student taking the work as a major to cover the principal periods and spheres of the literature.

[For a full statement and description of the courses offered, see the special Fasciculus of the Department.]

A. GREEK.

Professor LAMBERTON.

Hours
a week

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|--|---|
| 1. Euripides, <i>Alcestis</i> (M., 5; Th., 4.15)..... | 2 |
| 2. Plato, <i>The Republic</i> (Tu., 5; S., 11.15)..... | 2 |

Similar courses of two hours a week each will be given in succeeding years in the following authors: Aristotle, Sophocles, Demosthenes, Thucydides, Aeschylus.

Assistant Professor BATES.*

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|--|---|
| 3. Pausanias, <i>Periegesis</i> , with a special study of the Monuments. (Omitted in 1905-06)..... | 2 |
| 4. The <i>Poetics</i> of Aristotle; Longinus, <i>De Sublimitate</i> . (Omitted in 1905-06)..... | 2 |

For courses in Greek Epigraphy and Greek Inscriptions, see Group II, B 1 and 2.

Dr. KENT.

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|--|---|
| 5. Greek Comedy. (Omitted in 1905-06)..... | 2 |
| 6. Greek Historians. (<i>First Term</i> : W., 2-15)..... | 2 |
| 7. Historical Greek Grammar. (<i>Second Term</i> : W., 2-15)..... | 2 |

Dr. CROSBY.

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|-------------------------------|---|
| 8. Homer. (M., 3; F., 2)..... | 2 |
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* Absent on leave as Annual Professor of Greek in the American School of Classical Studies at Athens.

B. LATIN.

The following courses are intended to cover a period of three years. The order in which they are offered depends on the needs of the students in attendance each year.

I. LATIN LITERATURE:

NOTE.—The following courses may be repeated in successive years, with a change in the works read.

	Professor ROLFE.	Hours a week.
1.	The Historians. (Omitted in 1905-06).....	3
2.	The Writers on Mythology. (Omitted in 1905-06).....	3
16.	Selections from Representative Authors (W., 5.15)	1

Assistant Professor MCDANIEL.

3.	Comedy. (<i>First Term</i> ; Tu., Th., F., 3.15).....	3
4.	The Literature of Christianity. (<i>First Term</i>) (Omitted in 1905-06)	2
5.	The History of Latin Literature. Lectures and reading of representative writers (Omitted in 1905-06).....	3

II. LATIN WRITING:

Professor ROLFE and Assistant Professor MCDANIEL.

6.	Introductory course (Omitted in 1905-06).....	2
7.	Advanced course (Omitted in 1905-06)	1

III. CLASSICAL PHILOLOGY:

Professor ROLFE.

8.	The History and Problems of Classical Philology (Omitted in 1905-06).....	3
9.	Historical Latin Grammar (Omitted in 1905-06)	3
10.	Introduction to Latin Paleography. (<i>First Term</i> : M., W., 4.15)	3
11.	Elements of Latin Epigraphy. (<i>Second Term</i> : M., W., 4.15)	3
	The following courses are offered at irregular intervals:	
12.	Roman Topography	2
13.	Elements of Oscan and Umbrian.....	2
14.	Colloquial Latin	2

Assistant Professor MCDANIEL.

Hours
a week

15. Private Antiquities. (*Second Term; Tu., 7.30*) 2

PRO-SEMINARY.

Assistant Professor MCDANIEL.

17. Introduction to the methods of textual and exegetical criticism (a special study of Catullus, Martial, or Tacitus). Practice in using the philological periodicals, and the books of reference that are of most importance to the teacher of Latin, as well as the dissertations and works that especially deal with the author chosen as the basis of the year's work. (M., 7.30-9.30 P. M.) (*Three Courses*).

SEMINARY.

Professor ROLFE.

18. Training in Criticism and Research. Presentation of papers. (F., 4-6) (*Three Courses*)

COMMERCE: see *Economics*.

VI. ECONOMICS, POLITICS AND SOCIOLOGY.

Professor PATTEN, *Chairman*; Professors JOHNSON,
LINDSAY and ROWE; Assistant Professors
YOUNG, MEADE and KELSEY; Dr. J. R.
SMITH, Mr. MANGOLD.

Majors—Political Science; Economics; Transportation
and Commerce; Sociology.

[For a full statement and description of the courses
offered, see the special Fasciculus of the Department.]

A. POLITICAL SCIENCE, FINANCE AND
ADMINISTRATION.

Professor ROWE.

1. Municipal Government and Institutions. (S., 11)..... 2
2. International Law. (W., F., 10)..... 2
3. The Individual and the State. (Omitted in 1905-06)... 2

Assistant Professor YOUNG.

Hours
a week.

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|---|---|
| 4. The Government of Colonies and Dependencies. (Tu., Th., 10) | 2 |
| 5. The Political Institutions of the Manufacturing State. (Omitted in 1905-06)..... | 2 |

B. ECONOMICS.

Professor PATTEN.

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|--|---|
| 1. History of Political Economy. (Omitted in 1905-06) .. | 2 |
| 2. Recent Development of Political Economy. (Omitted in 1905-06) | 2 |
| 3. The Development of English Civilization. (Tu., Th., 5) .. | 2 |
| 4. Heredity and Social Progress. (Omitted in 1905-06) .. | 2 |
| 5. Theory of Prosperity. (Omitted in 1905-06)..... | 2 |
| 6. Theory of Social Forces. (F., 4-6) | 2 |

Assistant Professor MEADE.

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|---|---|
| 7. Investment Securities. (F., 4) | 2 |
| 8. Industrial Organization and Management. (<i>Two Courses</i>) (Omitted in 1905-06)..... | 2 |

C. SOCIOLOGY.

Professor LINDSAY.

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|---|---|
| 1. Theory of Sociology. (<i>Two Years</i>) (M., 4-6) | 2 |
| A systematic course in four parts; each part requiring two hours a week for half a year, and constituting an independent course. In 1905-06, parts (c) and (d) will be given. | |
| (a) Methodology of the Social Sciences. (b) Primitive Society. (c) Structure of Modern Society. (d) Social Movements of Modern Times. | |
| 2. Social Reformers and Reform Movements of the 19th Century. (Omitted in 1905-06)..... | 2 |
| 3. Sociological Field Work (Omitted in 1905-06) | 2 |

Assistant Professor KELSEY.

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|--|---|
| 4. Social Debtor Classes. (S., 9)..... | 2 |
| 5. American Race Problems. (Omitted in 1905-06)..... | 2 |

Mr. MANGOLD.

Hours
a week.

6. Social and Vital Statistics. (M., W., 12)..... 2

**D. TRANSPORTATION, COMMERCE AND ECONOMIC
GEOGRAPHY.**

Professor JOHNSON.

1. Railway Transportation. (*First Term*: Tu., Th., 4).... 2
2. Ocean Transportation. (*Second Term*: Tu., Th., 4).... 2
3. American Commerce. (*Second Term*: Tu., Th., 12.15).. 2

Dr. J. R. SMITH.

4. Economic Geography. (W., 4)..... 2

E. SEMINARY.

1. Seminary in Political Science, Economics and Sociology. 2
(*Equivalent to two standard courses, if the student complete satisfactorily a prescribed amount of original investigation.*)

EDUCATION: see *Pedagogy*,

EGYPTIAN: see *Semitic Languages*.

VII. ENGLISH.

Professor SCHELLING, *Chairman*; Professor EASTON,
Professor PENNIMAN, Assistant Professors CHILD,
QUINN AND WEYGANDT.

Majors—English Literature; English Philology

[For a full statement and description of the courses offered, see the special Fasciculus of the Department.]

A. ENGLISH LITERATURE.

Professor SCHELLING.

1. The Elizabethan Lyric. (*First Term*: Th., 4.15; S., 9-11) 3
2. Poetry of the Seventeenth Century. (*Second Term*: Th., 4.15; S., 9-11)..... 3

- | | Hours
• a week. |
|---|--------------------|
| 3. English Drama from the Beginnings to the Death of Shakespeare. (Omitted in 1905-06)..... | 3 |
| 4. English Drama from Shakespeare to Dryden. (Omitted in 1905-06) | 3 |

Professor PENNIMAN.

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|---|---|
| 5. The Romantic Movement in Modern English Literature. (<i>First Term: W., 2.15</i>)..... | 2 |
| 6. English Literary Criticism.. (Omitted in 1905-06)..... | 2 |

Assistant Professor CHILD.

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|--|---|
| 7. Old English Literature to the Reign of Ælfred. (<i>First Term: S., 11.15-1.15</i>) | 2 |
| 8. Old English Literature from Ælfred to the Norman Conquest. (<i>Second Term: S., 11.15-1.15</i>) | 2 |
| 9. Middle English Literature from the Conquest to 1350. (Omitted in 1905-06)..... | 2 |
| 10. Middle English Literature from 1350 to 1500. (Omitted in 1905-06) | 2 |
| 11. Literary Study of Chaucer. (Omitted in 1905-06)..... | 2 |

Assistant Professor QUINN.

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|---|---|
| 12. Theory and History of English Versification. (Omitted in 1905-06) | 2 |
| 13. English Literature in America. (<i>Second Term: W., 2.15</i>). | 2 |

Assistant Professor WEYGANDT.

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|---|---|
| 14. The Development of English Poetry from 1850 to the Present Day. (Omitted in 1905-06)..... | 2 |
| 15. Bibliography and Method. (Th., 3.15) | 1 |

This course is required of all students taking work in English Literature either as a major or minor.

NOTE.—Each of these courses involves the preparation and discussion of papers embodying original work within the range of the general subject. A course in English Philology, equivalent to a minor, will be required of all who take English Literature as a major. Some work in English History may also be demanded of students taking major or minor courses in English Literature.

B. ENGLISH PHILOLOGY.

Professor EASTON.

Hours
a week

1. English Philology; elementary (M., Tu., 5)..... 2
Mainly Anglo-Saxon grammar and texts.
2. English Philology; advanced (Tu., W., 3)..... 2
Mainly Middle English Texts.
3. Elizabethan English. (*One Term*: Th., 3)..... 1

ETHICS: see *Philosophy*.**ETHNOLOGY**: see *Archæology*.**FINANCE**: see *Economics*.**FRENCH**: see *Romanic Languages*.**GEOGRAPHY**: see *Economics*.

VIII. GEOLOGY AND MINERALOGY.

Professor A. P. BROWN, *Chairman*; Dr. EHRENFELD,

Dr. BURNETT SMITH.

Majors—Geology; Mineralogy.

A. GEOLOGY.

Professor A. P. BROWN.

2. Petrography. One hour lecture, four hours laboratory.
(M., 11.15) (*Three Courses*).
4. Chemical Geology. One hour lecture (*One Term*), four
hours laboratory (*Two Courses*).

Dr. EHRENFELD.

3. Physical Geology and Physiography. Two hours lecture,
two hours laboratory. (S., 10-12) (*Three Courses*).

Professors A. P. BROWN and Dr. EHRENFELD.

5. Paleontology of the Invertebrata. Laboratory, five
hours (*Two and a half Courses*).

Dr. BURNETT SMITH.

1. Historical Geology. One hour lecture, four hours labora-
tory. (Tu., 2.15) (*Three Courses*).

B. MINERALOGY.

Professor A. P. BROWN.

1. Mathematical and Physical Crystallography. One hour lecture, four hours laboratory. (Th., 4.15) (*Three Courses.*)
3. Chemical and Synthetic Mineralogy. One hour lecture (*One Term*) and three hours laboratory. (*One Year: M., 12.15*) (*Two Courses.*)
4. Determination of Minerals by physical and pyrognostic properties. Four hours laboratory. (Th., 10.15-1.15; 2.15-3.15) (*Two Courses.*)

Dr. EHRENFELD.

2. Systematic Mineralogy. Two hours lecture, two hours laboratory. (Tu., W., 9.15) (*Three Courses.*)

The laboratory hours are the minimum required for minor work. Students taking Geology or Mineralogy as a major spend more time in laboratory work than noted above.

All students in Mineralogy and Geology are expected to participate in the occasional field excursions, in addition to such field work as may be assigned to students taking major work in this group.

In the laboratory courses, the study from specimens is carried on in the mineralogical and geological museums. Other practical work is done in the mineralogical laboratory, which is supplied with instruments and appliances for advanced work in the subjects embraced in this group. Power machines are provided for slicing and grinding minerals and rocks; the chemical laboratory is equipped for the qualitative and quantitative examination of minerals; the goniometer room is provided with apparatus for work in mathematical and physical crystallography; the dark-room is arranged for photographic work, including photomicrography. In the Library will be found the works and journals on Geology and Mineralogy most frequently consulted by the student, while, in addition, the Museum is supplied with those works of reference necessary for the courses in practical Paleontology and Mineralogy.

IX. GERMANIC LANGUAGES.

Professor LEARNED, *Chairman*; Assistant Professor SHUMWAY, Dr. RIETHMÜLLER.

The graduate courses in Germanic Philology are grouped in cycles of three years, in order to enable the student to pursue his studies in all the representative periods of Germanic languages and literatures—Gothic, Old High German, Middle High German, New High German (including the sixteenth, seventeenth, eighteenth and nineteenth centuries). During the cycle of three years at least one seminary course will be offered in each of the more important periods. For a full statement and description of the courses offered, see the special Fasciculus of the Department.

Professor LEARNED.

Hours
a week.

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|---|----|
| 1. Old Norse. (<i>Two Years: Th., 3.30-5</i>) | 1½ |
| (a) Icelandic Prose Sagas. | |
| (b) Elder Edda. (Omitted in 1905-06). | |
| This course involves collateral reading, and is equivalent to three standard courses each year. | |

Assistant Professor SHUMWAY.

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|--|---|
| 2. Gothic. (<i>One Term: M., 4; Tu., 3</i>) | 2 |
| 3. Old High German. (Omitted in 1905-06) | 2 |
| 4. Middle High German. (<i>First Term: M., 3; W., 3</i>) | 2 |
| Hartmann von Aue, <i>Gregorius</i> (ed. Paul). | |
| 5. Wolfram von Eschenbach, <i>Parzifal</i> . (<i>Second Term: M., W., 3</i>) | 2 |
| 6. History of the Growth of Modern German. (<i>Second Term: M. 4; Th. 3</i>) | 2 |

Professor LEARNED.

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|--|---|
| 7. Germanic Seminary. (<i>Tu., W., 4</i>) | 2 |
| Relations of English and German Literature in the nineteenth century. | |
| 8. German Literature in America. (Omitted in 1905-06) .. | 2 |
| 9. German Drama of the Nineteenth Century. (Omitted in 1905-06) | 2 |
| 10. Goethe's Lyric Poetry. (<i>W., 5; F., 3</i>) | 2 |
| 11. German Novel of the Nineteenth Century. (Omitted in 1905-06) | 2 |

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| | Hours
a week. |
| 12. Journal Meeting. (Third Thursday evening of the month) | 1 |
| 13. The Germanic Association.—The work of this association, of which the instructors and advanced graduate students are members, is an essential part of the work in German. An original paper is presented at each meeting. This may be followed by minor communications. (<i>Evening of the first Wednesday in each month.</i>) | |

Dr. RIETHMÜLLER.

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|---|---|
| 14. German Lyric Poetry of the Nineteenth Century | 2 |
|---|---|
- NOTE.—German Conversation: Students who elect German as a major, are required to join the class in German conversation, unless they already have a satisfactory command of colloquial German.

GOTHIC: see *Germanic Languages*.

GREEK: see *Classical Languages*.

X. HISTORY.

Professor McMASTER,* *Chairman*; Professor CHEYNEY,
Assistant Professors AMES, LINGELBACH and
HOWLAND, Dr. WILLARD

Majors—American History; American Constitutional History; Medieval History; Modern European History; English History.

[For a full statement and description of the courses offered, see the special Fasciculus of the Department.]

A. AMERICAN HISTORY

SEMINARY COURSES.

Professor McMASTER.*

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|---|---|
| 1. Political Parties, Leaders and Platforms (from 1840 to 1850). (Omitted in 1905-06) | 3 |
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* Absent on leave.

	Hours a week
2. Studies in United States History. (Omitted in 1905-06).	3
3. The United States since the Civil War. (Omitted in 1905-06)	3

Assistant Professor AMES.

6. The Constitutional History of the Colonies. (Tu., F., 4).	3
7. History of the Foreign Relations of the United States. (Omitted in 1905-06)	3
8. The Civil War and Reconstruction. (Omitted in 1905-06).	3

LECTURE COURSES.

Assistant Professor AMES.

9. The Constitutional History of the United States. (Tu., Th., 12.15)	2
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B. EUROPEAN HISTORY.

The courses in European History are of three classes: methodological courses, involving the technical discussion of scientific methods of study; seminary courses, intended to give practical training in investigation; and lecture courses, the object of which is more especially to convey information in the subjects discussed.

COURSES IN METHOD.

Primarily intended for students taking a major in European History.

Professor CHEYNEY, Assistant Professors LINGELBACH and HOWLAND.

1. Bibliography. (M., 3)	1
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Assistant Professor HOWLAND.

2. Paleography. (<i>Second Term: W.</i> , 4)	1
A continuation of Course 10, Classical Languages, B.	

Professor CHEYNEY.

3. Historical Construction. (Omitted in 1905-06)	1
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SEMINARY COURSES.

Hours
- week.

Intended for students taking either a major or a minor
in European History.

Professor CHEYNEY.

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|---|---|
| 4. English Constitutional History from the Eleventh to the Fourteenth Century. (Omitted in 1905-06)..... | 2 |
| 5. English Social and Economic History, from the Thirteenth to the Sixteenth Century. (Omitted in 1905-06)..... | 2 |
| 6. The Last Fifteen Years of Elizabeth's Reign (S., 9)..... | 2 |

Assistant Professor LINGELBACH.

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|--|---|
| 8. England in the Seventeenth Century. (Omitted in 1905-06) | 2 |
| 9. The Establishment of the First Republic in France, 1792. (W., 4) | 2 |
| 10. The Relations between France and England during the first years of the French Revolution. (Omitted in 1905-06) | 2 |

Assistant Professor HOWLAND.

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|--|---|
| 12. The Carolingian Capitularies. (Omitted in 1905-06).... | 2 |
| 13. The Penal System of the Medieval Church (M., 4)..... | 2 |

LECTURE COURSES.

Primarily intended for students taking a minor in European History.

Professor CHEYNEY.

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|--|---|
| 15. Relations between England and the Continental Countries from the Fourteenth to the Sixteenth Century. (Omitted in 1905-06) | 2 |
| 16. The British Empire. (Tu., Th., 2.15)..... | 2 |

Dr. WILLARD.

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|--|---|
| 17. Parliamentary Taxation under Edward III (Th., 4) | 1 |
|--|---|

HEBREW: see *Semitic Languages*.

XI. INDO-EUROPEAN PHILOLOGY.

[For a full statement and description of the courses offered, see the special Fasciculus of the Department.]

Professor EASTON.

Hours
a week

Major or Minor—Sanskrit and Indo-European Philology.

1. Elementary Sanskrit. (*First Year: M., 4; Th., 5*)..... 2
2. Elementary Sanskrit. (*Second Year: Tu., 5; Th., 4*).... 2
3. Advanced Sanskrit..... 2

ITALIAN: see *Romantic Languages*.

LATIN: see *Classical Languages*.

XII. MATHEMATICS.

Professor CRAWLEY, *Chairman*; Assistant Professors FISHER, SCHWATT and HALLETT, Dr. SAFFORD.

Majors—Mathematics.

Minors—Any six courses.

[For a full statement and description of the courses offered, see the special Fasciculus of the Department.]

Professor CRAWLEY.

1. Plane Analytic Geometry. (Omitted in 1905-06)..... 2
2. Solid Analytic Geometry. (Omitted in 1905-06)..... 2
3. Higher Plane Curves. (Omitted in 1905-06)..... 3
4. Theory of Numbers. (Tu., Th., 2.15)..... 2
- 4a. Theory of Numbers. Seminary. (M., 3-5) 2

Assistant Professor FISHER.

5. Differential Equations. (W., F., 9.15)..... 2
6. Advanced Calculus. (Omitted in 1905-06)..... 2
7. Theory of Functions of a Complex Variable. (Omitted in 1905-06) 3
8. Elliptic Functions. (Omitted in 1905-06)..... 3
9. Invariants and Covariants. (*First Term: W., 1.15; Th., 10.15; S., 9.15*) 3
10. Linear Differential Equations. (*Second Term: W., 1.15; Th., 10.15; S., 9.15*) 3

Assistant Professor SCWHATT.

Hours
a week.

11. Theory of Functions of a Real Variable. (M., Th., F., 4). 3
 12. Infinite Series and Products. (Omitted in 1905-06).... 3
 13. Definite Integrals. (Omitted in 1905-06)..... 3

Assistant Professor HALLETT.

14. Theory of Surfaces. (Omitted in 1905-06) 3
 15. Theory of Groups. (Tu., W., Th., 9.15)..... 3
 16. An introduction to the Lie theory of continuous groups,
 with applications to differential equations and to geometry.
 (Omitted in 1905-06)..... 2
 17. Calculus of Variations. (Omitted in 1905-06)..... 2

Dr. SAFFORD.

20. Partial Differential Equations. (Omitted in 1905-06).. 3
 21. Curvilinear coördinates, and orthogonal transformations,
 with applications to the Theory of Potential (Tu., 3.15-
 5.15; Th., 3.15)..... 3

SEMINARY WORK.

A part of the work in each course consists of seminary work. For this no additional credit is allowed.

MINERALOGY: see *Geology*.

NORSE, OLD: see *Germanic Languages*.

PEDAGOGY: see *Philosophy*.

PHILOLOGY: see the several languages.

XIII. PHILOSOPHY, ETHICS, PSYCHOLOGY, AND PEDAGOGY.

Professor WITMER, *Chairman*; Professors BRUMBAUGH
 and NEWBOLD, Assistant Professor SINGER,
 Dr. TWITMYER, Dr. FLACCUS.

Majors—Philosophy; Psychology; Pedagogy.

[For a full statement and description of the courses
 offered, see the special Fasciculus of the Department.]

A. PHILOSOPHY AND ETHICS.

The courses in Philosophy are given with special reference to the historical development of thought, and fall into two divisions, Introductory and Advanced. The introductory courses are open both to undergraduates and to graduate students, and are designed to give a general survey of the periods or topics with which they deal. The advanced courses are primarily designed for graduate students, and are based upon a detailed study of the texts.

INTRODUCTORY COURSES.

Professor NEWBOLD.

Hours
a week.

1. History of Ancient Philosophy. (Tu., Th., 12.15)..... 2

Assistant Professor SINGER.

2. History of Modern Philosophy. (Th., 8 P. M.)..... 2
Courses 1 and 2 will deal especially with Metaphysics and Epistemology.

Assistant Professor SINGER.

3. Philosophy of Nature. (M., F., 11.15)..... 2
Parallel to 1 and 2, but deals with the history of the natural sciences.

Dr. FLACCUS.

4. Analysis of Ethical Theories. (Tu., 7 P. M.)..... 2
Based upon Sidgwick, *Methods of Ethics*.

.... ADVANCED COURSES.

Professor NEWBOLD.

5. The Pre-Socratic Period. (Omitted in 1905-06)..... 2
6. Plato's Metaphysics, Anthropology and Cosmology. (Th., 4) 2
7. Aristotle's Metaphysics. (M., 8 P. M.)..... 2
8. Aristotle's Psychology. (Omitted in 1905-06)..... 2
9. History of Greek Ethical Theories, First Period. (Omitted in 1905-06) 2
10. Readings in Ancient Philosophy. (One Term: F., 2.30). 2

Hours
a week.

12. Philosophy and Religion in the Later Age. (Omitted in 1905-06) 2

Assistant Professor SINGER.

13. German Idealism. (b) Seminary. (M., 4)..... 2
 14. German Idealism. (a) Seminary. (Omitted in 1905-06). 2
 15. Modern Logic (Omitted in 1905-06) 2
 16. Development of Scientific Thought. (Omitted in 1905-06) 2
 17. Readings in Modern Philosophy. (One Term)..... 2

Dr. FLACCUS.

11. History of Ethical Theory in England. (Omitted in 1905-06) 2
 20. Problems of Ethics (M., 5.15; F., 4.15)..... 2
 22. The Ethics of Kant and Hegel. (Omitted in 1905-06).. 2
 23. Neo-Hegelian Ethics. (Omitted in 1905-06)..... 2

SEMINARY.

18. Students taking Philosophy as a major are expected, and other students of Philosophy are invited, to meet each week with the instructors for the purpose of presenting thesis material, reviewing current literature, and discussing papers on topics of philosophic interest..... 2

B. PSYCHOLOGY.

Professor WITMER, Dr. TWITMYER.

1. Analytic Psychology. (First Term: Tu., 2.15, or S., 10.15) (One Course) 3
 2. Physiological Psychology. (Second Term: Tu., 2.15, or S., 10.15) (One Course) 3
 3. Genetic Psychology. (M., 2.15) (Double Course) 3
 5. Modern Psychological Theory. (Double Course) (Omitted in 1905-06)..... 2
 6. Experimental Psychology—Laboratory and Seminary (Double Courses) 3

The topics selected vary from year to year. In 1905-06 they include the following separate courses:

- (a) General laboratory methods, one hour seminary,

three or four hours laboratory. Under the direction of Dr. Twitmyer.

(b) Psycho-Physics. One hour seminary and two hours laboratory. Under the direction of Professor Witmer.

(c) Psychometry. One hour seminary and four hours laboratory. Under the direction of Professor Witmer and Dr. Twitmyer.

7. Child Psychology. (S., 9.30) (*Double Course*) 2

8. Individual Laboratory Work. (Number of hours not assigned.) May be either laboratory experimentation, or such as may be made upon children in the schoolroom.

For advanced students only, who have taken one or more courses in Experimental Psychology, and who are competent to carry on original research.

9. General Seminary (*Single Course*) 1

For the report and discussion of the results of original research conducted in the laboratory and of current literature.

NOTE.—With permission of the Executive Committee of the Department of Philosophy and of the Dean of the Medical School, courses in Psychiatry and Neuro-Pathology may be taken in the Medical School, either as a minor subject in this group or in partial fulfilment of the requirements for a minor or major in Psychology. (See also Anthropology 1 and 2, and Zoology 692.)

C. PEDAGOGY.

Professor BRUMBAUGH.

1. Institutes of Education. (S., 2) 2

2. History of Education. (Omitted in 1905-06) 2

3. Educational Systems and Ideals. (*Two Years*) 2

(a) Ancient Systems and Ideals. (Th., 8-10 P. M.)

(b) Modern Systems and Ideals. (Omitted in 1905-06.)

4. Educational Seminary. (F., 8 P. M.) 2

Students are required to make an inductive study of administrative and educational problems presented by our American schools, and of current interest.

Except in special cases, only those who elect Pedagogy as a major subject will be admitted to this seminary.

XIV. PHYSICS.

Professor GOODSPEED, *Chairman*; Assistant Professor RICHARDS, DR. HART, DR. MEYER, DR. HOUGH.

Major—Theoretical and Experimental Physics.

Minor—Work equivalent to six standard courses, one-third of which should be laboratory work.*

[For a full statement and description of the courses offered, see the special Fasciculus of the Department.]

	Hours a week.
Professor GOODSPEED.	
9. Theory of the Potential Function. (<i>First Term</i> : Tu., 4; F., 5).....	2
26. Radiophysics. (<i>Second Term</i> : Tu., 4; F., 5).....	2
18. Introduction to Mathematical Physics. (<i>Second Term</i> : Tu., Th., 4).	2
13. Analytic Statics. (<i>First Term</i> : Tu., W., 5).....	2
14. Dynamics of a Particle. (Omitted in 1905-06).....	2
7. Rigid Dynamics. (<i>Second Term</i> : Tu., W., 5).....	2
8. Thermodynamics. (Omitted in 1905-06).....	2
25. Theoretical and Practical Radiography. Laboratory. (<i>One Course</i>)	3

Assistant Professor RICHARDS.

4. Electricity and Magnetism. (Omitted in 1905-06).....	2
11. Application of Harmonic Series to Physical Problems. (Omitted in 1905-06).....	2
10. Theory of Sound. (<i>One Term</i>). (Omitted in 1905-06).	2
1. Constitution of Matter. (<i>First Term</i> : M., 2; Th., 10)...	2
2. Radiation (Electromagnetic Theory). (M., 3; Th., 2)...	2
15. Geometrical Optics. (<i>One Term</i>) (Omitted in 1905-06).	2

Professor GOODSPEED and Assistant Professor RICHARDS.

6. Absolute Physical Measurements. Laboratory. (Tu., Th., F., 2-5) (<i>One to Three Courses</i>).....	3 to 9
3. Practical Spectroscopy. Laboratory. (W., 2-5) (<i>One Course</i>)	3
12. Seminary. Discussion of special subjects, and journal analysis (Th., 11).	

* Three hours of laboratory work for one week are equivalent to one standard course.

Dr. HART.

Hours
a week.

16. Optical Interference Methods and their Applications.
(*Second Term*)..... 2
17. Kinetic Theory of Gases. (Omitted in 1905-06)..... 1

Dr. HOUGH.

21. Theory of Alternating Currents. (*First Term: M., Th., 5*) 2
22. Theory of Alternating Currents (Advanced Course) (*Second Term*) (M., Th., 5)..... 2
23. Alternating Current Measurement, Laboratory. (*One Course*) (M., 3-5)..... 3

Dr. MEYER.

24. Chemical Physics. (M., W., II.15) 2

POLITICAL SCIENCE: see *Economics*.

PROVENÇAL: see *Romanic Languages*.

PSYCHOLOGY: see *Philosophy*.

XV. ROMANIC LANGUAGES.

[For a full statement and description of the courses offered, see the special Fasciculus of the Department.]

Professor RENNERT.

Majors—Old French and Provençal; Italian and Provençal; Italian and Spanish; Spanish and Portuguese.

1. Old French. (M., 2)..... 1
Erec und Enid (ed. Förster).
2. Old Provençal. (Tu., 2)..... 1
Appel, *Provensalische Chrestomathie*.
3. Early Italian. The Sicilian Poets. (Omitted in 1905-06) 1
5. Old Spanish..... 1
Poema del Cid. Menéndez Pidal, *Gramatica historica Española* (Madrid, 1904).
8. Petrarch (ed. Rijutino, Milan, 1901)..... 1

Hours
a week.

6. The Spanish Drama..... 1
 Tirso de Molina, *Don Gil de las Calzas Verdes*; Lope de Vega, *El Perro del Hortelano*; Moreto, *El Desdén con el Desdén*.
7. The Spanish Theatre in the Period of Lope de Vega..... 1

SANSKRIT: see *Indo-European Philology*.

XVI. SEMITIC LANGUAGES.*

Professor JASTROW, *Chairman*; Professor HILPRECHT,
 Assistant Professor CLAY.

Majors—Assyrian, Arabic, Ethiopic, Hebrew, Syriac.

Minors—Students electing a minor in the group must confine their work to one of the above-mentioned languages.

The courses offered every year in Semitic languages include grammar, interpretation of the different branches of literature, and palcography. Courses on the life, customs, religion and history of the Semitic nations will be given at stated intervals. (See also courses offered in Group I.) For a full statement and description of the courses offered, see the special Fasciculus of the Department.

In view of the intimate relation which existed between the earliest languages and civilizations of Egypt and of Mesopotamia, a certain amount of work in Egyptian is offered under the jurisdiction of Group Committee I.†

COMPARATIVE SEMITIC PHILOLOGY.

Professor JASTROW.

1. Introduction to the study of the Semitic Languages.
 (Omitted in 1905-06)..... 1
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* Owing to the demands of the University's work in the East, changes in the courses announced in Semitics frequently become necessary. Intending students are advised to consult the Dean before making definite plans.

† Information concerning courses in Egyptian may be obtained of the Dean.

ASSYRIAN.

Professor HILPRECHT, Assistant Professor CLAY. Hours
a week.

2. Assyrian Grammar. (Tu., Th., 2)..... 2
For beginners and students of Comparative Semitic Grammar. Exercises in reading cuneiform writing, and interpretation of easy historical texts. Delitzsch, *Assyrian Grammar*; and *Assyrische Lesestücke*.
- 3a. Interpretation of Assyrian Historical and Babylonian Building Inscriptions. (One Term: W., 10)..... 2
Rawlinson, *Cuneiform Inscriptions of Western Asia*, Vols. I, III, V.
(b) Babylonian Letters and Religious Texts. (One Term: W., 10)..... 2
Winkler's *Tell-Amarna Tablets*, and Rawlinson's *Cuneiform Inscriptions of Western Asia*, Vol. IV.
4. Neo-Babylonian Contract Tablets from Babylonian Archives. (W., 11)..... 1
Clay, *Tablets dated in the reign of Darius II*. (Vol. X of Hilprecht, *The Babylonian Expedition of the University of Pennsylvania*, Series A), and Strassmaier, *Nabonidus*.
5. Interpretation of the Code of Hammurabi. (Th., 4). 1
Harper, *The Code of Hammurabi*.
7. Assyrian Seminary (One Term: Th., F., 4) (Cf. II, A 1) . . 2
Exercises in deciphering and copying original Babylonian documents, and in determining the age of cuneiform tablets. For advanced students only. Philological, archaeological and historical papers are required at stated intervals.

SUMERIAN.

Professor HILPRECHT.

8. Sumerian Grammar, and interpretation of bilingual religious texts. (Unit Course) (One Term: Th., 10)..... 1
Hommel, *Sumerische Lesestücke*; Weissbach, *Die Sumerische Frage*; Rawlinson, *Cuneiform Inscriptions of Western Asia*, Vol. IV (2nd ed.).

HEBREW.

Professor JASTROW.

6. Outlines of the History of the Ancient Orient. (First Term) 1

	Hours a week.
23. Interpretation of Poetical Books of the Old Testament..	1
Critical study, with themes.	
9. Lectures on the Morphology and Syntax of the Hebrew Language. (Omitted in 1905-06).....	1
18. Rabbinical Literature. (Omitted in 1905-06).....	1
Dalman, <i>Aramäische Lesestücke</i> .	
20. The Hebrew Fragments of the Book of Ecclesiasticus...	1
21. Historical and Archæological Study of the Pentateuchal Laws. (Omitted in 1905-06).....	1

Assistant Professor CLAY.

10. Interpretation of Prophetical Books of the Old Testament. (Omitted in 1905-06)	1
Philological, historical, theological.	
11. Interpretation of Historical Books of the Old Testament, with a review of the Hebrew Grammar. (Tu., 3)....	1
12. Introduction to the Old Testament. (Omitted in 1905-06)	1

These three courses (14, 15 and 16) are planned with especial reference to the interest of theological students and ministers of all denominations. The collections in the Archæological Museum are used to illustrate the life of the people, and to furnish the historical background of the periods treated.

ARAMAIC.

Professor JASTROW.

19. Elementary Aramaic	1
All the Aramaic portions of the Old Testament will be read. Strack, <i>Abriss des Biblisch-Aramäischen</i> .	

SYRIAC.

Professor JASTROW.

22. Selected Readings from Syriac Texts. (W., 3).....	1
Brockelmann, <i>Syrische Grammatik</i> .	

ARABIC.

Professor JASTROW.

13. Elements of Arabic Grammar. (M., 2; S., 10.15).....	2
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Hours
a week.

- Socin, *Arabic Grammar*, supplemented by lectures on the grammatical features of the language.
14. Selections from the *Koran*, and from the Historical Texts (W., 2) I
15. Selections from the Hadith Literature and from Poetical Texts. (F., 11.15) I
16. Outlines of the History of Arabic Literature. (*Second Term: M., 11.15*)..... I

SEMITIC EPIGRAPHY.

Professor JASTROW.

17. Semitic Epigraphy. (Omitted in 1905-06)..... I
Selected Phœnician, Nabtæan and Palmyrene inscriptions.

SOCIOLOGY: see *Economics*.**SPANISH:** see *Romanic Languages*.**SUMERIAN:** see *Semitic Languages*.**SYBIAC:** see *Semitic Languages*.**TRANSPORTATION AND COMMERCE:** see *Economics*.**ZOÖLOGY:** see *Botany*.

GRADUATE DEPARTMENT FOR WOMEN.

BOARD OF MANAGERS.

CHARLES C. HARRISON, LL. D.

Provost and *ex-officio* President.

EDGAR F. SMITH, PH. D., SC. D., CHAS. L. DOOLITTLE, C. E., SC. D.

LL. D.

FELIX E. SCHELLING, A. M.,

EDWIN G. CONKLIN, PH. D.

PH. D., LITT. D.

JOHN C. ROLFE, A. M., PH. D.

CLARENCE G. CHILD, PH. D., L.H.D

The Graduate Department for Women is under the direct control of a Board of Managers appointed by the Corporation. As an integral part of the Department of Philosophy, the courses of instruction are given by the same instructors, and lead to the same degrees. A statement of these courses will be found in the pages immediately preceding

FELLOWSHIPS AND SCHOLARSHIPS.

For Fellowships and Scholarships open to women, see p. 263.

DEPARTMENT OF LAW.

FACULTY.

CHARLES C. HARRISON, LL. D., Provost.

EDGAR F. SMITH, PH. D., Sc. D., LL. D., VICE-PROVOST.

HON. J. I. CLARKE HARE, LL. D., Emeritus Professor of Constitutional Law.

GEO. TUCKER BISPHAM, A. M., LL. B., Professor of Equity Jurisprudence.

HON. GEORGE M. DALLAS, LL. D., Professor of Law.

GEORGE WHARTON PEPPER, A. M., LL. B., ALGERNON SYDNEY BIDDLE Professor of Law.

GEO. STUART PATTERSON, A. B., LL. B., Professor of Law.

WILLIAM DRAPER LEWIS, B. S., LL. B., PH. D., Professor of Law, and DEAN OF THE FACULTY.

REYNOLDS D. BROWN, A. B., LL. B., Professor of Law.

JOHN W. PATTON, A. M., Professor of Law.

HON. JOHN B. MCPHERSON, LL. D., Professor of Law.

WILLIAM E. MIKELL, B. S., Professor of Law.

FRANCIS H. BOHLEN, LL. B., Professor of Law.

CRAWFORD D. HENING, A. B., Professor of Law.

OWEN J. ROBERTS, A. B., LL. B., Assistant Professor of Law.

HENRY WOLF BIKLÉ, A. B., LL. B., Lecturer on Law.

NORMAN GREY, Lecturer on New Jersey Practice.

VICTOR B. WOOLLEY, B. S., Lecturer on Delaware Practice.

STANLEY FOLZ, A. B., LL. B.,
HENRY S. DRINKER, A. B., LL. B., } Fellows.

Librarian of the Biddle Law Library.

MRS. MARGARET C. KLINGELSMITH, LL. B.

Registrar.

B. M. SNOVER.

HISTORICAL SKETCH.

The first law lectures delivered in any university in the United States were given at the University of Pennsylvania in 1790. The Department, on its present foundation, has had a continuous existence since 1850.

In the past it has numbered among its professors the HON. JAMES WILSON, Associate Justice of the Supreme Court of the United States; the HON. GEORGE SHARSWOOD, Chief Justice of Pennsylvania; the HON. J. I. CLARKE HARE, President Judge of the Court of Common Pleas of Philadelphia; CHARLES WILLING HARE, PETER McCALL, E. SPENCER MILLER, P. PEMBERTON MORRIS, E. COPPÉE MITCHELL, A. SYDNEY BIDDLE and SAMUEL S. HOLLINGSWORTH.

LOCATION.

The building occupied by the Law Department is situated at the southwest corner of Thirty-fourth and Chestnut streets, adjacent to the other University buildings. At present it is the largest building in the United States devoted exclusively to the use of law students. The class-rooms and executive offices, quiz and student club-rooms, are on the ground floor. The entire second floor is devoted to the library and reading-rooms. The two reading-rooms for undergraduate students contain nearly six hundred separate desks or reading tables. Each registered student has one of these desks assigned to him, and is thus enabled to enjoy an undisturbed place of study. The graduate reading-room contains twenty-six large tables for the use of advanced students, members of the Bar, or others engaged in legal research.

ADMISSION.

All applications for admission must be made to WILLIAM DRAPER LEWIS, DEAN, southwest corner of Thirty-fourth and Chestnut streets.

Any one holding the degree of Bachelor of Arts, or its equivalent, from a recognized college or university is admitted as a regular student without examination.

Any one holding a certificate from the Pennsylvania State Board of Law Examiners to the effect that he has passed the preliminary examination of said Board for the study of law is admitted as a regular student without examination.

A graduate of one of the more advanced public high schools will be excused from the entrance examinations in those subjects in which he has received high grades, as evidenced by a certificate from the authorities of the school in question.

Persons not coming under either of the classifications stated above must take the entrance examinations, which are the same as those required for admission to the College, except that the applicant must present both English and American History.

The above requirements will be in force in the fall of 1905. Due notice will be given of the requirements for admission in the fall of 1906. Information concerning the examination requirements, and the dates and places of examination, may be had upon application to the Dean.

Entrance on High School Diplomas and Certificates.—Any candidate holding a public high school diploma will be furnished by the Dean with a blank form of application for admission. The application having been filed with the Dean, the applicant will be informed if he can be excused from all or any of the entrance examinations.

Admission on College Diplomas.—Whether the baccalaureate degree from a particular college will admit, depends on the standing of the institution, and the course taken by the applicant. Each case is considered separately.

ADVANCED STANDING.

Any person who, being entitled to admission to the first-year class, has been in regular attendance for at least one academic year of not less than eight months at another law school having a three years' course for its degree, will be admitted to the second-year class upon passing, in June, the annual examinations in the studies of the first year.

EXAMINATION IN BLACKSTONE.

An examination in Blackstone's *Commentaries* is held in June and September, along with the other entrance examinations. Those

who do not present themselves for this examination will be required to pass such an examination at one of the regular examination periods in course. The examination will not include the "Introduction," or the notes of any of the editors. The applicant is, however, recommended to read such notes. He will not be examined on those portions of Book I dealing with the organization of the English government (Chaps. II to XIII, inclusive); or on those portions of Book III (Chaps. III to VI, inclusive), dealing with the organization of the English courts. He is recommended to read, instead, any standard work on the organization of government in the United States; and, for information on the present government of England, Anson's *Law and Custom of the Constitution*. He will not, however, be examined on either of these subjects.

STATUS OF STUDENTS.

(REGULAR, SPECIAL AND PARTIAL.)

A *regular* student is one who is regularly admitted to the Department, and who is a candidate for a degree.

A *special* student is one who is regularly admitted to the Department, but who, not being a candidate for a degree, does not take the regular course.

A *partial* student is one who is not regularly admitted to the Department, but who attends one or more courses. The admission of partial students is in the discretion of the Faculty.

DEGREE.

The degree of *Bachelor of Laws (LL. B.)* is granted to students who have completed satisfactorily the full course of instruction in the Department of Law; and to those who, having been regularly admitted to advanced standing, have satisfactorily completed the work of the second and third years. In both cases, candidates must have passed satisfactory examinations upon all subjects of instruction.

ACADEMIC YEAR.

The academic year begins on the last Friday of September, and ends on the third Wednesday in June, both inclusive.

COURSE OF INSTRUCTION.

The course of instruction extends through three full academic years. The object of the Department is to teach the principles of

the common law in such a way as to fit its graduates for successful practice. It is, therefore, the aim of the members of the Faculty so to conduct their respective courses that the student may acquire not only a knowledge of the rules of law, but also the ability to deal with legal problems.

Every candidate for a degree will be required to take all of the subjects of the first and second year, except second-year Practice. The third-year course is elective: the candidate is required in this year to take a minimum of fourteen hours a week. If the student omits the course in Practice in the second year, he must elect a third-year subject in its place; or, on application to the Faculty, he may be permitted to substitute, under the supervision of the Dean, the study of the practice or statutes of the jurisdiction in which he expects to practice.

	Hours a week.
FIRST YEAR.	
*Equity: (History). Bispham's <i>Principles of Equity</i>	1
<i>Professor BISPAM.</i>	
† Torts	3
<i>Professor DALLAS.</i>	
Pleading: Ames' <i>Cases on Pleading</i>	1
<i>Professor PATTERSON.</i>	
Equity: (Bills of Peace, Interpleader, Quia Timet, Removal of Cloud upon Title, Jurisdiction of Equity over Torts). Lewis' <i>Cases</i> (advance sheets)	2
<i>Professor LEWIS.</i>	
Property: (Personal Property; Historical Introduction to Real Property; Nature of Ownership of Real Property, and Rights in Another's Land). Gray's <i>Cases in Prop- erty</i>	2
<i>Professor BROWN.</i>	
Criminal Law: Mikell's <i>Cases on Criminal Law</i>	2
<i>Professor MIKELL.</i>	
Contracts	3
<i>Professor HENING.</i>	

* Fourteen weeks.

† Two of these hours are given by Professor Bohlen.

	Hours a week.
SECOND YEAR.	
* Evidence	3
<i>Professor DALLAS.</i>	
Law of Association: (Partnership and Corporations)	2
<i>Professor PEPPER</i>	
Equity: (Trusts)	2
<i>Professor LEWIS.</i>	
Practice: (Orphans' Court)	1
<i>Professor PATTON.</i>	
Contracts: (Sales). <i>Burdick's Cases on Sales</i>	2
<i>Professor MIKELL.</i>	
Quasi Contracts	1
<i>Professor BOHLEN.</i>	
Property: (Acquisition of Property, <i>Inter Vivos</i> , and on Death of Former Owner). <i>Gray's Cases on Property</i>	2
<i>Assistant Professor ROBERTS.</i>	

THIRD YEAR.

Law of Association: (Partnership and Corporations). Syllabus and Selected Cases	2
<i>Professor PEPPER.</i>	
Constitutional Law	3
<i>Professor PATTERSON.</i>	
Equity: (The Jurisdiction of Equity over Contracts, includ- ing the specific performance, reformation and rescission thereof; Account; Equitable Conversion). <i>Lewis' Cases</i> (advance sheets)	3
<i>Professor LEWIS.</i>	
Property: (Acquisition of Real Property, <i>Inter Vivos</i> , and on Death of Former Owner; Priority, including Fraudulent Conveyances and the Recording Laws). <i>Gray's Cases on</i> <i>Property</i>	2
<i>Professor BROWN.</i>	

* One of these hours is given by Professor Bohlen.

	Hours a week.
Practice (Pennsylvania)	2
<i>Professor PATTON.</i>	
Insurance	2
<i>Professor McPHERSON.</i>	
* Conflict of Laws	2
<i>Professor MIKELL.</i>	
* Bills and Notes	1½
Negligence and Damages	2
<i>Professor BOHLEN.</i>	
Suretyship	1
<i>Professor HENING.</i>	
Carriers	1
<i>Mr. BIKLÉ.</i>	
Practice: (New Jersey)	2
<i>Mr. GREY.</i>	
Practice: (Delaware)	2
<i>Mr. WOOLLEY.</i>	
Practice: (Code)	1
<i>Mr. BIKLÉ.</i>	
† Pennsylvania Law	2
<i>Mr. BIKLÉ.</i>	

THE BIDDLE MEMORIAL LAW LIBRARY.

The Library of the Law School was founded by the family of George W. Biddle, as a memorial to his three sons, George, Algeron Sydney, and Arthur Biddle. The original gift of five thousand volumes was supplemented in 1897 by the presentation by Mrs. Arthur Biddle of over four thousand volumes, which had formed the library of the late Arthur Biddle, Esq. Many other valuable gifts have been received from families and individual donors.

* Omitted in 1905-06.

† Voluntary course.

About six thousand dollars is expended annually in the purchase of books. The number of volumes at present exceeds 33,000.

Each student is entitled to the use of one of the desks in the reading-rooms connected with the Library, and this desk is the property of the student during his connection with the Department.

The Library is open during the term every day, except Sundays, from 8 A. M. to 11 P. M.; and during the summer recess from 9 A. M. to 6 P. M.

ATTENDANCE ON COURSES IN OTHER DEPARTMENTS.

Students in the Department of Law may attend, without extra charge, the lectures given in any of the other Departments of the University, on obtaining the consent of the Dean of the Law Faculty, and of the Dean of the Faculty under which they desire instruction.

SCHOLARSHIPS.

1. **FACULTY SCHOLARSHIPS.**—Three scholarships are granted by the Faculty in each class. These scholarships are granted only to those who hold the degree of Bachelor of Arts, or its equivalent, from a recognized university or college. The Faculty reserves the right to withdraw any of these scholarships at any time when, in their judgment, the progress of the holder does not justify its continuance.

2. **PUBLIC SCHOOL PRIZE SCHOLARSHIPS.**—Under an agreement with the city of Philadelphia, fifty free scholarships exist in the University for the benefit of graduates from the public schools. The candidates for these scholarships are examined by the Board of Public Education, whenever vacancies occur, and award is made to those who reach the highest grade in the examination.

PRIZES.

ESSAY PRIZES.—The Society of the Alumni of the Department of Law has established two prizes, one of seventy-five dollars, called the SHARSWOOD PRIZE, and one of fifty dollars, called the MEREDITH PRIZE. They are awarded annually by the Faculty for the best and second-best essay written by members of the graduating class.

The P. PEMBERTON MORRIS PRIZE of forty dollars is awarded annually to that member of the graduating class who submits the best examinations in Evidence, Pleading and Practice.

MOOT COURTS.

There are several student Law Clubs, under the auspices of which Moot Courts are held. Cases prepared by the Professors and instructors are argued. Each of these courts meets once a week during the term, some member of the Faculty usually presiding.

TUITION FEES AND EXPENSES.

Each regular student pays on entering a matriculation fee of \$5.00 and makes a deposit with the Bursar of \$5.00. The deposit will be returned upon graduation or withdrawal, provided there is no charge against the same. In addition, each regular student pays an annual tuition fee of \$160.00, and an annual fee of \$10.00 for the privileges of the Gymnasium and Houston Club.

Each special or partial student pays the matriculation fee, the deposit and the annual Gymnasium and Houston Club fee. The annual tuition fee for special and partial students is determined in each case by the number of subjects taken.

Fees are payable in two parts of eighty-five dollars (\$85.00) each, due on October 1, and on February 1.

An addition is made to fees not paid within thirty-one days of the day when they become due. All fees are payable at the Bursar's office, Room 102, College Hall. Remittances should be in cash, or by bank draft, certified cheque, or postal money order, drawn for the exact amount due.

BOARD AND LODGING.

The University Dormitories are situated within five minutes' walk of the Law Building. Those who desire to secure dormitory rooms in advance should communicate with the Bursar of the University. Board and lodging may also be obtained in the neighborhood of the University ranging from \$5.00 a week upward.

MINIMUM ANNUAL EXPENSES.*

Matriculation Fee (paid once only)	\$5 00
Tuition	160 00
Gymnasium and Houston Club Fee	10 00
Board and Lodging	175 00
Total	\$350 00

* The cost of books should not exceed \$15.00 a year.

DEPARTMENT OF MEDICINE.

FACULTY.

CHARLES C. HARRISON, LL. D., PROVOST.

EDGAR F. SMITH, PH. D., Sc. D., LL. D., VICE-PROVOST.

RICHARD A. F. PENROSE, M. D., LL. D., Emeritus Professor
of Obstetrics, and of the Diseases of Women and Children.

PROFESSORS.

JAMES TYSON, M. D., Professor of Medicine.

HORATIO C. WOOD, M. D., LL. D., Professor of Materia Medica,
Pharmacy and General Therapeutics.

EDWARD T. REICHERT, M. D., Professor of Physiology.

BARTON COOKE HIRST, M. D., Professor of Obstetrics.

J. WILLIAM WHITE, M. D., JOHN RHEA BARTON Professor of
Surgery.

GEORGE A. PIERSOL, M. D., Professor of Anatomy.

JOHN MARSHALL, M. D., NAT. SC. D., LL. D., Professor of
Chemistry and Toxicology.

LOUIS A. DUHRING, M. D., Professor of Dermatology.

*ALEXANDER C. ABBOTT, M. D., PEPPER Professor of Hygiene,
and Bacteriology.

JOHN G. CLARK, M. D., Professor of Gynecology.

GEORGE E. DE SCHWEINITZ, M. D., Professor of Ophthalmol-
ogy.

CHARLES H. FRAZIER, M. D., Professor of Clinical Surgery,
and DEAN OF THE FACULTY.

ALLEN J. SMITH, M. D., Professor of Pathology.

DE FOREST WILLARD, M. D., Professor of Orthopedic Surgery.

* Absent on Public Business.

- JOHN H. MUSSER, M. D., Professor of Clinical Medicine.
 ALFRED STENGEL, M. D., Professor of Clinical Medicine.
 EDWARD MARTIN, M. D., Professor of Clinical Surgery.
 CHARLES K. MILLS, M. D., Professor of Neurology.
 WILLIAM G. SPILLER, M. D., Professor of Neuro-pathology, and
 Associate Professor of Neurology.
 CHARLES W. BURR, M. D., Professor of Mental Diseases.
 R. TAIT MCKENZIE, B. A., M. D., Professor of Physical Education.

ON THE GEORGE B. WOOD FOUNDATION.

- DANIEL J. MCCARTHY, M. D., Professor of Medical Jurisprudence.
 Professor of Botany.

CLINICAL PROFESSORS.

- B. ALEXANDER RANDALL, M. D., Clinical Professor of Diseases of the Ear.
 J. P. CROZER GRIFFITH, M. D., Clinical Professor of Diseases of Children.
 THOMAS R. NEILSON, M. D., Clinical Professor of Genito-Urinary Diseases.
 CHARLES P. GRAYSON, M. D., Clinical Professor of Laryngology and Rhinology.

ASSOCIATE PROFESSORS.

- GWILYM G. DAVIS, M. D., M. R. C. S. (Eng.), Associate Professor of Applied Anatomy.
 WILLIAM G. SPILLER, M. D., Associate Professor of Neurology.

ADJUNCT PROFESSORS.

- J. ALISON SCOTT, M. D., Adjunct Professor of Medicine.
 RICHARD H. HARTE, M. D., Adjunct Professor of Surgery.
 JAMES P. HUTCHINSON, M. D., Adjunct Professor of Surgery.
 THOMAS G. ASHTON, M. D., Adjunct Professor of Medicine.

ASSISTANT PROFESSORS.

- M. HOWARD FUSSELL, M. D., Assistant Professor of Medicine.
ALFRED C. WOOD, M. D., Assistant Professor of Surgery.
RICHARD C. NORRIS, M. D., Assistant Professor of Obstetrics.
DAVID H. BERGEY, M. D., Assistant Professor of Bacteriology.
LEO LOEB, M. D., Assistant Professor of Experimental Pathology.
DAVID L. EDSALL, M. D., Assistant Professor of Medicine.
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DEMONSTRATORS.

- DANIEL W. FETTEROLF, M. D., Demonstrator of Chemistry.
WILLIAM SCHLEIF, M. D., Demonstrator of Pharmacy.
HORATIO C. WOOD, JR., M. D., Demonstrator of Pharmacodynamics.
PHILIP B. HAWK, PH. D., Demonstrator of Physiological Chemistry.
EDWARD LODHOLZ, M. D., Demonstrator of Physiology.
GEORGE FETTEROLF, M. D., Acting Demonstrator of Anatomy.
HENRY R. ALBURGER, M. D., Acting Demonstrator of Pathology.
WALTER S. CORNELL, M. D., Demonstrator of Osteology.
WILLIAM H. F. ADDISON, M. D., Demonstrator of Histology.
-

ASSOCIATES.

- MILTON B. HARTZELL, M. D., Associate in Dermatology.
CHARLES S. POTTS, M. D., Associate in Neurology.
DAVID RIESMAN, M. D., Associate in Medicine
HENRY D. BEYEA, M. D., Associate in Gynecology.
J. DUTTON STEELE, M. D., Associate in Medicine.
ALOYSIUS O. J. KELLY, M. D., Associate in Medicine.
THOMPSON S. WESTCOTT, M. D., Associate in Pediatrics.
JOSEPH SAILER, M. D., Associate in Medicine.
JAMES K. YOUNG, M. D., Associate in Orthopedic Surgery.
HERMAN B. ALLYN, M. D., Associate in Medicine.
EWING TAYLOR, M. D., Associate in Anatomy.

LECTURERS.

ARTHUR A. STEVENS, M. D., Lecturer on Medical Terminology and Physical Diagnosis.

B. FRANKLIN STAHL, M. D., Lecturer on Dietetics of the Sick.

CHARLES W. DULLES, M. D., Lecturer on the History of Medicine.

HENRY K. PANCOAST, M. D., Lecturer on Skiagraphy.

JOHN T. CARPENTER, M. D., Lecturer on Ophthalmology.

INSTRUCTORS AND ASSISTANT DEMONSTRATORS.

GEORGE H. CHAMBERS, M. D., Assistant Demonstrator of Normal Histology.

HENRY A. NEWBOLD, M. D., Assistant Demonstrator of Pharmacy.

ARTHUR A. STEVENS, M. D., Instructor in Physical Diagnosis.

B. FRANKLIN STAHL, M. D., Instructor in Physical Diagnosis.

JOHN H. GIRVIN, M. D., Instructor in Obstetrics.

J. REX HOBENSACK, M. D., Assistant Demonstrator of Anatomy.

LEON A. RYAN, Ph. D., Assistant Demonstrator of Chemistry.

SHERBOURNE W. DOUGHERTY, M. D., Instructor in Physical Diagnosis.

HENRY D. JUMP, M. D., Instructor in Medicine.

JOHN J. ROBRECHT, M. D., Assistant Demonstrator of Anatomy.

RICHARD F. GERLACH, M. D., Assistant Demonstrator of Anatomy.

WILLIAM PEPPER, M. D., Instructor in Medicine.

BROOKE M. ANSPACH, M. D., Instructor in Gynecology.

ROBERT N. WILLSON, M. D., Instructor in Medicine.

JOHN M. CRUICE, M. D., Instructor in Medicine.

NORMAN B. GWYN, M. B., Instructor in Medicine.

ALBERT P. FRANCINE, M. D., Instructor in Medicine.

MAURICE OSTHEIMER, M. D., Instructor in Pediatrics.

WILLIAM E. QUICKSALL, M. D., Assistant Demonstrator of Anatomy.

HOWARD A. SUTTON, M. D., Assistant Demonstrator of Anatomy.

- CHARLES C. NORRIS, M. D., Instructor in Gynecology.
JOHN B. CARNETT, M. D., Instructor in Surgery.
WILLIAM G. B. HARLAND, M. D., Instructor in Laryngology.
HOLMES WALKER, M. D., Instructor in Laryngology.
RAE S. DORSETT, M. D., Assistant Demonstrator of Anatomy.
DANIEL M. HOYT, M. D., Assistant Demonstrator of Pharmacodynamics.
GEORGE P. MÜLLER, M. D., Instructor in Surgery.
JAMES W. McCONNELL, M. D., Instructor in Neurology.
THEODORE H. WEISENBURG, M. D., Instructor in Neurology, and in Neuro-pathology.
EDWARD A. SHUMWAY, M. D., Instructor in Ophthalmology.
WALTER S. CORNELL, M. D., Assistant Demonstrator of Anatomy.
JOHN H. JOPSON, M. D., Instructor in Surgery.
JOHN W. LUTHER, M. D., Instructor in Gynecology.
WILLIAM T. CUMMINS, M. D., Assistant Demonstrator of Pathology.
GEORGE M. DORRANCE, M. D., Assistant Demonstrator of Anatomy.
E. HOLLINGSWORTH SITER, M. D., Instructor in Genito-Urinary Diseases.
JOSEPH S. EVANS, M. D., Instructor in Medicine.
MYER SOLIS-COHEN, M. D., Instructor in Physical Diagnosis.
H. MAXWELL LANGDON, M. D., Instructor in Ophthalmology.
HENRY S. WIEDER, M. D., Assistant Demonstrator of Anatomy, and of Surgical Pathology.
SAMUEL LEOPOLD, M. D., Assistant Demonstrator of Pathology.
THOMAS B. HOLLOWAY, M. D., Instructor in Ophthalmology.
CLIFFORD B. FARR, M. D., Instructor in Physical Diagnosis.
CHARLES A. FIFE, M. D., Instructor in Pediatrics.
HOWARD C. CARPENTER, M. D., Instructor in Pediatrics.
HAROLD B. WOOD, M. D., Assistant Demonstrator of Normal Histology.

WILLIAM W. CADBURY, M. D., Assistant Demonstrator of Pathology and of Pharmacodynamics.

RALPH S. LAVENSON, M. D., Assistant Demonstrator of Gross Morbid Anatomy.

DAVID KAPP, Assistant Demonstrator of Pathology.

ASSISTANT INSTRUCTORS.

WILLIAM A. N. DORLAND, M. D., Assistant Instructor in Obstetrics.

GEORGE D. MORTON, M. D., Assistant Instructor in Surgery.

T. TURNER THOMAS, M. D., Assistant Instructor in Surgery.

WILLIAM R. NICHOLSON, M. D., Assistant Instructor in Obstetrics.

HENRY NORRIS, M. D., Assistant Instructor in Surgery.

CHARLES J. HATFIELD, M. D., Assistant Instructor in Medicine.

BERNARD KOHN, M. D., Assistant Instructor in Medicine.

JOHN C. HIRST, M. D., Assistant Instructor in Obstetrics.

JOHN BUSCH, M. D., Assistant Instructor in Surgery.

GEORGE M. DORRANCE, M. D., Assistant Instructor in Surgery.

JEAN J. A. VAN KAATHOVEN, M. D., Assistant Instructor in Surgery.

I. VALENTINE LEVI, M. D., Assistant Instructor in Pediatrics.

J. CLAXTON GITTINGS, M. D., Assistant Instructor in Pediatrics.

ALEXANDER H. UHLE, M. D., Assistant Instructor in Genito-Urinary Diseases.

FRED H. KLAER, M. D., Assistant Instructor in Surgery.

VOLUNTARY ASSISTANT DEMONSTRATORS.

PHILIP S. STOUT, M. D., Voluntary Assistant Demonstrator of Pathology.

THOMAS S. GITHENS, M. D., Voluntary Assistant Demonstrator of Pathology.

RUFUS B. SCARLETT, M. D., Voluntary Assistant Demonstrator of Pathology.

JOHN SPEESE, M. D., Voluntary Assistant Demonstrator of Surgical Pathology.

PROSECTORS.

LEWIS H. ADLER, JR., M. D., Prosector to the Professor of Anatomy.

J. FRANCIS WALSH, M. D., Assistant Prosector to the Professor of Anatomy.

ASTLEY P. C. ASHHURST, M. D., Prosector to the Associate Professor of Applied Anatomy.

ASSISTANTS.

NATHANIEL GILDERSLEEVE, M. D., First Assistant in Bacteriology.

CARL D. CAMP, M. D., Assistant in Neuro-pathology.

EDWARD B. MEIGS, M. D., Assistant in Physiology.

REUBEN A. BOGIA, M. D., Assistant in Physiology.

HARRY B. MELLER, Secretary to the Faculty of Medicine.

MEDICAL STAFF OF THE UNIVERSITY HOSPITAL.

Medicine.

JAMES TYSON, M. D.,	Professor of Medicine.
JOHN H. MUSSER, M. D.,	Professor of Clinical Medicine.
ALFRED STENGEL, M. D.,	Professor of Clinical Medicine.
M. HOWARD FUSSELL, M. D.,	} Assistant Physicians.
ROLAND G. CURTIN, M. D.,	
T. MELLOR TYSON, M. D.,	
ALOYSIUS O. J. KELLY, M. D.,	
DAVID L. EDSALL, M. D.,	
WILLIAM PEPPER, M. D.,	
JOSEPH SAILER, M. D.,	

Surgery.

J. WILLIAM WHITE, M. D.,	Professor of Surgery.
EDWARD MARTIN, M. D.,	Professor of Clinical Surgery.
CHARLES H. FRAZIER, M. D.,	Professor of Clinical Surgery.
ALFRED C. WOOD, M. D.,	} Assistant Surgeons.
J. BERTON CARNETT, M. D.,	
JOHN H. JOPSON, M. D.,	
HENRY NORRIS, M. D.,	
T. TURNER THOMAS, M. D.,	
GEORGE D. MORTON, M. D.,	} Surgical Anesthetizers.
JOHN BUSCH, M. D.,	
JOSEPH M. ASHER, M. D.,	

Obstetrics.

BARTON COOKE HIRST, M. D.,	Professor of Obstetrics.
RICHARD C. NORRIS, M. D.,	} Assistant Obstetricians.
WILLIAM A. N. DORLAND, M. D.,	
JOHN C. HIRST, M. D.,	
WILLIAM R. NICHOLSON, M. D.,	
EDWARD W. BEACH, M. D., .....		Obstetrical Anesthetizer.

Neurology.

CHARLES K. MILLS, M. D., Professor of Neurology.
 WILLIAM G. SPILLER, M. D., .. Associate Professor of Neurology.
 CHARLES S. POTTS, M. D., Assistant Neurologist.

Gynecology.

JOHN G. CLARK, M. D., Professor of Gynecology.
 HENRY D. BEYEA, M. D., }
 BROOKE M. ANSPACH, M. D., } Assistant Gynecologists.
 EVERETT P. BARNARD, M. D., Anesthetizer.

Orthopedic Surgery.

DE FOREST WILLARD, M. D., Professor of Orthopedic Surgery.
 JAMES K. YOUNG, M. D., } Assistant
 JOSEPH M. SPELLISSY, M. D., } Orthopedic Surgeons.
 CHARLES A. WORDEN, M. D., .. Orthopedic Surgery Anesthetizer.

Ophthalmology.

GEORGE E. DE SCHWEINITZ, M. D., .. Professor of Ophthalmology.
 HOWARD MELLOR, M. D., }
 JOHN T. CARPENTER, M. D., } Assistant
 EDWARD A. SHUMWAY, M. D., } Ophthalmic Surgeons.
 ARCHIBALD G. THOMSON, M. D., }

Dermatology.

LOUIS A. DUHRING, M. D., Professor of Dermatology.
 MILTON B. HARTZELL, M. D., Assistant Dermatologist.

Laryngology and Rhinology.

CHARLES P. GRAYSON, M. D., Clinical Professor of Laryngology
 and Rhinology.

Otology.

B. ALEXANDER RANDALL, M. D., Clinical Professor of Diseases of
 the Ear.

Pediatrics.

J. P. CROZER GRIFFITH, M. D., Clinical Professor of Diseases of Children.

Genito-Urinary Diseases.

THOMAS R. NEILSON, M. D., Clinical Professor of Genito-Urinary Diseases.

Pathology.

ALLEN J. SMITH, M. D., Professor of Pathology, and Pathologist to the Hospital.

Resident Physicians.

FRED H. KLAER, M. D., Chief.

THOS. C. KELLY, M. D.,	GEORGE M. LAWS, M. D.,
GEO. W. STIMSON, M. D.,	PAUL A. BIKLÉ, M. D.,
ROBERT L. GRAY, M. D.,	GEORGE M. PIERSOL, M. D.,
FLOYD E. KEENE, M. D.,	HOWARD G. SCHLEITER, M. D.,
PHILIP NORRIS, M. D.,	ELDRIDGE L. ELIASON, M. D.

MEDICAL STAFF OF THE OUT-PATIENT DEPARTMENT.

Medical Dispensary.

M. HOWARD FUSSELL, M. D.,	.....Chief Physician.
HENRY D. JUMP, M. D.,	.....
JOHN M. CRUCE, M. D.,	.....
ALBERT P. FRANCINE, M. D.,	.....
CHARLES J. HATFIELD, M. D.,	.....
M. SOLIS-COHEN, M. D.,	.....
CHARLES A. FIFE, M. D.,	.....
CLIFFORD B. FARR, M. D.,	.....
HOWARD K. HILL, M. D.,	.....
ROBERT S. MCCOMBS, M. D.,	.....
GEORGE T. LUKENS, M. D.,	.....
HENRY CULLINAN, M. D.,	.....

Physicians.

Assistant Physicians.

_____ ,	}	Recorders.
_____ ,		
MILTON K. MYERS, M. D.,		Microscopist.

Surgical Dispensary.

MACY BROOKS, M. D.,	Chief Surgeon.	
JOHN BUSCH, M. D.,	}	Assistant Surgeons.
JOSEPH M. ASHER, M. D.,		
EDWARD Y. RICH, M. D.,		
JOHN SPEESE, M. D.,		

Obstetrical Dispensary.

L. F. LUBURG, M. D.,	Chief Surgeon.
EDWARD W. BEACH, M. D.,	Assistant Surgeon.

Dispensary for Nervous Diseases.

CHARLES S. POTTS, M. D.,	Chief Physician.	
HENRY A. NEWBOLD, M. D.,	}	Assistant Physicians.
WALTER W. NAYLOR, M. D.,		
EUGENE LINDAUER, M. D.,		
JAMES W. McCONNELL, M. D.,		
THEO. H. WEISENBURG, M. D.,		
CARL D. CAMP, M. D.,		
THOMAS J. ORBISON.,		

Gynecological Dispensary.

WILLIAM B. SMALL, M. D.,	Chief Surgeon.
JOHN W. LUTHER, M. D.,	Assistant Surgeon.

Orthopedic Dispensary.

JAMES K. YOUNG, M. D.,	Chief Surgeon.	
JOSEPH M. SPELLISSY, M. D.,	}	Assistant Surgeons.
THOMAS O'HARA, M. D.,		
WALTER G. ELMER, M. D.,		
CHARLES A. WORDEN, M. D.,		
JAMES KELLY, M. D.,		

Dispensary for Diseases of the Eye.

JOHN T. CARPENTER, M. D.,	}	Chief Surgeons.
EDWARD A. SHUMWAY, M. D.,		
CARL WILLIAMS, M. D.,	}	Assistant Surgeons.
THOMAS B. HOLLOWAY, M. D.,		
BENJAMIN F. BAER, JR., M. D.,		
H MAXWELL LANGDON, M. D.,		
CHARLES M. HOSMER, M. D.,		
J. E. RHOADS, M. D.,		

Dispensary for Diseases of the Skin.

MILTON B. HARTZELL, M. D.,	Chief Physician.
SAMUEL H. BROWN, M. D.,	} Assistant Physicians.
FRANK C. KNOWLES, M. D.,	

Dispensary for Diseases of the Nose and Throat.

CHARLES P. GRAYSON, M. D.,	Chief Physician.
WM. G. B. HARLAND, M. D.,	} Assistant Physicians.
BENJAMIN L. SINGER, M. D.,	
BENJAMIN C. GILL, M. D.,	

Dispensary for Diseases of the Ear.

LEVI J. HAMMOND, M. D.,	Chief Surgeon.
RALPH BUTLER, M. D.,	} Assistant Surgeons.
JOHN L. DUKES, M. D.,	
DUNCAN L. DESPARD, M. D.,	

Dispensary for Diseases of Children.

MAURICE OSTHEIMER, M. D.,	Chief Physician.
I. VALENTINE LEVI, M. D.,	Assistant Physician.

Dispensary for Genito-Urinary Diseases.

E. HOLLINGSWORTH SITER, M. D.,	Chief Surgeon.
ALEXANDER A. UHLE, M. D.,	} Assistant Surgeons.
WILLIAM R. BREADY, JR., M. D.,	
J. J. A. VAN KAATHOVEN, M. D.,	

PREFATORY NOTE.

This venerable institution, the oldest Medical School in the United States, was founded in 1765 by Dr. JOHN MORGAN, who filled in it the first medical professorship created in America. In his opening "Discourse upon the Institution of Medical Schools in America," delivered in the College of Philadelphia, May 30, 1765, Dr. MORGAN uttered these prophetic words: "Perhaps this medical institution, the first of its kind in America, though small in its beginning, may receive a constant increase of strength, and annually exert new vigor. It may collect a number of young persons, of more than ordinary abilities, and so improve their knowledge as to spread its reputation to distant parts. By sending these abroad duly qualified, or by exciting an emulation amongst men of parts and literature, it may give birth to other useful institutions of a similar nature, or occasional rise, by its example, to numerous societies of different kinds, calculated to spread the light of knowledge through the whole American continent, wherever inhabited."

Through Dr. MORGAN, the pupil of HUNTER in London and of CULLEN in Edinburgh, the graduates of this school take a just pride in regarding it as the lineal descendant of the best medical schools of Great Britain in the last century. To Dr. MORGAN was soon joined another pupil of CULLEN, Dr. WILLIAM SHIPPEN, as Professor of Anatomy and Surgery, thus forming another tie of relationship to the celebrated University of Edinburgh, whose methods of instruction were substantially adopted here. In the next year Dr. ADAM KUHN was added as Professor of Botany and Materia Medica; and on June 21, 1768, a Commencement was held, at which medical honors were bestowed, the first in point of time in America. In 1769, Dr. BENJAMIN RUSH was elected to the Professorship of Chemistry, while Dr. THOMAS BOND, one of the trustees of the College of Philadelphia, delivered lectures on Clinical Medicine in the Pennsylvania Hospital.

To the faculty thus composed of MORGAN, SHIPPEN, KUHN and RUSH have succeeded, at various times, professors whose reputation has been national, such as BARTON, WISTAR, CHAPMAN, PHYSICK, DEWEES, HORNER, HARE, GIBSON, JACKSON, GEORGE B. WOOD, HODGE, JAMES B. ROGERS, CARSON, PEPPER, FRANCIS GURNEY SMITH, NEILL, HENRY H. SMITH, LEIDY, D. HAYES AGNEW, GOODSELL, the younger PEPPER, STILLÉ, ASHHURST, and NORRIS.

The number of graduates of the Department of Medicine is 12,839.

ADMISSION REQUIREMENTS.*

Admission to the Department of Medicine may be obtained either I, by diploma; or II, by examination; or in certain cases, as specified below under I, by a combination of both methods.

I. ADMISSION BY DIPLOMA: Any candidate who may have received a degree in Arts or Science from a college recognized by this University will be admitted without examination. Candidates who may have been admitted by examination to the two-year course in Biology of this University, and who may have completed the course satisfactorily, will be exempt from the entrance examination. Any candidate who may present written evidence of having passed the entrance examinations of a recognized college, in which the requirements are equivalent to those demanded for entrance to the Freshman Class of the College (course in Arts and Science) of this University, will be admitted without examination.

Diplomas of public high schools† may be accepted as complete or partial certificates. All diplomas presented by candidates will be referred to the Committee on Schools and Entrance Requirements of the College Faculty, who will examine each case and decide whether the diplomas shall be accepted in lieu of examinations, and what subjects they properly cover. The diploma must be transmitted to the Dean of the Medical Faculty not later than June 10 or September 10 in each year, and must be accompanied by a certificate signed by the principal of the school, stating the exact amount of each subject covered by the diploma, and the mark or grade attained in each subject.

II. ADMISSION BY EXAMINATION: Examinations for admission to the first-year class in 1905 will be held in College Hall, beginning respectively on Thursday, June 15, at 11 A. M., and Friday, Septem-

*It is earnestly recommended that young men, before entering upon the study of Medicine at this University, should have previously taken the degree either of A. B. or B. S. at some college or university where the standard is equivalent to that of the University of Pennsylvania. Should this be impracticable, two years' time should be devoted to the study of the following branches: Chemistry or Biology, with laboratory work in each amounting to six hours a week for eight months in each year: Mammalian and Human Anatomy; Histology and Physiology, including the practical use of the microscope and culture methods in Bacteriology. Free-hand Drawing is also an important preliminary study. Attention is called to the two-year course in Biology given in the College of this University, as indicating the character and amount of studies advised.

†Diplomas of Normal and Manual Training Schools are included.

ber 21, at 11 A. M.* Candidates may elect between these two dates.

Candidates will be required to register in College Hall between 9 and 11 A. M., either on Thursday, June 14, or on Friday, September 21, and to undergo the examinations beginning at 11 A. M., on the same day.*

The required subjects of examination for entrance to the Department of Medicine are the same as those prescribed for admission to the Freshman Class of the College. They will be found set forth in detail on pages 66 to 70. Candidates for admission to the First-year Class of the Department of Medicine, who do not possess the qualifications specified in paragraph 1, preceding, will be required to pass examinations in the subjects referred to below, in accordance with the following schedule, viz:

Candidates for admission by *examination* must present:

Either 1:

English; A and B.

History; (any two of the four topics A, B, C and D).

Mathematics; A, B and C.

Any two of the four languages; Greek (B, C, D, E): Latin (B, C, D, E, F, G): French (A, B): and German (A, B):

*The following individuals conduct examinations for admission to the first-year class in the respective cities in which they reside, about the middle of June. Examinations for admission to *advanced standing* are conducted *only* at the University. Dr. J. L. Rothrock, Lowry Arcade, St. Paul, Minn.; Dr. W. S. Elkin, 27 Luckie Street, Atlanta, Ga.; Dr. J. W. Whitbeck, 125 East Avenue, Rochester, N. Y.; Dr. W. T. Bell, 133 Powell Street, San Francisco, Cal.; Dr. Edward Randall, Jr., Galveston, Texas; Dr. B. M. Walker, Danville, Va.; Rev. D. McNeill, Charlottetown, P. E. I.; Dr. Benj. B. Cates, Knoxville, Tenn.; Dr. G. Clowes Van Wart, Fredricton, N. B.; Dr. J. W. Sherer, New Ridge Building, Kansas City, Mo.; Dr. Gilbert A. Pfoutz, Mercantile Building, Salt Lake City, Utah; Dr. Samuel H. Friend, 141 Wisconsin Street, Milwaukee, Wis.; Dr. Frank H. Edsall, 524 N. Henry Street, Madison, Wis.; W. B. Seeley, Ph. D., 1927 N. Flores Street, San Antonio, Texas; Dr. E. J. Angle, 1215 O Street, Lincoln, Neb.; Dr. T. F. Aiken, 431 Shawmut Avenue, Boston, Mass.

Candidates for admission should write directly to the examiner whose name and address are given, for exact information as to the place of the examination, and the date and hours. For other information, the applicant should address the Dean of the Department of Medicine. Specimen examination papers and descriptive circulars will be sent by the Dean upon request.

A fee of \$5.00, payable to the examiner, is charged to every student taking examinations outside of Philadelphia

Or II:*English; A and B.**History; (any two of the four topics A, B, C and D).**Mathematics: A, B, C and D.*

And any two of the following languages:

*Latin; B, C and three books of the Æneid; and**French; A and B; and**German; A and B.***Or III:***English; A and B.**History; (any two of the four topics A, B, C and D).**Mathematics; A, B and C.**Physics;*

And any two of the following languages:

*Latin; B, C and three books of the Æneid; and**French; A and B; and**German; A and B.***Or IV:***English; A and B.**History; (any two of the four topics A, B, C and D).**Mathematics; A, B, C, D and E.**Physics; and either**Latin; B, C and three books of the Æneid; or**French; A and B; or**German; A and B.*

ADVANCED STANDING IN SUBJECTS.

Any graduate in Arts or Science of a college recognized by this University who has completed any of the studies of the first year of the Medical Course, viz: General Chemistry, Physiological Chemistry, Anatomy (excepting the Central Nervous System and the Organs of Special Sense) or Bacteriology, and who has passed satisfactorily the examination given by the professor of the respective branch in this medical school, may be excused from that portion of the study given in the first year of the course, provided that he utilize the time scheduled for that study in advanced work in Chemistry, Anatomy, or Bacteriology, according to his preference and capabilities; or in anticipating work of the second year in so far as the roster may permit.

ADMISSION TO ADVANCED STANDING.

Candidates for admission to advanced standing who have not received a collegiate degree, or who have not passed the examination for admission to the Freshman Class of a recognized college conferring degrees in course; or who have not received a diploma from an acceptable high or normal school, will be required to pass the examination required of candidates for admission to the First-year Class, in addition to the examination in the subjects italicized below. Results of examinations in these several subjects which may have been passed at other medical schools will not be accepted in lieu of the requirements here prescribed.

Examinations for admission to advanced standing for the session 1906-07 will begin in the new Medical Laboratories on Monday, September 24, 1906, at 2 P. M.*

Candidates who have attended one course in a recognized medical school (not Homœopathic or Eclectic) in which the required annual session is not less than eight months in length, are admitted to the SECOND-YEAR Class upon passing a satisfactory examination in *General and Physiological Chemistry, Bacteriology, Anatomy* (excepting the *Central Nervous System* and the *Organs of Special Sense*) and *Pathology*.

Candidates who have attended two courses in a recognized regular medical school in which the required annual session is not less than eight months in length, are admitted to the THIRD-YEAR Class upon passing a satisfactory examination in *General and Physiological Chemistry, Bacteriology, Pathology, Materia Medica* and *Pharmacy*, and the entire subjects of *Anatomy* and *Physiology*.

Candidates who have attended three courses in a recognized regular medical school in which the required annual session is not less than eight months in length, are admitted to the FOURTH-YEAR Class upon passing a satisfactory examination in *General and Physiological Chemistry, Bacteriology, Materia Medica* and *Pharmacy*, the entire subjects of *Anatomy* and *Physiology, Applied Anatomy, Pathology* and *Gross Pathology, Therapeutics, Medicine, Surgery, Obstetrics*, and *Ophthalmology*.

Graduates of recognized regular medical schools, in which the

* Students from other colleges admitted to the Second-year Class, who have not had instruction in Practical Normal Histology, Physiological Chemistry and in Bacteriology, will be required to make up such deficiency by taking a special course. Students admitted to the Third-year Class will be required to make up deficiencies in Practical Normal Histology, Physiological Chemistry, Bacteriology, and in Practical Pathological Histology.

required annual session is not less than eight months in length, and in which four years' attendance upon instruction is required to obtain the degree in Medicine, are admitted to the **FOURTH-YEAR Class** with the understanding that they pass examinations in *Obstetrics, Therapeutics, Pathology* and *Gross Pathology*, either at the beginning or at the end of the fourth year, in addition to the regular examinations of that year.

1.—UNDERGRADUATE INSTRUCTION.

FIRST PERIOD.

The course of instruction extends over a period of four years, with one session in each year, beginning on the last Friday of September and ending on the third Wednesday in June.

The course may be said to be divided into two periods of two years each: the first period devoted to the fundamental medical sciences, Chemistry, Anatomy, Physiology, and Pathology; the second period to the clinical subjects, Medicine, Surgery, Obstetrics and the specialties.

The subjects of the first two years have been arranged according to a modification of the concentration system. By this system the student is enabled to concentrate his energy upon one or two subjects, and must master these before he is allowed to continue the course. Thus the first year is devoted chiefly to anatomy, including embryology, normal histology, osteology, and to chemistry—general and physiological. In order that the student may enter upon his study of pathology in the second year with a clear conception of the factors that play so important a part in the etiology of disease, he receives in the first year his instruction in bacteriology.

The subjects of the second year follow in logical sequence those of the year preceding. Having been grounded in the structure of the human subject in a state of health, and having familiarized himself with the chemistry of normal tissues and body fluids, the student enters upon the study of the functions which the tissues of the body perform in a state of health, and the disturbance of functions and alterations of structures that are manifested in disease. The time of the second year is thus given over almost wholly to physiology and pathology. In addition to these the work of the second year includes two subjects preparatory to the studies of the third year—Materia Medica and Pharmacy, and Physical Diagnosis.

Instruction upon the subjects of the first two years is almost entirely practical, so that the greater part of the student's time is spent in the laboratories. In the new Laboratories of Pathology, Physiology and Pharmacology, which were opened in June, 1904, the students of this department are afforded unsurpassed facilities for practical work in these fundamental subjects.

SECOND PERIOD.

With the beginning of the third year the student enters upon the second period, which covers the third and fourth years, and is devoted almost exclusively to instruction in the so-called clinical subjects—Medicine, Surgery, Obstetrics and the specialties. There is no sharp dividing line between the work of the third and fourth years, so that the courses in the clinical subjects may be said to cover a period of two years.

From a glance at the tabular representation of the hours of instruction for the third and fourth years (later pages), it will be seen that arrangements have been made to keep the student fully occupied throughout each day. No especial opportunities are offered the student to engage in special lines of work before he graduates. In point of fact, any desire to specialize before graduation is rather discouraged. It has always been the object and aim of this institution to prepare its students for the practice of general medicine, not to graduate them as "specialists." *Its policy has been to offer the student a well-graded, well-proportioned and comprehensive course*, so that upon his graduation he stands prepared to *practice* medicine. Should he decide to take up a specialty or to engage in teaching or investigation after graduation, he will be the better prepared by his broad education, and still better prepared if he has had several years of clinical experience.

The methods of instruction are varied, but mostly practical. The latter include ward visits, ward classes, clinical conferences and practical observation in the wards and out-patient department of the University Hospital. Didactic lectures, general clinics and recitations have been found indispensable, but play a less conspicuous part in the course.

The facilities for instruction are abundant. It is possible to offer to each student opportunities to come into personal contact under proper supervision with a large and varied series of cases. The University Hospital, with its capacity of 300 beds, is operated exclusively for the benefit of the Department of Medicine. Adjoining the University campus is the Philadelphia Hospital, with a capacity of 1,000 beds, where the wards are open to both teachers and students throughout the year.

In addition to these, extramural teaching is conducted in the Children's and Pennsylvania Hospitals by members of the teaching staff. A voluntary course upon the contagious diseases, conducted at the Municipal Hospital, is offered to the members of the Graduating Class.

ANATOMY.

GEORGE A. PIERSOL, M. D.,	<i>Professor of Anatomy.</i>
GWILYM G. DAVIS, M. D., M.R.C.S. (Eng.),	<i>Associate Professor of Applied Anatomy.</i>
GEORGE FETTEROLF, M. D.,	<i>Acting Demonstrator of Anatomy.</i>
WILLIAM H. F. ADDISON, M. D., . . .	<i>Demonstrator of Histology and Embryology.</i>
WALTER S. CORNELL, M. D.,	<i>Demonstrator of Osteology.</i>
EWING TAYLOR, M. D.,	<i>Associate in Anatomy.</i>
J. REX HOBENSACK, M. D.,	} <i>Assistant Demonstrators of Anatomy.</i>
JOHN J. ROBRECHT, M. D.,	
RICHARD F. GERLACH, M. D.,	
WM. E. QUICKSALL, M. D.,	
HOWARD A. SUTTON, M. D.,	
RAE S. DORSETT, M. D.,	
WALTER S. CORNELL, M. D.,	
GEORGE M. DORRANCE, M. D.,	
HENRY S. WIEDER, M. D.,	} <i>Assistant Demonstrators of Histology.</i>
GEORGE H. CHAMBERS, M. D.,	
HAROLD B. WOOD, M. D.,	
LEWIS H. ADLER, JR., M. D.,	<i>Prosecutor to Professor of Anatomy.</i>
J. FRANCIS WALSH, M. D.,	<i>Assistant Prosecutor to Professor of Anatomy.</i>
ASTLEY P. C. ASHHURST, M. D., . .	<i>Prosecutor to Associate Professor of Applied Anatomy.</i>
J. LEON HERMAN,	} <i>Voluntary Assistants in Histological Laboratory.</i>
CARL ROSCOW STEINKE,	
P. F. WILLIAMS,	

Of the following courses in Anatomy, I to XII, inclusive, are required of candidates for the degree of Doctor of Medicine. All are completed during the first year, except Courses III and XI, which are completed during the second year, and Course IV, completed during the third year. Courses XIII to XVII are not required, but may be taken by students who have had satisfactory preparatory training.

I. SYSTEMATIC ANATOMY, INCLUDING CYTOLOGY, GENERAL EMBRYOLOGY, GENERAL HISTOLOGY, OSTEOLOGY, AND MYOLOGY. *Professor Piersol.*—October 1 to February 1; four hours weekly.

II. SYSTEMATIC ANATOMY OF THE ORGANS. *Professor Piersol.*—February 1 to May 19; four hours weekly.

III. ANATOMY OF THE CENTRAL NERVOUS SYSTEM AND ORGANS OF SPECIAL SENSE. *Professor Piersol.*—February 1 to May 12; each section of class three hours weekly.

IV. COURSE IN APPLIED ANATOMY. *Dr. Davis.*—October 1 to May 12; each section of class one hour weekly.

V. LABORATORY COURSE IN GENERAL HISTOLOGY. *Dr. Addison and assistants.*—October 1 until December 20; each section two mornings weekly.

VI. LABORATORY COURSE IN THE HISTOLOGY OF ORGANS. *Dr. Addison and assistants.*—January 1 to April 1; each section two mornings weekly.

VII. LABORATORY COURSE IN EMBRYOLOGY. *Dr. Addison and assistants.*—April 1 to May 12; each section two mornings weekly.

VIII. OSTEOLOGY. *Dr. Cornell.*—October 1 to February 1; two hours weekly.

IX. LABORATORY COURSE IN OSTEOLOGY. *Drs. Cornell and Sutton.*—October 1 to February 1; each section eleven hours for seven weeks.

X. PRACTICAL STUDY OF THE EXTREMITIES BY DISSECTION. *Dr. Fetterolf and assistants.*—October 1 to May 12; each section two hours daily for fourteen weeks.

XI. PRACTICAL STUDY OF THE HEAD, NECK, THORAX AND ABDOMEN. *Dr. Fetterolf and assistants.*—October 1 to May 12; each section two hours daily for fourteen weeks.

XII. DEMONSTRATIONS. *Dr. Taylor.*—October 9 to May 12; one hour weekly.

XIII. SPECIAL COURSE ON ANATOMY OF SENSE ORGANS. *Professor Piersol.*—October 15 to December 15; Wednesday mornings.

XIV. SPECIAL COURSE IN ANATOMY OF FRACTURES AND LUXATIONS.—*Dr. Davis and assistant.*

XV. ADVANCED LABORATORY COURSE IN VERTEBRATE EMBRYOLOGY. *Professor Piersol and Dr. Taylor.*—October 15 to May 1; mornings.

XVI. LABORATORY COURSE IN MICROSCOPICAL TECHNIQUE. *Professor Piersol and Dr. Addison.*—April 1 to May 12; three mornings weekly.

XVII. ADVANCED WORK AND ORIGINAL INVESTIGATION. *Professor Piersol.*—October 15 to May 12.

Courses I and II, four lectures a week throughout the session present systematically the principles, as well as details, of human anatomy, including structure and development. Beginning with the structure and life history of the cell, the fundamental processes of development are traced as far as the evolution of the general body-form. The tissues in general, and the connective substances in particular as an introduction to osteology, next claim attention. Succeeding the study of the human skeleton, including the joints, the muscular system is presented. Consideration of the digestive tract and its appendages, and of the respiratory organs, is followed by that of the genito-urinary organs. The discussion of the vascular and nervous systems is next undertaken; the detailed study of the cerebro-spinal axis, and the organs of special sense, however, being deferred until the second year. Especial pains are taken to impress the broader morphological significance of the details of human anatomy. These courses are exceptionally well illustrated by means of charts, lantern, models, museum preparations and fresh dissections, the unusual resources of the Wistar Institute of Anatomy and Biology being additionally available, not only for class-instruction, but also for individual study.

Courses V and VI occupy two mornings each week, until April 1, during which time the student is required to mount, study and draw preparations of all of the important tissues and organs of the human body, as well as to learn the methods employed in their preparation.

Course VII is devoted to the mounting and study of series of chick and mammalian embryos. The laboratory is equipped with excellent microscopes of recent model, and supplied with the most approved apparatus for histological and embryological work.

Course IX, in the osteological laboratory, is conducted for a period of forty-two days, two and one-quarter hours daily, for each section into which the class is divided. The exercises include the detailed study of the skeleton, each student being provided with bones which he is required to draw, noting the important features and principal muscular attachments. The joints are also

studied on finished dissections. Bones are loaned to students upon conditions similar to those governing the issue of books from a library.

Courses X and XI form a most important part of the first and second year work, every student being required to carefully dissect and pass practical examination upon the cadaver. The class is divided into sections, each of which works at least two hours daily for two periods of forty-two days each, under the close supervision of the Demonstrator of Anatomy and his assistants. Excellent and abundant dissecting material is assured by the improved methods of preservation and the facilities for cold storage. Opportunity for additional work is afforded to students who desire to devote more time to practical anatomy.

Course III, continuing the systematic instruction in the second year, is given in sections, two mornings each week, after February 1. These hours are devoted to teaching each student individually the details of the central nervous system and the organs of special sense. A generous supply of dissections, microscopical preparations and models insures adequate illustration of these subjects. Careful dissection of the brain by each student under the immediate direction of the Professor of Anatomy and his assistants is a feature of the course. Permanent demonstrations of the anatomy of the central nervous system are available at all times for individual study and review. In addition to the tests held at the completion of his dissections, each student is required to pass on the cadaver an examination, held by the Professor of Anatomy, covering the entire body, as a preliminary to the written examination at the end of the second year.

Course IV is a continuation of the study of anatomy, but from the standpoint of its application, and not as an abstract science. The course embraces surface anatomy, the outlines of the organs, the position of the joints, significance of bony points, muscular swells, the position and means of recognizing the various nerves and arteries; the influence of the muscles in fractures; the construction of joints in reference to luxations; a knowledge of the parts incised in amputations; how the parts influence and direct the progress of abscesses; a knowledge of the lymphatics in reference to pyogenic and carcinomatous infections; a knowledge of the position and relation of the abdominal organs necessary for diagnostic and operative purposes; also those of the chest; cerebral localization, paralysis, etc., and innumerable other facts. Attention is given to the relation of the various tissues and organs to

each other, so that the operations on those parts may be understood. It is the object of the course to present to the student the subject of anatomy in such manner as to enable him to utilize it in forming diagnoses and applying methods of treatment.

Instruction is given by demonstrations. These embrace the living and dead body and anatomical preparations. Special dissections and preparations are made to illustrate and explain fractures, dislocations, amputations, ligation of arteries, the position and relation of organs by frozen sections, etc., and also by injections of wax, the affections of the joints, palmar and other abscesses, etc.

The class is divided into three sections, each of which attends one hour a week.

Two minor examinations are given during the term and a final one, both written and practical, at the completion of the term.

BACTERIOLOGY AND HYGIENE.

ALEXANDER C. ABBOTT, M. D.,* *Pepper Professor of Hygiene, and Bacteriology.*

DAVID H. BERGEY, M. D., *Assistant Professor of Bacteriology.*

NATHANIEL GILDERSLEEVE, M. D., *First Assistant in Bacteriology.*

JAMES B. RUCKER, JR., M. D., . . *Second Assistant in Bacteriology.*

SYLVESTER J. DEEHAN, M. D., . . *Third Assistant in Bacteriology.*

BACTERIOLOGY.

I. LECTURES. *Professor Abbott.*—A course of lectures preparatory to the practical work of the first-year students is given from October 1 until the Christmas recess, one lecture weekly. This course comprehends those elementary phases of the subject with which the student should be familiar at the time he begins his practical work.

II. LABORATORY COURSE. *Drs. Bergey and Gildersleeve.*—The course of lectures is followed by the laboratory exercises. These begin February 1, and continue until the end of the year.

The number of hours given to the practical work in this branch is about eighty to each student of the First-year Class. During this time they receive instruction in the use of the microscope in bacteriological work; the methods of cultivating bacteria and of isolating them in pure cultures; the steps necessary to the identi-

* Absent on Public Business.

fication of particular species of bacteria; the relation of bacteria to infection; and the methods of sterilization and disinfection. Such students as demonstrate ability to advance beyond the class work are given the opportunity to do so, and are encouraged to pursue such studies providing the latter do not interfere with hours assigned to other subjects.

The course in detail covers the following subjects:

1. Apparatus employed—sterilizers, incubators, pressure regulators, thermostats, etc.
2. Culture media, methods of preparation, sterilization methods.
3. Characteristics of cultures of bacteria in general and of special forms.
4. Methods of obtaining, from mixtures of different bacteria, individual species in pure cultures.
5. Microscopic technique. Use and care of instruments, staining from cultures, section cutting, and staining and mounting of tissues.
6. Pathogenic bacteria isolation, identification and inoculation.
7. Disinfection, thermal and chemical, methods and apparatus, modes of testing efficiency.
8. Bacteriological investigation of water.
9. Bacteriological investigation of air.
10. Bacteriological investigation of soil.

HYGIENE.

III. LECTURES. *Professor Abbott.*—The teaching in Hygiene consists of a course of didactic lectures to the Fourth-year Medical students, and of practical exercises in the laboratory. The didactic course is compulsory upon all students receiving the degree of Doctor of Medicine, while the practical course is voluntary.

The lectures are given twice weekly, from February 1 until the end of the term. They cover the following topics of general sanitary importance:

A consideration of the factors concerned in the direct causation of disease, and the manifold conditions of life that indirectly favor the occurrence of disease among individuals, groups of individuals and communities.

A brief sketch of the important transmissible and epidemic diseases, embracing a discussion of their modes of transmission, portals of infection, geographical and seasonal distribution and the approved methods of their prevention.

A consideration of prophylaxis in general, embracing disinfect-

tion and disinfectants, protective vaccination and the anti-toxic state, the disposal of the dead after infectious diseases, and quarantine.

The atmosphere, from the chemical, physical, and biological standpoints; the air of enclosed spaces; the problems of ventilation and heating; the various pollutions of the atmosphere, such, for instance, as those from the soil, from industries, from sewers, etc., and their influence on health and disease.

Water—its sanitary significance; the characteristics of waters from various sources and their suitability to domestic needs; the pollutions to which waters from different sources are liable; the biological significance of these pollutions; interpretations of the results of analyses; natural and artificial purification of waters; the relation of water to health and disease.

Sewage—the part taken by the soil and its constituents in the disposal of organic waste; the characteristics of sewage from different sources; the various methods for the disposal of sewage; the influence of sewage disposal upon the health of communities.

IV. PRACTICAL COURSE. *Professor Abbott and Dr. Bergey.*—The following subjects, arranged especially for the needs of those students intending to enter upon the practical pursuit of sanitary work, are taken up:

1. The atmosphere, climate and meteorological observations and records, chemical analysis, bacteriological investigation, methods of investigation, methods of ventilation and heating.

2. Water—physical, chemical and bacteriological investigation of water-supplies; methods of obtaining samples; qualitative and quantitative analysis for impurities; collection, storage and purification of water intended for domestic use; effects of filters, aeration, etc.

3. Sewage disposal, sewers, house drainage and the air of sewers.

4. Disposal of refuse, cremation of garbage, etc.

5. Soils and building sites, physical, chemical and bacteriological investigation, soil and moisture, ground air.

6. Foods—adulteration, milk and meat inspections.

7. Clothing—microscopic examination, poisonous dyes.

8. Management of contagious diseases. Practical tests of different methods of disinfection, chemical and thermal; notification, isolation and quarantine.

9. Vital statistics, registration and methods of tabulation.

10. Offensive and dangerous trades.

V. ORIGINAL INVESTIGATION. In addition to the foregoing set courses, facilities are offered by the Laboratory for special work. Students and graduates of this school or elsewhere will find opportunities for advanced work on any of the subjects properly coming within the scope of the Laboratory. Arrangements for such work can be made by correspondence with the Director of the Laboratory.

PUBLIC HEALTH.

(BEGINNING OCTOBER 1, 1906.)

The authorities of the University of Pennsylvania realize the efforts which are being made in communities throughout the country to obtain officials who have had some special training in matters pertaining to public health. Each year the demand for men of this type (either as chiefs of departments or in some subordinate position) is increased, and at the present time there is a lack of men qualified to fill such positions. To meet the needs of such instruction, the University has introduced into its curriculum a course in public health, which includes instruction under the following headings:

SANITARY ENGINEERING. Including the subject of water supplies, sewerage systems, street cleaning, disposal of waste, etc.

SANITARY LEGISLATION. A study of the movement for sanitary reform, and of the laws enacted relating to public health, and the methods of enforcement employed in Great Britain and the United States.

INSPECTION OF MEAT, MILK AND OTHER ANIMAL PRODUCTS. The methods of preparation and preservation of the same, the conduct of dairies, creameries, etc., and demonstrations of the diseases of animals transmissible to man.

THE SANITARY ENGINEERING OF BUILDINGS. Including demonstrations of systems of heating, ventilation, plumbing and drainage, the study of plans, etc.

SOCIAL AND VITAL STATISTICS IN THE UNITED STATES. An examination of statistical methods and their results, with special reference to vital statistics and to city populations.

PRACTICAL METHODS USED IN SANITARY WORK. Including water, air and milk analyses, studies in ventilation and heating.

investigation of the soil, methods of disinfection, sterilization, etc. (This is purely laboratory instruction.)

GENERAL HYGIENE. As applied to the community, including lectures upon the causation of disease—exciting and predisposing, methods of prevention—including isolation, quarantine, natural and acquired immunity, protective inoculation, vaccination, and the antitoxic state, methods of house disinfection, the means employed, suggestions for the organization of sanitary work, the influence of water supplies and sewage disposal on the public health, etc.

PERSONAL HYGIENE. Including the physiology of exercise, the adaptation of exercise to the various physical requirements, the use of exercise for the prevention and correction of deformities, the methods of examination and record keeping, the routine physical examination of growing children and the relation of air, food, bathing, etc., to health and development; the hygiene of the school room.

CHEMISTRY AND TOXICOLOGY.

JOHN MARSHALL, M. D., NAT. SC. D., LL. D.,	<i>Professor of Chemistry and Toxicology.</i>
DANIEL W. FETTEROLF, M. D.,	<i>... Demonstrator of Chemistry.</i>
PHILIP B. HAWK, PH. D.,	<i>..... Demonstrator of Physiological Chemistry.</i>
LEON A. RYAN, PH. D.,	<i>..... Assistant Demonstrator of Chemistry.</i>

Instruction in General and Physiological Chemistry for the degree in Medicine is confined to the first year of the course, and consists of lectures and laboratory work.

I. GENERAL CHEMISTRY:

1. **LECTURES.** *Professor Marshall.*—During the period from the beginning of the session until February 1, three lectures weekly are given, in which theoretical chemistry, stoichiometry, systematic chemistry, and the general principles of volumetric analysis are considered.

2. **LABORATORY WORK.** *Drs. Fetterolf and Ryan.*—During the period from the beginning of the session until February 1, six hours' attendance in the laboratory in two periods of three hours each in each week is required of each student. **Qualitative analysis**

in which tests are made, and the equations pertaining thereto are written, for the commonly occurring bases and acids, and separations of bases and acids contained in complex mixtures are made. Gravimetric analysis. Acidimetry and alkalimetry in which normal, semi-normal, deci-normal, etc., solutions are prepared and are employed in actual quantitative determinations.

II. PHYSIOLOGICAL CHEMISTRY AND TOXICOLOGY:

1. LECTURES. *Professor Marshall.*—During the period from February 1 until the end of the session two lectures are given weekly in which the important parts of the subjects are treated.

2. LABORATORY WORK. *Dr. Hawk.*—During the period from February 1 until the end of the session six hours' attendance in the laboratory in two periods of three hours each in each week is required of each student. The course consists of studies of carbohydrates, proteins, the solid tissues, salivary, pancreatic, and gastric digestion, bile, biliary concretions, milk, blood, stomach contents, normal and pathological urine, feces, general food analysis, and examination of pathological fluids and solids whenever such material is available.

Toxicology: Examination for volatile poisons, alkaloids, and metallic poisons placed in organic tissues by the instructor, detection of blood-stains, spectroscopic and chemical examination of hæmoglobin and its various derivatives.

III. ADVANCED LABORATORY COURSE IN PHYSIOLOGICAL CHEMISTRY open to persons sufficiently prepared to undertake such work.

IV. ADVANCED LABORATORY COURSE IN URINE ANALYSIS open to persons qualified by previous preparation to undertake such work.

V. LABORATORY COURSE IN TOXICOLOGY open to persons qualified by previous training in chemical technique to undertake such work.

VI. RESEARCH WORK for those qualified by previous training to undertake it.

PHYSIOLOGY.

EDWARD T. REICHERT, M. D., *Professor of Physiology.*

EDWARD LODHOLZ, M. D., *Demonstrator of Physiology.*

EDWARD B. MEIGS, M. D., } *Assistants in Physiology.*

REUBEN A. BOGIA, M. D., }

The instruction in Physiology embraces systematic courses of lectures, practical work by the student, demonstrations and conferences given during and extending throughout the second year. The students, therefore, before entering upon their work in this department, have been trained in Chemistry, Anatomy and Normal Histology.

I. LECTURES. *Professor Reichert*.—Four lectures a week on the general subject of Nutrition, from October 1 to February 1.

II. LECTURES. *Professor Reichert*.—Four lectures a week on the Heat Mechanism and the Nervous and Muscular Systems, from February 1 to May 20.

The lectures are copiously illustrated by tables, charts, diagrams and drawings, this being supplemented and considerably extended by the courses of instruction in the demonstration room and laboratory.

III. STUDENTS' LABORATORY WORK, IN ILLUSTRATION AND EXTENSION OF COURSE I. *Professor Reichert, Dr. Lodholz and assistants*.

IV. STUDENTS' LABORATORY WORK, BEARING A SIMILAR RELATION TO COURSE II. *Professor Reichert, Dr. Lodholz and assistants*.

The course of practical work has been carefully and systematically planned, chiefly upon the *inductive* method of instruction, and from seven to ten hours a week are assigned to each student for this work, together with demonstrations and conferences. The main objects sought in the laboratory are: the illustration of the lectures by the most impressive methods; the supplementation of collateral work to further impress important fundamental facts and broaden their application; the training in the use of instruments of precision, with especial reference to the use of apparatus in clinical and experimental medicine; the cultivation of the individual's powers of observation and deduction; the encouragement of accuracy of expression and method, of collateral work, and the co-ordination of facts.

The instruction in the practical work is given under the direction of the Professor of Physiology by the Demonstrator and his assistants. Each student is assigned a table and the necessary apparatus, and works under the direct supervision of the teaching staff. He is directed in technique and in what to observe, but he is self-dependent as to his results and conclusions, and must present

them for examination in the form of "graphic records" and written reports at the end of each exercise.

V and VI. DEMONSTRATIONS. *Dr. Lodholz and Dr. Meigs.*—Two corresponding series of demonstrations, which take the place of practical work when the latter is of a character too difficult or otherwise undesirable for the student to pursue; as, for instance, work involving the use of complicated or very expensive apparatus, the employment of mammals, etc. These demonstrations are given in their proper relation to a series of conferences, in which the work covered by the lectures is reviewed.

VII. CONFERENCES. *Dr. Lodholz and Dr. Meigs.*—Conferences, which cover the subject-matter of the lectures, are held at appropriate times.

VIII. JOURNAL CLUB. Recent work in Physiology is reported by the members of the department, and by those actively engaged in research and advanced work in the laboratories.

IX. SEMINARY. Problems under investigation in the department are introduced for the mutual advantages of discussion. Conducted by Professor Reichert and the staff of the department.

X. GRADUATE COURSES. *Professor Reichert.*—These courses are arranged to suit the requirements of those presenting themselves for the work. Rooms and apparatus are placed at the disposal of such students, and every facility is offered for the prosecution of research.

XI. ELECTIVE COURSES IN ADVANCED PHYSIOLOGY. *Professor Reichert.*—These are offered to students of the third and fourth years in Medicine. The intention is to give to those who may desire it an opportunity to continue the laboratory work of the previous year in ways that are impossible with large classes, and as a foundation for the prosecution of research.

XII. ELECTIVE. *Dr. Lodholz.*—Elective course of lectures on digestion and metabolism in domesticated animals, one hour weekly from October 1 to January 15.

XIII. RESEARCH. The laboratory offers all the advantages of its facilities and equipment for the investigation of problems in Physiology. This may be arranged for at any time by communicating with Professor Reichert.

PATHOLOGY.

ALLEN J. SMITH, M. D.,	<i>Professor of Pathology.</i>
LEO LOEB, M. D., ..	<i>Assistant Professor of Experimental Pathology.</i>
HENRY R. ALBURGER, M. D., ..	<i>Acting Demonstrator of Pathology.</i>
WILLIAM T. CUMMINS, M. D.,	} <i>Assistant Demonstrators of Pathology.</i>
SAMUEL LEOPOLD, M. D.,	
PHILIP S. STOUT, M. D.,	
THOMAS S. GITHENS, M. D.,	
RUFUS B. SCARLETT, M. D.,	
WILLIAM W. CADBURY, M. D.,	
RALPH S. LAVENSON, M. D.,	
DAVID KAPP,	

SURGICAL PATHOLOGY.

CHARLES H. FRAZIER, M. D.,	<i>Professor of Clinical Surgery.</i>
GEORGE P. MÜLLER, M. D.,	<i>Instructor in Surgery.</i>
HENRY S. WIEDER, M. D.,	<i>Assistant Demonstrator of Surgical Pathology.</i>
JOHN SPEESE, M. D.,	<i>Voluntary Assistant Demonstrator of Surgical Pathology.</i>

CLINICAL PATHOLOGY.**NEURO-PATHOLOGY.**

WILLIAM G. SPILLER, M. D.,	<i>Professor of Neuro-Pathology.</i>
THEODORE H. WEISENBERG, M. D.,	<i>Instructor in Neuro-Pathology.</i>
CARL D. CAMP, M. D.,	<i>Assistant in Neuro-Pathology.</i>

GYNECOLOGICAL PATHOLOGY.

JOHN G. CLARK, M. D.,	<i>Professor of Gynecology.</i>
BROOKE M. ANSPACH, M. D.,	} <i>Instructors in Gynecology.</i>
CHARLES C. NORRIS, M. D.,	

OPHTHALMIC PATHOLOGY.

GEORGE E. DE SCHWEINITZ, M. D.,	<i>Professor of Ophthalmology.</i>
CHARLES M. HOSMER, M. D.,	_____
ALFRED R. ALLEN, M. D.,	<i>Director of Photomicrography.</i>
LOUIS SCHMIDT,	} <i>Artists.</i>
ERWIN P. FABER,	

Instruction in Pathology extends over the second half of the first year and the full second and third years of the medical curriculum. The plan of instruction embraces a general course in pathology under the direct supervision of the chair of Pathology, and a group of courses of applied special pathology, limited to the third year, in charge of the staff of instructors of the clinical branch concerned. In this latter group, which looks eventually toward the presentation of all special applications advantageously taught by laboratory methods, there have thus far been organized courses in Surgical Pathology, Clinical Pathology, Neuro-pathology, Gynecological Pathology and Ophthalmologic Pathology. In each division of the subject except the last named, in which the laboratory work is limited to demonstrations, the plan of teaching includes systematic lectures, demonstrations and practical class exercises.

The general instruction in pathology includes the following courses:

I. ELEMENTARY PATHOLOGY AND ETIOLOGY. *Professor Smith.*—

A series of lectures, occupying two hours each week in the second half of the term, is given to the First-year Class upon elementary pathology; including consideration of the types of disease, classification of disease, termination of disease, the signs of death, and upon etiology. In the latter connection, among other subjects, the outlines of animal parasitology and the immediate pathologic relations of the vegetable parasites are taken up. Illustrative demonstrations as required by the subject are employed. In addition, where suitable, as in connection with embolism, thrombosis, regeneration and inflammation, work of an experimental type is included to aid in the explanation of such processes.

II. GENERAL PATHOLOGY. *Professor Smith and assistants.*—This subject is given to the Second-year Class. Three lectures each week for the first half of the term are devoted to the various retrograde and progressive elementary pathological processes, to regeneration, inflammation, the specific inflammations, tumor formation and to teratology. In the laboratory of pathological histology, each student devotes three periods of two and one-half hours each week to the preparation and study of illustrative tissues by the microscope, the gross features of the processes discussed being correlated by frequent demonstration of material in the laboratory or in lectures.

III. SPECIAL PATHOLOGY. *Professor Smith and assistants.*—Instruction in the special pathology of the various organs, with partic-

ular reference to the pathological physiology of each and the development of symptoms of disease, is taken up systematically in lectures in the second half of the second year; and in the laboratory of pathological histology the minute changes of the more important diseases of each organ are studied in as close relation as possible with the lecture instruction. At the same time brief demonstrations of the gross appearances of the diseased organs are made; and when profitable, as in connection with the subject of immunity from infectious diseases, experimental work is introduced for the elucidation of special problems.

In the third year the lectures on special pathology are continued two hours each week—the entire instruction in the branch thus covering one and one-half years.

IV. GROSS MORBID ANATOMY AND AUTOPSY-MAKING. *Professor Smith and assistants.*—For one and one-half hours each week during the third year for each student, demonstrations of general and special gross morbid anatomical specimens are given; and instructions carried out in the performance of autopsies. The class is divided into small sections, and as autopsies are being performed in the University Hospital and Blockley Hospital, the students are required to attend, and participate in the work.

Opportunity for the completion of such investigations by histological and bacteriological methods is afforded the student in the laboratories of the department.

V. ADVANCED WORK. *Professor Smith and assistants.*—With the increased space and added facilities afforded by the McManes Laboratory of Pathology, material development of class instruction in the line of special pathology and pathological technology has been obtained; and there are offered to advanced students and post-graduates, as elective studies, special courses in advanced pathological histology, museum work and autopsy-making, in experimental pathology, in pathological bacteriology and animal parasitology; and opportunity is afforded those suitably trained to undertake special investigations in the one or other type pathological problems, such work being open at any period during the term or in vacation.

In addition to the above, the following courses are presented by the various clinical groups in the special departments of the McManes Laboratory of Pathology:

VI. SURGICAL PATHOLOGY. *Drs. Frazier and Müller.*—(See *Surgery*, page 347.)

VII. CLINICAL PATHOLOGY.

VIII. NEURO-PATHOLOGY. *Dr. Spiller.*—(See *Neurology*, page 355.)

IX. GYNECOLOGICAL PATHOLOGY.

X. OPHTHALMIC PATHOLOGY.

PHARMACY, MATERIA MEDICA AND THERAPEUTICS.

HORATIO C. WOOD, M. D., LL. D., . . .	<i>Professor of Materia Medica, Pharmacy and General Therapeutics.</i>
HORATIO C. WOOD, JR., M. D.,	<i>Demonstrator of Pharmacodynamics.</i>
WILLIAM SCHLEIF, M. D.,	<i>Demonstrator of Practical Pharmacy.</i>
HENRY A. NEWBOLD, M. D.,	<i>Assistant Demonstrator of Practical Pharmacy.</i>
DANIEL M. HOYT, M. D.,	<i>First Assistant Demonstrator of Pharmacodynamics.</i>
WILLIAM W. CADBURY, M. D.,	<i>Second Assistant Demonstrator of Pharmacodynamics.</i>

Instruction in *Materia Medica* and Pharmacy is given during the second year of the course.

I. LECTURES. *Dr. Wood, Jr.*—During the first term of the session, two lectures a week are given on *Materia Medica*. At the opening of each lecture specimens of the drugs to be lectured upon are given to each individual in the class.

II. INSTRUCTION IN PHARMACY. *Drs. Schleif and Newbold.*—This consists of informal talks, in which the primary principles of the art of pharmacy are explained; and of laboratory work, which is so directed as to give the student practical ideas; first, in regard to the chemical compatibilities of drugs; second, of the relations of the different preparations of drugs to the proper form of exhibition, extracts to pills, tinctures to mixtures, etc.; third, of the art of prescribing. The effort is not to make pharmacists of the students, but to have them thoroughly inculcated in the art of prescribing. For these purposes the class is divided into sections,

each of which is given twelve lessons, each lesson requiring three hours of actual work by the student in the pharmaceutical laboratory.

The instruction in Therapeutics, including Pharmacodynamics, is given during the third year. This consists of didactic lectures, recitations, demonstrations, and practical work in the laboratory.

III. DIDACTIC LECTURES. *Professor Wood and Dr. Wood, Jr.*—These are upon the physiological action of drugs in the animal and human body, and their effect in health and disease; the proper methods and time of administration, and all details relating to theoretical and practical therapeutics; and the application of such action to the needs of the practitioner of medicine. This course consists of two lectures a week throughout the year.

IV. RECITATIONS. *Dr. Hoyt.*—Examinations or recitations, not based upon text-books, but upon the teaching of the Professor and Demonstrators. For the purpose of such instruction the class is divided into sections, each section receiving one hour a week throughout the session.

V. DEMONSTRATIONS. *Dr. Wood, Jr.*—Demonstrations on the action of drugs upon the circulation of mammals. Each section of the class receives one hour a week of demonstrations for two months, in which extreme care is taken, by the use of anesthetics and analgesics, to prevent suffering on the part of the animal operated upon, the animal being killed directly after the demonstration.

VI. LABORATORY WORK. *Drs. Wood, Jr., Hoyt and Cadbury.*—Nerve, muscle and heart work performed by the student himself upon frogs. For this purpose the class is divided into sections, and each section is allotted one meeting of three hours a week for two months.

VII. PRESCRIPTION WRITING. *Professor Wood, Drs. Wood, Jr., and Schleif.*—Practical instruction is given in prescription writing by the Professor and the Demonstrators. In this course, hypothetical cases are taken, and the student is required to write a prescription suiting the case, which is criticised, and the prescription returned to the student so that he may see wherein are the mistakes. For this course the class is divided into sections, each section having one hour a week for half of the session.

MEDICINE.

JAMES TYSON, M. D.,	<i>Professor of Medicine.</i>
JOHN H. MUSSER, M. D.,	} <i>Professors of Clinical Medicine.</i>
ALFRED STENGEL, M. D.,	
M. HOWARD FUSSELL, M. D.,	} <i>Assistant Professors of Medicine.</i>
DAVID L. EDSALL, M. D.,	
J. ALISON SCOTT, M. D.,	} <i>Adjunct Professors of Medicine.</i>
THOMAS G. ASHTON, M. D.,	
ARTHUR A. STEVENS, M. D.,	<i>Lecturer on Medical Terminology, and Physical Diagnosis.</i>
B. FRANKLIN STAHL, M. D.,	<i>Lecturer on Dietetics of the Sick.</i>
CHARLES W. DULLES, M. D.,	<i>Lecturer on the History of Medicine.</i>
DAVID RIESMAN, M. D.,	} <i>Associates in Medicine.</i>
J. DUTTON STEELE, M. D.,	
ALOYSIUS O. J. KELLY, M. D.,	
JOSEPH SAILER, M. D.,	} <i>Instructors in Medicine.</i>
HENRY D. JUMP, M. D.,	
WILLIAM PEPPER, M. D.,	
JOHN M. CRUCE, M. D.,	
NORMAN B. GWYN, M. D.,	
ALBERT P. FRANCINE, M. D.,	
HERMAN B. ALLYN, M. D.,	
JOSEPH S. EVANS, M. D.,	
ROBERT N. WILLSON, M. D.,	} <i>Instructors in Physical Diagnosis.</i>
ARTHUR A. STEVENS, M. D.,	
B. FRANKLIN STAHL, M. D.,	
SHERBOURNE W. DOUGHERTY, M.D.,	} <i>Assistant Instructors in Medicine.</i>
CLIFFORD B. FARR, M. D.,	
MYER SOLIS-COHEN, M. D.,	} <i>Assistant Instructors in Medicine.</i>
CHARLES J. HATFIELD, M. D.,	
BERNARD KOHN, M. D.,	
GEORGE W. NORRIS, M. D.,	
WALTHER E. RAHTE, M. D.,	} <i>Assistant Instructors in Medicine.</i>
THOMAS S. COPE, M. D.,	

The instruction in Medicine begins in the first year with lectures in Medical Terminology and extends throughout the course, being

graded in such a way that one year's work leads up systematically to that of the next.

In the second year the student is taught the principles of physical diagnosis and the methods of applying them.

In the third year, the instruction consists of didactic lectures in medicine, recitations, medical clinics, observation classes, ward classes, practical work in the clinical laboratory, history-taking, and practice in the laryngological dispensary.

In the fourth year, didactic lectures, medical clinics, clinical conferences, recitations, and ward classes and special work in the dispensaries occupy the student's time.

Much of the instruction of the three years is intramural, but in part the required work is extramural; and in addition abundant opportunity is given at various hospitals for optional extramural work. Two didactic lectures are given each week to students of the third and fourth years, during which the entire subject of medicine is covered in a systematic manner. At the same time the "bedside" method is fully appreciated, and forms an essential part of the teaching. This form of teaching has been greatly enlarged as compared with former years, and the hours devoted to ward visits especially have been increased.

FIRST YEAR.

I. MEDICAL TERMINOLOGY. *Dr. Stevens.*—One lecture a week during the first half of the year to the members of the First-year Class. The object of this course is to familiarize the student with elementary Medical Terminology.

SECOND YEAR.

II. PHYSICAL DIAGNOSIS. *Dr. Stevens.*—The lectures in Physical Diagnosis (one hour a week during one-half of the year) are devoted to an exposition of the general principles of the subject, rather than to the study of physical signs in special diseases. At this period the student is as yet unfamiliar with the pathology and symptoms of disease, and is not therefore prepared to study special physical diagnosis. The main purpose of the lectures and practical work is to teach the student the physical signs in health, and the fundamental conditions involved in the development of such signs in the normal and diseased subject.

In addition to the lectures, practical work is conducted by Drs. Stevens, Stahl, Dougherty, Cohen and Farr. The class is divided into small sections of from six to ten students, and each

section has one hour and a half a week during one-half of the year, with a demonstration given to a larger group one hour a week during one-half of the year. As in the lectures which these practical exercises are intended to illustrate, attention is directed mainly to normal conditions, so that the student may become thoroughly familiar with physical signs in health.

THIRD YEAR.

III. DIDACTIC LECTURES. *Professor Tyson.*—Two didactic lectures a week on the Theory and Practice of Medicine are given in the New Medical Laboratories. These lectures cover the subject of medicine systematically and are illustrated by numerous drawings, casts, etc., from the George B. Wood, Stillé, and Pepper collections.

IV. MEDICAL CLINICS. *Professor Tyson.*—The whole class attends one general medical clinic a week, given at the University Hospital.

V. OBSERVATION CLASSES. *Dr. Fussell.*—These classes are intended to continue the study of Physical Diagnosis onward from the point to which it was carried in the second year. Cases illustrating objective symptoms and visible clinical signs are presented in such a way as to train the student's powers of observation, and to familiarize him with the external signs of disease. The class is divided into sections of twenty to thirty students, and each section receives one hour of instruction a week during twelve weeks.

VI. WARD CLASSES. *Drs. Jump, Cruice, Hatfield and Francine.*—The ward classes in medicine are conducted in the dispensary of the University Hospital. The class is divided into sections of from six to eight students, and each section receives one hour of instruction a week during the entire year. The ward classes of the first year are devoted especially to Special Physical Diagnosis, thus continuing the work of the second year, and illustrating in the diseased the general principles learned in the normal person.

VII. CLINICAL LABORATORY. *Drs. Pepper and Gwyn.*—The clinical laboratory course is conducted in the New Medical Laboratories. The class is divided into three sections, each attending two hours a week during the entire year. The course consists of instruction in the chemical and microscopic examination of urine, blood, sputum, stomach contents, feces, etc., with the aid of various instruments of precision. To a certain extent, especially in the examinations of the urine and blood, the laboratory course is a

review of the work done in the first and second years in the courses in histology, pathology and chemistry.

FOURTH YEAR.

VIII. DIDACTIC LECTURES. *Professor Tyson*.—The members of the Fourth-year Class attend, together with the Third-year Class. The lectures are not repeated in both years, excepting those pertaining to certain important chapters of medicine, but the two years are required to cover the entire ground.

IX. MEDICAL CLINICS. *Professor Tyson*.—One clinical lecture a week is conducted at the University Hospital.

X. CLINICAL CONFERENCES. *Drs. Musser and Stengel* each meet the entire Fourth-year Class one hour weekly in the medical amphitheatre of the University Hospital (or occasionally in the amphitheatre of the Philadelphia Hospital). This hour is devoted to a modified medical clinic, in which a limited number of the students are called to the bedside to assist in the examination of the patient, and to confirm the conditions observed by the lecturer. The students are called to this work in rotation, so that as far as possible the hour may be a clinical conference rather than a general clinic.

Drs. Musser and Stengel each conduct two additional clinical conferences weekly, each conference being an hour and a half in duration. These conferences are held in rooms so arranged that students are closely grouped about the patient and instructor, and at the same time in full view of the blackboard and screen, where charts and lantern demonstrations can be used to illustrate the case under discussion. Two students are assigned to each case that is presented before the class, and are required to examine their patient during the week preceding his presentation at the conference. The report of the students on the history, physical examination, and diagnosis of the case is read, and the case is then fully discussed. In every case the blood and urine examinations must be reported, and when of interest in connection with the patient, examinations of the stomach contents, sputum, etc. Particular attention is paid in the conference to questions in diagnosis, the larger clinical conferences being reserved for discussions of medical treatment, and demonstrations of methods of applied therapeutics such as the administration of thermal and medicinal baths, hydrotherapy, methods of exploration of serous cavities for effusions, the use of stomach tubes, esophageal bougies, various kinds of atomizers and spraying apparatus, and the like.

XI. **WARD CLASSES.** *Professor Tyson; Drs. Fussell, Riesman, Kelly, Sailer, Allyn and Steele.*—The medical ward classes of the fourth year are devoted especially to differential diagnosis and treatment, thus advancing somewhat beyond the point to which the ward classes of the third year had carried the students. The class is divided into small sections of from six to ten students, and each section attends one ward class a week throughout the year in the University Hospital or in the Philadelphia Hospital; and an additional hour weekly during one-half of the year. Professor Tyson conducts one of the ward classes each week.

Dr. J. Alison Scott meets one-third of the class one hour weekly for a special ward class at the Pennsylvania Hospital. The abundance of acute cases in this hospital makes it possible to bring the students in contact with a large number of cases of a type not readily presented in clinics.

XII. **WARD WORK.** One-third of the class is assigned to duty in the University Hospital, another third in the Philadelphia Hospital, for a third of the year. This gives to each student ward work during two-thirds of the year. The work is arranged as follows: The student reports at the ward at 10 A. M., and is occupied for two hours, daily, excepting Saturday and Sunday. From 10 to 11 A. M. he examines the cases assigned to him, each member of the group having a certain number of cases under his sole care. All physical and clinical examinations are made under the guidance of the Resident Physicians. At 11 A. M. one of the Physicians or Assistant Physicians makes the rounds accompanied by the students on duty in the ward. The student in charge of each case reports on the progress of the case and on his examinations, and criticisms and explanations are made by the instructor. In this way the student is taught the methods of clinical work and is trained to observe his cases carefully. It is not intended that the ward visits should supplant ward classes, in which detailed demonstration of cases familiarizes the student with thoroughness and system in his examinations.

XIII. **OTHER EXTRAMURAL TEACHING.** The roster is so arranged that the students of the Third and Fourth-year Classes are able to attend the medical clinics at the Pennsylvania and the Philadelphia Hospitals on Wednesdays and Saturdays. Other medical clinics may also be attended by the members of the Third and Fourth-year Classes.

XIV. **HISTORY OF MEDICINE.** *Dr. Dulles.* One lecture weekly during one-half of the year is devoted to this subject.

NUMBER OF HOURS DEVOTED BY EACH STUDENT TO MEDICINE.*

<i>First Year.</i>		Hours.
Lectures on Terminology		16
<i>Second Year.</i>		
Lectures on Physical Diagnosis		16
Demonstrations on Physical Diagnosis		40
<i>Third Year.</i>		
Didactic Lectures in Medicine.....		64
Medical Clinics		32
Observation Classes.....		12
Ward Classes		32
Clinical Laboratory.....		64
<i>Fourth Year.</i>		
Didactic Lectures		64
Medical Clinics.....		32
Clinical Conferences.....		160
Ward Classes		59
Ward Work		90
Total		681

SURGERY.

J. WILLIAM WHITE, M. D.,	<i>John Rhea Barton Professor of Surgery.</i>
EDWARD MARTIN, M. D.,.....	} <i>Professors of Clinical Surgery.</i>
CHARLES H. FRAZIER, M. D.,	
ALFRED C. WOOD, M. D., .....		Assistant Professor of Surgery.
RICHARD H. HARTE, M. D.,	} <i>Adjunct Professors of Surgery.</i>
JAMES P. HUTCHINSON, M. D.,.....	
HENRY K. PANCOAST, M. D.,	<i>Lecturer on Skiagraphy.</i>
JOHN B. CARNETT, M. D.,	} <i>Instructors in Surgery.</i>
JOHN H. JOPSON, M. D.,	
GEORGE P. MÜLLER, M. D.,.....	

* The hours given to lectures on the History of Medicine are excluded.

GEORGE D. MORTON, M. D.,	}	<i>Assistant Instructors in Surgery.</i>
T. TURNER THOMAS, M. D.,		
HENRY NORRIS, M. D.,		
JOHN BUSCH, M. D.,		
GEORGE M. DORRANCE, M. D.,		
JEAN J. A. VAN KAATHOVEN, M. D.,		
FRED H. KLAER, M. D.,	}	<i>Assistant Demonstrator of Surgical Pathology.</i>
HENRY S. WIEDER, M. D.,		
JOHN SPEESE, M. D.,		<i>Voluntary Assistant Demonstrator of Surgical Pathology.</i>

The course in Surgery extends over a period of two years (the third and fourth years), and is conducted by the Professor of Surgery, two Professors of Clinical Surgery, an Assistant Professor, two Adjunct Professors, and a corps of clinical instructors. The course, which includes instruction in surgical pathology, in the principles and practice of surgery, in practical minor surgery and in operative surgery, is so arranged that every student shall have received at its termination systematic instruction in every subject.

The methods are varied, and are designed to give the student thorough training in the fundamental principles concerning the pathogenesis of all surgical affections; to develop his powers of observation; to make him thoroughly conversant with the principles underlying every plan of treatment; and, as far as possible, to give him opportunity under the direction of instructors to put in practice certain major and minor operative procedures. They include: (1) Demonstrations in Surgical Pathology; (2) Didactic Lectures; (3) Surgical Clinics; (4) Surgical Ward Classes; (5) Clinical Conferences in Surgery; (6) Courses in Practical Minor Surgery, including Bandaging, Fracture Dressing, and Dispensary Work; (7) Operative Surgery; (8) General Reviews; and (9) Ward Visits.

I. SURGICAL PATHOLOGY. *Professor Frazier.*—Once a week throughout the year, a lecture and demonstration to the Third-year Class. The projection of lantern slides and microscopic sections upon the screen, and demonstrations of fresh specimens from the surgical clinic and from the museum, serve to illustrate the lectures.

Dr. Müller.—Demonstrations of microscopic sections and gross specimens, to each member of the class, one and one-half hours a week. This course is supplemental to the course given by Dr. Fra-

zier. The following subjects are included in the course in surgical pathology: the local and constitutional effects of traumatism, surgical bacteriology, the local and constitutional effects of inflammation, including ulcer, gangrene, tetanus, erysipelas, and the bites of animals and insects; congenital malformation, traumatism, inflammation and neoplasms, as affecting the glandular, lymphatic, vascular, nervous, cutaneous, subcutaneous, muscular, osseous and articular systems.

II. DIDACTIC LECTURES. *Professor White*.—Two didactic lectures a week to the Third and Fourth-year Classes, outlining the etiology, symptomatology, diagnosis and treatment of the more important surgical conditions.

III. SURGICAL CLINICS. *Professor White*.—One surgical clinic a week is given to the Third and Fourth-year Classes.

Professor Martin: One surgical clinic a week to the Fourth-year Class.

Professor Frazier: One surgical clinic a week to the Fourth-year Class.

Drs. Wood, Carnett and Müller: One surgical clinic a week to the Third-year Class.

IV. SURGICAL WARD CLASSES.—Each student attends three ward classes a week throughout the session. The student personally examines cases, expresses his views as to the diagnosis and treatment, performs certain minor operations, assists in operations, and is given opportunity to administer anesthetics, with the assistance of an instructor.

Professor White: One hour a week at the University Hospital.

Dr. Wood: One hour a week at the University or Philadelphia Hospital.

Dr. Harte or Dr. Hutchinson: One hour a week at the Pennsylvania Hospital.

Drs. Carnett and Thomas: Alternately, one hour a week at the Philadelphia Hospital.

V. SURGICAL DIAGNOSIS. *Professor Martin*.—One hour a week to the Third-year Class.

VI. PRACTICAL MINOR SURGERY. *Dr. Wood and assistants*.—One hour a week throughout the year. This course, for which the class is

divided into sections, is given in the Hospital and the Surgical Out-Patient Department. The course is chiefly practical, and includes the following exercises: application of dressings to minor surgical cases, cerebral localization, application of heat and cold, hemostasis, application of plaster-of-Paris and adhesive dressings, catheterization, irrigation, intravenous injection, hypodermoclysis, local anesthesia, the preparation and care of patients, and the after-treatment. In addition to the course in the Out-Patient Department, a systematic course is given in bandaging to the Second-year Class (four and one-half hours a week for a period of seven weeks) and to the Third-year Class in fracture dressings (one hour a week for a period of ten weeks).

VII. OPERATIVE SURGERY. *Dr. Jopson and Drs. Dorrance, Busch and Van Kaathoven.*—In this course each student performs, or assists in the performance, of the major operations upon the cadaver (*a*) upon the extremities (ligations, amputations, disarticulations and excisions); (*b*) upon the abdominal cavity (appendectomy, intestinal anastomosis, herniotomy, operations upon the gall bladder); (*c*) upon the head (trephining); (*d*) and upon the neck (tracheotomy and intubation).

VIII. SURGICAL REVIEW. Periodically throughout the year both the Third and Fourth-year Classes are examined upon the subjects in which they have received instruction.

IX. WARD WORK. One-third of the class is assigned to duty in the University Hospital, another third in the Philadelphia Hospital, for a third of the year. This gives to each student ward work during two-thirds of the year. The work is arranged as follows: The student reports at the ward at 10 A. M., and is occupied for two hours, daily, excepting Saturday and Sunday. From 10 to 11 A. M. he examines the cases assigned to him, each member of the group having a certain number of cases under his sole care. All physical and clinical examinations are made under the guidance of the Resident Physicians. At 11 A. M. one of the Physicians or Assistant Physicians makes the rounds accompanied by the students on duty in the ward. The student in charge of each case reports on the progress of the case and on his examinations, and criticisms and explanations are made by the instructor. In this way the student is taught the methods of clinical work and is trained to observe his cases carefully. It is not intended that the ward visits should supplant ward classes, in which detailed demonstration of cases familiarizes the student with thoroughness and system in his examinations.

X. **SURGICAL PHYSIOLOGY.** A course consisting of a series of demonstrations is contemplated, illustrating the application of physiological principles to surgical practice.

NUMBER OF HOURS DEVOTED BY EACH STUDENT TO SURGERY.

	Hours.
Surgical Pathology.....	83
Didactic Lectures	132
Surgical Clinics	165
Surgical Ward Classes	88
Minor Surgery	33
Operative Surgery	14
Practical Surgery and Surgical Diagnosis	33
Ward Work.....	60
Total.....	608

ORTHOPEDIC SURGERY.

DE FOREST WILLARD, M. D.,.....	<i>Professor of Orthopedic Surgery.</i>
JAMES K. YOUNG, M. D.,	<i>Associate in Orthopedic Surgery.</i>
JOSEPH M. SPELLISSY, M. D.,	} <i>Assistant Instructors in Orthopedic Surgery.</i>
WALTER G. ELMER, M. D.,	

The instruction in Orthopedic Surgery is confined to the fourth year.

I. **CLINICAL INSTRUCTION.** *Professor Willard.*—Clinical instruction is given one hour a week from October 1 to February 1. This course includes the surgical and mechanical treatment of congenital malformations, deficiencies and deformities; also of acquired distortions and deformities the result of disease or injury, joint diseases, rickets, infantile spinal and cerebral paralyses, etc., etc.

II. **WARD CLASS WORK.** *Drs. Young, Spellissy and Elmer.*—For ward teaching, the Fourth-year Class is divided into small sections, which meet once a week. Cases in the wards are employed to perfect each student in personal diagnosis and treatment. Instruction is also given in the application of apparatus, plaster-of-

Paris and corrective dressings; the construction of braces; the treatment of lateral curvature, paralyzes, etc. Each student is expected personally to perform all the necessary manipulations.

A specially equipped orthopedic gymnasium connected with this department is in daily use for demonstrating methods for the correction of deformities and the development of muscular power.

III. WORK IN OUT-PATIENT DEPARTMENT. Dispensary work is continued daily throughout the year. Students desiring special practical work can arrange for certain periods in the Dispensary.

GYNECOLOGY.

JOHN G. CLARK, M. D.,	<i>Professor of Gynecology.</i>
HENRY D. BEYEA, M. D.,	<i>Associate in Gynecology.</i>
BROOKE M. ANSPACH, M. D.,	} <i>Instructors in Gynecology.</i>
CHARLES C. NORRIS, M. D.,	
JOHN W. LUTHER, M. D.,	

The instruction in Gynecology extends throughout the third and fourth years and comprehends:

THIRD YEAR.

I. RECITATIONS AND LANTERN DEMONSTRATIONS. One hour a week devoted either to recitations conducted by Drs. Anspach, Norris and Luther, or to lantern demonstrations by Professor Clark.

During this year recitations are conducted by the instructors, preceding the lantern demonstrations by the Professor of Gynecology. It is intended that the demonstrations shall fully supplement the recitations, thus rendering as clear as possible the histologic, anatomic, and pathologic, as well as the operative side of Gynecology. The third year instruction is entirely theoretic, and is intended to prepare the student for his practical work of the fourth year.

FOURTH YEAR.

II. CLINICAL WARD CLASSES. *Professor Clark or Dr. Anspach.*—Three times a week. The class is divided into sections, which attend the clinical ward classes. These sections are further subdivided into small groups of students who see all cases with the professor or instructors before any plan of treatment is instituted. The history of the case is carefully reviewed; and, instead of the usual clinical lecture preceding an operation, the special group of

students for the day are closely quizzed on all points relative to diagnosis, treatment, and prognosis. Immediately after the operation, all points on the technique of the operation, the post-operative care of the patient, the possible complications, and the ultimate prognosis are fully considered.

DERMATOLOGY.

LOUIS A. DUHRING, M. D., *Professor of Dermatology.*
 MILTON B. HARTZELL, M. D., *Associate in Dermatology.*

I. LECTURES. *Professor Duhring.*—Two lectures weekly are given to the members of the entire class, the subject-matter being descriptive of the commoner diseases of the skin as met with in this country. The lectures are abundantly illustrated by charts, paintings, photographs, wax and papier-maché models. The course begins October 1 and terminates December 20.

II. CLINICS. *Professor Duhring.*—Once weekly, in the amphitheatre of the Hospital. A large number of cases are exhibited and commented on in such a manner as to render the clinical features of the disease plain.

OPHTHALMOLOGY.

GEORGE E. DE SCHWEINITZ, M. D., *Professor of Ophthalmology.*
 JOHN T. CARPENTER, M. D., *Lecturer on Ophthalmology.*
 EDWARD A. SHUMWAY, M. D., } *Instructors in Ophthalmology.*
 H. MAXWELL LANGDON, M. D., }
 THOMAS B. HOLLOWAY, M. D., }

I. PRACTICAL WORK IN THE PHYSIOLOGICAL LABORATORY. The second-year men are each provided with suitable appliances, an optical box, an ophthalmoscope, an artificial eye, color tests, etc., and are instructed in the rudiments of physiological optics and in the physiology of the eye. This course, which consists of a series of laboratory hours, is conducted by the Professor of Physiology and his assistants.

II. LECTURE DEMONSTRATIONS AND CLINICAL LECTURES. *Professor de Schweinitz.*—These are given twice a week, from the first of October until the first of February, to members of the Third-

year Class. The subjects covered in this course comprise the methods of examining the patient and the external examination of the eye; functional testing; diseases and injuries of the eye; the eye in its relation to general diseases; medical ophthalmoscopy and medical ophthalmology; and operative ophthalmology. The clinical lectures in this course continue throughout the academic year. Forty-seven hours are devoted to the entire course.

III. PRACTICAL WORK. *Dr. Carpenter and the Instructors in Ophthalmology.*—Daily clinics are given in the Dispensary and in the wards of the Philadelphia Hospital. The students of the Third-year Class are divided into sections of about thirty men, and each of these sections subdivided into smaller sections of ten. Each subsection has the opportunity in turn of closely inspecting the patients with external inflammatory diseases of the eye, of seeing the method of applying the remedies, of making the commoner applications utilized in the treatment, of learning the use of the ophthalmoscope so that each student may recognize the healthy fundus and its important diseased conditions; and of ascertaining the results secured by functional testing, such as the pupillary reflexes, the visual acuity, the field of vision, the balance of the external ocular muscles, and the refractive errors. The number of hours devoted to this course is forty-eight.

IV. The students of the fourth year have the opportunity of continuing the instruction in Ophthalmology by attendance on the clinical lecture, which continues throughout the academic year.

OBSTETRICS.

BARTON COOKE HIRST, M. D., *Professor of Obstetrics.*
 RICHARD C. NORRIS, M. D., *Assistant Professor of Obstetrics.*
 JOHN H. GIRVIN, M. D., *Instructor in Obstetrics.*
 WILLIAM A. N. DORLAND, M. D., .. } *Assistant Instructors in Ob-*
 WILLIAM R. NICHOLSON, M. D., ... } *stetrics.*
 JOHN C. HIRST, M. D., }

A graduated course of instruction in Obstetrics is given to the members of the Third and Fourth-year Classes in the Maternity Pavilion of the University Hospital, in the New Medical Laboratories and in the Out-Patient Department of the Hospital, conducted under the direct control of the Professor of Obstetrics.

I. CLINICS. *Professor Hirst.*—Two clinical lectures a week are given to the Third-year Class, the large clinical material of the Maternity Department being used to illustrate a systematic course of lectures on the complications of gestation, labor and the puerperium.

II. DEMONSTRATIONS. Demonstrations of palpation, pelvimetry and the signs of pregnancy are given to sections of four students; routine examinations of urine; attendance on labor cases; demonstrations of the injuries of parturition and their repair.

III. CLINICAL AND OPERATIVE OBSTETRICS. *Professor Hirst.*—One clinic a week to the Fourth-year Class, devoted to the surgical treatment of all the complications of the childbearing act, is given in the maternity amphitheatre.

IV. WARD WORK. Every morning from 10 to 12 a small section of the class, under the supervision of the interne, study the cases in the wards, and under the direction of an instructor, assist in the repair of injuries of the genital canal, in the local treatment of genital infections, the final examination of the puerpera, etc.

V. OBSTETRICAL OPERATIONS. *Professor Hirst.*—In the Anna Dike Scott Memorial Amphitheatre an exhibition of all the obstetrical operations is given to the members of both the Third and Fourth-year Classes.

VI. PRACTICAL EXERCISES WITH MANIKINS AND FŒTAL BODIES. Each student devotes eight hours to the practice upon the manikin of the obstetrical operations.

VII. PRACTICAL EXERCISES IN THE OUT-PATIENT DEPARTMENT. This department is under the direct control of the Professor of Obstetrics. The total indoor and outdoor service amounts to 1200 cases a year. The complicated cases in this service demanding operative treatment are transported to the University Hospital, and the operations are exhibited to the combined Third and Fourth-year Classes. Each student attends in confinement from two to five labor cases.

NEUROLOGY.

CHARLES K. MILLS, M. D., *Professor of Neurology.*
WILLIAM G. SPILLER, M. D., *Professor of Neuro-Pathology and
Associate Professor of Neurology.*

in neurology. Microscopical sections illustrating many pathological conditions are demonstrated by the lantern, so that the students are enabled to study the more minute morbid changes occurring in diseases of the nervous system. The technique employed in investigation is also taught so far as possible, so as to include the methods of embedding, cutting, staining, etc., employed in this branch of medicine. The students are in this way prepared to conduct original investigations in the pathology of the nervous system after their graduation, if they so desire. Instruction is also given in the methods of preparation of the brain and cord for gross examination, so that the nervous tissues may not be injured for microscopical study.

PEDIATRICS.

J. P. CROZER GRIFFITH, M. D.,	<i>Clinical Professor of Pediatrics.</i>
THOMPSON S. WESTCOTT, M. D.,	<i>Associate in Pediatrics.</i>
MAURICE OSTHEIMER, M. D.,	<i>Instructor in Pediatrics.</i>
CHARLES A. FIFE, M. D.,	} <i>Assistant Instructors in Pediatrics.</i>
HOWARD C. CARPENTER, M. D.,	
I. VALENTINE LEVI, M. D.,	
J. CLAXTON GITTINGS, M. D.,	

The course in Pediatrics consists of lectures, ward classes and ward work at the University Hospital and at the Children's Hospital.

The lectures are conducted by the Clinical Professor of Pediatrics in the medical amphitheatre of the University Hospital once a week. Special lectures are given upon the general diagnosis, symptomatology and treatment of disease in children. The more important subjects receive systematic and full discussion, among these being such topics as pneumonia of childhood, gastrointestinal diseases, typhoid fever in infancy and childhood, forms of paralysis, the feeding of infants, etc., etc. In addition to these, the Children's Ward and Dispensary are drawn upon for clinical lectures on the various diseases presenting themselves.

The ward classes are conducted at the University Hospital by Dr. Ostheimer, at the Children's Hospital by Dr. Westcott, and at the Philadelphia Hospital by Drs. Carpenter and Fife. Subsections of the class, consisting of from eight to fifteen students, attend these ward classes three times a week and have the opportunity of examining the patients under the direction of the instructor, and in addition learn the practical management of the

diseases of children as conducted in the Hospital wards. The exceptional richness and variety of material afforded by the Children's Hospital make this part of the course a valuable feature.

LARYNGOLOGY AND RHINOLOGY.

CHARLES P. GRAYSON, M. D., *Clinical Professor of Laryngology and Rhinology.*

WM. G. B. HARLAND, M. D., }
 BENJAMIN L. SINGER, M. D., } *Instructors in Laryngology.*

I. LECTURES AND CLINICS. *Professor Grayson.*—From January to May there is a course of weekly lectures given to the Third-year Class, covering the anatomy and physiology of the upper air and digestive tracts, these being illustrated by drawings and by dry and wet preparations. The diseases of the nose and its accessory cavities, of the pharynx, the fauces and the larynx, are systematically studied; and in connection with their causation and treatment, emphasis is laid upon the pathologic and therapeutic importance of the systemic conditions with which they are often associated. The surgery of these special regions is also thoroughly demonstrated during the course by a series of clinics.

II. PRACTICAL WORK IN OUT-PATIENT DEPARTMENT. *Professor Grayson and assistants.*—Throughout equal periods of the session the Fourth-year Class attends this course, divided into sections of such size that each student receives an abundance of practical work under the personal supervision of Dr. Grayson and his assistants. The very large service of this dispensary provides ample material for the members of the class to acquire proficiency in the use of the various instruments of examination and treatment, and to become expert in the diagnosis and treatment of the diseases that are more often encountered in general practice.

OTOLOGY.

B. ALEXANDER RANDALL, M. D., *Clinical Professor of Diseases of the Ear.*

I. LECTURES. *Professor Randall.*—The instruction in the second half of the third year consists of a course of lectures, largely clinical, but with abundant illustrations by anatomical and patho-

logical preparations, models, charts and the stereopticon. Operations for diseases of the mastoid and lateral sinus and abscess of the brain are demonstrated on the cadaver, if not upon patients.

II. PRACTICAL WORK. *Professor Randall.*—Practical work is given to the Fourth-year Class in subsections of ten or less, in the Out-Patient Department or wards of the University Hospital. Individual instruction is given by the dispensary staff in the examination, recording and treatment of patients, the work being delegated to the students so far as they may show themselves competent. All are thus drilled in the use of the head-mirror, in rhinoscopy and Eustachian catheterization, as well as in simpler measures. In mastoid and other operations, selected students assist or operate under strict supervision, and follow the cases in the later dressings. Stress is laid throughout upon simplicity in the essential methods of diagnosis and treatment, with minute and conscientious care in application.

GENITO-URINARY DISEASES.

- THOMAS R. NEILSON, M. D., *Clinical Professor of Genito-Urinary Diseases.*
 E. HOLLINGSWORTH SITER, M. D., . . *Instructor in Genito-Urinary Diseases.*
 ALEXANDER A. UHLE, M. D., *Assistant Instructor in Genito-Urinary Diseases.*

Instruction in Genito-Urinary Diseases is given in the fourth year.

WARD CLASSES. *Professor Neilson and Drs. Siter and Uhle.*—Ward classes, for which the class is divided into sections, are held three times a week throughout the year in the Out-Patient Department. The students are afforded excellent opportunity to become familiar with the methods of diagnosis and treatment of diseases of the genito-urinary apparatus by personal observation, and by practical work under the guidance of the teachers. House cases requiring operation are operated on by the professor before the class.

ELECTIVES.

FOURTH-YEAR CLASS.—A member of the Fourth-year Class may, with the approval of the professor in charge, inscribe his name for

special instruction in any of the clinical branches taught in the school, provided he gives at least one hour a week, for a period of not more than one-half of the academic year, to the work. He may inscribe his name likewise for special work in the fundamental branches, provided, in the opinion of the professor in charge of the department, he be qualified to undertake it, and has at his disposal the time necessary to its successful performance.

THIRD-YEAR CLASS.—A member of the Third-year Class will be privileged to take special work in the fundamental branches on the same conditions as offered to the members of the Fourth-year Class in these branches.

Students contemplating the election of special work in addition to the regular scheduled work of the fourth and third years are expected to observe the following regulations:

(a) The number of electives selected may depend upon the number of hours at the disposal of the student, and the absence of all conflict with the work scheduled on the general roster.

(b) The qualifications on the part of the student for the pursuit of any given subject shall be decided by the professor in charge of the department.

(c) The decision as to the time necessary or desirable to give to the special subject shall rest with the professor in charge.

(d) The practicability of affording special opportunities in any subject or subjects to any or all students electing them will be decided by the professors in charge of the departments.

(e) Consent to enter upon special work must be obtained from the professor in charge in the form of a permit on special blanks prepared for the purpose, to be presented at the office of the Dean before entering upon the work specified.

(f) The right is reserved to the professor of the department to terminate at any time the special privileges of a student for lack of qualifications to pursue profitably the work undertaken, or for irregularity in attendance.

(g) No examination will be held or mark given, for elective work done under these conditions.

ORDER OF INSTRUCTION, DAILY, BEFORE FEB. 1.—FIRST YEAR.—1905-1906.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A. M.	Cornell. Osteology and Syndesmology.	Cornell. Osteology and Syndesmology.				
10 A. M.	Marshall. Gen. Chemistry.	Marshall. Gen. Chemistry.	Class divided into sections for Pract. Work in Histology and Embryology and Chemistry. (9 to 12.)	Class divided into sections for Pract. Work in Histology and Embryology and Chemistry. (9 to 12.)	Class divided into sections for Pract. Work in Histology and Embryology and Chemistry. (9 to 12.)	Class divided into sections for Pract. Work in Histology and Embryology and Chemistry. (9 to 12.)
11 A. M.	Abbott. Bacteriology.	Stevens. Medical Terminology, Ethics, etc.				
1.30 to 3.45 P. M.	Class divided into sections for Pract. Work in Dissection and Osteology.	Class divided into sections for Pract. Work in Dissection and Osteology.	Class divided into sections for Pract. Work in Dissection and Osteology.	Class divided into sections for Pract. Work in Dissection and Osteology.	Class divided into sections for Pract. Work in Dissection and Osteology.	Dissection, 12 to 2. (Section.)
4 P. M.	Piersol. Anatomy.	Piersol. Anatomy.	Marshall. Gen. Chemistry.	Piersol. Anatomy.	Piersol. Anatomy.	
5 P. M.	Gymnasium.		Gymnasium.			

See SPECIAL ROSTER for Sections in Practical Work.

FIRST-YEAR CLASS.**SPECIAL ROSTER OF PRACTICAL WORK.****BEFORE FEBRUARY 1ST.**THE CLASS IS DIVIDED INTO TWO SECTIONS, DESIGNATED
RESPECTIVELY A AND B.Histology and Embryology 9 to 12; Chemistry 9 to 12; Dissection 1.30 to 3.45,
Saturday 12 to 2; Osteology 1.30 to 3.45.

	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	
Histology and Embryology	—	—	A	B	A	B	} First period of 42 working days, from Oct. 9 to Nov. 25 inclusive.
Chemistry	—	—	B	A	B	A	
Dissection	A	A	A	A	A	A	
Osteology	B	B	B	B	B	—	
Histology and Embryology	—	—	A	B	A	B	} Second period of 42 working days, from Nov. 27 to Jan. 27 inclusive.
Chemistry	—	—	B	A	B	A	
Dissection	B	B	B	B	B	B	
Osteology	A	A	A	A	A	—	

ORDER OF INSTRUCTION, DAILY, AFTER FEB. 1.—FIRST YEAR.—1905-1906.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A. M.		Smith. Pathology.	Class divided into sections for Pract. Work in Histology and Embryology and in Physiol. Chem. (9 to 12.)	Class divided into sections for Pract. Work in Histology and Embryology and in Physiol. Chem. (9 to 12.)	Class divided into sections for Pract. Work in Histology and Embryology and in Physiol. Chem. (9 to 12.)	Class divided into sections for Pract. Work in Histology and Embryology and in Physiol. Chem. (9 to 12.)
10.30 A. M.	Smith. Pathology.					
11.30 A. M.	Marshall. Physiol. Chem.	Marshall. Physiol. Chem.	Class divided into sections for Pract. Work in Dissection and in Bacteriology.	Class divided into sections for Pract. Work in Dissection and in Bacteriology.	Class divided into sections for Pract. Work in Dissection and in Bacteriology.	Dissection, 12 to 2. (Section.)
1.30 to 3.45 P. M.	Class divided into sections for Pract. Work in Dissection and in Bacteriology.	Class divided into sections for Pract. Work in Dissection and in Bacteriology.				
4 P. M.	Piersol. Anatomy.	Piersol. Anatomy.		Piersol. Anatomy.	Piersol. Anatomy.	
5 P. M.	Gymnasium.		Gymnasium.			

See SPECIAL ROSTER for Sections in Practical Work.

FIRST-YEAR CLASS.

SPECIAL ROSTER OF PRACTICAL WORK.

AFTER FEBRUARY 1ST.

THE CLASS IS DIVIDED INTO TWO SECTIONS, DESIGNATED RESPECTIVELY A AND B.

Histology and Embryology 9 to 12; Medical Chemistry 9 to 12; Dissection 1.30 to 3.45, Saturday 12 to 2; Bacteriology 1.30 to 3.45.

	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	
Histology and Embryology	—	—	A	B	A	B	} First period of 41 working days, from Feb. 5 to March 24 inclusive.
Physiological Chemistry...	—	—	B	A	B	A	
Dissection.....	A	A	A	A	A	A	
Bacteriology.....	B	B	B	B	B	—	
Histology and Embryology	—	—	A	B	A	B	} Second period of 40 working days, from Mar. 26 to May 12 inclusive.
Physiological Chemistry...	—	—	B	A	B	A	
Dissection.....	B	B	B	B	B	B	
Bacteriology.....	A	A	A	A	A	—	

ORDER OF INSTRUCTION, DAILY, BEFORE FEB. 1.—SECOND YEAR.—1905-1906.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A. M. to 11.30 A. M.	Class divided into sections for Pract. Work in Physiology and Pathology.	Class divided into sections for Pract. Work in Physiology and Pathology.	Class divided into sections for Pract. Work in Physiology and Pathology.	Class divided into sections for Pract. Work in Physiology and Pathology.	Class divided into sections for Pract. Work in Physiology and Pathology.	Class divided into sections for Pract. Work in Physiology and Pathology.
11.30 to 12.30 A. M.	Stevens. Phys. Diagnosis.	Smith. Pathology.	Smith. Pathology.	Smith. Pathology.	Wood, Jr. Materia Medica.	
1.30 to 3.45 P. M.	Class divided into sections for Pract. Work in Dissection and Phys. Diagnosis.	Class divided into sections for Pract. Work in Dissection and Phys. Diagnosis.	Class divided into sections for Pract. Work in Dissection and Phys. Diagnosis.	Class divided into sections for Pract. Work in Dissection and Phys. Diagnosis.	Class divided into sections for Pract. Work in Dissection and Phys. Diagnosis.	Class divided into sections for Pract. Work in Dissection and Pharmacy. (12 to 2.)
4 P. M.	Reichert. Physiology.	Reichert. Physiology.	Wood, Jr. Materia Medica.	Reichert. Physiology.	Reichert. Physiology.	
5 P. M.		Gymnasium.		Gymnasium.		

See SPECIAL ROSTER for Sections in Practical Work.

SECOND-YEAR CLASS.**SPECIAL ROSTER OF PRACTICAL WORK.****BEFORE FEBRUARY 1ST.**

THE CLASS IS DIVIDED INTO TWO SECTIONS, DESIGNATED RESPECTIVELY A AND B.

Physiology 9 to 11.30; Pathology 9 to 11.30; Dissection 1.30 to 3.45. Saturday 12 to 2, Physical Diagnosis 1.30 to 3.45, Pharmacy 12 to 2.

	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	
Physiology	A	B	A	B	A	B	} First period of 42 working days, from Oct. 9 to Nov. 25 inclusive.
Pathology	B	A	B	A	B	A	
Dissection	A	A	A	A	A	A	
Physical Diagnosis	B	B	B	B	B	—	
Pharmacy	—	—	—	—	—	B	
Physiology	A	B	A	B	A	B	} Second period of 42 working days, from Nov. 27 to Jan. 27 inclusive.
Pathology	B	A	B	A	B	A	
Dissection	B	B	B	B	B	B	
Physical Diagnosis	A	A	A	A	A	—	
Pharmacy	—	—	—	—	—	A	

ORDER OF INSTRUCTION, DAILY, AFTER FEB. 1.—SECOND YEAR.—1905-1906

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A. M.	Class divided into sections for Pract. Work in Physiology (9 to 12.30) and Pathology. (9 to 11.)	Class divided into sections for Pract. Work in Physiology (9 to 12.30) and Pathology. (9 to 11.)	Class divided into sections for Pract. Work in Physiology (9 to 11.30) and Pathology. (9 to 11.)	Class divided into sections for Pract. Work in Physiology (9 to 12.30) and Pathology. (9 to 11.)	Class divided into sections for Pract. Work in Physiology (9 to 12.30) and Pathology. (9 to 11.)	Class divided into sections for Pract. Work in Physiology (9 to 11.30) and Pathology. (9 to 11.)
11 A. M. to 12.30 P. M.	Piersol. Special Anat. (Section.)	Piersol. Special Anat. (Section.)	Smith. Pathology. (11.30 to 12.30)	Piersol. Special Anat. (Section.)	Piersol. Special Anat. (Section.)	
1.30 to 3.45 P. M.	Class divided into sections for Pract. Work in Dissection and Bandaging.	Class divided into sections for Pract. Work in Dissection and Bandaging.	Class divided into sections for Pract. Work in Dissection.	Class divided into sections for Pract. Work in Dissection.	Class divided into sections for Pract. Work in Dissection.	Class divided into sections for Pract. Work in Dissection and Pharmacy. (12 to 2.)
4 P. M.	Reichert. Physiology.	Reichert. Physiology.	Smith. Pathology.	Reichert. Physiology.	Reichert. Physiology.	
5 P. M.		Gymnasium.		Gymnasium.		

See SPECIAL ROSTER for Sections in Practical Work.

SECOND-YEAR CLASS.**SPECIAL ROSTER OF PRACTICAL WORK****AFTER FEBRUARY 1ST.**

THE CLASS IS DIVIDED INTO TWO SECTIONS, DESIGNATED RESPECTIVELY A AND B.

Physiology 9 to 12.30, Wednesday and Saturday 9 to 11.30; Special Anatomy 11 to 12.30; Dissection 1.30 to 3.45, Saturday 12 to 2; Bandaging and Pharmacy 12 to 2.

	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	
Physiology.....	A	B	A	B	A	B	} First period of 41 working days, from Feb. 5 to Mar. 20 inclusive.
Pathology.....	B	A	B	A	B	A	
Special Anatomy.....	B	A	—	A	B	—	
Dissection.....	A	A	A	A	A	A	
Bandaging.....	B	B	—	—	—	—	
Pharmacy.....	—	—	—	—	—	B	
Physiology.....	A	B	A	B	A	B	} Second period of 40 working days, from Mar. 26 to May 12 inclusive.
Pathology.....	B	A	B	A	B	A	
Special Anatomy.....	B	A	—	A	B	—	
Dissection.....	B	B	B	B	B	B	
Bandaging.....	A	A	—	—	—	—	
Pharmacy.....	—	—	—	—	—	A	

ORDER OF INSTRUCTION, DAILY,—THIRD YEAR.—1905-1906.

HR.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
9	Dem. in Neuro-Pathology. Pharmacodynamics (before Feb. 1). Pract. Therapeutics (after Feb. 1). Dem. in Surg. Pathology.	Tyson. Medicine.	Dem. in Neuro-Pathology. Pharmacodynamics (before Feb. 1). Pract. Therapeutics (after Feb. 1). Dem. in Surg. Pathology.	Pharmacodynamics (before Feb. 1). Pract. Therapeutics (after Feb. 1). Dem. in Surg. Pathology.	Tyson. Medicine.	Tyson. Medical Clinic.
10	Applied Anatomy. Pharmacodynamics (before Feb. 1). Pract. Therapeutics (after Feb. 1). Dem. in Surg. Pathology.	SMITH. Pathology.	Applied Anatomy. Pharmacodynamics (before Feb. 1). Pract. Therapeutics (after Feb. 1). Dem. in Surg. Pathology.	Dem. in Neuro-Pathology. Pharmacodynamics (before Feb. 1). Pract. Therapeutics (after Feb. 1). Dem. in Surg. Pathology.	SMITH. Pathology.	Clinic. Philadelphia or Pennsylvania Hospital.
11	Applied Anatomy. Pharmacodynamics (before Feb. 1). Pract. Therapeutics (after Feb. 1). Dem. in Surg. Pathology.		Applied Anatomy. Pharmacodynamics (before Feb. 1). Pract. Therapeutics (after Feb. 1). Dem. in Surg. Pathology.	Dem. in Neuro-Pathology. Pharmacodynamics (before Feb. 1). Pract. Therapeutics (after Feb. 1). Dem. in Surg. Pathology.	Recitation in Therapeutics.	Clinic. Philadelphia or Pennsylvania Hospital.
12	A. C. WOOD. Fract. Dressing and Fract. Minor Surgery.	FRAZIER. Surg. Pathology.	MARTIN. Surg. Diagnosis.		Ward Class in Surgery.	GRIFFITH. Pediatric Clinic.
1	Ward Class in Surgery.	WHITE. Surgery.	WHITE. Surgical Clinic.	Ward Class in Surgery.	WHITE. Surgery.	Clinical Surgery.
2	Medical Clinical Laboratory.	Medical Clinical Laboratory.		Medical Clinical Laboratory.		
3	Ward Class in Medicine. Ward Class in Ophthalmology. H. C. Wood, Jr. Physiological Action of Drugs.	Ward Class in Medicine. Ward Class in Ophthalmology. Hirst. Obstetrics.	DE SCHWEINITZ. Ophthalmology (before Feb. 1). GRAYSON. Laryngology (after Feb. 1). CLARK. Lantern Dem. in Gynecology.	Ward Class in Medicine. Ward Class in Ophthalmology. Hirst. Obstetrics.	DE SCHWEINITZ. Ophthalmic Clinic (before Feb. 1). RANDALL. Otology (after Feb. 1). Wood. Therapeutics.	
4						

SESSION 1905-1906.

Schedule of Practical Instruction for Third-Year Class.

For practical instruction in all subjects the class is divided into three sections (A, B and C), each of which is subdivided into four subsections (as A¹, A², A³, A⁴) for Ward Classes in Medicine. Demonstrations in Neuro-Pathology and Gross Pathology, 9 to 10.30 A. M.; Pharmacodynamics, 9 A. M. to 12 M.; Applied Anatomy, Surgical Pathology and Practical Therapeutics, 10.30 A. M. to 12 M.; Surgical Ward Classes, 1 to 2 P. M. Monday and Thursday, 12 to 1 Friday; Medical Observation, 1 to 2 P. M.; Medical Clinical Laboratory, 2 to 4 P. M.; Ward Classes in Medicine and Ophthalmology, 3 to 4 P. M.

Subject.	Mon.	Tue.	Wed.	Thur.	Fri. 1.	Period.
Neuro-Pathology	B	—	C	A	—	} First period of 57 working days, from Oct. 9 to Dec. 16 inclusive.
Gross Pathology	C	—	A	B	—	
Pharmacodynamics	A	—	B	C	—	
Applied Anatomy	B	—	C	A	—	
Surgical Pathology	C	—	A	B	—	
Surgical Ward Class	A&B	—	—	A	B&C	
Medical Observation	—	—	—	C	—	
Medical Clinical Laboratory	C	A	—	B	—	
Medical Ward Class	A	B	—	C	—	
Ophthalmological Ward Class	B	C	—	A	—	
Neuro-Pathology	C	—	A	B	—	} Second period of 56 working days, from Dec. 18 to March 3 inclusive.
Gross Pathology	A	—	B	C	—	
Pharmacodynamics	B	—	C	A	—	
Practical Therapeutics	B	—	C	A	—	
Applied Anatomy	C	—	A	B	—	
Surgical Pathology	A	—	B	C	—	
Surgical Ward Class	B&C	—	—	B	A&C	
Medical Observation	—	—	—	A	—	
Medical Clinical Laboratory	A	B	—	C	—	
Medical Ward Class	B	C	—	A	—	
Ophthalmological Ward Class	C	A	—	B	—	
Neuro-Pathology	A	—	B	C	—	} Third period of 58 working days, from March 5 to May 12 inclusive.
Gross Pathology	B	—	C	A	—	
Practical Therapeutics	C	—	A	B	—	
Applied Anatomy	A	—	B	C	—	
Surgical Pathology	B	—	C	A	—	
Surgical Ward Class	A&C	—	—	C	A&B	
Medical Observation	—	—	—	B	—	
Medical Clinical Laboratory	B	C	—	A	—	
Medical Ward Class	C	A	—	B	—	

SUBSECTIONS OF WARD CLASS IN MEDICINE.

3 P. M.

	Oct. 9 to Dec. 16.			Dec. 18 to Mar. 3.			Mar. 5 to April 7.			April 9 to May 12.		
	Mon.	Tues.	Thur.	Mon.	Tues.	Thur.	Mon.	Tues.	Thur.	Mon.	Tues.	Thur.
DR. STEELE.....	A ¹	B ¹	C ¹	B ²	C ²	A ³	C ³	A ²	B ²	C ⁴	A ⁴	B ⁴
DR. JUMP.....	A ²	B ²	C ²	B ³	C ³	A ³	C ⁴	A ⁴	B ⁴	C ¹	A ¹	B ¹
DR. CRUCE.....	A ³	B ³	C ³	B ⁴	C ⁴	A ⁴	C ¹	A ¹	B ¹	C ²	A ²	B ²
DR. HATFIELD....	A ⁴	B ⁴	C ⁴	L ¹	C ¹	A ¹	C ²	A ²	B ²	C ³	A ³	B ³

ORDER OF INSTRUCTION, DAILY.—FOURTH YEAR.—1905-1906.

HR.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
9	BURE. Mental Diseases (before Feb. 1). ABBOTT. Hygiene (after Feb. 1).	Tyson. Medicine.	MCCARTHY. Medical Jurisprudence (before Feb. 1). DULLS. History of Medicine (after Feb. 1).	MILLS, SPILLER. Clinical Neurology (before Feb. 1). ABBOTT. Hygiene (after Feb. 1).	Tyson. Medicine.	Tyson. Medical Clinic.
10	CLARK. Pract. Gynecol- ogy.	Service in Wards and Dispensaries.	CLARK. Pract. Gynecol- ogy.	Service in Wards and Dispensaries.	Service in Wards and Dis- pensaries.	Clinic, Philadelphia or Pennsylvania Hospital.
11					CLARK. Pract. Gynecol- ogy.	Clinic, Philadelphia or Pennsylvania Hospital.
12	STENDEL. Clinical Medicine.	WILLARD. Orthopedic Clinic (before Feb. 1). STARR. Dietetics of the Sick (after Feb. 1).	DUHRING. Dermatol. Clinic (before Dec. 10). HINER. Operative and Clinical Obstetrics (after Dec. 10).	MUSSER. Clinical Medicine.	WARD CLASSES. Medical, Surgical, Genito-Urinary.	GRIFFITH. Pediatric Clinic.
1	WARD CLASSES. Medical, Surgical, Genito-Urinary.	WHITE. Surgery.	WHITE. Surgical Clinic.	WARD CLASSES. Medical, Surgical, Genito-Urinary.	WHITE. Surgery.	FRASER. Clinical Surgery.
3	WARD CLASSES. See Schedule of Practical Instruction.	MILLS, SPILLER. Neurologic. Clinic.	WARD CLASSES. See Schedule of Practical Instruction.	WARD CLASSES. See Schedule of Practical Instruction.	MARTIN. Clinical Surgery.	
4	Special Lectures.	DUHRING. Dermatology (before Dec. 10). ERBALL. Clin. Medicine (after Dec. 10).	MUSSER, STENDEL. 4.15-5.45 Clinical Conference in Medicine.	DUHRING. Dermatology (before Dec. 10). ERBALL. Clin. Medicine (after Dec. 10).	MUSSER, STENDEL. 4.15-5.45 Clinical Conference in Medicine.	
5	Operative Obstetrics.	Operative Surgery.	Operative Surgery.	Operative Surgery.		

WARD CLASS IN MEDICINE AND SURGERY.—10.30-11.30 A. M.
PENNSYLVANIA HOSPITAL.

SUBJECT.	Tuesday.		Thursday.	
	Oct. 9—Dec. 16.	Dec. 18—Mar. 3.	Oct. 9—Dec. 16.	Dec. 18—Mar. 3.
MEDICINE	73-108	1-36	73-108	1-36
SURGERY		37-72		37-72

SUBSECTIONS OF WARD CLASS IN MEDICINE.—1 P. M.

	Oct. 9 to Dec. 16.				Dec. 18 to Mar. 3.				Mar. 5 to April 7.				April 9 to May 12.			
	Mon.	Tues.	Thur.	Thur.	Mon.	Tues.	Thur.	Thur.	Mon.	Tues.	Thur.	Thur.	Mon.	Tues.	Thur.	
DR. TYSON OR																
DR. FUSSELL	1-9	37-45	73-81	82-90	46-54	82-90	10-18	10-18	91-99	19-27	55-63	100-108	28-36	64-72		
DR. EDSELL.	10-18	46-54	82-90	91-99	55-63	91-99	19-27	19-27	100-108	28-36	64-72	73-81	1-9	37-45		
DR. KELLY.	19-27	55-63	91-99	100-108	64-72	100-108	28-36	28-36	82-90	1-9	37-45	82-90	10-18	46-54		
DR. ALLYN..	28-36	64-72	100-108		37-45	73-81	1-9	1-9	82-90	10-18	46-54	91-99	19-27	55-63		

SUBSECTIONS OF WARD CLASS IN MEDICINE.—3 P. M.

	Oct. 9 to Nov. 25.				Nov. 27 to Jan. 27.				Jan. 20 to Mar. 20.				Mar. 21 to May 12.			
	Mon.	Wed.	Thur.	Thur.	Mon.	Wed.	Thur.	Thur.	Mon.	Wed.	Thur.	Thur.	Mon.	Wed.	Thur.	
DR. SAILER.	73-81	1-9	37-45	46-54	82-90	10-18	46-54	46-54	91-99	10-27	55-63	100-108	28-36	64-72		
DR. RIEMAN	82-90	10-18	46-54		73-81	1-9	37-45	37-45	100-108	28-36	64-72	91-99	19-27	55-63		

SUBSECTIONS OF WARD CLASS IN NEUROLOGY.

3 P. M.

	Oct. 9 to Nov. 9.				Nov. 10 to Dec. 15.				Dec. 16 to Jan. 27.			
	Mon.	Wed.	Thur.	Mon.	Wed.	Thur.	Mon.	Wed.	Thur.	Mon.	Wed.	Thur.
Dr. Potts, UNIVERSITY HOSPITAL.....	1-12	37-48	73-84	13-24	49-60	85-96	25-36	61-72	97-108	25-36	61-72	97-108
Dr. McConnell, PHILADELPHIA HOSPITAL.	13-24	49-60	85-96	25-36	61-72	97-108	1-12	37-48	73-84	1-12	37-48	73-84
Dr. Weisenburg, PHILADELPHIA HOSPITAL.	25-36	61-72	97-108	1-12	37-48	73-84	13-24	49-60	85-96	13-24	49-60	85-96

OPERATIVE SURGERY.

	Table No. 1.	Table No. 2.	Table No. 3.
October 10 to 24	1-8	9-16	17-24
October 27 to November 10	25-32	33-40	41-48
November 14 to 30	49-56	57-64	65-72
December 3 to 19	73-80	81-88	89-96
January 4 to 18	97-102	103-108	---

WOU

TEXT-BOOKS.*First Year.*

Text-Books.

Chemistry: Richter's Inorganic Chemistry; Medicus' Qualitative Analysis. (Fifth edition.)

Physiological Chemistry: Remsen's Organic Chemistry; Tyson's Practical Examination of Urine; Ogden's Clinical Examination of the Urine; Simon's Text-book of Physiological Chemistry; Mason's Examination of Water.

Anatomy: Cunningham's Text-book of Anatomy; Piersol's Normal Histology.

Bacteriology: Abbott's Principles of Bacteriology; Flügge's Die Mikro-organismen; Günther's Einführung in das Studium der Bakteriologie; Sternberg's Text-book of Bacteriology; Harris' edition of Muir and Ritchie's Manual of Bacteriology; Lehman and Neumann's Atlas of Bacteriology.

Collateral Reading.

Wurtz's Elements of Modern Chemistry.

Wormley's Micro-chemistry of Poisons. (Fourth edition.)

Schimpf's Text-book of Volumetric Analysis.

Hammarsten's Physiological Chemistry.

Cunningham's Practical Anatomy; Gray; Morris; Sobotta's Histology (edited by Huber); Heisler's Embryology; McMurrich's Embryology.

Enzymes and their Application; Effront; Prescott; Frankland's Micro-organisms in Water; Baumgarten's Pathologische Mykologie; Slater and Spitta's Atlas of Bacteriology.

Second and Third Years.

Anatomy: Cunningham's Text-book of Anatomy.

Gray; Morris; Quain; Edinger's Anatomy of the Central Nervous System

Physiology: Stewart's Manual of Physiology; Waller's Human Physiology.

American Text-book of Physiology.

Text-Books.

Pathology: For general use, Stengel's Text-book of Pathology; for pathological anatomy and histology, Delafield and Prudden; for pathological technology, Mallory and Wright.

Therapeutics and Materia Medica: H. C. Wood; Mann on Prescription Writing.

Surgery: An American Text-book of Surgery.

Obstetrics: Hirst's Text-book of Obstetrics.

Physical Diagnosis: Tyson.

Applied Anatomy: Thomas' Syllabus of Surgical Anatomy.

Collateral Reading.

Thoma's General Pathology; Lazarus-Barlow General Pathology; Cohnheim's Lectures on General Pathology; Ziegler's General and Special Pathological Anatomy; Orth's Lehrbuch der speciellen pathologischen Anatomie; McFarland's Text-book of Pathology.

United States Dispensatory.

White and Martin's Genito-Urinary Surgery; Davis on Bandaging; Young's Orthopedic Surgery; Martin's Essentials of Surgery and Bandaging.

Norris' American Text-book of Obstetrics; Edgar's Obstetrics; Webster's Obstetrics; Williams' Obstetrics.

Woolsey's Applied Surgical Anatomy.

Third and Fourth Years.

Medicine: Tyson's Text-book of Medicine; Osler; Strumpel; Musser's Medical Diagnosis.

Strumpel's Text of Medicine; Tyson on Bright's Disease and Diabetes; McBride's Diseases of Throat, Nose and Ear.

Nervous Diseases: Pott's Nervous and Mental Diseases.

Mill's Diseases of the Brain and Cranial Nerves, with a General Introduction on the Study and Treatment of Nervous Diseases; Oppenheim's Diseases of the Nervous System, translated by E. E. Mayer; Dana's Text-book of Nervous Diseases.

- | Text-Books. | Collateral Reading. |
|---|---|
| <i>Surgery:</i> An American Text-book of Surgery. | White and Martin's Genito-Urinary Surgery; Davis on Bandaging; Young's Orthopedic Surgery; Martin's Essentials of Surgery and Bandaging. |
| <i>Obstetrics:</i> Hirst's Text-book of Obstetrics. | Norris' American Text-book of Obstetrics; Edgar's Obstetrics; Williams' Obstetrics. |
| <i>Gynecology:</i> Penrose's Text-book of Diseases of Women. | Kelley's Operative Gynecology; Reed's Text-book of Gynecology; Montgomery's Text-book of Gynecology; Hirst's Text-book of Gynecology; Gilliam's Text-book of Practical Gynecology. |
| <i>Diseases of Children:</i> Ashby and Holt; Wright; Rotch. | J. Lewis Smith; American Text-book of the Diseases of Children; Cyclopedia of Diseases of Children. |
| <i>Medical Jurisprudence:</i> | Reese's Medical Jurisprudence; Herold's Legal Medicine; Taylor's Medical Jurisprudence. |
| <i>Dermatology:</i> Duhring's Cutaneous Medicine; Stelwagon's Treatise. | |
| <i>Ophthalmology:</i> de Schweinitz's Diseases of the Eye. | American Text-book of Diseases of the Eye, Ear, Nose and Throat, by de Schweinitz and Randall. |
| <i>Hygiene:</i> Bergey's Principles of Hygiene; Sedgwick's Hygiene and the Public Health; Flüggé's Grundriss der Hygiene; Notter's Treatise on Hygiene; Abbott's Hygiene of Transmissible Diseases. | Sykes' Public Health Problems; Bashore's Rural Hygiene; Waring's Modern Methods of Sewage Disposal; Mason's Water Supply; Merriman's Elements of Sanitary Engineering; Rosenall's Disinfection and Disinfectants. |

2.—POST-GRADUATE INSTRUCTION.

The regular course, *i. e.*, that provided in the roster for the regular session, is open to all graduates of the Department without charge, except as to fees for laboratory material.

COURSES OFFERED TO GRADUATES IN MEDICINE DURING THE MONTHS OF MAY AND JUNE, 1906.

Beginning May 7, 1906, the University will conduct a spring course in Medicine, designed especially for practitioners, but open also, in the laboratory courses, to advanced students in Medicine. It embraces almost the entire curriculum of Medicine, and has been devised to meet the requirements of a wide group of practitioners and students.

The course will extend over a period not exceeding six weeks.

In designing the instruction offered in the spring course, the needs of the practitioner have been kept in view and, so far as possible, the work has been made of purely practical character. While this feature is emphasized in the clinical branches and specialties, it has not been lost sight of in the laboratories. In all the courses the work is of a nature to appeal to the surgeon and general practitioner who wish to revive or complete their knowledge of certain subjects, and to advanced students in Medicine who may not have had equal opportunities to pursue their courses of study.

The number of attendants upon certain clinical courses will be necessarily limited, in order that close personal attention may be accorded the patients. This number will vary with the nature of the course; and the admission, under these circumstances, will be made in the order of application.

The schedule of hours for post-graduate study is so arranged that a comprehensive course may be taken without conflict of hours, and for this purpose the subjects have been divided into two groups.

GROUP I is devoted entirely to Internal Medicine, including laboratory and clinical work, and to the following specialties: Pediatrics, Neurology, Ophthalmology, Otology, Rhinology and Laryngology.

GROUP II is devoted entirely to General Surgery, including Surgical Anatomy and Pathology, and to Gynecology, Obstetrics, Orthopedic Surgery, Genito-urinary Diseases, and Dermatology.

To those, however, who are desirous of devoting more time than is allotted on the schedule to any one subject, special courses and opportunities are offered for more advanced work.

LECTURE SERIES.

MEDICINE.

1. MEDICAL CLINIC. *Dr. Tyson*, in the Medical Amphitheatre, University Hospital, Saturdays at 9 A. M.
2. MEDICAL CLINIC, OR BEDSIDE INSTRUCTION. *Dr. Musser*, University Hospital, Thursdays at 12 noon.
3. MEDICAL CLINIC, OR BEDSIDE INSTRUCTION. *Dr. Stengel*, University Hospital, Mondays at 12 noon.
4. CLINICAL MEDICINE. *Dr. Fussell*, in the Out-patient Department of the University Hospital, Thursdays at 1 P. M.
5. CLINICAL MEDICINE, WITH ESPECIAL REFERENCE TO PHYSICAL DIAGNOSIS. *Dr. Sailer*, at the Philadelphia Hospital, Tuesdays, Wednesdays, and Fridays at 12 noon.
6. CLINICAL MEDICINE, WITH ESPECIAL REFERENCE TO THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE GASTRO-INTESTINAL SYSTEM. *Dr. Steele*, University Hospital, Mondays at 1 P. M., and Saturdays at 12 noon.
7. CLINICAL MEDICINE, WITH ESPECIAL REFERENCE TO THE DIAGNOSIS AND TREATMENT OF CARDIO-VASCULAR DISEASES. *Dr. Herman B. Allyn*, at the Philadelphia Hospital, on Tuesdays, Wednesdays, and Fridays at 1 P. M.
8. CLINICAL LABORATORY METHODS. A course including Methods of Examining the Blood, Sputum, Urine, and Stomach Contents, to be given by *Dr. William Pepper*, at the William Pepper Clinical Laboratory, daily, from 11 A. M. to 12 noon, throughout the course.
9. THE TREATMENT OF PULMONARY TUBERCULOSIS. *Dr. W. B. Stanton*, in the Pavilions for Tuberculosis of the Philadelphia Hospital, two afternoons a week.

PEDIATRICS.

1. CLINICAL INSTRUCTION IN THE DISEASES OF CHILDREN. *Drs. Griffith and Osheimer*, in the Wards of the University Hospital, on Wednesdays at 4 P. M., throughout the course.
2. FEEDING IN INFANCY. *Dr. Thompson S. Westcott*, on Mondays and Fridays, in the Amphitheatre of the Children's Hospital, from 4.15 to 5.15 P. M., throughout the course.

SURGERY.

1. CLINICAL SURGERY. University Hospital, daily at 1 P. M., including operations in the Surgical Clinic, Surgical Diagnosis, Ward Rounds, and demonstrations of the modern methods of administering anesthetics.

2. SURGICAL PATHOLOGY. *Dr. Müller.*—Tuesdays and Thursdays, from 11 A. M. to 1 P. M., at the New Medical Laboratories. This course consists in the demonstrations of the gross and microscopic lesions of the more common surgical affections, in so far as they apply to diagnosis and treatment.

3. OPERATIVE SURGERY ON CADAVERS AND ANIMALS. *Dr. Carnett.*—Mondays and Fridays, 11 A. M. to 1 P. M. This course will include intra-abdominal operations upon animals (operations upon the stomach, gall-bladder, and intestines), and such operations upon the cadaver as cannot be demonstrated to advantage upon the living animal. The course will be arranged in accordance with the special needs of the student. (Limited to ten.)

4. SURGICAL ANATOMY. *Dr. Davis.*—Mondays and Fridays, 2 to 3 P. M., Logan Hall. With especial reference to the anatomy of the peritoneal cavity, of fractures and dislocations, including demonstrations of methods of reducing dislocations.

5. SKIAGRAPHY, RADIOTHERAPY, AND PHOTOTHERAPY. *Dr. Pancoast.*—Mondays, Wednesdays, and Fridays, 9 to 11 A. M., X-ray Department, University Hospital. Preliminary instruction in the various parts of an *x*-ray equipment, the handling of the apparatus, and in the principles of electric currents used in the production of the *x*-rays. The therapeutic application of *x*-rays, with technique required for treating various pathological conditions, with demonstrations by treatment of patients. The therapeutic use of Finsen rays and "High Frequency Currents:"

6. ORTHOPEDIC SURGERY. Orthopedic Clinic, *Dr. Willard*, Tuesdays, 12 to 1; *Drs. Young, Spellissy, and Elmer*, Mondays, Thursdays, and Fridays, 12 to 1; Operations, Demonstrations, and Practical Work in the Orthopedic Ward and Dispensary. The Special Orthopedic Gymnasium for the treatment of Paralyzes, Deformities, Curvatures, etc., is open daily from 12 to 2.

7. PEDIATRIC SURGERY. *Dr. Jopson.*—Wednesdays and Saturdays, Children's Hospital, 11 A. M. to 1 P. M.

8. GENITO-URINARY DISEASES. *Drs. Neilson and Siter.*—In the Out-patient Department of the University Hospital, Mondays, Tuesdays, Thursdays, and Fridays, 12 to 1.

9. MINOR SURGERY. *Dr. Norris.*—University Hospital, daily from 12 to 1 P. M.

GYNECOLOGY.

1. GYNECOLOGICAL CLINIC. *Dr. Clark*.—Wednesdays and Fridays, 2 to 4 P. M., University Hospital. The practical work in this course will be limited to five graduate students.

2. GYNECOLOGICAL CLINIC. *Dr. Beyea*.—Tuesdays and Thursdays, 11 A. M. to 1 P. M., Gynæcean Hospital.

3. GYNECOLOGICAL PATHOLOGY. *Dr. Anspach*.—Hours to be arranged for the convenience of those taking the course. (Limited to ten.)

OBSTETRICS.

Dr. Hirst and assistants.—Tuesdays and Thursdays, 3 to 4 P. M., in the Maternity Pavilion of the University Hospital.

DERMATOLOGY.

Dr. Hartzell.—Mondays, Tuesdays, Thursdays, and Fridays, 12 to 1 P. M. This course is given in the Out-patient Department of the University Hospital and Wards of the Philadelphia Hospital, and will be devoted to the Examination, Diagnosis, and Treatment of patients in daily attendance at the clinic.

NEUROLOGY AND PSYCHIATRY.

1. CLINICS. *Dr. Mills* on Mondays and *Dr. Spiller* on Tuesdays and Thursdays, 3 P. M., at the University or the Philadelphia Hospital.

2. NEURO-PATHOLOGY. *Dr. Spiller* will give practical instruction either by the lantern or in the laboratory once a week for those desiring to take Neuro-pathology in connection with the clinical work.

3. ELECTRO-THERAPEUTICS AND WARD CLASS DEMONSTRATIONS. At least once a week, by *Dr. Potts* and assistants, University Hospital.

4. PSYCHIATRY. *Dr. Burr*.—Instruction in Mental Diseases either by lectures or by ward class demonstrations, Wednesdays and Fridays, 3 P. M., Philadelphia Hospital.

5. SPECIAL COURSE. The course announced above is open to all students of the post-graduate department. Any student wishing to take Neurology and Psychiatry as a special subject, or in combination with one or two other subjects, can make arrangements with the Dean of the Faculty and the Teachers in the Neurological Department for the fuller course.

OPHTHALMOLOGY.

This course is designed for those who are especially interested in the eye, and is limited to ten.

1. OPERATIVE CLINIC. *Dr. de Schweinitz*.—Thursdays, 3 to 4 P. M., University Hospital.

2. EXTERNAL DISEASES OF THE EYE, in the Eye Dispensary of the University Hospital, Mondays, Tuesdays, Wednesdays, and Fridays, 3 to 4 P. M.

3. OPERATIONS ON ANIMALS' EYES. *Dr. de Schweinitz*, assisted by *Dr. Mellor*.—Tuesdays, 4.30 to 5.30 P. M.

4. FUNCTIONAL TESTING OF THE EYE, including the principles of Refraction, Muscle-balance Testing, Retinoscopy, and Ophthalmometry. *Dr. Carpenter*, in the Eye Dispensary of the University Hospital, Mondays, Tuesdays, Wednesdays, and Fridays, 2 to 3 P. M.

5. PATHOLOGICAL HISTOLOGY. *Dr. Shumway*.—Mondays, Wednesdays, and Fridays, 4 to 6 P. M.

OTOLOGY.

Dr. Randall.—(a) DAILY CLINICS at the University Hospital. (b) INSTRUCTION IN THE ANATOMY OF THE EAR by means of lantern demonstrations and anatomical preparations in connection with the Wistar Museum of Anatomy.

In demonstrating operative procedures, it is expected that either clinical material or cadavers will be used.

LARYNGOLOGY.

Dr. Grayson.—Daily in the Laryngological Clinic of the University Hospital, at 2.30 P. M. A course in Instrumental Technique and in the Diagnosis and Treatment of Diseases of the Nose and Throat. The microscope will be used to supplement the clinical diagnosis of neoplasms and exudative inflammations, and in the treatment. Instruction will be given in the ordinary methods of local therapeutics, but opportunities will be offered to perform the various operations for deflection of the nasal septum, for the removal of polyps, the faucial tonsils, adenoid growths, etc.

NOTE.—Those desiring to take the course in both Otology and Laryngology may take these subjects on alternate days.

BACTERIOLOGY AND HYGIENE.

1. ELEMENTARY BACTERIOLOGY. *Dr. Gildersleeve*, daily, 9 to 11 A. M., in the Laboratory of Hygiene. This course is designed to

supply the needs of the practitioner of medicine. It comprehends the preparation of culture media, the methods of sterilization, the methods of isolation and study of bacteria in pure culture, the study of the best known and most important of the pathogenic species, the methods of disinfection, the use of the microscope, and the methods of staining employed in bacteriological work.

2. **ADVANCED WORK IN BACTERIOLOGY.** *Dr. Bergey*, daily, 9 to 11 A. M., in the Laboratory of Hygiene. This course will be arranged in accordance with the qualifications and inclinations of each individual student.

3. **PRACTICAL HYGIENE.** *Dr. Bergey*, 9 to 11 A. M., daily, in the Laboratory of Hygiene. Applicants for the course must possess a working knowledge of quantitative chemical analysis. The course covers exercises in the physical and chemical study of the atmosphere, with methods of recording results; studies in ventilation and heating, and methods for estimating extent of the same; physical, chemical, and bacteriological study of water; the artificial and natural methods of water purification; pollutions to which water is liable; interpretation of results of analysis; studies of milk from the sanitary standpoint; sanitary food inspection and analysis.

CHEMISTRY.

1. **ANALYSIS OF THE URINE.** *Drs. Marshall, D. W. Fetterolf, Ryan, and Hawk.*—Tuesdays and Thursdays, 9 to 11 A. M., Robert Hare Chemical Laboratory.

2. **TOXICOLOGY.** Tuesdays and Thursdays, 9 to 11 A. M., Robert Hare Chemical Laboratory.

3. **ELEMENTARY PHYSIOLOGICAL CHEMISTRY.** This course will consist of a systematic study of the carbohydrates, fats, proteids; salivary, gastric, and pancreatic digestions, and of the bile, milk, and blood. If desired, work will be given in tissue chemistry and in general food analysis. (This course will only be given in the event of there being at least six students.)

ANATOMY.

1. **EMBRYOLOGY.** *Dr. Piersol.*—Tuesdays, Thursdays, Saturdays, 9 to 11 A. M., Logan Hall. 2. **MICROSCOPIC TECHNIQUE.** *Drs. Piersol and Formad.* 3. **PRACTICAL ANATOMY.** *Dr. G. Fetterolf.*

PATHOLOGY.

Drs. Smith, Loeb, and Alburger.—1. **AUTOPSY-MAKING.** 2. **SELECTED EXPERIMENTAL PATHOLOGY.** 3. **ELEMENTARY PATHO-**

LOGICAL HISTOLOGY. 4. ADVANCED PATHOLOGICAL HISTOLOGY.
New Medical Laboratories. (This course will not be given to
classes of less than six.)

PHYSIOLOGY.

Drs. Reichert and Lodholz.—1. ELEMENTARY COURSE IN PRACTI-
CAL PHYSIOLOGY. 2. ADVANCED COURSE IN PRACTICAL PHYSIOLOGY.
(These courses will not be given to classes of less than six.) Hours
to be arranged to suit the convenience of those taking the courses.
New Medical Laboratories.

For further particulars apply to

DR. CHARLES H. FRAZIER, Dean,
Thirty-sixth Street and Hamilton Walk,
Philadelphia, Pa.

BUILDINGS AND EQUIPMENT.

MEDICAL HALL.

The **MEDICAL HALL** contains the Laboratories of Histology and Embryology, and Osteo-syndesmology.

The **HISTOLOGICAL LABORATORY** is under the supervision of the Professor of Anatomy and the Demonstrator of Histology. The Laboratory is furnished with excellent microscopes, and all apparatus necessary to enable the student to become practically familiar with the most approved methods of microscopical technology, as well as with the normal histology of all the tissues and organs. Special facilities are afforded for original research and work in Practical Embryology; for this purpose the Laboratory is open throughout the year except during July and August.

The **OSTEO-SYNDESMOLOGICAL LABORATORY** is under the supervision of the Professor of Anatomy and Demonstrator of Osteology. In this Laboratory, the first-year student is required to make himself familiar with the skeleton and the articulations as a part of his instruction in practical anatomy.

LABORATORIES OF PATHOLOGY, PHYSIOLOGY AND PHARMACOLOGY.

The new **LABORATORIES OF PATHOLOGY, PHYSIOLOGY, and PHARMACOLOGY**, were formally opened June, 1904. This building is unsurpassed in facilities and equipment for graduate and undergraduate work. The building is two stories in height, above a high basement, and measures 340 feet front by nearly 200 feet in depth. The long front faces north, securing a maximum amount of light for laboratory purposes. All along the front are arranged small rooms for research, rooms for professors and their assistants, libraries, etc., these opening into a private corridor so that those employed in these rooms may be free from interruption by persons passing through the main halls. Perfect lighting of all the laboratories has been obtained through the front or through large courts, which separate the two main parallel groups of rooms.

The first floor of the new laboratory is devoted to physiology and pharmacodynamics. The portion assigned to the former consisting of laboratories for practical instruction, for general research work, for subsection teaching, rooms for the professor and assistants, etc. The section for pharmacodynamics consists of a large

general laboratory, a laboratory for teaching practical pharmacodynamics; rooms for original research, a commodious museum, etc. The second floor is devoted exclusively to pathology, the entire north front being given over to laboratories for advanced students in pathology and pathological bacteriology and to the special research and assistants' rooms. The wings accommodate the laboratory of experimental pathology, the museum, the demonstration-rooms, the laboratory for physiological chemistry and the preparation-rooms. The demonstration-room communicates with the general pathological-histological laboratory, the front of which consists almost entirely of glass and looks north into a spacious court. Another section of this floor, also looking into the court, is subdivided into smaller laboratories for instruction in animal diseases, neuro-pathology and surgical pathology.

Besides numerous laboratories, research-rooms, etc., there are four lecture-rooms in the building, two of these being demonstration-rooms with a seating capacity of 185; the others being lecture-rooms with a seating capacity of 400. The building is entirely fire-proof, of the most modern construction, supplied with power, electric light, and many kinds of accessories for promoting the teaching and research work.

LABORATORIES OF CHEMISTRY AND ANATOMY.

The CHEMICAL LABORATORIES occupy the first, second and third floors; on the second floor is the Laboratory of General Chemistry, and on the third floor that of Physiological Chemistry. In addition to the main rooms, there are smaller rooms, provided with an adequate number of balances for quantitative work, and special rooms set apart for research.

The ANATOMICAL LABORATORY is at the top of the building, and is 140 feet in length by 40 feet in width. It is lighted with windows on all sides, and by skylights. The most perfect ventilation is thus secured. There are numerous washstands, with hot and cold water, and private closets for the use of each student. Cleanliness is rigidly enforced. The cadavers furnished the dissecting-room are preserved by refrigeration. Dissection is legalized in Pennsylvania.

LABORATORY OF HYGIENE.

ALEXANDER C. ABBOTT, M. D., *Director.*

The LABORATORY OF HYGIENE was the gift of Mr. Henry Charles Lea, and the equipment was provided through the munificence of

the late Henry C. Gibson, of Philadelphia. The building is devoted to graduate and undergraduate work in bacteriology and hygiene. The student laboratory is a commodious, well-lighted and heated room, with a seating capacity for eighty-three students. Each student is supplied with an individual microscope, and with such apparatus as is necessary to conduct elementary studies in Bacteriology.

RESEARCH IN ADVANCED HYGIENE AND BACTERIOLOGY.—Opportunities for research work in these subjects are offered to those having the requisite preliminary training. All work coming under this head is done under the direct supervision of the laboratory staff.

WISTAR INSTITUTE OF ANATOMY.

MILTON J. GREENMAN, PH. B., M. D., *Director.*

The **WISTAR INSTITUTE OF ANATOMY** was founded in 1892 for the preservation and increase of the Wistar and Horner Museum and for the promotion of advanced study and research in Anatomy and Biology.

The **WISTAR AND HORNER MUSEUM**, founded nearly one hundred years ago, has been annually augmented, and is unsurpassed in the United States for the number and variety of its specimens illustrating normal and morbid human anatomy, as well as comparative anatomy. Through the munificence of the late General Isaac J. Wistar, the Wistar Institute of Anatomy and Biology has been erected, and therein the collections of the Museum are contained. The Museum is open daily, except Sunday, from 9 A. M. to 4 P. M., and Saturday, 9 A. M. to 12 M., throughout the season, to the public, as well as to students.

The Institute is endowed sufficiently to provide means for prosecuting the advanced and original work for which it was intended. Well-equipped laboratories and offices adjoin the Museum proper, and every facility is provided for the work of original investigators. While the Museum, under suitable regulations, is free for inspection to all teachers and students, the object of its laboratories and workrooms and of the instruction given in the Institute, is to afford facilities and assistance to post-graduates and advanced students.

WILLIAM PEPPER CLINICAL LABORATORY.*Associates.*ALFRED STENGEL, M. D., *Director.*_____, *Assistant Director.*

SAMUEL S. KNEASS, M. D.,	VERNER NISBET, M. D.,
DAVID L. EDSALL, M. D.,	COURTLAND Y. WHITE, M. D.,
CHARLES A. FIFE, M. D.,	JOSEPH S. EVANS, JR., M. D.,
DANIEL J. MCCARTHY, M. D.	

Volunteer Associates.

WILLIAM PEPPER, M. D.,	CASPAR WISTAR MILLER, M. D.,
HERBERT FOX, M. D.,	THOMAS A. COPE, M. D.,
MILTON K. MYERS, M. D.,	RALPH S. LAVENSON, M. D.,
JOHN W. HUNTER, M. D.,	HOWARD K. HILL, M. D.,
RALPH PEMBERTON, M. D.	

The WILLIAM PEPPER LABORATORY OF CLINICAL MEDICINE, erected through the generosity of the late Dr. William Pepper as a memorial to his father, adjoins the University Hospital. The purposes of the Laboratory are: to promote the interests of the patients by providing facilities for the prosecution of minute clinical studies and original researches; and to advance the interests of science by the publication of the results of such work. No instruction in the Laboratory is given to undergraduates.

The Associates and Volunteer Associates of the Laboratory are appointed for the purpose of carrying out certain lines of investigation for which they have special preparation. The Laboratory does not encourage post-graduate teaching, but has received a limited number of post-graduate students from time to time for the purpose of training them to carry on investigations.

The publications of the Laboratory are issued in the form of contributions, which are the collected reprints of articles issued from the Laboratory and published in various medical journals. One or two numbers containing from fifteen to twenty or more separate articles appear each year. A limited number of these may be had by interested persons on application.

THE UNIVERSITY HOSPITAL.

ROBERT E. HASTINGS, <i>Chairman</i> ,	}	<i>Executive Committee of Board of Managers.</i>
GEORGE H. MCFADDEN,		
JOHN SAILER,		
CHARLES W. DULLES, M. D.,		
MRS. CHARLES C. HARRISON,		

The UNIVERSITY HOSPITAL, situated on the University Campus, is an integral part of the Department of Medicine, and one of the most important agents in the training of the students, is operated solely in the interests of the students of the School. The clinical members of the Faculty are members of the Hospital Staff. With accommodations for 350 patients, it affords excellent facilities for bedside instruction. The Hospital is constructed especially for teaching purposes; and, together with the Out-Patient Department, furnishes ample provision for the teaching of clinical medicine according to the most approved methods.

Five positions as resident physicians in the University Hospital are awarded annually to five members of the Graduating Class of the Department of Medicine, selected from the twenty-five members of the class who have the highest general average at the end of the third year of the course.

The MATERNITY PAVILION, with a capacity of 50 beds, comprises a main building, to which the patients are admitted two weeks before delivery, two wings containing delivery-rooms, and the ANNA DIKE SCOTT Amphitheatre. This department is under the charge of the Professor of Obstetrics. Under the supervision of the clinical staff, the students conduct cases of labor and make daily visits, during the puerperium, to the mother and child.

LIBRARY FACILITIES.

The basis of the Medical Section of the University Library is formed by the Stillé Collection, presented by the late Alfred J. Stillé, to which additions have been made from the William Pepper Medical Foundation, established by the late Dr. William Pepper. In addition to purchases, the Medical Section has grown considerably through gifts presented by a number of medical publishers, more particularly Messrs. W. B. Saunders, Lea Brothers, the J. B. Lippincott Company and P. Blakiston's Son & Co. From most of these are received regularly the new publications issued by them. A third source contributing to the increase of the Library is the arrangement made with the *University of Pennsylvania Medical Bulletin*, by which some forty medical periodicals received in exchange are forwarded regularly to the University Library and incorporated into the medical collection. In addition to these the University subscribes to about 100 medical periodicals, which, together with those received through the *University of Pennsylvania Medical Bulletin*, represent a choice selection of the leading medical periodi-

cals of this country and Europe. A special fund recently placed at the disposal of the Medical Section has enabled the authorities to complete the sets of all the more important periodicals and publications of medical societies.

The PEPPER MEDICAL ALCOVE contains sets of the more important medical periodicals, general reference works covering the various departments of medicine and surgery, text-books, serial publications and all the more important new medical books received at the University.

LIBRARY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—
In addition to the Medical Section of the University Library, students have access to the Library of the College of Physicians, the second largest medical library in the United States.

GENERAL INFORMATION.**ARRANGEMENT OF SESSION.**

The academic year consists of one session, beginning on the last Friday in September, and ending at Commencement on the third Wednesday in June.

TUITION FEES AND EXPENSES.

Under no circumstances are any changes made in the established fees. The only free scholarships granted are those under the regulations hereinafter referred to.

First Year.

Matriculation Fee	\$5 00
For General Tuition Ticket, admitting to all the lectures, and including all the laboratory work and dissection assigned to this year	\$200 00
Use of Dissecting Material (<i>two parts</i>)	\$1.50 a part.
Gymnasium and Houston Club Fee	\$10 00

Second Year.

For General Tuition Ticket, admitting to all the lectures, and including all the laboratory work and dissection assigned to this year	\$200 00
Use of Dissecting Material (<i>two parts</i>)	\$1.50 a part.
Gymnasium and Houston Club Fee	\$10 00

Third Year.

For General Tuition Ticket, admitting to all the lectures and practical courses assigned to this year .	\$200 00
Gymnasium and Houston Club Fee	\$10 00

Fourth Year.

For General Tuition Ticket, admitting to all the lectures and the practical courses assigned to this year (no graduation fee)	\$200 00
Use of Material for operations in Surgery (<i>one part</i>) ..	\$1.00 a part.
Gymnasium and Houston Club Fee	\$10 00

FEES FOR SPECIAL COURSES.

(Students taking special or partial courses, if not already matriculated, or if not graduates of the School, are required to pay the matriculation fee in addition to the fees named below.)

For any single Course of Lectures, except <i>Materia Medica</i> . . .	\$20 00
For the Course of Lectures on <i>Materia Medica</i>	10 00
For Practical Course in the Chemical Laboratory	25 00
For the Course in Practical Gynecology of the fourth year . . .	25 00
For any one of the remaining Practical Courses	15 00.

Graduates in Medicine of this University are admitted to the courses free of charge; but they are required to pay for any laboratory material which they may use.

RULES IN RELATION TO FEES.

All payments should be made to E. W. Mumford, Bursar, Room 102, College Hall.

A matriculation fee of \$5.00 must be paid by all new students in the department, whether previously registered in another department or not.

Every student shall upon entering the University make a deposit of \$10.00 to cover loss, damage, or breakage of University property, library fines, or any charge not paid by the student in some other way. A student whose deposit is by charges against it reduced to \$2.50 or less shall be required to pay a sum sufficient to restore the deposit to its original amount. No deposit or balance remaining on a deposit shall be finally repaid to a student until he shall have graduated or shall have formally withdrawn from the University.

EXAMINATIONS.

First Year.—Examination in General Chemistry, and the mid-year examination in Anatomy (including Osteology, Syndesmology, Myology, and such other subjects as may have been covered by the lectures on Anatomy before February 1), will be held about February 1.

Final examinations at end of year: Physiological Chemistry, Bacteriology, Anatomy (excepting the Central Nervous System and the Organs of Special Sense), Pathology.

Second Year.—Examinations in *Materia Medica*, Pathology, Physical Diagnosis, and the mid-year examination in Physiology (on the subjects covered by the lectures on Physiology before February 1), will be held about February 1.

Final examinations at end of year: Anatomy (including the Central Nervous System, the Organs of Special Sense and Special Regions), Physiology (on the subjects of the lectures delivered after February 1), and Pharmacy.

Third Year.—Examination in Ophthalmology will be held about February 1.

Final examinations at end of year: Applied Anatomy, Gross Pathology, Medicine, Therapeutics, Surgery, and Obstetrics.

Fourth Year.—Examination in Dermatology will be held about December 20.

Final examinations at end of year: Medicine, Surgery, Obstetrics, Gynecology, and Hygiene. The examinations include questions on Diseases of the Ear, Children's Diseases, and Neurology, from lists furnished by the Clinical Professors of those branches.

GRADUATION.*

At the end of the fourth year a student who has passed all the required examinations satisfactorily will receive the degree of Doctor of Medicine under the following provisions:

1. He must be 21 years of age, and of good moral character.
2. He must have passed satisfactory examinations in all of the required branches of the curriculum, must have attended the practical instruction in all departments, and his last year of instruction must have been at this school.
3. He must have attended at least two cases of Obstetrics.
4. He must be present at Commencement, unless excused by the Dean of the Faculty.

SCHOLARSHIPS.

A competitive examination of candidates to fill three free scholarships is held annually. (In 1906, on Monday, September 24, at

* The Department of Medicine of the University of Pennsylvania is recognized by the Royal College of Physicians, London, and by the Royal College of Surgeons, England, to the extent that its graduates are exempt from the first examination and are admitted to the second and third examinations of the joint examining board, upon the following basis:

They must exhibit their diploma, together with evidence of having passed an approved preliminary examination in general education; and they must also present evidence of five years' professional study, and certificates to show that the curriculum required by the examining board has been substantially fulfilled.

Further information may be obtained from FREDERIC G. HALLETT, M. L., Secretary, Examination Hall, Victoria Embankment, London, W. C., England.

Graduates of the Department of Medicine of the University of Pennsylvania are also admitted, on presentation of the diploma and certificates to verify the curriculum, together with evidence of a satisfactory preliminary examination or degree in Arts, to the final examination for the triple qualification of the Royal Colleges of Physicians and Surgeons of Edinburgh, and Faculty of Physicians and Surgeons of Glasgow.

10 A. M., in the New Medical Laboratories.) Each candidate will be required:

First. To furnish satisfactory evidence in writing, from three reputable persons, that he is without means to defray the expenses of a medical education.

Second. To write a brief autobiography of about 300 words in length, which will serve as a test of his qualifications in orthography and grammar.

Third. To undergo examinations in the following subjects:

1. Any two of the four languages:

(a) Latin (first book of Horace's *Odes*).

(b) Greek (first four books of the *Iliad*). The examination will include prosody, syntax and Homeric dialect.

(c) French.—Elementary French, including grammar, prose composition (Joynes' *Minimum French Grammar and Reader*), and reading at sight in the following books:

Francisque Sarcey, *Le Siège de Paris*.

Beaumarchais, *Le Barbier de Séville*.

Anatole France, *Le crime de Sylvestre Bonnard*.

(d) German.—Elementary German, including Learned's *German Grammar*, Wesselhoeft's or Harris' *Prose Composition*, and reading at sight in the following books:

Heine's *Harzreise*.

Eichendorff's *Aus dem Leben eines Taugenichts*.

Wildenbruch's *Das edle Blut*.

2. Physics.

3. Solid Geometry.

(Candidates who do not possess the qualifications specified in paragraph I, p. 317, will in addition be required to pass the examinations for admission to the First-year Class.)

Fourth.—To pay an examination fee of \$5.00, which is not returned, but is accepted as the matriculation fee in case the candidate is successful.

The application of candidates who propose presenting themselves for examination, together with the certificates demanded by the first requirement of the competition, must be in the hands of the Dean *before September 10*. This requirement having been complied with, candidates will appear without further notice at the time stated for examinations.

PRIZES TO BE AWARDED, JUNE, 1906.

NOTE.—Theses and Reports in competition for Prizes must be presented to the Dean on or before May 1. Prizes will not be awarded unless the work submitted reaches a high standard of excellence.

The ALUMNI MEDAL is offered by the Society of the Alumni of the Department of Medicine of the University, to the member of the Graduating Class who attains the highest general average in examinations. (Only those members of the Graduating Class who have taken the last three years of the course in Medicine at this University are eligible.)

The DR. SPENCER MORRIS PRIZE.—The annual income, derived from the investment of Ten Thousand Dollars, will be awarded each year to that Medical Student of the Graduating Class who shall pass the best examination for the degree of Doctor of Medicine.

The FREDERICK A. PACKARD Prize of One Hundred Dollars is offered by a friend of the University to the member of the Graduating Class who has proven himself to be the most proficient in the course in Clinical Medicine.

The Professor of Obstetrics offers a Prize of an Obstetrical Forceps to the member of the Graduating Class who furnishes the best report of a case of Obstetrics occurring in the University Maternity Hospital.

The Clinical Professor of Orthopedic Surgery offers a Prize of an Antiseptic Minor Operating Case for the best practical work in Orthopedic Surgery, or for the best report of his clinic, or for an acceptable original design in apparatus.

APPOINTMENTS TO HOSPITALS.

The following graduates of the Department of Medicine, Class of 1905, arranged in alphabetical order, were the successful candidates in competitive examinations for positions as Resident Physicians in the various Hospitals:

UNIVERSITY HOSPITAL:

Eliason, E. L.
Moorhead, S. W.
O'Neal, A. H.
Piersol, G. M.
Prime, F., Jr.
Robertson, H. E.
Schleiter, H. G.

EPISCOPAL HOSPITAL:

Buddenbrock, E.
Gill, A. B.
Owen, H. R.
Price, J. W., Jr.
Woodward, W. W.

- ST. JOSEPH'S HOSPITAL:**
Cullen, J. G.
- PENNSYLVANIA HOSPITAL:**
Bradbury, S., 3d.
Leonard, E. A., Jr.
- PHILADELPHIA HOSPITAL:**
Bartle, H. J., Jr.
Buddenbrock, E.
Campbell, J. M.
Dintenfass, H.
Guilfoyle, W. F., Jr.
Hunt, C. J.
Konantz, O. F.
Lloyd, P. M.
Luckett, T. O.
McLaughlin, D. C.
Moore, W. F.
Piersol, G. M.
Repp, J. J.
Schatz, H. A.
- METHODIST EPISCOPAL HOSPITAL:**
Crouse, H. S.
Moore, J. L.
Powell, L. L.
Settle, G. M.
- GERMAN HOSPITAL:**
Schenberg, J.
Stone, M. P.
- ST. AGNES' HOSPITAL:**
Dempsey, W. T.
Naulty, C. W., Jr.
Payne, R. L., Jr.
Westfall, L. M.
Woodward, W. W.
- ST. TIMOTHY'S HOSPITAL:**
Bartle, H. J., Jr.
Mathews, R. F.
Raby, M. R.
- HOWARD HOSPITAL:**
Berst, W. L.
Hills, O. F.
- GERMANTOWN HOSPITAL:**
Bradbury, S., 3d.
Kelton, W.
Perrow, F. M.
- ST. MARY'S HOSPITAL:**
Cullen, J. G.
O'Donnell, D. S.
Westfall, L. M.
- PRESBYTERIAN HOSPITAL:**
Dickson, T. D.
Gill, A. B.
Guilfoyle, W. F., Jr.
Hunt, C. J.
O'Neal, A. H.
Price, J. W., Jr.
- CHILDREN'S HOSPITAL:**
Luckett, T. O.
- JEWISH HOSPITAL:**
Katzenstein, M. B.
- POLYCLINIC HOSPITAL:**
Hildreth, E. A., 3d.
West, C. W.
- SAMARITAN HOSPITAL:**
Leedom, J.

- ST. CHRISTOPHER'S HOSPITAL: WILKESBARRE HOSPITAL,
Leonard, E. A. WILKESBARRE, PA.:
Moore, W. F. Guthrie, G. D.
Roberts, W. R. Kirschner, J. W.
- MERCY HOSPITAL, PITTSBURG: MERCY HOSPITAL, WILKES-
Konantz, O. F. BARRE, PA.:
Lotz, O. Dintenfass, H.
McIntire, D. B.
O'Neal, A. H.
- ALLEGHENY GENERAL HOS- LANCASTER GENERAL HOS-
PITAL, ALLEGHENY, PA.: PITAL, LANCASTER, PA.:
Baer, W. K.
- Dickson, T. D.
Schleiter, H. G.
Stewart, R. V.
West, C. W.
- ST. LUKE'S HOSPITAL, SOUTH
BETHLEHEM, PA.:
Weaber, T. H.
- WEST PENN HOSPITAL, PITTS- POTTSVILLE HOSPITAL, POTTS-
BURG, PA.: VILLE, PA.:
Hoffman, H. C. Mehring, J. W.
Kunkel, H. W.
- ALTOONA HOSPITAL, ALTOONA,
PA.:
- MOSES TAYLOR HOSPITAL, SCRANTON, PA.:
Inksetter, F. S.
- Delaney, C. W.
Tomlin, H. H.
- SCRANTON STATE HOSPITAL, PACKER HOSPITAL, SAYRE, PA.:
Scranton, PA.: Evans, T., Jr.
- Guffey, D. C.
Lawrance, J. S.
- CHESTER HOSPITAL, CHESTER,
PA.:
- ST. JOSEPH'S HOSPITAL, READ- Campbell, E. A.
ING, PA.: Lauffer, C. A.
- Fox, O. E.
- CHILDREN'S SEASIDE HOUSE,
ATLANTIC CITY, N. J.:
- ST. TIMOTHY'S HOSPITAL, READ- Moore, W. F.
ING, PA.: West, C. W.
- Guffey, D. C.

- COOPER HOSPITAL, CAMDEN,
N. J.:
Davis, A. B.
Laws, G. M.
- WORCESTER CITY HOSPITAL,
WORCESTER, MASS.:
Gage, F. L.
- GERMAN HOSPITAL, NEWARK,
N. J.:
Buvinger, C. W.
- MERCY HOSPITAL, SPRING-
FIELD, MASS.:
Streeter, J. F.
- MERCER HOSPITAL, TRENTON,
N. J.:
Baer, W. K.
Hunt, C. J.
- HARTFORD CITY HOSPITAL,
HARTFORD, CONN.:
Wiedman, O. G.
- MERCER HOSPITAL, ATLANTIC
CITY, N. J.:
Iams, S. H.
- RHODE ISLAND GENERAL HOS-
PITAL, PROVIDENCE, R. I.:
Richardson, D. L.
- ST. FRANCIS' HOSPITAL, TREN-
TON, N. J.:
West, E. L.
- BELLEVUE HOSPITAL, HARLEM
DIVISION, NEW YORK CITY:
Lockett, T. O.
- EMERGENCY HOSPITAL, TREN-
TON, N. J.:
Schmoyer, H. J.
- FAXTON HOSPITAL, UTICA,
N. Y.:
Powell, L. L.
- DELAWARE HOSPITAL, WIL-
MINGTON, DEL.:
Marshall, W., Jr.
- SARAH LEIGH HOSPITAL, NOR-
FOLK, VA.:
Culpepper, J. H.
- BOSTON CITY HOSPITAL, BOS-
TON, MASS.:
Bisbee, E. S.
Orton, S. T.
- SEATTLE GENERAL HOSPITAL,
SEATTLE, WASH.:
Eliason, E. L.
- BOSTON EMERGENCY AND GEN-
ERAL HOSPITAL, BOSTON,
MASS.:
Gray, C. H.
Mathews, R. F.
- BENIFICENCIA PORTUGUEZA,
BRAZIL:
Pedroso, A. de M.

APPOINTMENTS TO HOSPITALS IN PHILADELPHIA.

Name of Hospital.	Total number of residents.	Number of Penna-graduates serving as residents at this date.
Philadelphia (Blockley) Hospital...	26	13
Episcopal Hospital	10	9
German Hospital	9	6
Germantown Hospital	4	4
Howard Hospital	2	2
Jewish Hospital	6	3
Methodist Hospital.....	6	5
Orthopedic Hospital.....	2	2
Pennsylvania Hospital.....	8	8
Philadelphia Home for Incurables	1	1
Polyclinic Hospital	7	2
Presbyterian Hospital	7	4
Samaritan Hospital	4	1
St. Agnes' Hospital	5	5
St. Christopher's Hospital	3	3
St. Joseph's Hospital	6	3
St. Mary's Hospital	5	3
St. Timothy's Hospital	3	2
Total	114	76

Percentage of appointments received by University of Pennsylvania graduates, 66.6 per cent.

PUBLICATION.

The UNIVERSITY OF PENNSYLVANIA MEDICAL BULLETIN, issued monthly, is the official organ of the Department. It contains only contributions from the teaching staff of the Department of Medicine. The subscription price is \$2.00 a year. Editorial office, 1724 Spruce Street, Philadelphia.

UNIVERSITY HOSPITAL.

BOARD OF MANAGERS.

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ON THE PART OF THE BOARD OF WOMEN VISITORS.

MRS. CHARLES C. HARRISON,

MRS. GEORGE WHARTON PEPPER,

MRS. WILLIAM W. ARNETT.

N. B.—The names of the Medical Staff and other officers of the Hospital are printed in the preceding pages, under the DEPARTMENT OF MEDICINE.

CHAIRMEN OF STANDING COMMITTEES.

ON FINANCE: GEORGE H. McFADDEN.

ON PROPERTY AND REPAIRS: JAMES TYSON, M. D.

ON LIBRARY AND MUSEUM: JOHN SAILER.

OF EXECUTIVE COMMITTEE: ROBERT E. HASTINGS.

The UNIVERSITY HOSPITAL is under the immediate direction of a Board of Managers, constituted as above. It is situated on a lot of ground between Thirty-fourth and Thirty-sixth streets, and Spruce and Pine streets, given by the city of Philadelphia to the University. The main building and one wing were opened for the reception of patients and for purposes of clinical instruction in 1874.

The GIBSON Wing for Chronic Diseases, especially of the heart and lungs, was erected in 1883 through the liberality of the late Henry C. Gibson. Here unusual opportunities are afforded for the study of these important affections.

The D. HAYES AGNEW Memorial Pavilion, dedicated in 1897, comprising four large wards, and one large and two small clinic amphitheatres, is also used for clinical instruction.

The Maternity Pavilion is separate from the main building, and provides accommodations for forty patients. The amphitheatre in connection with it was completed in 1901, and has a seating capacity of two hundred.

The WILLIAM PEPPER Laboratory of Clinical Medicine, erected through the generosity of the late Dr. William Pepper as a memorial to his father, adjoins the University Hospital. The purposes of the Laboratory are: to promote the interests of the patients by providing facilities for the prosecution of minute clinical studies and original researches; and to advance the interests of science by the publication of the results of such work. No instruction in the Laboratory is given to undergraduates.

The main building, besides the offices and the rooms of the officers, has a large clinical amphitheatre, which will seat six hundred students, and a smaller one seating one hundred and fifty. It also has six rooms for private patients. The wing adjoining has four wards, with a capacity of one hundred and ten patients, and twenty-one private rooms. The wing for Chronic Diseases has room for sixty-two patients in its four wards. There is, therefore, with the Agnew wing and the Maternity, full accommodation for three hundred and ten patients. In the basement are surgical and medical dispensaries, also special dispensaries for diseases of the throat and nose.

diseases of children, diseases of the skin, the eye and ear, nervous diseases, diseases of women, for orthopedics and for venereal diseases, and for out-door patients. In connection with the Orthopedic Dispensary is a workshop, in which braces and other appliances are made.

All cases of accident occurring in the State of Pennsylvania, which are brought to the Hospital within twenty-four hours after their occurrence, are admitted at any hour of the day or night.

Charity patients are admitted by the members of the Medical Staff on a written order to the Superintendent; provided that a bed be vacant in the department to which the member of the Medical Staff is attached.

Paying patients are received at the Hospital on application to the Superintendent, subject to the approval of the proper attending medical officer. The charge in the wards is \$7.00 a week; in the private rooms, of which there are thirty-three, the prices range from \$20.00 to \$100.00 a week.

No patient with acute venereal disease, or mania-à-potu, is admitted as a free patient, but is charged such rates for board as may be agreed upon.

Visitors are admitted to see patients in the private rooms from 9 A. M. to 9 P. M.

Visitors are admitted to the wards on Sundays, Wednesdays and Fridays from 2 to 3 P. M.

Five positions as resident physicians in the University Hospital are awarded annually to five members of the Graduating Class of the Department of Medicine, selected from the twenty-five members of the class who have the highest general average at the end of the third year of the course. Only those members of the Graduating Class who have taken the last three years of the course in Medicine at this University are eligible for the positions. The resident physicians go on duty at intervals of three months, and serve during a term of two years.

An Annual Report of the Hospital is published, giving detailed statistics of the year. Copies may be had on application to the Superintendent.

Communications concerning the business of the Hospital and the admission of patients should be addressed to the Superintendent, MARION E. SMITH (Miss), and not to the Dean of the Faculty of Medicine.

TRAINING SCHOOL FOR NURSES.

The Training School for Nurses, attached to the Hospital of the University, was organized in 1886. In that year a HOME FOR NURSES was erected in memory of Mrs. Richard D. Wood by her children, and has since been considerably enlarged. The building was completely furnished by the women members of the Training School Committee, and every provision is made for the healthful and comfortable home life of the pupil nurses. Owing to the increased size of the Hospital, more nurses have become necessary, and to lodge them properly a large addition to the Nurses' Home has been built.

The course of instruction covers a period of three years. Besides the regular ward and class instruction, courses of lectures are given in Hygiene, Anatomy, Physiology, Medical and Surgical Nursing, Materia Medica, Toxicology, Urinalysis, Use of Splints, Bandaging, Gynecology, Obstetrics, Diseases of Children, Diseases of Eye, Ear and Nervous System, Rest Cure, Electro-Therapeutics, Massage, Care of the Insane, Contagion, Nutrition and Cookery for the Sick.

All communications relating to the School for Nurses should be addressed to

LYDIA A. WHITON,
Assistant Superintendent and Directress of Nurses,
University Hospital, Philadelphia, Pa.

DEPARTMENT OF DENTISTRY.

FACULTY.

CHARLES C. HARRISON, LL. D., Provost.

EDGAR F. SMITH, Ph. D., Sc. D., LL. D., Vice-Provost.

EDWIN T. DARBY, D. D. S., M. D., Professor of Operative Dentistry and Dental Histology.

JAMES TRUMAN, D. D. S., LL. D., Professor of Dental Pathology, Therapeutics and Materia Medica.

EDWARD C. KIRK, D. D. S., Sc. D., Professor of Clinical Dentistry, and DEAN OF THE FACULTY.

MATTHEW H. CRYER, D. D. S., M. D., Professor of Oral Surgery.

CHARLES R. TURNER, D. D. S., M. D., Professor of Mechanical Dentistry and Metallurgy.

EDWARD T. REICHERT, M. D., Professor of Physiology.

GEORGE A. PIERSOL, M. D., Professor of Anatomy.

JOHN MARSHALL, M. D., Nat. Sc. D., LL. D., Professor of Chemistry and Toxicology.

* ALEXANDER C. ABBOTT, M. D., Professor of Bacteriology.

GEORGE G. MILLIKEN, D. D. S., M. D., Assistant Professor of Operative Technics.

R. HAMILL D. SWING, D. D. S., Assistant Professor of Oral Surgery and Anesthesia.

A. DEWITT GRITMAN, D. D. S., Assistant Professor of Mechanical Dentistry.

DAVID H. BERGEY, A. M., M. D., Assistant Professor of Bacteriology.

* Absent on Public Business.

LECTURERS.

- JOHN D. THOMAS, D. D. S., Lecturer on Nitrous Oxide.
MEYER L. RHEIN, D. D. S., M. D., Lecturer on Dental Pathology.
SAFFORD G. PERRY, D. D. S., Lecturer on Operative Dentistry.
JULIO ENDELMAN, D. D. S., Lecturer on Materia Medica.
FREDERIC A. PEESO, D. D. S., Lecturer and Special Instructor in Crown-and-Bridge Work.

DEMONSTRATORS.

- WILLIAM DIEHL, D. D. S., Demonstrator of Operative Dentistry.
JAMES G. LANE, D. D. S., Demonstrator of Mechanical Dentistry.
AMBLER TEES, D. D. S., Demonstrator of Dental Ceramics.
FREDERICK AMEND, JR., D. D. S., Demonstrator of Mechanical Dentistry.
MILTON N. KEIM, JR., D. D. S., Demonstrator of Mechanical Dentistry.
J. EDWARD DUNWOODY, D. D. S., Demonstrator of Crown-and-Bridge Work.
ROBERT J. SEYMOUR, D. D. S., Demonstrator of Mechanical Dentistry.
A. SWANTON BURKE, D. D. S., Demonstrator of Mechanical Dentistry.
WILLIAM C. MARSH, D. D. S., Demonstrator of Operative Dentistry.
JAMES A. DOWDEN, D. D. S., Demonstrator of Mechanical Dentistry.
WILSON ZERFING, D. D. S., Demonstrator of Operative Dentistry.
G. JANVIER PAYNTER, D. D. S., Demonstrator of Tooth Modeling.
FREDERICK W. ALLEN, D. D. S., Demonstrator of Operative Technics.
JOHN A. McCLAIN, D. D. S., Demonstrator of Operative Dentistry.
GEORGE H. CHAMBERS, M. D., Assistant Demonstrator of Normal Histology.

AUGUSTUS O. KOENIG, B. S., M. D., Demonstrator of Dental Metallurgy.

DANIEL W. FETTEROLF, M. D., Demonstrator of Chemistry.

S. MERRILL WEEKS, D. D. S., Demonstrator of Orthodontia.

WALTER W. MCKAY, D. D. S., Demonstrator of Porcelain Inlay Work.

ALBERT W. JARMAN, D. D. S., Demonstrator of Mechanical Dentistry.

JEHU T. GORE, D. D. S., Demonstrator of Operative Dentistry.

J. GARRETT HICKEY, D. D. S., Demonstrator of Physiology.

GEORGE O. JARVIS, M. D., Assistant Demonstrator of Applied Anatomy.

CHARLES H. JACO, D. D. S., Demonstrator of Operative Dentistry.

ALFRED P. LEE, D. D. S., Demonstrator of Operative Dentistry.

MICHAEL T. BARRETT, D. D. S., Demonstrator of Mechanical Dentistry.

ELON KANAGA, D. D. S., Demonstrator of Crown-and-Bridge Work.

NORMAN L. ROBERTS, D. D. S., Demonstrator of Operative Dentistry.

WILLIAM H. F. ADDISON, M. D., Demonstrator of Histology.

PENN-GASKELL SKILLERN, JR., M. D., Assistant Demonstrator of Normal Histology.

WALTER S. CORNELL, M. D., Demonstrator of Osteology.

CLINICAL INSTRUCTORS.

Dr. CHARLES S. BECK,

Dr. DANIEL N. MCQUILLEN,

Dr. EDWARD I. KEFFER,

Dr. HENRY C. REGISTER,

Dr. JOHN R. YORKS.

ORGANIZATION OF THE DENTAL SCHOOL.

The Department of Dentistry of the University of Pennsylvania was organized in the early part of 1878. It was the third school created as the dental department of a university, having been preceded in this respect by the Harvard School of Dentistry (organ-

ized in 1867), and the Dental Department of the University of Michigan (organized in 1875).

The motive leading to the creation of dental schools as regular departments of the university educational system was the rapid growth of dentistry as a profession. This was shown by the improvement in the educational equipment of its practitioners, and by the tendency to broaden the courses of instruction furnished by dental schools to meet the continual necessity for more thorough training.

Realizing that but two conceptions of the status of dentistry were possible, viz.: that it was either a branch of medicine, or else a separate profession; and believing that its close relationship with medicine called for the future development of dentistry in conformity therewith, the Trustees took action resulting in the creation of the Department of Dentistry of the University of Pennsylvania. The plan of instruction was so arranged that the branches common to both medicine and dentistry were taught concurrently by teachers who held corresponding chairs in both medical and dental faculties; while the strictly dental teaching was provided for by the creation of chairs whose incumbents were specially qualified for giving instruction in their respective branches. This arrangement is in strict accordance with the university idea, by which the teaching of allied branches is centralized in different departments. It does not imply that the Department of Dentistry is a branch of the Department of Medicine, for, as a matter of fact, both are distinct Departments of the University.

It is worthy of note that the Department of Dentistry is actually, as well as in name, a Department of the University. Its position as a recognized member of the University family confers upon its students certain advantages pertaining to that relationship. Its students enjoy in common with all other students of the University the privileges and social relationships pertaining to the student life of the whole body. Prominent among these features is membership in the Houston Club, an organization governed by students and domiciled in a club house which in its fittings and appointments is second to no other club house in Philadelphia. Its students have also the use of the Dormitories, and are admitted to all of the athletic features of the University; while, with reasonable restrictions, the opportunity is afforded them to pursue such allied lines of study as in the judgment of the authorities may tend to add strength and fullness to the dental educational equipment.

The practical advantages that accrue to the dental student by

such a broad policy are at once manifest. Its effects upon the status of the dental practitioner must be recognized when it is considered that during the student life, his association with the students of the other Departments of the University is upon a basis of equality in all that concerns the student life of the institution. The influence of this feature in bringing about a close relationship between dental and medical students develops a mutual respect and recognition, which in their career as practitioners is of the utmost importance.

EQUIPMENT.

The arrangement of the interior of the Dental Hall is such that facilities are provided for the thorough education of the student in every important detail of his professional work. The clinical operating-room occupies one entire floor of the main building, giving a floor space 180 by 50 feet, furnished with one hundred latest pattern Wilkerson operating chairs, each provided with a fountain cuspidor, with running water attached, and attachment for the Fisk saliva ejector. Each chair is provided with a bracket arm, and table for holding instruments, besides a separate table for the instrument case. Electric service is provided for each chair. A complete locker system in connection with the operative clinic furnishes means for the storage of instruments when not in use. In the fitting up of the operating-room, the aim has been to make the appointments as nearly as possible like those of a first-class private office, so that from the beginning of his course the student is familiarized with the conditions he will meet in actual practice.

One large general laboratory for prosthetic work is provided, and separate departments for crown-and-bridge work, orthodontia technics, prosthetic technics, operative technics, porcelain work including inlays, crown-and-bridge and continuous gum work, metalurgical work, vulcanizing and modeling; also special clinic-rooms and laboratories. Ample arrangements are provided for the convenience and comfort of the students in the care of instruments, tools, etc. There are also hat and coat rooms, lavatories, etc., a bicycle-room, laundry, store-rooms, and living apartments of the janitor; and an assembly-room for the exclusive use and recreation of the students when not on duty. The laboratories are fitted with the most approved appliances for work and instruction in the several departments of dentistry. Compressed air is supplied to the laboratory tables for melting and soldering operations, as well

as for metallurgical work. The laboratory lathes are driven by electric motor, and no feature which could add to the facilities for thorough and accurate work has been omitted.

The lecture amphitheatre will comfortably seat 550. It joins the main building by a corridor, and in relation with it are arranged the dental museum and library.

As the laboratory, or manual-training, method forms a prominent and necessary adjunct to didactic teaching, facilities for carrying out the technic system of instruction are provided in connection with each subject to which the system is applicable.

ADMISSION.

By action of the National Association of Dental Faculties at a meeting held in St. Louis, July 16, 1904, it was ruled that the degree of Doctor of Dental Surgery may be conferred upon the completion of a three years' curriculum by colleges holding membership in the Association.

While the University of Pennsylvania favors a four years' curriculum, the Administration has decided to conform to the foregoing regulation of the Faculties' Association, at the same time offering and recommending a four years' course, optional for the present, and upon the completion of which students will be graduated with special distinction.

Special attention is called to the rule adopted by the National Association of Dental Faculties, August, 1896, requiring all applicants for matriculation to be present and enter their names *not later than ten days after the official date of opening.*

Candidates for admission will not be permitted to matriculate for any session other than that immediately succeeding the date of matriculation. No candidate will be allowed to matriculate for more than one session at a time.

PRELIMINARY EDUCATIONAL REQUIREMENTS.

The educational standard for admission into this Department is a three years' completed course in an approved high school, or its equivalent.

To assist in deciding whether a candidate has or has not the necessary educational requirements for entrance to this Department, and to prevent uncertainty and delay in replying to communications from applicants for matriculation, the following regulations have been adopted for the session of 1906-07:

A. For matriculation in the Freshman Class without examination, the candidate must present a diploma of graduation from a literary or scientific college, a state normal school, a diploma of an approved high school having a three years' course; or a certificate showing satisfactory completion of three years' work of a high school having a four years' course, or a certificate from a preparatory or other school showing an equivalent education; and such certificate must be signed by the principal of the school issuing it, stating the studies pursued by the applicant, the extent to which, in each case, they have been covered, and the grade attained in each.

B. In lieu of such diploma or certificate, the applicant will be required to pass a matriculate examination, which shall be the equivalent of that forming the basis of the certificate of required preliminary education, as follows:

LANGUAGE.

ENGLISH.—No candidate will be accepted in English whose work is notably defective in spelling, punctuation, idiom or division into paragraphs.

A. (1) Grammar and Analysis (as in Abbott's *How to Parse*, or Murray's *Advanced Lessons in English Composition, Analysis, and Grammar*. (2) The writing of several paragraphs, correct in spelling, punctuation, grammar, and expression, written on subjects taken from the following works, a general knowledge of which is required. For 1906 and 1907.

Shakespeare's *The Merchant of Venice* and *Julius Cæsar*; *The Sir Roger de Coverley Papers* in *The Spectator*; Goldsmith's *The Vicar of Wakefield*; Scott's *Ivanhoe*; Coleridge's *The Rime of the Ancient Mariner*; Carlyle's *Essay on Burns*; Tennyson's *The Princess*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

B. A special knowledge of the subject-matter, form and structure of the following works: Shakespeare's *Macbeth*; Milton's *Lycidas*, *Comus*, *L'Allegro* and *Il Penseroso*; Burke's *Speech on Conciliation with America*, Macaulay's *Essays on Milton and Addison*.

LATIN.—(1) A thorough knowledge of elementary grammar, as in Bennett's *Latin Grammar*.

(2) Cæsar (any standard edition):

Or an equivalent course in German, French or Spanish.

NOTE.—The entrance examination for the session of 1906-1907 will be held in Roberts Vaux School-building, Wood Street below Twelfth, on Tuesday, September 25, 1906, at 9 A. M.

HISTORY.

A. American history, with the elements of civil government. This will include colonial history, with a view to the origin and development of our institutions; and the period of discovery and early settlement, so as to set forth the relations of peoples in America and the meaning of the struggle for mastery; geographical knowledge involved; the general plan and important provisions of the Constitution. As in McMaster, or Fiske (school edition).

B. General history,—including Greek, Roman and English history; leading events. As in Meyer, or Anderson.

MATHEMATICS.

A. Algebra.—Fundamental operations; factors; common divisors and multiples; fractions; equations of the first degree with one or more unknown quantities; quadratic equations; the binomial theorem. As in Brooks, or Wentworth (Shorter Course).

B. Plane Geometry,—including the solution of simple original exercises and numerical problems. As in Wentworth, or Phillips and Fisher.

SCIENCE.

Physics.—As in Carhart and Chute, or Gage's *Elements of Physics*.

Chemistry.—As in Remsen's *Elementary Course in Chemistry*; or Arey's *Elementary Chemistry* will be accepted in lieu of Physics.

Other text-books than those mentioned may be used at the pleasure of teacher or student, provided they cover the subjects to the extent indicated.

N. B.—Official certification of the work done in other subjects of a standard equivalent to three years' work in an approved high school, will be received and duly credited.

An applicant whose credentials do not fully meet the requirements outlined above, or who does not pass the entrance examinations with a percentage of 70 in every subject, may be admitted on condition that he make up the required work in any branch or branches (not exceeding two) to the extent required.

Matriculates who are conditioned in any branch or branches must pass a satisfactory examination in such branch or branches before being permitted to take the final Freshman examination.

Registration cards and permits for the entrance examination must first be obtained from the office of the Dean of the Department of Dentistry in Dental Hall, Thirty-third and Locust streets, Philadelphia.

ADMISSION TO ADVANCED STANDING.*

Students possessing the requisite preliminary education, and who have attended one full term in a dental school recognized by this University, will be admitted to the second year, subject to the rules governing admission to advanced standing.

Graduates of a recognized medical school will be admitted to the Second-year Dental Class without examination.

Applicants for advanced standing, who have not had instruction in Practical Histology and Practical Chemistry equivalent to that required by this department, will be permitted to make up such deficiency by taking special courses, for which an extra fee of fifteen dollars is charged for each branch. Classes for special courses in these branches are organized during the second week in September for the benefit of those desiring to take the laboratory work before the work of the regular session.

Students who have credit for the completed work of two or more terms in a recognized dental school, and who possess the requisite preliminary educational qualifications, are eligible for admission to the third year, subject to the rules governing admission to advanced standing.

Graduates of foreign dental schools are required to conform to the rules governing advanced standing, and to the ruling of the National Association of Dental Faculties that their credentials must receive the approval of the Advisory Board for their country before they can be accepted.

SCHOLARSHIPS.

1. UNIVERSITY SCHOLARSHIPS.—The Trustees have established two University Scholarships in Dentistry, the award of which is based upon the result of a competitive examination equivalent to that demanded for admission to the technical courses in the College. They are not awarded for less than the entire course.

Examinations for these scholarships are held on the same day with those fixed for entrance to the College (Friday, September 21, 1906), and are open to all applicants otherwise eligible for admission to the Department of Dentistry. Circulars setting forth in detail the plan of the scholarship examination may be had upon application to the Dean of the Department of Dentistry.

* All applicants for advanced standing must pass the examinations of the years they desire to omit, or furnish proof that they have passed *equivalent* examinations in some recognized dental or medical school.

A registration fee of five dollars is required of all candidates for scholarship and entrance examination, and is not returnable in case of failure to pass.

2. PUBLIC SCHOOL PRIZE SCHOLARSHIPS.—Under an agreement with the city of Philadelphia, fifty free scholarships exist in the University for the benefit of graduates of the public schools. The candidates for these scholarships are examined by the Board of Public Education, and award is made to those who reach the highest grade, as vacancies occur from year to year.

STATUS OF STUDENTS.

A regular student is one who is regularly admitted to the Department, and who is a candidate for the degree of D. D. S.

A special student is one who is regularly admitted to the Department, but who, not being a candidate for the degree, does not take the regular course. The admission of special students is at the discretion of the Dean.

SPECIAL COURSES.

The Department offers special courses of instruction in any or all of the branches of the curriculum. Such courses are elective and do not lead to the dental degree. The fees for the special courses are \$50.00, \$100.00 or \$150.00, depending upon whether the student remains under instruction for three months, six months or the entire session respectively. These course fees are in all cases additional to the regular matriculation fee of \$5.00.

HOUSTON CLUB AND GYMNASIUM.

A uniform charge of \$10.00 a year is made upon all students, to include membership in Houston Club with all of the usual club privileges, and the use of the gymnasium and its facilities, including locker and the use of Franklin Field, excepting only at such times as the Field may be in use by athletic teams.

PHYSICAL EDUCATION.

In the Department of Dentistry two hours a week of graded physical culture is an obligatory part of the curriculum for all students of the first year, excepting those who have previously had an equivalent course of physical training elsewhere and those who for reasons of physical disability may be excused by the Director.

ARRANGEMENT OF SESSION.

The academic year consists of one session beginning on the last Friday in September, and ending at Commencement, on the third Wednesday in June. The course of instruction is graded.

Laboratory instruction, not only in all of the practical dental branches, but also in Practical Chemistry, Metallurgy, Histology, Bacteriology, Physiology and Osteology, forms a prominent feature of the course.

The session of 1906-07 will begin on Friday, September 28, 1906, and will end on Wednesday, June 19, 1907.

MID-TERM EXAMINATIONS.

The arrangement of subjects constituting the curriculum of the first, second, and third years as specified here and on pp. 412 and 414 *et seq.*, is provisional only, and subject to change before the opening of the following session.

In the first-year course a mid-term examination is held about February 1 in Chemistry, Histology and Elementary Anatomy.

In the second-year course, at the same date, a mid-term examination is held in Elementary Physiology and Bacteriology.

In the third-year course a mid-term examination is held in Metallurgy.

RULES GOVERNING MID-TERM EXAMINATIONS.

1. NON-PRESENTATION AND FAILURES.

A student who has not undergone examination, or who has failed to attain a mark of 50 in any examination, may be re-examined:

(a) At the first re-examination about March 1; or, failing then

(b) At the second re-examination about one week prior to the final examinations of the academic year in May.

2. FAILURE TO MAKE A GENERAL AVERAGE OF 60.

A student having passed all the examinations, but failing to attain a general average of 60, may avail himself of the privileges of the re-examinations at the times designated in paragraph 1, in all of the subjects in which a mark of less than 60 was attained.

3. ELIGIBILITY FOR FINAL EXAMINATIONS IN MAY.

All the mid-year examinations must be passed before the candidate becomes eligible for the final examinations for the academic year, held in May.

4. REPETITION OF THE STUDIES OF THE YEAR.

The general rules governing the repetition of the studies of any year shall apply to those students who failed to pass or to attain the required general average, or who were eligible to appear at the final examinations of the academic year, held in May.

RULES GOVERNING TERM EXAMINATIONS.

FIRST AND SECOND YEAR STUDENTS.

1. The examination marks of this Department are based on a scale of 100. Each student must obtain a general average of 60 to pass the examinations of the year. 50 on a single branch will entitle him to average; less than 50 constitutes a failure in that branch.

2. Students who have failed to pass in any or all the branches are given an opportunity for a second examination, before the opening of the next regular session, on the stated day in September designated for re-examinations in the official calendar in this Catalogue; but if the student fail to appear, or if his general average be less than 60, he shall repeat the studies of the year except those in which he received a grade of not less than 70.

3. A student may be permitted to matriculate in the succeeding year, if he has successfully passed all but one branch, on condition that the one in which he has been found deficient must be passed on or about November 1 of the year in which he has been matriculated. Failing at the November examination to pass the branch in which he is conditioned, the student will be required to repeat the work of the year as provided in Rule 2. This rule applies to laboratory and clinical requirements as well as to didactic work.

4. No student will be eligible for examination if any portion of his fees remains unpaid.

EXAMINATION FOR GRADUATION.

1. The examination marks shall be upon a scale of 100.

2. Each candidate must attain at least 50 in any single branch, and have a general average of 60, before he can be recommended for graduation.

3. Candidates who attain a general average of at least 90 shall be considered to have gained Honors of the first class, and will receive Honorable Mention.

4. The graduation average shall be based on the examination marks of the whole curriculum.

5. Examinations are held immediately after the completion of the lecture courses.

No student can be examined before that time except by consent of the Faculty.

GRADUATION.

At the close of the course, a student who has fulfilled all requirements satisfactorily receives the degree of *Doctor of Dental Surgery* (D. D. S.), under the following regulations:

- I. He must be of good moral character.
- II. He must have passed a satisfactory examination in all the branches of the curriculum; must have attended the practical instruction and performed the required practical work in all departments; and his last year of instruction must have been at the Department of Dentistry of this University.
- III. He must have dissected at least two parts; must have performed thoroughly, and to the satisfaction of the Professor of Operative Dentistry, all the usual dental operations; must have undertaken at least one artificial case, and brought it completed, with the patient, to the Professor of Prosthetic Dentistry, thirty days before the close of the term; and must have prepared for presentation to the Professor of Prosthetic Dentistry, before the first of May, a specimen case to be deposited in the University collection. The required operations, as well as the work on the artificial case, must have been performed in Dental Hall.
- IV. After receiving notice of having successfully passed the final examination, he must enter his name on the Register of Candidates for the Degree.
- V. He must be present at Commencement, unless excused by the Dean of the Faculty.

TEXT-BOOKS AND WORKS OF REFERENCE.*

Text-Books.	Works of Reference.
<i>Operative Dentistry:</i>	
Kirk, the American Text-Book of Operative Dentistry. (Third edition.)	Johnson, Principles and Practice of Filling Teeth. Kingsley, Oral Deformities.

* In all cases the latest editions should be obtained.

Text-Books.

Works of Reference.

Prosthetic Dentistry and Metallurgy:

- Turner, The American Text-Book of Prosthetic Dentistry. (Third edition.)
 Essig-Koenig, Dental Metallurgy. Second edition.

Dental Pathology and Therapeutics:

- Burchard-Inglis, Dental Pathology, Therapeutics and Pharmacology. (Second edition.)

Materia Medica:

- Gorgas, Dental Medicine. H. C. Wood, Therapeutics.
 Wood & Bache, United States Dispensatory.

Orthodontia:

- Angle, Treatment of Malocclusion of the Teeth and Fractures of the Maxillæ.

Chemistry:

- Richter, Inorganic Chemistry. Mitchell, Dental Chemistry.
 Medicus, Qualitative Analysis. (Fifth edition.)

Histology:

- Piersol, Normal Histology.

Anatomy:

- Cunningham, Text-Book of Anatomy. Gray, Human Anatomy.
 Black, Dental Anatomy. Tomes, Dental Anatomy.

Dissection Manual:

- Cunningham, Practical Anatomy. Vol. I.

Text-Books.

Works of Reference.

Applied Anatomy:

Cryer, Studies of the Internal
Anatomy of the Face.

Physiology:

Stewart, Manual of Physi-
ology.

Oral Surgery:

Bergmann, A System of Prac-
tical Surgery. Vol. I.

Marshall, Injuries and Sur-
gical Diseases of the Face,
Mouth and Jaws.

Bacteriology:

Abbott, Principles of Bacteri-
ology.

Miller, Micro-Organisms of the
Human Mouth.

Dictionary:

Gould, Student's Medical Dic-
tionary

* ROSTER.

FIRST-YEAR CLASS.—SESSION 1905-1906.

Order of Instruction before February 1.

<i>Hour.</i>	<i>Monday.</i>	<i>Tuesday.</i>	<i>Wednesday.</i>	<i>Thursday.</i>	<i>Friday.</i>	<i>Saturday.</i>	
9 A. M.	Cornell. Osteology and Syndesmology.	Cornell. Osteology and Syndesmology.	Class divided into Sections for Instruction in Prosthetic and Operative Technics.	Class divided into Sections for Instruction in Prosthetic and Operative Technics.	Turner. Prosthetic Dentistry.	Dental Anatomy and Modeling tooth forms.	
10 A. M.	Marshall. Chemistry.	Marshall. Chemistry.			Class divided into Sections for Instruction in Prosthetic and Operative Technics.		Class divided into Sections for Instruction in Prosthetic and Operative Technics.
11 A. M.	Physical Education.	Prosthetic and Operative Technics.					
1.30 to 4 P. M.	Class divided into Sections for Pract. Work in Chemistry and Histology.	Class divided into Sections for Pract. Work in Chemistry and Histology.	Class divided into Sections for Pract. Work in Chemistry and Histology.	Class divided into Sections for Pract. Work in Chemistry and Histology.	3 P. M. Physical Education.		
4 P. M.	Piersol. Anatomy.	Piersol. Anatomy.	Marshall. Chemistry.	Piersol. Anatomy.	Piersol. Anatomy.		
5 P. M.	Jarvis. Anatomy Recitations.	Jarvis. Anatomy Recitations.					

* Rosters are subject to rearrangement at the beginning of each academic year.

SECOND-YEAR CLASS.—SESSION 1905-1906.

Order of Instruction before February 1.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A. M.	Gritman. Prosthetic Technics.	Section Work in Prosthetic Dentistry, or Crown and Bridge Work, or Operative Clinic.	Berpey. Bacteriology.	Section Work in Prosthetic Dentistry, or Crown and Bridge Work, or Operative Clinic.	Section Work in Prosthetic Dentistry, or Crown and Bridge Work, or Operative Clinic.	Operative Clinic.
10 A. M.	Section Work in Prosthetic Dentistry, or Crown and Bridge Work, or Operative Clinic.		Section Work in Prosthetic Dentistry, or Operative Clinic.			
11 A. M.						
12 M.		Kirk. Clinical Dentistry.	Cryer. Oral Surgery.	Physiology Conference.	Physiology Conference.	Cryer. Oral Surgery.
1.30 to 4 P. M.	Section Work. Dissecting, Bacteriology, or Physiology Demonstrat n.	Section Work. Dissecting, Bacteriology, or Physiology Demonstrat n.	Section Work. Dissecting, Bacteriology, or Operative Clinic.	Section Work. Dissecting, Bacteriology, or Operative Clinic.	Section Work. Dissecting, Bacteriology, or Operative Clinic.	
4 P. M.	Reichert. Physiology.	Reichert. Physiology.	Truman. Materia Medica.	Reichert. Physiology.	Reichert. Physiology.	
5 P. M.	Turner. Prosthetic Dentistry.	Darby. Operative Dentistry.	Turner. Prosthetic Dentistry.	Darby. Operative Dentistry.	Truman. Dental Pathology and Therapeutics.	

THIRD-YEAR CLASS.—SESSION 1905-1906.

Order of Instruction before February 1.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A. M.	Operative or Prosthetic Clinical Pract.	Operative or Prosthetic Clinical Pract.	Operative or Prosthetic Clinical Pract.	Gritman. Prosthetic Technics.	Operative or Prosthetic Clinical Pract.	Operative Clinic.
10 A. M.	Ceramics.	Ceramics.		Operative or Prosthetic Clinical Pract.	Ceramics.	
11 A. M.	Crown and Bridge Work.	Crown and Bridge Work.		Crown and Bridge Work.	Crown and Bridge Work.	
12 M.		Kirk. Clinical Dentistry.	Cryer. Oral Surgery.			Cryer. Oral Surgery
1.30 to 5 P. M.	Operative Clinic, Orthodontia, Inlay Work, Practical Metallurgy.	Operative Clinic, Orthodontia, Inlay Work, Practical Metallurgy.	Operative Clinic, Orthodontia, Inlay Work, Practical Metallurgy.	Operative Clinic, Orthodontia, Inlay Work, Practical Metallurgy.	Operative Clinic, Orthodontia, Inlay Work. 4 P. M. Peeze Crown and Bridge Work	
5 P. M.	Turner. Prosthetic Dentistry.	Darby. Operative Dentistry.	Turner. Prosthetic Dentistry.	Darby. Operative Dentistry.	Truman. Dental Pathology and Therapeutics.	

Medical and Surgical Clinics at the University Hospital are held from 12 M. to 2 P. M., on Wednesdays and Saturdays, and are open to the Second and Third-year Classes. These are in addition to the dental clinics at the Philadelphia Hospital, on Saturdays at 12 o'clock, and to the Oral Surgical Clinics as noted on the roster.

OPERATING-ROOM, LABORATORIES, ETC.

The operative clinic room and laboratories are spacious and well equipped, affording ample facilities for the practical training of the student.

The dissecting-room is large, well lighted, thoroughly ventilated, and furnished with ample material for the successful prosecution of anatomical studies.

GRADATION OF THE COURSE.

In order to facilitate work in the practical branches, and to economize the student's time, the regular session is so arranged that students during the first year are required to devote the time equally to dental, histological and chemical laboratory work.

During the second and third years, the student has practically the entire forenoon of each day for dental work. Thus ample opportunity is afforded for practice in Operative and Prosthetic Dentistry. In the latter branches, the students are divided into sections, devoting the time not otherwise engaged to practice in the operating-rooms.

This plan of gradation enables the First-year student to present himself for examination in the following branches: Chemistry, Histology and Anatomy, including Osteology and Myology, and on Progress in Mechanical Dentistry, Operative Technics and Materia Medica. The Second-year student will be examined on Materia Medica, Bacteriology, Applied Anatomy and Physiology, and on Progress in Operative and Prosthetic Dentistry. Such an arrangement is economical not only in point of time, but also in facilitating a student's acquirement of knowledge in the remaining branches.

OUTLINE OF THE COURSE.*

FIRST YEAR.

Students of the First-year Class will be required to attend instruction in and pass examinations upon the following branches:

1. Chemistry. Three lectures a week. Five hours laboratory.

* See first paragraph under Mid-Term Examinations, p. 408.

2. **Anatomy.** Four lectures a week. One-half the required work in dissecting is done during this year.
3. **Histology.** Five hours laboratory a week.
4. **Osteology.** Two lectures a week.
5. **Materia Medica.** One lecture a week.
6. Students of the First-year Class will be trained in Operative and Prosthetic Technics during hours not otherwise occupied.
7. They will, in addition to the subjects named, attend lectures on Operative and Prosthetic Dentistry. Each one hour a week.
8. **Physical Education.** Two hours a week.

SECOND YEAR.

1. Students of the Second-year Class will attend lectures on Materia Medica, Physiology, Operative and Prosthetic Dentistry and Metallurgy, Dental Pathology and Therapeutics, Clinical Dentistry, Bacteriology, Applied Anatomy and Oral Surgery. Work in Practical Anatomy (dissecting) is finished during this year.
2. They will pursue Operative and Mechanical Work, with the privilege of the operating-room and appliances during the morning and afternoon clinics.
3. The final examinations of the second year will be upon Materia Medica, Physiology, Bacteriology, Applied Anatomy and Progress in Operative and Prosthetic Dentistry.

THIRD YEAR.

1. Students of the Third-year Class will continue the practical work in Operative Dentistry, Prosthetic Dentistry and Dental Metallurgy, and the lectures on these subjects, together with Dental Pathology and Therapeutics, Clinical Dentistry, Oral Surgery and Orthodontia.
2. At the close of the term they will be required to pass examinations in these branches.

COURSE OF INSTRUCTION.

The lectures on OPERATIVE DENTISTRY AND DENTAL HISTOLOGY embrace the comparative anatomy of the teeth; the functions and microscopical peculiarities of the dental organs; the development of teeth and their component tissues; a full description of the elucidation of all dental operations, such as filling, extracting and regulating; the pathological relations of the teeth to the other parts

of the system; and a minute description of all diseases related to dental surgery or of interest to the dentist. The methods taught are demonstrated in clinics.

The course of instruction in **PROSTHETIC DENTISTRY** is a graded one, and is arranged to embody in the teaching of the first year the fundamental principles of prosthetic work, including the properties of the materials used for prosthetic purposes and the various mechanical processes involved in their utilization; in the second year a more specific and extended instruction in these procedures is given, and the finger-skill necessary in the usual mechanical operations is developed; while in the third year the student is instructed in the choice of means for attaining a given end, and the selection of this means in accordance with the requirements of specific cases. During the third year attention is given to the more highly specialized branches of Prosthetic Dentistry under qualified demonstrators.

Instruction in Prosthetic Dentistry is accomplished by didactic lectures illustrated by means of heroic models, lantern slides, and blackboard drawing; by graded technic courses, which include in each year illustration of the lecture topics by actual demonstration of the processes before the class, and the manufacture of the appliances so illustrated by the class, divided into small sections for systematic work; by specimens on exhibition in the general laboratory illustrative of successive stages in the technic requirements; and by abundant clinical practice.

The lecture course will include, in addition to dental prosthesis, the replacement of tissues about the mouth not strictly dental, and the manufacture of appliances for the remedy of palatal defects.

The instruction in **ORTHODONTIA** will be by means of lectures, quizzes, a technic course and clinical practice; and attention will be specially paid to the treatment of cases in the light of their etiology.

The lectures on **CHEMISTRY** embrace the study of chemical physics and principles of chemical philosophy, together with a detailed consideration of the principal elementary substances and their compounds; and of the fundamental principles of Organic Chemistry, including the classification of organic compounds, and the special study of typical members of the different classes. Special attention is also given to the laws of chemical affinity, and the conditions under which they are modified, especially as they relate to the preparation of mixtures and prescriptions.

The course in **PRACTICAL CHEMISTRY** in the laboratory includes exercises in chemical manipulation; the study of the chemical prop-

erties of the principal metals; the reactions of acids and their combinations; and the general principles of qualitative analysis, especially as they relate to the detection and separation of the metals and compounds of interest to practitioners of Dentistry. Each student is provided with a separate table and apparatus, and is required to perform all the usual chemical manipulations under the directions of demonstrators, as well as to exhibit by written formulæ all reactions involved in his tests.

HUMAN ANATOMY is taught in its relations to all the branches of medical science, including Dentistry. The lectures are illustrated by fresh dissections of the human body, and by a rich museum of anatomical specimens, well-executed models and drawings.

In addition to the lectures and demonstrations by the Professor of Anatomy, a course of demonstrations in Applied Anatomy is given to the students of the second year. The course consists of a drill by recitations and demonstrations of dissections upon those anatomical regions with which the dental and oral surgeon is especially concerned. Practical instruction in general and special HISTOLOGY will be given in the histological laboratory to the students of the first year, the class being divided into sections. The laboratory is furnished with excellent microscopes, and all apparatus necessary to enable the student to become familiar with the most approved methods of microscopical technology and with the minute structure of all the tissues and organs. Special facilities are afforded for original research; for this purpose the laboratory is open throughout the year, except during July and August.

The OSTEO-SYNDESMOLOGICAL LABORATORY is under the supervision of the Professor of Anatomy and Demonstrator of Osteology. In this laboratory, the first-year student is required to make himself familiar with the skeleton and the articulations as a part of his instruction in practical anatomy.

The course in PHYSIOLOGY includes thorough instruction on the subject of animal physiology, with special reference to the physiology of Man.

The lectures on DENTAL PATHOLOGY include such portions of general pathology as have a bearing upon the special subjects taught.

Dentition and its possible pathological results receive careful attention, followed by a detailed consideration of all the diseases to which the teeth and surrounding parts are liable; the normal and abnormal character of the oral secretions, and the direct and remote relations that the pathological conditions of the mouth sustain to other portions of the system.

The treatment required under each head is explained, and the recognized processes necessary to secure a return to normal conditions are minutely detailed.

MATERIA MEDICA is taught with special reference to the character and value of those remedies which have any bearing upon dental therapeutics.

BACTERIOLOGY.—The study of **BACTERIOLOGY** is an obligatory part of the second year curriculum. The growing importance of this subject in relation to dental pathology and therapeutics has made necessary certain modifications in the technique of nearly all dental operations. A clear understanding of the practical bearing of bacterial life-processes has become a necessity for intelligent and successful dental practice, just as it has similarly for surgical practice.

The course is so arranged with respect to the requirements of the dental practitioner that he will afterwards be able not only to apply correctly the most approved methods for preventing and combating bacterial action, and to develop an efficient system of antiseptic technique in connection with his work; but he will also be trained in the several methods that will enable him to study the bacterial factor which is the exciter of pathological conditions in special cases arising in his practice.

The instruction in **BACTERIOLOGY**, which is under the direction of Dr. A. C. ABBOTT, Professor of Bacteriology and Director of the Laboratory of Hygiene, is principally practical and embraces full laboratory instruction, covering the following subjects:

1. Apparatus employed—sterilizers, incubators, pressure regulators, thermostats, etc.
2. Culture media, methods of preparation, sterilization methods.
3. Microscopic characteristics of cultures of bacteria in general and of special forms.
4. Methods of obtaining, from mixtures of different bacteria, individual species in pure cultures.
5. Microscopic technique. Use and care of instruments, staining from cultures, section cutting and staining and mounting of tissues.
6. Pathogenic bacteria, isolation, identification and inoculation.
7. Disinfection of instruments, appliances, etc., thermal and chemical, methods and apparatus, modes of testing efficiency.
8. Antisepsis and asepsis in dental surgery, preparation of dressings, instruments, operator and assistants and of patients.

Following this, the special study of Bacteriology in relation to dental pathological conditions will receive full consideration and elaboration. The classification, life-history, modus of infection and pathological significance of all bacterial forms having distinct dental importance will be studied in detail.

The lectures on these subjects are appropriately illustrated, and accompanied by suitable demonstrations whenever possible. The Laboratory of Hygiene has a thoroughly equipped department for practical instruction in Bacteriology, including an ample number of high-grade microscopes for the special use of dental students in the study of this branch. Examination upon the subject will be a prerequisite to the obtaining of the dental degree.

CLINICAL DENTISTRY.—The instruction in this department has for its object the study of the whole range of dental operations as they arise in practice, especially from the clinical point of view.

The valuable clinical material which is afforded by the large Dental Infirmary service of the University is utilized as the basis of the instruction given, both didactically and by demonstration. Cases are continually presenting for treatment in the Infirmary which furnish important points for study, and whenever these form suitable subjects for demonstration a study of the case is made for the benefit of the class. The student is thus brought into close contact with a great variety of dental and oral disorders, and is made familiar with the methods of diagnosis and the etiology and treatment of the conditions with the actual cases before him.

The teaching in this department includes, besides the foregoing, a study of the professional relations of the dentist to his patients, involving matters of deportment, habits of personal cleanliness, etc.; in short, all those factors of professional conduct and bearing which, taken altogether, determine the measure of his professional success.

In the lectures on **CLINICAL DENTISTRY**, all of the latest developments in operative procedures, so far as they may have value from the clinical standpoint, are presented and critically considered.

ORAL SURGERY is a specialty which is a distinct outgrowth from Dentistry. As the work of the dentist came to include operations upon the surrounding tissues, as well as upon the teeth themselves, the adoption of surgical methods and more thorough training in the principles and practice of surgery became necessary. The addition of instruction in this branch to the dental curriculum includes thorough instruction in the surgical and pathological anatomy of the mouth, jaws, and associate parts; the etiology, diagnosis and

treatment of lesions of these parts; the most advanced methods of operative technique, including the use of the surgical engine, surgical anesthesia, asepsis and antisepsis, and after-treatment of the case.

The instruction is both didactic and clinical, and students are encouraged to study and personally treat cases under the supervision of the Professor of Oral Surgery and his assistants.

Special facilities for the performance of oral surgical operations and for the care of patients are provided in the University Hospital and the Philadelphia Hospital.

CLINICAL PRACTICE.

Seven hours daily (except on Saturdays) are spent in actual practice under the supervision of the demonstrators; on Saturdays from 9 A. M. to 12 M. Every student is required to provide his own instruments, except those for extracting. He is expected to keep them in perfect order, and will be furnished with a place in which they can be locked when not in use.

INFIRMARY AND LABORATORIES.

The Infirmary and Laboratories are open to the students for practice every day during the week, except on Saturday afternoons, which are reserved for clinics that may be given by members of the Faculty or instructors.

The Infirmary and Laboratories are open throughout the year, except during July and August.

MUSEUM AND CABINETS.

The WISTAR AND HORNER MUSEUM, founded nearly one hundred years ago, and annually augmented, is unequalled in the United States for the number and variety of its specimens of the normal and the morbid anatomy of the human body. It also contains a large number of preparations in Comparative Anatomy; a rich collection relating to Dentistry, such as the different stages of dentition, abnormal conditions of the teeth, mandibles of the lower animals, etc.; and an extensive collection of models. This collection is deposited in the building opposite Medical Hall, erected by the late General Isaac J. Wistar, and called the WISTAR INSTITUTE OF ANATOMY AND BIOLOGY. The Museum is open every week-day, excepting holidays, from 9 A. M. to 3.30 P. M., throughout the sessions. The matriculation fee in the Department of Dentistry confers admission to the Museum.

TUITION FEES AND EXPENSES.*

The tuition fee is \$150 per annum and is due and payable in two equal parts, on October 1 and February 1, respectively. Remittances should be in cash, or by bank draft, certified cheque, or postal money order drawn for the exact amount due, made payable to the University of Pennsylvania, and sent to E. W. Mumford, Bursar, Room 102, College Hall. A percentage is added to fees not paid within thirty-one days.

A matriculation fee of \$5.00 must be paid by all new students in the department, whether previously registered in another department or not.

Under no circumstances are any changes made in the established fees.

Every student shall upon entering the University make a deposit of \$5.00 to cover loss, damage, or breakage of University property, library fines, or any charge not paid by the student in some other way. A student whose deposit is by charges against it reduced to \$2.50 or less shall be required to pay a sum sufficient to restore the deposit to its original amount. No deposit or balance remaining on a deposit shall be finally repaid to a student until he shall have been graduated or shall have formally withdrawn from the University.

Students of the Department of Dentistry may attend, without additional charge, the lectures and recitations in any other department of the University. This privilege may be obtained only by the concurrent approval, in writing, of the respective Deans.

Instruments for the first year can be procured at from \$60 to \$75. A dental engine will be needed for the second year, costing from \$40 to \$60. Additional instruments will be required for the second-year and third-year work. These instruments may be utilized in general practice.

Rooms may be had at the University Dormitories or in houses near the University, and board may be had in the University Dining Hall or in private boarding houses. In any case the cost of board and lodging will be from \$5.00 a week upward.

Dental Hall is provided with locker facilities for the storage of instruments, apparel, etc. It is to be understood, however, that the lockers are provided solely as an accommodation, and that in renting them to the students the Department assumes no responsibility whatever with respect to the care or loss of the contents.

* For Estimate of Expenses, see pages 423 and 424.

First Year.

Matriculation Fee (paid once only)	\$5 00
Tuition Fee	150 00
Gymnasium and Houston Club Fee	10 00
Fee for Dissection	5 00
Use of Dissecting Material (one part).....	1 50
Breakage Deposit	5 00

Second Year.

Tuition Fee	\$150 00
Gymnasium and Houston Club Fee	10 00
Fee for Dissection	5 00
Use of Dissecting Material (one part).....	1 50

Third Year.

Tuition Fee	\$150 00
Gymnasium and Houston Club Fee	10 00
* Graduation Fee (paid by old matriculates only).....	30 00

Further information may be obtained from

EDWARD C. KIRK, Dean.

The Dean's office is in Room 39, Dental Hall, Thirty-third and Locust streets. Office hours: 9 A. M. to 1 P. M., daily.

The total number of new matriculates for the present session, including those admitted to advanced standing, is 156.

Since the foundation of this department, the total number of graduates has been 2,082.

The subjoined reports give some conception of the character and mass of work performed in the Operative and Prosthetic Departments; but the amount of costly material and careful attention necessary for the insertion of 8,828 gold fillings can be appreciated only by the experienced operator.

The number of patients (14,637) exhibits the extent of the Dental Infirmary service to a large class of persons of limited means.

* Beginning with the session of 1905-06 the tuition fee for all new matriculates for the regular course in the Department of Dentistry of the University of Pennsylvania will be \$150 for each term thereof, and the present graduation fee of \$30 will be abolished in the case of all candidates for degrees coming under the foregoing regulation as to increased tuition fee.

This regulation does not apply to those who are already matriculated in the Department under the previous standard of tuition fees.

ESTIMATE OF EXPENSES.

423

OPERATIVE DEPARTMENT.

Gold fillings	8,828
Tin fillings	5,653
Amalgam fillings.....	2,787
Cement fillings	1,229
Treatment of pulp and pulp canals	4,332
Extractions	3,612
Porcelain Inlays	775
Miscellaneous	978
Total	<u>28,194</u>

Ninety-five ounces (7 lbs. 11 ozs.) of gold were used for filling, exclusive of that used for plate and crown work in the Laboratory.

PROSTHETIC DEPARTMENT.

Full Dentures (Clinical, 168—Technic, 846).....	1,014
Partial Dentures (Clinical, 116—Technic, 520).....	636
Artificial Crown Work (Clinical, 332—Technic, 1,020).....	1,352
Repair cases	154
Bridge Work—Clinical	73
Bridge Work—Technic	413
Continuous Gum Bridge	163
Interdental Splints	167
Regulating Plates and Appliances	183
Total.....	<u>4,155</u>

ESTIMATE OF EXPENSES.

FIRST YEAR.

Matriculation Fee	\$5 00
General Tuition Fee	150 00
Gymnasium and Houston Club Fee	10 00
Dissecting Fee	5 00
Use of Dissecting Material (one part)	1 50
Breakage Deposit	5 00
Books (about)	30 00
Instruments (about)	70 00
Deposit for lockers	2 00
Materials for Histological and Prosthetic Work.....	6 00
Board, 35 weeks at \$5.00	175 00
Washing, 35 weeks at 75 cents.....	26 25
Total, first year	<u>\$485 75</u>

SECOND YEAR.

General Tuition Fee	\$150 00
Gymnasium and Houston Club Fee	10 00
Dissecting Fee	5 00
Use of Dissecting Material (one part)	1 50
Dental Engine, instrument (about).....	50 00
Additional instruments (about)	90 00
Books (about)	20 00
Deposit for lockers	2 00
Material for Prosthetic Technic Work	2 00
Board, 35 weeks at \$5.00	175 00
Washing, 35 weeks at 75 cents	26 25
Total, second year	\$531 75

THIRD YEAR.

General Tuition Ticket	\$150 00
Gymnasium and Houston Club Fee	10 00
Class expenses: rental of Cap, Gown, and Hood	5 00
Instruments (about)	20 00
Deposit for lockers	2 00
Material for Prosthetic Technic Work	2 00
Material for Ceramic Work	5 00
Board, 37 weeks at \$5.00	185 00
Washing, 37 weeks at 75 cents	27 75
Total, third year	\$406 75

DEPARTMENT OF VETERINARY MEDICINE.

FACULTY.

CHARLES C. HARRISON, LL. D., PROVOST.

EDGAR F. SMITH, PH. D., Sc. D., LL. D., VICE-PROVOST.

HORATIO C. WOOD, M. D., LL. D., Professor of *Materia Medica*,
Pharmacy and General Therapeutics.

EDWARD T. REICHERT, M. D., Professor of Physiology.

JOHN MARSHALL, M. D., NAT. Sc. D., LL. D., Professor of
Chemistry and Toxicology.

SIMON J. J. HARGER, V. M. D., Professor of Veterinary Anat-
omy and Zoötechnics.

LEONARD PEARSON, B. S., V. M. D., Professor of the Theory
and Practice of Veterinary Medicine, and **DEAN OF THE FAC-
ULTY.**

JOHN W. ADAMS, A. B., V. M. D., Professor of Veterinary Sur-
gery and Obstetrics, and Lecturer on Horseshoeing.

ALLEN J. SMITH, A. M., M. D., Professor of Pathology.

DAVID H. BERGEY, A. M., M. D., Assistant Professor of Bac-
teriology.

LECTURERS AND DEMONSTRATORS.

ALEXANDER GLASS, V. S., Lecturer on the Theory and Prac-
tice of Canine Medicine.

JOHN W. HARSHBERGER, PH. D., Instructor in Botany, Gen-
eral Biology and Zoölogy.

EDWIN S. MUIR, V. M. D., Instructor in Veterinary *Materia
Medica* and Pharmacy.

B. FRANKLIN SENSEMAN, V. M. D., Demonstrator of Vet-
erinary Anatomy.

FRANZ ENGE, Demonstrator of Forging and Horseshoeing.

MILTON E. CONARD, V. M. D., Lecturer on Veterinary Ob-
stetrics and Dairy and Milk Inspection.

CLARENCE J. MARSHALL, V. M. D., Demonstrator of Clinical Veterinary Medicine.

W. HORACE HOSKINS, D. V. S., Instructor in Veterinary Jurisprudence, Ethics and Business Methods.

COURTLAND Y. WHITE, M. D., Lecturer and Demonstrator in Morbid Anatomy.

WILLIAM R. ANDRESS, V. M. D., Demonstrator of Meat Inspection.

DANIEL W. FETTEROLF, M. D., Demonstrator of General Chemistry.

EDWARD LODHOLZ, M. D., Assistant Demonstrator of Physiology.

JOHN J. REPP, V. M. D., Demonstrator of Veterinary Surgery.

PHILIP B. HAWK, PH. D., Demonstrator of Physiological Chemistry.

J. GARRETT HICKEY, D. D. S., Assistant Demonstrator of Physiology.

HENRY R. ALBURGER, M. D., Demonstrator of Pathology.

WILLIAM H. F. ADDISON, M. B., Demonstrator of Normal Histology.

SAMUEL H. GILLILAND, V. M. D., M. D., Demonstrator of Veterinary Medical Diagnosis.

ORGANIZATION, AIMS AND EQUIPMENT.

The importance of establishing a Department of Veterinary Medicine in connection with the University was originally urged by Dr. Benjamin Rush as far back as 1807, but no definite steps were taken to found such a department until the academic year of 1883-84, when a suitable site was procured, the necessary buildings erected, and a dean and faculty created.

The Department aims to provide a thorough education in all that pertains to Veterinary Medicine. At every step the student is drilled under personal guidance in all the practical and technical details of the profession. Too much stress cannot be laid on the importance of thus combining theory and practice. It is solely by careful and extensive training in this way that the practitioner can meet the complex problems of Veterinary Pathology—problems which, owing to the absence of communication between practitioner and patient, demand highly trained powers of observation.

An important step in the development of the Department was taken recently when the Trustees of the University purchased a plot of ground on Thirty-ninth street extending from Woodland avenue to DeLancey street, and comprising 55,000 square feet. Plans are now almost completed for a thoroughly equipped building to accommodate the various divisions of the work of the Department.

For the present, the clinical work, farriery, dissecting and some lectures are provided for in a temporary building on Woodland avenue, east of Thirty-ninth street; while in the New Laboratories of the Department of Medicine unsurpassed facilities exist for the prosecution of practical work.

ADMISSION REQUIREMENTS.

Candidates who have received a collegiate degree, or who have passed the matriculate examination of a recognized college, or who hold a certificate covering the requirements stated below, from a recognized normal or high school, are admitted without examination.

Other candidates for admission are required: (1) to write an essay of about three hundred words, as a test of Orthography and Grammar; (2) to pass an examination in Elementary Physics (as in Gage's *Introduction to Physical Science*).

Graduates of recognized Veterinary schools requiring three years' attendance may enter the third year without examination. Students who have attended one or more sessions in a recognized Veterinary school will be allowed credit for time, but must pass an examination upon entrance.

Graduates of recognized colleges of Pharmacy are admitted to the first year without an entrance examination; and, on passing examinations in General Chemistry, Materia Medica and Pharmacy, are excused from attending lectures in those branches, and from performing the corresponding practical work in the Chemical and Pharmaceutical laboratories.

SCHOLARSHIPS.

I. STATE SCHOLARSHIPS.—There are twelve State scholarships, founded by the Trustees in 1839, and granted on nomination of the Governor of the Commonwealth to residents of Pennsylvania. They are open only to students entering the First-year Class, and entitle the holder to free tuition in the regular Veterinary course.

Candidates are subject to the same requirements for admission as other students. These requirements must be fulfilled, and the Governor's certificate of nomination presented, on or before October 1 of each year.

II. PUBLIC SCHOOL PRIZE SCHOLARSHIPS.—Under agreement with the city of Philadelphia, fifty free scholarships exist in the University for the benefit of graduates from the public schools. The candidates for these scholarships are examined by the Board of Public Education, and award is made to those who reach the highest grade in examination, whenever vacancies occur from year to year.

COURSE OF STUDY.

The course of instruction extends over three years, with one session beginning on the last Friday in September, and ending on the third Wednesday in June of each year. The following are the studies:

FIRST YEAR.—*General Chemistry, Physiological Chemistry, Materia Medica and Pharmacy, General Biology, Histology, Veterinary Anatomy, Horseshoeing and Botany.*

The examinations in *General Chemistry, General Biology, and Horseshoeing* are held about February 1. Examinations in all of the remaining studies are held at the end of the first year.

SECOND YEAR.—*Physiology, General Pathology, Practical Bacteriology, Veterinary Anatomy, Zoölogy, Veterinary Surgery, Theory and Practice of Veterinary Medicine.*

A mid-year examination in *Physiology* is held about February 1, and at the end of the year examinations are held in *Veterinary Anatomy, Physiology, General Pathology, Pathological Histology, Bacteriology and Zoölogy.*

THIRD YEAR.—*Therapeutics, Veterinary Surgery and Operative Surgery, Theory and Practice of Veterinary Medicine, Morbid Anatomy, Theory and Practice of Canine Medicine, Veterinary Sanitary Science, Jurisprudence, Obstetrics, Zoötechnics and Meat Inspection.*

Examinations at the end of the third year: *Theory and Practice of Veterinary Medicine, Veterinary Surgery and Operative Surgery, Jurisprudence, Obstetrics, Therapeutics, Zoötechnics, Theory and Practice of Canine Medicine, and Veterinary Sanitary Science.*

In the second year the student attends clinics, and serves as aid in the Hospital; in the third year he is placed in charge of sick animals, and is required to prepare clinical reports and make autopsies. He also makes visits to breeding and dairy farms, and to slaughter houses, in order to familiarize himself with the races of animals, the economical means employed in their care, and the varieties of butcher meat. Graduates of the Department of Veterinary Medicine are admitted to the Third-year Class of the Department of Medicine, with the understanding that they pass the examination for matriculation in the Department of Medicine in force at the time they enter the Department of Medicine, and that they perform the required amount of dissecting, and pass the examination in Human Anatomy. Of the third-year studies of the Department of Medicine, they are exempt from the practical work and examination in Pathology.

TEXT AND REFERENCE BOOKS.

FIRST YEAR.

CHEMISTRY.—Richter's Inorganic Chemistry; Medicus' Qualitative Analysis (fifth edition); Remsen's Organic Chemistry; Tyson's Practical Examination of the Urine; Ogden's Clinical Examination of the Urine; Hammarsten's Physiological Chemistry; Schimpf's Text-book of Volumetric Analysis.

MATERIA MEDICA AND THERAPEUTICS.—H. C. Wood; Winslow's Veterinary Materia Medica and Therapeutics; Mann's Prescription Writing.

ANATOMY.—Chauveau's Comparative Anatomy; Harger's translation of Goubaux and Barrier's Exterior of the Horse.

HISTOLOGY.—Piersol's Text-book of Histology.

PHYSIOLOGY.—American Text-book of Physiology; Robert Meade Smith's Physiology of the Domestic Animals.

HORSESHOEING.—Adams' translation of Lungwitz on Horseshoeing; Fleming; Dollar's translation of Leisering and Hartman's Foot of the Horse.

BOTANY.—Bessey; Gray's Lessons and Manual.

DICTIONARY.—American Pocket Medical Dictionary.

SECOND AND THIRD YEARS.

THEORY AND PRACTICE OF VETERINARY MEDICINE.—Friedberger and Froehner's Pathology and Therapeutics of Domestic Animals; Robertson's Practice of Equine Medicine; Williams' Principles and Practice of Veterinary Medicine; Fleming's Manual of Veterinary Sanitary Science and Police; Glass' translation of Müller's Diseases of the Dog.

SURGERY.—Moeller's Operative Veterinary Surgery; Fleming's Operative Veterinary Surgery; Hobday's Canine and Feline Surgery; Williams' Principles and Practice of Veterinary Surgery; Zundel on the Horse's Foot (translated by Liautard); Pfeiffer and Williams' Surgical Operations; Cadiot's Exercises in Surgery (translated by Bitting).

BACTERIOLOGY.—Abbott; Bowhill; Conn; Chester; Kitt.

ZOOLOGY.—Nicholson's Manual.

OBSTETRICS.—Fleming; Dalrymple; De Bruin's Bovine Obstetrics.

FIRST YEAR.—1905-1906. BEFORE FEBRUARY 1.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 to 10 A. M.	Adams. Horseshoe'g.					
10 to 11 A. M.	Marshall. Chemistry.	Marshall. Chemistry.	Chemical Laboratory. Section (b).	Chemical Laboratory. Section (a).	Chemical Laboratory. Section (b).	Chemical Laboratory. Section (a).
11 to 12 A. M.	Harger. Anatomy.	Harshberger. General Biology.				
12 to 1 P. M.			Adams. Horseshoe'g.		Harger. Anatomy.	Harger. Anatomy.
2 to 3 P. M.	Addison. Histology. Section (a). Muir. Materia Med & Pharmacy. Section (b).	Addison. Histology. Section (b).	Addison. Histology. Section (a).	Addison. Histology. Section (b). Muir. Materia Med & Pharmacy. Section (a).	Harshberger. General Biology.	
3 to 4 P. M.	Muir. Pharmacy Lecture.		Marshall. Chemistry.	Muir. Pharmacy Lecture.		
4 to 5 P. M.						
5 to 6 P. M.						
7.30 to 9 P. M.	Dissecting.	Dissecting.	Dissecting.	Dissecting.	Dissecting.	

FIRST YEAR.—1905-1906. AFTER FEBRUARY 1.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 to 10 A. M.						
10 to 11 A. M.		Dissecting.	Chemical Laboratory.	Harger. Anatomy.	Chemical Laboratory.	Harger. Anatomy.
11 to 12 A. M.	Marshall. Chemistry.	Marshall. Chemistry.				
12 to 1 P. M.	Harger. Anatomy.					Dissecting.
2 to 3 P. M.	Harshberger. Botany.		1.30 to 4. Addison. Histology.	1.30 to 4. Addison. Histology.	Harshberger. Botany.	
3 to 4 P. M.		Muir. Materia Medica and Pharmacy.				
4 to 5 P. M.			Dissecting.		Dissecting.	
5 to 6 P. M.						
7.30 to 9 P. M.	Dissecting.	Dissecting.	Dissecting.	Dissecting.	Dissecting.	

SECOND YEAR.—1905-1906. BEFORE FEBRUARY 1.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8 to 10 A. M.	Pearson. Clinic.	Adams. Clinic.	Harger. Clinic.	Pearson. Clinic.	Adams. Clinic.	Harger. Clinic.
10 to 11 A. M.	Pearson. Medicine.	Pearson. Medicine.	Adams. Surgery.		Adams. Surgery.	
11 to 12 A. M.	Harger. Anatomy.	Smith. Pathology. (11.30 to 12.30 P. M.)	Smith. Pathology. (11.30 to 12.30 P. M.)	Smith. Pathology. (11.30 to 12.30 P. M.)		
12 to 1 P. M.					Harger. Anatomy.	Harger. Anatomy.
2 to 3 P. M.	Harshberger. Zoology.					
3 to 4 P. M.	Adams. Surgery.	Physiology, Demonstrations. (1.30 to 4)	Pearson. Medicine.	Physiology. Recitation.		
4 to 5 P. M.	Reichert. Physiology.	Reichert. Physiology.		Reichert. Physiology.	Reichert. Physiology	
5 to 6 P. M.						
7.30 to 9 P. M.	Dissecting.	Dissecting.	Dissecting.	Dissecting.	Dissecting.	

SECOND YEAR.—1905-1906. AFTER FEBRUARY 1.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8 to 9 A. M.	Pearson. Clinic.	Adams. Clinic.	Harger. Clinic.	Pearson. Clinic.	Adams Clinic.	Harger. } Clinic.
9 to 10 A. M.						
10 to 11 A. M.	Pearson. Medicine.	Pearson. Medicine.	Adams. Surgery.	Harger. Anatomy.	Adams. Surgery.	Harger. Anatomy.
11 to 12 A. M.	Adams. Surgery.	Bergey. Gilliland. Bacteriology.	Bergey. Gilliland. Bacteriology.	Gilliland. Bacteriology.		
12 to 1 P. M.	Harger. Anatomy.					
2 to 3 P. M.		Physiology, Demonstr na.		Alburger. Pathological Histology.	Physiology, Demonstr na.	
3 to 4 P. M.			Pearson. Medicine.			
4 to 5 P. M.	Reichert. Physiology.	Reichert. Physiology.	Harshberger. Zoölogy.	Reichert. Physiology.	Reichert. Physiology.	
7.30 to 9 P. M.	Dissecting.	Dissecting.	Dissecting.	Dissecting.	Dissecting.	

THIRD YEAR.—1905-1906. BEFORE FEBRUARY 1.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8 to 9 A. M.	Pearson. Clinic.	Adams. Clinic.	Harger. Clinic.	Pearson. Clinic.	Adams. Clinic.	Harger. Clinic.
9 to 10 A. M.						
10 to 11 A. M.	Pearson. Medicine	Pearson. Medicine.	Adams. Surgery.	Conard. Obstetrics.	Adams. Surgery.	
11 to 12 A. M.	(11.30 to 1) Whitt. Morbid Anatomy.	Hoskins. Jurisprud'ce and Ethics.	Harger. Zoötechnics.			
12 to 1 P. M.						
2 to 3 P. M.			Glass. Canine Medicine.			
3 to 4 P. M.	Adams. Surgery.		Pearson. Medicine.	Operative Surgery.		
4 to 5 P. M.	Wood. Therapeu- tics.				Wood. Therapeu- tics	
5 to 6 P. M.	Andress. Meat Inspection.					

THIRD YEAR.—1905-1906. AFTER FEBRUARY 1.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8 to 9 A. M.	Pearson. Clinic.	Adams. Clinic.	Harger. Clinic.	Pearson. Clinic.	Adams. Clinic.	Harger. Clinic.
9 to 10 A. M.						
10 to 11 A. M.	Pearson. Medicine.	Pearson. Medicine.	Adams. Surgery.	Operative Surgery	Adams. Surgery.	
11 to 12 A. M.	Adams. Surgery.		Harger. Zoötechnics.		Conard. Obstetrics.	
12 to 1 P. M.	Heekins. Jurisprud'ce.				Conard. Milk Inspection.	
2 to 3 P. M.	2.30 to 4. White. Morbid	Glass. Canine Medicine.				
3 to 4 P. M.	Anatomy, Demonstr'ns.	Pearson. Medicine.				
4 to 5 P. M.		Wood. Therapeutics		Wood. Therapeutics		
5 to 6 P. M.	Andress. Meat Inspection.					

SUBJECTS OF INSTRUCTION.

The subjects of instruction offered by the Faculty of Veterinary Medicine are described below under the following heads: Chemistry; Materia Medica and Pharmacy; Physiology; General Biology; Botany; Zoölogy; Anatomy; Histology; Horseshoeing; Therapeutics; Pathology; Theory and Practice of Veterinary Medicine; Surgery; Obstetrics; Zoötechnics, and Veterinary Sanitary Science.

CHEMISTRY.

Instruction in Chemistry is confined to the first year of the course.

During the period from the beginning of the session until February 1, three lectures on general chemistry are given each week, in which theoretical chemistry, systematic chemistry, and the general principles of volumetric analysis are covered. The course in the chemical laboratory requires six hours' attendance, in two periods of three hours each in each week, from the beginning of the session until February 1. The course in the laboratory covers qualitative analysis, including the writing of equations, and acidimetry and alkalimetry.

During the period from February 1 until the end of the session, two lectures are given each week, in which physiological and pathological chemistry, urine analysis, and toxicology are covered. The course in the chemical laboratory requires six hours' attendance, in two periods of three hours each in each week, from February 1 until the end of the session. The course in the laboratory covers physiological and pathological chemistry, urine analysis, and toxicology.

MATERIA MEDICA AND PHARMACY.

Materia Medica is taught in a series of about thirty-five lectures by the Instructor in Materia Medica, and Pharmacy is taught by lectures and practical work in the Pharmaceutical Laboratory. These courses include the study of all the drugs and preparations in the U. S. Pharmacopoeia that are in use in Veterinary Medicine; with the addition of other remedies, the use of which is adapted especially to any one class of animals studied in Veterinary Medicine (Herbivora or Carnivora). The student is required to handle the various drugs, in order to recognize their physical characteristics; to make the ordinary pharmaceutical preparations, (infusions, tinctures, extracts, powders, balls, ointments and blisters); and is instructed practically in the manual required for the administration of remedies in powder, ball or fluid form to the Horse, Ox, Hog, and Carnivora.

During the second year, details of two students each, in alphabetical order, serve two weeks in the Pharmacy of the Hospital, and assist in compounding all the prescriptions used in the Department.

PHYSIOLOGY.

The course in Physiology consists of lectures and demonstrations, in which the chemical and physical processes and constituents of the animal body are considered, and the different functions traced from their appearance in the lowest animal forms to their highest development in the domestic animals and man. Especial attention is given to the nutritive functions in the domestic animal, rules being given for the adjustment of diet to the work required of the animal whether in beasts of burden, milk or wool producers, or in animals destined for food purposes. The lectures are fully illustrated by experiments, diagrams and tables. In connection with the course, the students are required to work in the Physiological Laboratory,

where they study the chemical properties and general characteristics of food-stuffs, the analysis of milk, the action of the digestive juices, etc., etc.

The Physiological Laboratory is fitted with the most approved instruments for physiological research, and opportunity is offered to advanced students for conducting original research under the immediate supervision of the Professor.

GENERAL BIOLOGY.

In this course students are given practical training in the methods employed in biological research. They are thus prepared to undertake the study of botany, zoölogy, histology, embryology, etc., without loss of time, and with considerable facility in the use of the instruments and processes required in these branches. This is especially true in the bearing of the training on the histological work that is required of veterinarians.

BOTANY.

The botanical instruction requires five hours each week during the first half of the first year.

Two objects are kept in view. The first is to give such a general idea of the anatomy and physiology of plants, of the principles of classification, and of the doctrines of evolution, as is essential to every one claiming to have a scientific education. This should be gained by the course of lectures in which these subjects are treated.

The second object is to train observers, as well as to teach the practical relation of forage plants, "loco" plants and noxious weeds, to the veterinary art. Special attention is paid to the study of the grasses, clovers and economic plants used as food for animals. It cannot be impressed too fully upon the student that, owing to the intimate relations between agriculture and veterinary medicine, his future prosperity and usefulness may be determined largely by his ability to recognize promptly plants known or supposed to be injurious to our domestic animals, as well as the weeds and useful forage plants met with in cultivated ground.

ZOÖLOGY.

General Zoölogy and Comparative Anatomy embrace the study of the animal kingdom; the organic cell, and its aggregates; a short account of the tissues, and their production; organs; their structure reproduction; general facts of embryology, metamorphosis, alterna-

tion of generation; systems of classification, the evolution theory, species and varieties; with a succinct account of the various groups of animals, their anatomy, development, and distribution.

ANATOMY.

The instruction in Descriptive Anatomy extends over two entire sessions, and embraces the study of the bones, articulations, muscles, digestive tract, respiratory apparatus, urino-genital organs, organs of circulation of the blood and lymph, nervous system, organs of special sense, and embryology of the Horse, the Mule, the Ass, the Ox, the Sheep and Goat, Hog, Dog, Cat and Poultry. Constant dissection is required. The horse is used as the type until the parts have been thoroughly learned, and the student is then given other animals, to learn existing differences. During the first year the dissections are made with special reference to the bones, articulations, and muscles, while the second year is devoted to blood-vessels and nerves. The dissections are under the supervision of the Professor of Anatomy, aided by the Demonstrators. A detail is made of students of the Second-year Class, who dissect in the laboratory of the Professor of Anatomy, and prepare the parts to be used in his lectures.

HISTOLOGY.

The laboratory is fitted with the most approved apparatus for microscopic and biological research. The anatomical elements are studied from the tissues of each of the classes of domestic animals included in the Veterinary Medicine.

HORSESHOEING.

The course in Shoeing for first-year students embraces about thirty lectures illustrated by charts, prepared hoofs and shoes, frequent visits to the shoeing forge, and practical demonstrations upon the living horse at rest and in motion. Instruction is given under the following headings: the foot; bones, joints, ligaments, tendons, blood-vessels, nerves, elastic structures, keratogenous tissues, and horn capsule. Foot in relation to the entire limb, direction of limb, form of foot and hoof, gait, growth of horn, and hoof mechanism. Trimming of hoof, making of shoe, fitting and nailing. Shoeing for interfering and forging. Winter shoeing. Hoof nurture. Pathological shoeing, pricking, nailing, calking, corns, laminitis, keraphyllocele; changes in form of the hoof, flat and dropped-sole, upright hoof, contracted heels, wry hoof, crooked hoof, ossification

of lateral cartilages; solutions of continuity of hoofs, clefts, cracks, loose wall, hollow wall, and thrush.

In addition to shoeing for lameness, a large amount of ordinary shoeing is done at the forges of the Hospital, affording ample experience in methods demanded by different classes of horses, and by the various forms of the horse's foot.

BACTERIOLOGY.

The course in Bacteriology consists of lectures and demonstrations to the students of the second year in which the elementary principles of the science are explained as well as the practical application of Bacteriology to Veterinary practice. Each student is assigned a place in the laboratory and is given the necessary apparatus and appliances to make it possible for him to familiarize himself with the methods of cultivating bacteria and of isolating them in pure cultures; the steps necessary for the identification of particular species of bacteria; the relation of bacteria to infection; and the methods of sterilization and disinfection. Special attention will be given to those bacteria which are concerned in animal pathology, and the methods of combating the diseases produced by these bacteria.

As far as time and available material will permit the student will be introduced to the important field of microbiology, especially to the organisms of the vegetable kingdom which are of a higher order and of greater complexity than the bacteria, and to the microscopic animal parasites which are concerned in animal pathology.

THERAPEUTICS.

This course, extending over one session of the Medical Department, is devoted especially to the physiological action of drugs.

PATHOLOGY.

Instruction in Pathology is given to the students of the Second-year Class. It consists of lectures: (1) on General Pathological Anatomy, in which are treated the degenerations, atrophy, hypertrophy, inflammations, and tumors; (2) on Special Pathological Anatomy, in which is considered the morbid anatomy of each organ of the body. In addition to this, the students are taught practical Pathological Histology in the Pathological Laboratory, and are given weekly demonstrations in Microscopic and Gross Pathology.

For the latter purpose there are always at hand a sufficient number of morbid specimens, both fresh and preserved.

THEORY AND PRACTICE OF VETERINARY MEDICINE.

The instruction in the Theory and Practice of Veterinary Medicine, completed in two years, is given under the following headings:

Origin of Veterinary Medicine; history of Veterinary Science and of Veterinary Schools; medical doctrines; classes of diseases; symptomatology, and clinical examination; diseases of the systems and groups of organs; general diseases, and contagious and zymotic diseases, with the laws of sanitary police in force in various parts of the United States and in Europe; parasitic diseases and helminths.

SURGERY.

This branch of Veterinary Medicine is taught to the Second and Third-year Classes by a graded course of didactic lectures, and by clinical instruction, extending over a period of two years.

One year is devoted to General Surgery, and comprises a course of about one hundred lectures. The remaining year is devoted to Special Surgery, and comprises about ninety lectures. In addition, the Second and Third-year Classes are given two hours of clinical instruction daily, from 8 to 10 A. M.

The Third-year Class is required to devote five hours of each week to Practical Operative Surgery, when the *modus operandi* of every operation likely to occur in veterinary practice is taught. Instruction in Bandaging and Dressing is given in connection with Operative Surgery.

OBSTETRICS.

A full course of instruction is given in this branch to the Third-year Class, about forty lectures being devoted to this subject. The instruction is mainly confined to demonstrations on the manikin; although, whenever possible, cases of natural labor are utilized to the best practical advantage.

ZOOTECHNICS

include the study of the origin and domestication of animals employed for profit by man, the laws of breeding and production, heredity, race characteristics, and individual impression, the effect of climate, ailment, work, and the means to be employed in the selection and handling of animals so as to derive from them the

most economical benefit, whether as milk or wool producers, or as articles of food.

VETERINARY SANITARY SCIENCE.

This branch is taught by lectures in which the following topics are discussed: origin of sanitary science; enzoötic, epizöotic and panzoötic diseases; influence of civilization and traffic on animal plagues; aptitude; immunity, contagion, infection and miasm; their origin, nature, diffusion, reception and mode of access; prevention and suppression of contagious diseases; general prophylactic, preventive and repressive measures; utilization of the carcasses. Disinfection and disinfectants. Inspection of meat: general physical and chemical properties of the meat of various animals used for food; principal qualities of meat; noxious and injurious meat; meat undergoing putrid decomposition; meat in constitutional or blood diseases; meat in cachectic conditions; meat infected with animal parasites; echinococæ, cysticercus, psorospermine and trichinæ. Meat infected with vegetable parasites; actinomycosis, anthracoid diseases, contagious pleuro-pneumonia, tuberculosis, etc. Inspection of milk: physical properties and chemical constituents of milk; adulterated milk and its detection; abnormal constituents of milk.

MUSEUM.

The Veterinary Museum has grown since the organization of the Department, both through the preparations made in the dissecting and post-mortem rooms and through the liberality of veterinarians.

HOSPITAL.

Third-year students are placed directly in charge of cases, and under direction of the House Surgeon, keep the clinical records, administer the medicines, attend to the surgical dressings; and are allowed, under the supervision of the Clinical Professors, to perform whatever operations are necessary, in so far as this can be done with perfect safety to the animal. Two students from the Third-year Class are assigned to reside in the Hospital and act as aids to the Resident Surgeon.

A detail from the Second-year Class assists in compounding all medicines used in the Hospital.

The large number of animals in the wards of the Hospital, and those from the extensive free dispensary practice of the Hospital treated at the clinic daily, from 8 to 10 A. M., furnish abundant material for clinical lectures and practical instruction.

EXAMINATIONS AND DEGREE.

Examinations are held in February and at the close of each year. These the student must duly pass before he is allowed to proceed to the studies of the next year. At the close of the course, and after passing a satisfactory examination, the student receives the degree of *Doctor of Veterinary Medicine* (V. M. D.).

PRIZES.

The J. B. LIPPINCOTT PRIZE of One Hundred Dollars is offered to the member of the Graduating Class who, in the three years spent in the Veterinary Department of the University, attains the highest general average in examinations.

A PRIZE of an Ecraseur is given by a friend of the Department to the member of the Second-year Class who passes the best examinations in Veterinary Anatomy.

TUITION FEES AND EXPENSES.

A matriculation fee of \$5.00 is charged to every candidate for admission. The tuition fee is \$100 per annum, of which one half (\$50.00) is due October 1, and one half (\$50.00), February 1. A fee of \$10.00 is added to the tuition fee of every student in the Veterinary Department for the privileges of the Gymnasium and Houston Club. This fee is payable in two equal parts, on October 1 and February 1. Remittances should be for the exact amount due, and should be in cash or by bank draft, certified cheque, or postal money order. Under no circumstances are any changes made in the established fees.

Each student is required to make a deposit of ten dollars (\$10.00) in the Bursar's office, to cover breakage in the Department. Any balance remaining at the end of the year is returned to the depositor. Material for dissection is charged for at the rate of \$1.40 a part. The fee for material used in operative surgery is in proportion to the amount of material used.

A penalty is added to fees not paid within thirty days of the time they are due. All fees are payable at the Bursar's office, Room 102, College Hall.

First Year.

Matriculation Fee	\$5 00
Tuition Fee	100 00
Use of Dissecting Material (about).....	6 00
Fee for Gymnasium and Houston Club	10 00
	<hr/>
	\$121 00

Second Year.

Tuition Fee	\$100 00
Use of Dissecting Material (about).....	6 00
Fee for Gymnasium and Houston Club	10 00
	<hr/>
	\$116 00

Third Year.

Tuition Fee	\$100 00
Use of Material for Operative Surgery (about)	10 00
Fee for Gymnasium and Houston Club	10 00
	<hr/>
	\$120 00

Books and instruments in the first year of the course will cost about \$28.00; in the second year, about \$25.00; and in the third year, including a case of surgical instruments, about \$31.00. All of the instruments used in the course will be required by the graduate in the practice of his profession.

For further information apply to

LEONARD PEARSON, Dean,
Logan Hall, S. E. cor. Thirty-sixth street and
Woodland avenue, Philadelphia.

Office hours, 8.30 A. M. to 12 M., daily.

VETERINARY HOSPITAL.

Thirty-ninth street and Woodland avenue, Philadelphia.

BOARD OF MANAGERS.

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HOSPITAL STAFF.

SIMON J. J. HARGER, V. M. D., Professor of Veterinary Anatomy and Zootechnics.

LEONARD PEARSON, B. S., V. M. D., Professor of the Theory and Practice of Veterinary Medicine.

JOHN W. ADAMS, A. B., V. M. D., Professor of Veterinary Surgery and Obstetrics.

ENOCH BARNETT, V. M. D., Resident Surgeon.

FRANK R. TROWBRIDGE, Clerk to the Hospital.

The VETERINARY HOSPITAL of the University of Pennsylvania is supplied with every facility for the handling and care of sick and injured animals of all kinds. Animals are admitted into the Hospital at any time, day or night.

* Deceased.

Two ambulances are provided for the conveyance of sick and lame animals, one for horses and the other for small animals. For this service the charges are made according to the distance traveled.

A free dispensary clinic is conducted by the members of the Hospital Staff daily, except Sundays, between 8 and 10 A. M.

The animals are under the professional care of the Hospital Staff and of the Resident Physician.

4185 animals were treated in the Hospital during the year ending August 31, 1905.*

A competent farrier is attached to the Hospital, who is prepared to do a limited amount of ordinary shoeing, in addition to shoeing for lameness; the latter *only* under the direction of the Hospital Staff.

* This number is smaller than usual, because the Hospital was burned in July, and was out of use the rest of the summer.

PART III

AUXILIARY DEPARTMENTS

UNIVERSITY LIBRARY.

CHARLES C. HARRISON, LL. D., PROVOST.

EDGAR F. SMITH, PH. D., Sc. D., LL. D., VICE-PROVOST.

MORRIS JASTROW, JR., PH. D., *Librarian*.

SUSAN W. RANDALL, *Assistant Librarian*.

The LIBRARY is one of the original Departments of the University, possessing among its treasures works presented to the Academy of Philadelphia in 1749; others purchased by a committee, of which Benjamin Franklin was chairman, in 1750; and still others given by the Rev. William Smith, D. D., first Provost of the College and Academy of Philadelphia; by Louis XVI.; and by other early friends and patrons. It now contains 244,856 catalogued volumes and upwards of 50,000 unbound pamphlets.

Special libraries obtained through gift or purchase form the basis of collections as follows:

Philosophy,
Spiritualism,
United States Laws,
Law,
Economics,
Philology,
Classical Literature,
English Literature,
Germanics,
Italian Literature,
Semitics,
Russian Literature,
American Languages,
Chinese and Japanese,

Chemistry,
Botany and Zoölogy,
Geology and Paleontology,
Mathematics,
Civil and Mechanical Engineering,
Medicine,
Agriculture,
Horsemanship,
American History,
Music,
Archæology and Ethnology,
Official Publications of the United
States and Foreign Govern-
ments.

The KRAUTH LIBRARY, founded by the Society of the Alumni in honor of the late Vice-Provost of the University, the Rev. Charles P. Krauth, D.D., and the BENJAMIN BARTIS COMEGYS, JR., LIBRARY, cover the subjects of Philosophy and Ethics.

Numerous and valuable additions to the collection in Philosophy have been made through a fund of \$1,750 presented by the College Class of 1889.

The HENRY SEYBERT LIBRARY of Modern Spiritualism embraces a large collection of works on that and cognate subjects.

The BIDDLE MEMORIAL LAW LIBRARY, founded in 1886, constitutes the library of the Department of Law, and occupies the entire second floor of the building of that department. The library was established by the family of George W. Biddle as a memorial to his three sons, George, Algernon Sydney, and Arthur Biddle. The original gift of five thousand volumes from the Biddle family was supplemented in 1897 by the presentation by Mrs. Arthur Biddle of over four thousand volumes which had formed the library of the late Arthur Biddle, Esq. Many valuable gifts have also been received from families and individual donors. Provision was made for the support of the library by a stipulation in the deed of gift that a certain proportion of the receipts of the Law Department should be devoted to the purchase of books for the Biddle Memorial Library each year. This wise provision has enabled the library to show a steady growth, the total number now being 33,311. This collection not only represents a complete working library for the undergraduate students, but it also offers to the graduate student a very valuable, and in some respects unique, collection of the earlier legal treatises published during the sixteenth and seventeenth centuries.

The BRINTON COXE LIBRARY, deposited by the late Brinton Coxe, and subsequently presented to the University, consists of several hundred works dealing largely with Constitutional Law.

The COLWELL LIBRARY, the munificent gift of the late Stephen Colwell, consists of over 7,000 volumes, and is an exceedingly rich and complete collection of works and pamphlets on Finance and Political Economy published before 1860. It is supplemented by the CAREY LIBRARY, the bequest of the late Henry C. Carey, which embraces many books of more recent date.

The CAREY LIBRARY is especially rich in statistics, European government reports, and the like, and includes about 3,000 English pamphlets, bound in chronological order, and covering the period from the close of the seventeenth century to our own time.

The ALLEN LIBRARY includes about 5,000 volumes relating to Bibliography, Greek and Latin Literature, Military Science, and Shakespeare, selected with great care by their former owner, the late Professor George Allen, LL. D., of the University.

The **POTT LIBRARY**, purchased by private subscription, embraces the philological library of the late Professor F. A. Pott, of the University of Halle, and contains about 4,000 works, representing almost every language and dialect of any prominence.

The **LEUTSCH LIBRARY**, likewise purchased by private subscription, comprises the classical library of the late Professor Ernst von Leutsch, of Göttingen. It contains about 20 000 volumes, and is one of the best classical collections in this country.

The **WYLIE LIBRARY**, presented by the executors of the late Rev. Dr. T. W. J. Wylie, consists of about 350 works, chiefly old editions of the Greek and Latin writers.

The **J. B. LIPPINCOTT LIBRARY**, founded by the family of the late J. B. Lippincott, embraces an ever-growing collection of books on English Literature. A special fund has been secured by private subscription for the purchase of early editions of old English plays.

The **BECHSTEIN LIBRARY**, comprising books relating to Germanic Philology and Literature, contains about 15,000 volumes and pamphlets. This collection, which belonged to the late Professor R. Bechstein, of the University of Rostock, is particularly rich in standard editions of the works of all the representative German writers from the beginning to the present time. The special features of the collection are reviews and publications of learned societies (including about fifty complete sets), and a unique collection of about 3,000 pamphlets relating to German Philology and Literature.

The **FRANCIS C. MACAULEY LIBRARY** bequeathed by him to the University, comprises a most valuable collection on Dante, Petrarch and Tasso, besides a large number of Italian, Spanish and Portuguese works, amounting to about 5,500 bound volumes, pamphlets and periodicals. The Dante collection ranks second of those in this country.

The Library of Semitic Philology and Literature, comprising collections in Arabic, Assyrian, Hebrew and Semitic Epigraphy, has been augmented by the purchase of the greater portion of the library of the late Professor C. P. Caspari, of Copenhagen, which was especially rich in older works dealing with Hebrew and the Old Testament, Church History and Christian Theology. The nucleus of a manuscript collection has been formed through the purchase of some Arabic and Ethiopic manuscripts.

The **MARCUS JASTROW MEMORIAL LIBRARY**, presented to the University in memory of the late Rev. Marcus Jastrow, Litt. D., consists of about 1,500 volumes, covering chiefly Hebrew and Rabbinical literature.

The McCARTER LIBRARY, presented by the late Dr. D. B. McCartee, comprises nearly 1,000 volumes in Chinese and Japanese, and over 200 in European languages concerning the history and literature of China and Japan.

The BRINTON LIBRARY, presented by the late Professor Daniel Garrison Brinton, consists of over 4,000 bound volumes, and about 1,000 bound pamphlets. It deals chiefly with the languages and archæology of Mexico and Central and North America, but also contains numerous works on Physical Anthropology, Ethnology and General Archæology. A unique feature of this library is the Berendt collection of 183 manuscripts, constituting original sources for the study of American languages.

The TOWER LIBRARY, presented by the Hon. Charlemagne Tower, consists of about 2,300 volumes in Russian, covering chiefly the fields of Literature and History.

The FRAZER LIBRARY, presented by pupils and friends of the late Professor John F. Frazer, consists of about 1,000 volumes on Chemistry, Physics and Astronomy.

The WETHERILL LIBRARY consists of works on Chemistry.

The HAYDEN, LEIDY AND RYDER LIBRARIES comprise several thousand works on Geology, Paleontology, Zoölogy and Botany.

The valuable Biological library of the late Professor E. D. Cope was, by his will, conveyed to the University. It includes about 3,000 volumes, and is especially rich in works of Vertebrate Anatomy and Paleontology.

The BARTRAM MEMORIAL LIBRARY, collected by the John Bartram Association, and presented to the University, consists at present of about 150 works on Botany.

The KENDALL LIBRARY of Mathematics, consisting of several hundred volumes, was presented by the late Professor E. Otis Kendall.

The EVANS ROGERS LIBRARY is composed of standard works on drawing, mathematics, astronomy, physics, surveying and explorations; as well as of technical works on roads, strength and properties of materials, railroads, tunnels, canals, water-supply, drainage, architecture, mechanics, navigation, harbor improvements, and park and landscape engineering. It contains also a valuable collection of reports of American, English and French Engineering Societies, periodicals, coast survey and hydrographic charts, maps, diagrams and drawings.

The STILLÉ LIBRARY, presented by the late Dr. Alfred Stillé, and the WILLIAM PEPPER LIBRARY, representing purchases out of a fund

presented by the late Dr. William Pepper, embrace about eight thousand works on the subject of Medicine.

The RUSH S. HUIDEKOPER LIBRARY on Veterinary Medicine, presented by Dr. Thomas B. Rayner, in memory of his son, Moncure R. Rayner, and consisting of about 2,000 volumes, embraces sets of important periodicals, standard works and numerous monographs on Veterinary Medicine and Surgery.

The LIBRARY of the PHILADELPHIA SOCIETY FOR PROMOTING AGRICULTURE, the oldest organization of the kind in the United States, consists of about 700 volumes, many of them now rare, pertaining to agriculture. It was presented by the Society to the University in 1888.

The Medical Library of the WEST PHILADELPHIA MEDICAL LIBRARY CLUB, presented by the Club to the University, consists of sets of important medical periodicals, and a large number of separate works covering the various branches of Medicine.

The FAIRMAN ROGERS LIBRARY, presented by the late Fairman Rogers, consists of a large and valuable collection of works on Horses and Equitation.

The HENRY MORTON LOVERING, JR., Memorial Collection, presented by Mrs. J. Hartley Merrick, consists of violonçello scores, to which additions are made from time to time.

The collection of books relating to American History and Institutions consists of about 12,000 volumes, classified and arranged as follows: National Documents—a practically complete legislative record of the Government of the United States, 1789 to date; State Documents; Canadian Public Documents, 1843-1890; Municipal Ordinances and Documents of American Cities; the Laws of the States and Territories, 1840-1890; the Laws of the United States; the John A. Jameson Library of American Constitutional Conventions, Debates, Journals, etc.; the Robert Purvis Collection of Anti-Slavery Literature; the Friends' Library; works on American History and Government; and a collection of pamphlets and newspapers.

The CHARLES J. STILLÉ LIBRARY of Medieval and General History embraces a portion of the historical library of the late Dr. Stillé (Provost of the University of Pennsylvania, 1868-1880), to which additions are made from a special fund contributed by Mrs. C. J. Stillé.

The LAMBORN LIBRARY, deposited by the late Dr. Robert H. Lamborn, and subsequently presented by his heirs, consists of about 2,500 volumes on ethnology, travels and archæology. It

contains a large number of very valuable and rare works, and is especially rich in books pertaining to the antiquities of Mexico.

The **HOUGH** Collection, forming part of the library of the late Dr. J. Stockton Hough, and purchased by private subscription, consists of 1,900 volumes, and is of special value in its bibliographical and biographical sections.

The **WILLIAM CAMAC** Memorial Collection, presented by his son, William Masters Camac, Esq., consists of certain Arabic and Hebrew manuscripts, and a number of rare and curious books of a miscellaneous character.

Large additions have been made to the University collections of public documents of foreign countries. Among the more important may be mentioned a complete set of Hansard's Parliamentary Debates, presented by the Hon. William Potter; an extensive collection of English government publications purchased out of a special fund given by Miss Mary K. Gibson; 900 volumes of French legislative documents; and the entire proceedings and other documents of the Reichstag since the founding of the German Empire.

Valuable additions have been made to the department of history and literature from the income of the **TOBIAS WAGNER LIBRARY FUND**, given to the University in memory of a deceased Trustee.

The **ISAAC NORRIS LIBRARY**, representing purchases out of a fund given by Mrs. Mary Cochran Norris, comprises a steadily increasing number of books on various subjects.

The **CRAWFORD LIBRARY**, the gift of Major-General Samuel Wylie Crawford, M. D., LL. D., consists of about 1,000 volumes on a great variety of subjects, literary, scientific and historical.

The **ZELOSOPHIC SOCIETY** of the University (founded 1829), has presented its collection, consisting of about 400 volumes, to the University Library.

Mrs. Julia Biddle bequeathed to the University the library of her husband, the late **THOMAS A. BIDDLE**. It consists of nearly 1,800 volumes of standard English and French Literature, including many handsomely illustrated works.

The Library is also engaged in an effort to collect publications and memorabilia bearing on the history of the University. In this effort it has been assisted by Dr. William Pepper, who has from time to time presented early and rare publications of professors and others connected with the institution, and also by Mr. J. Hartley Merrick, who has presented an almost complete file of undergraduate periodicals and journals issued during the past thirty years.

In exchange for copies of various University publications, the

Library is in annual receipt of a large number of periodicals, and of periodical publications and monographs of learned societies in various parts of the world, as well as the journals, dissertations and scientific contributions of the leading educational institutions in this country and abroad. In addition, the Library receives as a depository the documents and publications of the United States Government, and from foreign governments likewise official publications in considerable numbers. The reports of all the important railroad corporations and banking associations are forwarded to the Library; and arrangements have been made to receive regularly state documents and official reports of the more important municipalities in the United States and Europe. The Library has also been made a depository for the printed catalogue cards of the Congressional Library, which are kept in separate catalogue cases.

The Library is open daily, except Sundays and holidays, from 8.30 A. M. to 10 P. M. (during the summer vacation, 9 A. M. to 5 P. M.), and the Seminary rooms in the Library building till 11 P. M.; and both professors and students (the latter upon presenting their matriculation cards) are permitted to take out books. Graduates of all departments of the University, and other persons recommended by officers of the University, are granted the same privilege, on the annual payment of three dollars. The Library is open freely to the public for consultation, including the unrestricted use of its collections within the library building.

WISTAR INSTITUTE OF ANATOMY AND BIOLOGY.

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The origin of the Wistar Institute was due to the efforts of the University of Pennsylvania and the late General Isaac J. Wistar to secure a permanent home for the anatomical museum originally instituted by Dr. Caspar Wistar in 1808-1818, to provide for its conservation and growth, and to establish a laboratory for advanced researches in anatomy and biology.

In 1892 a charter was secured by General Isaac J. Wistar, of Philadelphia, from and under the laws of the Commonwealth of Pennsylvania, conferring perpetual incorporation, with the right of perpetual succession and a corporate seal, upon a corporation to be called "The Wistar Institute of Anatomy and Biology."

The museum commonly known, for many years, as the Wistar, or Wistar and Horner, Museum and a plot of ground were presented by the University of Pennsylvania to the Wistar Institute.

A modern fireproof building was erected in 1893, and an addition in 1897, costing in all about \$170,000. An endowment yielding an annual income of about \$40,000 was established. The buildings and endowment were gifts of General Isaac J. Wistar, and by his will the Institute becomes the residuary legatee to his estate, thus insuring a most promising and stable future.

The Wistar Institute was established as a corporation to serve all universities alike in the encouragement of original scientific research in anatomy and biology. Its laboratories and collections are open to investigators from all institutions, and to private individuals, who are capable of making proper use of its advantages, without reserve and without cost. No undergraduate teaching of any kind is permitted.

The Wistar Institute publishes no regular catalogue or annual announcement, but its aims, facilities, reports and information which may be of interest to investigators in the promotion of this department of science will be published from time to time in the Bulletin of the Wistar Institute. This Bulletin may also contain information upon new methods, special apparatus, calls for material, offers of material, exchange of duplicate specimens as well as preliminary reports of monographs and such other scientific papers as may be expected of a *central anatomical institute*.

In April, 1905, at the suggestion of the Director and with the approval of General Wistar, the donor, a broad and liberal step was taken by the Board of Managers. Invitations were issued by the Managers to ten leading American anatomists to meet at the Institute and discuss its future activity. The result of this conference was to organize an Advisory Board of Anatomists of the Wistar Institute, with authority to recommend to the Institute methods for the promotion of research anatomy and the organization of a central anatomical institute or "clearing house" for anatomy in America.

The Advisory Board recommended that the chief aim of the Institute be research; that the research should be in Neurology, Comparative Anatomy and Embryology; that research chiefs be appointed in one or more of these branches, and that relations be established with individual anatomists and American and European organizations whose aims were similar in the promotion of collective and co-operative investigation.

The organization of the present staff is a beginning in accordance with this advice. Collective and co-operative research is encouraged and directed by the Advisory Board. Three members of this Board, namely, Drs. Minot, Donaldson and Mall, are members of the Central Commission of the International Association of Academies for Brain Investigation, thus placing the Institute in close touch with the work abroad.

At present the Institute does not undertake any independent publications but will utilize, so far as possible, the existing scientific journals.

The Institute will act as conservator of series of specimens or other material already studied which should be preserved for future reference, and which may for this reason be presented to the Institute. It is hoped that individual workers and institutions will assist in the collection of research materials, and that this Institute may act as a store-house and exchange bureau for materials of this class.

It will send out to investigators in other laboratories material for research work, which it may have in its museum or collect and prepare such material whenever this is possible.

Communications relative to any research work in anatomy for which materials or laboratory facilities may be desired may be addressed to the Director of the Institute in Philadelphia..

LABORATORY OF HYGIENE.

CHARLES C. HARRISON, LL. D., PROVOST.

EDGAR F. SMITH, PH. D., Sc. D., LL. D., VICE-PROVOST.

Director.—ALEXANDER C. ABBOTT, M. D.*

First Assistant.—DAVID H. BERGEY, A. M., M. D.

First Assistant in Bacteriology.—NATHANIEL GILDERSLEEVE,
M. D.

Second Assistant in Bacteriology.—JAMES B. RUCKER, JR., A. M.,
M. D.

Third Assistant in Bacteriology.—SYLVESTER J. DEEHAN, M. D.

THOMAS A. SCOTT *Fellow in Hygiene.*— — —

The LABORATORY OF HYGIENE of the University of Pennsylvania was formally opened on February 22, 1892. The building was the gift of Mr. HENRY CHARLES LEA, of Philadelphia, and the equipment was provided through the munificence of the late HENRY C. GIBSON, of Philadelphia.

COURSES OF INSTRUCTION.†

I. COURSE IN PRACTICAL HYGIENE.

The course in Practical Hygiene consists of laboratory work upon the following subjects:

(1) The atmosphere, climate and meteorological observations and records, chemical analysis, bacteriological investigation, methods of investigation, methods of ventilation and heating.

(2) Water—physical, chemical and bacteriological investigations of water-supplies; methods of obtaining samples: qualitative and quantitative analysis for impurities; collection, storage, and purification of water intended for domestic use; effects of filters, aeration, etc.

(3) Sewage disposal, sewers, house drainage and the air of sewers.

* Absent on Public Business.

† All applications for admission to these courses should be addressed to the Director, Laboratory of Hygiene, University of Pennsylvania.

- (4) Disposal of refuse, cremation of garbage, etc.
- (5) Soils and building sites, physical, chemical and bacteriological investigation, soil and moisture, ground air.
- (6) Foods—adulteration, milk and meat inspections.
- (7) Clothing—microscopic examination, poisonous dyes.
- (8) Management of contagious diseases. Practical tests of different methods of disinfection, chemical and thermal; notification, isolation and quarantine.
- (9) Vital statistics, registration and methods of tabulation.
- (10) Offensive and dangerous trades.

The above course of instruction begins February 1 and ends April 1. It occupies five days in each week from 9 A. M. until 12 M. The course will not be given to less than five applicants. In order that persons taking the course may derive the greatest benefit from it, it is desirable for them to possess a practical familiarity with methods of chemical analysis. It is also advisable that those who take the course attend at the same time the lectures on General Hygiene that are arranged for the fourth-year students of the Medical Department. These lectures are given twice a week from February 1 to the end of the session, and cover topics of general sanitary importance, including:

A consideration of the factors concerned in the direct causation of disease, and the manifold conditions of life that indirectly favor the occurrence of disease among individuals, groups of individuals and communities.

A brief sketch of the important transmissible and epidemic diseases, embracing a discussion of their modes of transmission, portals of infection, geographical and seasonal distribution, and the approved methods of prevention.

A consideration of prophylaxis in general, embracing disinfection and disinfectants, protective vaccination and the anti-toxic state, the disposal of the dead after infectious diseases, and quarantine.

The atmosphere, from the chemical, physical and biological standpoints; the air of enclosed spaces; the problems of ventilation and heating; the various pollutions of the atmosphere, such for instance as those from the soil, from industries, from sewers, etc., and their influence on health and disease.

Water—its sanitary significance; the characteristics of waters from various sources and their suitability to domestic needs; the pollutions to which waters from different sources are liable; the biological significance of these pollutions; interpretations of the

results of analysis; natural and artificial purification of waters; the relation of water to health and disease.

Sewage—the part taken by the soil and its constituents in the disposal of organic waste; the characteristics of sewage from different sources; the various methods for the disposal of sewage; the influence of sewage disposal upon the health of communities.

II. ELEMENTARY COURSE IN BACTERIOLOGY.

This course covers the following subjects:

(1) Apparatus employed—sterilizers, incubators, pressure regulators, thermostats, etc.

(2) Culture media, methods of preparation, sterilization methods.

(3) Microscopic characteristics of cultures of bacteria in general and of special forms.

(4) Methods of obtaining, from mixtures of different bacteria, individual species in pure cultures.

(5) Microscopic technique. Use and care of instruments, staining from cultures, section cutting, and staining and mounting of tissues.

(6) Pathogenic bacteria isolation, identification and inoculation.

(7) Disinfection, thermal and chemical, methods and apparatus, modes of testing efficiency.

(8) Bacteriological investigation of water.

(9) Bacteriological investigation of air.

(10) Bacteriological investigation of soil.

This course begins on the first Monday in May and continues eight weeks, five days a week, from 9 A. M. till 12 M.

III. RESEARCH IN ADVANCED HYGIENE AND BACTERIOLOGY.

Opportunities for research work in Advanced Hygiene and Bacteriology are offered to students having the requisite preliminary training. All work coming under this head is done under the direct supervision of the Laboratory staff.

FEES AND DEPOSITS.*

Tuition fees are as follows: For Course I, thirty-five dollars (\$35.00); for Course II, twenty-five dollars (\$25.00); for Course III,

* See also later pages, under Part V of this Catalogue, "Financial Obligations."

twenty-five dollars (\$25.00). For Courses I and II taken in succession with the privileges of the Laboratory and attendance upon lectures on Hygiene, the fee is fifty dollars (\$50.00).

All payments must be made in advance to the Bursar of the University, Room 102, College Hall.

All students taking courses, or otherwise working in the Laboratories, must make a deposit of ten dollars (\$10.00) in addition to the regular fee, to insure the Laboratory against loss by breakage, etc. All accounts held by the Laboratory against students for breakage, and materials used, will be deducted from the caution deposit, the balance being returned to the student at the end of the course (unless otherwise arranged).

GENERAL REGULATIONS.

Persons who have had courses in the Laboratory and demonstrated their capacity for independent work, or those who come from other laboratories with proper recommendations, and who desire to pursue special researches coming within the scope of this Laboratory, can obtain the privilege of working in the Laboratory by the payment of the necessary fee. This does not include attention from the instructors for any definite time, but pays only for the place in which to work. The Laboratory reserves the right to refuse these privileges to any one who is not prepared to pursue independent studies of the proper character. Individuals to whom these privileges are granted must submit to the rules and regulations of the Laboratory. They will make the usual caution deposit and pay the regular prices for materials.

Should the work of an independent student be of such a nature as either to advance the teaching or to contribute to the value of researches being conducted as the property of the Laboratory, the Director may offer to such student the privileges of the Laboratory without the payment of the regular fee, providing the work of the student is placed at the disposal of the Laboratory. Due credit will be given to the student for his work thus utilized.

Only those students who give evidence of fitness to profit by the courses will be received. It is desirable that students should have some practical knowledge of chemical manipulation and of the use of the microscope, before applying for places in the Laboratory.

The rules of the Laboratory as to order and discipline must be observed, and the right is reserved to request the withdrawal of any student who may not obey them.

THE THOMAS A. SCOTT FELLOWSHIP.

Since the opening of the Laboratory this Fellowship has been founded and generously endowed by Mrs. Scott as a memorial of the late Thomas A. Scott, Esq., of Philadelphia. Its object is to aid talented students who desire to become investigators or teachers in the field of sanitary science, and to promote the increase of knowledge in that field.

The power of appointment to this Fellowship rests with the Corporation, who will act upon recommendation made to it by the *Electors to the Fellowship*, comprising the Provost of the University, the Chairman of the Committee of the Corporation on the Department of Medicine and Allied Schools, and the Director of the Laboratory.

The salary attached to the position is the annual income arising from \$10,000, the amount of endowment of the Fellowship.

GENERAL REGULATIONS.

1. Applications should be made in writing to the Provost of the University not later than June 1 of the elapsing year. The academic year begins on the last Friday in September.

2. The holder of the Fellowship shall not be more than thirty years of age at the time of his appointment.

3. The application must be accompanied by evidence of a liberal education, such as the diploma of a college of good repute (the appointment being regarded as an equivalent to the baccalaureate degree). The applicant is required to possess a reading knowledge of French and German, and to have performed practical work in this Laboratory, or to give evidence of the completion of a previous research elsewhere, such as will meet with the approval of the Electors.

4. The holder of the Fellowship will be expected to perform such duties as may be allotted to him by the Director of the Laboratory in connection with his course of study; to act, when called upon, as assistant examiner; to use his influence for the promotion of the objects and good order of the department; and, in general, to forward the efficiency of the University as far as may be in his power.

5. The primary purpose of the Fellowship is the prosecution, under the direction of the head of the department, of special studies relating to the causation and prevention of disease. Before the close of the year the Fellow is required to demonstrate the progress he has made by presenting a thesis upon the results of his

research; by the delivery of special lectures bearing upon the subject of his investigations; or by some similar method that will be satisfactory to the Electors.

6. While holding the Fellowship he will not be permitted to engage in any work other than that directly bearing upon the interests of the department.

7. All work performed is to be considered the property of the Laboratory, and to be published only with the consent and approval of the Director.

8. The Fellow is not called upon to aid in the routine teaching of the Laboratory. He may be requested to deliver a brief course of special lectures upon the subject of his research, providing such lectures would materially aid in the work of the department. While holding the Fellowship he will not be permitted to engage in teaching in any other institution or in any work not bearing directly on the University's interest.

9. He may be reappointed at the end of the year, but only for exceptional reasons.

10. The holder is exempt from tuition fees. In case of resignation, promotion or removal from the Fellowship, payments will be made for the time during which the office shall have been actually held.

11. The Electors have the right to declare the Fellowship vacant if the holder prove in their opinion unworthy, and no further salary shall be paid to the person thus removed.

THE FLOWER ASTRONOMICAL OBSERVATORY.

CHARLES C. HARRISON, LL. D., PROVOST.

EDGAR F. SMITH, PH. D., SC. D., LL. D., VICE-PROVOST.

CHARLES L. DOOLITTLE, C. E., SC. D., FLOWER Professor
of Astronomy, and Director of the Observatory.

ERIC DOOLITTLE, C. E., Assistant Professor of Astronomy.

The Astronomical Observatory is situated on the "Flower Farm," a gift to the University by the will of the late Reese Wall Flower, about two miles beyond the city limits, on the West Chester Turnpike. The Observatory buildings are three in number, viz.: the equatorial building, of brick; the meridian building, of wood; and the residence of the Director: one wing of the latter containing the Astronomical library, the office and computing rooms. The principal instruments comprising the equipment are: an Equatorial of 18-inch aperture, with Spectroscope; a Meridian Circle of 4-inch aperture; a Zenith Telescope of 5½-inch aperture; and a 3-inch Universal Transit. A Reflex Zenith Tube of 8-inch aperture has recently been installed, the gift of Mr. Joseph Wharton. It will be known as the Wharton Zenith Tube.

Graduate students in Practical Astronomy are instructed in the details of observatory practice, and participate in the regular work, which includes systematic observation of comets, small planets and double stars, in investigation of variation of latitude, and spectroscopy.

There is a small working observatory situated on the University grounds in West Philadelphia, for the convenience of undergraduates taking the course in Practical Astronomy. This building is equipped with a Transit Instrument, a 4-inch Equatorial and a Sidereal Clock. The Equatorial and Clock were presented by Mr. Horace Howard Furness, Jr.

The Flower Observatory is open to visitors every Thursday evening, holidays excepted, between the hours of 7 and 10 P. M.

DEPARTMENT OF PHYSICAL EDUCATION.

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J. LEONARD MASON, *Instructor in Gymnastics.*

F. HOMER CURTISS, *Assistant Instructor in Gymnastics.*

ELLIS F. WARD, *Instructor in Rowing.*

MICHAEL C. MURPHY, *Instructor in Track and Field Athletics.*

GEORGE KISTLER, *Instructor in Swimming.*

LEONARDO TERRONE, *Instructor in Fencing.*

At a meeting of the Board of Trustees, held in May, 1904, it was resolved that the course in Physical Education be made an integral part of the University curriculum. The following regulations were subsequently adopted and are now in force:

The Gymnasium fee will be collected from all undergraduates of the University, except those of the Department of Philosophy, those taking special post-graduate work in the Department of Dentistry, and those taking Teachers' Courses or the course in Music in the College.

The Bursar's receipt entitles the holder to the use of the Gymnasium, shower-baths, swimming-pool and Franklin Field, except when any or all of them are specially reserved, as, for example, in the case of intercollegiate games. Due notice of such reservation will be posted on the bulletin boards at the Gymnasium.

Every locker holder is entitled to a physical examination, including his measurements, a strength test, an examination of his heart, lungs, and general condition, with a special examination of his eyes. On the basis of this examination the kind and amount of exercise best adapted to his needs are outlined, and class

instruction is given as arranged in the roster at the beginning of the college year.

In the following cases a certain minimum amount of gymnastic or athletic work is required, for which the student receives credit on the basis of laboratory work counting toward his degree. In all other cases the work is optional.

THE COLLEGE.—Two periods a week are required in the College, lasting one hour each, of all full students, and of partial and special students as provided by a special form; the work to be graded and made progressive throughout the four years.

PROFESSIONAL SCHOOLS.—The same amount of work is required from members of the first and second year classes in the Department of Medicine, and from members of the first year classes in the Departments of Law, Dentistry, and Veterinary Medicine.

Exceptional cases may be excused from this requirement when approved jointly by the Director of the Department of Physical Education and the Dean of the Department; and also the following cases:

First, all full students who have, in the opinion of the Director of the Department of Physical Education, had an equivalent amount of work at this, or another, university or college.

Second, holders of a *college degree* in *Arts* or *Science*.

Third, those having some physical disability.

Membership, and regular attendance at the practice, of any of the athletic squads of the University is taken as an equivalent for gymnasium work while the man is in active training, *the attendance being reported weekly*.

FACILITIES AND EQUIPMENT.

I. The UNIVERSITY GYMNASIUM, recently completed and presented to the Trustees by a committee of the Alumni.

The main exercise hall, 144 by 68 feet, is well lighted by a roof of glass, and has a specially designed system of ventilation, thus ensuring a constant supply of fresh air. The iron-work overhead gives attachment to the heavy apparatus. The equipment is so arranged as to be quickly put in place or hoisted out of the way, leaving a clear floor space for large classes; while the floor can be divided into three equal spaces by nets, so as to permit the playing of games in which balls are used without interfering with other work. A small spectators' gallery occupies each end.

On the same floor are two rooms, one at each end, with 1500 ex-

panded metal lockers, and space for more than twice that number, and two small dressing-rooms, with shower-baths, for the members of the Faculty and graduates. On the floor beneath are the towel-rooms and shower-baths. The floor below the exercise hall is occupied by the swimming-pool, the rowing-room, and two boxing, fencing and wrestling-rooms.

The pool, 100 by 30 feet, is supplied by a continuous stream of filtered water, which is completely changed once a week. It is commanded on three sides by a spectators' gallery. All the apparatus for teaching swimming is supplied, and the Instructor or his assistant is always in attendance.

The Rowing-Room, 75 by 30 feet, is used as an accessory gymnasium, with sixteen machines on which the crew do their winter training; and in it are found special appliances for corrective work. The two rooms, 30 by 30 feet each, at either end of the Rowing-Room, are fitted with all the appliances for teaching boxing, fencing and wrestling.

The Director's office and examining rooms are situated in the north wing, while the corresponding rooms of the south wing contain the offices and committee rooms of the Athletic Association.

The basement of each wing is taken up by the special 'Varsity dressing-rooms, baths, drying-rooms, repair shop and Instructor's rooms.

II. FRANKLIN FIELD, situated to the east of the gymnasium building, and overlooked by it. It is encircled by a $\frac{1}{4}$ -mile cinder path and has permanent stands of brick on its north, east and south sides, capable of seating 20,000 spectators. Beneath them are the squash courts and an in-door running track. The stands are connected to the north and south wings of the gymnasium building by brick arches, spanning the entrances to the field.

INSTRUCTION.

Instruction is given in both the theory and practice of Physical Education.

The theoretical instruction, which is in process of organization, will include courses offered to students who have had two years of medical training, on the application of Anatomy and Physiology to exercise, and the many questions with which it is allied, such as blood pressure, strain, fatigue and exhaustion. Anthropometry as applied to the laws of growth and development in children, and to the variation in measurements that can be produced by system-

atic exercise. The tests employed in determining the efficiency of hearing and of sight. Lectures and demonstrations on school hygiene and sanitation. The application of exercise to such conditions as curvature of the spine, locomotor ataxia, disturbances of nutrition, and backward development in its various phases. With the co-operation of other departments, these courses will be designed to give a training that will enable a graduate to install and supervise a system of physical training in public schools and colleges. Students taking this course are given an opportunity for practical experience in instruction by appointment as class leaders in floor work, and assistants in the physical examinations.

The practical work of the department applies to the general student body. A careful medical examination, including a thorough test of the sight, is made of all men coming under the regulations on entering college. A series of measurements is taken, particular stress being laid on those which can be changed by judicious exercise; while tests are made also of the strength of the legs, back and shoulders, chest, arms and forearms. On the basis of the information obtained at this examination the students are divided into three classes according to their physical condition. (a) Those who are below the normal are given special work to remedy or correct such defects as scoliosis, flat-foot, weak chest, round shoulders, etc., which are susceptible to improvement by prescribed gymnastic exercise. (b) For the average man a regular gymnastic course is given, beginning with light free-hand movements, and going forward by easy and progressive steps to the most advanced work on the whole range of gymnastic apparatus. For men who are representing the University on the athletic field, or who are trying for any of the teams or crews, credit is given on the basis of gymnastic work while they are "in training." When not "in training," an equivalent amount of gymnastic work will be required of all who come under the rule for required work.

All candidates for teams or crews must pass a satisfactory medical examination by the Director before being considered eligible to represent the University.

Proficiency in swimming is required of all the candidates for crews, and it will be taught to all students of the first year.

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	STUART WOOD.

The MUSEUM OF ARCHÆOLOGY was organized in 1889 to provide for instruction and original research, and for the incidental formation of illustrative collections. In 1891, in consequence

of the great interest manifested in this Museum, and the successful extension of its work, it was constituted a Department of the University.

By ordinance approved March 30, 1894, the city of Philadelphia transferred to the Corporation a tract of eight acres of land in trust, to maintain as a park and botanic garden, and to erect thereon a Free Museum of Science and Art. By ordinance of City Councils, October 29, 1895, an additional piece of ground measuring one and two-sevenths acres was made over by the City to the Corporation upon the same terms as the former grant.

The complete plans for the new Museum call for an extensive group of buildings, so arranged as to be capable of construction by sections. They will cover ultimately almost twelve acres of ground, the total cost being estimated at \$2,250,000. The northwestern section, situated at Thirty-third and Spruce streets, was begun in 1897, and dedicated December 20, 1899. Its cost, including the mechanical plant and the furniture and equipment, was \$389,000. To cover this, \$150,000 was appropriated by the State and \$239,000 was subscribed by individuals. In 1899 the transfer of the collections from the Library to the new building was accomplished, and the Free Museum of Science and Art was opened to the public.

The Museum is divided into five sections, each one of which is in charge of Curators.

The American Section contains a number of fine exhibits illustrating the customs, arts and industries of the great historic tribes as well as those pertaining to the ancient peoples of the two continents. Among the former, the extensive Indian collections from the southwestern, western and northwestern sections of the United States and from Point Barrow, Alaska, all provided by the liberality of Mr. John Wanamaker, deserve especial mention. They are displayed on either side of the hall devoted to American Ethnology.

The ancient peoples of America are represented by many articles of pottery and of stone from the ancient earthworks of the central region of the United States: by the collection excavated by the late Frank Hamilton Cushing on the Southwest Coast of Florida; by pottery from the ruined pueblos of New Mexico and Arizona, forming part of the gift of Mr. John Wanamaker; and by an exhibit of antiquities from the ancient cliff dwellers of Colorado, presented by Mrs. Phebe A. Hearst. From Mexico and Central America the section is supplied with casts of some of the great carved monoliths of Copan and Quirigua, and with pottery and stone objects from the prehistoric graves of that region. Turning to South America,

the section contains a very extensive collection of pottery, textiles, and numerous articles of use and adornment, obtained by Dr. Max Uhle in Peru and Bolivia. The greater part of this collection was excavated by Dr. Uhle on the site of the ancient coast city of Pachacamac, one of the most important places of old Peru. This valuable collection, presented to the University by the late Dr. Pepper, forms one of the principal features of the section.

The BRINTON LIBRARY of works relating to the Aboriginal Americans, deposited by special arrangement with the University Trustees in the Museum Library, greatly facilitates research work in the section.

The Ethnological Collections from countries other than America occupy three halls, one of which is devoted to the collections made in Borneo by Dr. Furness, Dr. Hose, Dr. Hiller, and Mr. Harrison. Dr. Furness has also donated a collection made by him among the Naga Hill tribes in Assam, and more recently a similar collection from the Caroline Islands. Dr. Hiller and Mr. Harrison have presented their Sumatra collections and a collection from the Ainos of Japan. Other collections deserving of mention are those from the Polynesian and Melanesian groups, from West Africa, from Morocco and from different portions of Europe and Asia. Notable features of this section are comparative collections of musical instruments, fans, the Sommerville collection of objects pertaining to Buddhist worship, and a comprehensive collection of coins.

The Babylonian and General Semitic Section contains a large and extremely valuable collection of antiquities, the greater portion of which is the result of extensive excavations conducted by the University at the ruins of Nippur, in Central Babylonia. Much time and labor have been expended in a thorough exploration of the principal mound of these ruins, which cover the temple of Bél, presumably the oldest sanctuary in Babylonia. Among the most important objects thus secured may be mentioned about fifty thousand cuneiform documents in clay. Hundreds of terra-cotta and glass vases; Hebrew, Mandaic and Syriac bowls; about 700 fragments of the most ancient inscribed stones, vases, and votive tablets; nearly 600 seal-cylinders; clay coffins; charms; a large amount of gold and silver jewelry, and other objects of art; all serve to illustrate the life and customs of the ancient inhabitants of Mesopotamia, and of the Semites in general.

The Egyptian Section has secured important series of objects illustrating the history, arts and industries of Egypt, from prehistoric times down to the Greco-Roman period. From the Egypt

Exploration Fund, the American Exploration Society and the Egyptian Research Account, the committee in charge each year receives a share of the objects discovered.

Having obtained the permission of the Egyptian Government to go over the ground excavated by a French syndicate at Abydos, Mr. Petrie's finds and scientific results have been of the utmost interest. Through the liberality of the American Exploration Society, which assumed the financial responsibility involved in co-operating with the Egypt Exploration Fund on behalf of the Department of Archæology, a liberal share of the objects discovered has come to Philadelphia. Among these are a stele of King Qa, and several stone fragments and ivory tablets, inscribed in the names of other early successors of King Mena. Of the founder of the United Egyptian Empire himself, an ebony tablet inscribed in his name may be seen, as well as other inscribed fragments and objects of his reign. Inscriptions and objects from the tombs of the Kings of the I, II and III Dynasties are among the new series.

During this year the Museum has been enriched by a valuable gift from Hon. John Wanamaker of a complete mastaba or original tomb of Ra-ka-pu, of the pyramid builders. It is not only unique in this country, but in any museum outside of Berlin.

The Mediterranean collection comprises an important series from Cyprus, and Greek, Etruscan and Roman antiquities.

The excavation of some Etruscan tombs at Narce, Chiusi, Cervetri, Vulci, Bidentium, Ascoli, Civita-Castellana, Orvieto, Corneto and Tarentum, undertaken for this section, resulted in a splendid series containing a number of unique specimens. These collections are the gifts of the late Dr. Pepper, of Mrs. Hearst and the American Exploration Society, and of the Hon. John Wanamaker. The five Etruscan sarcophagi of stone representing the defunct reclining on his bier, excavated for the Museum from a necropolis at Civita-Musarna, near Viterbo (third century B. C.), the great bas-reliefs of Trajan's Arch at Beneventum, and the Dillwyn Parrish Collection of fragments of ancient mosaics from Carthage and Rome, are striking features. The important collection of marbles found in the neighborhood of Lake Nemi, on the site of a temple of Diana Arcina, as well as other valuable series of Greco-Roman sculptures, presented by Mrs. Lucy Wharton Drexel, are worthy of special mention. The Wanamaker collection of replicas of the bronzes from Pompeii and Herculaneum in the Naples Museum forms one of the most striking as well as most educational features. The Dillwyn Parrish collection has been enriched by a collection of Demotic papyri,

which will be added to its already important series of ancient manuscripts.

An expedition sent to Crete on behalf of the Museum by the American Exploration Society in 1901-1904, under the direction of Miss Harriet A. Boyd, resulted in the discovery at Gournia of a Mycenean town of about 1200 B. C. Paved and drained, albeit narrow streets, houses, a shrine, and a palace were brought to view, and many objects of pottery, bronze, stone, etc., were discovered. A complete series of enlarged photographs illustrate this important discovery.

Last season Vasiliki, another site two miles away, yielded, upon examination, important vestiges of a still earlier date. The Museum has recently been enriched by a collection of objects which, under the new laws governing excavations in Crete, was, for the first time, allowed to be exported. The educational importance of this collection of Mycenean and pre-Mycenean objects, unique on this continent, and indeed in any museum out of Greek lands, cannot be overestimated.

An interesting exhibit in the Museum consists of a collection of engraved gems and amulets, presented to the University by the late Professor Sommerville.

The collections are open to visitors daily during the academic year, Christmas, New Year's Day and Good Friday excepted, from 10 A. M. to 5 P. M. On Sundays, they are open from 2 P. M. to 6 P. M.

For the prosecution of special studies in the Museum, application should be made to the various Curators in charge of the several Sections.

PART IV

STANDING COMMITTEES

GRADUATES' APPOINTMENT COMMITTEE.

EDGAR F. SMITH, PH. D., Sc. D., LL. D., VICE-PROVOST, and
Professor of Chemistry: *Chairman.*

HENRY W. SPANGLER, M. S., Professor of Dynamical Engi-
neering.

EDWIN G. CONKLIN, PH. D., Professor of Zoölogy.

J. HARTLEY MERRICK, A. B., Secretary of the University:
Secretary.

The University maintains a Graduates' Appointment Committee, through the medium of which graduates and other members of the University seeking positions are brought into contact with persons having vacancies to fill, especially in the line of teaching or tutoring.

Applicants for positions may register their names with the Committee, and fill out blank forms with detailed information as to personal history and qualifications, kind of work desired, etc. The Committee keeps these records on file, together with classified lists of schools, colleges or individuals desirous of filling vacancies, and thus endeavors to bring applicants into touch, either in person or by letter, with possible employers. The Committee does not guarantee positions to those who may apply, but acts merely as an intermediary by conducting all necessary correspondence, and by assuming all expenses incidental to the case. No fees of any kind are charged, but no assistance is given to applicants who are not members of the University.

While the primary purpose of the Committee is to secure positions for those who have none in prospect, it is glad to register also the applications of graduates who already have employment as teachers, but who may wish to consider a change to other fields.

Further information as to scope and methods, and blanks for registration, may be obtained from the Secretary of the University, College Hall.

STUDENT SELF-SUPPORT.

In addition to the Committee mentioned above, there exists a *Students' Employment Bureau*, through the medium of which, for

outside work during both term-time and vacation, students may obtain information and assistance. Compensation varies naturally with the kind of employment, the aptitude of the individual, and the time he can afford to give to outside work. It is possible for a student who economizes time and applies himself diligently to his chosen line of employment to pay all his University expenses and have something left over besides.

The Bureau is under the direction of the Custodian of the Houston Club, to whom all inquiries should be sent.

UNIVERSITY PUBLICATIONS AND UNIVERSITY PUBLICATION COMMITTEE.

Group I.—Annual Publications.

University Catalogue (published in December).

Fasciculi of the Department of Philosophy (Graduate School), Law, Medicine, Dentistry and Veterinary Medicine; also separate pamphlets concerning the various courses offered in the College, as follows: Arts and Science; Finance and Commerce; Biology; Music; Architecture; Mechanical Engineering; Electrical Engineering; Civil Engineering; Chemistry; Chemical Engineering; Teachers' Courses; Summer School.

Report of the Provost (published in November).

**Group II.—Serial Publications.*

Series in Philology and Literature.

Series in Philosophy.

Series in Political Economy and Public Law.

Series in Astronomy.

Series in History.

Contributions from the Botanical Laboratory.

Contributions from the Zoological Laboratory.

Contributions from the Department of Mathematics.

Contributions from the Laboratory of Hygiene.

Group III.—Occasional Publications.

Theses presented for the Degree of Doctor of Philosophy.

**Group IV.—Affiliated Publications.*

Annals of the American Academy of Political and Social Science.

Translations and Reprints from the Original Sources of European History (occasional).

American Law Register (monthly).

University Medical Magazine (monthly).

Proceedings of the Department of Archæology (occasional).

* For equivalent exchange *only*, or for sale.

DESCRIPTION OF GROUPS

Group I consists of publications issued annually under the direct auspices of the Provost and Trustees.

The University Catalogue contains detailed information concerning all departments, lists of officers and students with addresses, etc. *The Catalogue is sold for twenty-five cents a copy.* It is sent without charge to alumni of the University (upon request), to libraries, and to educational and other learned institutions.

The Fasciculus of each department contains information concerning that department *only*, while the circular of information covering the several courses offered in the college is in like manner restricted as to its contents. Copies are mailed free on request.

The Report of the Provost, made by him annually to the Corporation, constitutes a general review of University activities during the year, and contains *inter alia* reports from the Treasurer and the several Deans. Single copies are mailed free upon request.

Group II consists of publications in the several fields of literature, science and philology. They are issued in separate series at irregular intervals (for the most part), and represent the results of original research by, or under the direction of, members of the staff of instruction of the University. The titles of the several series follow: Philology and Literature; Philosophy; Political Economy and Public Law; Botany; Zoology; Mathematics; Hygiene; Astronomy, and History. Descriptive circulars will be mailed free upon request. *Group II* is published under the editorial supervision of the University Publication Committee.*

Group III consists of theses presented in partial fulfilment of the requirements for the Degree of Doctor of Philosophy.

Group IV consists of affiliated publications, issued as separate periodicals, not under the control of the University, but edited in part by officers of the University of Pennsylvania.

* The membership of this Committee is composed of the following officers:

Edwin G. Conklin, Professor of Zoology; *Chairman*: Joseph G. Rosengarten, Trustee; Morton W. Easton, Professor of Comparative Philology; Felix E. Schelling, Professor of English; Morris Jastrow, Jr., Librarian; Arthur W. Goodspeed, Professor of Physics; Edward P. Cheyney, Professor of History; Emory R. Johnson, Professor of Transportation and Commerce; J. Hartley Merrick, Secretary of the University; *Secretary*.

EXCHANGE BUREAU.

In connection with its publications, the University maintains an Exchange Bureau. Through the medium of this Bureau, the publications noted under the various group headings are distributed to some one hundred and fifty home and foreign universities and learned societies, which, in exchange, forward to the University Library publications embodying the results of original research, etc., issued under their several auspices. Much valuable material is thus added to the shelves of the Library, while the exchange system enables the University to extend its own sphere of usefulness, and at the same time to come into closer contact with the best centres of educational activity, both at home and abroad.

All correspondence relating to the publications of the University, or to the management of the Exchange Bureau, should be addressed to the Secretary of the University of Pennsylvania, Philadelphia, Pa.

MISCELLANEOUS PUBLICATIONS.

In addition to the foregoing, mention may be made of the following publications managed and edited by the students: *The Pennsylvanian*, a daily newspaper; *The Red and Blue*, a literary monthly; *The Punch Bowl*, a comic monthly; *The Penn Dental Journal*, issued four times during the session by the students in the Department of Dentistry; and *The Record*, an annual, issued in June by the Graduating Class of the College.

Old Penn, a weekly review of current activities, and containing an official calendar of daily events, is issued under University auspices. *The Alumni Register*, a literary and news-monthly, is published by the General Alumni Society, as the organ of the affiliated departmental alumni societies.

UNIVERSITY COMMITTEE ON ATHLETICS.

EDGAR F. SMITH, PH. D., Sc. D., LL. D., VICE-PROVOST: Professor of Chemistry: *Chairman.*

(On the part of the College Faculty.)

ARTHUR W. GOODSPEED, PH. D., Professor of Physics: *Secretary.*

(On the part of the Faculty of Philosophy.)

(On the part of the Faculty of Law.)

J. WILLIAM WHITE, M. D., Professor of Surgery.

(On the part of the Faculty of Medicine.)

MATTHEW H. CRYER, M. D., D. D. S., Professor of Oral Surgery.

(On the part of the Faculty of Dentistry.)

JOHN W. ADAMS, A B., V. M. D., Professor of Veterinary Medicine.

(On the part of the Faculty of Veterinary Medicine.)

SAMUEL F. HOUSTON,

RANDAL MORGAN.

(On the part of the Corporation.)

H. LAUSSAT GEYELIN

CHARLES S. W. PACKARD.

(On the part of the Athletic Association.)

(On the part of the Undergraduates.)

The ultimate control of the athletic sports of students is in the hands of the University Committee on Athletics.

This committee was created by action of the Corporation and consists of the chairmen of the several committees on athletics in the College, the Philosophical, Law, Medical, Dental and Veterinary Schools, together with two representatives each from the Corpora-

tion, from the Athletic Association, and from the student body. This committee is charged with the general supervision of the health of students, including an examination into the hygienic conditions of their lodgings; a supervision of the gymnasium, and the arrangement of suitable times and methods of exercise; the making of regulations to govern athletic contests, both inter-class and inter-collegiate; the determination, through the reports of the Deans of the several faculties, of the eligibility (in point of scholarship) of students who may desire to serve on any athletic teams; and other kindred matters.

UNIVERSITY COMMITTEE ON NON-ATHLETIC ORGANIZATIONS.

CLARENCE G. CHILD, Ph. D., L. H. D., Assistant Professor of English, and Dean of the Faculty of Philosophy: *Chairman.*

(On the part of the College Faculty.)

WALTON B. McDANIEL, A. M., Ph. D., Assistant Professor of Latin.

(On the part of the Faculty of Philosophy.)

WILLIAM E. MIKELL, Professor of Law.

(On the part of the Faculty of Law.)

EDWARD LODHOLZ, M. D., Assistant Demonstrator of Physiology.

(On the part of the Faculty of Medicine.)

JAMES TRUMAN, D. D. S., Professor of Dental Pathology, Therapeutics and Materia Medica.

(On the part of the Faculty of Dentistry.)

SIMON J. J. HARGER, V. M. D., Professor of Veterinary Anatomy and Zootechnics.

(On the part of the Faculty of Veterinary Medicine.)

1. Students desiring to establish newspapers, magazines, dramatic and musical societies, and other organizations that may bring them in relation with the public, must submit a draft of their proposed undertaking to the Committee on Non-Athletic Organizations, together with a list of men interested therein. If the proposed organization be approved by the Committee, a certificate of approval will be given to the promoters of the project. Without a certificate, no such organizations may be formed by the students.

2. All organizations referred to in Section 1, whether old or new, must submit to the Committee within thirty days from the commencement of each college year, a list of their officers, with their respective city residences, and must report to the Committee all changes that may occur during the year.

3. All students taking part in such organizations as are referred to in Section 1 must be in good standing. No student will be allowed to take part in such organizations if he has more than one condition. Special and partial students shall not be eligible unless taking regularly an amount of work equivalent to the minimum required of regular students under usual conditions.

PART V

FINANCIAL OBLIGATIONS AND DORMITORIES

FINANCIAL OBLIGATIONS AND DORMITORIES.

RULES GOVERNING PAYMENTS.

I. CHARGES AND DEPOSITS.

1. **MATRICULATION FEES:** In the department where a matriculation fee is charged that fee shall be paid by all new students in the department, whether previously registered in another department or not.

2. **DEPOSITS:** Every student shall, upon entering the University, make a deposit of at least \$5.00 to cover loss, damage, or breakage of University property, library fines, or any charge not paid by the student in some other way. A student whose deposit is by charges against it reduced to one-half its original amount or less, shall be required to pay a sum sufficient to restore the deposit to the original amount. A student entering another class or department shall make up his deposit to the amount required in that class or department, if the amount be larger, or may reduce his deposit if the amount be smaller. No deposit or balance remaining on a deposit shall be finally repaid to a student until he shall have been graduated, or shall have formally withdrawn from the University.

3. Every student, before beginning the work of any given academic year, must register at the office of the Dean of his Department and receive a "charge card," which shall be presented without delay to the Bursar. If a student fail to deposit the card with the Bursar within ten days, the Dean shall notify him that his name has been dropped from the rolls. To be reinstated he must then register again. By the date of registration in these Rules shall be meant the date stamped by the Department office on the charge card and the matriculation card attached thereto.

II. ALLOWANCES AND REDUCTIONS.

1. **REDUCTIONS FOR COURSES REPEATED:** A student who has paid the full tuition fee for a year shall pay one-half the tuition fee if he repeats the studies of the year.

A student who is regularly advanced with his class, but who for any reason repeats one or more subjects, shall not be required to pay any tuition fee for the subjects so repeated, but will be required to pay laboratory charges.

2. ALLOWANCE IN CASE OF WITHDRAWAL, ETC.: A student who withdraws within one week of the date on which he registers shall be entitled to a return of the full amount of the tuition fee paid, but in no case shall the matriculation fee be returned.

A student who on account of illness or other disability withdraws during the term shall be required to pay a fee the amount of which shall be such proportionate part of the entire tuition fee as the number of weeks of his attendance bears to the number of weeks in the academic session. If he shall have paid before withdrawal a greater fee than that required by this rule, the excess paid shall be returned to him.

A student who is transferred during the year from one department to another shall pay in each department a fee proportionate to the length of attendance.

3. LATE REGISTRATION AND ABSENCE: Neither late registration nor absence during the term shall entitle the student to a reduction in fees, except where the student signifies in writing his intention not to take examinations or claim credit for the term's work. But a student registering in the Department of Philosophy after November 1 shall be charged a fee proportionate to the period of attendance, unless full credit is allowed.

III. DUE DATES.

1. CHARGES PAYABLE IN TWO EQUAL PARTS: Annual tuition and laboratory fees, dormitory rents, and other University fees, except as otherwise provided in these Rules, are due and payable in two equal parts, on October 1 and February 1, respectively.

2. CHARGES FOR SPECIAL COURSES: The Dean may fix October 1 as the date when the entire fees become due for a special course or a course which is to be completed by February 1.

3. DORMITORY RENTS AND CHARGES: Rents are due one-half on October 1 and one-half on February 1. If the lease is signed after October 1, the first half of the rent is due when the lease is signed, and the second half is due February 1. If signed after February 1, the entire rent is due when the lease is signed. Charges are due as they are incurred.

4. GRADUATION FEES: Graduation and certificate fees shall be due May 15.

IV. CONSEQUENCE OF DEFAULT IN PAYMENT.

1. **FAILURE TO PAY WITHIN ONE MONTH:** Any fee or other University charge not paid in full within one month from the time of the falling due of the charge shall be increased by three per cent of its full amount; the month shall be held to expire at 5 P. M. of the thirty-first day after the charge falls due, the day the charge falls due being counted as the first day. If the thirty-first day shall fall on Sunday or a legal or University holiday, the payment shall be made in full by 5 P. M. the following day. When money to pay fees or other charges is sent through the mails or otherwise *before*, but delivered *after*, the expiration of the time limit set by this rule, the payment shall be regarded as not made within that limit, and the addition of three per cent shall be made to such fees or charges. As far as possible, bills shall be sent for fees, rents, and other charges, within ten days after the time when they become due; but failure to receive a bill will in no case excuse the student or tenant from the obligation to pay the additional charge of three per cent if payment be not made within the time limit set by the rule. Fees for dissection, or for materials to be furnished to students in the laboratories, are not subject to the additional charge provided for above.

2. **FAILURE TO PAY WITHIN TWO MONTHS:** If a student fail to pay his tuition fee in full, together with the increase of three per cent above noted, within two months (62 days) of the falling due of said fee, the Bursar shall notify the Dean of the Department in which the student is registered, and the Dean shall notify such student that he is suspended and excluded from lectures, recitations, practical work, and examinations until payment in full be made. Fees for dissection and materials are not subject to this rule, but laboratory fees in the Department of Philosophy are subject to it.

If a student after being suspended for non-payment shall fail to settle his account by Commencement Day, the Dean shall at that time record him as dropped for non-payment of fees.

3. **FAILURE TO PAY RENT WITHIN THREE MONTHS:** If a student fail to pay his rent or dormitory charges within three months of the date when they fall due, he may be required to vacate his room.

4. **RIGHT TO AN EXAMINATION:** No student shall be admitted to examination or receive credit for work done until all tuition fees and department charges are paid, irrespective of whether such charge or any part thereof fell due two months before such examination or not.

5. **RIGHT TO RE-REGISTER:** No student may register for a

new year so long as he has tuition fees, dormitory rent, or other University charges overdue and unpaid, nor may any person sign a new lease for a dormitory room so long as he owes rent or charges.

6. **RIGHT TO WITHDRAW OR GRADUATE:** No one shall be granted a certificate of withdrawal or be graduated who has not paid in full all his financial obligations to the University.

V. LATE REGISTRATION.

1. **DATES WHEN FEES ARE DUE:** If a student register after October 1, the first half of his fees for the year will be considered as due October 1. If he register on or after February 1, his fees will be considered as due February 1.

2. **FAILURE TO PAY IN ONE MONTH:** The additional charge provided in Section IV, Rule 1, will be incurred in every case where payment for any reason is delayed beyond one month (31 days), the day of registration being counted as the first day.

3. **FAILURE TO PAY IN TWO MONTHS:** The fees of a student registered late being (by Rule 1 of this Section) due on October 1 and February 1, he is subject to the provision of Section IV, Rule 2, suspending him from all classwork, if payment be not made within two months (62 days) of those dates. If registered on or after the sixty-second day, therefore, his fees must be paid when he registers.

VI. PAYMENTS—CASHING STUDENTS' DRAFTS.

Payments due the University must be made in cash, or by certified cheque, bank draft, or postal money order, drawn for the exact amount due.

As an accommodation to students the Bursar will cash at his office, 102 College Hall, bank drafts on Philadelphia or New York and postal money orders, for not over \$150.00.

It should be especially noted that no change can be given on *cheques* presented for fees, rents, etc. *Change will be given on bank drafts and postal money orders only.*

DORMITORIES.

The dormitory buildings are in one continuous group surrounding two open courts. The most recent buildings are on one side of what will in time be a third enclosed court. Lists of vacant rooms,

prices and other information will be furnished by the Bursar of the University, Room 102, College Hall.

Rooms are of five classes, viz.: *triple suites*, consisting of bedrooms and study for three students; *double suites*, consisting each of two bedrooms and one study, for two students; *single suites*, consisting each of one study and one bedroom for one student; *double rooms*, which are large single apartments furnished for two students; and *single rooms*, of various sizes, each furnished for one student.

All rooms and halls are heated by steam and lighted by electricity. The buildings are on the "separate staircase" system, all doors opening into the courts. On every staircase, and (in nearly all the houses) on each floor, are lavatories, with hot and cold shower-baths, etc. Almost all the suites and double rooms, and many of the single rooms, have open fireplaces. The University supplies for each student the following furniture: bedstead, mattress, bureau, washstand, table, bookcase, chairs and toilet china.

Dormitory rentals are payable in advance in two equal instalments, due October 1 and February 1, respectively. To rents or other charges not paid within thirty-one days 3 per cent of the full charge is added. *No exception to this rule can be made on account of failure to receive a bill.*

Rents and charges must in any case be paid within three months of the time when they become due. Failure to make payments within the prescribed time may result in the cancellation of the lease.

Present occupants of rooms, who intend to be matriculated as students in some department of the University during the academic year 1906-1907, may engage their present rooms for that year by signing new room agreements. These must be filed with the Bursar not later than April 2, 1906. No student may apply for a room for 1906-1907 if the rent or charges for the year 1905-1906 remain unpaid. A room may not be leased in the spring by the present occupant, held until the fall, and transferred at that time to another student. If the room is to be re-assigned, it must be offered first to those on the "waiting list" for dormitory rooms.

Other rooms for 1906-1907 will be assigned by lot. A list of the rooms to be assigned will be ready for distribution on April 18, 1906. Applications from present students of the University in any department, or from those intending to be students during the year 1906-1907, will be received until noon on May 9, 1906. Assignments will be made by lot. When the name of an applicant is drawn the

first number on his list will, if possible, be assigned to him. But if that is already taken the *second* number on his list will be assigned, if possible, and so on. No room will be assigned unless clearly covered by the application.

Assignments will be announced on May 16. Leases must be signed by May 23, 1906. No preference in the assignment will be given on account of length of residence at the University or in the dormitories, or on account of membership in any particular department of the University. A student not yet matriculated must file with his application a certificate signed by two teachers stating that he is prepared and intends to enter the University. If he has already filed such a certificate as part of his credentials for admission to the University, he should mention that fact in his dormitory application, stating to whom the certificate was sent.

Any rooms remaining unassigned on May 16 will be assigned in the order in which applications are received. When all the rooms have been assigned the Bursar will receive applications for places on the "waiting list." Rooms thrown open for re-assignment will be offered first to those on this list. All tenants must complete registration and show matriculation cards for the year 1906-1907 at the dormitory office by October 6, 1906. Attention is called to the following regulation of the Board of Deans with regard to the occupation of dormitory rooms by special and partial students:

"Except by special permission of the Provost, no special or partial student may be assigned to a room in the dormitories unless he is taking in the University 50 per cent of the number of hours a week required of regular students in the department in which he is registered. When, however, the number of hours a week required of regular students in the department varies as between two or more classes, the hours required of a special or partial student to entitle him to be assigned to a room will be calculated upon the basis of hours required of regular students in that class in his department which is required to take the greatest number of hours a week. Regular students in the Department of Philosophy who are not 'in residence,' in the sense of that term as defined in the rules of the department, are considered as falling within the class of 'special and partial students' as regards dormitory rooms."

"A student who holds a dormitory room loses his right to such room (1) when he ceases to be a student in any department of the University; (2) when he seriously infringes the rules regulating his conduct in the dormitories; (3) when, being a regular student, he becomes a special or partial student taking less than the number of

hours required of such students as stated above; or when, being a special or partial student, he ceases to take the number of hours required of such students as above stated; and, (4) when he or his room-mate ceases to occupy the room regularly."

In the assignment of a suite or double room, preference will be given to an application signed by two students who will use the room together. Two students wishing to apply for a room together should both sign an application for the room; such an application will be given two chances in the allotment, and any room drawn will be assigned to both the applicants. The University, however, reserves the right to cancel any assignment of a room if it is not duly claimed and occupied throughout the year by the student or students signing the application. Suspension or expulsion from the University, or serious infringement of the rules, will be considered sufficient grounds for the cancellation by the University of any lease. Sub-letting or exchange of rooms is not permitted. Voluntary withdrawal from the University does not of itself cancel a lease. The student who wishes to withdraw should apply to the Bursar for the terms upon which his lease may be cancelled.

If one of two room-mates is expelled or suspended, or so infringes University rules as to make his removal from the dormitory necessary, the other room-mate may have the room assigned to him by immediately signing a new application; provided that there are not two other students applying together for the room. Or he may hold the room by taking another room-mate, who must be qualified by filing an application and bond. If he fails to hold the room in one of these two ways the University may, after giving him notice, require him to vacate the room.

Every student wishing to occupy a University room must file with his application a bond securing the full amount of the rent and charges; the printed form for the bond may be had upon application to the Bursar. When two students wish to occupy a room together, each must file a bond. The bond must be signed by two responsible property owners, of whom one must be a citizen of the United States. No student or officer of the University will be accepted as bondsman. The bond may not be signed by a married woman whose husband is living, and it is preferred that both sureties should be men. Or, instead of filing a bond, the student may pay in advance the full year's rent of the room, and make a deposit of ten dollars to cover possible damage, any balance remaining to be returned when the room is finally given up. Each tenant will be held for the full year's rent and charges against the room; but when

the room is vacated before the end of the college year, the bondsmen shall not be held responsible for the rent of the room for the rest of the year if the room is rented to another tenant.

Rentals are for the full college year: that is, from the Saturday before the opening of the University to the Saturday after Commencement Day, inclusive. Occupancy of rooms during any time not included within the regular lease must be paid for as an extra charge. Rents include heat and all reasonable care of rooms, and also light, except in the Memorial Tower, Bodine, Robert Morris, Edgar F. Smith, John Morgan and James Wilson Houses, and House No. 22, in which the rooms are supplied with meters, tenants being charged according to the amount of light used. Additional service in the care of rooms must be paid for as an extra, and must, in all cases, be performed by persons authorized by the University. Cooking of food in the rooms is strictly prohibited.

The Parietal Committee, appointed by the Trustees to have charge of the discipline of the dormitories, consists of the four Proctors, resident in the dormitories, and one other person, appointed by the Provost. The students in each house of the dormitories elect one of their number as a Representative, and these Representatives form a Board which meets regularly and acts with the Parietal Committee in matters concerning the order and comfort of those in the houses.

DINING HALL.

A Dining Hall, situated on a plot of ground adjacent to the dormitories, furnishes good table board at \$3.50 a week. This price includes service.

PART VI

DEGREES, HONORS AND PRIZES—1905

DEGREES, HONORS AND PRIZES, 1905.

In University Council, Wednesday, February 22, 1905:

HONORARY DEGREES.

Doctor of Science.—ROBERT SIMPSON WOODWARD.

Doctor of Laws.—DAVID THOMPSON WATSON.

PHILANDER CHASE KNOX.

CHARLES EDGAR CLARK.

SIR HENRY MORTIMER DURAND.

HIS MAJESTY FRIEDRICH WILHELM II., GERMAN
EMPEROR AND KING OF PRUSSIA.

THEODORE ROOSEVELT.

At Commencement, Wednesday, June 14, 1905:

DEGREES IN COURSE.

Bachelor of Arts:

Charles Hahn Albrecht,
Benjamin Newcomer Bird,
Wilton Wallace Blancké,
Joseph Carson,
Robert Arnold Chace,
Frederic Anthony Child,
Luther Bushong Deck,
Maturin Marie Dondo,
William Seddinger Dye, Jr.,
Cloyd Benton Ewing,
Howard Wilson Garner,
Frank Macknight Gray,
Lewis Burtron Hessler,
Logan Howard-Smith,

Joseph Wolstan Huff,
Merkel Henry Jacobs,
Kerwin Weidman Kinard,
Edwin Conover Leedom,
John Lisle,
Charles William Meadowcroft, Jr.
Raynolds Combs Moorhead,
Charles Aloysius Joseph Murphy,
Henry Pepper Norris,
Alexander Burns Roe,
Alfred de Forest Snively,
Stanley Simpson Swartley,
George Herbert Walsh,
Joseph Barnard Walton.

Bachelor of Science:

James Harold Austin,
John Mitchell Baker,
Claude Webster Bankes,

Ransford Mix Beach,
Jared Sperry Bogardus,
Rollin Cantwell Bortle,

Vincent Bean Brecht,	Robert Thompson McCracken,
Alfred Bayard Crewitt,	Allen Sahn Martin,
Samuel Wanamaker Fales,	Norwood Deal Matthias,
Thomas Brown Wrentham Fales,	Joseph Medoff,
Paul Freeman,	Michael Monaghan,
Sidney Byron Goldsmith,	Spencer Kennard Mulford, Jr.,
Wakeman Griffin Gribbel,	John Herr Musser, Jr.,
Haslett Gardiner Hall,	Desaix Brown Myers,
Daniel Roberts Harper, 3d,	Frederic Edwin Peeso,
Edward Hoopes,	Oliver Hazard Perry Pepper,
John Rudolph Hunsicker,	David Rupp, 3d,
Herbert Eugene Ives,	Percy Van Dyke Shelly,
Walter Mulford Johnson,	Charles Keen Taylor,
Jonathan Jones,	Walter Kurt Van Haagen,
James Dougherty Kirkbride,	Harry Edward Weir,
William John Long,	Sidney Louis Wellhouse,
	DeForest Porter Willard.

Bachelor of Science in Architecture:

Charles Elvin Haupt, Jr.,	Charles Folk Rabenold,
Carl Eugene Howell,	Frank Waldner,
Stanley Makepeace,	James Smyth Warner.

Bachelor of Science in Biology:

Hannah May Blake,	Eleanor Fulton Karsner,
Marguerite Irene Boyer,	Mary Macafee McCurdy,
Clara Edna Bramble,	Marion Mackenzie,
Elizabeth Gibson Connor,	Josephine Lindsay Reed,
Elizabeth Evans,	Ida May Solly.

Bachelor of Science in Chemical Engineering:

Joseph Hugh Goodwin,	Amos Laurence Miller.
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Bachelor of Science in Chemistry:

Joseph Samuel Carlitz,	Samuel Wallace Oglesby,
William Henry Moench,	John Morris Weiss,
	Frederick Valentin Wunderle.

Bachelor of Science in Civil Engineering:

Joseph Boyd Baker, 3d,	Lewis Repp Ferguson,
Lind Mason Baker,	Harold Ezra Hilts,
Frederick Bay,	Harry Abe Hyman,
Harold Boericke,	Albert William Kiefer,
Louis Schumann Bruner,	Philip George Lang, Jr.,
Arthur Wellesley Coombs,	Michael Joseph McCrudden,
Charles Howe Cummings,	William Parvin Starr,
John Carlyle Evans,	Joseph Smith Wilds, Jr.,
	Waldo Sherman Wilson.

Bachelor of Science in Economics:

Charles Edwin Bartlett,	Jacob Loeb Langsdorf,
James Slingluff Boyd,	Frederick Warren Marshall,
John Arthur Brown,	George William Merkle,
John Hugh McQuillen Carter,	Scott Nearing,
Robert Caswell Crowell,	Henry Clay Parker, Jr.,
Louis Stanislaus DeLone,	Herbert Marseilles Ramsey,
Charles Ellis Goodin,	Adam Reber,
Walter Keller Hardt,	Josiah Richards,
Frank Wilson Howard,	Roy Blake Seyfert,
Albert Edwin Koch,	Francis Dekker Watson,
Adolph Teller Kohn,	Henry Conner Weeks,
	George Daniel Weschler.

Bachelor of Science in Electrical Engineering:

John Augustus Boers,	William Henderson, Jr.,
Frank Elmer Craven,	Eli Allen McElheny,
	Samuel Rowland Marriner Orum.

Bachelor of Science in Mechanical Engineering:

Stelman Atlee Bockius,	Harry Ottinger,
Lester Comly Bosler,	Walter Samans,
Robert Fernando Briner,	Harry Samuel Tinkler,
Magruder Craighead,	Clarence Lauer Waite,
William Henry Hughes,	Alban Warren Way,
Ellwood Walter Kimber,	Henry Morgan Weidner,
William Henry Norris, Jr.,	Francis Sims White,
	Alexander Coxe Williams.

Civil Engineer:

Spencer Fullerton Weaver.

Electrical Engineer:

William Canby Janney,	John William Wright,
	Walter Abraham Kohn.

Mechanical Engineer:

John McIlvain Maris, 3d,	Charles George Pfeiffer,
	David Robert Yarnall.

Master of Science (Technical):

Edward Hoopes.

Doctor of Philosophy:

Clarence William Balke,	Kent James Brown,
Matthew Hume Bedford,	John Linton Carver,
Charles Frederic Br�ed�e,	Edward Samuel Corwin,

Alice Lenore Davison,
James Walker Downer,
Henry Fox,
Robert Harvey Gault,
Oliver Edmunds Glenn,
Julius Hillel Greenstone,
Ulysses Sherman Hanna,
Ernest Godfrey Hoffsten,
Robert Harbison Hough,
Solomon Huebner,

Charles Moore Magee,
Alice Madeleine McKelden,
Thomas Warner Mitchell,
Richard Riethmüller,
Burnett Smith,
Ralph Ogden Smith,
Charles Wharton Stork,
Clarence Stratton,
Samuel Edwin Weber,
James Renwick Withrow.

Master of Arts:

William Radcliffe Anson,
Harold Charles Barker,
Arthur Cleveland,
Frank Levis Cloud,
Minnie Gertrude Eckels,
Ferdinand Harry Graser,
Samuel B Heckman,

Wesley Lynn Hemphill,
Clinton Nevius Laird,
Grace Edith MacLean,
Lillian Pace,
Leonard Adolph Peck,
Henry Baruch Sachs,
Ruth Elma White,

Winton John White.

Bachelor of Laws:

Harry Lewis Baroway,
Richard Warren Barrett,
Willard Prentice Barrows,
Gordon Alexander Block,
Edgar Howard Boles,
David Bortin,
Raymond Elliott Brown,
Thomas Alexander Butkiewicz,
John Grafius Candor,
John Boyd Crumrine,
George David Cummings,
Frank Frederick deLisle,
LeRoy Carroll Eddy,
Joseph Benjamin Englander,
Daniel Longaker Evans,
Ralph Berrell Evans,
Percy Carroll Feger,
John Arthur Fitzgibbon,
Walter John Fitzpatrick,
James Lawrence Focht,
Francis Carroll Fow,
Benjamin Otis Frick,
Clarence Hexter Goldsmith,
Harry Morris Gosch,
Luther Albert Gray,
Ernest LeRoy Green,
Abraham Fuhrman Greenberg,
Samuel Augustus Guldin,
Tomlinson Kent Hawley,

James Alfred Hayes, Jr.,
Samuel Jones Henderson,
Louis Einstine Leopold,
James Francis McCabe,
Miriam McConnell,
Robert Carey McKean,
Harold Darragh Mackenzie,
William Langley Mahn,
Louis Aloysius Keegan Mellon,
William Washington Mentzinger,
Jr.,

William Burnside Mitchell, Jr.,
Howard Franklin Morgan,
Arno Paul Mowitz,
William Henry Musser,
Edward Isaac Nathan,
Henry John Nelson,
Bevan Aubrey Pennypacker,
Frank Antony Piekarski,
John Joseph Rahilly,
Marshall Stark Reynolds,
Eugene Stanley Richardson,
John Francis Xavier Ries,
Melvin Guy Rogers,
Maurice Bower Saul,
Frank Geesaman Sayre,
Samuel Gilbert Schwartz,
James Hay Simms,
William Smith Snyder,

Jacob Reyle Spielman,
 Allen Michener Stearne,
 Herbert Velde Steelman,
 Mortimer Maurice Steinfield,

Luther Franklin Stoudt,
 Joseph Simon Swaim,
 Maurice Golomb Weinberg,
 Bruce Fairburn Wilson.

Doctor of Medicine:

Matthew Howard Ames,
 Harry Stanley Bachman,
 Walter Kreider Baer,
 Henry John Bartle, Jr.,
 William Lawson Berst,
 Ernest Sydney Bisbee,
 Egil Boeckmann,
 Peter Boysen,
 Samuel Bradbury, 3d,
 Erick von Buddenbrock,
 William Michael Bunce,
 Charles Winfield Buvinger,
 Ethan Allen Campbell,
 John Moore Campbell,
 Harry Schwartz Crouse,
 James Gerald Cullen,
 James Henry Culpepper,
 Albert Burrows Davis,
 Charles Walter Delaney,
 William Thomas Dempsey,
 Frank Dake Dickson,
 Henry Dintenfass,
 Eldridge Lyon Eliason,
 Thomas Evans, Jr.,
 Cornelius Thomas Ferry,
 Charles Mackall Fisher,
 Oscar Edwin Fox,
 Fred Leon Gage,
 Charles Herbert Gerhard,
 Nate Ginsburg,
 Arthur Bruce Gill,
 Clarence Hamilton Gray,
 William Henry Greiss,
 Don Carlos Guffey,
 William Frank Guilfoyle, Jr.,
 George Donald Guthrie,
 John Andrew Hardenbergh,
 Walter Samuel Hargett,
 Eugene Augustus Hildreth, 3d,
 Oscar Freer Hills,
 Harry Clyde Hoffman,
 Charles Jack Hunt,
 Samuel Harvey Iams,
 Frank Stewart Inksetter,
 Moses Jacob,

Milton Boyd Katzenstein,
 Walter Elmo Kelton,
 John William Kirschner,
 Orion Frank Konantz,
 Howard Watkin Kunkel,
 Charles Alpheus Lauffer,
 Jackson Stuart Laurance,
 George Malcolm Laws,
 John Leedom,
 Edward Aloysius Leonard, Jr.,
 Presley McCance Lloyd,
 Oscar Lotz,
 Tom Odom Luckett,
 William Marshall, Jr.,
 Robert Francis Mathews, Jr.,
 John Weigle Mehring,
 Thomas Elwood Mendenhall,
 Henry Martyn Metcalf,
 Hubert Livingstone Miller,
 Albert William Moore,
 Joseph Leslie Moore,
 William Frederic Moore,
 Stirling Walker Moorhead,
 Timothy Joseph Moran,
 David Blair McIntire,
 Daniel Charles McLaughlin,
 Charles William Naulty, Jr.,
 Percival Nicholson,
 Thomas Aloysius O'Brien,
 David Stanislaus O'Donnell,
 Alexander Hay O'Neal,
 Samuel Torrey Orton,
 Hubley Raborg Owen,
 Arthur Hilton Paine,
 Robert Lee Payne, Jr.,
 Arnaldo de Moraes Pedroso,
 Ferdinand Mitchell Perrow,
 George Morris Piersol,
 Lester Lovett Powell,
 John Williamson Price, Jr.,
 Frederick Prime, Jr.,
 Mahlon Richardson Raby,
 Reuben Stanley Raub,
 Edward Urbane Reed,
 John Jacob Repp,

Dennett LeRoy Richardson,
 Willis Read Roberts, Jr.,
 Harold Eugene Robertson,
 James Coburn Rogers,
 Harry Abraham Schatz,
 Howard Gustav Schleiter,
 Joseph Schenberg,
 Herbert John Schmoyer,
 William Magill Schultz,
 George Meade Settle,
 Robert Vance Stewart,
 Marvin Price Stone,
 John Frank Streeter,

Henry Hurlburt Tomlin,
 Norris Wistar Vaux,
 Thomas Hewitt Weaver,
 Charles William West,
 Edgar Lee West,
 Leslie Marshall Westfall,
 Edward Clendenning White,
 Otto George Wiedman,
 Edward Mercur Williams,
 Robert Edward Williams,
 Fred Bailey Wilson,
 Tom Bush Wofford,
 William Wellington Woodward.

Doctor of Dental Surgery:

William James Resch Akeroyd,
 Percy Roy Ashplant,
 Benjamin Franklin Aumiller,
 Robert Austin,
 Charles Edgar Bain,
 William Adams Barker,
 Leland Barrett,
 William Custer Sylvester Barry,
 Henry George Baumann,
 Michael Smith Bennett,
 John Dunn Benson,
 Frederic Seward Blackmar,
 William Francis Brady,
 Oscar William Briner,
 Charles Joseph Brothers,
 Clifford Morse Brown,
 Nelson Amos Burr,
 Percival Arthur Burton,
 George Cadwell Butler,
 David Kenneth Campbell,
 William Ambrose Capell,
 James Henry Carey,
 Leon Barker Cary,
 Adolfo Casáres,
 Frank Vest Cason,
 Harold Chapman,
 John William Clay,
 Norman Garfield Cline,
 Walter Frederick Coe,
 Carl Sargent Coffin,
 Frederick William Constien,
 William Gladden Cook,
 Jesse Frank Cooper,
 Stanley Moore Cordeaux,
 Charles Henry Cordick,
 Eric Burgoyne Owen Cowlshaw,

William Burnett Crane,
 Leslie Metzler Craver,
 Harry Nordell Darrow,
 Hugh Montgomerie Davidson,
 Charles Augustus Dennis,
 John Walt Dismant,
 Arthur Franklin Donahower,
 William Simpson Downey,
 Arthur Theodorus Eaton,
 Leslie Emerson Eaton,
 Albert Eberle,
 Wilhelm Jophus Elvers,
 Edward Evan-Jones,
 Charles Agnew Ewing,
 Carl Eves,
 Hermann Fahrlander,
 George Christopher Fahy,
 Leon Rex Felt,
 Whitman George Ferrin,
 Carlton Byford Frank,
 Ernst Frey,
 Julius Frölich,
 Harold Laurence Furbush,
 William Louis Gibb,
 Maurice Alan Glaspey,
 Thomas Henry Glynn,
 Walter Nathan Goldsmith,
 Bernard Clement Graffam,
 Francis Dennis Griffin,
 Claude Hamilton Griffith,
 John Carlton Grout,
 Henry William Hardt, Jr.,
 Foster Flagg Harrower,
 Theodore Kenney Hayward,
 Milo Hellman,
 Frederick William Herr,

James Milton Herrington,
 Wallwyn Hervey,
 John Robert Highsmith,
 William Eugene Hilborn,
 Francis Henry Hodgson,
 John Coffey Hollenback,
 Oscar Homburger,
 Marcos Garcia Huidobro,
 Arthur Munson Hunter,
 Arthur Cyril Husband,
 Percy Durston Jones,
 Will Robert Jones,
 Charles Maydole Kellogg,
 Harold Williams Lamb,
 Erwin Robert Lamp,
 Frank Peter Layman,
 George Thomas Lemis,
 James Thomas Lillis, Jr.,
 Alfred Cookman Lockett,
 Lester David Lockwood,
 Brett Baxter Loomer,
 Robert Rensselaer Luce,
 James A. Garfield Macdonald,
 James Train MacDonald,
 Thomas Forrester Macdonald,
 James Bernard McEnany,
 John Francis McEnany,
 James Fraser McEwen,
 George Ernest McKeage,
 James Hirsh Massell,
 Charles Sextus Medcalf,
 Walter Melick,
 William Newton Moffett,
 Eric Frederick Molle,
 Seymour Victor Moore,
 Rufus Kelsay Morgan,
 Ira Lesgar Neill,
 Harold Hyde Ogden,
 Guy Edward O'Neil,
 Hubert Wesley Orr,

Waldemar von Ostrowski,
 George Walter Peck,
 Henry Arthur Peterson,
 Walter Francis Praul,
 John Heil Vincent Reese,
 James Bernard Reckers,
 Ernst Reichenberger,
 Edward Louis Richards,
 Willard Huhn Richards,
 Arthur Samuel Sandstein,
 Gordon Lee Scheffer,
 Philip Henry Senior,
 John Winey Shaffer,
 Frank Munson Sherman,
 John Conrad Sippel,
 Samuel Styer Primrose Smith,
 J. Wright Spencer,
 Albert Hamilton Spicer, Jr.,
 Charles James Spriggs,
 Jacob Oswin Steeley,
 Edward Stuart Stevenson,
 Valentine August Stoltze,
 Arnold Harwood Sutherland,
 Charles Cecil Sweeting,
 Deane Pettis Taggart,
 Dillard Jefferson Thomas,
 John Hedges Thompson,
 Llewellyn Tracy,
 John Wilbert Updegraff,
 Robert Jean Valette,
 Charles Christopher Voelker,
 Miles Delroy Wagner,
 Andrew Robertson Walker,
 Clarence Watland,
 William Charles Webb,
 Karl Edwards Wenk,
 August Westerberg,
 Ralph Harrison Wharen,
 Ernest Wright,
 William Stewart Ziele,
 Robert Zulauf.

Doctor of Veterinary Medicine:

Enoch Barnett,
 Eugene Wilfred Bradley,
 William Wallace Courtright,
 Ezra Strickland Deubler,
 William Bullock Fleming,

William David Howatt,
 Thomas Jefferson Mahaffy,
 Oscar Nelson,
 William Henry Paxson,
 Carroll Thorpe Rogers,
 Charles Walker Springer.

In University Council, Thursday, December 7, 1905:

DEGREES IN COURSE.

Bachelor of Science; as of the Class of 1881:

William Thomas Robinson.

Bachelor of Laws; as of the Class of 1905:

Frank Dundore Arnold,
John Sellers Barnes,
Stanley Bright,

Cyrus Dressler Marter,
Harold Savin Shertz,
Aloysius Holland Twibill.

Doctor of Medicine; as of the Class of 1905:

James Earle Ash,

I. Franklin Cohn.

CERTIFICATES OF PROFICIENCY.

BY THE COLLEGE FACULTY.

In Architecture:

Arthur Gustave Bein,
Cornelius Van Reyphen Bogert,
Charles Louis Emmart,
George Corner Fenhagen,

Job Vaughan Mathis,
Charles William Seltzer,
George Morris Whiteside, 2d,
Marcellus Eugene Wright.

In Civil Engineering:

Edwin Dickinson Cassel.

In Mechanical Engineering:

Warren Winfield Wooster.

In Chemistry:

Irwin Sylvester Stoudt.

In Finance and Commerce:

Frederick Locke Holman,
William Pepper Norris,
Franklin Uhrich Shugar,

Harry Malcolm Smith,
Clare V Wilson,
Ernest Garfield Windle.

In Music:

Joseph Samuel Carlitz,

Maria Margaret Francis Carroll,
Harmanus Neff.

HONORS.*Senior Honors.**In Arts:*

CHARLES HAHN ALBRECHT,	LEWIS BURTRON HESSLER,
JAMES HAROLD AUSTIN,	HERBERT EUGENE IVES,
BENJAMIN NEWCOMER BIRD,	MERKEL HENRY JACOBS,
WILTON WALLACE BLANCKÉ,	CHARLES WILLIAM MEADOW-
ALFRED BAYARD CREWITT,	CROFT, JR.,
PAUL FREEMAN,	STANLEY SIMPSON SWARTLEY,
DANIEL ROBERTS HARPER, 3d,	JOSEPH BARNARD WALTON.

In Finance and Economy:

WALTER KELLER HARDT.

In Science and Technology:

JONATHAN JONES.

In Chemistry:

JOHN MORRIS WEISS.

In Biology:

HANNAH MAY BLAKE.

*Sophomore Honors.**In Arts:*

GUY DAVIS GOLD,	JOHN COOPER MENDENHALL,
MICHAEL WILLIAM JACOBS, JR.,	HUGO ARTHUR MÜLLER.

In Civil Engineering:

WILLIAM JOHN FITZMAURICE, JR.,	JOHN FRANCIS GREATHEAD,
ALFRED DANIEL WOLFF, JR.	

In Chemistry:

FREDERICK WYNKOOP.

In Biology:

MARY LOUISE CONSTABLE,	FLORENCE HULTON,
BESSIE GRAHAM HANLEY,	HELEN MARIE WHERRY.

In Finance and Commerce:

CHARLES ARTHUR BLASS,	ROBERT AUGUSTUS JACOBS.
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PRIZES.

IN THE COLLEGE.

I.

ENTRANCE PRIZES.

1. THE EUGENE DELANO PRIZE, for the best special examination in the French and German required for entrance to College. To ETHEL CHODOWSKI.

2. A prize, offered by the CLASS OF 1880, for the best special examination in Mathematics, by a candidate for admission to the courses in Arts and Science. To GEORGE WANGER.

II.

FACULTY PRIZES.

1. A prize for the best Essay in Intellectual and Moral Philosophy by a member of the Senior Class. Subject: *The Development of English Logic from Hamilton to Venn.* (Not competed for.)

2. A prize for the best examination by a member of the Freshman Class on Greek Prose Composition with the Accents. To GERSHON LAZARUS OLIENSIS.

3. A prize to a member of the Senior Class, for the most meritorious work in the German Language and Literature over and above the regular course. To CHARLES HAHN ALBRECHT.

4. A prize to a member of the Senior Class, for the most meritorious work in the French Language and Literature over and above the regular course. (Not competed for.)

5. A first prize and a second prize for the best and second best examination on the Lectures on Quaternions given to the Voluntary Junior Class. To WALTON POWELL LINTON. Second prize not awarded.

6. A prize for the best Essay in History and English Literature by a member of the Senior Class. Subject: *The Travels of Fynes Moryson.* To PERCY VAN DYKE SHELLY.

7. A prize for the best Essay by a member of the Junior Class. Subject: *The Fiction of Maurice Hewlett.* To JOHN LOUIS REINER.

8. A prize of twenty-five dollars to be divided among the best three speakers in the annual Sophomore-Freshman contest in debate. Equally to H VAN COURT CARWITHEN, NORMAN CASSERES VENDIG, and FRANK ALBERT PAUL.

9. A first prize and a second prize for the best and second best

preparations illustrating the anatomy of any vegetable. First prize to BAYARD HENRY LONG, of the Freshman Class. Second prize to JESSIE ELIZABETH JONES, of the Junior Class.

10. A first prize and a second prize for the best and second best preparations illustrating the anatomy or embryology of any animal. To FAITH THOMPSON, of the Junior Class; second prize to EDWARD ROCKHILL HEACOCK, of the Junior Class; with Honorable Mention of ANNA ELIZABETH HEICK, of the Junior Class.

11. A prize to the member of the Sophomore Class who shall pass the best special examination in sight reading of Latin. To JOHN COOPER MENDENHALL, with Honorable Mention of OLIPHANT GIBBONS.

12. A prize to the member of the Sophomore Class who shall pass the best special examination in sight reading of Greek. To MICHAEL WILLIAM JACOBS, JR.

III.

PRIZES FOUNDED BY ORGANIZATIONS.

1. THE HENRY REED PRIZE, founded by the Society of the Alumni, for the best English Essay by a member of the Senior Class. Subject: *The Life and Works of Lord Herbert of Cherbury*. To PERCY VAN DYKE SHELLY, with Honorable Mention of FREDERIC ANTHONY CHILD.

2. A prize for the best, and a prize for the second best, Latin Essay by a member of the Graduating Class, offered by the Society of the Alumni. First prize to WILTON WALLACE BLANCKÉ. Second prize not awarded.

3. THE JOSEPH WARNER YARDLEY PRIZE, founded by the Class of 1877 in memory of their classmate, for the best Thesis in Political Economy by a member of the Senior Class. Subject: *The Effect of the High Price of Coal on Manufactures in Eastern Pennsylvania*. (Not competed for.)

4. A prize founded by the PHI KAPPA SIGMA FRATERNITY in honor of their founder, SAMUEL BROWN WYLIE MITCHELL, M. D., of the Class of 1852, for the most meritorious work done in the Course in English Composition of the second year. To WILLIAM WARD WATKIN, with Honorable Mention of ROBERT AUGUSTUS JACOBS, PAUL R. LOOS, LOUIS JOSEPH FRANCIS MOORE, and URBAN AUGUSTIN LAVERY.

5. THE ASSAYERS AND MINERS GANGUE offers a prize to Post-Seniors in Chemistry and Seniors in Chemistry (four-year course). To SAMUEL WALLACE OGLESBY.

6. THE NATIONAL SOCIETY OF THE SONS OF THE AMERICAN REVOLUTION PRIZE for the best essay on some subject connected with American Revolutionary History. Open only to Juniors. Subject: *The Principles Fought for in the Revolution*. (Not competed for.)

7. THE SOCIETY OF COLONIAL WARS offers annually a prize for the best essay presented by any member of the Junior and Senior Classes in the College, on a subject relating to pre-Revolutionary Colonial History, and approved by the Society. Subject: *A Study in the Colonial Law of Pennsylvania*. To PERCY VAN DYKE SHELLY.

8. THE PRIESTLEY CLUB, composed of Alumni of the Chemical Department, offers annually a prize to that member of the Graduating Class (Post-Senior or Senior, four-year courses, Regular or Special), whose work in Chemistry for that year is most meritorious. To JOHN MORRIS WEISS.

9. THE T-SQUARE CLUB of Philadelphia offers annually two prizes of membership in the organization. They are awarded in October of each year to those two members of the Senior and Second-year Special Classes in Architecture, respectively, who present the best set of drawings executed in course. The prize memberships cover the period of the student's connection with the University, without the payment of dues. To CARL EUGENE HOWELL, of the Senior Class, and GEORGE CORNER FENHAGEN, of the Second-year Special Class.

10. THE PHILADELPHIA GROUPE OF THE ALLIANCE FRANÇAIS has established a Traveling Scholarship, of the value of three hundred dollars, awarded upon the recommendation of the Department of French to the student best prepared for study at a French university. To SOLOMON LEOPOLD ROSENBERG, of the Class of 1906 College.

IV.

PRIZES FOUNDED BY INDIVIDUALS.

1. A prize founded by HENRY LABARRE JAYNE, of the Class of 1879, for the best English Composition by a member of the Freshman Class. Subject: *The Poetry of Austin Dobson*. To ETHEL CHODOWSKI.

2. A prize founded by the late D. VAN NOSTRAND and generously continued by his business successors, for the member of the Junior Class in Civil Engineering who attains the highest general average of scholarship. To ALBERT THEODORE GOLDBECK.

3. THE GEORGE ALLEN MEMORIAL PRIZES, founded by JOSEPH G. ROSENGARTEN, ESQ., and offered to members of the Junior Class taking the Greek and Latin courses, as follows:

In Latin, for the best examination upon selections from Latin Literature of the Empire. To JOHN LOUIS REINER. Second Prize (offered by the Faculty). To JOHN JOSEPH STETSER, with Honorable Mention of EUGENE STOCK McCARTNEY.

In Greek, for the best examination in the *Oration of Demosthenes on the Crown*. To FRANCIS CARR STIFLER. Second Prize (offered by the Faculty). To EUGENE STOCK McCARTNEY.

4. TWO DEBATING PRIZES, established by WILLIAM WEST FRAZIER, JR., a first prize and a second prize, awarded in a public debating contest. To (1) WILLIAM HOMER WALKER, of the Class of 1906 College; (2) CHARLES EDWARD ASNIS, of the Class of 1907 Law.

5. THE FRAZIER PRIZE.—GEORGE H. FRAZIER, ESQ., of the Class of 1887, offers annually a prize of a standard work in literature, to be chosen by him, and of a value of one hundred dollars, to the student in the College of the University of Pennsylvania, who, being a member of the football team, baseball team, track team, or of the crew, shall attain the highest standing in scholarship. To WALTER SAMANS, of the Class of 1905, and a member of the Track Team.

6. THE ARTHUR SPAYD BROOKE MEMORIAL PRIZE in the School of Architecture, of a cash value of fifty dollars, is awarded annually in the form of gold, silver and bronze medals for merit in a subject of study, as designated. The prize has been established by Maria Wharton Brooke as a memorial to her son, Arthur Spayd Brooke, a graduate in Architecture of the Class of 1897. Awarded in 1904-05 in the Senior Class, for high and constant excellence in Design, the Gold Medal to CHARLES FOLK RABENOLD; the Silver Medal to JAMES SMYTH WARNER; Bronze Medal not awarded.

7. THE J. S. H. PRIZE offered to students in Biology in the four-year course, or the two-year course, who, having taken the entrance examinations without conditions, shall have the highest standing in the class; the term standing and conduct to be determining factors, as well as the standing in examinations. To EDWARD ROCKHILL HEACOCK, of the Junior Class.

8. A prize is offered annually by DR. S. WEIR MITCHELL for the best thesis on *The Autumnal Coloration of Plant Parts*. Competition is open to advanced undergraduate and graduate students in Botany, investigations to be pursued for not longer than two years. (Not competed for.)

9. **THE MULFORD PRIZE**, established through the generosity of **WILLIAM H. MULFORD, ESQ.**, of the Class of 1902, is awarded annually to that member of the Graduating Class who shall attain the highest excellence in the expressive reading of Latin Prose and Verse, as shown by a special examination. To **WILTON WALLACE BLANCKÉ**.

10. **THE GEORGE SCHLEICHER PRIZE**.—Under the will of the late **GEORGE SCHLEICHER**, of Philadelphia, The German Society of Pennsylvania holds in trust a fund for maintaining in perpetuity a prize to be named after the testator. This prize is awarded annually to the best student—of whatever nationality he may be—in the German Language or German Literature or both. Equally to **OTTO GUSTAV HERBRECHT**, and **MARY MACAFEE McCURDY**.

11. **THE JOHN STEWARDSON MEMORIAL SCHOLARSHIP IN ARCHITECTURE**.—The value of this Scholarship is one thousand dollars, and the holder is required to spend one year in travel and in the study of architecture in Europe under the direction of the Managing Committee. The award is made annually to that candidate successful in the final examination in design. To **CARL EUGENE HOWELL**.

12. **THE ALUMNI FELLOWSHIP IN ARCHITECTURE**.—Open only to Pennsylvania Alumni, the holder being required to spend not less than one year in foreign travel and study, under a program arranged with the Professor of Architecture, and approved by the Provost. Persons who have taken either the degree of the four-year course or the certificate of the two-year special course, and who have neither secured another traveling scholarship nor admission to the Ecole des Beaux Arts, are eligible to the competitions, which are held annually. Established in 1902-03, and to continue for five years. To **WALTER THOMPSON KARCHER, B. S. in Arch. (1901)**; with Honorable Mention of **PETER DE GELLEKE, JR. (Certificate of Proficiency in Arch., 1902)**.

13. **THE WILLIS TERRY PRIZES**.—The following prizes open only to students in the course in Finance and Commerce, have been established by **HENRY C. TERRY, ESQ.**, as a memorial to his son, **WILLIS TERRY**, a graduate of the Class of 1896:

a. A prize for the student of the Freshman Class who shall have the best standing for the year. To **NORMAN CASSERES VENDIG**.

b. A prize for the student of the Sophomore Class who shall have the best standing for the year. To **ROBERT AUGUSTUS JACOBS**.

c. A prize for the student of the Junior Class who shall have the best standing for the year. To **OTTO KRAUS, JR.**

d. A prize for the student of the Senior Class who shall have the best standing for the year. To WALTER KELLER HARDT.

IN THE DEPARTMENT OF LAW.

THE FACULTY PRIZES, for the best written examinations with all the Professors. (Not awarded.)

THE P. PEMBERTON MORRIS PRIZE, for the best written examination in Evidence, Pleading and Practice at Law and in Equity. To ALLEN MICHENER STEARNE, with Honorable Mention of ERNEST LEROY GREEN.

THE SHARSWOOD PRIZE, established by the Alumni of the Department of Law, for the best Essay by a member of the Graduating Class. (Not awarded.)

THE MEREDITH PRIZE, established by the Alumni of the Department of Law, for the second best Essay by a member of the Graduating Class. (Not awarded.)

The following students received honors for their third year work:

ERNEST LEROY GREEN,
MELVIN GUY ROGERS,
FRANK GEESAMAN SAYRE,
MAURICE BOWER SAUL,

LOUIS EINSTINE LEOPOLD,
ALLEN MICHENER STEARNE,
RALPH BERRELL EVANS,
HERBERT VELDE STEELMAN.

The following third year students received a general average of 90 and above in the combined work of their second and third year courses, and have therefore received their degrees *cum laude*:

ERNEST LEROY GREEN,
MELVIN GUY ROGERS,
FRANK GEESAMAN SAYRE,

MAURICE BOWER SAUL,
ALLEN MICHENER STEARNE,
HERBERT VELDE STEELMAN.

IN THE DEPARTMENT OF MEDICINE.

THE ALUMNI MEDAL to the member of the Graduating Class who attains the highest general average in examination. To HARRY ABRAHAM SCHATZ.

The Prize of an Antiseptic Minor Operating Case, offered by the Clinical Professor of Orthopedic Surgery, for the best practical work in Orthopedic Surgery, or for the best report of his Clinic, or for an acceptable original design in Apparatus. To HUBLEY RABORG OWEN.

The Prize of an Obstetrical Forceps, offered by the Professor of Obstetrics, to the member of the Graduating Class who furnishes the best report of a case of Obstetrics occurring in the University Maternity Hospital. To ARTHUR HILTON PAINE.

THE FREDERICK A. PACKARD PRIZE of One Hundred Dollars, offered by a friend of the University to the member of the Graduating Class who has proven himself to be the most proficient in the course in Clinical Medicine. To DON CARLOS GUFFEY.

THE DR. SPENCER MORRIS PRIZE.—The annual income derived from the investment of Ten Thousand Dollars, will be awarded each year to that Medical Student of the Graduating Class who shall pass the best examination for the degree of Doctor of Medicine. To GEORGE MORRIS PIERSOL.

IN THE DEPARTMENT OF VETERINARY MEDICINE.

THE J. B. LIPPINCOTT PRIZE of One Hundred Dollars, awarded to the member of the Graduating Class who, in the three years spent in the Veterinary Department of the University, attains the highest general average in examinations. To EZRA STRICKLAND DEUBLER.

A prize of an Ecraseur, offered by a friend of the Department to the member of the Second-year Class who passes the best examinations in Veterinary Anatomy. To STEPHEN LOCKETT.

PART VII

UNDERGRADUATE AND ALUMNI SOCIETIES

UNDERGRADUATE AND ALUMNI SOCIETIES.

STUDENT SOCIETIES.

THE HOUSTON CLUB, to membership in which any member of the University is eligible, is the exponent of the social side of Pennsylvania life. Its home is Howard Houston Hall, which is located in almost the exact geographical centre of the University's group of buildings. This situation embodies to a large extent the main idea of its existence as a centralization of undergraduate interests. Here the students of all departments may meet on common ground, and pass their leisure hours in healthy recreation and amusement. The Hall was erected through the generosity of the late H. H. HOUSTON, a trustee of the University, and his wife, as a memorial to their eldest son, HENRY HOWARD HOUSTON, JR., a member of the Class of 1878, College.

The Hall was formally dedicated on January 2, 1896. Its equipment includes a large central lobby, a library and reading-room; billiard and pool tables, bowling alley, post-office "sub-station," barber shop, book and general supply store; a luncheon buffet and dining-room; athletic trophy rooms; a large auditorium with grand organ; rooms for the University papers and other organizations; a dark-room for photographic purposes; etc.

Any student, alumnus or officer of the University of Pennsylvania may become a member of the Club. There are five classes of membership—Honorary, Life, Active, Associate Resident, and Associate Non-Resident. An active member is one who is pursuing a course at the University. The Associate membership is composed of officers, alumni and ex-students who have left in good standing. Membership fees: Life, \$20; Active, \$3 a year; Associate Resident, \$3 a year (living within a radius of 25 miles from Philadelphia); Associate Non-Resident, \$1 a year.

THE PHILOMATHEAN SOCIETY, founded in 1813, holds meetings weekly during the College year at its rooms in College Hall. All undergraduates of the College are eligible to membership. The order of exercises includes orations, essays and a debate, besides the usual general business; and these afford excellent practice in

the principles of parliamentary law. A valuable library is owned by the Society.

THE ZELOSOPHIC SOCIETY, founded in 1829, holds weekly meetings at its rooms in College Hall during the College year. All students in the University are eligible to membership. The work of the Society is carried on through the usual medium of essays, orations and debates.

THE PENNSYLVANIA UNION, modeled after the Oxford and Cambridge (England) Unions, was organized to promote and foster the art of debate and public speaking. Membership is open to students of all departments. Regular meetings are held, at which topics relating to both public and University affairs are discussed; while a public meeting is held annually, an address being delivered by some distinguished man of affairs. The Union occupies a large debating hall in the Law School building.

THE COMBINED MUSICAL CLUBS consist of the Glee, Banjo and Mandolin Clubs, with a total active membership of about seventy-five. The Clubs give a concert each year in New York, and one or more in and near Philadelphia. It is customary also for the Clubs to take a trip, generally either in the South or West, giving concerts in prominent cities.

THE MASK AND WIG CLUB was founded in 1889 (incorporated in 1892) to foster the dramatic interests of the University, and to promote social intercourse among its members. An annual performance is given at the time of the Easter Recess, usually running for one week at some Philadelphia theatre. The general management of the Club, and of its unique house, is in the hands of the graduate members, while the undergraduates carry out all the details of its annual productions. These latter, which are given in the interest of amusement solely, are among the most pleasant relaxations of the student from the serious work of the class-room.

THE CERCLE FRANCAIS, organized in 1899, has for its purpose the study and cultivation of the French language, and is managed exclusively by the undergraduates. The undergraduate membership of the Cercle is limited to twenty-five, students of any department of the University being eligible. There are also honorary and associate members. Lectures are given, under the auspices of the Cercle, by prominent French lecturers; and a play, in which the parts are taken by undergraduates, has become an annual feature of the Cercle, as well as one of the social events of the University year. A French library has been started, which, on completion, will add materially to the convenience of the Cercle.

THE DEUTSCHER VEREIN, founded in 1903, seeks to unite all students of the University interested in the study of the German language and German thought. It holds weekly meetings, which are also open to those in the company of members. Readings, recitations and debates, varied by visits to the German Theatre, and talks by the Professors of the Germanic Department and other German scholars, constitute the chief interests of the club.

CHRISTIAN ASSOCIATION.

President.—Philip E. Howard.

University Service Committee.—Edgar F. Smith, Ph. D., Sc. D., LL. D.,
Vice-Provost; Josiah H. Penniman, Ph. D., Dean of the
College; Martin G. Brumbaugh, Ph. D., LL. D.,
Professor of Pedagogy.

Advisory Board of Preachers.

Rt. Rev. Cyrus D. Foss, D. D., LL. D., Bishop of the Metho- dist Episcopal Church.	Rev. J. Sparhawk Jones, S. T. D., Calvary Presbyterian Church.
Rev. Floyd W. Tomkins, S. T. D., Holy Trinity Protestant Epis- copal Church.	Rev. Kerr Boyce Tupper, D. D., LL. D., Baptist Church. Rev. Albert T. Clay, Ph. D., Lutheran Church.

The activities of the Association are as follow :

- (a) University Service each Sunday morning at 11 o'clock, conducted by distinguished clergymen and Christian leaders.
- (b) The University Christian Settlement, in four departments:
For Young Men, at 2609 Lombard St.
For Small Boys, at 403 South Taney St.
For Men and Boys, at 2635 Christian St.
For Women, Girls and Children, at 403 South Taney St.
A new building for Settlement uses is now in course of erection, and will probably be finished about March 1, 1906.
- (c) Bible Lectures and Group Bible Classes. Forty-three groups enrolled 370 students last year in devotional study, with weekly meetings.
- (d) Foreign Missionary Lectures, Study Classes, and the partial financial support of a representative in the field.

- (e) Supplying of speakers from the University to Churches, Missions, Societies, Preparatory Schools, etc.
- (f) Individual calls upon students in their rooms, and personal effort to lead them into permanent good-living.
- (g) Supplying of "Hand Books" and information to new students concerning life and customs at the University.

For information on any of the above subjects apply as follows:

Thomas St. Clair Evans, General Secretary, Houston Hall.

Frank Van Hart Slack, College Secretary, Dormitories.

Harvey J. Howard, Medical Secretary, Houston Hall.

Edward Cope Wood, Treasurer, Houston Hall.

The corporate name of the organization is "Christian Association of the University of Pennsylvania."

ALUMNI SOCIETIES.

The Alumni of the University are organized (1) in local societies, throughout the United States and foreign countries; (2) in departmental societies, with headquarters in the city of Philadelphia; and (3) in bodies of a wider representative character, with headquarters in the same city.

Of the first group there are at present in active existence thirty societies; of the second group there are six, embracing respectively members of (a) the College; (b) the Department of Law; (c) the Department of Medicine; (d) the Department of Dentistry; (e) the Department of Veterinary Medicine; and (f) the School of Architecture. Of the third group, there are two organizations, to wit: the Central Committee of the Alumni, and the General Alumni Society.

A schedule of these bodies is appended. For the sake of greater convenience, the above grouping is reversed below. The local societies are listed geographically and alphabetically.

CENTRAL COMMITTEE OF THE ALUMNI.

President.—Henry Budd.

Secretary.—Dr. Ewing Jordan, 1510 Walnut St., Philadelphia.

Treasurer.—Dr. William H. Klapp, 1733 Pine St., Philadelphia.

This Committee was established by enactment of the Corporation in March, 1882.

Under the Revised Statutes (Sec. 337), the Central Committee is authorized, for every third vacancy which may occur in the Board of Trustees, to nominate four candidates, one of whom may be elected a member of the Board. If none of these be elected, others are to be nominated until the vacancy shall have been filled.

The members are thirty in number, six elected annually for a term of five years, of whom two must be graduates of the College of at least three years' standing, two of the Medical and allied Departments, and two of the Law Department. Stated meetings are held on the fourth Mondays of March, May, September and December.

GENERAL ALUMNI SOCIETY.

President.—Samuel F. Houston.

Vice-Presidents.—H. Laussat Geyelin; Dr. Horatio C. Wood;
Hampton L. Carson; Dr. Leonard Pearson;
Dr. Morris I. Schamberg.

Secretary-Treasurer.—Thomas B. Donaldson, 3451 Woodland Avenue, Philadelphia.

This Society was organized in June, 1895, and incorporated in June, 1897.

OBJECTS: "(I) The promotion of the welfare of the University of Pennsylvania through the stimulation of the interest therein of all graduates and non-graduates, matriculates of all departments, by keeping them in touch with and informed of the doings of their Alma Mater, and the cultivation among them of a fraternal spirit on the University principles. (II) The furnishing of such specific information as may be sought by any graduate or former matriculate upon any subject in connection with the University, or any of its organizations. (III) The disbursing of any contributions made by the alumni for specific objects connected with the University. (IV) The maintenance of a list, as nearly correct as possible, of the names and addresses of all matriculates of the University." The Society publishes *The Alumni Register* monthly, except during August and September.

MEMBERS: A graduate of any department of the University; a matriculate of a class which has graduated; a member of the Board of Trustees, or an officer of instruction, or a holder of an honorary degree from the University; may become a member of the Society upon payment of a subscription in such amounts as he may elect, but not less than one dollar, to the Treasurer of the Society. Such subscriptions cover one calendar year from the date of payment, and include one year's subscription to *The Alumni Register*.

The offices of the Society are at 3451 Woodland avenue, West Philadelphia, where a directory is kept of all those connected with the University as students, alumni or officers, and where a file of college and university periodicals is maintained. The offices are open daily from 9 A. M to 5 P. M. (Saturdays, 1 P. M.). Telephone connection.

DEPARTMENTAL SOCIETIES.**SOCIETY OF THE (COLLEGE) ALUMNI.**

President.—Henry Budd.

Vice-Presidents.—A. Lewis Smith, Charles C. Harrison, Jos. G. Rosengarten, Edward P. Cheyney.

Secretary.—Edgar A. Singer, Jr., University Dormitories.

Treasurer.—Morris Jastrow, Jr., 248 S. 23d St., Philadelphia.
Historiographer.—Gregory B. Keen.

SOCIETY OF THE ALUMNI OF THE LAW DEPARTMENT

President.—Hon. William B. Hanna.

Vice-Presidents.—Frank P. Prichard, H. Laussat Geyelin.

Recording Secretary.—Charles Francis Gummy.

Corresponding Secretary.—John Douglass Brown, 517 Drexel Building.

Treasurer.—Harry S. Hopper, 803 Land Title Building, Philadelphia.

**SOCIETY OF THE ALUMNI OF THE DEPARTMENT OF
MEDICINE.**

President.—Dr. Richard A. Cleemann.

Vice-Presidents.—Dr. De Forest Willard, Dr. Wharton Sinkler, Dr. Theodore Diller, Dr. Alonzo E. Taylor, Dr. De Witt Sherman, Dr. Allen J. Smith, Dr. Augustus Thayer.

Secretary-Treasurer.—Dr. Edwin T. Robinson, 1326 Pine St., Philadelphia.

Historian.—Dr. Roland G. Curtin.

DENTAL ALUMNI SOCIETY.

President.—Dr. Luther M. Weaver.

Vice-Presidents.—Dr. John M. Fogg, Dr. Benj. F. Place,
Dr. Wm. G. Cook.

Secretary-Treasurer.—Dr. Victor Cochran, 1628 N. 17th St.,
Philadelphia.

SOCIETY OF THE ALUMNI OF THE DEPARTMENT OF
VETERINARY MEDICINE.

President.—Dr. W. H. Ridge.

Vice-President.—Dr. A. F. Schreiber.

Secretary-Treasurer.—Dr. Benjamin T. Woodward, Oxford, Pa.

Historian.—Dr. Simon J. J. Harger.

GENERAL ARCHITECTURAL ALUMNI SOCIETY.

President.—Arthur E. Willauer.

Vice-President.—Walter H. Thomas.

Treasurer.—Oscar M. Hokanson.

Corresponding Secretary.—James E. Willing, 532 Walnut St.,
Philadelphia.

Recording Secretary.—Frank A. Rommel.

LOCAL SOCIETIES.

CALIFORNIA.

SOUTHWESTERN ALUMNI ASSOCIATION, LOS ANGELES, CAL.

President.—Dr. W. LeMoyne Wills.

Vice-President.—Rev. Chas. T. Murphy.

Secretary-Treasurer.—Dr. Chas. G. Stivers, Los Angeles, Cal.

COLORADO.

COLORADO ALUMNI ASSOCIATION.

President.—Benj. C. Allen.*Vice-President.*— — —*Secretary-Treasurer.*—Henry Russell Wray, Colorado Springs, Col.

DISTRICT OF COLUMBIA.

DISTRICT OF COLUMBIA ALUMNI ASSOCIATION, WASHINGTON, D. C.

President.—J. Hubley Ashton.*Vice-Presidents.*—Gen. Cecil Clay, Dr. J. R. Mohler,
Dr. C. H. Lincoln.*Treasurer.*—Dr. Jas. G. McKay, 1739 S St., N. W.,
Washington, D. C.

ILLINOIS.

CHICAGO ALUMNI ASSOCIATION.

President.—Dr. Jas. N. Hyde.*Vice-President.*—Dr. Chas. H. Lodor.*Secretary-Treasurer.*—Dr. Geo. W. Boot, 1945 Maple Ave.,
Evanston, Ill.

INDIANA.

INDIANA ALUMNI SOCIETY.

President.—Dr. Albert M. Cole.*Vice-President.*—Dr. Jonathan B. Clark.*Secretary-Treasurer.*—Oscar Schmidt, Germany Fire Insurance Co.,
Indianapolis, Ind.

IOWA.

UNIVERSITY OF PENNSYLVANIA CLUB OF DES MOINES, IOWA.

President.—Dr. Jas. T. Priestly.

Vice-President.—Dr. J. C. Rockafellow.

Secretary-Treasurer.—Ralph H. Plumb, 1415 Centre St.,
Des Moines, Iowa.

MARYLAND.

MARYLAND ALUMNI ASSOCIATION.

President.— — —

Vice-Presidents.—Dr. Thos. Opie, Dr. J. McP. Scott,
Wm. M. Ellicott.

Secretary-Treasurer.—Dr. Joseph C. Bloodgood, 923 North Charles
St., Baltimore, Md.

MINNESOTA.

NORTHWEST ALUMNI ASSOCIATION.

President.—Dr. Howard McI. Morton.

Vice-President.—Dr. Jas. S. Gilfillan.

Secretary-Treasurer.—Rev. A. J. D. Haupt, 175 Iglehart St.,
St. Paul, Minn.

MISSOURI.

KANSAS CITY ALUMNI ASSOCIATION.

President.—Dr. B. E. Fryer.

Vice-President.—Chas. H. Small.

Secretary-Treasurer.—Dr. Scott P. Child, Bryant Bldg.,
Kansas City, Mo.

UNIVERSITY OF PENNSYLVANIA ALUMNI ASSOCIATION,
ST. LOUIS, MO.

President.— — —

Secretary-Treasurer.—A. H. S. Cantlin.

NEW ENGLAND.

NEW ENGLAND ALUMNI ASSOCIATION.

President.—Capt. John C. White.

Vice-Presidents.—Dr. W. E. Synan, Dr. W. R. Weiser.

Secretary-Treasurer.—Geo. A. Sagendorph, 559 Atlantic Ave.,
Boston, Mass.

NEW JERSEY.

ATLANTIC CITY CLUB OF THE UNIVERSITY OF PENNSYLVANIA.

President.—Dr. Emery Marvel, Jr.

Vice-President.—Dr. J. C. Marshall.

Secretary-Treasurer.—Dr. Jesse B. Thompson, Atlantic City, N. J.

NORTH JERSEY ALUMNI ASSOCIATION.

President.—Dr. Wm. H. Hanrahan.

Vice-President.—Dr. Elbert S. Sherman.

Secretary-Treasurer.—Dr. Wm. H. Parry, Esq., 800 N. Broad St.,
Newark, N. J.

NEW YORK.

WESTERN NEW YORK ALUMNI ASSOCIATION.

President.—Dr. Fred. W. Zimmer.

Vice-President.—Dr. Ernest Wende.

Secretary-Treasurer.—Charles A. Upson, Lockport, N. Y.

NEW YORK CITY ALUMNI ASSOCIATION.

President.—Wm. B. Boulton.

Vice-President.—Wm. Guggenheim.

Secretary-Treasurer.—Dr. Samuel McCullagh, 68 W. 38th St., N. Y.

PENNSYLVANIA.

BERKS COUNTY ALUMNI ASSOCIATION.

President.—Dr. Wilson D. DeLong.

Vice-President.—Dr. Henry W. Bohn.

Secretary-Treasurer.—Dr. Hiester Bucher, Reading, Pa.

DAUPHIN COUNTY ALUMNI SOCIETY.

President.—Rev. George S. Chambers.

Vice-President.— — — —

Secretary.—A. Boyd Hamilton, Jr., Harrisburg, Pa.

Treasurer.—Dr. George B. Kunkle, Harrisburg, Pa.

LANCASTER COUNTY ALUMNI SOCIETY.

President.—Dr. Walter B. Weidler.

Vice-President.—Dr. B. Frank Witmer.

Secretary-Treasurer.—James F. McCoy, 56 N. Duke St.,
Lancaster, Pa.

LEBANON COUNTY ALUMNI ASSOCIATION.

President.—Dr. Wm. M. Guilford.

Vice-President.—Dr. Charles L. Miller.

Secretary-Treasurer.—George S. Reinoehl, Penna. Telephone Co.,
Scranton, Pa.

NORTH CENTRAL ALUMNI ASSOCIATION.

President.—Dr. George D. Nutt.

Vice-Presidents.—Dr. Frank P. Ball, Wm. P. Beeber.
Dr. Charles C. Walker.

Secretary-Treasurer.—Dr. Edward Lyon, Williamsport, Pa.

NORTHUMBERLAND COUNTY ALUMNI ASSOCIATION.

President.—Rev. Charles Morison

Vice-President.—Dr. U. S. Grant Moore.

Secretary-Treasurer.—Leopold C. Glass, Shamokin, Pa.

PHILADELPHIA ALUMNI SOCIETY OF THE MEDICAL DEPARTMENT.

President.—Dr. John B. Shober.

Honorary Vice-President.—Charles C. Harrison.

Vice-Presidents.—Dr. W. C. Posey, Dr. J. Alison Scott, Dr. F. F. Long, Dr. David Riesman.

Treasurer.—Dr. Herbert B. Carpenter, 1805 Spruce St.

Secretary.—Dr. B. Franklin Stahl, 1727 Pine St., Philadelphia.

PITTSBURG ALUMNI ASSOCIATION.

President.—Dr. Charles A. Wishart.

Vice-Presidents.—Dr. W. W. Jones, Dr. J. A. Lichty.

Secretary.— — — —

Treasurer.— — — —

UNIVERSITY CLUB OF SCRANTON.

President.—Dr. John L. Wentz.

Secretary.—Wm. H. Davis, Esq., Scranton, Pa.

Treasurer.—Dr. Walter H. Fordham, Scranton, Pa.

YORK COUNTY ALUMNI ASSOCIATION.

President.—Dr. A. A. Long.

Vice-President.—Geo. S. Schmidt, Esq.

Secretary-Treasurer.—Donald H. Yost, Esq., York, Pa.

TEXAS.

TEXAS ALUMNI ASSOCIATION.

President.—Dr. Bryce W. Fontaine.

Vice-President.— — — —

Secretary-Treasurer.—Dr. W. P. Breath, Galveston, Texas.

WASHINGTON.

PACIFIC NORTHWEST ALUMNI ASSOCIATION.

President.—P. C. Kauffman, Esq.

Vice-President.—Dr. R. C. Yenney.

Secretary-Treasurer.—Dr. Jas. W. Rawlings, Tacoma, Washington.

WISCONSIN.

WISCONSIN ALUMNI ASSOCIATION.

President.—Dr. Wm C. Wendel.

Vice-President.—E. O. Kuenzli.

Secretary-Treasurer.—Robert R. Freeman, Wells Bldg.,
Milwaukee, Wis.

FOREIGN SOCIETIES.**JAPAN.**

JAPANESE ALUMNI SOCIETY, ("SAMEWINDOW" SOCIETY.)

Secretary-Treasurer.—Sadajiro Suguira, Tokio, Japan.

MANILA, P. I.**ORIENT ALUMNI ASSOCIATION.**

President.—Dr. John A. Murtagh, U. S. A.

Treasurer.—Dr. M. A. DeLaney, U. S. N.

Secretary.—Dr. J. C. Whinnery, Dental Surgeon, U. S. A.,
Manila, P. I.

PART VIII

LISTS OF STUDENTS

LISTS OF STUDENTS.*

THE COLLEGE.

The College Courses are indicated as follows:—*Arts and Science, A.; Finance and Commerce, Wh.; Biology, B.; Science and Technology: (Upper Years), Pure and Applied Chemistry, Sc. 1; Civil Engineering, Sc. 2; Mechanical Engineering, Sc. 3; Four-Year Technical Courses, Chemistry, Ch.; Chemical Engineering, Ch. E.; Civil Engineering, C. E.; Mechanical Engineering, M. E.; Electrical Engineering, E. E.; Architecture, Arch.; Music, M.*

Name.

Bogardus, Jared Sperry,
B. S. (Pennsylvania).
Jones, Jonathan,
A. B., B. S. (Pennsylvania).
Monaghan, Michael,
B. S. (Pennsylvania).
Warner, James Smyth,
B. S. in Arch., (Pennsylvania).

POST-SENIORS.

Course.	Residence.	City Address.
Sc. 2,	Mt. Vernon, Ohio,	3438 Walnut St.
Sc. 2,	Chester,	Dorm. 363 Baird.
Sc. 2,	Philadelphia	62 N. 36th St.
Arch.,	Erie,	Dorm. 40 Morgan.

SENIORS.

Albrecht, Herman Carl,	E. E., Philadelphia,	1207 W. Allegheny Ave.
Andersen, Howard Bruce,	M. E., Lansdowne.	
Appleton, Harry Lewis,	Wh., Philadelphia,	3400 Walnut St.
Arkin, Morris L.,	A., Allegheny,	3434 Sansom St.
Armstrong, James,	A., Columbia,	Dorm. 21 Bodine.
Ashmead, Duffield, Jr.,	Arch., Philadelphia,	3641 Locust St.
Ashton, John Milton,	A., Johnstown,	Dorm. 435 Baird.
Bary, George,	Wh., Philadelphia,	3438 Walnut St.
Bement, Russell,	Wh., do.	3817 Spruce St.
Berghausen, Alfred,	Ch. E., Cincinnati, Ohio,	Dorm. 352 Baldwin.
Bird, William Gibson,	E. E., Chester,	[408 E. 4th St.]
Birkinbine, Henry Edgar,	C. E., Cynwyd.	
Blakeley, Abraham Gustavus,	Ch., Chester.	[14th and Walnut Sts.]
Bockius, Charles Albert,	M. E., Merchantville, N. J.	
Boggs, Joseph Watson,	Wh., Philadelphia,	1206 Master St.
Bogle, Arthur Phillips,	Arch., Chicago, Ill.,	Dorm. 31 Wilson.
Bolton, Charles Lewis,	Arch., Philadelphia,	1713 W. Norris St.
Bond, George Wells,	Wh., Norwood.	
Boucherle, Paul,	Arch., Youngstown, Ohio,	Dorm. 240 Hopkinson.

* Note.—Where no State is named after residence, *sc.* Pennsylvania.

Name.	Course.	Residence.	City Address.
Bowen, Edward Rose,	C. E.,	Philadelphia,	2144 N. Van Pelt St.
Bradford, James Sydney,	M. E.,	do.	245 S. 45th St.
Broadbelt, Oscar Garfield,	M. E.,	do.	4300 Market St.
Brownlee, Edward Gould, Jr.,	Ch. E.,	do.	404 High St., Gtn.
Budd, Francis Herbert,	A.,	Pleasantville, N. J.,	63d and Lancaster Ave.
Burns, Eugene L.,	Wh.,	Mount Holly, N. J.,	300 S. 36th St.
Bye, Frank Paxson,	A.,	West Chester.	
Campbell, William Alexander,	C. E.,	Sharpsburg,	Dorm. 43 Morgan.
Chadwick, Edward Wallace,	A.,	Chester,	Dorm. 363 Baird.
Chillas, Richard Burt, Jr.,	Ch. E.,	Baltimore, Md.,	Dorm. 418 Franklin.
Coleman, Arnold Reynolds,	Wh.,	Silver City, N. Mex.,	Dorm. 111 Morris.
Colgan, Robert Joseph,	C. E.,	Berwyn.	
Conderman, Norman Kerr,	Wh.,	Philadelphia,	232 W. Logan Square.
Constable, Mary Luise,	B.,	do.	148 N. 20th St.
Conwell, Edward Laurence,	Ch.,	Chester,	[3 Seminary Ave.]
Cortright, Edwin Keen,	Sc. 2,	Beverly, N. J.,	Dorm. 142 Lippincott.
Craske, Charles Edmund,	A.,	Woodbridge, N. J.,	[505 Linden St., Camden.]
Crawford, Winfield Wilson,	A.,	W. Conshohocken.	
Culler, Aaron Andrew,	Arch.,	Lucas, Ohio,	3605 Locust St.
Dading, Charles Henry,	C. E.,	Philadelphia,	Dorm. 48 E. F. Smith.
David, William Morris,	Wh.,	do.	226 E. Penn St., Gtn.
Davis, Robert William, Jr.,	Ch.,	Melrose,	Oak Lane P. O.
Deining, Howard Franklin,	E. E.	Philadelphia,	2119 Master St.
De Victor, William Knight,	A.,	do.	4725 Baltimore Ave.
Dewhurst, Richard Miles,	E. E.,	Allegheny.	3908 Baltimore Ave.
Dickhut, Roger Milton,	Arch.,	Quincy, Ill.,	Dorm. 445 Lippincott
Dickson, Reid Stuart,	A.,	Philadelphia,	4111 Locust St.
Diefendorf, Edward G.,	Sc. 3,	Erie,	Dorm. 354 Class of '87.
Dieterle, George Andreas,	Ch.,	Cincinnati, Ohio,	3400 Walnut St.
Dise, Homer Allen,	C. E.,	Glen Rock,	Dorm. 321 Leidy.
Docker, Horace Stokes,	M. E.,	Philadelphia,	Lawnton Ave., Oak Lane.
Donnelly, Joseph Francis Sinnott,	Sc. 2,	do.	1521 Wallace St.
Doolittle, Gilbert,	C. E.,	Upper Darby.	
Doran, John Francis,	C. E.,	Norristown.	
Dout, Edgar Philip,	M. E.,	Media,	Dorm. 20 Morgan.
Dripps, Harold,	M. E.,	Philadelphia,	5011 Cedar Ave.
Earnshaw, Frederic Smyth,	A.,	do.	5357 Locust St.
Eaton, Robert Smith,	Wh.,	Norwich, N. Y.,	127 Dorm. Class of '87.
Eckels, Lauren Samuel,	A.,	Philadelphia,	600 S. Broad St.
Eckman, Hensel,	A.,	Pulaski, Va.,	[Wyncote, Pa.]
Ecob, Robert Gilbert,	Arch.,	Philadelphia,	3406 Powelton Ave.
Ellett, Thomas Harlan,	Arch.,	Red Oak, Iowa,	Dorm. 324 Franklin.
Entwisle, Alfred Lindsey,	M. E.,	Philadelphia,	3742 N. 16th St.
Essen, Willis Lilburn,	C. E.,	Cape May City, N. J.	Dorm. 313 Leidy.
Ewing, Maskell, Jr.,	A.,	Villa Nova,	Dorm. 235 Baird.
Feldstein, Leonard,	Ch.,	Philadelphia,	2038 Woodstock St.
Feigel, John Henry,	C. E.,	Buffalo, N. Y.,	3603 Sansom St.
Forster, Arthur Oscar,	C. E.,	Philadelphia,	4354 Manayunk Ave., Roxborough.

Name.	Course.	Residence.	City Address.
Foulkrod, Frederick Shelton,	C. E.,	Philadelphia,	479 Lyceum Ave., Roxborough.
Foust, George Comly, Freed, Theodore Megargee,	A., Wh.,	North Wales. Philadelphia,	Wissahickon Ave., ab. Manheim St., Gtn.
Fulweiler, John Edwin, Galey, Frank Holt, Geisler, William Henry, German, Harry James,	M. E., Wh., C. E., A.,	do. do. do. Allentown,	3604 Walnut St. 3438 Walnut St. 202 High St., Gtn. Dorm. 243 Provost Smith.
Geyelin, Henry Rawle, Gold, Guy Davis, Goldbeck, Albert Theodore, Goldstein, Horace, Govan, Elwood Millard, Gregory, Albert Main, Griest, Thomas Haines, Griffith, Robert Eads, Haag, Frederick, Jr., Haasz, George Neiler, Hamilton, Robert Devitt, Harbeson, William Page, Hardt, John William, Harris, Morrison, Hartley, James Hugh, Heacock, Edward Rockhill, Heick, Anna Elizabeth, Hepburn, Joseph Samuel, Hewson, William, Hicks, John Frederick Gross,	A., A., C. E., M. E., A., C. E., C. E., C. E., Arch. E., C. E., A., E. E., A., Wh., C. E., E. E., B., B., Ch., A., Ch.,	Villa Nova, McEwensville, Philadelphia, do. do. do. do. do. Indianapolis, Ind., Philadelphia, do. do. do. do. do. Palmyra, N. J., Wyncote, Louisville, Ky., Lansdale, Philadelphia, do.	Dorm. 235 Baird. 3430 Sansom St. 3811 Poplar St. 2857 N. 5th St. 1116 N. 40th St. 2139 N. 21st St. 2231 Wallace St. 3614 Walnut St. 27 N. 40th St. 1733 N. 25th St. 1818 S. Broad St. 1532 Fairmount Ave. 3303 Powelton Ave. Dorm. 207 Leidy. 3613 Woodland Ave. 3701 Locust St. 1013 E. Columbia Av. 2120 Spruce St. Girard Ave. and 65th St. 917 S. 48th St. 3400 Walnut St. Dorm. 240 Hopkinson. Dorm. 137 Hopkinson. 214 S. 37th St. 517 Woodland Terrace 1611 S. Broad St. 1738 N. 16th St. 601 S. 21st St. 3413 Walnut St.
Hitchcock, Edward Fithian, Hobbs, Raymond Mason, Hopkins, John Edwin, Hunt, Biddle Newbold, Ingersoll, Edward, Jenkins, David Evans, Jones, Jessie Elizabeth, Kelley, Edward, Kelley, John, Kemp, Alexander Singer, Kepler, Walter Emerson, Knipe, Albertson Floyd, Koronski, Stephen, Kraus, Otto, Jr., Lamberton, Robert Eneas, Lang, Henry Christian,	A., Arch., Arch., Wh., Wh., Ch. E., B., M. E., E. E., Ch., A., E. E., C. E., Wh., A., A.,	do. Joliet, Ill., Brooklyn, N. Y., Kirkwood, N. J. Penlynn, Danville, Louisville, Ky., Philadelphia, do. do. Pottstown, Ardmore. Philadelphia, do. do. do. Trevose,	3701 Locust St. 1013 E. Columbia Av. 2120 Spruce St. Girard Ave. and 65th St. 917 S. 48th St. 3400 Walnut St. Dorm. 240 Hopkinson. Dorm. 137 Hopkinson. 214 S. 37th St. 517 Woodland Terrace 1611 S. Broad St. 1738 N. 16th St. 601 S. 21st St. 3413 Walnut St. 3432 Sansom St. 2801 Poplar St. 4403 Osage Ave. S. E. Cor. 43d and Ludlow Sts. 6715 Lansdowne Ave. 3614 Walnut St. 216 S. 37th St.
Lape, Marion, Latimer, Lewis Spann, Lavery, Urban Augustin,	B., E. E., A.,	Overbrook, Bronxville, N. Y., Lavery,	6715 Lansdowne Ave. 3614 Walnut St. 216 S. 37th St.

Name.	Course.	Residence.	City Address.
Lenderman, Watson Beatty, Jr.,	C. E.,	Wilmington, Del.,	Dorm. 224 McKean.
*Linton, Walter Powell,	C. E.,	Philadelphia	434 S. 40th St.
Lipper, Milton William,	Wh.,	do.	Dorm. 143 Lippincott.
Logo, Victor Le Van,	Ch.,	do.	2833 Girard Ave.
Lupton, Lewis Morris Green,	Ch.,	Woodbury, N. J.	
Lysle, Frederic Bowers,	Ch.,	Philadelphia,	846 N. 22d St.
McCartney, Eugene Stock,	A.,	Boothwyn.	
McCaughey William John,	Ch.,	Philadelphia,	2138 N. 8th St.
McConnell, Thomas Leo,	C. E.,	Kittanning,	Dorm. 35 Bodine.
McElwain, Clarence Stanley,	Wh.,	Sewickley,	3614 Walnut St.
McMullen, Irvine Stuart,	Wh.,	Erie,	Dorm. 245 Lippincott.
Martin, Edward Burk,	A.,	Philadelphia,	2009 Columbia Ave.
Mason, Lennox Stirling,	M. E.,	do.	251 S. 44th St.
Mattson, John Danskin,	A.,	do.	725 Pine St.
Mayer, Henry Christian, Jr.,	Sc. 1,	do.	26 S. 22d St.
Mendenhall, Earl,	Wh.,	Mendenhall,	4818 Florence Ave.
Merwin, Charles Merrill,	Arch.,	Washington, D. C.,	3414 Sansom St.
Millar, Willis Norman,	A.,	Pittsburg,	Dorm. 32 Wilson.
Mills, Charles Peale,	Sc. 2,	Philadelphia,	1909 Chestnut St.
Milner, Byron Albert,	Wh.,	do.	1106 Morris St.
Mitchell, Paul George,	A.,	Cresson,	Dorm. 357 Craig.
Morrison, Max Philip,	M. E.,	Philadelphia,	618 Parrish St.
Murphy, William Robert,	A.,	do.	223 S. 37th St.
Myers, John Andrew,	Arch.,	do.	"The Newport," 16th and Spruce Sts.
Newbold, Richard Sydney,	M. E.,	Norristown,	3337 Walnut St.
Nields, John Lent,	M. E.,	Philadelphia,	707 S. 51st St.
Nields, Mosmer Aldewin,	A.,	West Chester,	3705 Walnut St.
Page, Joseph French, 3d,	A.,	Paoli,	Dorm. 207 Leidy.
Perkins, Francis Drinker, Jr.,	C. E.,	Beverly, N. J.,	Dorm. 224 McKean.
Perkins, Rowan Penrose,	M. E.,	Philadelphia,	2005 De Lancey Pl.
Perry, Lynn Elwood,	Sc. 2,	Salisbury, Md.,	Dorm. 13 Bodine.
Potter, Clarence Wonderly,	A.,	Philadelphia,	225 Tulpehocken, Gtn.
Rambo, Harold Sibley,	A.,	Absecon, N. J.,	1909 W. Dauphin St.
Read, John Smilie,	A.,	Camden, N. J.,	[604 Cooper St.]
Redding, Charles Summerfield,	E. E.,	Philadelphia,	611 S. 10th St.
Reeves, Rufus Sargent,	A.,	do.	1525 Spruce St.
Reiner, John Louis,	A.,	Villa Nova,	117 S. 34th St.
Riley, Charles Madison,	Wh.,	do.	500 Girard Building.
Ringe, Henry Ralph,	Wh.,	Three Tuns.	
Robinson, Laurence Eugene,	Arch.,	Bloomington, Ill.,	Dorm. 140 Provost Smith.
Rodman, Thomas Ernest,	M. E.,	Philadelphia,	1011 S. 48th St.
Rogers, Frank Henkels,	M. E.,	Wyncote,	Dorm. 136 Fidler.
Rommel, William Gus,	C. E.,	Wilmington, Del.,	[233 Broome St.]
Sajous, Louis Theodore de Medici,	A.,	Philadelphia,	2043 Walnut St.
Sakai, Yunosuke,	Arch.,	Kamiinagori, Nagano-ken, Japan,	3422 Sansom St.
*Salomon Benjamin Louis,	C. E.,	Louisville, Ky	
Scott, Forrester Holmes,	Wh.,	Philadelphia,	4041 Spruce St
Sewell, Harry Dickey,	A.,	Mansfield, Ohio,	3614 Walnut St.

*Absent on leave.

STUDENTS.

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Name	Course.	Residence.	City Address.
Sherwood, George Horace, Jr.,	Ch.,	Philadelphia,	1932 N. Park Ave.
Shillingford, William Galloway,	Wh.,	do.	249 Harvey St., Gtn.
Shoemaker, Louis Jack,	Wh.,	do.	6366 Sherwood Road, Overbrook.
Sinkler, Wharton, Jr.,	A.,	do.	1606 Walnut St.
Sledge, Edward Simmons,	A.,	Mobile, Ala.,	113 S. 37th St.
Smith, Arthur Thomas,	Arch.,	Philadelphia,	5439 Germantown Av.
Smith, Ridgway Pancoast,	C. E.,	do.	Dorm. 10 Morgan.
Snyder, Edward Reigle,	M. E.,	do.	3409 N. 17th St.
Snyder, John Amos,	A.,	do.	2402 N. Broad St.
Stafford, Morton Ogden,	Ch.,	do.	616 E. Leverington Ave., Roxborough.
Stern, Julius David,	A.,	do.	1421 N. 15th St.
Stetser, John Joseph,	A.,	Chester.	
Stifler, Francis Carr,	A.,	Augusta, Me.,	Dorm. 36 Bodine.
Sullivant, Andrew Denny Rodgers,	Arch.,	Plainfield, N. J.,	514 Queen Lane, Gtn.
Taylor, James Depue,	C. E.,	Lockport, N. Y.,	307 S. 39th St.
Terry, Samuel Heebner,	Ch. E.,	Philadelphia,	1706 Wallace St.
Thompson, Faith,	B.,	do.	1406 Lenox Av., Tioga.
Traver, Harrison Baxter,	Arch.,	Hudson, N. Y.,	3303 Walnut St.
*Tunnell, Frederic Harold,	Sc. 1,	Philadelphia,	250 Tulpehocken, Gtn.
*Van Cleve, Morrison Robb,	A.,	Mansfield, Ohio.	
Walter, Cornelius Jacob,	A.,	Philadelphia,	6610 Woodland Ave.
Weddic, Albert Studebaker,	A.,	Troy, Ohio,	3705 Walnut St.
Weills, William Edgar,	A.,	Harrisburg,	3234 Chestnut St.
Weiss, Harry Bischoff,	B.,	Philadelphia,	2956 Frankford Ave.
Welsh, Raymond Wilmer,	E. E.,	do.	3413 Baring St.
Wetherill, Francis Macomb,	A.,	do.	3734 Walnut St.
Wherry, Edgar Theodore,	Ch.,	do.	1729 Norris St.
Willing, Charles,	Arch.,	do.	Summit St., Chest- nut Hill.
Willson, Laurence Merrill,	Sc. 3,	do.	307 S. 39th St.
Wittkorn, Thomas Henry,	Wh.,	Swarthmore.	
Wolf, Eugene,	A.,	Philadelphia,	1323 N. Broad St.
Wolf, Franz Herman Dercum,	M. E.,	do.	5033 Knox St., Gtn.
Wood, Richard Francis, Jr.,	A.,	do.	410 S. 15th St.
Yocum, Isaac De Haven, Jr.,	A.,	do.	3614 Spring Garden St.
Zelley, Joseph Antrim,	E. E.,	Burlington, N. J.	
Zerbe, Jonathan Leo,	A.,	Tyrone,	3606 Locust St.

JUNIORS.

Abrams, Joseph Addison,	A.,	Philadelphia,	3438 Walnut St.
Alburger, Elmer Russell,	M. E.,	do.	1421 S. 58th St.
Apeldorn, Guy Scott,	M. E.,	do.	2113 N. Howard St.
Atkin, Hercules Boyd,	M. E.,	do.	3615 Baring St.
Bailey, Harrington Morell,	M. E.,	do.	3111 Montgomery Av.
Baker, Franklin Wharton,	C. E.,	do.	221 Winona Ave., Gtn.
Bandman, Chester Gabriel,	A.,	Birmingham, Ala.,	Dorm. 338 Foerderer.
Bauder, Charles Franklin,	E. E.,	Philadelphia,	2826 Columbia Ave.
Bead, Walter Ellwood,	Wh.,	York,	Dorm. 241 Smith.

*Absent on leave.

Name.	Course.	Residence.	City Address.
Bell, Joseph Horace,	Ch.,	Norwich, N. Y.,	Dorm. 127 Class of '87
Benjamin, Joel Malvern,	M. E.,	Atlanta, Ga.,	3234 Chestnut St.
Benners, Alfred Eugene, Jr.,	E. E.,	Philadelphia,	4218 Spruce St.
Bilyeu, Charles Smith,	C. E.,	do.	3400 Walnut St.
Blass, Charles Arthur,	Wh.,	Eric,	Dorm. 231 Craig.
Bolard, David Albert,	A.,	Philadelphia,	824 N. 5th St.
Booth, George,	M. E.,	do.	3533 Locust St.
Bortin, Harry,	C. E.,	do.	1233 S. 4th St.
Brautigam, Ernest Laffitte,	C. E.,	do.	527 S. 42d St.
Bright, Dudley Seymour,	C. E.,	Washington, D. C.,	3705 Walnut St.
Broadbent, Alfred Lec,	Ch.,	Philadelphia,	4455 Frankford Ave.
Brooke, George Albert, Jr.,	E. E.,	Norristown,	Dorm. 378 Hopkinson.
Brooks, George Reitzle,	C. E.,	Philadelphia,	2146 N. Park Ave.
Brown, Charles T.,	Wh.,	do.	128 W. Upsal St., Gtn.
Brown, John Tabele, Jr.,	A.,	do.	Prospect Ave., Chestnut Hill.
Brown, Samuel Lehman,	A.,	do.	Prospect Ave., Chestnut Hill.
Bryans, Henry Bussell,	M. E.,	do.	3311 Ridge Ave.
Butler, Samuel,	M. E.,	West Chester,	Dorm. 107 Leidy.
Buzby, Percy Woodward,	C. E.,	Philadelphia,	4721 Chester Ave.
Cadwallader, Wallace Laird,	C. E.,	do.	430 S. 45th St.
Caldwell, Ralph Grant,	A.,	do.	1819 Venango St.
*Calhoun, John Ellwood.	Wh.,	do.	2230 Catharine St.
Cannon, James Louis,	Wh.,	do.	1246 N. Front St.
Carter, Oscar Sedgwick,	Wh.,	Cynwyd.	
Carson, John Baker,	A.,	Philadelphia,	1033 Spruce St.
Carwithen, VanCourt,	Wh.,	do.	636 N. 17th St.
Chance, Edwin Mickley,	Ch.,	do.	4429 Chestnut St.
Christiani, Carl Antoine,	C. E.,	Washington, D. C.,	"The Normandie."
Coffin, Henry P.,	Wh.,	Philadelphia,	Dorm. 306 Brooks.
Coonahan, William Joseph,	M. E.,	do.	48 E. Clapier St., Gtn.
Cooper, Stanley Fenimore,	Wh.,	do.	1826 N. Broad St.
Cope, Edge Taylor, 3d.	M. E.,	West Chester,	Dorm. 404 Brooks.
*Croasdale, Laurence Brodhead,	M. E.,	Delaware Water Gap.	
Cuppitt, Frank Raymond,	M. E.,	Philadelphia,	274 High St., Gtn.
Dallam, David English, Jr.,	Wh.,	do.	Wissahickon Ave., Germantown.
Dalton, John Franklin, Jr.,	Ch.,	Chester.	
Damon, James Graham,	Wh.,	Philadelphia,	300 S. 36th St.
Dana, William Jay,	M. E.,	do.	3925 Walnut St.
Davis, Henry Blaine,	A.,	Burlington, N. J.,	3421 Walnut St.
Davis, John Ralph,	Ch.,	Norristown.	[215 Stanbridge St.]
DeLone, Joseph Michael,	E. E.,	Harrisburg,	Dorm. 130 Provost Smith.
Dennis, Bruce Wallahan,	A.,	Goshen, N. Y.,	Dorm. 341 McKean.
DeVan, Rugeley Pierson,	C. E.,	Wytheville, Va.,	3533 Locust St.
Duke, Alfred Wilson,	C. E.,	Hewlett, Va.,	206 S. 37th St.
Dulles, James Bateman,	M. E.,	Philadelphia,	300 S. 36th St.
Drayton, Newbold,	C. E.,	Penllyn,	5 S. 21st St.
Dyer, Charles Dickcy, Jr.,	C. E.,	Ben Avon,	3705 Walnut St.

*Absent on leave.

Name.	Course.	Residence.	City Address.
hlers, Carl Herman,	E. E.,	Philadelphia,	3227 N. 17th St.
lliott, Marcus Holladay,	A.,	Englewood, N. J.	Dorm. 50 Smith.
vans, Henry Sebastian,	E. E.,	West Chester.	
vans, Wayne Standley,	M. E.,	Philadelphia,	4616 Leiper St., Fkd.
etterolf, Horace Mann,	Wh.,	Collegeville,	3303 Walnut St.
iske, Charles Pomeroy,	Ch. E.,	Buffalo, N. Y.,	3605 Locust St.
itzmaurice, William John, Jr.,	C. E.,	Philadelphia,	1508 N. Stillman St.
letcher, Gustavus Bergner,	M. E.,	Radnor,	
orsythe, James Hutchison,	Arch.,	Mercer,	Dorm. 389 Lippincott.
oster, Alexander, Jr.,	C. E.,	Philadelphia,	2418 Poplar St.
rank, Benjamin,	Arch.,	Baltimore, Md.,	Dorm. 22 Morgan,
artland, John Joseph, 2d,	C. E.,	Philadelphia,	3816 Spg. Garden St.
aston, Frederick Harold,	A.,	do.	6341 Woodbine Ave.
eorge, Howard Howell,	C. E.,	Camden, N. J.	[1445 Kenwood Ave.]
ibbons, Oliphant,	A.,	Philadelphia,	323 Pine St.
ill, Calvert Burke,	E. E.,	Baltimore, Md.,	3303 Walnut St.
imbel, Bernard Feustmann,	Wh.,	Philadelphia,	Dorm. 117 McKean.
oldbaum, Jacob Samuel,	Ch.,	do.	1745 N. 8th St.
odfrey, Ross Orange,	Ch. E.,	do.	2427 Nicholas St.
older, Mandes L.,	C. E.,	do.	1434 S. 12th St.
oldsmith, Herbert Nathaniel,	M. E.,	do.	2336 N. Broad St.
oodfellow, Arthur Norton,	M. E.,	do.	3529 Locust St.
oodman, John Smith,	C. E.,	do.	820 S. St. Bernard St.
raham, Donald,	C. E.,	do.	4304 Walnut St.
reathead, John Francis,	C. E.,	do.	3007 Poplar St.
all, James Scott,	Wh.,	do.	2615 Bainbridge St.
anley, Bessie Graham,	B.,	do.	1255 N. 10th St.
ansen, Mary,	B.,	Warwick, N. Y.,	3215 Summer St.
arris ,Henry Samuel,	A. B.,	Columbia, Ch. E., New York, N. Y.,	Dorm. 136 Fitler.
arry, Carolus Powel,	A.,	Norristown.	
artley, Harry,	B.,	Narberth.	
artzell, Henry Kerr, Jr.,	Ch.,	Allentown,	Dorm. 35 E. F. Smith.
aug, Thaddeus Leon Euclid,	M. E.,	Berkeley, Cal.,	4126 Chester Ave.
awley, Samuel Davis, 2d.	Arch.,	Philadelphia,	Hamilton Court.
eller, Archibald Carl,	A.,	Factoryville.	
epburn, Minor Danenhower,	Ch.,	Lansdale,	1013 E. Columbia Av.
ebreucht, Otto Gustave,	A.,	Philadelphia,	2326 St. Alban's Pl.
ill, Everett Wentworth,	Wh.,	Russell, Kan.,	Dorm. 227 Baldwin.
odge, Horace Bush,	C. E.,	Palatine Bridge, N. Y.	3703 Woodland Ave.
ood, Warren Blake,	M. E.,	Philadelphia,	5141 Thompson St.
opkinson, Edward, Jr.,	A.,	do.	1424 Spruce St.
opper, Thomas B,	M. E.,	Chesapeake City, Md.	4818 Baltimore Ave.
oskins, Francis Guild,	C. E.,	Philadelphia,	4051 Aspen St.
owell, Gersham Mott,	Wh.,	Morrisville,	Dorm. 226 Baldwin
ublely, Francis Curtis,	M. E.,	Philadelphia,	3714 Chestnut St.
uch, Alwin Frank,	C. E.,	do.	1218 N. Franklin St.
uff, Thomas Ellwood, Jr.,	Ch.,	do.	331 Dickinson St.
uggins, John Robinson,	A.,	do.	2612 N. Jessup St.

Name	Course.	Residence.	City Address.
Hulin, George Hyde,	Arch.,	Franklin,	Dorm. 34 Memorial
Hulton, Florence,	B.,	Philadelphia,	2853 Boudinot St.
Hummer, Wayne,	Wh.,	La Salle, Ill.,	Dorm. 14 Morris.
Ingle, Mark James,	Ch.,	Philadelphia,	2049 Wallace St.
Jacobs, Michael William, Jr.,	A.,	Harrisburg,	3604 Walnut St.
Jacobs, Robert Augustus,	Wh.,	Somerfield,	Dorm. 226 Baldwin.
Jenkins, Warren Carrol,	E. E.,	Lansdale.	
Jones, Charles Ramey,	E. E.,	Norristown.	
Jones, Lloyd Peniston,	M. E.,	Philadelphia,	Dorm. 106 Leidy.
Joyce, Bryan Pope,	M. E.,	Louisville, Ky.	212 S. 37th St.
Kennedy, William Ernst,	A.,	Philadelphia,	1800 S. Logan Sq.
Kirk, Carrie Miller,	B.,	Lansdowne.	
Kister, Alfred B.,	C. E.,	Philadelphia,	2339 N. College Ave.
Knowles, Emmett Bryan,	M. E.,	do.	3225 Arlington St.
Koenig, Waldemir Addison,	Ch.,	do.	1419 Poplar St.
Krauss, Edward Eugen,	M. E.,	do.	1937 N. Napa St.
Layton, Caleb Sipple,	A.,	Georgetown, Del.,	Dorm. 329 Franklin.
Lee, Lothrop,	A.,	Haverford,	3537 Locust St.
Levene, Israel George,	C. E.,	Philadelphia,	7212 Saybrooke Ave.
Lewis, Henry Martyn, Jr.,	C. E.,	Staunton, Va.,	Dorm. 228 Class of '87.
Lewis, Robert Morton,	A.,	Philadelphia,	3453 Woodland Ave.
Lewis, Shippen,	A.,	do.	3453 Woodland Ave.
Loos, Paul R.,	M. E.,	Narberth.	
McCormick, George Wylie,	C. E.,	Philadelphia,	1019 Brown St.
McCulloh, George,	A.,	do.	2215 Locust St.
McGoodwin, Robert Rodes,	Arch.,	Bowling Green, Ky.,	Dorm. 434 Class of '87.
McKnight, Howard Allison,	A.,	Philadelphia,	400 N. 40th St.
Macfarlan, Donald,	A.,	do.	1805 Chestnut St.
Mackay, Robert Ronald,	A.,	do.	1416 N. 16th St.
MacMillan, Frederick Ebenezer,	A.,	Haverhill, Mass.,	3533 Locust St.
Maits, Charles Buckley,	A.,	Pittsburg,	Dorm. 42 Bodine.
Mann, Philip Leopold,	E. E.,	Beverly, N. J.	
Marshall, John Theodore,	A.,	Philadelphia,	1718 Pine St.
Martin, Sydney Errington,	Arch.,	Fox Chase,	3339 Walnut St.
Martin, Thomas Scott,	C. E.,	Philadelphia,	770 W. 41st St.
Mason, John Alden,	A.,	do.	212 W. Chelton Ave., Gtn.
Masters, Albert Ralph,	C. E.,	Haddonfield, N. J.,	423 S. 40th St.
Mendenhall, John Cooper,	A.,	Philadelphia,	4734 Penn St. Frankford.
Millar, Bruce Drum,	A.,	Pittsburg,	Dorm. 3: Wilson.
Miller, Arthur Persons,	Ch.,	Philadelphia,	320 S. Broad St.
Mills, Albert Burd,	Wh.,	do.	1909 Chestnut St.
Mink, George Washington, Jr.,	Wh.,	do.	2628 Ellsworth St.
Moench, Theodore Frederic,	A.,	do.	629 N. 20th St.
Moffitt, Thomas Robinson,	A.,	Harrisburg,	3600 Walnut.
Monaghan, Paul,	Arch.,	Philadelphia,	62 N. 36th St.
Montgomery, Archibald Roger, 2d,	C. E.,	Radnor.	3537 Locust St.
*Moore, Arthur Roland,	C. E.,	Buffalo, N. Y.	
Moore, Louis Joseph Francis,	C. E.,	Sharon Hill.	

*Absent on leave.

Name.	Course.	Residence.	City Address.
Morgan, Ralph,	A.,	Philadelphia,	4418 Osage Ave.
Müller, Hugo Arthur,	A.,	Haddonfield, N. J.	Dorm. 24 Memorial.
Murray, Leslie Walter,	Arch.,	Portland, Oregon,	3319 N. Bouvier St.
Neely, Walter Clarkson,	Wh.,	Philadelphia,	443 Hansberry St., Gtn.
Nibecker, Karl,	M. E.,	Glen Mills.	
Nicholson, William Shomo,	E. E.,	Kansas City, Mo.,	3705 Walnut St.
Olson, Ray Leander,	Arch.,	Philadelphia,	206 So. 36th St.
Pierce, Stanley Ladomus,	E. E.,	do.	5053 Wade St., Gtn.
Plummer, George William,	Ch.,	do.	1301 W. Susquehanna Ave.
Pollitt, Edward,	C. E.,	do.	1738 Gillingham St., Frankford.
Raine, Wendell Phillips,	Wh.,	Harrisburg,	3604 Walnut St.
Riley, Henry Joyce,	A.,	Philadelphia,	Dorm. 251 New York Alumni.
Refsnyder, Harry Price,	C. E.,	Phoenixville,	
Robertson, George Franklin,	E. E.,	Whaleyville, Va.,	3234 Chestnut St
Ross, Edward Allen,	C. E.,	Philadelphia,	2402 N. 15th St.
Ryder, Robert Beahm,	E. E.,	Norristown.	
Sawyer, William Alfred,	A.,	Des Moines, Iowa,	3400 Walnut St.
Scarlett, Hunter Watt,	A.,	Erie,	Dorm. 20 Bodine.
Schutte, Leroy Brown,	Wh.,	do.	113 S. 37th St.
Schwarz, Henry John,	Arch.,	Sioux Falls, S. D.,	Dorm. 360 Craig.
Service, William Spencer,	Wh.,	Bala,	3337 Walnut St.
Shick, Augustus Walton,	A.,	Philadelphia,	1307 Somerset St.
Shoemaker, Joseph Moore,	Wh.,	do.	415 W. Price St., Gtn.
Shoemaker, Robert Jay,	Ch.,	Knox,	3712 Locust St.
Simpers, Thomas Eder,	E. E.,	Philadelphia,	930 Farragut Terrace,
Simpson, Bertine Gillette,	M. E.,	Narberth,	
Simkins, Eugene Schuyler,	E. E.,	Lansdowne.	
Smith, Francis Palmer,	Arch.,	Cincinnati, Ohio,	Dorm. 389 Lippincott.
Smith, Louis Christian,	M. E.,	Philadelphia,	835 N. 41st St.
Stager, William Edson,	E. E.,	Palmyra, N. J.	
Stanton, William Cyril,	Arch.,	Philadelphia,	4616 Cedar Ave.
Stine, Sidney Livingston,	M. E.,	Toledo, Ohio,	3400 Walnut St.
Strain, John Dougal,	A.,	Philadelphia,	2006 E. Sergeant St.
Stuckert, Howard Morris,	A.,	do.	1502 Diamond St.
Swain, Warner McKechnie,	A.,	do.	3303 Race St.
Thompson, John Small,	C. E.,	Carlisle,	Dorm. 331 Franklin.
Thomas, Frederick Throckmorton,	Wh.,	Philadelphia,	40 W. Walnut Lane Germantown.
Todd, Joseph Zook,	Wh.,	Tacoma, Wash.,	Dorm. 139 Provost Smith.
Topping, Wilbur Baird,	A.,	Pittsburg,	300 S. 36th St.
Townsend, John William, Jr.,	C. E.,	Bryn Mawr,	Dorm. 107 Leidy.
Troelsch, Henry William,	C. E.,	Philadelphia,	2637 Girard Ave.
Turner, Charles Alexander,	M. E.,	do.	146 Pelham Rd., Gtn.
Van Horn, William Thomas, Jr.,	Ch. E.,	Newtown,	3605 Locust St.
Van Scoyoc, Harry Stewart,	C. E.,	Altoona,	4735 Spruce St.
Vondercrone, John Walter,	E. E.,	Philadelphia,	1837 Venango St.

Name.	Course.	Residence.	City Address.
Walker, James Abraham,	A.,	Philadelphia,	1617 Green St.
Wanner, Henry Eckert,	Ch.,	York,	Dorm. 32 Bodine.
Warnick, John Hagey,	M. E.,	Philadelphia,	218 W. Wyoming Av. Germantown.
*Watkin, William Ward,	Arch.,	Danville.	
Watson, William Shermer,	A.,	Philadelphia,	5333 Wayne St., Gtn.
Way, John Harold,	M. E.,	St. Davids,	3614 Walnut St.
Weiss, Charles Robert,	M. E.,	Philadelphia,	3529 Locust St.
Wherry, Helen Marie,	B.,	do.	1729 Norris St.
Williams, Carlton,	M. E.,	Blackwood, N. J.	3234 Walnut St.
Williams, Kenneth,	Ch.,	Corry,	Dorm. 52 Memorial
Williamson, Clarence Heiss,	M. E.,	Bellwood,	3614 Walnut St.
Willoughby, Alfred Slocum,	Arch.,	Philadelphia,	1433 W. Norris St.
Wilson, Luther Elgin,	A.,	Birmingham, Ala.,	Dorm. 399 New York Alumni.
Winterstein, Otto Alfred,	E. E.,	Philadelphia,	1625 Cayuga St.
Wolf, Daniel Dorsey,	M. E.,	do.	1833 Fountain St.
Wolff, Alfred Daniel, Jr.,	C. E.,	do.	2720 N. 13th St.
Wood, Robert Learning,	C. E.,	do.	410 S. 15th St.
Woodroffe, George Henry,	M. E.,	do.	3600 Walnut St.
Wynkoop, Frederick,	Ch.,	Brownsburg,	221 S. 37th St.
Yrigoyen, Pedro Juan,	M. E.,	City of Mexico, Mex.	Dorm. 33 E. F. Smith
Young, Edwin Starr,	C. E.,	Philadelphia,	1601 Brown St.
Young, James Barclay,	A.,	Washington, D. C.,	4047 Locust St.
Young, Rowland Lawrence,	E. E.,	Philadelphia,	3605 Chestnut St.
Young, Thomas Gorsuch,	M. E.,	Baltimore, Md.,	3303 Walnut St.

SOPHOMORES.

Abbott, Edwin Littleton,	C. E.,	Berlin, Md.,	3434 Walnut St.
Adler, Julius,	C. E.,	Philadelphia,	2254 Van Pelt St.
Albrecht, Emil Rudolph,	E. E.,	do.	1207 W. Allegheny Av.
Allen, Alonzo Rushton,	Wh.,	do.	[Essex and Woods Ave., Narberth].
Ashbridge, Donald MacQueen,	M. E.,	do.	Oak Lane.
Astley, Royden Jefferson,	Ch.,	do.	5211 Girard Ave.
Atkinson, Walter Franklin,	A.,	Camden, N. J.,	[604 N. 5th St.]
Bailey, Frank Guinn,	M. E.,	Philadelphia,	3614 Walnut St.
Baker, John William,	A.,	Mobile, Ala.,	111 S. 34th St.
Baldwin, Allen Thomas,	Ch.,	West Chester,	Dorm. 309 Brooks.
Baltzell, Edward Digby,	A.,	Fox Chase.	
Barakat, Samuel Wickes,	C. E.,	Philadelphia,	256 S. 44th St.
Barclay, Sally Mark,	B.,	Louisville, Ky.,	[Box 69, Ridley Park]
Barker, Joseph Hudson,	A.,	Birmingham, Ala.,	Dorm. 407 Leidy.
Bartholomew, Paul A.,	Arch.,	Prospect,	Dorm. 373 Hopkinson
Bassette, Roy Donald,	Arch.,	New Britain, Conn.,	3529 Locust St.
Baxter, Osmond Monroe,	Arch.,	Cold Spring, N. Y.,	3715 Woodland Ave.
Bear, Grover Esidor,	C. E.,	Fogelsville,	3727 Spruce St.
Beekley, Waldron Cheyney,	Ch. E.,	Philadelphia,	6735 Leeds St.
Bickham, Martin Hays,	A.,	Churchtown,	219 S. 33d St.
*Bloch, Carl,	A.,	Macon, Ga.	

*Absent on leave.

STUDENTS.

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Name.	Course.	Residence.	City Address.
Brooks, Edwin Hinchman,	M. E.,	Rochester, N. Y.,	Dorm. 408 Leidy.
Brown, Thomas Wistar, 3d,	A.,	Philadelphia,	School Lane, Gtn.
Brown, Walter Earle,	C. E.,	do.	4021 Spg. Garden St.
Brown, William Laird,	E. E.,	Lansdowne.	
Buckley, William Robert,	A.,	Wilkesbarre,	Dorm. 33 Memorial.
Bythiner, Eugene,	E. E.,	Philadelphia,	1715 Master St.
Cannon, Horace Henry,	E. E.,	Camden, N. J.,	[576 Benson St.]
Cathcart, Robert Henry, Jr.,	Wh.,	Newburg, N. Y.,	3438 Walnut St.
Chodowski, Ethel,	B.,	Philadelphia,	1436 N. Franklin St.
Chamberlain, Lewis Boyer,	C. E.,	Cheltenham.	
Clark, Edward Lyon,	B. E.,	do.	239 S. 21st St.
Clayton, Albert Joshua,	E. E.,	do.	4216 Chester Ave.
Cleaver, Horace Jones,	C. E.,	Ardmore.	
Cochran, Joseph Hunsicker,	Wh.,	Wyncote,	3453 Woodland Ave.
Cody, Harold Bryant,	Arch.,	Erie,	3619 Sansom St.
Collins, Archie Stewart,	Arch.,	Philadelphia,	842 N. 40th St.
Connor, Isaac Baum,	M. E.,	Franklin,	3614 Walnut St.
Conway, Adam Southern,	E. E.,	Philadelphia,	1811 Green St.
Cooke, Charles Boker, Jr.,	E. E.,	do.	2115 N. 13th St.
Cope, Robert Harper,	M. E.,	Media,	Dorm. 412 Leidy.
Cornell, Herbert Watson,	Wh.,	Philadelphia,	1725 N. 16th St.
Corson, Egbert Dexter,	Wh.,	Lockport, N. Y.,	Dorm. 24 Bodine.
Coyne, James Kitchenman,	Ch.,	Philadelphia,	1116 W. Lehigh Ave.
Crawford, Alexander Loller,	Wh.,	do.	4033 Spruce St.
Crawford, Charles Montgomery, Jr.,	A.,	Hartford, Conn.,	3537 Locust St.
Crowell, Abraham Albert,	C. E.,	do.	545 N. 6th St.
Cuskaden, Millard, Erwin,	A.,	Atlantic City, N. J.,	2506 N. 19th St.
Darlington, Henry Saulnier,	C. E.,	Media.	
Davis, Malcolm Irvin,	Wh.,	Philadelphia,	11 S. 38th St.
Day, Beaver Wade,	Arch.,	Fargo, N. D.,	3608 Walnut St.
Dean, Harry Clinton,	M. E.,	Philadelphia,	3542 N. Broad St.
Del Rossi, Alfred,	E. E.,	do.	735 Montrose St.
Dettre, Linn Ambrose,	Wh.,	Norristown,	3705 Walnut St.
DeVan, Howard Gove,	C. E.,	Wytheville, Va.,	3533 Locust St.
Dever, Harvey Conquest,	C. E.,	Philadelphia,	4436 Sansom St.
Dickerman, Franklin Forrest,	M. E.,	do.	51st and Wynnefield Avenue.
Dickey, Horace Clement,	E. E.,	do.	4 S. 43d St.
Disston, Hamilton,	A.,	do.	3337 Walnut St.
Dixon, John Shipley,	A.,	Wallingford,	Dorm. 133 Baird.
Doberstine, John Noble,	A.,	Alden,	Div. School, 50th and Woodland Ave.
Dodge, Henry Henley,	C. E.,	Washington, D. C.,	307 S. 30th St.
Doering, William Helwig,	Ch.,	Philadelphia,	2729 N. 13th St.
Donnelly, Augustine Leo,	E. E.,	do.	1521 Wallace St.
Doriss, Howard,	C. E.,	do.	220 W. Coulter St., Gtn.
Dwyer, James Kain,	E. E.,	Antrim,	3330 Walnut St.
Eager, William Goronwy,	M. E.,	Louisville, Ky.,	3617 Locust St.
Eakins, Elmer Ellsworth,	Ch.,	Philadelphia,	1507 French St.
Eckenrode, David Martin,	Wh.,	York,	Dorm. 34 Morris.

Name.	Course.	Residence.	City Address.
Edelman, Samuel,	A.,	Philadelphia,	3234 Chestnut St.
Eichengreen, Leon B,	M. E.,	Merchantville, N. J.	
Emig, Howard Abraham,	Wh.,	York,	Dorm. 104 Brooks.
Emory, Lloyd Tilghman,	C. E.,	Centerville, Md.,	Dorm. 45 E. F. Smith.
Esrey, William Provost,	M. E.,	Chester,	3533 Locust St.
Evans, John Clifford,	Ch. E.,	Philadelphia,	1901 Tioga St.
Eysenbach, George Gifford,	Ch.,	do.	611 N. 10th St.
Fairlamb, Horace West, Jr.,	Ch. E.,	Chester,	[709 E. 14th St.]
Feinberg, Fanny Polano,	B.,	Philadelphia,	117 N. 7th St.
Felton, John Garret,	E. E.,	Olney,	Front & Tabor Sts.
Fernberger, Samuel Weiller,	A.,	Philadelphia,	1306 N. Broad St.
Fitzpatrick, James Anthony,	C. E.,	do.	2301 Spg. Garden St.
Fleisher, Maurice Tracy,	A.,	do.	Dorm. 350 Baldwin.
Folger, Oliver Hayward,	M. E.,	Buffalo, N. Y.,	3347 Woodland Ave.
Folwell, Robert Cook, Jr.,	Wh.,	Sharon Hill,	625 Chestnut St.
Foster, Walter Chapin,	A.,	Washington, D. C.,	3705 Walnut St.
Franzen, Carl Gustave Frederick,	A.,	Hartford, Conn.,	Ardmore, Pa.
Fromme, Murray Bernard,	C. E.,	New York, N. Y.	Dorm. 31 Memorial.
Fulweiler, Howard Wells,	A.,	Wayne,	3533 Locust St.
Geiger, Arthur Edwin,	C. E.,	Philadelphia,	2330 Ridge Ave.
Goff, Byron Heazelton,	A.,	Pittsburg,	[147 S. Illinois Ave., Atlantic City, N. J.]
Good, Marriott Augustus,	M. E.,	Riverton, N. J.	
Goodwin, Harold, Jr.,	E. E.,	Philadelphia,	3927 Locust St.
Grabb, Eugene Granville,	Ch. E.,	Louisville, Ky.,	3234 Chestnut St.
Gray, Frederick James,	A.,	Philadelphia,	431 S. 43d St.
Greene, Edward Laurence,	Arch.,	New Haven, Conn.,	3705 Walnut St.
Greene, Garton Spence,	A.,	Philadelphia,	2034 Race St.
Griffiths, Charles Hayden,	A.,	Wilkesbarre,	Dorm. 33 Memorial.
Grunwell, John Roscoe,	Arch.,	Washington, D. C.,	Dorm. 220 McKean.
Halberstadt, George Moore,	C. E.,	Pottsville,	Dorm. 42 Memorial.
Haldeman, Clifford Lloyd,	E. E.,	Philadelphia,	1635 Park Ave.
Haldeman, Guy Kammerer Francis	C. E.,	do.	3213 Hamilton St.
de Hamel, John Belleau,	C. E.,	Merchantville, N. J.,	3400 Walnut St.
Hare, Alfred Guillon,	Wh.,	Strafford,	32 S. 22d St.
Harker, Norman Woolston,	A.,	Mt. Holly, N. J.,	Dorm. 379 Lippincott.
Harris, Henry Frazer,	Arch.,	Devon.	
Heilman, John Jacob,	C. E.,	Walberts,	3340 Walnut St.
Heller, Harry,	Ch., E.	Philadelphia,	934 N. Franklin St.
Helton, Roy Addison,	A.,	Washington, D. C.,	3234 Chestnut St.
Hepburn, Barry Hayes,	A.,	Philadelphia,	1728 Pine St.
Hess, Willard Mallalieu,	Wh.,	do.	1410 Christian St.
Hill, Horace Greenwood, Jr.,	M. E.,	do.	3622 Hamilton St.
Hilton, William Stanford,	M. E.,	do.	2123 Ontario St.
Holcombe, Herbert Dwight,	A.,	Troy,	Dorm. 238 Fittler.
Holland, James Burnette,	A.,	Conshohocken.	
Holmes, Gerald Anderson,	Arch.,	Philadelphia,	1718 N. 52d St.
*Horn, Max,	E. E.,	do.	2019 S. 5th St.
Horner, Edgell,	A.,	Detroit, Mich.,	5231 Laurens St., Gtn.
Hotaling, George Ryer,	Wh.,	New York, N. Y.,	Dorm. 37 Morgan.
Howell, John Lewis,	C. E.,	Morrisville,	Dorm. 368 Hopkinson.

*Absent on leave.

STUDENTS.

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Name.	Course.	Residence.	City Address.
Hughes, Harold Knight,	C. E.,	Philadelphia,	11 W. Upsal St., Gtn.
Humphrey, Laurence Paschal,	Wh.,	N. Tonawanda, N. Y.,	Dorm. 104 Brooks.
Hunter, William,	M. E.,	Philadelphia,	1502 Cayuga St.
Hurshman, Abraham Eleazer,	A.,	do.	753 Passyunk Ave.
Hyman, Arthur David,	C. E.,	Mt. Vernon, Ohio,	3406 Sansom St.
Iwaya, Kiheiji,	Wh.,	Tokio, Japan,	3400 Walnut St.
Jack, Richard Dutton,	M. E.,	Chester,	3533 Locust St.
James, Jesse Evans,	C. E.,	Elverson,	105 S. 34th St.
Jayne, Charles Adams,	Arch.,	Philadelphia,	931 N. Broad St.
John, Rutherford Lewis,	A.,	Media.	
Johnson, Arthur Charles, Jr.,	A.,	Castleton-on-Hud- son, N. Y.,	Dorm. 131 Craig.
Johnson, Edward Earle,	A.,	Philadelphia,	Dorm. 135 Fidler.
Johnson, Lindley, Jr.,	A.,	Rosemont,	3537 Locust St.
Jones, Roy Childs,	Arch.,	Garrett, Ind.,	Dorm. 451 New York Alumni.
Kane, William Reno,	C. E.,	Philadelphia,	Dorm. 52 Morris.
Keast, William Richard Morton,	Arch.,	do.	53 W. Duval St., Gtn.
Keely, David Fulmer,	Wh.,	do.	433 Lyceum Ave., Roxborough.
Keely, Edmund Mark, Jr.,	Ch.,	do.	113 So. 37th St.
Keenan, Walter Francis, Jr.,	M. E.,	Montclair, N. J.,	3533 Locust St.
Kervick, Francis William,	Arch.,	Miller's Falls, Mass.,	3416 Sansom St.
Kiefaber, Arthur Blaine,	Wh.,	Philadelphia,	2229 W. Tioga St.
Kinley, Arthur Ernest,	A.,	do.	Dorm. 10 Memorial.
Kirkpatrick, Clarence Appleton,	A.,	do.	203 DeKalb Sq.
Klebsattel, Christian Frederick,	A.,	Buffalo, N. Y.,	157 N. 20th St.
Klein, Percy Samuel,	Wh.,	Philadelphia,	2127 N. Uber St.
Laise, Clemens Albert,	Ch. E.,	do.	Oak Lane.
Lavery, James Flavian,	A.,	Lavery,	216 S. 37th St.
Lee, Ruckman,	A.,	Haverford,	3537 Locust St.
Levy, Lionel Faraday,	Ch. E.,	Philadelphia,	854 N. 8th St.
Lippincott, Joseph Wharton,	Wh.,	do.	Logan Station.
Logan, James, Jr.,	C. E.,	Mount Holly, N. J.,	Dorm. 41 Bodine.
Long, Bayard Henry,	B.,	Ashbourne.	
Lowe, Robert Launitz,	A.,	Elizabeth, N. J.,	3529 Locust St.
McCaffrey, John Carroll,	Ch.,	Philadelphia,	Dorm. 51 E. F. Smith.
McCandless, Thomas Wattson,	Wh.,	do.	1423 Mt. Vernon St.
McCurdy, James Aubrey,	A.,	do.	5901 Overbrook Ave.
Macfarlan, Douglas,	A.,	do.	1805 Chestnut St.
Mackay, Robert Ronald,	A.,	do.	1416 N. 16th St.
Mann, Benson, Jr.,	M. E.,	do.	Dorm. 108 Leidy.
Martin, Samuel Babbitt,	Wh.,	do.	3820 Locust St.
Melvin, Franklin Worthington,	Wh.,	do.	3125 Montgomery Ave.
Messinger, William,	M. E.,	do.	457 N. Third St.
Michaelis, Frederick Henry,	Arch.,	Kansas City, Mo.,	3604 Walnut St.
Monville, Francis Xavier,	E. E.,	Philadelphia,	3637 Market St.
Moore, Charles Angelo,	A.,	do.	4254 Parkside Ave.
Moore, Norman Thompson,	Wh.,	do.	4535 Pulaski Ave., Germantown.

Name.	Course.	Residence.	City Address.
Moore, Robert DeWitt,	C. E.,	Philadelphia,	6712 8th St., Oak Lane.
Morgan, Randal, Jr.,	A.,	Chestnut Hill,	3337 Walnut Street.
Morris, Leland Burnette,	A.,	Philadelphia,	526 Lincoln Drive, Germantown.
Muzzarelli, Gladstone Stuart Aloysius Edward,	E. E.,	do.	1908 N. 13th St.
Myers, Frank Albert,	C. E.,	do.	423 Fairmount Ave.
Nachod, Julius Ernest,	A.,	Glenside.	
Nash, Joseph Harold,	Arch.,	Leadville, Colo.,	4225 Pine St.
Neall, Emma Valeria,	B.,	Philadelphia,	2208 Hunting Park Ave.
Newbold, John DaCosta, Jr.,	M. E.,	Norristown,	3337 Walnut St.
Newbold, Richard Claxton,	C. E.,	Washington, D. C.,	100 S. 42d St.
Nides, Emanuel,	C. E.,	Philadelphia,	408 S. Watts St.
Nowack, Ernest William,	E. E.,	do.	860 N. 9th St.
Ogden, George Steelman,	M. E.,	do.	2208 Hunting Park Ave.
Oliensis, Gershon Lazarus,	A.,	do.	1335 N. 7th St.
Paddock, Ralph Lathrop,	M. E.,	Denver, Colo.,	300 S. 36th St.
Paul, Frank Albert,	A.,	Philadelphia,	4819 Windsor Ave.
Peirson, Christopher Lofin,	Ch.,	Radnor.	
Philler, Richard Montgomery,	Wh.,	Philadelphia,	3537 Locust St.
Platt, Frederick Epenetus,	A.,	Wallingford.	
Pickles, John Frederick,	M. E.,	Buckland, Conn.,	3727 Spruce St.
Pollock, William John,	E. E.,	Philadelphia,	1600 S. 15th St.
Potts, Thomas Swagar,	E. E.,	do.	1025 S. 46th St.
Powers, Frank Ethelwulf,	C. E.,	Pottsville,	Dorm. 378 Hopkinson.
Raiguel, William Magee,	C. E.,	Philadelphia,	603 N. 17th St.
Ramsey, David Madison,	A.,	Bryn Mawr,	300 S. 36th St.
Ratliff, Thomas Asbury,	A.,	Dayton, Ohio,	Dorm. 302 Brooks.
Reeves, Edmund Hoffman,	A.,	Bridgeton, N. J.,	Dorm. 397 New York Alumni.
Reeves, John Franklin,	A.,	do.	Dorm. 397 New York Alumni.
*Reger, Carl,	Arch.,	Rural Dale, W. Va.	
Richmond, Carl Edward,	Wh.,	Adams, Mass.,	Dorm. 375 Hopkinson.
Rinehart, Harry Paul, Jr.,	Arch.,	Philadelphia,	1723 N. 11th St.
Rishel, Harry Armstrong,	E. E.,	do.	2035 Diamond St.
Rodman, Clarence Wignall,	Ch.,	do.	1011 S. 48th St.
Rogers, Karl Henkels,	A.,	Wyncote.	
Rosengarten, George,	C. E.,	Philadelphia,	3725 Fairmount Ave.
Rothschild, LeRoy Berman,	Arch.,	do.	1832 N. 17th St.
Royce, Lewis Glenn,	Ch.,	Ardmore,	307 S. 39th St.
Rumig, Edward Francis,	A.,	Philadelphia,	1011 Dakota St.
Rushton, Allen Alonzo,	Wh.,	do.	1712 N. 28th St.
Russell, Howard Wootten,	C. E.,	Farmington, Del.,	Dorm. 362 Baird.
Sagendorph, Lloyd Arthur,	M. E.,	Philadelphia,	3533 Locust St.
Sailer, John Morris,	Wh.,	do.	2039 Spruce St.
Scheling, George Louis,	Arch.,	Brooklyn, N. Y.,	3529 Locust St.
Schilling, George Edward,	Wh.,	Philadelphia,	1017 S. 46th St.

*Absent on leave.

Name.	Course.	Residence.	City Address.
Schneeberg, David,	Wh.,	Philadelphia,	2912 N. 5th St.
Scott, John Harry,	Wh.,	do.	5008 Penn St., Fkd.
Seaton, Hartley Hawley,	Arch.,	Jacksonville, Fla.,	Dorm. 31 Morris.
Sellers, Stanley Lincoln,	Arch.,	Philadelphia,	1517 Marshall St.
Shoemaker, Dudley,	M. E.,	do.	6366 Sherwood Road, Overbrook.
Simm, Irene May,	B.,	Louisville, Ky.,	302 E. Hamilton Ct.
Simon, Carroll Williams,	C. E.,	Philadelphia,	2034 E. Allegheny Av.
Small, Edwin Weed,	A.,	Kansas City, Mo.,	3705 Walnut St.
Smith, Albert Tate,	C. E.,	Philadelphia,	3438 Walnut St.
Smith, Gilbert Haven,	A.,	do.	512 S. 47th St.
Smith, Hoxie Harrison,	A.,	Bryn Mawr,	2025 Locust St.
Snyder, Clarence M.,	A.,	East Lenox.	
Snyder, Francis Berry,	A.,	Philadelphia,	2402 N. Broad St.
Smith, George Lathrop,	M. E.,	do.	4415 Pine St.
Spangler, Evan McKinley,	Wh.,	York,	Dorm. 33 Morris.
Spruance, Frank Palin,	E. E.,	Philadelphia,	6505 N. 6th St., Oak Lane.
Stift, Perry William,	Wh.,	Little Rock, Ark.,	Dorm. 20 Morris.
Stockhausen, Thomas George,	A.,	Philadelphia,	1012 S. 45th St.
Sunderland, John Norman,	C. E.,	do.	5919 Girard Ave.
Swoyer, Alfred Edward,	M. E.,	Honesdale,	3614 Walnut St.
Takaki, Shunzo,	Wh.,	Tokio, Japan,	3400 Walnut St.
Taylor, Leonard Mulford,	Ch. E.,	Philadelphia,	Dorm. 244 Lippincott.
Teich, Frederic Charles,	Arch.,	New Britain, Conn.,	3715 Woodland Ave.
Tener, Henry Brown, Jr.,	C. E.,	Philadelphia,	2223 Tioga St.
Thompson, David,	C. E.,	do.	2233 Wallace St.
*Throckmorton, John Bayard,	M. E.,	Red Bank, N. J.	
Thumel, Augustus Bernard,	Arch.,	Cumberland, Md.,	Dorm. 454 N. Y. Alumni.
Tilden, Herbert Marmaduke,	A.,	Philadelphia,	McKean Ave., Gtn.
Townsend, Joseph Brevitt, 3d,	A.,	Overbrook,	Dorm. 120 McKean.
Tuck, Arthur Elmer, Jr.,	E. E.,	Camden, N. J.,	1716 Susquehanna Av.
Tustin, Jones Buckwalter,	C. E.,	Philadelphia,	1813 N. 22d St.
Tuttle, John Betley,	A.,	do.	111 S. 33th St.
Ungemach, Dena Daisy,	B.,	do.	2548 N. Douglas St.
Van Osten, Andrew Maurice,	M. E.,	do.	911 S. St. Bernard St.
Vendig, Norman Casseres,	Wh.,	do.	1922 N. 12th St.
Vogdes, Joseph Johnson,	C. E.,	do.	Ridgeland, W. Fair- mount Park.
Waite, Ralph John,	E. E.,	do.	1712 S. 15th St.
Walling, Ritner Kelsey,	C. E.,	do.	240 W. Rittenhouse St., Germantown.
Wanger, George,	A.,	Norristown	
Watson, John Warren,	Wh.,	Wayne,	300 S. 36th St.
Watt, James Cruickshank,	M. E.,	Philadelphia,	6373 Woodbine Ave.
Way, LeRoy Balliet,	Wh.,	Williamsport,	Dorm. 49 Morris.
*Webb, Henry Phelps,	C. E.,	Philadelphia,	1631 Jackson St.
Weed, Joseph Dunning, 2d,	M. E.,	Jacksonville, Fla.,	3537 Locust St.
White, Walter Rhoads,	A.,	Lansdowne.	
White, William McKean,	M. E.,	Philadelphia,	800 S. St. Bernard St.

*Absent on leave.

Name.	Course.	Residence.	City Address.
Widmer, Louis Charles,	C. E.,	Philadelphia,	2946 W. Dauphin St.
Wilbraham, Rossiter William,	M. E.,	do.	3313 Walnut St.
Wilensky, Max Harris,	A.,	Atlanta, Ga.,	Dorm. 51 Morris.
Wilson, Thomas Bateman,	M. E.,	Havre de Grace, Md.,	211 N. Paxton St.
Withers, Benjamin Thomas,	A.,	Washington, D. C.,	412 S. 18th St.
Wood, Clarence Hall,	M. E.,	Hatboro,	128 S. 17th St.
Wood, George Shaffer,	A.,	Philadelphia,	3213 Columbia Ave.
Wykes, Thomas Edward, Jr.,	Wh.	Grand Rapids, Mich.	Dorm. 301 Brooks.
Yarnall, Charles Herbert, Jr.,	A.,	Philadelphia,	4105 Baltimore Ave.
Yetman, William Henry, Jr.,	C. E.,	do.	2824 N. Eighth St.
Zeckwer, Jamard Richard,	M. E.,	do.	106 N. 34th St.

FRESHMEN.

Adams, Robert Rogers,	A.,	Philadelphia,	5701 Girard Ave.
Akahoshi, Tetsuma,	Wh.,	Tokio, Japan,	3400 Walnut St.
Aldrich, John Terrell,	C. E.,	Philadelphia,	3429 N. 22d St.
Allen, John Edward,	M. E.,	Erie,	Dorm. 32 E. F. Smith.
Arnold, John Carlisle,	A.,	DuBois,	Dorm. 145 Carruth.
Arrott, William,	Wh.,	St. David's,	
Baker, William Ellis,	C. E.,	Philadelphia,	5141 Chestnut St.
Ballard, Frederic Lyman, 2d,	A.,	Chestnut Hill,	
Bamberger, Morton DeWitt,	Wh.,	Brooklyn, N. Y.,	Dorm. 124 Baldwin.
Bamford, William Taylor,	Wh.,	Philadelphia,	1117 Shackamaxon St.
Bankart, Henry Reginald,	Wh.,	Bridgton, Me.,	3330 Walnut St.
Bankes, Earl Frederick,	Arch.,	Middleport,	Dorm. 387 Lippincott.
Barrett, Wilton Agnew,	Wh.,	Philadelphia,	6330 Burbridge St., Germantown.
Bauder, Harold Leo,	C. E.,	do.	2826 Columbia Ave.
Bauer, Walter Snyder,	Arch.,	do.	1630 W. Allegheny Ave.
Bechtel, John Clemmer,	A.,	Chester Valley,	
Beck, Alfred Fortin,	C. E.,	Philadelphia,	732 E. Cheltenham Ave., Germantown.
Bell, Howard James,	A.,	Auburn, N. Y.,	1813 Bouvier St.
Bellinger, Wilsey Simon,	E. E.,	La Salle, N. Y.,	Dorm. 129 Craig.
Bencker, Albert Lawrence,	Arch.,	Cincinnati, Ohio.	
Benton, Emory Sherwood,	A.,	So. Manchester, Conn.,	135 S. 46th St.
Beuttenmuller, Rudolph William,	C. E.,	Philadelphia,	12th and Wagner Av., Logan.
Bilyeu, William Frazier,	C. E.,	do.	1844 North 12th St.
Bishop, Clarence Peirce,	A.,	do.	E. Gorgas Lane, Mt. Airy.
Blank, Henry Valentine,	C. E.,	do.	3431 Spg. Garden St.
Bond, Walter Loucks,	Wh.,	York,	Dorm. 39 Morris.
Bonsack, Edwin,	M. E.,	Philadelphia,	3453 Woodland Ave.
Borrie, Alexander McGaw,	C. E.,	Newark, N. J.,	Dorm. 31 E. F. Smith.
Bradbury, Frederic Wootten,	Ch.,	Philadelphia,	5412 Wayne Ave., Germantown.

STUDENTS.

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Name.	Course.	Residence.	City Address.
Bradbury, Henry Wilson,	M. E.,	Philadelphia,	239 W. Rittenhouse St., Germantown.
Bradford, James Frederick,	M. E.,	Elkins Park,	[Spring & Elkins Ave.]
Braun, William Frederic Harold,	M. E.,	Philadelphia,	250 Pelham Road, Germantown.
Breitinger, Frederick William,	A.,	do.	2125 N. 21st St.
Britt, Walter Francis,	Arch.,	do.	2208 Tioga St.
Broadbelt, Wilford Fake,	C. E.,	do.	4300 Market St.
Broadwell, Howard,	E. E.,	do.	1735 S. 8th St.
Brook, John Andrews,	C. E.,	Ardmore.	
Brooks, Walter Wimpenny,	E. E.,	Philadelphia,	5300 Girard Ave.
Brown, Eugene Baker,	C. E.,	Coatesville,	121 S. 34th St.
Brown, Everett Henry, Jr.,	A.,	Philadelphia,	5414 Greene St., Gtn.
Brown, George Levi,	Wh.,	Williamsport,	Dorm. 502 Baldwin.
Brown, Harold Stacy,	Wh.,	Hudson, Mass.,	3707 Locust St.
Brown, Henry Paul, Jr.,	A.,	Philadelphia,	128 W. Upsal St., Germantown.
Brown, James Laird, Jr.,	Wh.,	Lancaster,	Dorm. 23 E. F. Smith.
Brown, John Henry, Jr.,	C. E.,	Philadelphia,	17 S. 34th St.
Burleigh, Charles Carroll,	Ch.,	Merchantville, N. J.	[210 E. Maple Ave.]
Buseck, Fred Louis,	Wh.,	Erie,	208 S. 37th St.
Byrne, Charles Lawrence,	C. E.,		Dorm. 53 Morris.
Cadwallader, Charles Girton, Jr.,	M. E.,	Philadelphia,	430 S. 45th St.
Caldwell, Edward Baker, Jr.,	Arch.,	Mansfield, Ohio,	Dorm. 328 Franklin.
Caldwell, William Taylor,	A.,	Philadelphia,	1819 Venango St.
Callender, Clarence N.,	Wh.,	Scranton,	Dorm. 249 Carruth.
Callow, Edwin Bert,	C. E.,	Lansdowne.	
Carr, Harry Germaine Downward,	A.,	Colwyn.	
Carver, Enoch, Jr.,	M. E.,	Charleston, W. Va.,	Dorm. 25 Morgan.
Cavanna, Elmer Robair,	Wh.,	Camden, N. J.,	[537 Cooper St.]
Chance, Thomas Mitchell,	Arch.,	Philadelphia,	4429 Chestnut St.
Chang, Henry Kunphrey,	Wh.,	Canton, China,	3218 Chestnut St.
Cheston, George Morris,	A.,	Philadelphia,	3453 Woodland Ave.
Christopher, Donald,	M. E.,	New York City, N. Y.	Dorm. 232 Craig.
Clapham, John Hartman,	E. E.,	Philadelphia,	S. W. Cor. Cumberland & Emerald Sts.
Clark, Leslie Dent,	A.,	Fresno, Cal.,	102 S. 36th St.
Clay, Edward Biddle,	Wh.,	Philadelphia,	Dorm. 108 Leidy.
Clay, William Thomas,	C. E.,	do.	2431 Fairmount Ave.
Clowes, George Archer,	A.,	do.	1517 Venango St.
Coffman, Elwood Foster,	Ch.,	Phoenixville.	
Cogan, Clement J.,	E. E.,	Bayoune, N. J.,	3531 Locust St.
Cole, Charles James, Jr.,	A.,	Philadelphia,	1712 N. 15th St.
Coles, Walter Francis,	A.,	do.	2139 N. Woodstock St.
Conover, Courtney,	Ch.,	Spartansburg,	1438 N. 6th St.
Corkran, Sewell Hopkins,	A.,	Media.	
Cox, Charles Howard,	Ch.,	Bridgeton, N. J.,	3608 Locust St.
Cratty, Jay Weinman,	A.,	Wilkinsburg,	1225 S. 57th St.
Criswell, George Stuart, Jr.,	A.,	Franklin,	Dorm. 11 Bodine.
Curtze, Edwin Herman,	Wh.,	Erie,	Dorm. 32 E. F. Smith.
Curry, Charles Hill,	A.,	Woodbury, N. J.,	1524 Chestnut St.

Name.	Course.	Residence	City Address.
Curtis, John Pollock,	Arch.,	Abilene, Tex.,	209 S. 33d St.
Dalton, James Morris,	A.,	Philadelphia,	126 E. Washington Lane, Germantown.
Danenhauer, Howard Lee,	Ch.,	do.	2811 Poplar St.
Darlington, Norman Seal,	M. E.,	West Chester.	
Day, Samuel Harvey,	Ch. E.,	Wilmington, Del.,	[Rockford.]
Decrow, Vere Royce,	M. E.,	Buffalo, N. Y.,	Dorm. 26 Bodine.
Dering, Edward Mulford, Jr.,	E. E.,	Philadelphia,	4155 Leidy Ave.
Dickson, Thomas Sinclair,	A.,	do.	4111 Locust St.
Dise, Joseph Ivan,	Arch.,	Glen Rock,	Dorm. 409 Leidy.
Doellner, Frederick Henry,	C. E.,	Philadelphia,	2425 N. 15th St.
*Doolittle, Harold,	M. E.,	Upper Darby.	
Dowlin, William Augustus,	Ch.,	West Chester,	Dorm. 390 Lippincott
*Drueding, Bernhard John,	E. E.,	Philadelphia,	517 W. Girard Ave.
du Pont, Eleuthere Paul,	E. E.,	Montchanin, Del.,	Dorm. 206 Leidy.
Dunbar, Louis Smith,	Arch.,	Bloomfield, N. J.,	Dorm. 202 S. 37th St.
Eagle, Stephen Harry,	E. E.,	Philadelphia,	1612 S. 4th St.
Earnshaw, John Benjamin,	A.,	Washington, D. C.,	Dorm. 355 Class of '87.
Eastwood, Abraham Bagot,	E. E.,	Weldon.	
Eckhardt, Engelhardt August,	A.,	Philadelphia,	903 N. 5th St.
Edwards, William Neilson,	M. E.,	do.	2320 DeLancey St.
Eggers, Herman Diedrich, Jr.,	Ch. E.,	Louisville, Ky.,	3418 Powelton Ave.
Eggleston, Richard Cunningham,	A.,	Philadelphia,	236 Buckingham Pl.
Engel, Francis Joseph,	M. E.,	do.	4707 Chester Ave.
Erichson, William Bowers,	C. E.,	do.	1848 N. 11th St.
Ewing, Buchanan,	C. E.,	Villa Nova,	Dorm. 206 Leidy.
Fairbairn, Archibald Bate,	F. E.,	Conshohocken.	
Farenwald, John,	C. E.,	Roslyn.	
Fegley, John Thomas,	Ch.,	Philadelphia,	1423 Ontario St.
Feinberg, Louis,	A.,	do.	413 Christian St.
Fetter, Theodore Search,	Arch.,	do.	1931 N. 31st St.
Flack, Howard Watson,	A.,	Grenoble.	
Fleck, Louis Aurand Ferdinand,	Wh.,	Lansford,	3207 Ridge Ave.
Fleisher, Alexander,	A.,	Philadelphia,	2045 Green St.
Fleisher, Horace Teller,	Wh.,	do.	2223 Green St.
Fogel, Isaac,	C. E.,	do.	216 N. 2d St.
Folger, Wayne Harrison,	Wh.,	Lockport, N. J.,	Dorm. 40 Bodine.
Fort, Leon Bergen,	Wh.,	Trenton, N. J.	[428 E. State St.]
Foust, Clement Edgar,	A.,	North Wales.	
Framc, Percy Tindall,	Ch.,	Philadelphia,	2351 N. 20th St.
Freedley, Paul,	M. E.,	Overbrook,	[5918 Drexel Road.]
Freeman, Addison B.,	Ch. E.,	Philadelphia,	206 E. Penn St.; Gtn.
French, Francis Raymond,	Wh.,	Washington, D. C.,	Dorm. 29 Morris.
Freund, Henry Herman, Jr.,	Ch. E.,	Philadelphia,	1310 S. 5th St.
Gardiner, Roy James,	Wh.,	Toledo, Ohio,	3400 Walnut St.
Garrison, Leon Benjamin,	C. E.,	Philadelphia,	2020 Arch St.
Geyclin, Antony Laussat,	A.,	Villa Nova.	Dorm. 132 Craig.
Gibb, William Hassell,	A.,	Philadelphia,	6381 Drexel Road.
Gibbons-Neff, Morton,	Wh.,	do.	2031 Spruce St.
Gibson, Gaylord Mesev,	Wh.,	Erie,	3643 Locust St.
Gibson, Henry Clay,	M. E.,	Philadelphia,	2001 Walnut St.

*Absent on leave.

STUDENTS.

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Name.	Course.	Residence.	City Address.
Gill, Kenneth Eugene, Gilson, Robert Martin,	C. E., A.,	Greensburg, Wilkinsburg,	3430 Sansom St. Dorm. 452 New York Alumni.
Goldsmith, Berthold Henry, Gormley, Robert Richard, Graw, Newton Hughes, Gretz, William, Jr., Griscom, Walter Stewart, Grove, William Garrett, Guilbert, Charles Howard, Jr., Halkett, Walter Ainslie, Hamilton, Russell Donohugh, Hammer, John Levering,	A., M. E., E. E., M. E., A., C. E., M. E., Wh., Wh., Wh.,	Philadelphia, Camden, N. J., do., Philadelphia, do., do., do., Ridley Park, Philadelphia, do.	22 N. 38th St. [600 State St.] [511 Mickle St.] 1540 Franklin St. 53d and Berks Sts. 1943 N. 13th St. 903 S. 47th St. 40 N. 3d St. Shawmont Ave. 30 Gowen Ave., Mt. Airy.
Hammond, Harry Parker, Hance, Wallace Eugene, Hansell, Howard Forde, Jr., Hanson, Wilmer Crooks, Haring, Arthur Winfield, Harned, Herbert Spencer, Harris, Harry Cleveland, Harris, Harold Rosenan, Harris, Myron Louis, Hart, Samuel Corinaldi, Harvey, Edmund Newton,	C. E., Arch., A., E. E., M. E., A., A., Wh., M. E., E. E., B.,	Wilmington, Del., Boothwyn. Philadelphia, do., do., do., do., do., do., Jamaica, B. W. I., Philadelphia,	Dorm. 124 Baldwin. 1528 Walnut St. 5635 Market St. 642 Diamond St. Dorm. 26 Morris. 2245 N. 16th St. 1939 N. 33d St. 1939 N. 33d St. 3223 Sansom St. 236 W. Hortter St., Germantown.
Haupt, Lewis Herman, Havenstrite, Joseph Arthur, Hawkins, George Zeller, Hellyer, Harold, Hitchens, William Frank, Hitner, William Perry Eveland, Hoffecker, Joseph Van Gasken, Hofmann, Arthur Albert, Hokanson, Horace Milton,	M. E., A., E. E., C. E., Arch., M. E., Arch., Wh., Arch.,	do., Moscow, Haddonfield, N. J., Penn's Park. Philadelphia, do., do., Pittsburg, St. Paul, Minn.,	107 N. 35th St. 1304 S. 10th St. 329 Market St. 3210 Powelton Ave. 1213 W. Lehigh Ave. 3108 Ridge Ave. Dorm. 128 Class of '87. Hilldale Road, Lans- downe.
Hopkinson, Richard Dale, Hornberger, Harry, Hovey, Walter Freeman, Howie, Kenneth, Howze, Samuel Perry, Huckel, Earle Wentworth,	A., Ch. E., E. E., M. E., A., A.,	Philadelphia, do., Beverly, N. J. Philadelphia, Marion, Ala., Philadelphia,	1424 Spruce St. 1201 N. 3d St. 48 Sedgewick St., Gtn. Dorm. 23 Morgan. 502 W. Chelton Ave., Germantown.
Huckins, Allan Irving, Hughes, Edward Morris, Hughes, William Harold, *Hume, Errington Burnley, Jr.,	A., Ch., C. E., M. E.,	do., Tredyffrin. Philadelphia, Charleston, S. C.,	4127 Girard Ave. 4006 Pine St. 111 Rochelle Ave., Wissahickon.
Hummel, Frederick Charles, Hurst, Thomas Edwin, Husik, Maurice,	Arch., A., A.,	Boise, Idaho, Fall River, Mass., Philadelphia,	3715 Woodland Ave. 210 S. 36th St. 1325 S. 6th St.

*Absent on leave.

Name.	Course.	Residence.	City Address.
Hutt, Robert Bines Woodward,	A.,	Philadelphia	1908 Fairmount Ave.
Hyneman, Henry Isaac,	A.,	do.	2103 Chestnut St.
Jefferis, Paul Grier,	Ch.	West Chester.	
Jenne, Lyle Loren,	Ch. E.,	Philadelphia,	120 E. Washington Lane, Gtn.
Johnson, James Herbert,	Wh.,	Worcester, Mass.,	3222 Sansom St.
Johnson, William Keating,	A.,	Rosemont.	
Jones, William Dowlin,	A.,	Chester,	25 E. 5th St.]
Kawasaki, Hajime,	Wh.,	Suidocho, Tokio, Japan,	3739 Locust St.
Keating, Peter McCall,	E. E.,	Wawa,	3453 Woodland Ave.
Keefer, John Evans Baird,	M. E.,	Philadelphia,	103 W. Walnut Lane, Gtn.
Keeler, John Reese,	Ch.,	Phoenixville.	
Keil, Raymond Humphrey,	E. E.,	Bellevue, Ky.	4152 Penngrove St.
Keinath, Charles,	Wh.,	Philadelphia,	229 S. 9th St.
Kitson, Arthur, Jr.,	Wh.,	do.	213 W. Upsal St., Gtn.
Klaer, Henry Jacob,	Ch. E.,	Milford,	Dorm. 43 Morris.
Klauber, Edward, Jr.,	Ch.,	Louisville, Ky.,	Dorm. 319 Leidy.
Kline, Clarence,	Ch.,	Allentown,	Dorm. 243 Provost Smith.
Klopfer, Norman Willis,	A.,	Washington, D. C.,	3705 Walnut St.
Kofke, Harry Conrad,	Ch.,	Bridesburg,	2700 Ash St.
Koyl, George Simpson,	Arch.,	Denver, Colo.,	3322 Woodland Ave.
Krantz, George Buckley, Jr.,	A.,	Philadelphia,	1037 E. Orleans St.
Kunymann, John Melanchton,	A.,	do.	4407 Chestnut St.
Kyle, Elmer Langham,	E. E.,	do.	3131 Frankford Ave.
Lafean, Leroy Kronc,	Wh.,	York,	3614 Walnut St.
Laird, Robert Fisher,		Philadelphia,	320 E. Logan St., Germantown.
Laurie, Frank, Jr.,	Ch.,	Corry,	Dorm. 55 Memorial.
Lavino, Edwin Maurice,	Wh.,	Philadelphia,	47 Phil-Ellena St., Germantown.
Leap, Sedgwick Rusling, Jr.,	Wh.,	Penn's Grove, N. J.,	3319 Walnut St.
Lee, John Kidd,	A.,	Philadelphia,	3800 Chestnut St.
Lemon, Thomas Henry,	Wh.,	Mansfield, Ohio,	Dorm. 411 Leidy.
Levi, Newton Reginald,	C. E.,	Philadelphia,	1408 N. 15th St.
Levinthal, Israel Herbert,	A.,	do.	716 Pine St.
Levy, Augustus,	Ch. E.,	Elmira, N. Y.,	3236 Sansom St.
Levy, Fabian Franklin,	Wh.,	Philadelphia,	145 Maplewood Ave., Germantown.
Lewis, Charles Frederick,	C. E.,	Stanton, Va.,	Dorm. 228 Class of '87
Lewis, George Draper,	A.,	Philadelphia,	Gravers Lane, Chestnut Hill.
Lipshutz, Jake,	C. E.,	Savannah, Ga.,	3606 Locust St.
Little, Wilson Vaughan,	A.,	Pittsburg.	3250 Sansom St.
Livingston, Charles Harold,	A.,	Philadelphia,	4940 Hazel Ave.
Livingston, Max, Jr.,	A.,	do.	1158 S. Broad St.
Loeb, David Joel Ullman,	Wh.,	do.	1823 N. 17th St.
Lohr, William Shannon,	C. E.,	do.	1716 Baily St.
Lunkenheimer, Paul,	E. E.,	do.	813 Vine St.

STUDENTS.

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Name.	Course.	Residence.	City Address.
Lupin, Edward Emanuel,	A.,	Philadelphia,	1247 S. 7th St.
McCloskey, Palmer Jenkins,	Arch.,	Charleroi,	2247 N. Park Ave.
McCrudden, Andrew John, Jr.,	C. E.,	Philadelphia,	2417 Columbia Ave.
McEwan, William George, Jr.,	E. E.,	do.	2134 S. Broad St.
McHugh, Franklin Stanislaus,	Wh.,	Locust Gap,	Dorm. 51 Memorial.
McMahon, Charles Omar,	A.,	Philadelphia,	2527 Cleveland Ave.
McManus, Charles Joseph,	C. E.,	do.	1404 N. 15th St.
McNichol, Henry Aloysius,	C. E.,	do.	222 N. 19th St.
McQuillen, Daniel Neall, Jr.,	Wh.,	Overbrook,	Dorm. 120 McKean.
MacFarland, Walter Griffith, Jr.,	M. E.,	Philadelphia,	Oak Lanc, Asbury Terrace.
Mack, Joseph Peter,	A.,	Torresdale.	
Major, Paul Langdon,	M. E.,	Philadelphia,	3717 Powelton Ave.
Maloney, John Carroll,	Wh.,	do.	1504 Tioga St.
Mann, Garner Benson,	A.,	do.	Manheim St., Gtn.
Manwaring, Roy Artimus,	Wh.,	do.	2033 N. 33d St.
Martin, Sergeant Price,	A.,	do.	Dorm. 105 Leidy.
Maurer, Conrad Brown,	A.,	do.	219 Richmond St.
Merrell, William,	Ch.,	do.	2950 Frankford Ave.
Merrick, Rodney King,	A.,	do.	5219 Wayne Ave., Germantown.
Metz, Louis Charles,	E. E.,	do.	2059 Franklin St.
Meyer, Jerome Kaufman,	E. E.,	Baltimore, Md.,	3340 Walnut St.
Miller, Alphonse Bertram,	A.,	Philadelphia,	1851 N. 17th St.
Miller, Arthur Hagen,	A.,	do.	317 Green St.
Miller, Richard Gladden,	E. E.,	do.	"The Covington."
Mills, Alan Balch,	M. E.,	do.	2220 Locust St.
Mitchell, John Howard, Jr.,	M. E.,	do.	3316 Race St.
Montgomery, Mantie,	B.,	Madison, Ind.,	4205 Sansom St.
Moore, James Arthur,	M. E.,	Panama, R. de P.,	104 S. 33d St.
Moorshead, Albert Henry,	C. E.,	Lansdowne.	
Moran, William Cuthbert,	M. E.,	Philadelphia,	5244 Walton Ave.
Morgan, William Richard,	C. E.,	Passaic, N. J.,	Dorm. 398 New York Alumni.
Morison, Rodney, Jr.,	Wh.,	Philadelphia,	3035 Susquehanna Avenue.
Morton, Charles Bickley,	E. E.,	do.	W. Leverington Ave., Roxborough.
Moscrip, William Henry,	C. E.,	do.	4320 Manayunk Ave., Roxborough.
Moxey, John Gray,	M. E.,	do.	7123 Boyer St., Mt. Airy.
Muller, Henry John,	C. E.,	do.	1501 Poplar St.
Mulvihill, Francis John,	M. E.,	do.	2835 Kensington Ave.
Murphy, Walter Bispham,	M. E.,	do.	303 So. 39th St.
Myers, Joseph S.,	C. E.,	do.	Chestnut Hill.
Nelson, Fred Amsden,	Arch.,	Scranton,	Dorm. 388 Lippincott.
Netoffsky, William,	Ch.,	Louisville, Ky.,	Dorm. 151 Alumni.
Newell, Charles William,	C. E.,	Philadelphia,	337 Wyota St.
Newell, Palmer Farragut,	C. E.,	Buffalo, N. Y.,	3347 Woodland Ave.
O'Neil, Sydney Daniel,	C. E.,	Chippewa Falls, Wis.	52 N. 36th St.

Name.	Course.	Residence.	City Address.
Ochs, Robert Emanuel,	Arch.,	Allentown,	Dorm. 15 Morgan.
Orme, Albert Mansfield,	Wh.,	Wayne,	3533 Locust St.
Ott, Lambert, Jr.,	Wh.,	Philadelphia,	831 N. Broad St.
Ottman, Robert Emery,	A.,	Central Bridge, N.Y.,	1333 N. 59th St.
Parker, Harbach Lcroy,	Wh.,	Philadelphia,	3438 N. 15th St.
Parsons, Harold Mead,	E. E.,	do.	64 N. 36th St.
Patterson, John Douglas,	M. E.,	Wilmington, Del.,	Dorm. 124 Baldwin.
Paxson, Charles Edward,	Wh.,	Camden, N. J.,	[132 Main St.]
Perkins, Joseph LeComte,	M. E.,	Philadelphia,	413 S. Broad St.
Perry, William Waller,	E. E.,	Salisbury, Md.,	Dorm. 148 New York Alumni.
Perzin, Leo,	C. E.,	Kischinev, Russia,	718 N. 8th St.
Peterman, Claude Lewis,	Wh.,	York,	Dorm. 23 Morris.
Peterman, Roy Lewis,	E. E.,	West Chester.	
Pierce, Raymond,	M. E.,	Hornellsville, N. Y.,	Dorm. 30 Morris.
Pilling, Joseph Ross,	Wh.,	Philadelphia,	106 W. Upsal St., Gtn.
Pipping, William Otto,	E. E.,	do.	6353 Greene St., Gtn.
Platt, Haviland Hull,	E. E.,	Wallingford.	
Plumly, Francis Lasher,	Wh.,	Philadelphia,	114 S. 22d St.
Porter, Andrew Wagener,	A.,	do.	2025 Walnut St.
Potter, Sheldon Frothingham,	M. E.,	do.	300 S. 36th St.
Potts, Eastburn,	Wh.,	Pottstown,	3604 Walnut St.
Price, Julius Joseph,	A.,	Norfolk, Va.,	3263 Locust St.
Radcliff, Robert Llewellyn,	M. E.,	Conshohocken.	
Register, Henry Bartol,	A.,	Ardmore,	Dorm. 234 Baird.
Reichert, Edward Tyson, Jr.,	E. E.,	Philadelphia,	8112 St. Martin's Lane.
Roberts, Albert Charles,	A.,	do.	109 S. 38th St.
Roberts, William Wallace,	A.,	do.	4238 Spruce St.
Robinette, Edward Burton,	A.,	Everett,	Chestnut Hill Acad'y, Wiss'h'n Heights.
Roedelheim, William Steve,	Wh.,	Philadelphia,	4212 Parkside Ave.
Rogers, Edmund Henkels,	Wh.,	Wyncote.	
Rogers, Francis Churchill,	M. E.,	Wilmington, Del.	[1301 Delaware Ave.]
Rollinson, James Wells,	Arch.,	Buffalo, N. Y.,	Dorm. 38 Morgan.
Roop, James Clawson,	E. E.,	Upland.	
Rose, Harry Burnley,	M. E.,	Camden, N. J.	[612 N. 4th St.]
Rosen, Alexis,	M. E.,	Theodosia, Russia,	993 N. Marshall St.
Rosenblatt, Jerome Harry,	A.,	Philadelphia,	5305 Baynton St., Germantown.
Rosin, Joseph,	Ch.,	do.	430 Catharine St.
Rosshem, Irving David,	Wh.,	do.	5003 Hazel Ave.
Rothstein, Uda David,	A.,	Johnstown,	3336 Walnut St.
Sahm, Roy,	Arch.,	Indianapolis, Ind.,	122 N. 32d St.
Saito, Kosuke,	Wh.,	Tokio, Japan,	Dorm. 110 McKean.
Sauter, William Rodgers,	C. E.,	Philadelphia,	115 W. Washington Lane, Gtn.
Schaefer, Charles Henry,	C. E.,	do.	1213 Wallace St.
Schaefer, William Charles, Jr.,	Wh.,	do.	21 W. Tulpehocken St., Gtn.
Schellens, Richard,	A.,	Groton, Conn.,	Dorm. 122 McKean.
Schneeberg, Bertrand,	Ch.,	Camden, N. J.	[1026 Broadway.]

Name.	Course.	Residence.	City Address.
Schoch, Charles Leonard,	E. E.,	Philadelphia,	4201 Pine St.
Schopbach, Charles Henry,	Ch. E.,	do.	Dorm. 46 Morgan.
Schuhmann, George Linder,	M. E.,	Reading,	Dorm. 39 Bodine.
Schwab, Harvey Arthur,	Arch.,	New Philadelphia, Ohio,	206 S. 37th St.
Scott, Charles Henry, Jr.,	A.,	Philadelphia,	1925 Spruce St.
Scoville, William Harrison,	Ch. E.,	So. Omaha, Neb.	219 S. 33d St.
Scully, Charles Alison,	A.,	Philadelphia,	240 S. 39th St.
Senior, Harold Benedict,	Arch.,	Bethel, Conn.,	Dorm. 410 Leidy.
Sessler, Grover Cleveland,	C. E.,	Philadelphia,	2345 Lambert St.
Shallom, Abraham,	A.,	do.	934 S. 5th St.
Shaw, John Wilson,	Wh.,	Pittsburg,	Dorm. 252 New York Alumni.
Sheble, Warren,	E. E.,	Philadelphia,	621 E. Washington Lane, Gtn.
Shloss, Sam,	Wh.,	Des Moines, Ia.,	Dorm. 214 Carruth.
Sibley, Hinson Smith,	E. E.,	Wilmington, Del.,	509 N. E. F. Bldg.
Simmons, Berkeley Leo,	A.,	Washington, D. C.,	Dorm. 11 Wilson.
Sloan, Paul Milliken,	A.,	Allegheny,	3702 Spruce St.
Smith, Abram Walter,	A.,	Ashton, Md.,	3733 Walnut St.
Smith, Mayburry Mellor,	A.,	Philadelphia,	29 E. Penn St., Gtn.
Smythe, J. Henry, Jr.,	Wh.,	do.	1923 Wallace St.
Solis-Cohen, David Hays,	Wh.,	do.	1525 Walnut St.
Souder, Ellwood, Jr.,	M. E.,	Wilmington, Del.	[1704 Washington St.]
Spindler, Frank,	Ch.,	Philadelphia,	2336 N. 19th St.
Steen, John Dee,	A.,	Millville, N. J.	
Sterrett, Frank William,	A.,	E. Downingtown,	5000 Woodland Ave.
Stratton, Leon Dupree,	Ch.,	Paulsboro, N. J.	
Strauss, Percival Smith,	A.,	Williamson School.	
Stroud, Morris Wistar, Jr.,	E. E.,	Villa Nova,	Dorm. 105 Leidy.
Stuart, Milton Caleb,	M. E.,	Berwick,	5327 DeLancey St.
Sumner, John Newman,	M. E.,	Norristown,	[16 E. Main St.]
Taylor, Charles Carter,	A.,	Philadelphia,	4105 Walnut St.
Trexler, Thompson Arthur,	E. E.,	Sunbury,	113 S. 37th St.
Thomas, Edward Wheelock,	Wh.,	Washington, D. C.,	3705 Walnut St.
Townend, Ernest S.,	Wh.,	Wilkes-Barre,	Dorm. 15 Bodine.
Townsend, Stockton,	A.,	Bryn Mawr,	2103 Walnut St.
Teubner, Edmund Rudolph,	C. E.,	Philadelphia,	3438 Walnut St.
Tumen, Louis Isaac,	A.,	Atlantic Highlands, N. J.,	1234 S. 5th St.
Wagner, John,	E. E.,	Philadelphia,	1406 N. 21st St.
Walliser, Emile Rivoir,	A.,	do.	531 Hermitage St.
Walton, Jesse Pusey,	A.,	George School.	
Warner, William Richard, 3d,	A.,	Duffryn Mawr.	
Warnick, Henry Clay,	C. E.,	Philadelphia,	607 N. 33d St.
Warwick, Charles Laurence,	C. E.,	do.	6023 Kershaw St.
Webb, Lanphear Wesley, Jr.,	B.,	do.	1426 Diamond St.
Weber, Theodore George,	Ch. E.,	Bloomfield, N. J.,	Dorm. 50 Morris.
Webster, Maurice Anderson,	C. E.,	Philadelphia,	4900 Penn St., Frank- ford.
Weimer, Peter Leibrandt,	M. E.	Lebanon,	Dorm. 21 Morris.

THE COLLEGE.

Name.	Course.	Residence.	City Address.
Wendel, Harry Forrest,	A.,	Wauwatosa, Wis.,	Dorm. 36 Morgan.
Westcott, Bayse Newcomb,	M. E.,	Philadelphia,	Dorm. 11 Morgan.
Wetherill, William Chattin,	A.,	do.	2014 Walnut St.
White, Gilbert Newman,	A.,	do.	4225 Pine St.
White, Lucius Read, Jr.,	Arch.,	Baltimore, Md.,	3222 Sansom St.
White, Maurice Seal,	M. E.,	Philadelphia,	3417 Race St.
Whiteman, F. Heber,	C. E.,	do.	6140 Ridge Ave., Roxborough.
Whitmoyer, Howard Brightbill,	Wh.,	Harrisburg,	3604 Walnut St.
Whitworth, Horace Clarke,	A.,	Paoli.	
Wilken, Joseph Robert,	M. E.,	Louisville, Ky.,	3617 Locust St.
Williams, Herbert Lewis,	C. E.,	Philadelphia,	1129 Ritner St.
Williams, John Archibald,	Wh.,	Scranton,	Dorm. 239 Hopkinson.
Williams, John Francis,	C. E.,	Philadelphia,	3516 K St.
Williams, Lewis H.,	Wh.,	Scranton,	Dorm. 239 Hopkinson.
Wills, Louis Albert,	Ch.,	Philadelphia,	5537 Germantown Av.
Wilson, John Esler,	E. E.,	New Centreville.	
Wilson, Ray Clifford,	C. E.,	Manor,	1704 Race St.
Winbigler, Cecil Meredith,	Arch.,	Washington, D. C.,	Dorm. 425 McKean.
Woerner, Albert Henry,	C. E.,	Philadelphia,	4415 Manayunk Ave., Roxborough.
Wolstenholme, Hollis,	Wh.,	do.	Dorm. 110 Franklin.
Wood, Frank Herman,	Arch.,	Burlington, N. J.,	3421 Walnut St.
Wood, Percy Hollinshead,	Arch.,	Camden, N. J.	[614 State St.]
Woodroffe, William Philipps,	M. E.,	Barbadoes, B. W. I.,	31 W. Johnson St., Germantown.
Worden, Arthur Morley,	Wh.,	Batavia, N. Y.,	Dorm. 414 Franklin.
Wright, Arnold Ainley,	M. E.,	Philadelphia,	878 N. 23d St.
Wright, John Walter,	E. E.,	do.	1903 N. 18th St.
Wright, Spencer Disston,	A.,	do.	3219 Summer St.
Yerger, William Clarence,	Ch. E.,	do.	642 N. 52d St.
Yerger, Wilson Stearly,	Ch. E.,	do.	113 W. Upsal St., Gtn.
Yerkes, Stephen Douglas,	Wh.,	Hatboro.	
Zieber, Edward Herman,	M. E.,	Philadelphia,	4806 Springfield Ave.
Zinsser, Harry Frederick,	A.,	Pittsburg.	3250 Sansom St.

STUDENTS IN THE TWO AND FOUR YEAR SPECIAL COURSES,

STUDENTS OF THE FOURTH YEAR.

Name.	Course.	Residence.	City Address.
Ashenfelder, Newton,	M.,	Philadelphia,	2348 E. Susquehanna Avenue.
Chalfin, Elizabeth Miriam,	M.,	do.	495 N. 4th St.
Egbert, Harriet Newell,	M.,	do.	1517 N. 19th St.
Githens, Marie Louise,	M.,	do.	1716 Chestnut St.
Graf, Grace,	M.,	Haddonfield, N. J.	
McGuire, Lillian Woods,	M.,	Philadelphia,	1304 Parrish St.
Munro, Aneta Letitia,	M.,	do.	4132 Market St.
Root, Grace Hall,	M.,	do.	888 N. 42d St.
Schofield, Robert Le Roy,	M.,	Northfield, Minn.,	1921 S. Broad St.
Thomas, John Ramsey,	M.,	Philadelphia,	2064 E. Dauphin St.
Young, Helen Virginia,	M.,	do.	1806 Catharine St.

STUDENTS OF THE THIRD YEAR.

Gorman, Stella Cecilia,	M.,	Philadelphia,	1632 Stiles St.
Hustler, Albert,	M.,	do.	819 E. Chelten Ave., Germantown.
Lutz, Flavius Josephus,	M.,	Swarthmore.	
Patten, Mrs. Rose May,	M.,	Philadelphia,	3729 Locust St.
Wallace, Clarence Lee,	M.,	Lykens,	3604 Locust St.

STUDENTS OF THE SECOND YEAR.

Allen, Ernest Theophilus,	M.,	Philadelphia,	1828 N. 17th St.
Bruyere, Louis Underwood,	Arch.,	New York, N. Y.,	3303 Walnut St.
Burchard, Frederick Leonard,	Wh.,	Norwich, N. Y.,	Dorm. 202 Brooks.
Coates, William Demmond, Jr.,	Arch.,	Fresno, Cal.,	3303 Walnut St.
Cook, Dorothy,	M.,	Philadelphia,	1716 Chestnut St.
Gibbons, Mary Fulton,	M.,	Philadelphia,	405 S. 41st St.
Grant, Edna Stuart,	M.,	Hammonton, N. J.,	160 N. 20th St.
Hardenberg, Albert,	M.,	Philadelphia,	1810 Cayuga St.
Ireland, Frederick William, Jr.,	Arch.,	Denver, Colo.,	3704 Locust St.
Keepers, Walter Merritt,	M.,	Philadelphia,	3044 Susquehanna Av.
Koetz, Peter,	Arch.,	Altoona,	Dorm. 327 Franklin.
Lee, Chester Brooks,	Arch.,	Toledo, Ohio,	218 S. 37th St.
McDonald, Albert Clayton,	Arch.,	Detroit, Mich.,	3745 Spruce St.
McDowell, Charles Jay,	Arch.,	Port Deposit, Md.,	Dorm. 32 Morris.
McGrath, William Edward John,	Wh.,	Chicago, Ill.,	Dorm. 202 Brooks.
MacLean, Sarah Jones,	M.,	Philadelphia,	277 S. 4th St.
Miller, Mary Alice,	M.,	do.	2017 E. Cumberland.
Perkins, Benjamin,	Arch.,	Oakland, Cal.,	301 S. 40th St.
Porter, Harry Louis,	Arch.,	Washington,	Dorm. 326 Franklin.
Reinhardt, Lydia Ludwig,	M.,	Philadelphia,	2121 Mt. Vernon St.
Shields, Joseph Cramer,	Wh.,	Washington, N. J.,	Dorm. 307 Brooks.
Shiner, Walter Robinson,	Arch.,	New Haven, Conn.,	3932 Pine St.
Stanfield, Henry,	Wh.,	Mt. Clair, N. J.,	3744 Irving St.

Name.	Course.	Residence.	City Address.
Stanley, John Charles,	Arch.,	Seattle, Wash.,	3429 Walnut St.
Stone, Charles Henry,	B.,	Coatesville,	Dorm. 56 E. F. Smith.
Stubbs, Ethel,	M.,	Merion.	
Taylor, Laura May,	M.,	Philadelphia,	533 S. 49th St.
Van Meter, Cecil W.,	Arch.,	Columbus, Ohio,	3704 Locust St.
Watt, Charles Channing, Jr.,	B.,	Germantown,	3641 Locust St.
Wenzell, Herbert,	Arch.,	Detroit, Mich.,	3932 Pine St.
Wicke, Carl Frederick H.,	M.,	Philadelphia,	224 Church Lane, Germantown.
Wise, Henry Moses,	B.,	Portsmouth, Ohio,	Dorm. 369 Hopkinson.

STUDENTS OF THE FIRST YEAR.

Allen, Haviland Woolverton,	Arch.,	Jackson, Mich.,	4204 Chestnut St.
*Altman, Harry Westley,	Arch.,	Uniontown.	
Appel, Theodore Otto,	Arch.,	New Haven, Conn.,	3932 Pine St.
Bacon, James Kerr,	B.,	York,	3615 Locust St.
Breitinger, Charles MacCaughn,	Wh.,	Philadelphia,	3531 N. Broad St.
Breneman, Robert M.,	Wh.,	Saxton.	
Brokaw, Walter Samuel,	Wh.,	Philadelphia,	927 N. 42d St.
Brown, Henry Armitz,	Arch.,	Burlington, N. J.	
Brust, William George,	Arch.,	Columbus, Ohio,	3611 Locust St.
Bryant, Arthur Justin,	Wh.,	Middleboro, Mass.,	Dorm. 236 Fidler.
Buck, Francis Douglass,	Wh.,	State Road, Del.	
Campbell, Stephen,	M.,	Philadelphia,	1910 Moyamensing Ave.
Carwithen, Walter Metlar,	Wh.,	Doylestown.	
Collins, John Moulton,	Wh.,	Philadelphia,	308 W. Upsal St., Gtn.
Damm, William Henry, Jr.,	M.,	do.	323 Wolf St.
DeBow, Richard Edgar Adamson,	Wh.,	do.	989 N. 5th St.
DeMert, Louis Richmond,	Wh.,	Spokane, Wash.,	3605 Locust St.
Diton, Carl Rossini,	M.,	Philadelphia,	1431 S. 20th St.
Dorwarth, Charles Votteler,	B.,	do.	300 N. 5th St.
Downing, Charles Robert,	Wh.,	do.	3926 Spruce St.
Foster, Arthur,	Wh.,	Dover, N. H.,	3043 Spruce St.
Gery, Howard Krauss,	M.,	Philadelphia,	10 S. 18th St.
Giller, Karl Watkin,	Wh.,	do.	1601 Girard Ave.
Glover, Louis Antonia,	Arch.,	Houston, Texas,	3264 Woodland Ave.
Goodwin, John William, Jr.,	Wh.,	Philadelphia,	5330 Baynton St., Germantown.
Groves, Edward Augustine, Jr.,	B.,	do.	5929 Wayne Ave., Germantown.
Hays, Herbert Clifton,	Wh.,	Cynwyd.	
Headman, August Goonic,	Arch.,	San Francisco, Cal.,	208 S. 37th St.
Hesse, William Charles, Jr.,	Wh.,	Philadelphia,	45 Phil-Ellena St., Germantown.
Hicks, Ruth,	M.,	Bryn Athyn.	
Hildebrand, Ernst Henry,	Arch.,	San Francisco, Cal.,	208 S. 37th St.
Hill, Philias Franklin,	M.,	Philadelphia,	2443 E. Gordon St.
Huber, John Y., Jr.,	Wh.,	do.	1419 N. Broad St.
Hulin, Stuart Morris,	Wh.,	Franklin,	Dorm. 34 Memorial.

*Absent on leave.

STUDENTS.

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Name.	Course.	Residence.	City Address.
Hummel, Frederick Charles,	Arch.,	Boise, Idaho,	3715 Woodland Ave.
Ito, Ryoza,	Wh.,	Nagoya, Japan.	3739 Locust St.
Jacoby, John Freedley, Jr.,	Wh.,	Philadelphia,	221 N. 20th St.
Kohne, Charles Christian,	Wh.,	Pittsburg,	3619 Locust St.
Lasbury, Howard Alonzo,	B.,	East Windsor, Conn.,	3429 Walnut St.
Lee, Mary Martin,	M.,	Philadelphia,	4231 Baltimore Ave.
McCall, George Archibald,	Wh.,	do.	1106 Spruce St.
McCormick, Frank Neff,	Wh.,	Elkins Park.	
McCulloch, William Ross,	Wh.,	Newport,	3731 Spruce St.
McGarrity, Robert Seaton,	Wh.,	Philadelphia,	1235 W. Allegheny Av.
Marble, Eugene Cleveland,	Wh.	Chicago, Ill.,	3702 Locust St.
Mattson, Norman Bernard,	M.,	Chester Heights,	1411 N. 18th St.
Miller, George Lewis,	Wh.,	York,	Dorm. 29 Morris.
Milne, Caleb Jones, 3d,	Wh.,	Philadelphia,	2029 Walnut St.
Mockbee, Maurice Lyne,	Wh.,	Cincinnati, Ohio.	Dorm. 352 Baldwin.
Murray, Earl Nelson,	B.,	Bradford, Mass.,	3615 Locust St.
Newhall, Ellen Melissa,	M.,	Philadelphia,	4141 Manayunk Ave., Roxborough.
Noble, Charles Greylock,	B.,	do.	3034 Oxford St.
Patterson, Elliott Remington,	Wh.,	do.	4032 Green St.
Patterson, Stonn Van Wyck,	Wh.,	Ardmore,	220 S. Broad St.
Pettit, Mortlock Stratton,	Wh.,	New York, N. Y.	Dorm. 45 Bodine.
Reinhart, Charles Stanley,	Wh.,	Flushing, N. Y.,	Dorm. 351 Baldwin.
Pierce, Harry Llewellyn,	Arch.,	Columbia, Mo.,	122 S. 33d St.
Rathmann, Walter Lincoln,	Arch.,	St. Louis, Mo.,	Windsor Hotel.
Read, Isabel Oliver,	M.,	Philadelphia,	2049 E. Dauphin St.
Reed, Charles Beecher,	B.,	Wysox,	216 De Kalb Square.
Righter, George Harold,	Wh.,	Radnor.	36th and Walnut Sts.
Royce, Edward Glenn,	Wh.,	Ardmore.	
Russell, William,	Wh.,	Lewistown,	Dorm. 356 Class of '87.
Scanlin, John,	Wh.,	Philadelphia,	1024 W. Lehigh Ave.
Seemuller, Lillie Katherine,	M.,	do.	5642 Girard Ave.
Shay, Urban Kennedy,	Wh.,	do.	4904 Woodland Ave.
Sheaffer, Daniel Miller,	Wh.,	Wayne,	Dorm. 121 McKean.
Shortland, Helena,	M.,	Philadelphia,	6303 Girard Ave.
Smith, Horace, Jr.,	Wh.,	Merion.	
Smith, Robert Duane,	Wh.,	Duluth, Minn.,	Dorm. 421 McKean
Steen, James Howard,	Arch.,	Pittsburg,	Dorm. 366 Baird.
Stephen, Fred Bennett,	Arch.,	Seattle, Wash.,	3429 Walnut St.
Trump, William Henry,	Wh.,	Philadelphia,	530 Lincoln Drive, Germantown.
Van Roden, Frank, Jr.,	Wh.,	do.	6300 Drexel Road, Overbrook.
Wagner, Louis Marsden,	Wh.,	do.	506 Locust Ave., Gtn.
Wanner, Louis Albright,	Wh.,	Fleetwood,	3256 Chestnut St.
Wasserman, Herbert Benard,	Wh.,	Philadelphia,	1845 N. 17th St.
Watt, John Marshall,	Wh.,	do.	618 N. 43d St.
Webb, Lanphear Wesley,	B.,	do	1426 Diamond St.
Wilson, Frank Post,	Wh.,	Brooklyn, N. Y	Dorm. 45 Bodine.
Wilmsen, Bernhard, Jr.,	Wh.,	Elkins Park.	3529 Locust St.
Wood, Bernard Henry, Jr.,	Wh.,	Philadelphia,	411 S. 19th St.

THE COLLEGE.

Name.	Course.	Residence.	City Address.
Wood, Edward Cope, A. B., (Pennsylvania),	M.,	Philadelphia,	Houston Hall.
Young, Charles Blanchard,	Arch.,	Oil City,	3218 Sansom St.

PARTIAL STUDENTS.

Albright, George Oscar, Jr.,	A.,	Allentown,	Dorm. 217 Foerderer.
Arias, Frank Antonio,	Wh.,	Panama., R. de P.,	3408 Sansom St.
Armstrong, Andrew Kirk,	C. E.,	Philadelphia,	4045 Poplar St.
Ash, George Washington,	Wh.,	do.	1249 N. 13th St.
Baizley, John,	Wh.,	do.	637 N. 11th St.
Barr, John Walter,	M. E.,	Reading,	Dorm. 13 Morgan.
Bell, Katharine,	B.,	Ardmore.	
Bary, Victor Alexander,	Wh.,	Philadelphia,	424 Wister St., Gtn.
Bernheim, Frank Dreyfus,	Wh.,	Louisville, Ky.	Dorm. 22 Wilson.
Benham, Charles, Jr.,	C. E.,	Philadelphia,	5405 Haverford Ave.
Blaisdell, Ferren Frank,	Wh.,	Red Bank, N. J.,	3312 Woodland Ave.
Bowes, Henry Joseph,	M. E.,	Philadelphia,	1521 Green St.
Boyd, Alfred O.,	Wh.,	Panama, R. de P.,	210 S. 36th St.
Bresnahan, John Francis,	B.,	Boston, Mass.,	Dorm. 31 Morgan.
Brooker, Albert George,	C. E.,	Palmyra, N. Y.	3743 Spruce St.
Brown, Horace Hamilton,	Wh.,	Philadelphia,	67th Ave., Oak Lane
Bryant, John Ewart Gladstone,	Wh.,	Lansdowne.	
Budd, Burkitt,	C. E.,	Pittsburg,	3305 Walnut St.
Carothers, Edward John,	A.,	Philadelphia,	3827 Walnut St.
Cartmell, Nathan John,	Wh.,	Louisville, Ky.,	212 S. 37th St.
Cassel, Harry Spencer,	Ch.,	London, England,	Dorm. 148 New York Alumni.
Chapman, Richard Henry, Jr.,	Ch.,	Warminster,	8229 Germantown Ave.
Cole, William Ide,	Arch.,	Dallas, Tex.,	105 S. 34th St.
Collins, Wilbur Jones,	Wh.,	Philadelphia,	1545 N. 12th St.
Cook, Ernest Fullerton,	A.,	do.	5149 Parrish St.
Corson, Charles Schell,	Arch.,	Norwood,	300 S. 36th St.
Costello, Edward Grant,	C. E.,	Tacony.	
Costello, John Noble,	C. E.,	do.	3533 Locust St.
Cotton, William Joseph Henry,	A.,	Philadelphia,	1311 Silver St.
County, Albert John,	Wh.,	St. David's,	Broad Street Station.
Cowell, Henry Slaymaker,	C. E.,	Philadelphia,	3301 Spr. Garden St.
Craven, Henry Thornton,	A.,	do.	321 S. 18th St.
Crist, Edward Nev,	A.,	Columbia,	Dorm. 358 Craig
Dancy, John Wendell Philip,	Wh.,	Washington, D. C.,	412 S. 18th St.
Delany, Howard Sharpless,	Ch.,	Philadelphia,	1231 N. Broad St.
Delk, Edward Buehler,	Arch.,	do.	630 N. Broad St.
Diaz, F. R.,	Wh.,	Nabana, Cuba,	"The Covington."
Doran, John Henry,	M. E.,	Philadelphia,	3453 Woodland Ave.
Doran, Warner Erwin,	A.,	do.	120 S. 19th St.
Duenas, George Zarate,	E. E.,	City of Mexico, Mexico.	1409 Arch St.
Edwards, Robert Lehman,	A.,	Holmesburg.	
Ehrhart, John Philp,	Ch.,	Jamestown,	Dorm. 364 Baird,

STUDENTS.

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Name.	Course.	Residence.	City Address.
mentrout, Charles Benton,	Wh.,	Reading,	Dorm. 349 McKean.
agan, Louis Estelle,	M. E.,	Philadelphia,	Queen Lane Station, Germantown.
ogel, Frederick Klne,	M. E.,	Allentown,	3615 Locust St.
olsom, Donald Brayton Nichols,	Arch.,	Philadelphia,	3745 Spruce St.
reihofner, William Albert,	Ch.,	do.	3219 Diamond St.
arrett, Erwin Clarkson,	A.,	do.	3711 Woodland Ave.
emmi, Louis Berton,	Wh.,	do.	307 S. 39th St.
illan, Charles McDowell,	Ch.,	do.	2462 N. 29th St.
oldberger, Joshua Samuel,	Ch.,	do.	1834 N. Franklin St.
raeff, George David,	A.,	Columbia,	5000 Woodland Ave.
ranlees, William Sletor,	A.,	Philadelphia,	Dorm. 140 Provost Smith.
ravell, William Henry,	C. E.,	do.	1325 N. 19th St.
reims, Merton,	Wh.,	do.	919 N. 20th St.
ribbel, John Bancker,	Wh.,	Wyncote,	3641 Locust St.
rackett, Stanton Halleck, Jr.,	Wh.,	Philadelphia,	4009 Pine St.
rall, Zachary Taylor, Jr.,	Wh.,	Ridley Park,	3400 Walnut St.
ramaker, John Forry,	A.,	Manheim,	5000 Woodland Ave.
lare, Emlen Spencer,	Arch.,	Strafford.	
reiman, Charles,	Wh.,	Philadelphia,	606 N. 6th St.
rendrie, Donald,	A.,	do.	3400 Walnut St.
rendrie, John Gibson,	C. E.,	do.	3400 Walnut St.
lessenbruch, Theophilus Edward,	M. E.,	do.	3417 Spg. Garden St.
ill, William Corcoran, Jr.,	E. E.,	Pittsburg,	3453 Woodland Ave.
loffman, Leon,	Ch.,	Philadelphia,	17 W. Walnut Lane, Germantown.
lood, Arthur William,	Wh.,	do.	3529 Locust St.
ames, Elizabeth Kingston,	B.,	do.	4124 Westminster Av.
annev, Benjamin Stansbury,	A.,	do.	435 S. 51st St.
ohnston, Frank,	Wh.,	do.	Sumac St., Wissa- hickon.
omes, George Paxson,	C. E.,	Phoenixville,	3264 Sansom St.
ames, Crawford Jenkins,	Wh.,	Philadelphia,	3303 Walnut St.
aruzza, Roman Laurentius,	Wh.,	do.	302 N. 13th St.
atz, John Augustus,	M. E.,	York,	Dorm. 53 E. F. Smith.
ceith, Raymond Hendrick,	Arch.,	Worcester, Mass.,	3222 Sansom St.
emmerer, Arthur Eugene,	Wh.,	Factoryville,	3236 Sansom St.
ewown, Walter Samuel,	Wh.,	Camden, N. J.,	[118 N. 3d St.]
err, Joseph Michael,	C. E.,	Freeport,	Dorm. 32 Memorial.
ershaw, William Henry,	C. E.,	Bridgeport, Conn.,	3604 Walnut St.
eyser, Charles Maris, Jr.,	Arch.,	Baltimore, Md.,	300 S. 36th St.
iefer, George Croney,	Ch.,	do.	300 S. 36th St.
illiam, Paul,	Wh.,	Philadelphia,	Dorm. 396 New York Alumni.
irkbride, Mary Butler,	B.,	do.	1406 Spruce St.
ite, George Edmund,	C. E.,	Norristown.	[1533 DeKalb St.
linges, John Peter, Jr.,	Arch.,	Philadelphia,	Dorm. 46 Morris.
oons, Robert Wright,	Ch.,	do.	2217 Spruce St.
oronski, André,	C. E.,	Philadelphia,	3432 Sansom St.
rauskopf, Harold Corinne,	Wh.,	do.	4715 Pulaski Ave., Germantown.

Name.	Course.	Residence.	City Address.
Krieger, Frank Emil Ludwig,	Wh.,	Johnstown,	3641 Locust St.
Latimer, Alfred Faxon,	A.,	Bronxville, N. Y.,	3614 Walnut St.
Latimer, Roy Springer,	M. E.,	Wilmington, Del.,	113 S. 37th St.
Laurance, Edward Shinn,	Wh.,	Philadelphia,	4401 Baltimore Ave.
Lay, John Tracy,	A.,	do.	4015 Pin ^o St.
Levy, Mortimore G.,	Wh.,	do.	4240 Parkside Ave.
Lee, William Harold	Arch.,	Shamokin,	3607 Locust St.
Lewis, F. Mortimer,	Wh.,	Philadelphia,	51 Cliveden Ave., Gtn.
Loder, Arthur Beard,	Wh.,	Wynnewood.	
Longnecker, Jacob Haldeman,	A.,	Harrisburg,	3453 Woodland Ave.
Ludlow, Alden Rodney,	M. E.,	Swarthmore,	3400 Walnut St.
Lukens, Hiram Stanhope,	Ch.,	Philadelphia,	2111 Tioga St.
McClure, Matthew Simpson,	A.,	Mobile, Ala.,	Dorm. 41 Memorial.
McCosker, Joseph R.,	Wh.,	Philadelphia,	660 N. 39th St.
McIntosh, Henry Payne,	Wh.,	Cleveland, Ohio,	Dorm. 134 Baird.
Mann, Benson, Jr.,	M. E.,	Philadelphia,	Manheim St., Gtn.
Mann, David Isaac,	A.,	do.	334 Christian St.
March, George Ralph,	C. E.,	do.	704 N. 16th St.
Marsh, Charles Reed,	C. E.,	do.	1923 N. 18th St.
Marshall, Clyde Briggs,	C. E.,	Walden, N. Y.,	3430 Sansom St.
Martin, Julius Christian,	Wh.,	Philadelphia,	3123 Clifford St.
Martin, Sherwood Earl,	Wh.,	Pittsburg,	300 S. 36th St.
Martin, Sergeant Price,	A.,	Philadelphia,	Dorm. 105 Leidy.
Marvin, S. Tom,	Wh.,	Hillsdale, Mich.,	Dorm. 230 Craig.
Mathews, Charles Archie,	C. E.,	Philadelphia,	3410 Race St.
May, Leon Victor,	Wh.,	Charleston, W. Va.,	Dorm. 20 Tower.
Mcighan, John,	B.,	Chester.	[133 W. 14th St.]
Metlar, Mary James,	B.,	Doylestown.	
Miller, Emlen Hare,	Ch.,	Philadelphia,	312 S. 10th St.
Miller, Glenn Beaty,	Wh.,	Defiance, Ohio,	Dorm. 230 Craig
Miller, George Raul,	Arch.,	Pittsburg,	23 S. 34th St.
Miller, Harrison,	Ch.,	Philadelphia,	145 E. Duval St., Gtn.
Mitchell, George,	M. E.,	Clearfield,	201 N. 34th St.
Montalvo, P. Sanchez,	M. E.,	Philadelphia,	713 N. 6th St.
Moyer, Mott LeRoy,	Ch.,	Souderton.	
Mueller, Frieda,	B.,	Philadelphia,	4434 Lancaster Av.
Müller, John Hughes,	Ch.,	Swarthmore.	
Murphy, John Prentice,	Wh.,	Philadelphia,	1310 S. 15th St.
Northup, Willard Close,	Arch.,	Asheville, N. C.,	Dorm. 374 Hopkinson.
Null, Harold Miller,	A.,	Philadelphia,	1705 Wallace St.
Park, Richard Gray, Jr.,	Wh.,	do.	Dorm. 135 Fidler.
Patterson, John Paul, Jr.,	C. E.,	do.	204 S. 12th St.
Peacock, Walter Gordon Booth,	A.,	do.	3038 N. 8th St.
Peiper, Samuel,	A.,	do.	1435 N. Fawn St.
Peterkin, John Boddington,	Arch.,	Bloomfield, N. J.,	202 S. 37th St.
Pierce, George,	Ch.,	Philadelphia,	4926 Walton Ave.
Porter, Harry Louis,	Arch.,	Warren, Ohio,	3745 Spruce St.
Porter, Isaac Theodore,	Wh.,	Philadelphia,	3068 Frankford Ave
Protheroe, Howard Probert,	Ch.,	Dunmore,	Dorm. 35 Morgan.
Pusey, William Josiah,	M. E.,	Germantown,	3600 Walnut St.
Riche, Jesse Austin,	Ch.,	Durham, Conn.,	3252 Sansom St.

Name.	Course.	Residence.	City Address
Bel, Alfred Tennyson,	Wh.,	Philadelphia,	1507 N. 10th St.
Kett, Arthur Johnson,	C. E.,	Jacksonville, Fla.,	Dorm. 398 New York Alumni.
Al, Maurice Bower,	A.,	Philadelphia,	1803 N. Van Pelt St.
Re, Frank Geesaman,	A.,	do.	4626 Wayne Ave.
æffer, Abraham Lincoln,	Wh.,	do.	508 Reed St.
erman, Harry,	Wh.,	do.	1747 N. 15th St.
ipper, Fredrick Gerhardt,	Wh.,	Pekin, Ill.,	3529 Locust St.
ultz, Charles Frederick,	C. E.,	Meriden, Conn.,	115 S. 34th St.
lly, Walter Smith,	Wh.,	Philadelphia,	"The Normandie."
ple, Raymond Canning,	C. E.,	do.	2320 Catharine St.
rpless, Anna E.,	B.,	West Chester.	
ble, John Howard, Jr.,	A.,	Philadelphia,	621 S. Washington -Lane, Gtn.
vers, Charles Hendry deTurck,	Wh.,	Atlantic City, N. J.,	159 Mayland St., Gtn
emaker, Martha Bailey,	B.,	Philadelphia,	1715 Green St.
gluff, Donald,	Arch.,	Baltimore, Md.,	3453 Woodland Ave.
elo, William Morris,	C. E.,	Philadelphia,	722 Dickinson St.
ith, Andrew Latham,	Ch.,	Dubois,	3705 Walnut St.
ith, Walter Bell,	C. E.,	Philadelphia,	1719 N. 22d St.
ith, Wilbert Barnes,	Wh.,	Factoryville,	Dorm. 51 Memorial.
fer, Joseph,	M. E.,	Nikolajew, Russia,	800 S. 9th St.
ly, Joseph Lawrence,	C. E.,	Philadelphia,	Dorm. 244 Lippincott.
aulding, Harold Preston,	Wh.,	do.	7211 Boyer St., Mt. Airy.
nford, James, Jr.,	Ch.,	Great Falls, Mont.,	3443 Chestnut St.
hle, Frank Krammer,	Ch.,	Jeffersonville.	
venson, Vincent Moore,	A.,	Lexington, Ky.,	300 S. 36th St.
ers, Harry Wallace,	Ch.,	Philadelphia,	1316 Allegheny Ave.
nson, Leonard Karl Underhill,	M. E.,	do.	2637 Lehigh Ave.
vester, Guy Carter,	M. E.,	do.	1821 Wallace St.
it, Lewis Edgar,	M. E.,	Catasauqua.	3312 Woodland Ave.
butt, James Felix,	Arch.,	Lexington, Ky.,	265 S. 38th St.
lcott, Louis Hart,	Wh.,	Talcottville, Conn.,	1340 Pine St.
aaka, Aijiro,	Wh.,	Yokohama, Japan.	
per, Charles Henry,	C. E.,	Buffalo, N. Y.,	258 S. 38th St.
ayer, Russell, Jr.,	Ch.,	Philadelphia,	Dorm. 137 Hopkinson.
ompson, Russell Darrah Addison,	A.,	Pittsburg,	"The Covington."
ivino, Joseph Geromino,		Mexico City, Mex.,	"The Ivan."
up, Robert W.,	Wh.,	Harrisburg,	Dorm. 215 Foerderer.
ys, Robert William,	Wh.,	do.	Dorm. 215 Foerderer.
itsky, Maurice M.,	Wh.,	Philadelphia,	1330 Franklin St.
il, James Garrett,	Ch.,	Media.	
n Kirk, Walter Moseley,	Arch.,	Philadelphia,	1333 Pine St.
ughan, Charles Zimmerman,	C. E.,	Haddonfield, N. J.,	Dorm. 32 Memorial.
lker, James Abraham,	A.,	Philadelphia,	1617 Green St.
tt, James Cruickshank,	M. E.,	do.	6373 Woodbine Ave.
ay, Catharine E.,	B.,	do.	261 Zeralda St., Gtn.
ay, Lawrence Eavenson.	Wh.,	St. David's.	
uite, Raymond A., Jr.,	Wh.,	Melrose.	
file, William Henry, Jr.,	A.,	Philadelphia,	3332 Woodland Ave.

Absent on leave.

THE COLLEGE.

Name.	Course.	Residence.	City Address.
Willcox, John Keating,	A.,	Philadelphia,	341 S. 18th St.
Williams, Harry Leighton,	Wh.,	Scranton,	3531 Locust St.
Wilson, Thomson Huff,	A.,	Philadelphia,	5015 Market St.
Winokur, Joseph Benjamin,	Wh.,	do.	3146 Clifford St.
Wood, Percy Hoxie,	B.,	Memphis, Tenn.,	3729 Locust St.
Woodward, Laura Embree,	B.,	West Chester,	
Yerkes, Jonathan,	C. E.,	Jacksonville, Fla.,	3603 Locust St.
Yokoyama, Yasbshichiro,	Arch.,	Tokio, Japan,	3338 Chestnut St.
Yost, Frederick Randolph,	Ch.,	York,	3641 Locust St.
Young, Reuben Leonard,	Wh.,	Fredonia, N. Y	3615 Locust St.
Ziegler, Augustus Bergey,	C. E.,	Schwenksville,	3745 Spruce St.

STUDENTS TAKING COURSES FOR TEACHERS.

Name.	Residence.	City Address.
Albertson, Alice Owen,	Philadelphia,	140 N. 16th St.
Anders, Mabel Gilling,	do.	1836 Wallace St.
Anderson, Elizabeth Neely,	do.	1741 N. 19th St.
Ashmore, Laura,	do.	4028 Chestnut St.
Balch, Alfred C.,	Lansdowne.	
Balke, Mrs. Clarence William,	Philadelphia,	3607 Sansom St.
Bard, Blanche Smith,	do.	7139 Boyer St., Mt. Airy.
Barnes, Wesley,	Riverside, N. J.,	926 N. Broad St.
Bauman, Kate Jones,	Philadelphia,	2144 Catharine St.
Bean, Margaret Stuart,	Cynwyd.	
Bedford, Flora,	Philadelphia,	818 Oxford St.
Beirn, Mary Cecelia,	do.	314 S. 10th St.
Bell, Martha Christian,	Fulton, Mo.,	Wissinoming Hall, Mt. Airy.
Bennett, Rebecca Forsythe,	Philadelphia,	825 S. St. Bernard St.
Biddle, Edith Francis,	do.	1821 De Lancey Place.
Birtwell, Alice,	Chester,	[526 E. 14th St.]
Bischoff, Emilie Anna,	Haddonfield, N. J.,	[21 Ellis St.]
Blank, Anna,	Philadelphia,	3431 Spg. Garden St.
Boling, Sara Masten,	do.	1713 Bainbridge St.
Bonstein, Ellen Stark,	Pittston, -	Darby.
Borden, Lydia Prichett,	Manoa.	
Boyer, Martha E.,	Philadelphia,	319 Green St.
Boyle, Margaret,	do.	338 W. Horrtter St., Germantown.
Boyle, Mary Anna,	do.	1812 S. 19th St.
Brack, Emma Lorrilliere,	do.	520 Lindley Ave.
Brearley, Mary Catharine,	Trenton, N. J.,	[403 Market St.]
Brock, Maria Louise,	West Chester.	
Broomell, Emma Judith,	Baltimore, Md.,	208 N. 36th St.
Buchanan, Mary Foss,	Trenton, N. J.,	[512 Market St.]
Calvert, Amelia Catherine Smith,	Philadelphia,	4003 Powelton Ave.
Carey, Mary Frances,	Woodbury, N. J.	
Carl, Helen B.,	Camden, N. J.,	[219 S. 6th St.]
Carver, Josephine James,	Mozart.	
Chalfin, Elizabeth Miriam,	Philadelphia,	495 N. 4th St.
Cheston, Anna W.,	do.	1318 Spruce St.
Chrisman, Jessie L.,	Media.	
Clampitt, Xenia Claudine,	Philadelphia,	11th St., Oak Lane.
Cleary, Mary L.,	do.	1373 Unity St., Fkd.
Cochran, George Caldwell,	do.	917 Moore St.
Collins, Henrietta,	do.	4944 Franklin St., Fkd
Collins, Ruth,	Pitman Grove, N. J.,	412 N. 34th St.
Cooling, Catharine Eva,	Philadelphia,	1822 N. Van Pelt St.
Cooper, Anna Elizabeth,	do.	640 N. 7th St.
Cooper, Carrie L.,	Wilmington, Del.,	[904 W. 4th St.]

Name.	Residence.	City Address.
Cramp, Laura Grace,	Philadelphia,	3344 N. 17th St.
Davis, Iva Elizabeth,	West Chester,	3619 N. 19th St.
Davis, Jennie Morris,	Philadelphia,	661 N. 15th St.
Deckman, Alice Anna,	Street, Md.,	Merchantville, N. J.
Dodds, Mary Copeland,	Philadelphia,	2329 Catharine St.
Donnelly, Mary Winifred,	Media.	
Doxund, Marie,	Philadelphia,	3313 Ridge Ave.
Dudley, Albert W.,	do.	1713 N. 19th St.
Duffield, Louise Coralie,	do.	3932 Brown St.
Dunbar, Alice Moore,	Wilmington, Del.	[1008 French St.]
Duncan, Kate,	Philadelphia,	525 Levering St.
Dunn, Agnes,	do.	1711 S. 18th St.
Dwier, Mary Elizabeth,	Lansdowne,	Normal School.
Eckard, Elizabeth Troth,	Philadelphia,	1321 N. 15th St.
Engell, Annis Gilbert,	do.	781 Preston St.
Eschner, Beatrice,	do.	2004 N. Park Ave.
Fels, Jennie May,	do.	3640 Chestnut St.
Fenimore, Beulah,	do.	1331 N. 12th St.
Filbert, May W.,	do.	1524 Gratz St.
Finley, Ella Jane,	do.	719 N. 16th St.
Flechinghaus, Agnes,	do.	1425 Spruce St.
Foley, Nathalie Regina,	do.	1621 S. 13th St.
Frederick, Edith Gertrude,	Wilmington, Del.,	[815 Monroe St.]
Friend, Lillian,	Williamson School.	
Fussell, Ellen,	Media.	
Gandy, Roxana Smith,	Dennisville, N. J.	
Garrett, Mary Maris,	Lansdowne.	[32 Owen Ave.]
Gaskill, Sue A.,	Philadelphia,	4031 Spg. Garden St.
George, Mary Matilda,	do.	1415 W. York St.
Gilbert, May Chaplain,	do.	1534 E. Montgomery Ave.
Gill, Margaret Louise,	do.	628 Morris St.
Ginrich, Florence May,	do.	2625 N. 30th St.
Godshalk, Cornelia W.,	Trenton, N. J.	[41 Yard Ave.]
Graham, Emily Louisa,	Philadelphia,	1511 W. Susquehanna Ave.
Gray, Irene Rebecca,	Camden, N. J.	[526 Haddon Ave.]
Greene, Ida Beck,	Philadelphia,	1921 N. 33d St.
Guest, Sarah Ashley,	do.	3427 N. Marshall St.
Gunther, Sophie M.,	Wilmington, Del.,	[714 N. Harrison St.]
Hadry, Charlotte Augusta,	do.	1513 Swain St.
Haigh, Emma Muench,	Camden, N. J.	[24 Southard St., Trenton, N. J.]
Hall, Anne-Heygate,	Lansdowne,	Normal School.
Hanauer, Jeannette Lottie,	Philadelphia,	1740 N. 15th St.
Hannum, Anna Laura,	Boothwyn.	
Harper, Jennie Watt,	Philadelphia,	2540 N. 6th St.
Harris, Minnie E.,	Wilmington, Del.	[1209 Jefferson St.]
Hart, Mary Sheard,	Philadelphia,	Castor Road, Fkd.
Harvey, Bessie Homiler,	Somerton.	
Haydock, Mary Thornton,	Philadelphia,	2123 Locust St.

STUDENTS.

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Name.	Residence.	City Address.
Hegarty, Margaret Regina,	Philadelphia,	634 N. 36th St.
Heidinger, Blanche Lamont,	do.	301 Lemonte St., Rox.
Heidinger, Minnie Howell,	do.	301 Lemonte St., Rox.
Hellyer, George Warren,	Kennett Square.	
Helms, M. Ella,	Bridgeport, N. J.	
Herbert, Minne Margaret,	Camden, N. J.	[574 Washington St.]
Heritage, Evaline Day,	Philadelphia,	120 N. 18th St.
Hibbs, Laura Gerhard,	Riverton, N. J.	
Hill, Emilie Brégy,	Philadelphia,	906 S. 48th St.
Hoffmann, Dora,	Salzburg, Austria,	1406 Spruce St.
Horn, Blanche Campbell,	Philadelphia,	1538 S. 58th St.
Howard, James Tomas,	do.	1920 Lombard St.
Hoy, Jennie St. Clair,	do.	3513 Haverford St.
Hufford, Josephine M.,	do.	Belmont and Monu- ment Aves.
Hunter, Mary Brazer,	do.	2045 N. College Ave.
Hutchinson, Katharine Preston,	do.	133 S. 22nd St.
Hutchinson, Nancy P.	do.	133 S. 22nd St.
Hykes, Frances Cornelia,	Burlington, N. J.	
Jackson, Roberta,	Philadelphia,	3221 Powelton Ave.
Jacob, Louisa M.,	Lansdowne.	
Jaggard, Cora,	Haddonfield, N. J.	
James, Elizabeth Kingston,	Philadelphia,	4124 Westminster Ave.
Jaquette, Helen,	Woodstown, N. J.	
Jenkins, Martha Campbell,	Camden, N. J.	[324 Cooper St.]
Jourdan, Ruth E.,	Merchantville, N. J.	
Katzenberg, Bessie D.,	Philadelphia,	2106 N. Broad St.
Keeler, Caroline Niece,	do.	4059 Spruce St.
Kelley, Margaret,	Wilmington, Del.,	[413 E. 8th St.]
Kennedy, Katharine Rose,	Philadelphia,	113 Race St.
Kerkhoff, Martha E.,	do.	134 N. 20th St.
Kern, Oliver Blaine,	Camden, N. J.,	[532 Cooper St.]
Killen, Mary Louise,	Philadelphia,	2843 N. 11th St.
Kintzki, Olga Hedwig,	do.	333 S. 13th St.
Kirkland, William Reid,	Girard,	3320 Haverford Ave.
Klcefeld, Anna Christine,	Philadelphia,	628 N. 34th St.
Knowlton, Mrs. Mary Cutler,	Natick, Mass.,	1517 Chestnut St.
Krouse, Amelia Louisa,	Philadelphia,	1605 N. 9th St.
Lahr, Jerome Banks,	Williamson School.	
Laib, Nell Virginia,	Philadelphia,	3112 Montgomery Ave.
Lamberton, Bertha,	do.	753 Corinthian Ave.
Latimer, Anna Austin,	Bristol.	
Lee, Mrs. Mary Martin,	Philadelphia,	4231 Baltimore Ave.
Levis, William Bittle,	do.	1516 Market St.
Lieber, Esther,	do.	626 N. 22d St.
Lippincott, Alice Viola,	Bristol.	
Lippincott, Mary Woolman,	Salem, N. J.,	[21 Market St.]
Lockhead, Catherine P.,	Philadelphia,	826 N. 26th St.
Lodor, Elizabeth,	do.	1313 N. 12th St.
Long, Emma M.,	Philadelphia,	1820 Buckius St.

Name.	Residence.	City Address.
Longstreth, Emma Jane,	Philadelphia,	2129 N. 13th St.
Lowe, Anna Almy,	do.	2053 E. Somerset St
Lowe, Alfred Kingsbury,	Wayne,	[405 Oak Lane.]
Lyon, Ethel Mary, M. D.,	Philadelphia,	1619 Master St.
McClintock, Bessie,	do.	3 Cresheim Road.
McManus, Marie R.,	do.	3234 N. 13th St.
McMichael, Sarah Ruth,	West Chester,	[124 S. Walnut St.]
McNutt, Ernest Thomas,	Palmyra, N. J.	
McPhee, Jane Riddell,	Philadelphia,	8303 Norwood St., Chestnut Hill.
Mampe, Wilhelmina,	do.	1114 Poplar St.
Mallon, Zita Elizabeth,	Lansdowne.	
Margolin, Fannie Bezman,	Philadelphia,	534 S. 4th St.
Marvel, Ella M.,	Wilmington, Del.	[1123 West St.]
Maskings, Wilhelmina	Philadelphia, .	936 N. 7th St.
Josephine,		
May, Florence Edith,	Moorestown, N. J.	
Minster, Carrie G.,	Bristol.	
Mongel, Rosalia M.,	Philadelphia,	3950 Parrish St.
Montgomery, Emily Hollings-	do.	1815 DeLancey Pl.
worth,		
Moore, Julia Anna,	do.	2009 Green St.
Mott, Jennie Morris,	Trenton, N. J.,	[323 Market St.]
Mullen, Katherine Regina,	Philadelphia,	1339 S. 17th St.
Myres, Lizzie Dutton,	Linwood.	
Nell, Katherine,	Philadelphia,	2835 Ridge Ave.
Nicholas, Isaac Alonzo,	Doylestown.	
Nisbett, Ellen,	Philadelphia,	2207 Pine St.
O'Donnell, Teresa,	do.	2952 N. 7th St.
Oakford, Elsie,	do.	619 E. Cheltenham Ave.
Oliver, Josephine Holman,	Langhorne.	
Outen, Catharine Elizabeth,	Philadelphia,	931 N. Marshall St.
Packer, Augusta Woodhull,	Trenton, N. J.	[112 W. Hanover St.
Paige, Alice Browning,	Lynn, Mass.	[Westtown, Pa.]
Palmatary, Helen Constance,	Wilmington, Del.	[1019 Monroe St.]
Parmenter, Eleanor Bertha,	Trenton, N. J.,	[24 Southard St.]
Patterson, Mary Eliza,	Georgetown, N. J.	
Patton, Margaret Canders,	Philadelphia,	509 S. 44th St.
Paul, Florence Aimée,	Ft. Thomas, Ky.,	4037 Powelton Ave.
Paul, Mary Lindsay,	Philadelphia,	1420 Christian St.
Pennypacker, Susan Edna,	do.	39 N. 60th St.
Peter, Mary,	do.	2462 N. 18th St.
Poley, Helen Catharine,	Jenkintown.	[Abington Friends' School.]
Price, Helen M.,	Philadelphia,	3131 Columbia Ave.
Price, Mary Perrine,	do.	1919 Master St.
Price, Susan Blanchard,	do.	1919 Master St.
Pyle, Edith J.,	West Chester.	
Rawley, Jessie,	Philadelphia,	391 Lyceum Ave., Rox.
Redeker, Carrie Rebecca,	Bloomsburg,	2026 N. Park Ave.
Redfern, Grace Helen,	Philadelphia,	2114 N. 28th St.

STUDENTS.

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Name.	Residence.	City Address.
Reeves, Anna R.,	Woodbury, N. J.	
Richardson, Ella Rebecca,	Moorestown, N. J.	
Richie, Sarah,	do.	
Ridgway, Mary Ella,	Camden, N. J.	[615 S. 15th St.]
Ries, Rebecca,	Philadelphia,	2615 N. 8th St.
Roberts, Gertrude,	Worcester, Mass.,	140 N. 16th St.
Rodman, Hildegard Ernestine,	Philadelphia,	1011 S. 48th St.
Ross, Robert Bruce,	do.	3708 Sydenham St.
Ryan, Louise Deacon,	do.	1742 Green St.
Saybolt, Mary I.,	do.	1419 N. 15th St.
Schlater, Lillie,	do.	1814 Vineyard St.
Schoenian, Carrie M.,	Norristown.	
Schofield, Robert LeRoy,	Northfield, Minn.,	1921 S. Broad St.
Sensenig, Anna,	Wayne.	
Serrill, Kate Willis,	Darby.	
Shaw, Sallie Reid,	Wilmington, Del.	
Sherburne, Susan Seymour,	Philadelphia,	731 N. 26th St.
Simpson, Nellie,	do.	4314 Pine St.
Sinkler, Ella Brock,	do.	1606 Walnut St.
Sinkler, Julia Ursula,	do.	1606 Walnut St.
Smith, Ella P.,	Downingtown.	
Spieß, Madeleine Taulane,	Philadelphia,	2221 W. Venango St.
Stein, Elva Esther,	do.	2016 N. 13th St.
Stephens, M. Athalia,	do.	4062 Irving St.
Sterling, Sara Hawks,	do.	5409 Spruce St.
Stetler, Isaac Eugene,	do.	4030 Spg. Garden St.
Stetser, James Blaine,	Chester.	
Stewart, Mary,	Philadelphia,	1228 S. 57th St.
Stewart, Mary Weldon,	do.	1218 S. Broad St.
Storrie, William A.,	Woodbury, N. J.	
Stout, Helen Dodds,	Wilmington, Del.,	[815 Franklin St.]
Swan, Martha Catharine Hale,	New Sharon, Me.	[Moorestown, N. J.]
Sweeton, Hannah May,	Philadelphia,	1819 S. Broad St.
Swinehart, Isaac W.,	Glen Mills.	
Thomas, Bessie Estelle,	West Chester.	
Thompson, Bertha Frances,	Camden, N. J.,	[103 N. 7th St.]
Titzck, Agnes Marie,	Lübeck, Germany,	403 N. 41st St.
Tourison, Eleanor,	Philadelphia,	6 Cresheim Road, Mt. Airy.
Town, Clara Harrison,	do.	Friends' Asylum, Fkd.
Treat, Blanch Evelyn,	Chelsea, Mass.,	170 Manheim St., Gtn.
Tustin, Dora May,	Paoli.	
Tweed, Harriet Arthur,	Philadelphia,	1739 Willington St.
Vansant, Myrtle Sabina,	do.	1432 Jackson St.
Vallette, Clarisse,	do.	4427 Chestnut St.
Venables, Esther Marie,	do.	1839 S. 16th St.
Wallace, Nellie Mattison,	Trenton, N. J.,	44 Ogden St.
Walters, Florence Emily,	Wayne.	
Weber, Emma Walker,	Williamson School.	
Wells, Robert C.,	Llanerch.	

THE COLLEGE.

Name.	Residence.	City Address.
Wetherald, Mary Collum, White, Grace Elizabeth, Whitson, Mary Hannah, Wickersham, Edna, Wilkinson, Jessie R.,	Bryantown, Md., Bloomfield, N. J., Philadelphia, Camden, N. J. Philadelphia,	Lansdowne. Friends' Asylum, Fkd. 1623 Race St. [219 S. 6th St.] 431 W. Chelton Ave., Germantown.
Williams, Julia Evna, Williams, Richard Lloyd, Williamson, Etta Lucile, Wilson, Annie, Wolfe, Blanche, Wolfe, Elizabeth Tunnelle, Wood, Marion,	Mount Holly, N. J. Morton Philadelphia, do. do. Glenolden. Dorchester, Mass.,	773 N. 38th St. 1919 Master St. 1844 E. Monmouth St. 416 Chester Ave., Moorestown, N. J.
Woodman, Elizabeth Atkinson,	Newtown.	
Woodmansee, Mary, Woods, Mary, Woodward, Adelaide H., Yancy, Roxana, Young, Evaline, Young, Marianne Roxana Seward,	Norristown, Philadelphia, West Chester. Woodstown, N. J. Philadelphia, do.	[718 George St.] 2025 N. 31st St. 2046 N. Park Ave 1623 N. 15th St.

SUMMER SCHOOL STUDENTS.

(SESSION OF 1905.)

Name.	Residence.	City Address.
Aitken, Ellen M. M., Albert, Guy Elmore, Andrews, Lucille,	Moorestown, N. J., York Springs, Woodbury, N. J.,	[121 N. Church St.] 1623 Bouvier St. Commercial High School for Girls.
Arnold, T. Herbert, Atkinson, John Donaldson, Barr, Agnes, Barr, John Walter, Bary, George, Bear, Herbert K., Bedford, Flora, Black, Matthew B., Boggs, Joseph Watson, Booz, Florence Miller, Bowers, R. Bruce, Boyle, Howard Peterson, Boyle, Margaret,	Ardmore. Berwyn. Philadelphia, Reading, Philadelphia, do. do. Avon. Philadelphia, Milford, Del., Philadelphia, do. do.	1512 Dickinson St. Dorm. 14 House P. 3438 Walnut St. 4032 Baring St. 818 Oxford St. - 1206 Master St. 6111 Glenmore Ave. 7249 N. 2d St. Pike. 404 Ledger Bldg. 338 W. Hortter St. Germantown.
Brautigam, Ernest Laffitte, Brown, Calvin Austin, Burk, Charles Hergest David Burk, Edwin H., Caldwell, Hugh Wright, Campbell, Frazelia, Carman, Emma Pruden, Carpenter, Leonora E.,	do. Friedensburg, Philadelphia, do. Chesapeake City, Md. Philadelphia, do. Baltimore, Md.,	527 S. 42d St. Dorm. 333 Franklin. 409 Arch St. 1615 N. 33d St. - 738 S. 12th St. 1414 Christian St. [29 St. Paul's Road, Ardmore.]
Chapman, Richard Henry, Jr.,	Warminster,	8229 Germantown Ave.
Clapp, Elsie, Clark, Matilda Rebecca, Cleaver, Horace J., Clever, G. Charles, Cochran, George C., Coffin, Elizabeth Fussell, Colby, Ruth, Cole, William Ide, Collins, Archie Stewart, Collins, Wilbur Jones, Conover, Courtney, Conway, Adam Southern, Coonahan, William Joseph, Corkran, Sewell Hopkins, Costello, John N., Curry, Charles Hill, Dalton, John Franklin, Jr.,	Philadelphia, do. Ardmore. Shippensburg, Philadelphia, do. Holly Oak, Del. Dallas, Texas, Philadelphia, do. Spartansburg. Philadelphia, do. Media. Tacony. Woodbury, N. J., Chester.	2075 E. Tioga St. 2416 Clifford St. - 3712 Spruce St. 917 Moore St. 3521 Hamilton St. - 105 S. 34th St. 842 N. 40th St. 3400 Walnut St. - 3400 Walnut St. 48 E. Clapier St., Gtn. - 1524 Chestnut St.

Name.	Residence.	City Address.
Delany, Howard Sharpless,	Primos.	
Delk, Edward Buehler,	Philadelphia,	630 N. Broad St.
DeLone, Joseph Michael,	Harrisburg,	Dorm. 139 Smith.
Del Rossi, Alfred,	Philadelphia,	735 Montrose St.
Deppisch, Alma Louise,	Ridley Park,	
Dever, Harvey Conquest,	Philadelphia,	4436 Sansom St.
DeVictor, William Knight,	do.	4725 Baltimore Ave.
Dieterle, George Andreas,	Cincinnati, Ohio,	3400 Walnut St.
Donnelly, C. Jessica J.,	Philadelphia,	1521 Wallace St.
Drueding, Bernhard John,	do.	517 W. Girard Ave.
Duncan, Winifred,	do.	1415 S. Broad St.
Dungan, John Evan,	Bustleton.	
Eckels, Lauren S.,	Philadelphia,	600 S. Broad St.
Evans, Henry Simpson,	Hollidaysburg,	3372 Spruce St.
Eysenbach, George Gifford,	Philadelphia,	611 N. 10th St.
Fitch, Edward Doolittle,	Media.	
Fletcher, Gustavus Bergner,	Radnor,	216 N. 34th St.
Freeman, Addison Bampfyld,	Philadelphia,	206 E. Penn St., Gtn.
Gallagher, Elizabeth	Warkworth, Canada,	105 S. 34th St.
Hildagarde,		
Gardinier, Charles Henry,	Shippensburg,	3712 Spruce St.
Garrett, Erwin Clarkson,	Philadelphia,	3331 Walnut St.
Garland, John J., 2d,	do.	3816 Spg. Garden St.
Gaston, Frederick Harold,	do.	6341 Woodbine Ave., Overbrook.
Gerhard, Mary A.,	Tamaqua,	3227 N. 6th St.
Gibbons, Helen Wilson,	Philadelphia,	405 S. 41st St.
Gibbons, Lois O.,	do.	405 S. 41st St.
Gibson, Henry Clay,	Jenkintown,	2001 Walnut St.
Gill, Calvert Burke,	Baltimore, Md.,	3303 Walnut St.
Gillan, Charles McDowell,	Philadelphia,	2462 N. 29th St.
Goff, Byron Heazelton,	Pittsburg,	3529 Locust St.
Graham, Donald,	Philadelphia,	4304 Walnut St.
Granlees, William Sictor,	do.	Dorm. N. Y. Alumni.
Griffith, Mary Dechert,	do.	1529 Green St.
Guest, Sarah Ashley,	do.	3427 N. Marshall St.
Gunther, Albert George,	do.	4642 Westminster Ave.
Hall, Elizabeth Rankin,	Middletown, Del.,	759 N. 40th St.
Hampshire, Iva M.,	Philadelphia,	251 Lyceum Ave. Rox.
Hayward, Thomas Eccleston,	Minneapolis, Minn.,	425 S. 43d St.
Haynes, C. D.,	Petersburg, Va.	
Hewson, William,	Philadelphia,	1115 Spruce St.
Hickey, Susanna Goode,	do.	3735 Spruce St.
Hicks, John Frederick Gross,	do.	Girard Ave. & 65th St.
Hires, Linda Smith,	Bryn Mawr.	
Hoffman, Bertha Livingston,	Chadd's Ford,	60th ab. Baltimore Av.
Hoffsten, Ernest Godfrey,	Philadelphia,	853 N. 5th St.
Holdridge, Newton Clark,	Hammonton, N. J.	
Hornberger, Harry,	Philadelpia,	1201 N. 3d St.
Hunt, Biddle Newbold,	Kirkwood, N. J.	
Hunter, Jane,	Philadelphia,	5229 Angora Ave.

STUDENTS.

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Name.	Residence.	City Address.
Hunter, Rolland Mitchell,	do.	Wynnefield.
Irons Sallie B.,	do.	3606 N. 22d St.
James, Jesse Evans,	Elverson.	
Jayne, Charles Adams,	Philadelphia,	931 N. Broad St.
Jenkins, Martha Campbell,	Camden, N. J.,	[324 Cooper St.]
Johnson, Arthur Charles, Jr.,	Castleton-on-Hud- son, N. Y.,	Dorm. 131 Craig.
Kasugai, Jotaro,	New York, N. Y.,	3920 Sansom St.
Keating, Peter McCall,	Philadelphia,	3453 Woodland Ave.
Keely, Edmund Mark, Jr.,	do.	350 Green Lane, Rox.
Kern, John Williams,	Hamilton, N. Y.,	3702 Locust St.
Kite, Albanæ,	Philadelphia,	36 N. St. Bernard St.
Klauber, Edward, Jr.,	Louisville, Ky.,	Dorm. 140 Smith.
Knoll, Lloyd Monroe,	Reading,	3262 Chestnut St.
Knowles, Emmett Bryan,	Philadelphia,	3225 Arlington St.
Lampe, Willard,	Omaha, Neb.	
Lancaster, Antoinette,	Forksville,	3727 Spruce St.
Lane, Irene Veronica,	Pedricktown, N. J.,	3829 Cambridge St.
Lang, Henry Christian,	Trevose,	Seminary, 43d & Chest- nut Sts.
Langness, Julia,	Baltic, S. Dakota,	3313 Walnut St.
Larrabee, Marian Eugenia,	Emporium,	6211 Westminster St.
Lawless, William John,	Villa Nova.	
Lee, Rudolph Edward,	Clemson College. S. Carolina.	
Lenderman, Watson Beatty, Jr.,	Wilmington, Del.	
Levy, Howard Spence,	Philadelphia,	854 N. 8th St.
Leymel, Zygmunt Stephen,	Wilkesbarre,	3617 Locust St.
Lollis, Harwick Arthur,	Philadelphia,	5000 Woodland Ave.
Lukens, Hiram Stanhope,	do.	2111 Tioga St.
Luttrell, Mary Eliza,	Washington, D. C.,	338 W. Hortter St.
Lybrand, Lenore Mont- gomery,	Philadelphia,	"The Clinton."
McCaffrey, John Carroll,	do.	36 N. 40th St.
McCallie, Joseph Madison,	Trenton, N. J.	
McElwain, C. Stanley,	Sewickley,	3618 Walnut St.
McGrane, James Bernard,	Philadelphia,	2046 Bainbridge St.
McManus, Marie R.,	do.	3234 N. 13th St.
McSorley, Lewis Bernard,	do.	740 N. 20th St.
MacLean, Sarah Jones,	do.	277 S. 4th St.
Major, Paul Langdon,	do.	3717 Powelton Ave.
Mathay, Jacob, Jr.,	do.	4124 Powelton Ave.
Mattson, John Danskin,	do.	725 Pine St.
Margolin, Fannie B.,	do.	534 S. 4th St.
Martin, Edward Burk,	do.	2009 Columbia Ave.
Maxfield, Francis Norton,	do.	164 Mayland St.
Mayer, Albert Ignace,	Cincinnati, Ohio,	[820 N. 2d St., Camden, N. J.]
Miller, Emlen Hare,	Philadelphia,	312 S. 10th St.
Miller, Ida L. Knauss,	Philadelphia,	2341 N. 21st St.

Name.	Residence.	City Address.
Mills, Alan Balch,	Cynwyd.	
Mitchell, George,	Clearfield,	201 N. 34th St.
Moorshead, Albert H.,	Lansdowne.	
Morgan, Mabel Taylor,	Philadelphia,	1925 N. 8th St.
Morrow, Helen Harcourt,	do.	3700 Sansom St.
Moyer, Herbert Baldwin,	Norristown,	1327 DeKalb St.
Myers, Joseph S.,	Philadelphia,	Chestnut Hill.
Needham, Dora Louise,	do.	926 Lombard St.
Newell, Charles W.,	do.	337 Wyota St.
Nibecker, Karl,	Glen Mills.	
Nields, Mosmer Aldewin,	West Chester.	
Noble, Charles Greylock,	Philadelphia,	3034 Oxford St.
Noble, Raymond Hull,	do.	3034 Oxford St.
O'Neil, Sydney D.,	Chippewa Falls,	52 N. 36th St.
	Wis.,	
Ott, George Warren,	Philadelphia,	1531 N. 17th St.
Park, Richard G., Jr.,	West Chester.	
Perkins, Rowan Penrose,	Philadelphia,	2005 DeLancey Pl.
Pfister, John Anthony,	do.	4438 Fleming St.
Pierce, Stanley Ladomus,	do.	5053 Wade St., Gtn.
Ramsey, Emily Yocum,	Bryn Mawr.	
Reichwein, Lena,	Philadelphia,	25 N. 34th St.
Reinhardt, Lydia Ludwig,	do.	2121 Mt. Vernon St.
Rhoad, John Neely,	do.	1635 S. Broad St.
Richardson, Francis Allen,	do.	219 S. 33d St.
Ries, Rebecca,	do.	2615 N. 8th St.
Ringe, Henry Ralph,	Three Tuns.	
Ross, Robert Bruce,	Philadelphia,	3708 Sydenham St.
Russel, William C. (Mrs.),	do.	1137 Spruce St.
Russell, Howard Wootten,	Farmington, Del.	
Rutter, Albert Curtis,	Perkasie.	
Schlater, Lillie,	Philadelphia,	1814 Vineyard St.
Schopbach, Charles Henry,	do.	1702 W. Norris St.
Seipt, Allen Anders,	West Point,	3925 Pine St.
Seipt, Howard Anders,	do.	
Service, William Spencer,	Bala.	
Shoemaker, Charles Chalmers,	Saint David's,	923 Arch St.
Siegmann, Edward William,	Philadelphia,	1136 Columbia Ave.
Smelo, William M.,	do.	722 Dickinson St.
Smith, Harvey Newcomb,	do.	2110 N. 20th St.
South, Florence Tingley,	Berwyn.	
Spangler, Elmer E.,	Philadelphia,	5237 Larchwood Ave.
Stackhouse, Laura N.,	Lansdowne.	
Stalberg, Samuel,	Philadelphia,	1331 S. 6th St.
Steen, Mary Ellen,	Trenton, N. J.,	[50 Spring St.]
Stehle, Frank Krammer,	Jeffersonville.	
Sterling, Sara Hawks,	Philadelphia,	5409 Spruce St.
Stern, Arthur K.,	do.	1609 Diamond St.
Stern, Julius David,	do.	1421 N. 15th St.
Stradley, Leighton Paxton,	Collingdale.	
Straus, Bertram,	Louisville, Ky.	Dorm.

STUDENTS.

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Name.	Residence.	City Address.
Stuckert, Howard Morris,	Philadelphia,	1502 Diamond St.
Taite, Frank Griffiths,	do.	915 S. 47th St.
Taylor, Laura May,	do.	533 S. 49th St.
Tener, Henry Brown, Jr.,	do.	2223 Tioga St.
Thomas, John Ramsey,	do.	2064 E. Dauphin St.
Thompson, Elizabeth,	Moylan,	140 N. 15th St.
Thompson, Russell Darrah Addison,	Pittsburg,	3400 Walnut St.
Topping, Wilbur Baird,	do.	300 S. 36th St.
Traver, Harrison Baxter,	Hudson, N. Y.,	3303 Walnut St.
Tremain, Eloise Ruthven,	Philadelphia,	28 W. Loudon St., Gtn.
Ungemach, Dena Daisy,	do.	2548 Douglas St.
Vail, James Garrett,	Media.	
Vaughan, Charles Zimmerman,	Haddonfield, N. J.	
Vaughn, Roscoe Ingersol,	Washington, D. C.,	3223 Woodland Ave.
Verlenden, Edith L.,	Darby.	
Vick, Albert Fisher,	Philadelphia,	809 N. 63d St.
Waln, Emma,	do.	Friends' School, 15th and Race Sts.
Welsh, Raymond Wilmer,	do.	3413 Baring St.
Wesley, Charles Frederick,	Camden, N. J.,	[433 Kaighn's Ave.]
Wicke, Carl Frederick H.,	Philadelphia,	224 Church Lane, Gtn.
Wiley, Hedwig,	do.	723 N. 26th St.
Wilson, George Hamilton,	Wayne.	
Winterstein, Otto Alfred,	Philadelphia,	1625 Cayuga St.
Wolf, Bessie Alwilda,	Geigertown,	4239 Powelton Ave.
Woodward, Laura Embree,	West Chester.	
Wright, Charles F.,	Columbus, Ohio	3430 Sansom St.
Wurster, Nettie,	Philadelphia,	2720 Jefferson St.
Yerger, William Clarence,	do.	5220 Kershaw St.
Yoder, Arthur Lee,	do.	325 N. Felton St.
Zuber, William Henry,	Greensburg,	2027 Columbia Ave.

EVENING SCHOOL OF ACCOUNTS AND FINANCE.

FIRST YEAR REGULAR STUDENTS.

Name.	Residence.	City Address.
Adams, Carson Wilson, Alexander, Washington Wallace,	Philadelphia, do.	1816 N. Van Pelt St. 435 Hansberry St., Germantown.
Allen, Frank Louis, Allison, James Nelson,	Wayne. Philadelphia,	423 West Cheltenham Ave. 1627 S. 15th St.
Artz, Wayne Zern, Bach, Charles Yamme,	do. do.	2445 N. 17th St. 5142 Ludlow St.
Baer, James Walter, Balliet, Walter,	do. do.	704 S. 52d St. 3714 Locust St.
Baum, Russell Ernest, Bechtel, F. M.,	Camden, N. J., Philadelphia,	[572 Carman St.] 7147 Sprague St.
Bihlmaier, William Thomas, Blair, James Edgar,	do. do.	742 N. 20th St. 2944 Flora St.
Boraske, George Gustav, Brunt, Thomas Bayard,	Riverton, N. J. Philadelphia,	2236 Diamond St.
Carrigan, Charles Philip, Chrisman, George Albert,	Wayne. Philadelphia,	3735 Spruce St. 2741 Howard St.
Clark, Marvin Ray, Colbeck, Samuel,	do. Camden, N. J.,	[525 Linden St.] 814 Montgomery Ave.
Connell, Archibald Grant, Corson, Charles Percival,	Philadelphia, do.	2824 Hancock St. 1738 Harrison St.
Crompton, George Samuel, Davies, John Colfax,	do. do.	1310 S. 10th St. 4244 Wyalusing Ave
Deck, John Milton, Edgar, Harry Solomon,	do. do.	1801 Pine St. 3825 Baring St.
Elmer, Arthur Read, Eves, Frank Cleo,	do. do.	3329 Spg. Garden St. 2016 N. 32d St.
Fellons, John Randolph, Fenn, Theodore, Jr.,	do. do.	1622 N. Park Ave. 1414 S. 15th St.
Finnigan, William Russell, Fletcher, Charles Mann,	do. do.	1626 Christian St. 3615 Fairmount Ave.
Ford, Joseph Michael, Frantz, Seth Urias,	do. do.	3727 Locust St. 3656 N. 11th St.
Gabel, John Fernandes, Griffey, John Stephen,	do. do.	6725 Lansdowne Ave. S. W. Cor. 7th St. and Oak Lane.
Haig, Charles Carroll, Haig, Clifford Wesley,	do. do.	S. W. Cor. 7th St. and Oak Lane.
Hamilton, James Garfield, Hare, Frank Ellwood,	do. do.	1233 Butler St. 717 Berks St.
Hartz, Richard Alexander, Hausman, Harry Craig,	do. do.	1207 S. 13th St. 1205 S. 46th St.
Heins, John Wesley, Herkness, Benjamin Leander,	do. do.	1911 Fitzwater St. 650 N. 11th St.

STUDENTS.

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Name.	Residence.	City Address.
Hilsee, Charles Miller,	Philadelphia,	4220 Stiles St.
Horton, Charles Raymond,	do.	5613 Market St.
Jacobs, Vincent Adolph,	do.	2529 N. 16th St.
Jones, J. Walter,	Ridley Park.	
Jordan, William,	Philadelphia,	Morris and Logan Sta.
King, Louis William,	do.	4706 Windsor Ave.
Knapp, William Fenton,	do.	1215 Porter St.
Kohler, John Benedict,	do.	912 W. Dauphin St.
Lamping, Frank William,	Ridley Park.	
Lancaster, Walter Dutton,	Philadelphia,	81 E. Brighthurst St., Germantown.
Laughlin, Frank Siszt,	do.	1045 Tioga St.
Levensohn, Solomon Joel,	do.	1330 N. Franklin St.
Linville, Walker Eachus,	do.	1931 N. Gratz St.
Loughridge, William,	do.	4413 Sansom St.
Ludwig, John Phillip,	do.	1934 Mt. Vernon St.
Lukens, Harry Hutchings,	Wilmington, Del.,	[911 Washington St.]
McBurney, Andrew Marvill,	Philadelphia,	4728 Cedar Ave.
McCaffrey, John Joseph,	Camden, N. J.,	[815 Carpenter St.]
McColley, Eugene Cocran,	Philadelphia,	4923 Hazel Ave.
McGee, Francis Grover,	do.	1510 Wolf St.
McIlhenney, Clarence Aloysius,	do.	4716 Hazel Ave.
McNally, John,	do.	2121-31 Arch St.
Magee, James Tracy,	Camden, N. J.,	[828 Federal St.]
Markmann, Mordecai Jacob,	Philadelphia,	2423 N. Park Ave.
Moore, Dean,	do.	2405 N. 15th St.
Murphy, Edward Joseph,	do.	5117 Hazel Ave.
Murren, Herbert Washington,	do.	4238 Wyosing Ave.
O'Brien, James Patrick,	do.	2226 Diamond St.
O'Brien, Joseph Raymond,	do.	2226 Diamond St.
O'Donnell, John Patrick,	do.	1723 Girard Ave.
Oesterich, George Washington,	do.	1643 W. Huntington St
Parry, John Carle, Jr.,	Wyncote.	
Patterson, Robert James,	Philadelphia,	1638 N. 8th St.
Patton, Charles, Jr.,	do.	1938 Wallace St.
Reed, Frank Leidy,	do.	530 N. 7th St.
Reeve, John Michener,	do.	1628 Blavis St., Gtn
Roberts, John Roth,	Jenkintown.	
Sample, Leslie Payson,	Philadelphia,	1229 N. 53d St.
Schultz, John Martin,	do.	540 N. 5th St.
Seltzer, Allen,	do.	1814 N. 24th St.
Senges, Charles,	do.	1539 N. 28th St.
Settle, Paul Smith,	do.	4237 Powelton Ave.
Smith, Ernest,	do.	658 Union St.
Smith, Lewis Doyle,	do.	727 S. 22d St.
Smith, Joseph Ross,	do.	1230 W. Dauphin St.
Speakman, Frank Marion,	do.	2135 N. 28th St.
Spencer, Howard Miller,	Chester,	[219 W. 7th St.]
Stager, Stanley Ray,	Philadelphia,	1106 S. 46th St.

Name.	Residence.	City Address.
Stehfest, Herman Wallace,	Colwyn,	[308 Walnut St.]
Straka, Frank Joseph, Jr.,	Philadelphia,	831 Corinthian Ave.
Taggart, Andrew,	do.	2355 Firth St.
Tatman, Robert Fry,	do.	2027 Mt. Vernon St.
Timanus, John Herbert	Sharon Hill.	
Reading,		
Vandewalker, Clarence	Philadelphia,	Overbrook Institute
Edmond,		for Blind.
Woerner, Matthew John,	do.	2312 N. Hancock St.
Wood, Walter Alan,	do.	1227 Westmoreland St.

SECOND YEAR REGULAR STUDENTS.

Ash, Alexander,	Philadelphia,	3967 Pennsgrove St.
Benner, Edwin Francis,	do.	1943 N. 19th St.
Bertolette, John Shenken,	Wilmington, Del.,	[710 Market St.]
Borden, George Washington,	Philadelphia,	1737 Vine St.
Borden, James Bean,	do.	3739 Spruce St.
Brown, Albert Ernest,	do.	4955 Walton Ave.
Burns, James Joseph,	do.	1923 N. 22d St.
Carlson, John Leonard,	do.	5425 De Lancey St.
Carroll, Dennis Francis,	Chester,	[1104 Potter St.]
Craige, Arthur Henry,	Philadelphia,	1922 N. 24th St.
Cranch, Raymond Greenleaf,	do.	110 W. Luray St., Gtn.
Fenninger, Carl Wiker,	do.	S. E. Cor. 20th and Race Sts.
Fisher, Francis Marion, Jr.,	do.	1711 N. 42d St.
Flint, William, Jr.,	do.	1312 Ritner St.
Frederick, William Paul,	do.	706 S. Washington Sq.
Fuigle, Joseph Sylvester,	do.	1255 Leopard St.
Gallagher, Walter Lindley,	do.	2440 N. 17th St.
Gerdau, Herman,	do.	1218 S. 46th St.
Godwin, John Walker,	do.	250 W. Horter St., Germantown.
Griffith, Horace Price,	do.	2021 N. 7th St.
Grow, George Hagy,	do.	Manayunk P. O.
Harrison, Samuel William,	do.	3629 Fairmount Ave.
Hemphill, Edward Augustus,	do.	5273 Jefferson St.
Holtzman, Robert Morris,	do.	1934 Mt. Vernon St.
Kirk, Albert,	do.	1238 W. Tucker St.
Knox, John Carlyle,	do.	3210 Baring St.
Latimer, James Dobbin,	do.	3726 Hamilton St.
Lewin, Frank Charles,	do.	1011 Spruce St.
McGaw, Samuel Hall,	do.	52 N. 51st St.
McMenamin, Neal,	do.	1345 N. 12th St.
McNeill, Thomas Emanuel,	do.	38 N. 36th St.
Malatesta, Frank Charles,	do.	4824 Baltimore Ave.
Miller, John,	do.	1828 Columbia Ave.
Newkirk, Elmer Detwiler,	do.	2348 Catharine St.
Nieukirk, Philip Ford,	Camden, N. J.,	[319 Linden St.]
Pickford, Albert William,	Philadelphia,	Girard National Bank.

STUDENTS.

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Name.	Residence.	City Address.
Preuscher, Robert Alexander,	Philadelphia	3442 Chestnut St.
Raine, Alfred Milton,	do.	6005 Westminster Ave.
Schaffhauser, Charles,	do.	3029 Girard Ave.
Scheidel, John Jacob, Jr.,	do.	1623 W. Cumberland St.
Schmidt, Robert Junius,	do.	1212 N. 30th St.
Shaffer, Philip Caton, Jr.,	do.	3216 N. 15th St.
Smith, Thomas Wiltburger,	do.	3833 Poplar St.
Snyder, Freas Brown,	Lansdowne,	[28 Dudley Ave.]
Speel, Henry William,	Philadelphia,	811 N. 20th St.
Stickney, Frank Alexander,	do.	327 N. 53d St.
Tingley, Edward Cowan,	do.	510 King St., Gtn.
Walker, William Torrey,	do.	2137 Summer St.
Ward, Frank Stepleton, Jr.,	do.	1410 Snyder Ave.
Weiss, Oscar Ervin,	do.	3205 Race St.
Weissinger, Charles,	do.	S. E. Cor. 27th and Cabot Sts.
Wheeler, Herbert Eugene,	do.	1025 Foulkrod St.
White, John Galbraith,	do.	155 W. Sharpnack St., Germantown.
Wicks, Samuel Clayton,	Rutledge.	
Zacherle, George Henry,	Philadelphia,	2044 N. 7th St.

STUDENTS.

Post-Seniors. Seniors. Juniors. Sophomores. Freshmen.	Sc., Science and Technology.			Ch. Chemistry.	Ch. E. Chemical Engineering.	C. E. Civil Engineering.	M. E. and E. E. Mechanical and Electrical Engineering.	Arch. Architecture.	Totals.	Students in Special Courses.		Partial Students.	Totals.
	Sc. 1, Chemistry.	Sc. 2, Civil Engineering.	Sc. 3, Mech. and Elec. Eng.							Fourth Year. Third Year. Second Year. First Year.	Partial Students.		
57	2	3	2	15	5	27	53	1	4	11	197	1398	
49	2	4	2	17	4	43	61	19	197	5	197	1398	
71	2	2	2	11	8	43	61	24	244	13	244	1398	
59	2	2	2	13	5	43	61	24	266	14	266	1398	
59	2	2	2	13	5	43	61	27	381	14	381	1398	
32	2	7	2	25	30	199	267	17	197	84	197	1398	
308	2	7	2	91	30	199	267	129	1398	84	197	1398	

Students taking Courses for Teachers..... 256
 Students in Summer School—1903..... 210
 Students in Evening School
 Second Year..... 55
 First Year..... 99
 Total..... 154
 Total..... 2024

DEPARTMENT OF PHILOSOPHY.

FELLOWS AND SCHOLARS, 1905-06.

ON THE GEORGE LEIB HARRISON FOUNDATION.

FELLOWSHIPS FOR RESEARCH.

In Assyriology:

Name.	Residence.	City Address.
Arno Poebel,	Eisenach, Germany,	3935 Pine St.
Graduate, Karl-Friedrich Gymnasium in Eisenach, 1900. Student in Theology and Oriental Languages, University of Heidelberg, Easter 1900-1901; Marburg, Easter, 1901-October 1901; Jena, October, 1901-Easter, 1902; Zürich, Easter 1902-October 1902; Jena, October, 1902-October 1904. Candidate in Theology, 1904. Harrison Fellow for Research in Assyriology, January 1, 1905, to date, under special terms of appointment. Semitic Languages; second year.		

In Chemistry:

Clarence William Balke,	Auburn, Ohio,	3607 Sansom St.
A. B., Ph. D. (Oberlin, 1902; Pennsylvania, 1905). Acting Professor of Physics and Chemistry, Kenyon, 1903-1904. Harrison Fellow in Chemistry, 1904-1905.		

In European History:

James Field Willard,	Philadelphia,	Dorm. 118 McKean.
B. S., Ph. D. (Pennsylvania, 1898, 1902). Harrison Scholar in European History, 1898-1899. Scholar in European History, University of Wisconsin 1899-1900. Fellow in European History, University of Wisconsin, 1900-1901. Harrison Fellow for Research in European History, 1904-1905.		

In Geology:

Burnett Smith,	Skaneateles, N. Y., Swarthmore.	
B. S. in Chemistry, Ph. D. (Pennsylvania, 1900, 1905). Assistant in Geology and Mineralogy, 1902-1905.		

In Germanic Languages:

Richard Heinrich Hermann	Gachingen-Urach,	3934 Pine St.
Christian Karl Ludwig Riethmüller,	Germany,	
Ph. D. (Pennsylvania, 1905). Graduate of Karls-Gymnasium, Heilbronn, a. N.; Theologisches Seminar, Maulbronn und Blaubeuren. University of Tübingen. Fellow of Kgl. Eberhardstift, 1890-01; Candidate Philosophy, University of Grenoble (France), 1901. Traveling Fellow at London of the University of Tübingen, 1902; Pennsylvania, 1902-1903. Harrison Fellow in Germanics, 1904-1905.		

In Psychology:

Friedrich Maria Urban,	Brünn, Austria.	
Ph. D. (Vienna, 1902). Engaged in research at Leipzig, 1902-1903; Harvard, February, 1904, to November, 1905.		

FELLOWSHIPS.

In American History:

Name.	Residence.	City Address.
Frank Fletcher Stephens,	Topeka, Kans.,	3918 Sansom St.
Ph. B., Ph. M. (Chicago, 1904, 1905). History; first year.		

In Astronomy:

Samuel Goodwin Barton,	Ivyland,	Llanerch, Del. Co.
A. B. (Temple College, 1903). University Scholar in Astronomy, 1904-1905. Astronomy, Mathematics, Physics; third year.		

In Zoology:

Frank Macy Surface,	Eaton, O.,	3611 Locust St.
A. B., A. M. (Ohio State University, 1904, 1905). Zoology; first year.		

In Classical Languages:

Wilton Wallace Blancké,	Philadelphia,	Dorm. 54 Morris.
A. B. (Pennsylvania, 1905). Classical Languages; first year.		
Frank Levis Cloud,	Conshohocken.	
A. B., A. M. (Pennsylvania, 1904, 1905). Greek, Latin, Sanskrit; second year.		

In Economic Geography:

Walter Sheldon Tower,	West Bridgewater, Mass.,	Dorm. 344 McKean
A. B., A. M. (Harvard, 1903, 1904). Harrison Fellow in Economic Geography, 1904-1905. Political Science, Transportation and Commerce; second year.		

In European History:

Louis John Paetow,	Milwaukee, Wis.	208 N. 36th St.
B. L., M. L. (Wisconsin, 1902, 1903). Harrison Fellow in European History, 1904-1905. European History, American History, Classical Languages. Absent on leave for first half year.		

In Germanics:

William Godfrey Bek,	Hermann, Mo.,	122 S. 33d St.
A. B. (Missouri, 1903). University Scholar in Germanics, 1903-1904. Student, University of Missouri, 1904-1905. Germanics; second year.		
Josef Wiehr,	Iowa City, Iowa,	111 S. 34th St.
Ph. B., A. M. (Iowa State University, 1904, 1905). Assistant in German, 1903-1904; Fellow in German, 1904-1905, Iowa State University. German, English; first year.		

In Indo-European Philology:

Ellwood Austin Welden,	Philadelphia,	Dorm. 55 E. F. Smith
B. S. (Pennsylvania, 1903). Harrison Scholar in Indo-European Philology, 1903-1904; Fellow, 1904-1905. Indo-European Philology third year.		

In Mathematics:

- | Name. | Residence. | City Address. |
|--|--------------------------|------------------------|
| Benjamin Franklin Finkel, | Springfield, Mo., | 4038 Locust St. |
| B. S., M. Sc., A. M. (Ohio Northern University, 1888, 1891; Pennsylvania, 1904). Graduate student of the University of Chicago portions of the years 1895, 1896, 1897, 1899, 1900. Member of the American Mathematical Society and the London Mathematical Society. Editor of the <i>American Mathematical Monthly</i> , 1894 to date. Professor of Mathematics and Physics, Drury College, Springfield, Mo., 1895 to date. Absent on leave from Drury College, 1903-1904. Mathematics; second year. | | |
| Thomas Carlyle Jones, | Philadelphia, | 3600 Walnut St. |
| B. S. (Pennsylvania, 1903). Mathematics, Physics; second year. | | |

In Mineralogy:

- | | | |
|--|----------------------|---------------------------|
| Charles Travis, | Philadelphia, | 209 DeKalb Square. |
| B. S. in Civil Engineering, (Pennsylvania, 1902). Harrison Scholar in Mineralogy, 1903-1904; Harrison Fellow, 1904-1905. Mineralogy; third year. | | |

In Physics:

- | | | |
|--|----------------------|--------------------------|
| Warren Peter Haseman, | Linton, Ind., | 22 S. Yewdell St. |
| A. B., A. M. (Indiana, 1903, 1904). Assistant in Physics, 1903-1904; Instructor, 1904-1905, Indiana University. Physics; first year. | | |

In Political Science:

- | | | |
|---|-----------------------|------------------------|
| Chester Lloyd Jones, | Hillside, Wis. | |
| B. L. (Wisconsin, 1902). University Scholar in Political Science, Wisconsin, 1903-1904. Harrison Fellow, 1904-1905. Political Science, Economics, Sociology. Absent on leave during first term. | | |
| Victor Grant Marquissee, | Altoona, Wis., | 3438 Walnut St. |
| A. B., A. M. (Wisconsin, 1904, 1905). Political Science; first year. | | |

In Psychology:

- | | | |
|--|--------------------|--------------------------|
| Alfred Henry Stroh, | Bryn Athyn, | Dorm. 310 Brooks. |
| A. B., B. Th. (Bryn Athyn College, 1890; Theological Seminary of the New Church, Bryn Athyn, 1902). Student, University of Stockholm, Summer Semester, 1903. University Scholar in Psychology, 1904-1905. Appointed by the Royal Swedish Academy of Sciences, editor of the unpublished scientific works of Emanuel Swedenborg, now being issued by the Academy. Philosophy, Psychology; third year. | | |

In Semitics:

- | | | |
|---|-------------------|--|
| Daniel David Luckenbill, | Souderton. | |
| A. B. (Pennsylvania, 1903). Harrison Scholar in Semitics, 1903-1904; Harrison Fellow, 1904-1905. Semitics, Greek; third year. | | |

In Zoology:

- | | | |
|--|----------------------|------------------------|
| Jesse Francis McClendon, | Austin, Tex., | 3705 Walnut St. |
| B. S., M. S., (Texas, 1903, 1904). Student Assistant in Zoology, University of Texas, 1900-1903. Fellow in Zoology, University of Texas, 1903-1904. Harrison Fellow in Zoology, 1904-1905. Zoology, Physiology, Botany, second year. | | |

SCHOLARSHIPS.

In Botany:

Name.	Residence.	City Address.
Merkel Henry Jacobs, A. B. (Pennsylvania, 1905).	Harrisburg, Botany, Zoology, Chemistry; first year.	3604 Walnut St.

In Chemistry:

Joel Henry Hildebrand, B. S. (Pennsylvania, 1903).	Wayne, Chemistry, Physica, Mineralogy; third year.	
Walter Kurt Van Haagen, B. S. (Pennsylvania, 1905).	Philadelphia, Chemistry, Physics; first year.	749 N. 40th St.

In Classics:

Thomas Bruce Birch, A. B. (Pennsylvania College, 1891).	Selinsgrove, Classical Languages; first year.	
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In Economics:

Frederick Bittle Kegley, A. B., A. M. (Roanoke College, 1900, 1901).	Wytheville, Va., Economics, Political Science, Sociology; first year.	3724 Locust St.
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In History:

Joseph Wolston Huff, A. B. (Pennsylvania, 1905).	Philadelphia, History; first year.	331 Dickinson St.
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In Mathematics:

George Gailey Chambers, A. B. (Dickinson, 1902).	Ridley Park, Principal of the Public Schools, Ridley Park, Pa., 1902 to date. Mathematics, Pedagogy, Physics; second year.	
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In Philosophy:

Henry Bradford Smith, A. B. (Pennsylvania, 1903).	Philadelphia, Harrison Scholar in Philosophy, 1903-1904. Philosophy; second year.	Dorm. 115 Foerderer.
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ON THE HECTOR TYNDALE FOUNDATION.

FELLOWSHIP.

In Physics:

John Ezra Hoyt, A. B. (Ursinus, 1904).	Hammonton, N. J., Instructor in Physics, Ursinus Academy, 1902-1904. Instructor in Mathematics and Physics and Assistant in Chemistry, April to November, 1904. Physics, Chemistry, Mathematics; second year.	3264 Sansom St.
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ON THE JOHN FRIES FRAZER FOUNDATION.

FELLOWSHIP.

In Physics:

Name.	Residence.	City Address.
Charles Aaron Culver,	Mankato, Minn.,	3264 Sansom St.
B. S. (Carlton College, 1902). Instructor in Science, High School, Winnebago and Mankato, Minn. Physics, Chemistry, Mathematics; second year.		

ON THE JOSEPH M. BENNETT FOUNDATION.

FELLOWSHIPS.

In Classical Languages:

Virginia Judith Craig,	Springfield, Mo.,	220 DeKalb Square.
A. B., M. A. (Drury, 1901; Washington University, 1904). Instructor in English, Latin and German, High School, St. Charles, Mo., 1901-1904. Classical Languages; second year.		

In History:

Elizabeth Girdler Evans,	Dayton, Ohio,	4126 Chester Ave.
A. B. (Wellesley, 1897). Graduate student, Summer School, Harvard, 1901. Instructor in English, Steele High School, Dayton, O., 1897-1904. History, English Literature; second year.		

ON THE MRS. BLOOMFIELD MOORE FOUNDATION.

FELLOWSHIPS.

In Chemistry:

Julia Langness,	Baltic, S. D.,	126 S. 34th St.
B. S. (Carleton College, 1901). Chemistry; third year.		

In Zoology:

Alice Middleton Boring,	Philadelphia,	931 Fairmount Ave.
A. B., A. M. (Bryn Mawr, 1904, 1905). Assistant in Biology, Bryn Mawr, 1904-1905. Zoology; first year.		

ON THE FRANCES SERGEANT PEPPER FOUNDATION.

FELLOWSHIP.

In English:

Mary Grier Willson,	Allegheny,	1918 Wallace St.
A. B., A. M. (Pennsylvania College for Women, 1903; Pennsylvania, 1904). University Scholar in English, 1903-1904. English Literature and Philology, Greek; second year.		

UNIVERSITY FELLOWSHIPS AND SCHOLARSHIPS.

FELLOWSHIPS FOR RESEARCH.

In American History:

Name.	Residence.	City Address.
George Daniel Luetscher,	Philadelphia,	414 S. 43d St.
B. L., Ph. D. (Wisconsin, 1898; Pennsylvania, 1902). Graduate student, <i>ibid.</i> 1898-1900. Harrison Fellow in American History, 1900-1901; 1901-1902.		

In Economics:

Frank Julian Warne,	Parkersburg, W. Va.,	Dorm. 20 Smith.
Cert. Fin. and Econ., A. M., Ph. D. (Pennsylvania, 1896, 1899, 1902). University Scholar in Economics, 1898-1901. Harrison Senior Fellow in Economics, 1902-1903. University Fellow for Research in Economics, 1903-1905.		

In English:

John Louis Haney,	Philadelphia,	934 N. 11th St.
B. S., Ph. D. (Pennsylvania, 1898, 1901). Harrison Scholar in English and History, 1898-1899. Harrison Fellow in English, 1899-1900. Reappointed for 1900-1901, but resigned. Instructor in English and History, Central High School, Philadelphia, 1900 to December, 1903; Assistant Professor, January 1, 1904, to date. Honorary Fellow in English, 1901-1903. University Fellow for Research in English, 1903-1905.		
Charles Wharton Stork,	Philadelphia,	600 Church Lane, Gtn
A. B., A. M., Ph. D. (Haverford, 1902; Harvard, 1903; Pennsylvania, 1905). Assistant in English, University of Pennsylvania, 1903-1905.		

In Philosophy:

Isaac Husik,	Philadelphia,	616 Morris St.
A. B., A. M., Ph. D. (Pennsylvania, 1897, 1899, 1903). University Scholar in Mathematics and Astronomy, 1897-1899. University Scholar in Classics, 1899-1902. University Fellow for Research in Philosophy, 1903-1905.		

In Latin:

James Walker Downer,	Gordonsville, Va.,	3940 Pine St.
A. B., A. M., Ph. D. (University of Virginia, 1895, 1897; Pennsylvania, 1905). Graduate student, <i>ibid.</i> , 1896-1897. Instructor in Latin, Marion Military Institute, Marion, Ala., 1900 to date. Wood Fellow, 1903-1904. Harrison Fellow in Latin, 1904-1905.		

FELLOWSHIPS.

In Sociology:

Richard Robert Wright, Jr.,	Savannah, Ga.,	1621 Pine St
A. B., B. D., A. M. (Georgia State College, 1898; Chicago, 1901, 1904). Instructor, Wilberforce University, Ohio, 1901-1903. Sociology; first year.		

In Transportation and Commerce:

George Thomas Surface,	Emory, Va.,	3725 Locust St.
B. A., M. S. (Polytechnic Institute, Blacksburg, Va., 1895, 1896). Professor of Geology and Geography, Emory and Henry College, 1902-1905. Commerce and Transportation, Geology, Economics; first year.		

SCHOLARSHIPS.

In American History:

Name.	Residence.	City Address.
Carrie Burnham Kilgore,	Swarthmore,	[Elm Ave.]
A. B., A. M. (Swarthmore, 1903, 1904). University Scholar in American History, 1904-1905. American, English, and European History; second year.		

In Astronomy:

Edith Dabele Kast,	Berlin Center, O.,	Upper Darby.
A. B., A. M. (Marietta College, 1902; Pennsylvania, 1903). University Scholar in Mathematics, 1902-1903; University Scholar in Astronomy, 1904-1905. Astronomy, Mathematics, Physics; fourth year.		

In Biology:

Margaret Harris Cook,	Camden, N. J.,	301 S. 40th St.
B. S. in Biology. (Pennsylvania, 1904). University Scholar in Zoölogy, 1904-1905. Zoölogy, Physiology, Botany; second year.		
Marion Mackenzie,	Philadelphia,	4816 Florence Ave.
B. S. (Pennsylvania, 1905). Biology, Pedagogy; first year.		

In Chemistry:

Anna Lockhart Flanigen,	South Hadley, Mass.	[Mount Holyoke College.]
Cert. in Chemistry (Pennsylvania, 1878). Student at Pennsylvania, 1878-1880; Assayer for Keystone Watch Case Co., 1885-1898; Student at University College, London, 1898-1899; Berlin, 1899-1901; Harvard Summer School, 1902; Instructor in Chemistry, Mount Holyoke College, 1903 to date. Absent on leave for first term. Chemistry; second year.		
Reuben Taylor Shaw,	Delaware, O.,	18 N. 38th St.
B. S. (Ohio Wesleyan, 1905). Chemistry; first year.		
Luther Ferree Witmer,	Lancaster,	Dorm. 367 Hopkinson.
Ph. B. (Franklin and Marshall, 1904). University Scholar in Chemistry, 1904-1905. Electro-Chemistry, Organic and Inorganic Chemistry; second year.		

In Economics:

Cloyd Benton Ewing,	Mount Union,	3313 Walnut St.
A. B. (Pennsylvania 1905). Economics; first year.		
Scott Nearing,	Philadelphia,	1427 N. 16th St.
B. S. (Pennsylvania, 1905). Economics, Sociology, Philosophy; first year.		

In English:

Isabella Rachel Gill,	Hulmeville,	3633 N. Broad St.
A. B. (Smith, 1905). English Literature, Philosophy, History; first year.		
Frederick Anthony Child,	Philadelphia,	318 S. 40th St.
A. B. (Pennsylvania, 1905). English; first year.		

Name.	Residence.	City Address.
George Edward Roth, A. B. (Dickinson, 1903). Institute, 1903-1904. Course, 1904 to date.	Philadelphia, Principal and Teacher of English, Chamberlain Instructor in Latin, Central High School, Evening English Literature; second year.	Dorm. 111 Franklin.

In Germanics:

William Radcliffe Anson, A. B. (Ursinus, 1903). University Scholar in Germanics, 1904-1905. Ger- manics, French; third year.	Phoenixville, University Scholar in Germanics, 1904-1905. Ger- manics, French; third year.	[213 Gay St.]
Robert Rutherford Drummond, B. S. (Maine, 1905).	Bangor, Me., Germanic Languages; first year.	3445 Woodland Ave.

In History:

Winfred Trexler Root, A. B. (Princeton, 1902).	York, History, Political Science; first year.	212 S. 37th St.
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In Mathematics:

Walter Roberts, B. S. (Pennsylvania 1904).	Philadelphia, Astronomy, Mathematics; second year.	806 St. Bernard St.
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In Pedagogy:

Charles Calvert Ellis, A. B. (Juniata, 1898). Scholar in Pedagogy, Pennsylvania, 1899-1901. Instructor in English, Juniata, 1900-1901. Studied Gordon Bible Training School, Boston, 1901- 1902. Instructor in English, Zion College and Principal Normal School, 1902 to date. Fellowship in Pedagogy, Clark University, 1904-1905. Res- igned. Pedagogy, Psychology; English; third year.	Perkiomenville.	
Jacob Daniel Heilman, A. B. (Muhlenberg, 1903).	Allentown, Pedagogy, Philosophy, Psychology; second year.	3340 Walnut St.
William Samuel Keiter, A. B. (Ursinus, 1901).	Medford, N. J. Pedagogy, Psychology; second year.	

In Physics:

Bertha May Clark, A. B. (Woman's College of Baltimore, 1900). 1900-1901. Instructor in Woman's College of Baltimore, 1901-1903. Grad- uate Student, University of Göttingen, Germany, 1903-1905. Physics, Mathematics; first year.	Baltimore, Md., Graduate student, Bryn Mawr, 1900-1901. Instructor in Woman's College of Baltimore, 1901-1903. Grad- uate Student, University of Göttingen, Germany, 1903-1905. Physics, Mathematics; first year.	3411 Walnut St.
Lloyd Monroe Knoll, A. B. (Ursinus, 1901).	Reading, Graduate of Ursinus School of Theology, 1904. Physics Mathematics; second year.	3262 Chestnut St.

In Psychology:

Herbert Baldwin Moyer, A. B., A. M. (Bucknell, 1897, 1898). Student, Courses for Teachers, Penn- sylvania, 1898-1900.	Norristown, Pedagogy, Psychology, fourth year.	[1205 Willow St.]
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Name.	Residence.	City Address.
Charles Vuilleumier, Rev.,	Philadelphia,	933 McKean St.
Graduate, Real Gymnasium Basle, Switzerland. Pedagogy, Psychology; third year.		

In Romanics:

Maturin Marius Dondo,	Philadelphia,	769 S. 10th St.
A. B. (Pennsylvania, 1905). Romance Languages; first year.		
Grace Edith McLean,	Cobalt, Conn.,	3230 Woodland Ave.
A. B., A. M. (Temple College, 1903; Pennsylvania, 1905). University Scholar in Romanics, 1903-1904. Romanics, English, Germanics; third year.		
Attilio Sbedico,	Philadelphia,	800 S. 10th St.
Diploma di Licenza Liceale (Collegio Gianbattista Vico in Chieti, Italy, 1903). Romanics; first year.		

In Sociology:

Francis Dekker Watson,	Philadelphia,	1810 N. 13th St.
B. S. (Pennsylvania, 1905). Sociology, Pedagogy, Philosophy; first year.		

In Zoölogy:

Hannah May Blake,	Philadelphia,	431 E. Walnut Lane, Germantown.
B. S. (Pennsylvania, 1905). Zoölogy, Botany; first year.		
Mary Alice Bowers,	Saco, Me.,	3804 Locust St.
B. L., M. A. (Smith, 1895; Radcliffe, 1898). Instructor in Zoölogy, Wellesley, 1899-1904; leave of absence, 1904-1906. Zoölogy; first year.		

REGULAR STUDENTS.

Abbott, Mabel Louise,	Watertown, Mass.,	6063 Drexel Road.
A. B., A. M. (Radcliffe, 1901, 1902). Sociology; first year.		
Ackerman, Sabina Claire,	Easton,	3447 Woodland Ave.
A. B. (Woman's College of Baltimore, 1903). Assistant in Chemistry, Woman's College of Baltimore, 1903-1905; Traveling Fellow for 1905-1906. Chemistry; first year.		
Adams, Robert Thompson,	Lebanon.	
A. B., A. M. (Allegheny, 1891; Pennsylvania, 1904). Supervising Principal of Schools, Port Allegany, 1891-1893; Girard, 1893-1894; Waynesboro, Pa., 1894-1899. Superintendent of Schools, Lebanon, Pa., 1899 to date. Pedagogy, Psychology; fourth year.		
Akimoff, Nicholas Wladimir,	Nicolaieff, South Russia,	805 Spruce St.
M. E. (Moscow Imperial School of Technology, 1901). Sorbonne University, Faculté des Sciences, Paris, 1901-1902. Physics, Mathematics, second year.		
Althouse, Calvin Osborne,	Philadelphia,	2517 N. Hollywood St.
B. S. in Economics. (Pennsylvania, 1902). Instructor in Central High School, 1905 to date. English; first year.		

Name.	Residence.	City Address.
Anders, Samuel Anders, A. B. (Princeton, 1903).	Lansdale, Germanics; second year.	3720 Locust St.
Armstrong, Edwin Stanley, A. B. (Dickinson, 1905).	Philadelphia, English, German; first year.	5527 Morton St., Gtn.
Austin, Winifred, A. B. (Brown, 1898).	Norton, Mass., Hebrew; fifth year.	Ogontz School.
Babb, Maurice Jefferis, A. B. (Haverford, 1905).	Haverford, Assistant in Mathematics, Pennsylvania 1905 to date. Mathematics, Astronomy; first year.	
Bailey, Martha Logan, A. B. (Wilson, 1903).	Dillsburg, Pedagogy; first year.	5035 Summer St.
Barker, Harold Charles, B. S., A. M. (Pennsylvania, 1903, 1905).	Collingdale, Instructor in Physics Pennsylvania 1904 to date. Physics, Mathematics; third year.	
Barr, William Milton, B. S., M. A. (University of Iowa, 1902; Iowa College, 1904).	Grinnell, Iowa, Chemistry; first year.	3713 Locust St.
Beach, Robert Mills, Student at Yale, 1879-1881. B. D. (Protestant Episcopal Seminary, Cambridge, Mass., 1895).	Trenton, N. J., Romanics, European History, Greek. Graduate student, Pennsylvania, 1897-1903. Absent on leave	[307 Hamilton Ave.]
Beck, Joseph Albert, B. S. (Pennsylvania, 1904).	Erie, Assistant in Political Science, Pennsylvania, 1905 to date. Political Science, Economics, American History; second year.	Wharton School.
Bell, Herbert Clifford, A. B. (Toronto, 1903).	Hamilton, Ont., Can. University Scholar in European History, 1903-1904. Alexander McKenzie Fellow of the University of Toronto, 1904-1905. European History. Absent on leave.	
Bixler, Edward Clinton, A. B., M. A. (Western Maryland College, 1901, 1905).	Westminster, Md., Pedagogy, Psychology; first year.	3416 Sansom St.
Blake, Harriet Manning, B. A. (Wellesley, 1894).	Philadelphia, English Literature; second year.	715 Corinthian Ave.
Blattenberger, Helen, A. B. (Temple College, 1905).	Philadelphia, English; first year. Absent on leave for first term.	2766 Pratt St.
Boewig, Harriet, B. S. in Biology. (Pennsylvania, 1901).	Philadelphia, Student Marine Biological Laboratory, Wood's Hole, 1900-1902. Botany, Pedagogy, Germanics. Absent on leave.	2337 Bolton St.
Bolger, Thomas Denis, B. S. (Pennsylvania, 1904).	Philadelphia, Assistant in English, Pennsylvania, 1903 to date. English Literature, English Philology; second year.	205 DeKalb Square
Brecht, Samuel Kriebel, B. S. (Haverford, 1896).	Norristown, European History, Germanics, Pedagogy; third year.	[647 Haws Ave.]

STUDENTS.

591

Name.	Residence.	City Address.
Bright, Henry Waller, Rev.,	Norristown.	
A. B., A. M. (Franklin and Marshall, 1892). Sociology; first year.		
Brooks, John David,	Milford, Del.	
A. B. (Dickinson, 1901). Psychology, Pedagogy; third year.		
Bryan, James Edmund,	Camden, N. J.,	[412 Linden St.]
A. B. (Johns Hopkins, 1890). Graduate student, <i>ibid.</i> , 1890-1891. Pedagogy, Psychology, Philosophy; third year.		
Bryan, John Thomas	Philadelphia,	517 York Ave.
Ingram, Rev.,		
B. A., M. A., B. D. (King's College, N. S., 1896, 1899, 1900). Professor of English and of Commercial Geography, Imperial College of Communications, Tokio, Japan, April, 1901, to April, 1904. English, Pedagogy; first year.		
Bumsted, Clarence Van	Allenhurst, N. J.,	Dorm. 211 Franklin.
Reynegom,		
Ph. B. (Brown, 1903). Zoölogy; third year.		
Burchett, Elizabeth Rebecca,	Philadelphia,	4438 Paul St., Fkd.
A. B. (Temple, 1903). Latin, Greek; third year.		
Burke, Edward Washington,	Norristown,	[28 E. Oak St.]
Rev.,		
A. B. (Wesleyan, 1888). Sociology; first year.		
Cadwallader, Carrie Virginia,	Philadelphia,	1711 N. 17th St.
B. S. (Temple, 1905). English, German; first year.		
Carpenter, Mabel Adeline,	St. Johnsbury, Vt.,	1808 Spruce St.
A. B. M. A. (Radcliffe, 1902; Columbia, 1904). English Literature, English Philology; second year.		
Chew, Samuel Laverell,	Philadelphia,	3404 N. 17th St.
B. S. (Temple, 1905). European History, Economics, Sociology; first year.		
Christopher, John,	Philadelphia,	1515 S. 10th St.
B. S. (Temple, 1905). Classics; first year.		
Cleveland, Arthur,	Philadelphia,	252 S. 21st St.
A. B. (Pennsylvania, 1904). English Literature, English Philology, Latin; second year.		
Cober, Emmanuel Wilson,	Philadelphia,	1215 N. 56th St.
A. B. (Bucknell, 1899). Philosophy, Pedagogy; fourth year.		
Collins, Wilkie Nelson,	Alpena, Mich.,	Dorm. 333 Franklin.
A. B. (Michigan, 1905). English; first year.		
Colton, Harold Sellers,	Philadelphia,	3409 Powelton Ave.
B. S. (Pennsylvania, 1904). Zoölogy, Geology; second year.		
Connor, Hiram Blackstone,	Philadelphia,	3658 Frankford Ave.
A. B. (Temple, 1903). American History; third year.		
Conway, Thomas, Jr.,	Lansdowne.	
B. S. (Pennsylvania, 1904). Assistant in Economics, Pennsylvania, 1904 to date. Economics, Political Science, Sociology; second year.		

Name.	Residence.	City Address.
Cooper, Milton Conard, B. S. (Temple, 1905). Physics; first year.	Philadelphia,	1447 Venango St.
Corson, Livingston, B. S. (Pennsylvania, 1904) Assistant in English, University of Pennsylvania, 1905 to date. English Literature, English Philology; second year.	Norristown,	Dorm. 111 Franklin.
Coulomb, Charles Augustin, B. S. (Temple, 1905). History; first year.	Philadelphia,	4249 Girard Ave.
Craig, William Frederick, B. A., M. D. (Temple, 1897; Pennsylvania, 1902). Instructor in Anatomy, Medico-Chirurgical College, 1898-1901. Lecturer on Psychiatry, Temple College, 1902-1903. Psychology, Zoology; first year.	Philadelphia,	1045 Tioga St.
Crawford, James Pyle Wickersham, A. B. (Pennsylvania, 1902). Harrison Scholar in Romanic Languages, 1902- 1903. Romanics, English Literature, European History. Absent on leave.	Philadelphia,	1714 Mt. Vernon St.
Cressman, Paul Gerhardt, A. B., M. S. (Pennsylvania College, 1902; Pennsylvania, 1904). Chemistry. Absent on leave.	Lewistown.	
Daniels, Lloyd Cadie, B. S. (Georgia School of Technology, 1905). University Scholar in Chemistry, 1905-1906; resigned December, 1905. Chemistry, first year.	Atlanta, Ga.	
Davis, James Mercer, A. B. (Brown, 1902). Psychology; first year.	Pedrickton, N. J.,	[Crozer Seminary, Chester.]
De Maris, Firman Adison, Ph. B. (Illinois Wesleyan, 1905). English; first year.	Camden, N. J.,	[543 State St.]
Dembitz, Arthur Aaron, A. B. (Johns Hopkins, 1897). Instructor in Jewish History, Gratz College, 1897 to date. Semitics; second year.	Philadelphia,	1834 N. Franklin St.
Dimick, Chester Edward, A. B. (Harvard, 1901). Instructor in Mathematics, University of Penn- sylvania, 1903 to date. Mathematics; third year.	Manchester, N. H.,	College Hall.
Dowlin, Howard Husted, A. B. (Pennsylvania, 1901). Classical Languages; first year.	West Chester,	Dorm. 390 Lippincott.
Duffield, Orville Strang, A. B. (Pennsylvania, 1904). English; second year.	Camden, N. J.,	[451 Benson St.]
Duncan, John Christie, B. S., M. S. (Pennsylvania, 1904). Assistant in Industry, University of Pennsylvania, 1904 to date. Economics, Political Science, Transportation and Science; second year.	Philadelphia,	3958 Aspen St.
Dye, William Seddinger, A. B. (Pennsylvania, 1905). History, English; first year.	Philadelphia,	1509 E. Montgomery Ave.
Earle, Doris, A. B. (Bryn Mawr, 1903). History; first year.	Philadelphia,	Chestnut Hill.

STUDENTS.

593

Name.	Residence.	City Address.
Eastburn, Iola Kay,	Hockessin, Del.,	1609 Summer St.
B. L. (Swarthmore, 1897). Graduate student, Newnham College, Cambridge, 1897-1898. German; third year.		
Evans, Thomas St. Clair,	Philadelphia,	Houston Hall.
A. B. (Princeton, 1897). Secretary-Treasurer, Christian Association of the University of Pennsylvania, 1897-1899; Princeton University, 1899-1900; University of Pennsylvania, 1900 to date. Economics, Sociology; fourth year.		
Faught, Albert Smith,	Philadelphia,	1430 Spruce St.
A. B. (Pennsylvania, 1903). Student, Law School, Pennsylvania, 1903 to date. Philosophy; second year.		
Filler, Mervin Grant,	Carlisle.	[Dickinson College.]
A. B., A. M. (Dickinson, 1893, 1895). Professor of Latin, Dickinson College, 1899 to date. Classical Languages; first year.		
Flickinger, James Rudy,	Lock Haven.	
A. B., A. M., D. S. (Princeton, 1877, 1880; Bucknell, 1901). Admitted to the Bar of Pennsylvania, 1885; to the Supreme Court, 1887; Colorado Supreme Court, 1888. Member of the Legislature of Pennsylvania, 1887; of Colorado, 1891. President of the Pennsylvania State Educational Association, 1902. Principal Edinboro State Normal School, 1896 to 1900. Principal of the Central State Normal School, 1900 to date. History, Political Science, Pedagogy; third year.		
Fogel, Edwin Miller,	Fogelsville,	Dorm. 27 Morris.
A. B. (Ursinus, 1894). Graduate student, Johns Hopkins University, 1894-1896. Instructor in German, Latin, and Greek, Moravian Parochial School, Bethlehem, Pa., 1896-1904. Assistant in German, University of Pennsylvania, 1904 to date. Germanics; second year.		
Frazer, John,	Philadelphia,	928 Spruce St.
B. S. in Chemistry; A. M. (Pennsylvania, 1903, 1904). Chemistry; third year.		
Fretz, Franklin Kline,	Philadelphia,	1834 N. Camac St.
A. B., A. M. (Muhlenberg, 1897, 1900). Sociology; first year.		
Fugate, Edwin Lindsay,	Philadelphia,	1100 Ellsworth St.
A. B. (Temple College, 1903). Economics, Sociology, Political Science; third year.		
Garbrick, Clarence Arthur,	Bellefonte,	2015 Green St.
A. B. (Princeton, 1903). American History, Pedagogy; first year.		
Garwood, Helen,	Williamstown, N. J.	
A. B. (Wellesley, 1898). English Literature. Absent on leave for first half year.		
Gaw, Allison,	Philadelphia,	3732 Sansom St.
B. S. (Pennsylvania, 1900). Harrison Scholar in English, 1900-1901. Professor of English, Temple College, 1901 to date. English Literature, English Philology, German Literature; fourth year.		
Gerson, Armand Jaques,	Philadelphia,	1109 N. 40th St.
B. S. (Temple College, 1905). History; first year.		
Gerson, Oscar,	Philadelphia,	1238 N. 56th St.
Ph. D. (Pennsylvania, 1898). Instructor in English, Central Manual Training School, 1905 to date. Enters to pursue certain special work in English.		

Name.	Residence.	City Address.
Gettel, Raymond Garfield,	Shippensburg,	Dorm. 12 House P.
A. B. (Ursinus, 1904). Instructor in English and History, Ursinus College, 1904-1905. Political Science, Sociology, Economics; first year.		
Grabosky, Hyman Leo,	Philadelphia,	620 S. 10th St.
A. B., M. A. (Pennsylvania, 1902, 1904). Harrison Scholar in Classical Languages, 1902-1903. Harrison Fellow in Classical Languages, 1903-1904. University Scholar in Classical Languages, 1904-1905. Latin, Greek, Philosophy; fourth year.		
Graser, Ferdinand Harry,	Philadelphia,	1940 N. 11th St.
B. S., A. M. (Pennsylvania, 1903, 1905). Harrison Scholar in Economics, 1903-1904. Economics; third year.		
Griscom, Lucy Middleton,	Philadelphia,	253 S. 17th St.
B. S. (Pennsylvania, 1903). Zoölogy; second year.		
Groth, Benno Humbert Alfred,	Philadelphia,	1442 N. 56½ St.
A. B., A. M. (Harvard, 1902, 1903). Instructor in German and French, Phillips Academy, Exeter, N. H., 1903-1904. Economic Botanist of the Commercial Museums, Philadelphia, 1904 to date. Botany, Zoölogy; first year.		
Gummey, Henry Riley, Jr.,	Philadelphia,	163 W. Penn St., Gtn. Rev.,
A. B., B. D., D. D. (Pennsylvania, 1890; Philadelphia Divinity School, 1804, 1905). University Scholar in Philosophy, 1905-06; resigned December 1905. Philosophy, English; first year.		
Gunter, Abram Cyrus,	Norristown.	
A. B., A. M. (Bucknell, 1903, 1904). Philosophy, Psychology, Mathematics; first year.		
Harper, Daniel Roberts, 3d,	Philadelphia,	Rising Sun and Wyoming Aves.
B. S. (Pennsylvania, 1905). Instructor in Physics, 1904 to date. Physics; first year.		
Hastings, George Tracy,	Wenonah, N. J.	
A. B. (Cornell, 1898). Botany, Pedagogy; first year.		
Heckman, Samuel B,	Union, Ohio,	2260 N Park Ave.
Ph. B., A. B., A. M. (Earlham, 1893; Harvard, 1894; Pennsylvania, 1905). Graduate student, Harvard, 1895-1896. Professor of English Literature and Modern Languages, Juniata College, 1895-1897. Graduate student, Pennsylvania, 1897-1898, 1899-1900. Teacher of German and French, Cheltenham Military Academy, 1898-1900. Assistant Commissioner of Education for the Island of Porto Rico, 1900-1902. Germanic Literature, Pedagogy, Romanics. Absent on leave.		
Hessler, Lewis Burtron,	Philadelphia,	4009 Chestnut St.
A. B. (Pennsylvania, 1905). Assistant in English, 1905-1906. Latin, English; first year.		
Hiatt, James Smith,	George School.	
B. L., A. B. (Earlham, 1899; Haverford, 1900). English, Pedagogy; second year.		
Higgins, Helen Taylor,	Philadelphia,	4914 Warrington Ave.
B. S. (Pennsylvania, 1900). Botany; first year.		

STUDENTS.

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Name.	Residence.	City Address.
Hill, Edwin Rowland, Jr.,	Philadelphia,	2524 Aspen St.
A. B. (Pennsylvania, 1903). English; second year. Absent on leave for the first term.		
Hinke, William John, Rev.,	Philadelphia,	3852 Cambridge St.
A. B. (Calvin College, 1890). Ursinus Theological Seminary, 1892-1894. Princeton Theological Seminary, 1894-1895. Instructor in Hebrew in Ursinus School of Theology, 1895 to date. Assyrian, Hebrew, Arabic. Absent on leave.		
Hoch, Horace Lind,	Lewistown,	202 S. 37th St.
A. B., A. M. (Dickinson, 1902, 1904). Germanics, English Philology; second year.		
Hockenberry, John Coulter,	Haddonfield, N. J.	
A. B. (University of Indiana, 1890). Student, Jena, September to March, 1894-1895. Berlin, March and April, 1895. Auditor, University of Pennsylvania, 1896-1898; Graduate student, 1899-1902; Instructor in Pedagogy, University of Pennsylvania, 1900-1901. Instructor in Psychology and Pedagogy, State Normal School, California, Pa., 1903 to date. Pedagogy, Psychology, Sociology. Absent on leave.		
Holdridge, Newton Clarke,	Hammonton, N. J.	
A. B., M. A. (Colgate, 1891, 1895). Newton (Mass.) Theological Institute, 1891-1892; Crozer Theological Seminary, 1893-1895. Pedagogy, Psychology; fourth year.		
Holdsworth, John Thom,	Philadelphia,	Drexel Institute.
A. B. (New York, 1904). Economics, Sociology; second year.		
Holloway, Harry Vance,	New Castle, Del.	
A. B., A. M. (Washington College, 1895, 1898). Pedagogy. Psychology; second year.		
Holmes, Arthur,	Philadelphia,	Y. M. C. A., 41st and Westminster Sts.
A. B. (Hiram College, 1899). Graduate student, Pennsylvania, 1899-date. Philosophy, Psychology, Ethics. Absent on leave.		
Hunsicker, John Rudolph,	Downingtown.	
B. S. (Pennsylvania, 1905). History, Pedagogy; first year. Pedagogy; second year.		
Hussey, Mary Inda,	Philadelphia,	1328 Spruce St.
Ph. B. (Earlham, 1896). Graduate student, Bryn Mawr, 1897-1901. Moore Fellow in Semitics, 1901-1902; Bennett Fellow, 1902-1903. Assyrian, Hebrew, Arabic. Absent on leave.		
Jackson, Halliday Rogers,	West Chester,	Friends' Central School.
A. B. (Swarthmore, 1904). Student Summer School, Pennsylvania, 1904. Pedagogy; second year.		
Jacobs, Adeline Hyneman,	Philadelphia,	1307 N. Marshall St.
B. S. (Pennsylvania, 1902). Botany; first year.		
Janvier, Cæsar Augustus	Philadelphia,	1409 S. Broad St.
Rodney, Rev.,		
A. B., A. M. (Princeton, 1880, 1883). Princeton Theological Seminary, 1881-1884. Missionary at Farukhabad and Allahabad, India, 1887-1901. Arabic; third year.		

Name.	Residence.	City Address.
Jennings, Lewis Wise Lafayette,	Culpeper, Va.,	Navy Yard, League Island.
A. B. (Richmond College, 1903). Appointed Ensign, U. S. N., 1905. History, Political Science, Economics; first year.		
Johnson, Amandus,	Philadelphia,	3445 Woodland Ave.
A. B. (Gustavus Adolphus College, 1904). English, German; first year.		
Johnson, Elizabeth Forrest,	Bryn Mawr,	Miss Baldwin's School.
A. B. (Vassar, 1902). Economics; first year.		
Kabakjian, Dicran Hadjy,	Turkey,	4772 Woodland Ave.
A. B. (Anatolia College, Marsovan, Turkey, 1896). Chemistry, Physics, Mathematics; first year.		
Kelly, Jeanette Sage,	Philadelphia,	120 Cliveden Ave., Gtn.
A. B. (Wellesley, 1904). English; first year.		
Kent, Roland Grubb,	Wilmington, Del.,	3707 Woodland Ave.
Ph. D. (Pennsylvania, 1903). 1899 to January, 1902, student, Universities of Berlin and Munich and at Athens, Greece. Graduate student, Pennsylvania, February to June, 1902. Harrison Fellow in Classical Languages, 1902-1903. Harrison Fellow for Research in Classical Languages, 1903-1904. Instructor in the University, 1904-1905. Enters to pursue certain special work.		
Kerns, Morey Vanzant,	Philadelphia,	154 Richmond St.
A. B. (Temple College, 1903). Philosophy; third year.		
Koch, Louis Henry,	Philadelphia,	408 Fairmount Ave.
B. S. (Pennsylvania, 1899). Chemistry; second year.		
Kollock, Margaret Roselyn,	Philadelphia,	1921 Arch St.
A. B. (Woman's College of Baltimore, 1900). European History, American History, English Literature; fourth year.		
Krause, Jacob Buehrle,	South Bethlehem,	3531 Locust St.
A. B. (Lehigh, 1898). Pedagogy, Psychology, Mathematics; first year.		
Krautter, Louis, Jr.,	Philadelphia,	1007 Lehigh Ave.
B. S. in Biology. (Pennsylvania, 1902). Botany, Geology; third year.		
Kribs, Herbert Guy, Rev.,	Philadelphia,	300 Highland Avenue, Chestnut Hill.
A. B., B. D. (Oberlin, 1898, 1904). Union Theological Seminary. Zoology; third year.		
Kriebel, Oscar Schultz, Rev.,	Pennsburg.	
A. B., A. M., B. D. (Oberlin, 1889, 1892, 1892). Principal Perkiomen Seminary, Pennsburg, Pa., 1892 to date. Graduate student, University of Berlin, 1891-1892; Pennsylvania, 1897-1898, 1900-1901, 1902-1904. Pedagogy, Philosophy, Psychology; seventh year.		
Lackey, Alice Halliburton,	Philadelphia,	4053 Girard Ave.
A. B. (Temple College, 1903). French; first year.		
Laudenslager, Daniel Klyne,	Worcester, Mass.	
Rev., A. B., A. M. (Franklin and Marshall, 1898, 1901). Sociology; first year.		

Name.	Residence.	City Address.
Lefferts, Walter, B. S. (Temple College, 1905). History; first year.	Philadelphia,	706 N. 19th St.
Long, William John, B. S. (Pennsylvania, 1905). Romanics, Germanics; fourth year.	Philadelphia,	2254 N. 18th St.
Lorenz, Edmée Caroline, B. S. (Pennsylvania, 1903). English, Romanics; first year.	Philadelphia,	3314 Woodland Ave.
Lorenz, Mabel Agnes, A. B. (Wells, 1904). English; second year.	Philadelphia,	3931 Pine St.
Lutz, William Filler, A. B., A. M. (Pennsylvania College, 1894, 1897). Chemistry; first year.	Philadelphia,	612 N. 43d St.
Marsh, Benjamin Clark, A. B. (Iowa College, 1898). Graduate student, Chicago, 1899-1900. Held a Special Fellowship in Sociology, Pennsylvania, 1902-1903. Sociology, Economics, Political Science; third year.	Philippopolis, Bulgaria,	115 S. 22d St.
Martin, Warren Frederic, LL. B. (Pennsylvania, 1902). Economics; first year.	Philadelphia,	2817 N. Broad St.
Mascaró, Guillermo Fernandez, Licenciado en Ciencias fisico-quimicas, Licenciado en Medicina y Cirujico (University of Havana, 1895). Professor of Physics and Chemistry, Instituto di Seconda Ensenanga, Santiago de Cuba, 1899 to date. Enters to pursue certain special work in Chemistry.	Santiago de Cuba,	5223 Baltimore Ave.
Maxfield, Frances Norton, A. B. (Haverford, 1897). Pedagogy, Psychology; first term.	Philadelphia,	164 Mayland St., Gtn.
McAdam, Dunlap Jamison, Jr., A. B., A. M. (Washington and Jefferson, 1897, 1900). Instructor in Chemistry and Mineralogy, Washington and Jefferson College, 1903-1905. Instructor in Chemistry, Pennsylvania, 1905-1906. Chemistry; first year.	Washington,	206 S. 37th St.
McCallie, Joseph Madison, A. B. (Tennessee, 1887). Pedagogy, Psychology; first year.	Trenton, N. J.,	[55 Model Ave.]
McClelland, George William, A. B. (Pennsylvania, 1903). English Literature, English Philology, Latin; third year.	Dobbs Ferry, N Y.,	[College of the City of New York.]
McCutcheon, Thomas Potter, Jr., A. B. (Pennsylvania, 1903). Chemistry; third year.	Philadelphia,	505 Locust Ave., Gtn.
McElwain, Mary Belle, A. B. (Wilson College, 1895). Instructor in Greek, Latin, English and Mathematics, Wilson College, 1896-1903. Latin; first year.	Philadelphia,	5035 Summer St.
McKelden, Alice Madeleine, Ph. D. (Pennsylvania, 1905). Student, Harvard University, Summer session, 1901; Johns Hopkins University, 1901-1902. Moore Fellow in Mathematics, 1902-1903. Bennett Fellow in Mathematics, 1903-1904. Mathematics, Physics. Enters to pursue certain special work.	Washington, D. C.,	185 Wycombe Ave., Lansdowne.

Name.	Residence.	City Address.
McKenzie, Fayette Avery,	Lansdowne.	
B. S. (Lehigh, 1895). Professor of Modern Languages and Social Science, Juniata College, 1897-1900. Sociology, Economics, Anthropology. Absent on leave.		
McMahon, Frederic Charles,	Philadelphia,	2134 Uber St.
A. B., A. M. (St. Joseph's College, 1901, 1902). English; first year.		
McMullin, Walter Glading,	Philadelphia,	2542 N. 32d St.
B. S. (Temple College, 1905). History; first year		
McVey, Joseph Miller,	Leslie, Md.,	1902 N. 17th St.
A. B. (Delaware College, 1904). Instructor in English, Temple College, 1904 to date. English, History; first year.		
*Meade, Emily Fogg,	Philadelphia,	Hammonton, N. J.
A. B. (University of Chicago, 1897). Graduate student and Fellow in Political Science, Bryn Mawr, 1897-1898. Scholar and Fellow by Courtesy, Bryn Mawr, 1898-1899. Moore Fellow in Sociology, 1899-1900. Student in residence, 1900-1901. Sociology, Economics, American History. Absent on leave.		
Mearns, William Hughes,	Philadelphia,	1400 Green St.
A. B. (Harvard, 1902). Philosophy, English Literature; fourth year.		
Merrell, Caroline Wallace,	Philadelphia,	2950 Frankford Ave.
A. B. (Cornell, 1902). Botany; first year.		
Merzbacher, Isadore,	Reading,	123 S. 34th St.
A. B. (Pennsylvania, 1898). Harrison Scholar in Classical Languages, 1898-1899; student, 1899-1902. Indo-European Philology. Greek, Latin. Absent on leave.		
Meschter, Charles Kriebler,	Pennsburg.	
B. S., A. B. (Pennsylvania, 1896; Harvard, 1900). English Literature, Pedagogy; second year.		
Miller, Emma Esther,	Port Deposit, Md.,	236 W. Logan Sq.
B. S. (Smith College, 1903). English, History, Pedagogy; first year.		
Monroe, Eleanor Perrine,	Mt. Airy,	330 Gowen Ave.
A. B. (Wellesley, 1904). English; first year.		
Moore, Anna Mary,	Richmond, Ind.,	Westtown.
Ph. B. (Earlham, 1894). Instructor in English, Whether College, Whether California, 1896-1901. English; first year.		
Moore, Henry Smyth,	Philadelphia,	2628 N. 5th St.
B. S. (Temple College, 1905). Economics; first year.		
Moore, Thomas,	Philadelphia,	1128 Fillmore St., Fkd.
B. S. in C. E. (Pennsylvania, 1898). Professor of Mathematics, Northeast Manual Training School, February, 1901 to date. Physics, Mathematics, Pedagogy; third year.		
Morgan, Leonard Pearce,	Philadelphia,	Dorm. 16 Bodine.
B. S. (Pennsylvania, 1900). Assistant in Chemistry, Oklahoma Agricultural and Mechanical College, 1901-1902; Chemist, Electrolytic Refinery, United States Mint, 1902 to date. Mineralogy, Geology; third year.		

* Mrs. E. S. Meade.

STUDENTS.

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- | Name. | Residence. | City Address. |
|---|----------------------|--------------------------------|
| Morton, Davis Walter, Rev., | Philadelphia, | 1435 Ritner St. |
| A. B. (Dickinson, 1902). Semitics, English; second year. | | |
| Moxey, Edward Preston, Jr., | Philadelphia, | Logan Hall. |
| B. S. (Pennsylvania, 1904). Assistant in Accounting, University of Pennsylvania, 1904 to date. Economics, Sociology, Transportation and Commerce; second year. | | |
| Myers, Albert Cook, | Kennett Square. | |
| B. L., M. L. (Swarthmore, 1898, 1901). Graduate student, <i>ibid.</i> , 1898-1901. Pennsylvania, 1901-1903, University of Wisconsin, October, 1903-February, 1904; Harvard, February-June, 1904. American History, American Constitutional History, European History. Absent on leave. | | |
| Myers, Abram Linford, | Perkasie, | 117 S. 38th St. |
| A. B. (Lafayette, 1902). Latin, Greek, Pedagogy; second year. | | |
| Nicolay, Clara Leonora, | Philadelphia, | 133 Herman St., Gtn. |
| L. L. A., A. M. (University of Saint Andrews, Scotland, 1898; Pennsylvania, 1901). Student, Victoria Lyceum, Berlin, Germany, 1882-1885. University College, Nottingham, England, 1889-1897. Student, University Correspondence College, Cambridge, England, 1894-1896. Romanics, Latin, Germanics; sixth year. | | |
| Peck, Leonard Adolph, | Gloversville, N. Y., | The "Warwick," 1906 Sansom St. |
| B. A. (Yale, 1900). Assistant Principal of Waterville High School, Waterville, N. Y., 1900-1904. English Literature, English Philology, Germanics; second year. | | |
| Philips, Walter Leighton, | West Chester. | |
| A. B., A. M. (Lafayette, 1897, 1900). Physics; first year. | | |
| Pierson, Ward Wright, | Wilmette, Ill., | Wharton School. |
| B. S. (Northwestern, 1902). Graduate student, Law, 1902-1903. Northwestern University, University of Michigan. Harrison Fellow in Political Science, 1903-1904. Assistant in Political Science, Wharton School, University of Pennsylvania, 1904 to date. Political Science; third year. | | |
| Place, Clarence Garfield, | Eagleville. | |
| A. B. (Ursinus, 1905). Chemistry; first year. | | |
| Pound, Ezra Winton, | Wyncote. | |
| Ph. B. (Hamilton College, 1905). Romanics; first year. | | |
| Prouse, Clarence Martin, | Boothwyn, | 25 N. 34th St. |
| A. B. (Delaware College, 1902). German, French, English; first year. | | |
| Renninger, Warren Daub, | Zieglersville, | 1529 Green St. |
| A. B. (Columbia, 1901). Graduate student, University of Chicago, 1904. Instructor in History at Perkiomen Seminary, 1901-1904. Instructor in History, Central High School, Philadelphia, Pa., 1904 to date. Economics; second year. | | |
| Richardson, Leon Burr, | Hanover, N. H. | |
| B. L., A. M. (Dartmouth, 1900, 1902). Assistant in Chemistry at Dartmouth, 1900-1902; Instructor, 1902-1904. Inorganic, Organic, Electro-Chemistry. Absent on leave. | | |
| Richardson, Russell, | Newtown. | |
| A. B. (Princeton, 1904). Zoology; first year. | | |

Name.	Residence.	City Address.
Roberts, William Ely, A. B. (Swarthmore, 1903). History; first year.	Newhope,	George School.
Rochelle, Philippe de La, B. L. (Collège St. Hyacinthe, France, 1892). Instructor in French, Pennsylvania, 1904 to date. German, Spanish, Philosophy; first year.	Philadelphia,	1525 Chestnut St.
Rothermel, Harry Peters, A. B. (Lafayette, 1901). Mathematics, Pedagogy; first year.	Moselem Springs,	Camden High School, Camden, N. J.
Rupp, Samuel Edwin, A. B. (Lebanon Valley, 1901). Student, Ursinus School of Theology, 1901-1904. Sociology, Economics, Political Science; fourth year	Oberlin,	3262 Chestnut St.
Rutschman, Elwood Charles, B. S. (Pennsylvania, 1904). Economics; second year.	Philadelphia,	2047 N. 13th St.
Sachs, Henry Baruch, B. S., A. M. (Pennsylvania, 1900, 1905). Germanics. Absent on leave for the first half year.	Philadelphia,	921 N. 6th St.
Sandager, William, A. B. (Brown, 1904). Economics, Political Science, History; first year.	Providence, R. I.,	401 S. 22d St.
Savage, Henry Chauncey, B. A. (Yale, 1879). Mineralogy. Absent on leave.	Philadelphia,	1223 Walnut St.
Schaeffer, John Ahlum, A. B., A. M. (Franklin and Marshall, 1904, 1905). Instructor in Chemistry, Franklin and Marshall, 1904-1905. Chemistry; first year.	Lancaster,	Dorm. 32 Bodine.
Schlichter, Norman Colestock, A. B., A. M. (Lebanon Valley College, 1897, 1900). Instructor in English and French, Lebanon Valley College, 1899-1901; Professor of English, 1902 to date. Romanics; first year.	Annville.	
Seipt, Allen Anders, B. S., A. M. (Pennsylvania, 1900, 1903). Germanics, Pedagogy; fifth year.	West Point,	3925 Pine St.
Seligsberg, Ella Rosina, A. B., B. L. S. (Columbia, 1899; University of State of New York, 1903). History; first year.	Philadelphia,	1611 Wallace St.
Selvae, Watson Bartemus, A. B., M. A. (Cornell University, 1902; Pennsylvania, 1904). University Scholar in English, 1902-1904. English Literature, English Philology, Philosophy. Absent on leave.	Brooklyn, N. Y.,	[College of the City of New York.]
Shelly, Percy Van Dyke, B. S. (Pennsylvania, 1905). Assistant in English, Pennsylvania, 1905 to date. English; first year.	Oak Lane,	6801 N. 12th St.
Siack, Frank Van Hart, A. B. (Pennsylvania, 1903). Assistant in English second year.	Newhope,	Dorm. 12 Bodine.
Sladen, Charles Fischer, B. S., A. M. (Pennsylvania, 1901, 1902). Germanics, Philosophy, Romanics; fifth year.	Philadelphia,	3209 Sansom St.

Name.	Residence.	City Address.
Smith, William Stevenson,	Philadelphia,	[Columbia University.]
A. B. (Pennsylvania, 1904). Psychology, Zoology, Philosophy. Absent on leave under appointment as Assistant in Psychology, Columbia University.		
Snively, Alfred de Forest,	Philadelphia,	63d and Market Sts.
A. B. (Pennsylvania, 1905). Philosophy, Hebrew; first year.		
Snook, Homer Clyde,	Media,	5414 Norfolk St.
A. M. (Allegheny, 1905). Physics, Chemistry, Mathematics; first year.		
Snowden, Louise Hortense,	Philadelphia,	"The Colonial," 11th and Spruce Sts.
B. S. in Biology (Pennsylvania, 1898). Graduate student, <i>ibid.</i> , 1898-1899. Holder of American Women's Table, Naples, February-April, 1900. Student at the Sarbonne, 1900-1902. History, English; fourth year.		
Spangler, John Walter,	Mercersburg,	3911 Woodland Ave.
A. B. (Princeton, 1905). Greek, Latin; first year.		
Springer, Ethel Maria,	Newton, Mass.,	708 Spruce St.
A. B. (Radcliffe, 1901). English; first year.		
Starkey, Foster Henry,	West Chester,	State Normal School.
A. B., A. B., A. M. (Bucknell, 1891; Harvard, 1892; Bucknell, 1894). Latin; first year.		
Stratton, Henrietta Gibbon,	Nevada, Mo.,	3727 Locust St.
Ph. B., A. B. (Morrisville College, 1901; Michigan, 1904). History, Political Science; first year.		
Strong, Clinton Aaron,	Philadelphia,	5022 Cedar Ave.
B. S., M. A. (Amherst, 1898). English; first year.		
Terry, Arthur Guy,	Evanston, Ill.,	College Hall.
Ph. B., Ph. M. (Northwestern University, 1901, 1902). Graduate student, <i>ibid.</i> , 1901-1902. Harrison Fellow in European History, 1902-1905. Absent on leave at the University of Cincinnati, 1903-1904. Instructor in History, Pennsylvania, 1905 to date. European History, American History, Political Science; third year.		
Thomas, Helen Cameron,	Wilksburg,	208 S. 37th St.
A. B. (Pennsylvania College for Women, 1904). English, German; first year.		
Thompson, Garrett William,	Philadelphia,	1530 Mt. Vernon St.
A. B., A. M. (Amherst, 1888). German, History, Philosophy; first year.		
Tomlinson, William Harold,	Philadelphia,	44 E. Walnut Lane, Germantown.
B. S. (Pennsylvania, 1903). Geology and Mineralogy. Absent on leave for the first half year.		
Triplett, Granville Hampden,	Shenandoah Junct.,	4942 Hazel Ave.
W. Va.,		
A. B., A. M. (Washington and Lee, 1903; Princeton, 1904). Political Science, Economics, Sociology; second year.		
Van Ormer, Abraham Brown	Norwood.	
Bunn,		
Ph. B., A. B., B. D. (New York University, 1894; Gettysburg, 1898; Gettysburg Theological Seminary, 1901). Psychology, Philosophy, Sociology; first year.		

Name.	Residence.	City Address.
Vurpillot, Florian Julien Charles, Rev.,	Philadelphia,	205 De Kalb Square.
Lycée de Montbeliard, Baccalauréat des Lettres. Student, Sorbonne, and Faculté de Théologie Protestante, Paris, 1886-1890. Baccalauréat en Théologie, 1890. Instructor in French, Pennsylvania, 1900 to date. Absent on leave.		
Wagenseller, Benjamin Meade,	Selingsgrove,	711 N. 40th St.
A. B., A. M. (Bucknell, 1893; Pennsylvania, 1902). Partial student in Chemistry, 1900-1901. Assistant in Chemistry, 1902-1904. Inorganic, Organic Chemistry, Mineralogy. Absent on leave.		
Walker, James, Jr.,	Philadelphia,	5036 Catharinè St.
A. B. (Temple College, 1903). Economics, Sociology, Political Science; third year.		
Wallace, Bertrand Holmes,	Trenton, N. J.	
A. B. (Rochester, 1901). Germanics; first year.		
Walton, George Arthur,	Wilmington, Del.,	[1502 Delaware Ave.]
A. B. (Pennsylvania, 1904). Pedagogy, English Literature; second year.		
Watters, Maude Lucile,	Media,	[318 Edgemont St.]
A. B. (Swarthmore, 1902). Scholar in Latin and Mathematics, Berlin, 1903. Instructor in German, Friends' Central School, 1904-1905. Classical Languages; second year.		
Weber, Herbert Seiser,	Philadelphia,	1304 Pine St.
A. B. (Pennsylvania, 1902). Harrison Scholar in English, 1902-1903. English Literature; third year.		
Wenner, Frank,	Ames, Iowa,	3411 Walnut St.
B. S. (Knox College, 1899). Student, Wisconsin, 1900-1902. Assistant in Physics, 1901-1902. Instructor, Iowa State College, 1902-1905; Pennsylvania, 1905 to date. Physics; first year.		
Wheeler, George,	Philadelphia,	3206 Columbia Ave.
B. S. (Temple, 1905). Principal of the James G. Blaine School, 1895 to date. Dociology; first year.		
White, Flora L.,	Philadelphia,	212 School Lane, Gtn.
A. B. (Michigan, 1902). English; first year.		
White, Holman,	Philadelphia,	2018 E. Madison St.
B. S. (Temple College, 1905). Psychology, Philosophy, English; first year.		
White, Winton John,	Columbia,	[806 Adams St., Wil- mington, Del.]
A. B., A. M. (Pennsylvania, 1904, 1905). Philosophy, Pedagogy, Classical Languages; second year.		
Wildman, Edward Embree,	Philadelphia,	1623 Summer St.
B. S. (Pennsylvania, 1904). Zoology, Botany; second year.		
Wilson, George Hamilton, Jr.,	Wayne,	[423 Oak Lane.]
B. S. (Pennsylvania, 1902). Pedagogy, Botany, Psychology; fourth year.		
Wise, Milton Bigler,	Philadelphia,	1605 W. Lehigh Ave.
A. B., A. M. (Pennsylvania, 1899, 1900). Harrison Scholar in European History, 1899-1900; University Scholar, 1900-1901. History; fourth year.		

STUDENTS.

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Name.	Residence.	City Address.
Wright, William Elbert, A. B., A. M. (Dickinson, 1872, 1900). Chemistry; first year.	Middletown, Del.	
Wunderle, Frederick Valentin, B. S. (Pennsylvania, 1905). Chemistry; first year.	Edge Hill,	3614 Walnut St.
Yoder, Arthur Lee, A. B. (Franklin and Marshall, 1902). Physics; second year.	Philadelphia,	325 N. Felton St.

AUDITORS.

Bell, Katharine, Sociology.	Ardmore.	
County, Albert John, Sociology.	St. Davids',	Broad St. Station.
Crampton, Ruth Snow, Chemistry, English.	Madison, Conn.,	1836 Wallace St.
Cuthbert, Marian, English.	Philadelphia,	3944 Chestnut St.
Eckert, Agnes, English.	do.	1329 N. 7th St.
Gordon, Isabella Pratt, Psychology.	Towanda,	6063 Drexel Road.
Hughes, John William, Mathematics.	Philadelphia	2308 Catharine St.
Killen, Mary Louise, History.	do.	2843 N. 11th St.
Leaf, Ellen Lane, Sociology.	do.	2027 Walnut St.
Long, William John, Romanics.	do.	2254 N. 18th St.
Lybrand, Lenore Montgomery, Sociology.	do.	"The Clinton."
McDaniel, Alice Corinne, English.	do.	4421 Sansom St.
Sallom, Abdulhah Kalil, Arabic.	do.	1139 Wilder St.
Shick, Mary McDowell, M. D., Psychology.	Elwyn.	
Turpin, Mary Lamar, Sociology.	Philadelphia,	1319 Pine St.

Name.	Residence.	City Address.
Van Leer, Mary Frances, Sociology.	Camden, N. J.,	[1362 Kaighn Ave.]
Wunder, Clara M., German.	Sharon Hill,	"Belgravia," 18th and Chestnut Sts.
Yerkes, Helen Keith, Pedagogy.	Philadelphia,	1516 Willington St.
Young, Frances, Sociology.	do.	514 S. 44th St.

SUMMARY.

Research Fellows	12
Regular students	267
Auditors	19
Total	<u>298*</u>

* Of this number, two regular students and three auditors are registered also elsewhere: two in Medicine, one in Law, two in special courses in the College.

DEPARTMENT OF LAW.

THIRD-YEAR CLASS.

Name.	Residence.	City Address.
Abronski, Lewis Henry,	Philadelphia,	2257 N. 22d St.
Adams, Paul Gress,	Lebanon,	3718 Locust St.
Alessandrini, Eugene Victor,	Philadelphia,	825 S. Hutchinson St.
Anderson, John Aubrey, A. B. (Pennsylvania),	Norristown.	
Barnes, Harold Edgar,	Washington, D. C.,	3705 Walnut St.
Barr, Franklin Elverson, A. B. (Haverford),	Camden, N. J.,	[506 Linden St.]
Bartilucci, Guiseppe Pangrazia,	Philadelphia,	725 S. 7th St.
Bobbin, Edward Gregory,	Shenandoah,	3332 Walnut St.
Bray, William Preston, Ph. B. (Wesleyan),	East Bangor,	3721 Locust St.
Conrey, Frank Cochrane,	Chesapeake City, Md.,	3459 Walnut St.
Davis, James Mercer, A. B. (Brown),	Philadelphia,	"The Covington, 37th and Chestnut Sts.
Davis, John Warren, A. B., A. M. (Bucknell); B. D. (Crozer Theo. Sem.),	do.	5010 Market St.
Deeter, Paxson, B. S. (Pennsylvania),	Reading,	Dorm. 422 McKean.
Donaghy, Harry Winthrop,	Philadelphia,	1243 S. 47th St.
Donnelly, Michael Francis,	Conshohocken,	Dorm. 242 Smith.
Doyle, John Martin Carey,	Philadelphia,	4948 Aspen St.
Eby, Robert Joseph, A. B. (Harvard),	Shamokin,	126 Sansom St.
Eliason, John, B. A. (Yale),	Chestertown, Md.,	1118 Girard St.
Ellis, George Wilson,	Dunmore,	2635 Christian St.
Emery, George Maclaughlin,	Philadelphia,	4117 Baring St.
Evans, Jesse Roy,	Pottstown,	3413 Walnut St.
Faught, Albert Smith, A. B. (Pennsylvania),	Philadelphia,	1430 Spruce St.
Fox, Edwin Forrest,	Kittanning,	Dorm. 37 Bodine.
Fuges, Frederick Charles,	Philadelphia,	2249 Oxford St.
Graham, James Albert,	Woodruff,	Dorm. 372 Hopkinson.
Graham, Warren Corson, B. S. (Pennsylvania),	Philadelphia,	326 S. 15th St.
Haines, William Clayton,	do.	1926 Girard Ave.
Harned, Thomas Biggs, Jr., A. B. (Pennsylvania),	do.	307 S. 39th St.
Harry, Benjamin,	Conshohocken,	3234 Chestnut St.
Hepburn, William Horace, Jr., A. B. (Pennsylvania),	Philadelphia,	1728 Pine St.
Hussie, William Michael, A. M. (St. Joseph's),	Wilkes Barre,	Dorm. 442 Hopkinson.

Name.	Residence.	City Address.
Jenkins, Harry Lynwood,	Philadelphia,	1515 W. Susquehanna Ave.
Kline, Edwin Keller, A. B. (Muhlenberg),	Allentown,	Dorm. 436 Baird.
Kuemmerle, Clarence Eugene,	Philadelphia,	814 N. 7th St.
Kuryloski, Stanley Leon, Ladner, Grover Cleveland,	Scranton, Philadelphia,	Dorm. 370 Hopkinson. 545 N. 5th St.
Leberman, Joseph Abeles, B. S. (Pennsylvania),	do.	1404 N. 16th St.
Levy, Leon Michel, Light, Wayne Weidman,	Scranton, Reading,	Dorm. 149 N.Y. Alumni. "The Normandie," 36th and Chestnut Sts.
Lippincott, Willet, B. S. (Pennsylvania),	Haddon Heights, N. J.	Dorm. 316 Leidy.
Livingstone, Roy Montefiore, Loughlin, John Kane,	Tamaqua, Philadelphia,	Dorm. 141 Lippincott. 254 S. 16th St.
Mathay, Jacob, Jr.,	do.	4124 Powelton Ave.
Maxey, George Wendell, A. B. (Michigan),	Forest City,	3424 Sansom St.
Montgomery, Walter Curry, A. B. (Waynesburg),	Waynesburg,	4238 Regent Square.
Nahm, George Augustus, Pennypacker, Isaac Ander- son, B. S. (Pennsylvania),	Philadelphia, Haddonfield, N. J.,	2736 Girard Ave. Dorm. 120 McKean.
Pepper, Harry Crowell, Richards, Emerson Lewis,	Philadelphia, Atlantic City, N. J.,	153 Dupont St., Myk. "The Tracy," 36th and Chestnut Sts.
Roberts, Isaac Warner, B. S. (Princeton),	Bala.	
Satterthwaite, William Hallowell, Jr.,	Horsham.	
Scott, Garfield, A. B. (Princeton),	Philadelphia,	168 School Lane, Germantown.
Sharpless, Warren Shuman, Shields, Francis Hugh, A. B. (Pennsylvania),	Catawissa, Philadelphia,	3262 Sansom St. 1528 N. 15th St.
Stair, Edward Philip, Jr., A. B. (Penna. College),	York,	Dorm. 253 N. Y. Alumni.
Stern, Clarence Pratt, B. S. (Pennsylvania),	Philadelphia,	2119 Orthodox St.
Stradley, Leighton Paxton, Tobias, Raymond Blaine,	do. Mt. Carmel,	Dorm. 53 Memorial. 3400 Walnut St.
Tupper, Frank Boyce, B. S. (Pennsylvania),	New York, N. Y.,	Dorm. 23 Bodine.,
Vernon, William Jeffries, Webb, Charles William, A. B. (Muhlenberg),	Wilmington, Del., Allentown,	3430 Sansom St. 421 Pine St.
Williams, Samuel A, Ph. B. (Grove City),	Wheeling, W. Va.,	206 S. 37th St.

STUDENTS.

607

Name.	Residence.	City Address.
Wood, Frank Bryson, Wright, Franklin Loch, A. B. (Princeton),	Eddystone. Norristown.	

SECOND-YEAR CLASS.

Adams, Wilbur Louis, Anderson, Robert Earl, A. B. (Grove City), Archer, Pierce, Jr., B. S. (Princeton), Aron, Max., Asnis, Charles Edward, A. B. (Pennsylvania), Baker, Walter Hudson, A. B. (Wash. and Jeff.), Balukiewicz, Vitold Eugene, Biddle, George Roy, A. B. (Washington), Boyd, George Edward,	Georgetown, Del., Summerville, Philadelphia, do. do. Washington, Philadelphia, Chestertown, Md., Panama City, Panama, Minersville, Philadelphia, Easton, Philadelphia, Ardmore. Philadelphia, do. Homestead, Philadelphia, do. Carnegie, Pittsburg, W. Cape May, N. J., Chicago, Ill., Williamsport, Philadelphia, do do. do.	121 N. 50th St. 3612 Locust St. 2011 Spruce St. 937 N. Franklin St. 710 N. 5th St. Dorm. 201 Brooks. 779 S. Front St. 7 N. 36th St. The Tracy, 36th and Chestnut Sts. 3533 Locust St. 400 W. Chelten Ave. Germantown. Dorm. 11 Edgar F. Smith. 42d and Locust Sts. 813 Cross St. 214 S. 37th St. Dorm. 114 Foerderer. 803 N. 21st St. 705 N. 19th St. Dorm. 34 Edgar F. Smith. 3716 Walnut St. 2258 N. 17th St. Dorm. 347 McKean. 3438 Walnut St. 300 S. 36th St. "Awbury," Gtn. 1334 S. 4th St. 1937 N. 12th St.
Brumm, George Franklin, B. S. (Pennsylvania), Chapman, Joseph, B. S. (Princeton), Chidsey, Thomas McKean, A. B. (Lafayette), Clark, Charles Motley, A. B. (Harvard), Coates, Malcolm Vernon, B. S. (Pennsylvania), Cohen, Herman, Devlin, Carl Knorr, Dixon, Thomas Johnson, Dolby, John Wesley, Downing, Charles Leon, Duff, James Henderson, A. B. (Princeton), Edmundson, Walter Bream, Eldredge, Henry Hand, B. S. (Pennsylvania), Elfreth, William Henry, Ph. B. (Chicago), Elliott, Wistar Morris, Erdman, Henry Preston, B. S. (Pennsylvania), Evans, Edward Wyatt, A. B. (Haverford); A. B. (Harvard), Feldman, Samuel, Finletter, Edwin Michener		

Name.	Residence.	City Address.
Fleisher, Louis Morton, B. S. (Pennsylvania),	Philadelphia,	1901 Spring Garden St
Fornance, Joseph Knox, A. B. (Princeton),	Norristown,	[West Main St.]
Foster, George Andrew, A. B. (Johns Hopkins),	Johnstown,	3641 Locust St.
France, William Baxter, A. B. (Pennsylvania),	Philadelphia,	3603 Hamilton St.
Gerhard, William Casper, Glass, Leopold Calvin,	do. Shamokin,	639 N. 16th St. 1324 S. 4th St.
A. B. (Pennsylvania), Grosch, George Philip,	Philadelphia,	2415 Master St.
Halprin, Louis, Harris, George Hughes,	do. Conyngham,	4906 Lancaster Ave. 27 N. 34th St.
Harris, William, Hartzog, Herbert Joseph,	Camden, N. J., South Bethlehem,	[608 Berkley St.] Dorm. 417 Franklin.
A. B. (Lehigh), Herman, Samuel Snyder,	Gordonville,	3303 Walnut St.
B. S. (Pennsylvania), Hobson, Frank Hendricks,	Collegeville,	3303 Walnut St.
A. B. (Ursinus), Illoway, Bernard Abeles,	Philadelphia,	806 N. 7th St.
A. B. (Harvard), Johnson, Lloyd Edsall,	do.	3741 Spruce St.
Keilly, David Samuel, Kielland, Rolf Harris,	do. Doylestown,	417 N. 8th St. Dorm. 38 House P.
Klinges, Joseph Adam Peter, Kohn, Adolph Teller,	Philadelphia, do.	1335 Franklin St. 1434 Franklin St.
B. S. (Pennsylvania), Kratz, Maxwell Hillegass,	Frederick,	3842 N. 15th St.
A. B., A. M. (Princeton), Lester, Joseph Green,	Philadelphia, Wilkes Barre,	2218 Land Title Bldg 17 N. 34th St.
Lopatto, John Simon, McClellan, Edwin North,	Philadelphia, Belleville,	3716 Walnut St. 212 S. 37th St.
McClure, Charles Alpheus, A. B. (Princeton),	Philadelphia, do.	2046 Bainbridge St. 323 Snyder Ave.
McGrane, James Bernard, Miller, Harry Mortimer,	Lansdowne, Mt. Pleasant,	307 S. 39th St. 3319 Walnut St.
Moorshead, Frank Arthur, Morrison, Charles Clyde,	Philadelphia, do.	4256 Main St., Myk. 2303 Lombard St.
Neuman, David, O'Rourke, Michael Joseph,	Fox Chase, Philadelphia,	1141 Frankford Ave. 1413 S. 6th St.
Ovington, George, Jr., Pepp, David,	do.	1611 S. Orkney St.
Perskie, Joseph Bruce, Pickering, Maylin Joseph,	do.	704 S. Washington Sq.
Pratt, Stewart Camden,	Washington, D. C.,	Dorm. 11 Edgar F. Smith.
Reed, Clarence Howett, A. B. (Princeton),	Philadelphia,	320 Gowen Ave., Mt. Airy.

STUDENTS.

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Name.	Residence.	City Address.
Register, Layton Bartol, B. S. (Pennsylvania),	Haverford,	300 S. 36th St.
Richman, Grover Cleveland,	Moorestown,	1235 N. 7th St.
Richman, Joseph Adolph,	Philadelphia,	17 N. 34th St.
Ritchie, George John,	Wilkes Barre,	214 S. 37th St.
Rooke, William John,	Shamokin,	441 S. 43d St.
Root, Stanley William, A. B. (Princeton),	Wilkes Barre,	
Rothermel, Peter Frederick, 3d,	Philadelphia,	2013 Walnut St.
Salmon, Robert Milton, Ph. B. (Lafayette),	Honesdale,	3718 Walnut St.
Schatz, Samuel Reuben,	Philadelphia,	916 N. 6th St.
Schorr, Henry Warren,	do.	314 Christian St.
Shoemaker, Alfred Mathew,	Ebensburg,	23 S. 34th St.
Singleton, Burr,	Benedict, Kan.,	Dorm. 216 Foerderer.
Sinnott, Harry Edward,	Philadelphia,	5609 Woodland Ave.
Skidell, Sidney Hillary,	do.	824 N. 24th St.
Slepin, Joseph,	do.	2503 N. 19th St.
Smith, Carl Damon,	Hortons,	3703 Woodland Ave.
Stern, Edward,	Philadelphia,	822 N. 7th St.
Steckel, Daniel Edwin, A. B. (Lafayette),	Easton,	Dorm. 201 P. Brooks.
Stephens, Morton Wesley,	Nicholson,	3305 Walnut St.
Townsend, Mark, Jr.,	Linwood, N. J.,	3305 Walnut St.
Van Tine, Roscoe Conkling,	Bradford,	3323 Walnut St.
Vredenburgh, John Van Vorst,	Freehold, N. J.,	Dorm. 21 Wilson.
Waber, Louis,	Philadelphia,	324 N. 2d St.
Waddington, Edward Clifton, B. S. (Pennsylvania),	Woodstown, N. J.,	214 S. 37th St.
Wagner, Paul Rhoads,	Mont Clare,	
Walker, Eldon Rockefeller,	Philadelphia,	832 N. 7th St.
Wallace, Louis Guest, D. D. S. (Pennsylvania),	Lakewood, N. J.,	307 S. 39th St.
Warn, Robert Bruce,	Meyersdale,	Dorm. 31 Edgar F. Smith.
West, Edward,	Camden, N. J.,	[510 Haddon Ave.]
Weinstein, Jacob Israel, B. S. (Pennsylvania),	Philadelphia,	918 Pine St.
Wolf, Otto, Jr., A. B. (Princeton),	do.	229 S. 42d St.

FIRST-YEAR CLASS.

Aertsen, Guillaem, Jr., A. B. (Harvard),	Philadelphia,	110 S. 21st St.
Aiken, Harold Roland,	Malvern.	
Albrecht, Charles Hahn, A. B. (Pennsylvania),	Philadelphia,	4133 Girard Ave.
Ammerman, Benjamin,	do.	603 S. 10th St.

Name.	Residence.	City Address.
Arronson, Henry,	Philadelphia,	508 S. 4th St.
Ash, Isaac,	do.	3967 Pennsgrove St.
Baldi, Frederick S.,	do.	319 Green Lane, Rox.
Barrick, Jacob Louis,	do.	670 N. 36th St.
Barron, Howard Curtis,	Shamokin,	Dorm. 126 Baldwin.
Beach, Ransford Mix, B. S. (Pennsylvania),	Oak Lane,	300 S. 36th St.
Beck, Joseph Albert, B. S. (Pennsylvania),	Erie,	216 S. 37th St.
Bennis, Edward Michael,	Philadelphia,	3438 Walnut St.
Benton, Fred Andrew, A. B., A. M. (Williams),	Earlville, N. Y.,	4412 Sansom St.
Bergdoll, Louis John,	Philadelphia,	929 N. 29th St.
Bispham, George Tucker, Jr., A. B. (Princeton),	do.	1805 DeLancey Pl.
Bovaird, William Andrew,	Bradford,	3323 Walnut St.
Bowman, Roy Morrow,	Lebanon,	Dorm. 304 Brooks.
Bracken, Charles Harry,	Pittsburg,	3627 Lancaster Ave.
Branduff, Edward Bullock,	Newfield, N. J.,	3323 Walnut St.
Brock, John William, Jr., A. B. (Harvard),	Philadelphia,	1417 Spruce St.
Bromley, Wallace,	do.	126 Sumac St., Wissa.
Brown, John Arthur, B. S. (Pennsylvania),	do.	128 W. Upsal St., Gtn.
Brown, Oliver Phillips, B. S. (Wash. and Jeff.),	Newcastle,	3713 Woodland Ave.
Brown, William Charles,	Philadelphia,	3841 Cambridge St.
Brown, Benjamin,	do.	1733 N. 23d St.
Brownback, Garrett Arthur, A. B. (Yale),	Linfield,	Dorm. 304 Brooks.
Browne, Russell Leroy,	Vineland, N. J.,	3323 Walnut St.
Burch, Francis French,	Boyce, Va.,	Dorm. 325 Franklin.
Butz, Robert Fleming, A. B. (Ursinus),	Alburtis,	721 N. 16th St.
Cameron, George Frederic,	Philadelphia,	2033 Wallace St.
Campbell, Leighton Herriott, A. B. (Wash. and Jeff.),	Pittsburg,	Dorm. 30 Memorial.
Carpenter, James Douton, Jr.	Woodbury, N. J.,	Law Building.
Carson, Joseph, A. B. (Pennsylvania),	Philadelphia,	1033 Spruce St.
Childs, Randolph Willard, B. A. (College of the Acad- emy of the New Church),	Yonkers, N. Y.,	Dorm. 10 Edgar F. Smith.
Clement, Charles Francis, B. S. (Trinity),	Sunbury,	Dorm. 106 Leidy.
Collins, Raymond Arthur,	Scranton,	117 S. 34th St.
Conroy, John Joseph,	Philadelphia,	2501 E. Somerset St.
Coyne, Marshall Arthur,	do.	2811 N. Broad St.
Crawford, Kenneth Bayless, A. B. (Princeton),	Merion.	
Cullin, Edward Ignatius,	Philadelphia,	2020 S. 18th St.

STUDENTS.

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Name.	Residence.	City Address.
Cunniff, Thomas Aloysius,	New Bedford, Mass.,	3733 Sansom St.
DeVictor, William Knight,	Philadelphia,	4725 Baltimore Ave.
Dickinson, Bayard Clarence,	Steelton,	3604 Walnut St.
Dilkes, George Russell, Jr.,	Philadelphia,	1912 Arch St.
A. B. (St. Joseph's),		
Dolan, Joseph Aloysius	do.	1304 N. 19th St.
A. B. (St. Joseph's),		
Elliott, Charles Armand,	do.	1915 Diamond St.
B. S. (Pennsylvania),		
Endicott, Allen Brown, Jr.,	Atlantic City, N. J.,	Dorm. 16 Morgan.
Ewing, James Arthur,	Philadelphia,	1848 N. 17th St.
Fagen, John Edward,	do.	"The Sherwood," 38th and Chestnut Sts.
Fleming, Montgomery Ward,	Bellefonte,	Dorm. 30 Bodine.
A. B. (Haverford),		
Ford, William Bernard,	Moosic,	3332 Walnut St.
B. S. (St. John's),		
Forst, John Ryan,	Philadelphia,	166 W. Coulter St., Germantown.
M. D. (Pennsylvania),		
Fox, Robert Thomas,	Downingtown,	416 S. Broad St.
Ph. B. (Lafayette),		
Freeman, Paul,	Philadelphia,	206 E. Penn St., Gtn.
B. S. (Pennsylvania),		
Fryatt, Tillottson,	Stouts Mills,	3704 Spruce St.
B. S. (Penna. College),	W. Va.,	
Funk, John Clarence,	Harrisburg,	Dorm. 223 McKean.
A. B. (Princeton),		
Gehrett, Wilson Hann,	Norristown,	[540 DeKalb St.]
Gilkyson, Thomas Walter,	Phoenixville.	
A. B., A. M. (Swarthmore),		
Gill, Charles Anthony,	Philadelphia,	1426 Girard Ave.
A. B. (La Salle),		
Gleason, Thomas Francis,	Worcester, Mass.,	3729 Spruce St.
Gloth, William Conrad,	Eric,	Dorm. 306 New York Alumni.
Goodin, Charles Ellis,	Philadelphia	"The New Bingham."
B. S. (Pennsylvania),		
Gorman, Frank Joseph,	do.	509 N. 40th St.
Grady, Stanley Quay,	do.	3600 Walnut St.
Graham, Charles Merwyn,	do.	4304 Walnut St.
Grier, William Amos Warren,	Salem, N. J.,	Phi Kappa Chi House.
A. B. (Bucknell),		
Halpern, George,	Denver, Col.,	29 N. 34th St.
Hancock, Byron,	do.	1639 Columbia Ave.
Haydock, Thomas Ogle, Jr.,	Ridley Park,	2123 Locust St.
Henry, Cleveland,	New Castle,	Dorm. 246 Lippincott.
Hitchcock, Edward Fithian,	Philadelphia,	917 S. 48th St
A. B. (Pennsylvania),		
Hodgson, William Gentry,	Haddonfield, N. J.	
Horn, Norris Joseph,	Philadelphia,	63 E. Penn St., Gtn.

Name.	Residence.	City Address.
Jamison, Roy Mills, A. B. (Westminster),	Apollo,	3733 Sansom St.
Keely, Wallace Montgomery, A. B. (Lafayette),	East Greenville.	3305 Walnut St.
Kehler, James Grant,	Mt. Carmel,	Dorm. Edgar F. Smith.
Keller, John Schroeder,	Philadelphia,	206 S. 36th St.
Kirkpatrick, William Hunt- ington, A. B. (Lafayette),	Easton,	Dorm. 11 Edgar F. Smith.
Kraus, Otto, Jr.,	Philadelphia,	2801 Poplar St.
Lapetina, William Ashton Skerrett,	do.	634 Christian St.
Leedom, David Ambler,	Ambler,	117 S. 34th St.
Lehman, James Edward,	Philadelphia,	208 S. 43d St.
Levinthal, Lina,	do.	716 Pine St.
Levy, Israel Kauffman,	do.	731 South St.
Lisle, John,	do.	2109 Spruce St.
Locke, Robert Henry, A. B. (Trinity),	do.	2101 Chestnut St.
Long, William Basilian, A. B. (La Salle),	do.	400 S. 19th St.
Lusk, Donald Augustus,	New Castle,	Dorm. 237 Fidler.
McCann, John Henry,	Cresson,	3733 Sansom St.
McCracken, Robert Thomp- son, B. S. (Pennsylvania),	Philadelphia,	5443 Greene St., Gtn.
McDevitt, Harry Sylvester,	do.	4413 Baltimore Ave.
McKibbin, Robert John Edgar,	do.	2844 D St.
McTague, Stephen Joseph, A. B. (St. Joseph's),	do.	1137 N. 41st St.
Magee, Boyd Hunter,	do.	3619 Powelton Ave.
Martin, Eugene Angelo, A. B. (St. Joseph's),	do.	890 Holly St.
Matthias, Norwood Deal, B. S. (Pennsylvania),	Norristown.	
Meadowcroft, Charles Wil- liam, Jr., A. B. (Penna.),	Philadelphia,	4627 Mulberry St.
Minnick, Michael Joseph,	Wynnewood,	3437 Chestnut St.
Montgomery, William Harry,	Vineland, N. J.,	3437 Chestnut St.
Monroe, Anna Josephine,	Philadelphia,	1241 Snyder Ave.
Morris, Leigh Merle, A. B. (Lehigh); A. M. (Columbia),	Scranton.	Dorm. 229, Class of '87.
Murphy, Charles Aloysius, A. B. (Pennsylvania),	Philadelphia,	4220 Walnut St.
Nicholson, George Nicholas,	do.	3512 N. Broad St.
Nichterlein, Theodore Edward,	do.	4211 Chestnut St.
Norris, Henry Pepper, A. B. (Pennsylvania),	West Chester,	2214 Walnut St.
Nowakoski, Alexander Charles,	Mt. Carmel,	Dorm. 217 Foerderer.
Obermayer, Leon Jacob,	Philadelphia,	928 W. Huntingdon St.

STUDENTS.

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Name.	Residence.	City Address.
O'Brien, John Joseph, O'Callaghan, John Cornelius,	Philadelphia, do.	2020 Montgomery Ave. N. E. Cor. 13th and Butler Sts.
Okie, Howard Spencer,	Berwyn,	Room 815, 1010 Chest- nut St.
O'Neill, Robert Joseph, Pitcairn, Raymond, A. B. (College of the Acad- emy of the New Church),	Philadelphia, Bryn Athyn,	334 Reed St. Dorm. 10 Edgar F. Smith.
Portner, William Joseph,	Philadelphia,	425 S. 3d St.
Roth, John Peter,	do.	4434 Baker St.
Rynkiewicz, Zygmunt, B. S. (Penna. State Col.),	Shenandoah,	3332 Walnut St.
Sack, Meyer, Saussaman, Harry B., Schneller, William Harrison, Scott, Forrester Holmes,	Philadelphia, Williamstown, Catasauqua, Philadelphia,	455 N. 7th St. 3412 Sansom St. 3733 Sansom St. 4041 Spruce St.
Sensenderfer, Robert Emory Pattison, A. B. (Swarthmore),	do.	1855 N. Park Ave.
Shanklin, Almeron Walton, B. S. (Young Harris Col.),	Rome, Ga.,	2036 Mt. Vernon St.
Shaw, Ambrose Herbert,	Philadelphia,	331 Earlham Terrace, Germantown.
Sheen, James Morgan, Sheffield, Roscoe Rexford, A. B. (Princeton),	Atlantic City, N. J., Monticello, Ky.,	3338 Chestnut St. Dorm. 28 Morris.
Sherrard, James Blanchard, A. B. (Wash. and Jeff.),	Washington,	3801 Spruce St.
Short, Frank William,	Clearfield,	3313 Walnut St.
Smith, Frank,	Philadelphia,	1524 French St.
Smyser, Adam Milton,	York,	Dorm. 24 Morris.
Sobernheimer, Frederick Alfred, Jr.,	Philadelphia,	323 Green Lane, Rox.
Spear, Wm., Lemuel,	do.	239 Greenwich St.
Stevenson, John Entrekin,	do.	2314 Spruce St.
Strickland, Henry Benjamin, B. A. (Holy Cross),	Shamokin,	3332 Walnut St.
Summers, James Buist,	Philadelphia,	4939 Larchwood Ave.
Thissell, John Nahm,	Oak Lane.	
Tomlinson, DeVoe,	Bridgeton, N. J.,	Dorm. 33 Bodine.
Turner, Ellwood Jackson,	Ridley Park,	1421 Chestnut St.
Ulrich, Charles Nesbitt, Ph. B. (Lafayette),	Catasauqua,	Dorm.
Undeck, John Paul,	Drifton,	29 N. 34th St.
Underhill, Caroline Agnes, A. B. (Swarthmore),	Philadelphia,	2103 Green St.
Wanner, Albert Henry, B. S. (Pennsylvania),	Aspinwall,	3417 Walnut St.
Weber, Jesse Stroud,	Lower Providence,	3606 Locust St.
Widdows, Arthur Manley,	Philadelphia,	939 N. 40th St.

Name.	Residence.	City Address.
Wilkinson, Clarence Stone,	Philadelphia,	2830 N. Marshall St.
Williams, Paul Browne,	Guthrie, Okla.,	29 N. 34th St.
Wischan, Adolf,	Philadelphia,	726 N. 7th St.
Zerfing, Charles Edward,	Duncannon,	3412 Sansom St.

SPECIAL STUDENTS.

Hartpence, John Armitage,	Trenton, N. J.,	1105 N. Olden Ave.
Horan, Edward Jerome,	Scranton,	Dorm. 406 Brooks.
Kier, Frank Jones,	Pittsburg,	"The Tracy," 36th and Chestnut Sts.
A. B. (Pennsylvania),	Glenolden,	1433 Erie Ave.
Krout, Jacob Henry,	Radnor,	
Montgomery, John Lewis,	Wilkes Barre,	[166 S. Grant St.]
*Morgan, Edwin Booth,	Norristown.	
Potts, Robert Tower,		
A. B. (Harvard),	Titusville,	3442 Chestnut St.
Sherman, Roger Seymour,	(Harvard),	
Schwartz, Anthony Asher	Cynwyd,	325 S. 11th St.
Albert,		
Stokes, Thomas,	Philadelphia,	1438 Land Title Bldg.
A. B. (Harvard),		
Washington, Lee Fairfax,	Atlantic City, N. J.,	3420 Sansom St.
Wills, Frederick Bowen,	Trenton, N. J.	
A. B. (Williams),		
Woods, William,	Philadelphia,	4413 Larchwood Ave.
A. B. (Princeton),		

PARTIAL STUDENTS.

Janney, Benjamin Stansbury,	Philadelphia,	435 S. 51st St.
McDermott, Thomas Leo,	do.	237 N. 22d St.
Moncure, Wm. Augustus,	do.	129 N. 16th St.
Welsh, Paul Centennial,	Lansdowne,	[81 E. La Crosse Ave.]

SUMMARY.

Students of the Third-year Class	64
Students of the Second-year Class	95
Students of the First-year Class	146
Special Students	13
Partial Students	4
Total	324

* Not in attendance.

DEPARTMENT OF MEDICINE.

POST-GRADUATE STUDENTS.

Name.	Residence.	City Address.
Caboche, Louis,	New Orleans, La.	
Campbell, William M., M. D. (Pennsylvania),	McKees Rocks,	3707 Locust St.
Campbell, John S., M. D. (Western Reserve University),	West Sunbury,	631 Spruce St.
Carncross, Helen,	Philadelphia,	5226 Spruce St.
Cruice, John M., A. B. (Pennsylvania), M. D. (Pennsylvania),	do.	1815 Spruce St.
Dennis, John Benjamin, M. D. (Pennsylvania)	do.	4402 Pine St.
Good, William Harmar, M. D. (Medico-Chi.),	do.	134 E. Wyoming Ave.
Gorham, Fordyce C., M. D. (Pennsylvania),	Coudersport,	3403 Walnut St.
Hershey, George Bair, M. D. (Pennsylvania),	Gap,	3430 Sansom St.
Horan, William F., M. D. (Pennsylvania),	Philadelphia,	5334 Vine St.
Kite, Walter C., M. D. (Pennsylvania),	Milton, Mass.,	Trenton, N. J.
Langdon, Marie G., M. D. (Woman's Med. Coll. of Penna.),	Philadelphia,	1538 N. 18th St.
Langdon, Robert M., M. D. (Long Island Coll. Hospital),	do.	1538 N. 18th St.
Parrish, Henry, M. D. (Medico-Chi.),	do.	1418 S. 58th St.
Prendergast, M. T., M. D. (Pennsylvania),	do.	2435 Columbia Ave.
Preston, J. W., M. D. (Coll. of P. & S., Baltimore),	Keystone, W. Va.,	3403 Walnut St.
Scammell, Frank G., M. D. (Medico-Chi.),	Trenton, N. J.	
Van Deusen, Edwin H., M. D. (Pennsylvania),	Philadelphia,	2101 Tioga St.

FOURTH-YEAR CLASS.

Adkins, Russell Erastus, A. B. (Denison),	Granville, Ohio,	Dorm. 37 Morris.
Aitken, Charles Stanley,	Philadelphia,	305 S. 39th St.
Alexander, Isaac Hope,	Kennett Square,	105 S. 34th St.

Name.	Residence.	City Address.
Allen, William Herschel, Jr.,	Philadelphia,	Dorm. 49 E. F. Smith.
Amsler, Edward Samuel,	Rochester, N. Y.,	Dorm. 22 Memorial.
Aron, Alexander Abraham,	Philadelphia,	937 Franklin St.
Auchmuty, John Edward,	S. Williamsport,	3253 Sansom St.
A. B. (Susquehanna),		
Aufhammer, Charles Howard,	Pittsburg,	Dorm. 315 Leidy.
Baker, George Linville,	Haddonfield, N. J.,	Dorm. 14 Bodine.
B. S. (Pennsylvania),		
Baldwin, Harmon Octavius,	Rochester, N. Y.,	Dorm. 47 Morgan.
A. B. (University of Rochester),		
Besse, Albion Currier,	Philadelphia,	1712 N. Lambert St.
Bishop, Aaron Lafayette,	Harrisburg,	212 S. 37th St.
Blair, Harold Albert,	Bellefonte,	Dorm. 317 Leidy.
B. S. (State College),		
Boice, Ervrit Snell,	Moore.	
Bridgett, Frank Aloysius,	Carbondale,	4906 Woodland Ave.
Brown, William Richard, Jr.,	Philadelphia,	2345 E. Cumberland.
Brumm, Seth Arthur,	Minersville,	3533 Locust St.
Burling, Arthur Hanson,	Philadelphia,	274 S. 23d St.
V. M. D. (Pennsylvania),		
Burns, Joseph Patrick,	Wilkes Barre,	413 S. 40th St.
Cariss, Walter Linfoot,	Dover, Del.,	3745 Spruce St.
Clark, Herbert Charles,	Economy, Ind.,	Dorm. 225 Baldwin.
Cifton, Alfred Lee,	Smyrna, Del.,	Dorm. 123 McKean.
A. B. (Delaware),		
Clinger, Joseph Abram,	Milton,	258 S. 38th St.
Cohen, Joseph,	Bloomsburg,	Dorm. 22 Memorial.
Collins, Frank Horan,	Carbondale,	3330 Woodland Ave.
Corson, Charles Cadwallader,	Plymouth Meeting,	Dorm. 439 Hopkinson.
B. S. (Swarthmore),		
Corson, Edward Foulke,	do.	Dorm. 225 Baldwin.
Davis, Richard Hayes,	Louisville, Ky.,	Dorm. 30 Wilson
A. B. (Louisville),		
Dallenbach, John C.,	Champaign, Ill.,	Dorm. 123 McKean.
Dear, William Richard,	Washington, D. C.,	Dorm. 429 Class of '87.
Dillon, John Aloysius,	Holyoke, Mass.,	3435 Lancaster Ave.
A. B. (St. John's),		
Donaldson, Holland Hunter,	Midway,	Dorm. 443 Hopkinson
A. B., A. M. (Westminster),		
Downey, John Otho,	Morgantown,	Dorm. 117 McKean.
	W. Va.,	
Drake, George Rufus,	Bristol, Vt.,	3731 Locust St.
A. B. (Middleburg),		
Ellis, William Thomas, Jr.,	Masonville, Ky.,	3727 Spruce St.
A. B. (Washington and Lee),		
Erdman, H. B.,	Macungie,	Dorm. 14 Morgan.
B. S. (Gettysburg),		
Feldhoff, Edward Wilson,	Shamokin,	Dorm. 339 Foerderer.
A. B. (Franklin and Marshall),		
Fisher, Lewis,	Philadelphia,	724 South St.

STUDENTS.

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Name.	Residence.	City Address.
Franklin, Charles Montanye, A. B. (Princeton),	Hightstown, N. J.,	3600 Walnut St.
Gardiner, William Gilfillan, Jr., B. S. (Pennsylvania),	Toledo, Ohio,	Dorm. 30 House S.
Garrison, Harry Alfred, A. B. (West Virginia),	Morgantown, W. Va.,	3745 Spruce St.
Gaughan, Martin C.,	Pittston,	3435 Lancaster Ave.
Graves, Lewis Herbert,	Philadelphia,	3601 Locust St.
Gregory, Job Lee,	Wooster, Ohio,	3607 Locust St.
Griscom, John Milton, B. S. (Swarthmore),	Philadelphia,	1810 Race St.
Hamilton, Albert John,	Milton, Mass.,	3735 Spruce St.
Hayes, Robert Hunter,	Lewiston, Me.,	3601 Locust St.
Henry, Howard Gobin,	Anncville,	3745 Spruce St.
Herbert, Leo John Charles,	Syracuse, N. Y.,	3319 Walnut St.
Hill, Lucian A., A. B. (West Virginia),	Hinton, W. Va.,	Dorm. 427 Baldwin.
Holcomb, Carlos Pennington,	Athens,	3745 Spruce St.
Jamieson, William,	Easton,	216 S. 37th St.
Janney, Nelson Wilson, B. S. (Pennsylvania),	Philadelphia,	435 S. 51st St.
Javier, George Victor,	Lansdowne,	3438 Walnut St.
Jones, Isaac Hampshur, A. B., A. M. (Amherst),	Philadelphia,	"The Bartram."
Jones, Arthur Lee, M. D. (Univ. College of Medicine, Richmond),	Silas Creek, N. C.,	3608 Locust St.
Kerr, Allen Meredith,	Pittsburg,	3266 Sansom St.
Kerr, James DeWitt,	Lebanon,	Dorm. 332 Franklin.
Laird, John Lohra,	Philadelphia,	229 E. Logan St., Gtn.
Livingston, James Archibald,	Jacksonville, Fla.,	"The Sherwood."
Ludy, John Borneman, A. B., A. M. (Franklin and Marshall),	Boyertown,	Dorm. 31 Bodine.
Lynn, Russell Bower, B. S. (Muhlenberg),	Catasauqua,	Dorm. 44 Bodine.
Magee, David Miller Pomfret,	Bordentown, N. J.,	3715 Woodland Ave.
Matlack, Frank Smeeton,	Philadelphia,	437 E. Girard Ave.
Melhorn, Kent Churchill,	Kenton, Ohio,	Dorm. 447 Lippincott.
Moffitt, George Reily,	Harrisburg,	Dorm. 130 Craig.
Moran, John Joseph,	Lyons, N. Y.,	Dorm. 10 James Wilson.
Moxey, Albert Frankish,	Philadelphia,	7123 Boyer St., Mt Airy.
Moylan, David John,	Fermoy,	3330 Woodland Ave.
McCullough, Frank Edwards,	Royse, Texas,	734 S. 10th St.
McBride, John Leaming, B. S. (Westminster),	Imperial,	Dorm. 443 Hopkinson.
McKinney, Garfield Lesley,	Simon,	Dorm. 50 Bodine.
Noyes, Arthur Percy,	Enfield, N. H.,	27 N. Dearborn St.
O'Donnell, Edward Pius, A. B. (Georgetown),	Heckscherville,	3332 Walnut St.

Name.	Residence.	City Address.
Penrose, James Brinton, A. B. (Marietta),	Marietta, Ohio,	3601 Locust St.
Pride, William Thomas, Jr., A. B. (South Kentucky),	Huntsville, Ala.	Dorm. 371 Hopkinson
Reynolds, Royal, Reese, Edward Columbus,	Elmira, N. Y., Park Place,	300 S. 36th St. 3735 Spruce St.
Rhoades, George Carroll, Riston, Paul Alexander,	Wheeling, W. Va., Reynoldsville,	Dorm. 10 Bodine. "Tracy" Apartments.
Ritenour, Joseph Paul, B. S. (State College),	Uniontown,	113 S. 37th St.
Rosenkrans, Layton Winter- mute,	Newton, N. J.,	Dorm. 48 Bodine.
Rouss, Alexander Hamilton Stephens, A. B. (Washing- ton and Lee),	Kabletown, W. Va.,	3715 Locust St.
Ryan, William Cyril, Schwatt, Herman,	Hoosick Falls, N. Y., Philadelphia,	243 N. Lawrence St. 409 S. 8th St.
Shields, Edgar Thomson, A. B. (Bucknell),	Lewisburg,	3702 Locust St.
Slataper, Felician J., Smith, Harry Luther,	Alvin, Texas, Harrisburg,	3332 Walnut St. 3604 Walnut St.
Smith, William H., Sondheim, Sidney J.,	Goldsboro, N. C., Mauch Chunk,	3601 Locust St. Dorm. 21 House P.
Swalm, Charles Joseph, Torrey, Robert Grant,	Philadelphia, Montclair, N. J.,	2548 N. 8th St. 300 S. 36th St.
Turner, Henry Williams Biddle,	Vallejo, Cal.,	Dorm. 449 Lippincott.
Turner, Henry Gray, Turnbull, William Gray,	Raleigh, N. C., Philadelphia,	3601 Locust St. 2510 N. 32d St.
A. B. (Monmouth), Vaca, Timoteo Seydel,	Chinandega, Nicaragua,	Dorm. 222 McKean
Vail, William Penn, B. S. (Princeton),	Blairstown, N. J.,	Dorm. 28 Morris.
Velazquez, Daniel, B. A., B. S. (National In- stitute of Guatemala),	Rivas, Nicaragua,	3603 Locust St.
Wagner, Jesse LeVan, Wallace, James Oliver,	Hamburg, Pittsburg.	Dorm. 449 Lippincott. Dorm. 427 Baldwin.
A. B. (Kenyon), Weinstein, George Loui,	Summerfield, Ohio,	3422 Sansom St.
Ph. B. (Marietta), Welker, Henry Clement,	Myerstown,	Dorm. 47 Morris.
Ph. B., A. M. (Franklin and Marshall), Wenrich, John Adam,	Wernersville, Hillsboro, Ohio,	Dorm. 27 Bodine. 3249 Sansom St.
West, Burch C., Williams, Thomas Oliver,	Scranton, Rutherford, N. J.,	3702 Spruce St. Dorm. 318 Leidy.
Williams, William Carlos, Wilmer, Harry Bond, Jr.,	Centreville, Md.,	Dorm. 45 Edgar F. Smith.

STUDENTS.

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Name.	Residence.	City Address.
Woodring, John Moses, B. S. (Muhlenberg),	Allentown,	Dorm. 50 Bodine,
Young, Charles Houston, A. B. (Washington and Lee),	Christiansburg, Ky.,	3601 Locust St.

THIRD-YEAR CLASS.

Aiken, Thomas Gerald,	Berwyn,	Dorm. 24 Morgan.
Baird, Frank Bennett,	Philadelphia,	3731 Spruce St.
Balsinger, William Ernest,	Widnoon,	3713 Locust St.
Beekman, Fenwick,	New York, N. Y.,	3619 Locust St.
Beyer, Samuel Meigs, B. S. (Pennsylvania),	Punxsutawney,	Dorm. 32 Morgan.
Boyer, Gouverneur Ham- meken, A. B. (Amherst),	Pottsville,	307 S. 39th St.
Bradley, Clarence Davis, A. B. (Oberlin),	Oberlin, Ohio,	3613 Locust St.
Brown, Isaac Welsh,	Philadelphia,	745 S. 16th St.
Bruck, Samuel,	do.	605 N. 6th St.
Brumbaugh, Cloy Garver, B. E., M. E. (Juniata),	Huntingdon,	2923 N. 12th St.
Brunner, Henry Philemon, A. B. (Muhlenberg),	Reading,	Dorm. 250 Carruth.
Bumsted, Clarence Van Reynegom, Ph. B. (Brown),	Jersey City, N. J.,	Dorm. 211 Franklin.
Burdick, William, A. B. (Brown),	Newport, R. I.,	4207 Viola St.
Campbell, Watson Emannd, A. B. (Ohio Northern),	Upper Middletown,	216 DeKalb Sq.
Cantor, Aaron Samuel,	Philadelphia,	753 S. 13th St.
Carlucci, Peter Felix,	Scranton,	17 N. 34th St.
Carnes, James Adam,	Massillon, Ohio,	Dorm. 233 Craig.
Chambers, Edward Francis,	Philadelphia,	115 E. Gowen Ave., Mt. Airy.
Clayton, John Conover,	Princeton, N. J.,	Dorm. 210 Franklin.
Cohen, Joseph Samuel,	Philadelphia,	737 S. 6th St.
Cole, Blase, B. S. (Princeton),	Hainesville, N. J.,	Dorm. 42 Morgan.
Criley, Clarence Holmes, Ph. B. (Iowa College),	Dallas Centre, Ia.,	Dorm. 402 Brooks.
Crowl, Frank Denton, A. B. (Wooster),	De Graff, Ohio,	Dorm. 365 Baird.
Dague, Samuel Nicholl, A. B. (Washington and Jefferson),	Scenery Hill,	3219 Sansom St.
Dale, Peter Hoffer, B. S. (Penna State College),	Center Hall,	3607 Locust St.
Davis, Albert Goodwin,	Norristown.	
Davis, Lester Roscoe,	Elizabeth, N. J.,	3601 Sansom St.
Davison, Roy Winthrop,	Hinsdale, N. H.	3713 Woodland Ave.
De Long, Percy,	Hamburg.	Dorm. 365 Baird.

Name.	Residence.	City Address.
Deweese, Aaron Lovett, A. B. (Haverford),	Philadelphia,	4657 Penn St., Fkd.
Diseroad, Benjamin Franklin	Danville,	3219 Sansom St.
Dreaper, Edward Benard, A. B. (Georgetown),	Mobile, Ala.,	Dorm. 419 McKean.
Ellis, Samuel,	Philadelphia,	723 S. 52d St.
Everhart, Edgar Shuman, Ph. B. (Dickinson),	Millerstown,	Dorm. 446 Lippincott.
Fleisher, Moyer Springer, B. S. (Pennsylvania),	Philadelphia,	1935 Wallace St.
Flores, Ernesto J., B. S. & L. (Liceo de Costa Rica),	Heredia, Costa Rica,	3930 Pine St.
Foster, Frederick Johnson, B. S. (Whitman),	Walla Walla, Wash.,	3704 Spruce St.
Frost, Ellis Mills,	Pittsburg,	Dorm. 366 Baird.
Ginsburg, Samuel,	Philadelphia,	3714 Locust St.
Goldberg, Joseph Matthew,	do.	551 N. 6th St.
Griswold, Charles LeRoy,	Pottsville,	Dorm. 395 Alumni.
Guthrie, Malcolm Canmore, Ph. B. (Yale),	Wilkes Barre,	Dorm. 203 Brooks.
Guzman, José Y de,	San Juan, Porto Rico,	3930 Pine St.
Haas, Milton J.,	Allentown,	3725 Haverford Ave.
Hale, Joseph Franklin,	Hico, Texas,	3605 Locust St.
Hamilton, Weir Mitchell, A. B. (Michigan),	Cassville,	3802 Locust St.
Handler, Joseph,	Philadelphia,	1345 S. 5th St.
Heilman, Ralph Salem, B. S. (Washington and Jefferson),	Sharon,	Dorm. 101 Brooks.
Hirsch, Louis Lowenstein,	Wilkes Barre,	3619 Locust St.
Holeman, Charles Joseph,	Philadelphia,	443 N. 63d St.
Holloway, Victor Dryden, B. S. (So. Kentucky Coll.),	Hopkinsville, Ky.,	Dorm. 419 McKean.
Horan, Francis Patrick,	Johnstown,	Dorm. 435 Baird.
Huber, George Ulrich,	Scranton,	17 N. 34th St.
Husik, David Nathaniel,	Philadelphia,	324 Wilder St.
Hutchinson, Henry Sheafe, A. B. (Harvard),	do.	308 Walnut St.
Howard, Harvey James, A. B. (Michigan),	Ann Arbor, Mich.,	3601 Locust St.
Jones, John Francis Xavier, B. S. (Villa Nova), A. B., A. M. (St. Joseph's),	Media,	Dorm. 101 Brooks.
Johnson, Lucius, D. D. S. (Pennsylvania),	Syracuse, N. Y.,	3529 Locust St.
Johnston, Lonam S.,	Meridian, Miss.,	203 DeKalb Square.
Junk, James L.,	Laurel Hill,	3607 Locust St.
Keilty, Robert Andrew,	Boston, Mass.,	Dorm. 31 Morgan.
Keith, Arthur Rubel, A. B. (Cornell),	Rome, N. Y.,	417 W. Liberty St.

STUDENTS.

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Name.	Residence.	City Address.
Kinzer, Horace Clemens, A. B. (Franklin and Marshall),	Lancaster,	216 DeKalb Square.
Kirkpatrick, Murray Baldwin, Jr., B. S. (Pennsylvania),	Philadelphia,	203 DeKalb Square.
Lampe, Albert Victor, A. B., A. M. (Franklin and Marshall),	do.	4945 Larchwood Ave.
LaMotte, William Oscar, B. S. (St. Johns),	LaMotte, Md.,	Dorm. 393 Alumni.
Lamson, Otis Floyd,	Lamar, Col.,	Dorm. 42 Morris.
Langworthy, Joseph Howard, A. B. (Kansas Univ.),	Leavenworth, Kan.,	3614 Walnut St.
Leary, Thomas James,	Bethayres.	
Leech, Harry Cheatham,	Providence, R. I.,	3601 Locust St.
Leinbach, Robert Frederic,	Winston, N. C.,	116 S. 33d St.
Logan, Archibald Hodge,	Allegheny,	Dorm. 444 Lippincott.
Lonergan, Philip Aloysius,	Scranton,	17 N. 34th St.
McCune, Caleb,	McKeesport,	Dorm. 32 Morgan.
A. B. (Allegheny),		
McCune, David Pollock,	do.	Dorm. 32 Morgan.
McGinty, Frank Patrick,	Wilkesbarre,	3727 Spruce St.
Mackay, William Herbert	Philadelphia,	1416 N. 16th St.
Gorton,		
A. B. (Pennsylvania),		
Major, Charles Percy,	Norristown,	Dorm. 219 McKean.
B. S. (Pennsylvania),		
Mann, Benjamin Harry,	Philadelphia,	318 Federal St.
Marshall, John Frank,	Ashland,	Dorm. 213 Foerderer.
A. B. (Franklin and Marshall),		
Maverick, Augustus,	San Antonio, Tex.,	3605 Locust St.
Mayer, John Philip,	Philadelphia,	Dorm 380 Lippincott.
Moore, William Garfield,	do.	1817 Tasker St.
Moriarty, Richard Warren,	Worcester, Mass.,	3731 Spruce St.
Motzenbecker, William	Newark, N. J.,	Dorm. 38 Morris.
Joseph,		
Moyer, Jacob,	Pennsdale,	3249 Sansom St.
Myers, Israel,	do.	1229 S. 6th St.
Newell, William Augustus,	Mt. Holly, N. J.	
A. B. (Princeton),		
Nicely, William Emerson,	Dayton, Ind.,	3613 Locust St.
A. B., A. M. (Princeton),		
Outerbridge, George Whitney,	Philadelphia,	Dorm. 336 Foerderer.
A. B. (Harvard),		
Parker, Horace Norton,	Hornerstown, N. J.,	Dorm. 23 Memorial.
Pollock, James King,	Lisbon, Ohio,	Dorm. 45 Morris.
A. B. (Wooster).		
Raken, William Elkin,	Philadelphia,	1202 South St.
Reiff, Elmer Paul,	Souderton,	Dorm. 320 Leidy.
A. B. (Franklin and Marshall),		
Robinson, James William,	Sharpsburg,	Dorm. 361 Baird.

Name.	Residence.	City Address.
Rogers, Nathaniel Curtis, B. S. (Univ. of Chicago),	Newell, Iowa,	Dorm. 116 Foerderer.
Rosenfeld, Samuel,	Philadelphia,	609 McClelland St.
Ross, George Floyd,	Greensboro, N. C.,	Dorm. 103 Brooks.
Rush, Calvin, B. S. (Earlham), B. S. (Haverford),	Fairmount, Ind.,	20 N. 36th St.
Russell, Marion Fore, A. B. (Univ. of Kansas),	Great Bend, Kans.,	258 S. 38th St.
Rutberg, James Jacob, Rutherford, Thomas Arthur, B. S. (Princeton),	Philadelphia, Carbondale,	732 S. 6th St. Dorm. 42 Morgan.
Schaeffer, Jacob Parsons, Schäffe, Karl,	E. Greenville, Philadelphia,	20 N. 36th St. 4719 Cedar Ave.
Schweinitz, George Lord, de B. S. (Pennsylvania),	Mechanicsburg,	Dorm. 150 New York Alumni.
Sciby, John H.,	Columbia, S. C.,	Dorm. 430 Class of '87.
Senn, Walter Wetmore, B. S. (Bucknell),	Williamsport,	3712 Spruce St.
Shaw, John Joseph, Jr., Shippen, Lloyd Parker, A. B. (Johns Hopkins),	Providence, R. I., Baltimore, Md.,	3731 Spruce St. 3601 Locust St.
Spaeth, William Louis Charles, Stein, Edgar Joseph, Ph. B. (Franklin and Marshall),	Riverside, N. J. Kutztown,	Dorm. 103 Brooks.
Sturtevant, Charles North- more,	Duluth, Minn.,	Dorm. 45 Morgan.
Sullivan, George Francis, Teagarden, George Wance, A. B. (Waynesburg),	Worcester, Mass. Washington,	3731 Spruce St. Dorm. 42 Morris.
Tinker, John Stevenson, Toll, Robert Morris, Tuholski, David Benjamin, B. S. (Penna. State Coll.),	Uniondale, Philadelphia, Erie,	105 S. 34th St. 428 Titan St. 3607 Locust St.
Veeder, Borden Smith, Viehe, Robert William, Wait, Harold Nathan, Wanner, Harry Herbert, Watts, Wilbur, Jr., Weaver, Robert Francis, Webster, Franklin James,	Wilkes Barre, Evansville, Ind., Roselle Park, N. J., Reading, Burlington, N. J., St. Clair, Charlottetown, P. E. I., Philadelphia, do.	Dorm. 441 Hopkinson. 3601 Locust St. Dorm. 424 McKean. Dorm. 381 Lippincott. Dorm. 23 Memorial. Dorm. 214 Foerderer. 226 Walnut Place.
Weisblum, Maurice, Wendkos, Simon, B. S. (Pennsylvania),	Philadelphia, do.	828 S. 4th St. 1328 S. 4th St.
Whittaker, Ralph Rohner, Williams, George Louis, Woods, Ralph Detmer, Zelaya, Z Arturo, B. S. & L. (El Porvenir),	Alexandria, Philadelphia, McDonald, Tegucigalpa, Hon- duras.	Dorm. 40 Morris. Stenton Ave., Gtn. Dorm. 40 Morris. 3921 Pine St.
Zook, Joseph Allen,	Belleville,	3808 Lancaster Ave.

SECOND-YEAR CLASS.

Allen, Leo B.,	Bristol Center, N. Y.,	3324 Woodland Ave
Armitage, Harry Marshall,	Chester.	
Austin, James Harold,	Lansdowne.	
B. S. (Pennsylvania),		
Bailey, William Hotchkiss,	Lawrence, Kans.,	3614 Walnut St.
A. B. (Univ. of Kansas),		
Banks, Claude Webster,	Middleport,	Dorm. 387 Lippincott.
B. S. (Pennsylvania),		
Barteau, Fred,	Pine Island, Minn.,	206 S. 37th St.
Bauman, Rush Clettis,	Philadelphia,	2557 N. 33d St.
Bradley, Leo Fabian,	do.	709 N. 43d St.
Breskman, Louis,	do.	230 Christian St.
Buckner, Charles McVea,	Barboursville,	3713 Locust St.
	W. Va.,	
Canning, Charles Hewson,	West Chester,	3718 Walnut St.
A. B. (Lafayette),		
Cleveland, Howard Martin,	Mt. Jewett,	221 DeKalb Square.
Copeland, James Rexford,	Carbondale,	1914 Vine St.
Cornfeld, Morris,	Philadelphia,	1336 S. 4th St.
Creadick, Abraham Nowell,	do.	4939 Cedar Ave.
A. B. (Pennsylvania),		
Crewitt, Alfred Bayard,	Newtown,	113 S. 37th St.
B. S. (Pennsylvania),		
Cross, George Howard,	Chester,	54 N. 36th St.
Dailey, Thomas Joseph,	Plymouth,	Dorm. 41 Edgar F. Smith.
		921 N 8th St.
Daniels, Clarence D'Azevedé,	Philadelphia,	113 S. 37th St.
Davis, Robert Charles,	Johnstown,	3721 Locust St.
Dearth, Walter Alfred,	Washington,	
B. S. (Washington and Jefferson),		
Dengler, Raymond Archibald,	Shenandoah,	Dorm. 323 Leidy.
Ph. B. (Dickinson),		
Derivaux, John August,	Newark, N. J.,	Dorm. 415 Franklin.
DeVoe, Ralph Godwin,	Seattle, Wash.,	3601 Locust St.
DeWald, George Louis,	Hartley Hall,	126 S. 34th St.
DeWitt, William Armstrong,	Troy,	Dorm. 238 Fittler.
Diefenderfer, Alan Lewis,	Orwigsburg,	Dorm. 41 Morris.
A. B. (Princeton),		
Dill, William Milton,	Philadelphia,	1948 E. Allegheny Av.
Donnelly, James Franklin,	Baker City, Oregon,	113 S. 37th St.
Dunn, Joseph Francis,	Mahanoy City,	3419 Walnut St.
Egbert, Walter Ernest,	Chester,	1217 Walnut St.
Fenerty, Vincent John,	Philadelphia,	2725 E. Cumberland St.
Fleitas, Joseph,	Key West, Fla.,	Dorm. 22 Bodine.
French, George Reuben	Taunton, Mass.	3706 Spruce St.
Williamson,		
Gallagher, John Patrick, Jr.,	Philadelphia,	2154 N. Broad St.
Ganter, William,	do.	1931 S. Front St.
Garrison, Norman Scott,	Patterson, N. J.,	Dorm. 221 McKean.

Name.	Residence	City Address.
Gibby, Harold James, A. B. (Princeton),	Roselle, N. J.,	Dorm. 359 Craig.
Goldsmith, Sidney Byron, B. S. (Pennsylvania),	Philadelphia,	2336 N. Broad St.
Gorrell, John Franklin, B. L. (Marietta),	Marietta, Ohio,	3703 Woodland Ave.
Gould, John Howard, Gracey, George Fay, B. S. (Pennsylvania),	Bayonne, N. J., Belleville,	3608 Walnut St. Dorm. 43 Bodine.
Greenblatt, Joseph J., Hansell, Maurice Tracy, A. B. (Swarthmore),	Philadelphia, Bougher, N. J.,	530 S. 4th St. 3419 Walnut St.
Hanson, Leonard Edwin, Harvey, Henry Thomas, Jr., Ph. B. (Bucknell),	Wallace, Idaho, Lock Haven,	3739 Spruce St. 3712 Spruce St.
Hays, Charles Elliott, Hersh, Harold Edwards, Hilton, Thomas Harrison, A. B. (Fisk),	Johnstown, Allentown, Little Rock, Ark.,	3641 Locust St. Dorm. 361 Baird. 4046 Sansom St.
Hodgson, William Elmer,	McKeesport,	Dorm. 22 Edgar F. Smith.
Hoey, Rollo Howard,	do.	Dorm. 22 Edgar F. Smith.
Hollinshed, Ralph King, Howell, Archibald Alexander, A. B. (Princeton),	Haddonfield, N. J. Philadelphia,	108 N. 50th St.
Hughes, Eugene Martin, Hunlock, Fred Scott, Jones, Clifford Buckman, Kennon, William Gilliam, Kinard, Kerwin Weidman, A. B. (Pennsylvania),	Butler, Wyoming, Philadelphia, Subletts, Va., Lancaster,	Dorm. 450 Lippincott 3703 Woodland Ave. 2731 Columbia Ave. Dorm. 359 Craig. Dorm. 22 Bodine.
Kolmer, John Albert, Krumbhaar, Edward Bell, A. B. (Harvard),	Lonaconing, Md., Wynnewood.	2851 Mervine St.
Lauer, Julius Paul, Laygo, Pacifico, A. B. (De San Juan de Letian),	E. Mauch Chunk, Lipa, Batangas, Philippine Islands,	3940 Locust St. 3245 Sansom St.
Lenderman, Edwin Harvey, Leshar, Charles Byron, B. S. (Bucknell),	Wilmington, Del., Northumberland,	3706 Spruce St. 3434 Sansom St.
Lüders, Charles Williamson, A. B. (Lehigh),	Philadelphia,	Dorm. 303 Brooks.
Luther, John Milton, B. S. (Washington and Jefferson),	West Fairfield,	3607 Locust St.
Lynch, Edward James, McDermott, Bernard Anthony,	Portland, Conn., Philadelphia,	3412 Ludlow St. 2409 Fairmount Ave.
McNierney, Frank Braun, Maclay, Joseph Pomeroy,	Titusville, Chambersburg,	Dorm. 377 Hopkinson 3422 Sansom St.

Name.	Residence.	City Address.
Iagee, Harry Bayne,	Clarion,	3604 Walnut St.
Magnuson, Paul Budd,	St. Paul, Minn.,	Dorm. 25 Morris.
Markley, Josiah Preston,	Schwenksville,	3324 Woodland Ave.
Minford, Wilbur Henry,	Hazleton,	3704 Locust St.
Molyneux, Silas David,	Dushore,	221 DeKalb Square.
Morris, Harold Hollingsworth,	Philadelphia,	1608 Market St.
B. S. (Haverford),		
Morss, Clarence Rupert,	Scranton,	Dorm. 229 Class of '87
A. B. (Lehigh),		
Muhlenberg, Hiester Henry,	Reading,	Dorm. 221 McKean.
Mulford, Leslie Frank,	Camden, N. J.,	3438 Walnut St.
Mullin, Raymond Joseph,	Newark, N. J.,	105 Washington Ave.
Muldowney, John James,	Lisbon, N. H.,	Dorm. 24 Memorial.
Mundy, Leo Clement,	Wilkes Barre,	3704 Locust St.
Murphy, Arthur Irwin,	Pittsburg,	Dorm. 305 Brooks.
Murray, Michael Aloysius,	Wilkes Barre,	5242 Rodeman St.
Musser, John Herr, Jr.,	Philadelphia,	Aldine Hotel, 19th and
B. S. (Pennsylvania),		Chestnut Sts.
Myers, Edmund,	Boston, Mass.,	3619 Locust St.
Navarra, Robert Stagno,	Karachi, India,	3943 Baltimore Ave.
Neyman, George Purviance,	Butler,	Dorm. 450 Lippincott.
Norstedt, Johann Albert, Jr.,	Mt. Carmel,	Dorm. 34 Morgan.
Oberrender, Winfield	Drifton,	Dorm. 212 Franklin.
Sellman,		
Olpp, Archibald Ernest,	Bethlehem,	3902 Baltimore Ave.
A. C. (Lehigh),		
Pearson, Robert Garfield,	Starbuck, Wash.,	3739 Spruce St.
A. B. (Univ. of Wash.),		
Pepper, Oliver Hazard Perry,	Philadelphia,	1811 Spruce St.
B. S. (Pennsylvania),		
Pratt, John Murdock,	Elmira, N. Y.,	Dorm. 21 Memorial.
Purvis, Joseph Dixon,	Butler,	3721 Locust St.
A. B. (Washington and		
Jefferson),		
Rahter, J. Howard,	Harrisburg,	3641 Locust St.
Ranck, Lee Russell,	Lewisburg,	3703 Woodland Ave.
Ph. B. (Bucknell),		
Rewalt, Robert Kendig,	Middletown,	3604 Walnut St.
Richardson, Clarence Hud-	Philadelphia,	708 S. 17th St.
son, A. B. (Lincoln Univ.),		
Rickenbrode, Charles Oreon,	Van. Camp. W. Va.,	3703 Woodland Ave.
Riskoff, Abraham David,	Philadelphia,	302 Dickinson St.
Rosenkranz, Otto Henry	Marietta, Ohio,	3703 Woodland Ave.
Gustav, B. L. (Marietta),		
Saxon, Gordon Joel,	Bernice,	Dorm. 440 Hopkinson.
Schadt, George Leonard,	Springfield, Mass.,	Dorm. 433 Class of '87.
Schaeffer, Forrest Grimm,	Reading,	Dorm. 221 McKean.
A. B. (Franklin and Marshall),		
Schaeffer, Robert L.,	Fleetwood,	Dorm. 405 Brooks.
A. B. (Franklin and Marshall),		
Schmidt, William Henry,	Chester.	

Name.	Residence.	City Address.
Schumacher, Forrest LeRoy,	Hazleton,	3745 Spruce St.
Scott, Mark Emmett,	Portsmouth, N. H.	Dorm. 383 Lippincott.
Shaffer, Frederick Biesecker,	Boswell,	221 DeKalb Square.
A. B. (Franklin and Marshall),		
Shonberg, Mitchell,	Pittsburg,	Dorm. 40 Edgar F. Smith.
Simmonds, Henry Thomas,	Shamokin,	Dorm. 375 Hopkinson.
Sison, Antonio Guillermo,	Lingayen,	3243 Sansom St.
A. B. (De San Juan de Letian),	Philippine Islands,	
Skelton, Robert,	Philadelphia,	1635 W. Lehigh Ave.
Snyder, Asher Franklin,	Mountain Top,	Dorm. 322 Leidy.
Spargo, John Nicholas,	Ogden, Utah,	Dorm. 30 Edgar F. Smith.
Spicer, Frank William,	Cedar Rapids, Iowa,	3344 Walnut St.
A. B. (Coe College),		
Stanton, James Hill,	Milford, Del.,	Dorm. 33 Morgan.
Striegel, John George,	Pottsville,	3702 Locust St.
Strousse, Jacob Lowenstein,	Philadelphia,	939 N. 8th St.
Sutter, Charles Clyde,	Lindsey,	3703 Woodland Ave.
Troutman, Holmes Fielding,	Fort Valley, Ga.,	Dorm. 314 Leidy.
B. S. (Alabama Polytechnic Institute),		
Truitt, Berton Clifton,	Philadelphia,	941 Lombard St.
Umsted, Chauncey Vandever,	Coatesville,	2812 Oxford St.
Underwood, Gordon B.,	Manchester, N. H.,	Dorm. 394 New York Alumni.
Van Valzah, Robert,	Bloomington, Ind.,	Dorm. 210 Franklin.
A. B. (Princeton),		
Vila, Robert Leopold,	Cienfuegos, Cuba,	3706 Spruce St.
Walsh, Daniel Joseph,	Portland, Conn.,	122 S. 34th St.
Watson, William Robertson,	Philadelphia,	Dorm. 337 Foerderer.
Weidman, Fred D.,	do.	221 S. 36th St.
Weigle, Harry Stine,	Harrisburg,	3608 Walnut St.
Weinstock, Louis,	Philadelphia,	232 Brown St.
Westcott, William Carter,	Atlantic City, N. J.,	Dorm. 448 Lippincott.
Wexlar, Samuel,	Philadelphia,	726 S. 4th St.
Whalen, Walter Edward,	Ogden, Utah,	Dorm. 30 Edgar F. Smith.
Whipple, Earle Rogers,	Whitinsville, Mass.,	Dorm. 335 Franklin.
A. B. (Yale),		
Whitham, Jay Dashiell,	Philadelphia,	5114 Newhall St.
Willard, DeForest Porter,	do.	1818 Chestnut St.
B. S. (Pennsylvania),		
Williams, Harry David,	Lambertville, N. J.,	3943 Baltimore Ave.
Woelfel, Herbert Elmer,	Allegheny,	3329 Spg. Garden St.
B. S. (Western Univ. of Pa.),		
Worley, James Francis,	Topeka, Kans.,	221 S. 36th St.
A. M., A. B. (Washburn),		

FIRST-YEAR CLASS.

Name.	Residence.	City Address.
Adams, Francis Raymond,	Mansfield,	3255 Locust St.
Albrecht, Herman Emil,	Philadelphia,	4133 Girard Ave.
Ammarell, Winfield Harrison,	West Leesport,	3206 Baring St.
Angell, Worcester Demosthenes,	Boston, Mass.,	109 S. 40th St.
Armstrong, James, Ballantyne, James Van Horne, A. B. (Allegheny),	Columbia, Derry Station,	Dorm. 21 Bodine. 3741 Spruce St.
Barron, Charles Albert, Jr., Beddoe, Arthur Eynon, Benavides, José Alfredo, Best, William Henry, Boehm, Charles Hilary, Boice, Edmund Simpson, A. B. (Washington and Lee),	Shamokin, Scranton, Heredia, Costa Rica, Brooklyn, N. Y., Wilmington, Del., Abingdon, Va.,	Dorm. 126 Baldwin. 3801 Spruce St. 3930 Pine St. 3729 Spruce St. [315 E. 7th St.] 3531 Locust St.
Borden, J. Alfred,	Philadelphia,	2222 Wallace St.
Bowen, Clement Remington,	do.	4953 Catharine St.
Bowker, Abraham William,	do.	1800 S. Broad St.
Brown, Raymond W.,	Worcester, N. Y.,	225 S. 33d St.
Brumbaugh, Howard S. M.,	Philadelphia,	2923 N. 12th St.
Camblos, James Lyle, Campbell, Hugh Baird, Chidsey, Dudley Kirk, Clogher, Ralph Edward, Coffin, Frank W., Conlon, Philip Jerome, Conroy, John Stanislaus, Jr., Cooper, Linfred Lindale, A. B. (Delaware),	Ft. Washington. Osceola Mills, Easton, Hinsdale, Mass., Columbus Junc., Ia., Newark, N. J., Burlington, N. J., Wyoming, Del.,	112 S. 33d St. 3417 Walnut St. Dorm. 377 Hopkinson 14 N. 38th St. 24 S. 34th St. 1923 S. 17th St. Dorm. 362 Baird.
Coover, Carson, A. B. (Princeton),	Harrisburg,	214 N. 2d St.
Corcoran, Michael Patrick, Corneal, George Durkin, Coulter, John Stanley, Curtiss, F. Homer, B. S. (Purdue),	Philadelphia, do. do. Austin, Texas,	206 N. 2d St. 1416 Hunting Park Av 4609 Germantown Ave 3639 Locust St.
Davis, Alquin, Davis, George Cresswell, A. B. (Cornell),	Plymouth, Milton,	Dorm. 55 Memorial. 3429 Walnut St.
Draper, Dexter Wright, Dries, Charles Luther, Duitch, Morris, Dulaney, Joseph Field, Eberle, Walter Gilbert,	Boston, Mass., Reading, Philadelphia, McKinney, Texas, Ft. Smith, Ark.,	3330 Walnut St. 337 S. 5th St. 3240 Chestnut St. Dorm. 21 Edgar F. Smith.
Eckels, Lauren Samuel, Ehlers, Reginald Morris, Esposito, Antonio,	Philadelphia, Ocean Grove, N. J., Hammonton, N. J.,	600 S. Broad St. Dorm. 113 Foerderer. 1216 S. 16th St.

Name.	Residence.	City Address.
Everts, Edward Ernest,	Princeton, N. J.,	3223 Sansom St.
Ferguson, William Norman,	Philadelphia,	116 W. York St.
Fisk, Wendell Phillips,	Greenfield, Mass.,	Dorm. 413 Franklin.
Franksen, Charles,	Philadelphia,	4803 Garden St.
Friedmann, Otto,	do.	1552 N. 6th St.
Fullmer, John Bryan,	Renovo,	1336 Spruce St.
George, Chester McIntyre,	Williamson School.	
Gernert, Herbert Frank,	Trexlerstown,	3340 Walnut St.
B. S. (Muhlenberg),		
Geyelin, Henry Rawle,	Villa Nova,	Dorm. 235 Baird.
Ginsburg, Morris,	Philadelphia,	512 Manton St.
Goldman, Louis Charles,	do.	430 S. 4th St.
Goldstein, Hyman Isaac,	Camden, N. J.,	[903 Kaighn's Ave.]
Gordy, Morris,	Philadelphia,	701 S. Broad St.
Gorman, Henry Aloysius,	do.	1038 W. Dauphin St.
Goudiss, Charles Houston,	do.	537 Orianna St.
Graff, James Brown,	Worthington,	225 S. 33d St.
B. S. (Gettysburg),		
Green, Charles De Ruff,	Philadelphia,	1929 N. 33d St.
Groeneveld, Adolph William,	do.	3339 N. 15th St.
Gudger, Hubert Barnard,	Asheville, N. C.,	Dorm. 43 Edgar F.
Ph. B. (Univ. of N. C.),		Smith.
Haig, Chester Raymond,	Merchantville N. J.	
A. B. (Haverford),		
Halsey, Samuel Armstrong,	Newark, N. J.,	3338 Walnut St.
Hamblen, Robert North,	Spokane, Wash.,	3721 Locust St.
Hartigan, William Stephen,	Elmira, N. Y.,	409 Powell St.
Hartz, William,	Philadelphia,	1147 S. 9th St.
Harvey, Walter Benjamin,	Dunreith, Ind.,	923 N. 11th St.
Haywood, Hubert Benbury,	Raleigh, N. C.,	3314 Walnut St.
Ph. B. (Univ. of N. C.),		
Heilman, Marlin Webster,	Leechburg,	3611 Locust St.
Heller, James Beyel, Jr.,	Pottsville,	Dorm. 38 Brooks.
Henry, Charles Parmenas,	Basking Ridge,	3340 Walnut St.
B. S. (Princeton),	N. J.,	
Herbst, William Frederick,	Allentown,	3319 Walnut St.
Herman, J. Leon,	Gordonville,	3254 Sansom St.
Higgins, Everett Clifton,	Clinton, Maine,	3240 Chestnut St.
A. B. (Bates),		
Hill, Chester James,	Hazleton,	3704 Locust St.
Holladay, Louis Philippe, Jr.,	Amsterdam, Va.,	3719 Spruce St.
Hoover, William Harrison,	Harrisburg,	1417 N. 2d St.
Hopkins, Arthur Haddon,	Philadelphia,	228 Manheim St., Gtn.
B. S. (Haverford),		
Hopper, Arthur West,	Canonsburg,	68 N. 36th St.
A. B. (Wash. and Jeff.),		
Houghton, John Henry, Jr.,	Austin, Texas.	"The Normandie."
Howell, Gideon Lyman,	Trucksville,	225 S. 33d St.
Howorth, John,	Wilkes Barre	221 S. 37th St.
Hughes, Robert Coffman,	Tredyffrin.	
Hungerford, George Howard,	Philadelphia,	2329 Christian St.

STUDENTS.

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Name.	Residence.	City Address.
Hurst, Spencer Wells,	Talmage,	3917 Pine St.
Jonas, Leon,	Philadelphia,	2253 N. 17th St.
Jones, Edward Henry,	Youngstown, Ohio,	66 N. 36th St.
Johnston, Clyde Clifford,	Springfield, Mass.,	3739 Locust St.
Kennard, William Sorrento,	Newark, N. J.,	Dorm. 46 Bodine.
Kenny, John Ambrose,	WilkesBarre,	221 S. 37th St.
Kilduffe, Robert Anthony,	Philadelphia,	5613 Wyalusing Ave.
3d, A. B. (St. Joseph's),		
Killeen, Thomas Gore,	Carbondale,	3704 Spruce St.
Kimmelman, Louis,	Philadelphia,	321 S. 3d St.
Kingsbury, Oscar J.,	Nanticoke,	3218 Sansom St.
Klevan, Oscar Jesse,	Philadelphia,	533 N. 3d St.
Kyper, Don Cameron,	Bellwood,	Dorm. 10 Wilson.
Leedom, Edwin Conover,	Philadelphia,	216 W. Rittenhouse
A. B. (Pennsylvania),		Square.
Levi, Irwin Palmer,	Anniston, Ala.,	3606 Locust St.
Lewis, Charles Anthony,	Steelton,	4008 Ludlow St.
A. B. (Lincoln),		
Liebman, Jay Spiegle,	Youngstown, Ohio,	Dorm. 337 Foerderer.
Light, George Mitchell Stiles,	Conshohocken,	
Lilly, John Hall,	Philadelphia,	1033 N. 2d St.
Lindenberg, Henrique,	Cabo Frio, Brazil,	Dorm. 348 McKean.
Luby, Daniel Francis,	Peabody, Mass.,	3330 Walnut St.
Lyons, Joseph William,	Charleston, W. Va.,	3743 Spruce St.
A. B. (Univ. of W. Va.),		
McCurdy, Irwin Pounds, Jr.,	Philadelphia,	538 S. 49th St.
McLaury, Forrest Hadley,	Delaware, N. J.,	3340 Walnut St.
A. B. (Princeton),		
McNichol, Vincent Paul,	Philadelphia,	1513 N. 2d St.
Mahn, Walter Douglas,	do.	2328 S. Broad St.
Maitland, Joseph,	Mt. Vernon, N. Y.,	417 W. Upsal St., Gtn.
Mann, Bernard,	Philadelphia,	144 N. 2d St.
Mannix, Timothy Fawcett,	New York, N. Y.,	Dorm. 57 Edgar F.
		Smith.
Marshall, Samuel Mathewson	Milford, Del.,	Dorm. 438 Hopkinson.
Donnell, A. B. (Delaware),		
Martinez, Victorano,	El Viejo, Nica-	3611 Locust St.
	ragua.	
Mays, Thomas Henry,	Philadelphia,	1829 Spruce St.
Mears, James Harry,	Scranton,	4228 Chestnut St.
Mendenhall, Arthur M.,	Winchester, Ind.,	14 N. 36th St.
Meyer, Arthur Louis,	Garnavillo, Ia.,	3728 Walnut St.
A. B. (Beloit),		
Michelsohn, Julius Lewis,	Belmar, N. J.,	2332 N. 20th St.
Moffitt, Lloyd,	N. Yakima, Wash.,	Dorm. 130 Craig.
Montealegre, Isaac, Jr.,	Chinadega, Nica-	209 S. 33d St.
	ragua.	
Montenegro, Benedicto,	Sas. Paulo, Brazil,	Dorm. 52 Edgar F.
		Smith.
Morse, George Skipwith,	Waco, Texas,	3238 Chancellor St.
B. A. (Fisk),		

Name.	Residence.	City Address.
Mossman, Robert Gillis,	Greenville,	3331 Walnut St.
Munro, Harry Clay,	White Hall,	660 N. 11th St.
Myler, Theodore Frederic,	Pittsburg,	Dorm. 128 Class of '87.
Nickels, John Edward,	Philadelphia,	131 Green Lane, Myk.
Nylin, Josef Benediktus,	Stockholm, Sweden,	3319 Walnut St.
O'Brien, John,	Philadelphia,	1221 Mifflin St.
Oliver, Walter Holmes,	do.	2046 Ellsworth St.
Osman, Frederic De Hart,	do.	4001 Pine St.
Paschall, Charles Moulder,	do.	821 N. 20th St.
Patterson, Andrew Gailey,	do.	1931 Bainbridge St.
Phillips, Franklin Pierce,	Leeper,	206 S. 37th St.
Ph. B. (Grove City),		
Powers, Ambrose Aloysius,	Fall River, Mass.,	Dorm. 384 Lippincott.
Rehfuss, Martin Emil,	Philadelphia,	1417 S. Broad St.
Rentzheimer, Stillé Agnew,	Hellertown,	3340 Walnut St.
B. S. (Muhlenberg),		
Robinson, Joseph Lauria,	Punxsutawney,	3328 Walnut St.
D. D. S. (Phila. Dental Col.),		
Roecker, Cloyde Everhart,	West Chester,	Dorm. 342 McKean.
Romberger, Floyd Troutman,	Elizabethville,	3420 Sansom St.
Rosenberger, Robert Kline,	Allentown,	Dorm. 25 Edgar F. Smith.
B. S. (Muhlenberg),		
Rulon, Samuel Archer, Jr.,	Philadelphia,	2310 DeLancey Pl.
Sajous, Louis Theodore de Medici,	do.	
Sallom, Abdullah Kalil,	do.	2043 Walnut St.
Salzman, Jacob Yetter,	Danville,	1139 Wilder St.
Sanderson, Charles Hassiepen,	Philadelphia,	3328 Woodland Ave.
A. B. (La Salle),		4927 Lancaster Ave.
Schick, William Frederick, Jr.,	Belleville, N. J.,	19 N. 34th St.
Schollard, Eugene Joseph,	Worcester, Mass.,	3702 Locust St.
Seiwell, Harry Stevenson,	Danville, Ill.,	3702 Locust St.
Seixas, John Anthony,	Cape Haiti,	23 S. 34th St.
	Cape Haiti,	
Sewell, Harry Dickey,	Mansfield, Ohio,	3614 Walnut St.
Shapiro, Charles,	Philadelphia,	302 DeLancey St.
Shaw, Richard Masbro,	Rosemont,	
Shields, Ellwood Emlen,	Philadelphia,	412 School Lane, Gtn.
Shoudy, Loyal Ambrose,	Ellensburg, Wash.,	Dorm. 385 Lippincott.
A. B. (Univ. of Wash.),		
Shumacker, Leo,	Holly Springs, Miss.,	725 N. 40th St.
Ph. B. (Univ. of Miss.),		
Shuman, Warren Newton,	Mainville,	3347 Woodland Ave.
A. B. (Dickinson),		
da Silva, Reynaldo Ribeiro,	Sao Paulo, Brazil,	Dorm. 423 McKean.
di Silvestro, Giovanni,	Aquila, Italy,	758 S. 9th St.
Simpson, James Knox,	Laurens, S. C.,	3603 Locust St.
Siner, Joseph Linton,	Philadelphia,	5442 Wayne Ave.
Sledge, Edward Simmons,	Mobile, Ala.,	113 S. 37th St.

Name.	Residence.	City Address.
Steckel, Harry Arthur, Steinke, Carl Rossow, B. S. (Coe), Stockler, Joseph Anthony, Stone, Charles Henry,	Trenton, N. J., Atlantic, Iowa, Philadelphia, Coatesville,	Dorm. 385 Lippincott. 3344 Walnut St. 1141 N. Hancock St. Dorm. 56 Edgar F. Smith.
Swartley, William Blaine, Tilton, Walter Sterling, Trager, Herman, Updegraff, Charles Earl, B. S. (Wash. and Jeff.), Villalolos, Ruben,	Lansdale. Farmingdale, N. J., Philadelphia, New Florence,	3856 Brown St. 736 S. 4th St. 3607 Locust St.
Walls, Eli Slifer, B. S. (Bucknell), Walsh, Edward Francis, Jr., Watt, Charles Channing, Jr., Way, Clarence Wilton, Wilkinson, Arthur Ryland, Williams, Philip Francis, Ph. B. (Lafayette), Winter, Charles Aloysius, Wise, Henry Moses, Witmer, Charles Howard, Woodland, Edward Elias, Worden, Lockwood Brelsford,	San Isidro de Heredia, Costa Rica, Lewisburg, Philadelphia, do. Dennisville, N. J., Philadelphia, Martins Ferry, Ohio, Pittsburg. Portsmouth, Ohio. Neffsville, Dallas, Texas, Harrisburg,	3930 Pine St. 3347 Woodland Ave. 111 E. Lehigh Ave. 3641 Locust St. Dorm. 212 Franklin. 2231 Oxford St. Dorm. 43 Edgar F. Smith. Dorm. 353 Class of '87. Dorm. 369 Hopkinson. 3917 Pine St. 933 Fairmount Ave. Dorm. 24 Edgar F. Smith.
Yazujian, Dikran Maruké,	Philadelphia,	526 S. 52d St.

SPECIAL STUDENTS.

Bigger, William Martin, A. B. (Westminster), M. D. (West Penn), Fallon, Joseph Francis, Gibson, George William, Hammond, Harry Herbert, M. D. (Chattanooga Med. Col.), Hopkins, Ellwood Edmondson, Jr., Lawrence, George James Joseph, A. B. (St. Francis Xavier) Mascaro, Guillermo F., Reese, Evan Iorwerth, Rosemont, Charles Charles, Stewart, Robert Gordon Caldwell, Tompkins, L. D., M. D. (Pennsylvania),	Monessen, Brookline, Mass., Chicopee, Mass., Van Buren, Me., Philadelphia, Flushing, N. Y., Philadelphia, do. do. Dalhousie, Canada, Trenton, N. J.	725 N. 44th St. 3411 Walnut St. 3411 Walnut St. 3407 Walnut St. 118 S. 19th St. 208 S. 37th St. 5233 Baltimore Ave. 930 Locust St. 216 Montrose St. 3702 Locust St.
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Name.	Residence.	City Address.
Zollinger, John Henry, V. M. D. (Pennsylvania),	Philadelphia,	5101 Wynnefield Ave.

SUMMARY.

Post-graduate Students, Spring Course, 1905	18
Students of the Fourth-year Class	109
Students of the Third-year Class	131
Students of the Second-year Class	141
Students of the First-year Class	181
Special Students	12
Total	592

DEPARTMENT OF DENTISTRY.

THIRD-YEAR CLASS.

Name.	Residence.	City Address.
Adams, Harold Burton, Ainey, Albert Earle,	New York, N. Y., Brooklyn,	3350 Walnut St. Dorm. 455 New York Alumni.
Aller, Thomas Gustin, Jr., Barnett, Harry, Barone, Floyd Leech, Barry, Walter Francis Leo, Baxter, James Le Roy, Bechtold, August Charles, Beltrami, Georges Emile Themistocle (D. E. O. F.) M. D. (Paris),	Brooklyn, N. Y., New York, N. Y., Watertown, N. Y., Orange, N. J., Newark, N. J., Brooklyn, N. Y., Paris, France,	3435 Walnut St. 3257 Sansom St. 3340 Lancaster Ave. Philadelphia Hospital. Dorm. 401 Brooks. Dorm. 501 Baldwin. 233 S. 33d St.
Bendernagel, James Franklin, Jr.,	Brooklyn, N. Y.,	Dorm. 501 Baldwin.
Bertelson, Elmer, Borkin, Israel,	Fergus Falls, Minn., Minsk, Turow, Russia,	3731 Spruce St. 753 S. 15th St.
Boudy, Clotaire Marie, (D. E. D. P.) Chirurgien Dentiste (Paris),	Paris, France,	213 S. 33d St.
Bowers, Robert Charles, Brigham, Arthur Foster, Brosnan, John Joseph, Burke, Michael Richard, Cann, John Albert, Cauhépe, Georges (D. E. O. F.), Chirurgien Dentiste (Paris),	Bartow, Fla., Brockton, Mass., Wallingford, Conn., Cohoes, N. Y., Wilmington, Del., Paris, France,	3435 Walnut St. 3610 Walnut St. Philadelphia, Hospital 207 S. 33d St. [906 Van Buren St.] 122 S. 33d St.
Chandler, Joseph White, Chapman, Edward Hunger- ford, M. A. C. D. (Victoria), Collins, William Henry True- man, D. D. S. (Penna. Dental College),	Newark, N. J., Ballarat, Victoria, Australia, Philadelphia,	Dorm. 26 Morgan. 3610 Walnut St. 900 Spruce St.
Dailey, Grover Elmer,	Gloversville, N. Y.,	Dorm. 46 Edgar F Smith.
Davies, George Johnston,	South Orange, N. J.,	Dorm. 46 Edgar F Smith.
Dewhurst, Edward Bury,	Sydney, N. S. W., Australia,	214 S. 37th St.
Dressor, Chauncey Ely, Duz, Micaël Arsène, (D. E. D. P.), Chirurgien Dentiste (Paris),	South Bethlehem, Paris, France,	3707 Woodland Ave. 105 S. 34th St.
Edwards, Henry Osborne, (D. E. O. F.) Chirurgien Den- tiste (Paris),	Biarritz, France,	108 S. 33d St.
Farnham, Robert Henry,	Westerly, R. I.,	3350 Walnut St.

Name.	Residence.	City Address.
Feldman, Bernard,	Newark, N. J.,	3258 Chancellor St.
Feldman, Harold Clarence,	New York, N. Y.,	3735 Spruce St.
Forestner, Edward Frederick,	Cincinnati, Ohio,	3611 Locust St.
Francis, John Richard, Jr.,	Washington, D. C.,	Dorm. 49 Morgan.
Fuchs, William Joseph,	Brooklyn, N. Y.,	3731 Spruce St.
Galbraith, Edward Carroll,	Plainfield, N. J.,	3257 Locust St.
Goyheneix, Jean Germain, (D. E. D. P.) Chirurgien Den- tiste (Paris),	Paris, France,	105 S. 34th St.
Gibbs, Thomas Errington, L. D. S. (England),	London, England,	3309 Walnut St.
Gibson, Edwin Lawrence,	Washington,	3610 Walnut St.
Gleason, Stuart Birch,	Passaic, N. J.,	3702 Spruce St.
Greenberg, William Bradford,	Waterbury, Conn.,	3604 Walnut St.
Greenspan, Leon James,	Volima, Russia,	2432 S. Reese St.
Goldwater, Arnold Tyroler,	New York, N. Y.,	210 S. 36th St.
Hart, Charles Joseph,	Philadelphia,	2205 Venango St.
Haskins, Guy,	Christchurch, New Zealand,	3610 Walnut St.
Hay, Leslie Miller,	Cohoes, N. Y.,	3303 Walnut St.
Henson, Douglas Ottinger,	Philadelphia,	4833 Germantown Ave
Hettig, Arthur Florian,	Rochester, N. Y.,	3266 Sansom St.
Highton, Herbert Cragg, L. D. S. (England),	Southport, England,	3309 Walnut St.
Holden, Dana Allen,	Chester, Vt.,	3256 Walnut St.
Holland, Mervyn Arthur,	Brisbane, Australia,	3350 Walnut St.
Houchin, Victor Stanley, L. D. S. (England),	Ilford, Essex, England,	3309 Walnut St.
Houston, David Pickens,	Lewisburg, Tenn.,	3305 Walnut St.
Huber, Dawson Heather,	Scranton,	4226 Chester Ave.
James, Herbert Henning, L. D. S. (England),	London, England,	3309 Walnut St.
Jenkins, Sterling Herbert,	Charleston, S. C.,	1723 Bainbridge St.
Jereissati, Khalil Moosa,	Zahleh, Syria,	1035 Chestnut St.
Jones, Walter Edwin,	Bridgeport, Conn.,	3610 Walnut St.
Kennedy, Edward,	Philadelphia,	2042 Master St.
Kitchenman, John,	do.	2434 N. Howard St.
Kreidel, Emanuel Zebastian,	Ellensburg, Wash.,	3350 Walnut St.
Leaming, Lewis Cresse,	South Dennis, N. J.,	3610 Walnut St.
Lewis, Arley Caryl,	Middleburgh, N. Y.,	23 S. 34th St.
Ley, William Bell,	Elizabeth, N. J.,	Dorm. 45 Memorial.
Lipschutz, Solomon Hirsh,	Philadelphia,	1419 Diamond St.
McAteer, John Lynch,	Paterson, N. J.,	3257 Locust St.
McAuliff, Walter Van Ben Schoten,	East Hampton, L. I., N. Y.,	Dorm. 455 New York Alumni.
McKone, Nicholas Joseph,	Hartford, Conn.,	3350 Walnut St.
Mallon, James Raymond,	Philadelphia,	1935 N. 7th St.
Martens, William George,	Brooklyn, N. Y.,	3610 Walnut St.
*Merkle, Albert Edward,	Tidioute,	3319 Walnut St.

*Not in attendance.

STUDENTS.

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Name.	Residence	City Address.
Merriman, Angier Clarence,	Topsham, Me.,	3705 Woodland Ave.
Mussatti, Silvio Attilio, M. D. (Turin),	Torino, Italy,	1001 S. 11th St.
Nesbit, Melville David,	Lewisburg,	1714 Race St.
Nettleton, George Hiram, Ph. B. (Yale),	New Haven, Conn.,	3610 Walnut St.
O'Connor, George Gregg,	Margaretville, N. Y.,	126 S. 34th St.
Okumura, Tsurukichi, Dentist (Tokio),	Tokyo, Japan,	3475 Sansom St.
Ozaki, Marezo,	Hiraka, Nagano- ken, Japan,	3445 Woodland Ave.
Painter, Merle Elmer,	Carbon Black,	3266 Sansom St.
Palitz, Albert,	New York, N. Y.,	3316 Woodland Ave.
Petlow, Edward Haddock,	Trenton, N. J.,	3600 Walnut St.
Price, Max,	Paltava, Russia,	3316 Woodland Ave.
Pulver, George Winfield,	Hancock, N. Y.,	3435 Walnut St.
Ratzburg, Fred. A. B. (L. S. U.),	Shreveport, La.,	3610 Walnut St.
Ray, Harry Clifford,	Concord, N. H.,	307 S. 39th St.
Roberts, Harold Edwin,	Philadelphia,	420 W. Chelten Ave., Germantown.
Rousset, Pierre Jean, (D. E. D. P.), Chirurgien Dentiste (Paris),	Poitiers, France,	3442 Chestnut St.
Salgo, Adolph,	Budapest, Austro- Hungary,	630 Rush St.
Salsbury, Henry Lee,	New Haven, Conn.,	Dorm. 44 Memorial.
Sammis, William Edmund,	Brooklyn, N. Y.,	1913 Parrish St.
Sciener, Frederick Franklin, Jr.,	Newark, N. J.,	3610 Walnut St.
Schuetz, William Boltser,	Jersey City, N. J.,	Dorm. 26 Morgan.
Scott, LeRoy Lucien,	Scranton,	3600 Walnut St.
Sharpless, William Harold,	Catawissa,	3607 Locust St.
Sherlock, Thomas Francis,	Albany, N. Y.,	3350 Walnut St.
Silvers, Selah Gulick,	Jersey City, N. J.,	3257 Locust St.
Simpson, Edsall Ferrier,	Scranton,	3435 Walnut St.
Smith, Eugene Alonza,	Ellerslie, Md.,	3319 Walnut St.
Smith, Joseph Lees,	Philadelphia	3350 Walnut St.
Spangenberg, Daniel Welsh,	Washington, N. J.,	3350 Walnut St.
Spicer, Stanley Williams,	Spencer's Island, Canada,	3258 Chancellor St.
Stanesco, Georges Zacharia, (D. E. D. P.), M. D. (Roumania), Chirurgien Dentiste (Paris),	Bucarest, Roumania,	3328 Woodland Ave.
Steigerwald, Clarence Sebastian,	Philadelphia,	999 N. 5th St.
Stevens, Raymond Sperry,	Plainfield, N. J.,	3435 Walnut St.
Stevenson, William Douglas,	Seattle, Wash.,	3610 Walnut St.
Stratum, Alberic van, M. D. (Liege),	Liege, Belgium,	708 S. 49th St.
Thielman, Henry Joseph,	St. Cloud, Minn.,	Dorm. 44 Memorial.

Name.	Residence.	City Address.
Toerner, Arthur Chester,	New York, N. Y.,	3257 Sansom St.
Toumarinson, Maurice Gabriel,	Paris, France,	507 Pine St.
M. D. (Charkow, Russia), Van Ness, Ward Milton,	Bridgeport, Conn.,	Dorm. 394 New York Alumni.
Viau, Louis, (D. E. D. P.), Chirurgien Dentiste (Paris),	Paris, France,	108 S. 33d St.
Villain, Georges Leon, (D. E. D. P.), Chirurgien Dentiste (Paris),	do.	3265 Chancellor St
Waas, Milton Jacob,	Hammonton, N. J.	
Wagner, Joseph Harris,	Elizabeth, N. J.,	Dorm. 45 Memorial.
Warren, Edward Bazin,	Brooklyn, N. Y.,	Dorm. 346 McKean.
Weede, Garfield Wilson,	Sterling, Kan.,	3330 Walnut St
Wesbecher, Bernard,	New Haven, Conn.,	3435 Walnut St.
Wester, Ernest,	Newark, N. J.,	3313 Walnut St.
Wilson, Michael,	New York, N. Y.	3257 Sansom St.
Winternheim, Rudolf,	Ratingen, Germany.	3451 Chestnut St.
Wood, William Hollon,	Athol, Mass.,	3338 Chestnut St.
Wotherspoon, Hermann Guilike,	New York, N. Y.,	3459 Walnut St.
Yates, Ralph Greatrex, L. D. S. (England),	Ross, England,	3309 Walnut St.

SECOND-YEAR CLASS.

Abbott, Wilmer Atkinson,	May's Landing, N. J.,	126 S. 34th St.
Aitken, Richard Atwill, Jr.,	Hudson, N. Y.,	3411 Walnut St.
Askin, George Kent,	Pittsburg,	3319 Walnut St.
Barker, Frank Phillip Kendrick,	Gladwyne.	
Bauman, Emanuel William,	New York, N. Y.,	419 S. 20th St.
Beach, Irvin Halsey.	Jersey City, N. J.,	25 N. 38th St.
Black, Reginald,	Chatswood, N.S.W., Australia,	216 S. 37th St.
Bonawitz, Calvin Fredricke,	Reading,	3419 Walnut St.
Bortin, Eli,	Philadelphia,	612 Washington Ave
Bradley, Dwight Blackley,	Oberlin, Ohio,	3613 Locust St.
Buckley, Timothy Andrew,	Sterling, Ill.,	3267 Sansom St.
Burdick, George Albertus,	Alfred, N. Y.,	3730 Sansom St.
Burt, Cole Oliver,	Bennington, Vt.,	3271 Locust St.
Chance, Charles Willis,	Philadelphia,	912 S. 48th St.
Cooney, Thomas Sylvester,	Cohoes, N. Y.,	17 N. 34th St.
Davison, Alfred Paul,	Cambria,	1216 N. 52d St.
Dessingue, William Alfonse,	Cohoes, N. Y.	3610 Locust St.
Dillon, Arthur Hall,	Salem, N. Y.,	3610 Locust St.
Dillon, Thomas Augustine,	Holyoke, Mass.,	3435 Lancaster Ave
Donnelly, Ignatius Joseph,	Orillia, Ont., Can.,	3414 Sansom St
Dooley, Albert Thurman,	Greenfield, Mass.,	213 S. 33d St.
Dukes, Clarence,	Denton, Md.,	328 N. 42d St.

STUDENTS.

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Name.	Residence.	City Address.
Dwyer, Walter John,	Holyoke, Mass.,	3435 Lancaster Ave.
Entriken, James Carroll,	Malvern.	
Ervin, John Jeremiah,	Elmira, N. Y.,	3414 Sansom St.
Filbert, Edward Sell,	Pottsville,	Dorm. 213 Foerdener.
Fiordelmondo, Gualtiero,	Rome, Italy,	3407 Walnut St.
M. D. (Rome),		
Flatley, Edward Richard,	Philadelphia,	414 S. 8th St.
Flint, George Melville,	Wilkinsburg,	3610 Walnut St.
Freeman, Henry Doane,	Dover, N. H.,	3435 Walnut St.
Galligan, James Joseph,	Philadelphia,	1638 S. 20th St.
Goldman, Matthew Manasseh,	Newark, N. J.,	419 S. 20th St.
Gowen, Clarence LeRoy,	Hartford, Conn.,	25 N. 38th St.
Grim, Clarence Breneiser,	Reading,	3347 Woodland Ave.
Hales, Norman St. Clair,	Wellington, New Zealand,	405 N. 33d St.
Hammond, Ralph Gookin,	New York, N. Y.,	Dorm. 144 Carruth.
Herrington, Charles Raymond,	Danville,	205 S. 33d St.
Hodder, Charles Arlington,	Gloversville, N. Y.,	122 S. 34th St.
Hollenback, William Marshall,	Philipsburg,	3330 Walnut St.
Hollsberg, Edgar Harvey,	Bellvale, N. Y.,	Dorm. 36 Morris.
James, Lee Roy,	Beardstown, Ill.,	3411 Walnut St.
Jones, William Bailey,	Palmer, Mass.,	202 S. 40th St.
Kellogg, George Forrester,	Tiverton, R. I.,	3271 Locust St.
Kirby, Thomas Edward,	Chicopee, Mass.,	23 S. 34th St.
Krielsheimer, Leo Max,	New York, N. Y.,	Dorm. 54 Edgar F. Smith.
Lieberman, Fred Percy,	Phillipsburg, N. J.,	209 S. 33d St.
Lombard, Henry Frederic,	Springfield, Mass.,	3350 Walnut St.
Longwell, John Burt,	Warwick, N. Y.,	3330 Walnut St.
Lowndes, William Asbury,	Cobleskill, N. Y.	23 S. 34th St.
McCormick, Francis Lenes,	Troy, N. Y.,	3435 Walnut St.
McKone, John Acquin,	Hartford, Conn.,	3350 Walnut St.
McPherson, Hobart Philo,	Le Roy, N. Y.,	3610 Walnut St.
Marr, Alfred Fyvie,	Woolahra, Sydney, N. S. W., Australia,	214 S. 37th St.
Merriam, Robert Frank,	Springfield, Mass.,	3473 Sansom St.
Miller, Preston Emmet,	Chicago, Ill.,	3610 Walnut St.
Millett, Eli Frank,	Springfield, Mass.,	3802 Locust St.
Molineaux, Leslie Merlin,	Christchurch, New Zealand,	405 N. 33d St.
Moreland, Harry Thomas,	Wilmington, Del.,	[1211 W. 4th St.]
Moreno, Armando,	Santiago, Chile,	3222 Sansom St.
Morris, John Russell,	Dillsburg,	105 S. 34th St.
Müller, Waldemar Alfred,	Brooklyn, N. Y.,	3313 Walnut St.
Nespoulous, Paul Louis,	Rodez, France,	3422 Sansom St.
M. D. (Paris),		
Newman, Fred Taylor,	Brooklyn, N. Y.,	223 S. 33d St.
Nicholson, Frank Villeneuve,	Brisbane, Queensland, Australia,	216 S. 37th St.
Nuffort, Frederick William,	Newark, N. J.,	3271 Locust St.

Name.	Residence.	City Address.
Oliver, Clarence Merrill,	Brockton, Mass.,	3610 Walnut St.
Owens, John Sadler,	Camden, N. J.,	[108 N. 5th St.]
Papp, Dezzo,	Budapest, Hungary,	255 S. 37th St.
Parker, Ralph Snellgrove,	North Sydney, N. S. W., Australia,	3730 Sansom St.
Parker, Robert Marinus,	Clarks Green,	4511 Chester Ave.
Peeso, Frank Walsworth,	Philadelphia,	4251 Regent Square.
Peyser, Michael,	New York, N. Y.,	Dorm. 48 Morgan.
Porteous, Hugh Templeton,	Auckland, New Zealand,	3714 Locust St.
Quintero, James Thompson, A. B. (Lyons),	Lyons, France,	Dorm. 42 Memorial.
Ros, Eligio Federico,	San Juan, Porto Rico,	3331 Walnut St.
Ros, Leonardo,	Santiago, Cuba,	do.
Schaeffer, William Henry,	Kutztown,	3347 Woodland Ave.
Senior, Eugene,	Port of Spain, Trinidad, B. W. I.,	3603 Locust St.
Shaddock, Alfred Cole,	Rochester, N. Y.,	122 S. 34th St.
Sierra Mendoza, Arturo, Dentista (Chile),	Santiago, Chile,	3708 Spruce St.
Singleton, Daniel Richmond,	Brooklyn, N. Y	Dorm. 42 Edgar F. Smith.
Solomon, Francis Hemsath,	Zehner,	3712 Spruce St.
Soverel, Floyd Douglas,	East Orange, N. J.,	Dorm. 382 Lippincott.
Sprague, Newman Elgean,	Inwood, L. I., N. Y.,	3610 Walnut St.
Stowe, George Amos,	Hopkinsville, Ky.,	24 S. 34th St.
Sullivan, Maurice Raphael,	Thompsonville, Conn.,	211 S. 33d St.
Thomas, Howard James,	Trenton, N. J.,	3417 Walnut St.
Wagg, John Alvin,	Manasquan, N. J.,	3430 Sansom St.
Wallace, William Robert James,	Canandaigua, N. Y.,	Dorm. 16 Morris.
Williams, Sloat Fassett,	Troy,	24 S. 34th St.
Yoder, Frederick Solomon,	Wernersville,	Dorm. 38 Bodine.

FIRST-YEAR CLASS.

Alling, Eugene Sereno, Jr.,	New Haven, Conn.,	5308 Ludlow St.
Balderston, George Egerton Brenton,	Vancouver, B. C.,	109 S. 34th St.
Barney, Frank Giles,	Springfield, Mass.,	126 S. 34th St.
Bassett, Arthur Edward,	Swarthmore.	
Becht, Herbert Anthony,	The Hague, Holland,	Dorm. 22 Morris.
Bergen, Theodore Arnoux,	Paterson, N. J.,	3257 Locust St.
Bostwick, William Wallace, Jr.,	Coshocton, Ohio,	3320 Walnut St.
Bransfield, Jerrold Francis,	Portland, Conn.,	3412 Ludlow St.
Brosius, James Albert,	Sunbury,	3310 Woodland Ave
Byrnes, William James,	Pittsfield, Mass.,	3346 Lancaster Ave.
Cairns, Frank Aloysius,	Newark, N. J.,	3413 Walnut St
Caminha, Brenno Amaro,	Uruguayana, Brazil,	3406 Sansom St.

STUDENTS.

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Name.	Residence.	City Address.
Carcassés, Juan Bautista y Acosta,	Santiago, Cuba,	3331 Walnut St.
Cliphsham, Paul, Jr.,	Sydney, N. S. W., Australia,	111 S. 34th St.
Colborn, Clarence Roth,	Ashley,	3440 Walnut St.
Cole, Charles Monford,	New York, N. Y.,	126 S. 34th St.
Collier, Frederic,	Bordentown, N. J.,	3725 Locust St.
Courtright, James Wells,	Wilkes Barre,	Dorm. 13 Morris.
Crane, Benjamin Wallace,	Morristown, N. J.,	3713 Locust St.
Criley, Ellsworth Theodore,	Jersey City, N. J.,	Dorm. 146 Carruth.
Davis, Harold Whitney,	Middletown, Conn.,	Dorm. 343 McKean.
Deaney, John Thomas,	New York, N. Y.,	Dorm. 50 Morris.
Devine, Edmund Attwell,	Cornwall,	Dorm. 386 Lippincott
Echternach, Elmer Girvin,	Lancaster,	Dorm. 437 Baird.
Eckert, Cornelius Bevier,	Smethport,	3435 Walnut St.
Edmondson, Charles Franklin,	Danville,	Dorm. 147 Carruth.
Edwards, Jonas Livermore,	Williamstown, N. J.	
Epstein, Albert Marcus,	Philadelphia,	768 S. 6th St.
Farmer, Glen Packard,	Gouverneur, N. Y.,	3617 Locust St.
Flanagan, James Anthony,	Ashland,	3255 Locust St.
Fox, Hugh Francis,	Newark, N. J.,	207 S. 33d St.
Gallagher, Patrick Joseph,	Jessup,	3328 Walnut St.
Gardner, Frank Henry,	Glenham, N. Y.,	3725 Locust St.
Gates, Paul,	Lebanon,	2132 N. 13th St.
Gavin, John Joseph,	Cohoes, N. Y.,	209 S. 33d St.
Godfrey, Edward Carl,	Dover, N. H.,	Dorm. 49 Bodine.
Gormley, Thomas Augustus,	Providence, R. I.,	3727 Spruce St.
Grant, William Arthur Garfield,	Wilkesbarre,	3420 Sansom St.
Guthrie, Percy Harold Lyndsay,	St. James, Trinidad, B. W. I.,	3609 Locust St.
Hahn, Morton Seward,	Philadelphia,	5131 Chestnut St.
Harshberger, Lloyd Frank,	New Albany,	3707 Woodland Ave.
Hequembourg, Albert Draper,	Dunkirk, N. Y.,	Dorm. 432 Class of '87
Herdocia, George,	Leon, Nicaragua,	3331 Walnut St.
Hergenhahn, August Ernest,	Wilkes Barre,	3431 Walnut St.
Hertz, William Hughes,	Hazleton,	3440 Walnut St.
Hunt, Clarence Leigh,	Fort Smith, Ark.,	Dorm. 21 Edgar F. Smith.
Hunter, George Scott,	Hartford, Conn.,	3318 Arch St.
Jones, Arthur Thomas,	London, England,	3309 Walnut St.
Jones, Earl William,	Ebensburg,	23 S. 34th St.
Kendrick, Howard Warren,	Worcester, Mass.,	3257 Sansom St.
Kennedy, James Francis,	do.	3731 Spruce St.
Kistler, Daniel Koehl,	Allentown,	Dorm. 208 Leidy.
Kistler, Howard Simpson,	do.	do.
Kraemer, Frederick Oscar, Jr.,	Brooklyn, N. Y.,	3743 Spruce St.
Lenderman, Isaac Stidham,	Wilmington, Del.,	[609 W. 9th St.]
Lyll, Arthur Leslie,	Quirindi, N. S. W., Australia,	3434 Walnut St.

Name.	Residence.	City Address.
McCarthy, Charles H., McMahon, Harold Comins, McNally, Percy Byron,	Waterbury, Conn., Brewer, Me. Fredericton, N. B., Canada,	223 S. 37th St. Dorm. 41 Morgan
Milam, Clarence K., Myrose, Ross Robert, Neumüller, Ernest Joseph, Noonan, Thomas William, Oliver, William Blaine, Ovelman, Charles Herbert, Peifly, Oliver Herbert, Pope, Frank Oscar,	Paducah, Ky., Hammonton, N. J. Lansford, Housatonic, Mass., Oak Ridge, N. J., Altoona, Egypt, Christchurch, New Zealand,	3611 Locust St. 109 S. 40th St. 3332 Walnut St. 3265 Chancellor St 24 S. 34th St. 3244 Sansom St. 3406 Sansom St.
Pyle, Douglas Fleet, Raver, Leon John, Rehrig, John Edward, Richards, Calvin Willard, Jr., Ruickoldt, Cuno Frank, Rundle, Lester Vincent, Russell, Maurice Wheeler, Ryan, Charles Hills,	Brooklyn, N. Y., Shamokin, Mauch Chunk, Orangeville, Utah, New Haven, Conn., Montague, N. J., Augusta, Me., Lakeside, N. B., Canada,	3707 Locust St. 3607 Locust St. 18 N. 38th St. 525 N. 32d St. 3313 Walnut St. 3244 Sansom St. 3240 Chestnut St. Dorm. 27 Bodine.
Samter, Paul Victor, Seely, Charles Blanchard, Jr., Shirley, Thomas Clifton Forsythe,	Philadelphia, Jersey Shore, Newark, N. J.,	515 Fairmount Ave. Dorm. 502 Baldwin. Dorm. 35 Memorial.
Singer, Louis Thomas, Smith, David Scull, Smith, Harold Llewellyn,	Brooklyn, N. Y., Camden, N. J., Portland, Me.,	223 S. 33d St. [115 N. 3d St.] Dorm. 44 Edgar F Smith.
Snyder, Stanley Arleigh, Spring, James Joseph, Stark, Adolph Burton, Stiles, Charles Gowdy, Storey, Stanley Runton, Strauss, Robert Todd, Stow, Reginald Heber, Syme, Carl Augustus,	Liverpool, Fitchburg, Mass., Greenfield, Mass., Lansingburgh, N.Y., Hull, England, Orrville, Ohio, Cromwell, Conn., Sydney, N. S. W., Australia,	18 N. 38th St. 3332 Walnut St. 213 S. 33d St. 3320 Walnut St. 3434 Sansom St. 223 S. 33d St. 310 S. 10th St. 3416 Sansom St.
Thompson, William Espy, B. Sc. (Bucknell), Tibbs, Frederick Charles,	Philadelphia, Auckland, New Zealand,	526 S. 2d St. Dorm. 47 Bodine.
Tipperry, Guy S., Twitmire, Wilber Donahue, Walls, Raymond Marcus, Watts, William, Welch, Michael Joseph,	Altoona, Belleville, Vineland, N. J., Newark, N. J., Montague City, Mass., Allentown,	3745 Spruce St. Dorm. 431 Class of '87 3223 Mt. Vernon St. Dorm. 35 Memorial. 213 S. 33d St.
Wessner, George Alfred,	Allentown,	Dorm. 25 Edgar F Smith.

STUDENTS.

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Name.	Residence.	City Address.
Wight, Verne Whitney,	Gouverneur, N. Y.,	3617 Locust St.

SPECIAL STUDENTS.

Azambuja, Jeronymo Xavier de,	Uruguayana, Brazil,	3305 Walnut St.
Bailey, Edgar, D. D. S. (Iowa),	Charles City, Ia.,	122 S. 34th St.
Benson, John Dunn, D. D. S. Pennsylvania.	Rylstone, N. S. W., Australia,	3704 Baring St.
Bock, Julius, M. D. (Nürnberg), Zahnarzt (Germany),	Nuremberg, Germany,	3320 Walnut St.
Bowater, William, L. D. S. (England),	Birmingham, England.	
Carpentier, Paul, M. D. (Paris),	Bergues, France,	122 S. 33d St.
Crouch, Francis Harrie,	Orange, N. S. W., Australia,	3415 Walnut St.
Descoffre, Frederic Charles, (D. E. D. P.), Chirurgien Dentiste (Paris),	Versailles, France,	927 Pine St.
Diaz, Pedro Antonio, Dentista (Chile),	Santiago, Chile,	3708 Spruce St.
Frank, Carlton Byford, D. D. S. Pennsylvania.	Niagara Falls, N. Y.,	3256 Walnut St.
Larkin, George Nicholas,	Sydney, N. S. W., Australia,	"The Sherwood."
Mayerhoffer, Friedrich, Zahnarzt (Germany),	Hamburg, Germany,	3311 Walnut St.
Nevrezé, Bertrand de, M. D. (Paris),	Paris, France,	211 S. 33d St.
Pinheiro, Carlos Castrioto, Cirurgião Dentista (Rio de Janeiro),	Rio Janeiro, Brazil,	3326 Walnut St.
Retallack, William Charles, L. D. S. (England),	Southwick, England.	
Rogers, Lewis Hely,	Brisbane, Queens- land, Australia,	4105 Chester Ave.
Springer, Hans, M. D. (Graz), Zahnarzt (Vienna),	Meran, Austria,	3416 Sansom St.
Stevenson, Edward Stuart, D. D. S. Pennsylvania,	Auckland, New Zealand,	6045 Market St.
Zunini, Giulio Cesare, M. D. (Rome),	Rome, Italy,	3422 Sansom St.

SUMMARY.

Students of the Third-year Class	122
Students of the Second-year Class	91
Students of the First-year Class	98
Special Students	19
Total	330

DEPARTMENT OF VETERINARY MEDICINE.

THIRD-YEAR CLASS.

Name.	Residence.	City Address.
Biles, Charles Ross, Jr.,	Providence, Md.,	748 N. 41st St.
Bruner, Samuel Eshleman,	Gettysburg,	do.
Bushong, Joseph Parke,	West Grove,	3924 Pine St.
Falls, Francis,	Port Deposit, Md.,	3913 Woodland Ave.
Fox, William Walmer,	Hummelstown,	3913 Woodland Ave.
Grauch, Charles John,	Mantua, N. J.	
Greenfield, George Winchester,	Philadelphia,	45 Saunders Ave.
Gregory, John Edgar,	Gilberts,	3711 Woodland Ave.
Guilfoyle, Harold Napoleon,	Norwood.	
Hall, Adrian Vale,	Greenville, N. H.,	3610 Locust St.
Helm, Charles Blain,	Camden, N. J.	
Henneberger, Warren Bitner,	Greencastle,	3921 Pine St.
Keller, Frank Michael,	Baltimore, Md.,	Dorm. 204 Brooks.
Kelly, Thomas,	Philadelphia,	1204 Pine St.
Lockett, Stephen,	Moneague, Jamaica,	3731 Woodland Ave.
McKibbin, David, Jr.,	Philadelphia,	2844 D St.
Mackie, Clement Leroy,	Fair Hill, Md.,	Vet. Hospital.
Maguire, Frank Carroll,	Birmingham, Ala.,	3939 Baltimore Ave.
Maloney, Michael John,	Ashland,	3605 Market St.
Page, Samuel Moses,	Concord, N. H.,	Dorm. 204 Brooks.
Reichel, John,	Cincinnati, Ohio,	3702 Spruce St.
Rile, Edward Aaron,	Blue Bell,	3723 Spruce St.
Rockwell, Clarence Samuel,	Philadelphia,	2004 Mt. Vernon St.
Schneider, Harry Adam,	Bethel,	3921 Pine St.
Staley, Raymon Maxwell,	Philadelphia,	3913 Woodland Ave.
Taylor, Robert Emerson,	Nichols, N. Y.,	2004 Pine St.
Veit, William,	West Chester.	
Williams, Herbert Stephens,	Glenolden,	Vet. Hospital.
Winner, Harry Sherman,	Warrens ville,	3921 Pine St.
Yunker, Elkan Henly,	Philadelphia,	1321 N. Marshall St.
Zilligen, Joachim Joseph,	Golden, Col.,	3330 Walnut St.

SECOND-YEAR CLASS.

Acosta, José Tiburcio de,	Havana, Cuba,	3914 Pine St.
Counselman, Howard Harlin,	Baltimore, Md.,	213 De Kalb Square.
Custis, Howard Hansell,	Philadelphia,	4210 Spruce St.
Easen, Thomas,	Plymouth,	3604 Locust St.
Engel, John Herman,	Baltimore, Md.,	213 De Kalb Square.
Garrett, George Matlack,	West Chester,	3605 Market St.
Graybill, Guy Martin,	E. Petersburg,	3917 Pine St.
Griffin, Michael Thomas, Jr.,	Baltimore, Md.,	Dorm. 113 Foerderer.
Hager, Howard Eckert,	Perkasie,	3932 Pine St.
Haines, William Albertson,	Edgely.	
Harte, Charlie Herbert,	Madison, Wis.	

Name.	Residence.	City Address.
Hendren, Oliver Tripple,	Philadelphia,	6619 Ridge Ave., Myk
Hope, Fred. Stott,	do.	4426 Ludlow St.
Lentz, Frank Edwin,	Hatboro.	
Lidstone, Vance Roy,	Scranton,	3914 Pine St.
McClure, Ellis Reid,	West Chester,	3605 Market St.
McCushing, Francis Patrick,	Keene, N. H.,	3921 Pine St.
Morgan, Warren Brooke,	Norristown.	
Olding, Frank Reed,	Philadelphia,	2315 E. Susquehanna.
Prouse, William Caleb,	Magnolia, Del.,	3926 Pine St.
Schoening, Harry William,	Philadelphia,	3926 Pine St.
Schloemer, Charles Conrad,	New York, N. Y.,	3713 Woodland Ave.
Schwartz, George Albert,	Hazleton,	Dorm. 239 Hopkinson.
Spitz, Arthur,	Philadelphia,	1501 N. 8th St.
Smith, Albert Newton,	Wapwallopen,	3723 Spruce St.
Smith, Arthur Nelson,	Philadelphia,	759 N. 40th St.
Wagner, Foster Andrew,	Hazleton,	3711 Woodland Ave.
Webb, William Taylor,	Kennett Square,	3932 Pine St.
Wenzell, Clifford John	Tamaqua,	3604 Locust St.
Charles,		
Wilkinson, Joseph Atkinson,	Philadelphia,	4201 Chester Ave.
Windle, Waverly Albert,	New London,	3605 Market St.
Wright, Frank Albert,	Mt. Holly, N. J.,	3723 Spruce St.

FIRST-YEAR CLASS.

Beltran, Luis Aurelio,	Santiago, Cuba,	3331 Walnut St.
Blakely, Franklin Chambers,	Medford, Mass.,	3924 Pine St.
Bolich, Harry Peter,	Ashland,	3605 Market St.
Bushong, Jesse Webster,	Kelton,	3605 Market St.
Caldwell, Robert Jackson,	Philadelphia,	1610 Chancellor St.
Devine, Paul Farrell,	Newark, N. J.,	Dorm. 248 Carruth.
Devlin, Raymond Anthony,	Philadelphia,	1615 N. 10th St.
Faivre, Charles Nicholas	do.	757 N. 24th St.
Joseph,		
Famous, George Walker,	Berwyn,	3341 Woodland Ave.
Fenstermacher, William	Bethlehem,	3708 Spruce St.
Henry,		
Harbout, George Oliver,	Titusville, N. J.,	210 Hobert St.
Harleston, John Moultrie,	Charleston, S. C.,	3323 Woodland Ave.
Hobson, Winfield B.,	Paterson, N. J.,	3430 Sansom St.
Hurley, John Arthur,	Hopewell, N. J.,	3926 Pine St.
James, Thomas D.,	Scranton,	3801 Spruce St.
Jones, Frederic Sowden,	Philadelphia,	3217 Ridge Ave.
Judd, Gerrit Parmele,	Honolulu, H. I.,	3943 Baltimore Ave.
Kerr, James Green,	McKinney, Texas,	3437 Chestnut St.
Kilgore, John Alexander,	Greensburg,	3713 Locust St.
Knight, Walter Morgan,	Camden, N. J.	
Lowa, John Karl,	Philadelphia,	York Ave. & Noble St.
McBrinn, Andrew William,	do.	2000 Ridge Ave.
McCloskey, James Augustine,	do.	8617 Germantown Av.
McHenry, Walter,	Marion Centre,	3412 Sansom St.

STUDENTS.

Name.	Residence.	City Address.
Mebane, Will Long,	Victoria, Miss.,	3928 Pine St.
Mecray, Alexander Mackenzie,	Maple Shade, N. J.	
Mitchell, Jr., Adrian Jacobus,	Erie,	3921 Pine St.
Pardue, John Joseph,	Newark, N. J.,	207 S. 33d St.
Parker, Jr., Edward Augustus,	Philadelphia,	1940 S. 13th St.
Paull, Ralph Macleod,	do.	1826 S. 17th St.
Price, Benjamin,	West Chester,	3330 Lancaster Ave.
Records, Edward, Jr.,	Hoyt,	
Ruch, Herbert Edgar,	Hellertown,	718 N. 42d St.
Ryan, Edward Thomas,	Orange, Mass.,	3924 Pine St.
Seville, Charles William,	McConnellsburg,	3921 Pine St.
Shields, Thomas,	Govanstown, Md.,	217 De Kalb Square
Smith, Arthur Ray,	Drums,	3723 Spruce St.
Smith, Frank Holden,	Worcester, Mass.,	3926 Pine St.
Taylor, Jr., John Baxter,	Philadelphia,	3223 Woodland Ave
Tegtmeier, August,	do.	1136 S. 22d St.
Thomas, James Walter,	Tuskegee Inst., Ala.,	1824 Addison St.
Welsh, Samuel Guinness,	Drifton,	1227 Markoe St.

SUMMARY.

Students of the Third-year Class.....	31
Students of the Second-year Class.....	32
Students of the First-year Class.....	42
Total	105

PART IX

DIRECTORY OF OFFICERS

DIRECTORY OF OFFICERS.

The following is a directory of all University officers, both of administration and instruction. The first address given in each case is the residence; the second, the address to which mail-matter should be directed. Where one address only is given, mail should be directed accordingly. Unless otherwise specified, all street addresses given are in the city of Philadelphia.

The figures bracketed after each name indicate the page on which the name may be found at the beginning of the Catalogue. When these figures are lacking, it is understood that the appointment or election occurred too late for record in the earlier pages.

- ABBOTT, A. C., Professor.** [31]
 4229 Baltimore Ave.
- ADAMS, J. W., Professor.** [29]
 1102 S. 46th St.
 Veterinary Hospital.
- ADDISON, W. H. F., (Dr.), Dem.** [45]
 3938 Pine St.
 Logan Hall.
- ADLER, L. H., Jr., (Dr.), Prosector.** [37]
 1610 Arch St.
- ALBURGER, H. R., (Dr.), Act. Dem.** [42]
 "The Covington," 37th and Chestnut Sts.
 Pathological Laboratory.
- ALLEN, F. W., (Dr.), Demonstrator.** [38]
 1922 Spring Garden St.
 1624 Wallace St.
- ALLYN, H. B., (Dr.), Associate.** [36]
 501 S. 42d St.
- AMEND, F., Jr., (Dr.), Asst. Dem.** [35]
 3243 Chestnut St.
- AMES, H. V., Asst. Professor.** [32]
 210 S. 37th St.
 College Hall.
- ANDRESS, W. R., (Dr.), Dem.** [41]
 2604 Ridge Ave.
- ANSFACH, B. M., (Dr.), Instructor.** [39]
 2049 Chestnut St.
- ASHHURST, A. P. C., (Dr.), Prosector.** [44]
 2000 West De Lancey Place.
- ASHTON, T. G., Adjunct Professor.** [34]
 1814 S. Rittenhouse Square.
- BABB, M. J., Instructor.** [46]
 Ardmore, Pa.
- BANKS, E. M., (Dr.), Instructor.** [46]
 3739 Locust St.
 Logan Hall.
- BARKER, H. C., Instructor.** [41]
 Collingdale, Pa.
 Physical Laboratory.
- BARKER, G. F., Prof. (Emeritus).** [27]
 3009 Locust St.
- BARR, W. M., Assistant.** [45]
 3713 Locust St.
- BARRETT, M. T., (Dr.), Dem.** [44]
 3703 Hamilton St.
- BARROWS, W. E., Jr., Instructor.** [44]
 5306 Addison St.
 Engineering Laboratory.
- BATES, W. N., Assistant Professor.** [32]
 (Absent on leave.)
 220 St. Mark's Sq.
- BEAVER, J. L., Instructor.** [46]
 4814 Florence Ave.
 Engineering Laboratory.
- BECK, J. A., Assistant.** [46]
 216 S. 37th St.
 Logan Hall.
- BERGEY, D. H., Asst. Professor.** [38]
 3965 Brown St.
 Hygiene Laboratory.
- BERRY, H. C., Instructor.** [45]
 5701 Malcombe St.
- BEYEA, H. D., (Dr.), Associate.** [37]
 1734 Spruce St.
- BIKLE, H. W., Lecturer.** [43]
 14 Summit St., Chestnut Hill.
 460 Drexel Building.
- BISPHAM, G. T., Professor.** [28]
 1805 De Lancey Place.
 900 Girard Building.
- BOGIA, R. A., (Dr.), Assistant.** [44]
 760 Preston St.
- BOHLEN, F. H., Asst. Professor.** [32]
 Sunset Ave., Chestnut Hill.
 Law School Building.
- BOLGER, T. D., Assistant.** [42]
 205 De Kalb St.
- BROWN, A. P., Professor.** [30]
 20 E. Penn St., Germantown.
- BROWN, H. W., Asst. Professor.** [34]
 4814 Florence Ave.

- BROWN, R. D., Professor. [31]
5112 Newhall St., Germantown.
328 Chestnut St.
- BRUMBAUGH, M. G., Professor. [30]
3324 Walnut St.
College Hall.
- BURKE, A. S., (Dr.), Asst. Dem. [37]
3646 Chestnut St.
- BURR, C. W., Professor. [32]
1327 Spruce St.
- BUSCH, J., (Dr.), Asst. Instructor. [44]
404 S. Broad St.
- CADBURY, W. W., (Dr.), Asst. Dem. [47]
4044 Chestnut St.
- CALVERT, P. P., (Dr.), Instructor. [36]
4003 Powelton Ave.
Biological Hall.
- CAMP, C. D., (Dr.), Assistant. [43]
1231 Christian St.
- CARNETT, J. B., (Dr.), Instructor. [40]
1318 S. 15th St.
- CARPENTER, H. C., (Dr.), Instructor. [47]
1805 Spruce St.
- CARPENTER, J. T., (Dr.), Instructor. [41]
1624 Walnut St.
- CHAMBERS, G. H., (Dr.), Asst. Dem. [35]
739 N. 17th St.
- CHEYNEY E. P., Professor. [29]
259 S. 44th St.
College Hall.
- CHILD, C. G., Asst. Professor and Decn. [32]
4237 Sansom St.
College Hall.
- CLARK, J. G., Professor. [31]
218 S. 15th St.
- CLARKE, H. A., Professor. [27]
223 S. 38th St.
College Hall.
- CLAY, Rev. A. T., Asst. Professor. [33]
415 S. 44th St.
- COLLINS, W. N., Assistant. [45]
Dorm. 333 Franklin.
- CONARD, M. E., (Dr.), Lecturer. [37]
West Grove, Pa.
- CONKLIN, E. G., Professor. [30]
4509 Regent St.
Biological Hall.
- CONWAY, T., Jr., Assistant. [46]
Lansdowne, Pa.
Logan Hall.
- CORNELL, W. S., (Dr.), Dem. [42]
1728 Chestnut St.
- CORSON, L., Assistant. [46]
Norristown, Pa.
Dorm. 111 Franklin.
- CRAWLEY, E. S., Professor. [29]
330 Springfield Ave., Chestnut Hill.
College Hall.
- CRET, P. P., Asst. Professor. [33]
3904 Locust St.
College Hall.
- CROFOOT, G. E., Instructor. [45]
3708 Spruce St.
- CROSBY, H. L., (Dr.), Instructor. [46]
3615 Locust St.
College Hall.
- CRUICE, J. M., (Dr.), Instructor. [39]
1815 Spruce St.
- CRYER, M. H., Professor. [31]
140 S. Lansdowne Ave., Lansdowne, Pa.
4280 Chestnut St.
- CUMMINS, W. T., (Dr.), Asst. Dem. [42]
Media, Pa.
1111 Spruce St.
- DALLAS, Hon. G. M., Professor. [29]
1514 Pine St.
- DARBY, E. T., Professor. [27]
N. W. cor. Chestnut and 39th Sts.
1631 Walnut St.
- DAVIS, E. Z., (Dr.), Instructor. [43]
3223 Powelton Ave.
College Hall.
- DAVIS, G. G., Associate Professor. [31]
255 S. 16th St.
- DAWSON, G. W., Instructor. [36]
3903 Sansom St.
- DIEHL, W., (Dr.), Demonstrator. [35]
1032 Spruce St.
817 Land Title Building.
- DIMICK, C. E., Instructor. [41]
49 E. Stratford Ave.
Lansdowne, Pa.
College Hall.
- DOOLITTLE, C. L., Professor. [30]
Upper Darby, Pa.
- DOOLITTLE, E., Asst. Professor. [34]
Upper Darby, Pa.
- DORLAND, W. A. N., (Dr.), Asst. Instr. [37]
126 S. 17th St.
- DORRANCE, G. M., (Dr.), Asst. Dem. [43]
328 S. 17th St.
- DORSETT, R. S., (Dr.), Asst. Dem. [41]
1105 N. 40th St.
- DOUGHERTY, S. W., (Dr.), Instr. [38]
256 S. 16th St.
- DOUGHERTY, T. H., Asst. Instr. [36]
School House Lane, Germantown.
Biological Hall.
- DOWDEN, J. A., (Dr.), Asst. Dem. [37]
3711 Spring Garden St.

- DOYLE, M. A., Instructor. [46]
3708 Spruce St.
- DUHRING, L. A., Professor. [27]
3322 Walnut St
- DULLES, C. W., (Dr.), Lecturer. [36]
4101 Walnut St.
- DUNCAN, J. C., Asst. Instructor. [48]
3958 Aspen St.
Logan Hall.
- DUNWOODY, J. E., (Dr.), Dem. [36]
Llanerch, Pa.
743 N. 40th St.
- EASBY, W., JR., Asst. Professor. [32]
Sixth and Jackson Sts., Media, Pa.
College Hall.
- EASTON, M. W., Professor. [27]
224 S. 43d St.
- EDSALL, D. L., (Dr.), Asst. Prof. [34]
1432 Pine St.
- EHLERS, H. E., Instructor. [41]
3227 N. 17th St.
Engineering Laboratory.
- EHRENFELD, F., (Dr.), Instructor. [37]
3727 Locust St.
College Hall.
- ELLIOTT, H., Instructor. [47]
3903 Sansom St.
College Hall.
- ELMER, W. G., (Dr.), Asst. Instructor. [30]
1801 Pine St.
- ENDELMAN, J., (Dr.), Lecturer. [40]
113 S. Wycombe Ave., Lansdowne, Pa.
Lock Box 1615.
- ENGE, F., Demonstrator. [36]
1332 S. Frasier St.
- EVANS, J. S., JR., (Dr.), Instructor. [42]
318 S. 15th St.
- EVANS, H. B., (Dr.), Asst. Professor. [34]
4126 Chester Ave.
College Hall.
- EVERETT, H. E., Professor. [30]
(Absent on leave.)
College Hall.
- FARR, C. B., (Dr.), Instructor. [47]
326 S. 17th St.
- FETTEROLF, D. W., (Dr.), Dem. [36]
3310 Wallace St.
- FETTEROLF, G., (Dr.), Acting Dem. [38]
330 S. 16th St.
- FIFE, C. A., (Dr.), Instructor. [48]
1927 Chestnut St.
- FISHER, G. E., Asst. Professor. [29]
120 McKinley Ave., Lansdowne, Pa.
College Hall.
- FLACCUS, L. W., (Dr.), Instructor. [46]
Dorm. 25 Bodine.
- FOGEL, E. M., Assistant Instructor. [44]
Dorm. 27 Morris.
College Hall.
- FRANCINE, A. P., (Dr.), Instructor. [40]
1404 Spruce St.
- FRAZER, J., Instructor. [43]
928 Spruce St.
Chemical Laboratory.
- FRAZIER, C. H., Professor and Dean. [31]
1724 Spruce St.
- FRY, H. P., Instructor. [40]
709 N. 16th St.
Engineering Laboratory.
- FULLER, C. A., Instructor. [46]
3708 Spruce St.
- FUSSELL, M. H., Asst. Professor. [32]
189 Green Lane, Manayunk.
- GEBHART, H., Instructor. [44]
Dorm. 48 Morris.
Engineering Laboratory.
- GERLACH, R. F., (Dr.), Asst. Dem. [30]
1416 N. 17th St.
- GIBBONS, H., Professor. [30]
405 S. 41st St.
College Hall.
- GILDERSLEEVE, N., (Dr.), First Asst. [30]
Dorm. 218 McKean.
Hygiene Laboratory.
- GILL, A. H., Instructor. [41]
5344 Osage Ave.
Engineering Laboratory.
- GILLILAND, S. H. (Dr.), Demonstrator.
Pepper Laboratory.
- GIRVIN, J. H., (Dr.), Instructor. [37]
3924 Walnut St.
- GITTINGS, J. C., (Dr.), Asst. Instr. [45]
3942 Chestnut St.
- GITHENS, T. S., (Dr.), Vol. Asst. Dem. [45]
1906 Sansom St.
1337 Pine St.
- GLASS, A., (Dr.), Lecturer. [35]
2125 Sansom St.
- GOODSPEED, A. W., Professor. [28]
4325 Sansom St.
Physical Laboratory.
- GORDON, G. B., (Dr.), Instructor. [43]
3712 Walnut St.
University Museum.
- GORE, J. T., (Dr.), Demonstrator. [41]
1640 N. 52d St.
- GRAYSON, C. P., (Dr.), Clinical Prof. [33]
251 S. 16th St.

- GREENMAN, M. J., (Dr.), Director. [25]
3618 Woodland Ave.
Wistar Institute.
- GREY, N., Lecturer. [39]
Woodbury, N. J.
127 Market St., Camden, N. J.
- GRIFFITH, J. P. C., Clinical Prof. [29]
1810 Spruce St.
- GRITMAN, A. DeW., Asst. Prof. [33]
1244 S. Markoe St.
- GWYN, N. B., Instructor. [40]
23 S. 21st St.
- HALLETT, G. H., Asst. Professor. [33]
101 E. Nyack Ave., Lansdowne, Pa.
College Hall.
- HANLEY, W. S., (Dr.), Asst. Dem. [39]
North Wales, Pa.
- HARDT, W. K., Assistant. [46]
3303 Powelton Ave.
- *HARE, Hon. J. I. C., Prof. (Emer.). [27]
188 S. 22d St.
- HARGER, S. J. J., Professor. [29]
2108 Locust St.
- HARLAND, W. G. B., (Dr.), Instr. [40]
223 S. 17th St.
- HARPER, D. R., 3d, Instructor. [44]
Rising Sun and Wyoming Aves.
Physical Laboratory.
- HARRISON, C. C., Provost. [23]
1618 Locust St.
400 Chestnut St.
- HARSHBERGER, J. W., (Dr.), Instr. [35]
737 Corinthian Ave.
- HART, J. H., Instructor. [41]
3434 Walnut St.
Physical Laboratory.
- HARTE, R. H., (Dr.), Adj. Professor. [33]
1503 Spruce St.
- HARTZELL, M. B., (Dr.), Instructor. [35]
3644 Chestnut St.
- HATFIELD, C. J., (Dr.), Asst. Instr. [42]
258 S. 18th St.
- HAWK, P. B., (Dr.), Demonstrator. [42]
4124 Chester Ave.
Hare Chemical Laboratory.
- HAYS, F. A., Instructor. [37]
Cynwyd, Pa.
1703 Chestnut St.
- HENING, C. D., Asst. Professor. [33]
330 S. 21st St.
Law School Building.
- HESSLER, L. B., Assistant. [47]
4009 Chestnut St.
- HICKEY, J. G., (Dr.), Asst. Dem. [39]
4202 Chestnut St.
- HILPRECHT, Rev. H. V., Professor. [28]
1932 Locust St.
University Museum.
- HILTS, H. E., Instructor. [45]
4221 Stiles St.
- HIRST, B. C., Professor. [28]
1821 Spruce St.
- HIRST, J. C., (Dr.), Asst. Instructor. [43]
1618 Pine St.
- HOAG, C. G., Instructor. [39]
Haverford, Pa.
- HOBENSACK, J. R., (Dr.), Asst. Dem. [37]
1706 Columbia Ave.
- HOLLOWAY, T. B., (Dr.), Instructor. [48]
4307 Baltimore Ave.
- HOSKINS, W. H., (Dr.), Instructor. [38]
3314 Powelton Ave.
3452 Ludlow St.
- HOUGH, R. H., (Dr.), Instructor. [41]
3406 Sansom St.
Physical Laboratory.
- HOULE, A. J., Instructor. [45]
150 Hobart St.
- HOWARD, E. D., Instructor. [46]
Dorm. 426 Baldwin.
Logan Hall.
- HOWLAND, A. C., Asst. Professor. [34]
441 Sansom St.
College Hall.
- HOYT, D. M., (Dr.), Asst. Dem. [41]
3604 Chestnut St.
- HUEBNER, S., Instructor. [43]
208 N. 36th St.
Logan Hall.
- HUTCHINSON, J. P., Adj. Professor. [34]
1702 Locust St.
- IVES, H. C., Assistant Professor. [33]
3643 Locust St.
College Hall.
- JACO, C. H., (Dr.), Demonstrator. [42]
1901 Chestnut St.
- JARMAN, A. W., (Dr.), Demonstrator. [41]
147 W. Sharpnack St., Germantown.
1807 Chestnut St.
- JARVIS, G. O., (Dr.), Asst. Dem. [40]
310 S. 10th St.
- JASTROW, M., Jr., Prof. and Librarian. [28]
248 S. 23d St.
University Library.
- JENNINGS, H. S., Asst. Professor. [33]
4407 Sansom St.
Biological Hall.
- JOHNSON, E. R., Professor. [30]
516 S. 44th St.
Logan Hall.

*Deceased.

- JOPSON, J. H., (Dr.), Instructor. [42]
334 S. 16th St.
- JUMP, H. D., (Dr.), Instructor. [38]
4634 Chester Ave.
- KANAGA, E. L., (Dr.), Demonstrator. [47]
"Dorchester," 20th and Arch Sts.
602 Weightman Building.
- KAPP, D., (Dr.), Vol. Asst. Dem. [47]
929 Randolph St.
- KEIM, M. N., Jr., (Dr.), Asst. Dem. [35]
N. E. Cor. Arch and 21st Sts.
- KELLER, G. W., Assistant. [46]
1616 Mt. Vernon St.
Engineering Laboratory.
- KELLY, A. O. J., (Dr.), Associate. [37]
1911 Pine St.
- KELSEY, C., Assistant Professor. [34]
Mendenhall, Pa.
Logan Hall.
- KENT, R. G., (Dr.), Instructor. [43]
3608 Walnut St.
College Hall.
- KIEFER, A. W., Instructor. [45]
3745 Spruce St.
- KIRK, E. C., Professor and Dean. [30]
554 S. Lansdowne Ave., Lansdowne, Pa.
Dental Hall.
- KLINGELSMITH, M. C., (Mrs.), Libr. [25]
Biddle Law Library, Law School Building.
- KOENIG, A. O., (Dr.), Demonstrator. [38]
1324 Pine St.
- KRAUTTER, L., Jr., Assistant. [44]
1007 Lehigh Ave.
- LAIRD, W. P., Professor. [29]
S. Highland Ave., Merion, Pa.
College Hall.
- LAMBERTON, W. A., Professor. [28]
4403 Osage Ave.
- LANE, J. G., (Dr.), Demonstrator. [36]
763 N. 40th St.
- LANGDON, H. M., (Dr.), Instructor. [43]
1801 Wallace St.
1728 Chestnut St.
- LAVENSON, R. S., (Dr.), Asst. Dem. [47]
1342 Pine St.
- LAWRENCE, H. R., Asst. Treasurer. [23]
237 Park Ave., Merchantville, N. J.
400 Chestnut St.
- LEARNED, M. D., Professor. [30]
4214 Spruce St.
College Hall.
- LEE, A. P., (Dr.), Demonstrator. [42]
3403 Chestnut St.
- LEOPOLD, S., (Dr.), Vol. Asst. Dem. [44]
1632 Franklin St.
- LEVI, I. V., (Dr.), Asst. Instructor. [45]
1733 N. 16th St.
- LEWIS, W. D., Professor and Dean. [31]
"Awbury," Germantown.
Law School Building.
- LINDSAY, S. McC., Professor. [30]
238 S. 38th St.
Logan Hall.
- LINGELBACH, W. E., Asst. Prof. [32]
246 S. 44th St.
- LODHOLZ, E., (Dr.), Asst. Dem. [39]
3103 Diamond St.
- LOEB, L., Assistant Professor. [34]
1728 Chestnut St.
Pathological Laboratory.
- LOSSE, L. H., Instructor. [47]
428 School Lane, Germantown.
- LUTHER, J. W., (Dr.), Instructor. [42]
412 S. 15th St.
- LYLE, W. T., Instructor. [40]
5019 Osage Ave.
College Hall.
- MCADAM, D. J., Assistant. [45]
206 S. 37th St.
- MCCARTHY, D. J., Professor. [34]
1329 Spruce St.
- MCCLAIN, J. A., (Dr.), Demonstrator. [39]
4814 Baltimore Ave.
- MCCONNELL, H. W., Instructor. [36]
Clementon, N. J.,
College Hall.
- MCCONNELL, J. W., (Dr.), Instructor. [42]
638 N. 40th St.
- MCCUTCHEON, T. P., Jr., Instructor. [43]
505 Locust Ave., Germantown.
3533 Locust St.
- MCDANIEL, W. B., Asst. Professor. [32]
4421 Sansom St.
- MCKAY, W. W., (Dr.), Demonstrator. [41]
4315 Baltimore Ave.
1831 Chestnut St.
- MCKENZIE, R. T., (Dr.), Professor and
Director. [34]
121 S. 18th St.
University Gymnasium.
- *McMASTER, J. B., Professor. [27]
3805 Locust St.
- McMICHAEL, C. F., Asst. to Provost. [23]
1928 Pine St.
400 Chestnut St.

*Absent on leave.

- McPHERSON, HOW. J. B., Professor. [31]
2216 Walnut St.
U. S. Court, P. O. Building.
- MACFARLANE, J. M., Professor. [29]
4320 Osage Ave.
Biological Hall.
- MANGOLD, G. B., Instructor. [46]
3721 Locust St.
Logan Hall.
- MARBURG, E., Professor. [29]
4319 Baltimore Ave.
College Hall.
- MARSH, W. C., (Dr.), Asst. Dem. [37]
3754 Powelton Ave.
- MARSHALL, C. J., (Dr.), Dem. [37]
2004 Pine St.
- MARSHALL, J., Professor. [29]
1718 Pine St.
N. E. Cor. 36th and Spruce Sts.
- MARTIN, E., Clin. Professor. [29]
1506 Locust St.
- MEADE, E. S., Assistant Professor. [34]
Hammonton, N. J.,
Logan Hall.
- MEIGS, E. B., (Dr.), Assistant. [44]
1322 Walnut St.
- MELLOR, W., Instructor. [44]
2132 E. Cumberland St.
- MERRICK, J. H., Secretary. [23]
5500 Wayne Ave., Germantown.
College Hall.
- MEYER, J. F., (Dr.), Instructor. [41]
3406 Sansom St.
Physical Laboratory.
- MIKELL, W. E., Assistant Professor. [31]
366 Church Lane, Germantown.
Law School Building.
- MILLIKEN, G. G., Asst. Professor. [31]
4020 Baring St.
1524 Chestnut St.
- MILLS, C. K., Professor. [29]
1909 Chestnut St.
- MOORE, J. P., (Dr.), Instructor. [35]
3215 Sumner St.
Biological Hall.
- MORRIS, J. J., Instructor. [36]
2929 Girard Ave.
- MORTON, G. D., (Dr.), Asst. Instr. [38]
Moore, Pa.
250 Bullitt Building.
- MOXEY, E. P., Jr., Assistant. [43]
7123 Boyer St., Mt. Airy.
Logan Hall.
- MUIR, E. S., (Dr.), Instructor. [36]
2145 N. 2d St.
- MÜLLER, G. P., (Dr.), Instructor. [42]
314 S. 15th St.
- MUMFORD, E. W., Burner. [23]
223 Buckingham Place.
College Hall.
- MUSSER, J. H., Professor. [28]
1927 Chestnut St.
- NEILSON, T. R., Clin. Professor. [31]
123 S. 17th St.
- NEWBOLD, H. A., (Dr.), Asst. Dem. [38]
3907 Walnut St.
- NEWBOLD, W. R., Professor. [30]
3739 Locust St.
College Hall.
- NICHOLSON, W. R., (Dr.), Instructor. [38]
350 S. 15th St.
- NITZSCHE, G. E., Mgr. (Bur. of Pub. [25]
Hamilton Court.
Houston Hall.
- NOLAN, T., Assistant Professor. [34]
212 De Kalb Sq.
- NORRIS, C. C., (Dr.), Instructor. [40]
1503 Locust St.
- NORRIS, H., (Dr.), Asst. Dem. [41]
232 S. 22d St.
- NORRIS, R. C., (Dr.), Asst. Prof. [33]
500 N. 20th St.
- OSBORNE, C. F., Instructor. [39]
4315 Sansom St.
- OSTHEIMER, M., (Dr.), Instructor. [40]
225 S. 20th St.
- PANCOAST, H. K., (Dr.), Lecturer. [39]
3211 Baring St.
- PATEN, S. N., Professor. [28]
202 S. 41st St.
Logan Hall.
- PATERSON, G. S., Professor. [30]
1823 De Lancey Place.
Broad St. Station.
- PATTON, J. W., Professor. [31]
3918 Spruce St.
Law School Building.
- PAYNE, W. J., Instructor. [46]
3708 Spruce St.
- PAYNTER, G. J., (Dr.), Dem. [38]
1417 N. 18th St.
- PEARSON, L., Professor and Dean. [29]
232 S. 38th St.
Logan Hall.
- PEESO, F. A., (Dr.), Lecturer. [44]
4251 Regent St.
3340 Walnut St.
- PENNIMAN, J. H., Prof. and Dean. [30]
4326 Sansom St.
College Hall.

DIRECTORY OF OFFICERS.

655

- PENROSE, R. A. F., Prof. (Emeritus). [27]
1331 Spruce St.
- PEPPER, W., (Dr.), Instructor. [39]
1811 Spruce St.
- PEPPER, G. W., Professor. [29]
7730 Pine St.
1438 Land Title and Trust Bldg.
- PERRY, S. G., (Dr.), Lecturer. [37]
1438 Land Title and Trust Bldg.
46 W. 37th St., New York City.
- PIERSOL, G. A., Professor. [28]
4724 Chester Ave.
- PIERSON, W. W., Instructor. [43]
Dorm. 345 McKean.
Logan Hall.
- POSEY, W. C., (Dr.), Students' Ophthalmologist. [24]
1835 Chestnut St.
- POTTS, C. S., (Dr.), Associate. [35]
1733 Chestnut St.
- QUICKSALL, W. E., (Dr.), Asst. Dem. [40]
5121 Baltimore Ave.
- QUINN, A. H., Asst. Professor. [33]
4415 Sansom St.
College Hall.
- RANDALL, B. A., Clin. Professor. [29]
1717 Locust St.
- RANDALL, (Miss) S. W., Asst. Libr. [24]
Chestnut Hill.
University Library.
- RANDOLPH, S. F., Instructor. [41]
1956 N. Patton St.
- REICHERT, E. T., Professor. [28]
8112 St. Martin's Lane, Chestnut Hill.
Medical Laboratories.
- RENNERT, H. A., Professor. [29]
4408 Chestnut St.
- RHEIN, M. L., (Dr.), Lecturer. [36]
38 E. 61st St., New York City.
- RICHARDS, H. C., (Dr.), Asst. Prof. [33]
4812 Fairmount Ave.
Physical Laboratory.
- RIESMAN, D., (Dr.), Associate. [36]
1624 Spruce St.
- RIVINUS, F. M., Assistant. [47]
2119 De Lancey St.
- ROBERTS, N. L., (Dr.), Demonstrator. [47]
5634 Girard Ave.
- ROBERTS, O. J., Asst. Professor.
401 Hale Building.
- ROBRECHT, J. J., (Dr.), Asst. Dem. [38]
3906 Chestnut St.
- ROCHELLE, P. DE L., Assistant. [47]
1525 Chestnut St.
- ROLFE, J. C., Professor. [32]
4400 Chestnut St.
- ROTHROCK, J. T., Professor. [27]
(Absent on leave.)
West Chester, Pa.
- ROWE, L. S., Professor. [30]
Dorm. 340 McKean.
- RYAN, L. A., (Dr.), Asst. Dem. [38]
3607 Sansom St.
- SAFFORD, F. H., (Dr.), Instructor. [40]
220 De Kalb Sq.
College Hall.
- SAILER, J., (Dr.), Associate. [38]
243 S. 21st St.
- SCARLETT, R. B., (Dr.), Vol. Asst. Dem. [45]
4242 Chestnut St.
- SCHELLING, F. E., Professor. [28]
4211 Sansom St.
College Hall.
- SCHLEIF, W., (Dr.), Demonstrator. [36]
1636 Walnut St.
- SCHWATT, I. J., Asst. Professor. [31]
1226 S. 58th St.
College Hall.
- SCHWEINITZ, G. E. DE, Professor. [32]
1705 Walnut St.
- SCOTT, J. A., (Dr.), Adj. Professor. [33]
1834 Pine St.
- SEMPLE, R. C., Assistant. [45]
2320 Catharine St.
- SENSEMAN, B. F., (Dr.), Dem. [36]
1523 N. 55th St.
- SEYMOUR, R. J., (Dr.), Asst. Dem. [36]
1418 Christian St.
- SHELLY, P. V. D., Assistant. [46]
Oak Lane, Philadelphia.
College Hall.
- SHINN, O. L., (Dr.), Asst. Professor. [34]
1714 Willington St.
Chemical Laboratory.
- SHUMWAY, D. B., Asst. Professor. [31]
3809 Hamilton St.
College Hall.
- SHUMWAY, E. A., (Dr.), Instructor. [42]
1640 Green St.
2007 Chestnut St.
- SINGER, E. A., Jr., Asst. Prof. [32]
The Warwick.
- SITER, E. H., (Dr.), Instructor. [42]
2038 Locust St.
- SKILLERN, P. G., Jr., (Dr.) Asst. Dem. [47]
241 S. Arch St.

- SMITH, A. J., Professor. [32]
1006 S. 46th St.
Pathological Laboratory.
- SMITH, E. F., Prof. and Vice-Provost. [28]
3421 Walnut St.
College Hall.
- SMITH, J. R., (Dr.), Instructor. [41]
5300 Media St.
Logan Hall.
- SMITH, (Miss), M. E., Supt. Hospital. [25]
3400 Spruce St.
- SOLIS-COHEN, M., (Dr.), Instructor. [43]
4110 Parkside Ave.
- SPANGLER, H. W., Professor. [28]
4815 Springfield Ave.
Engineering Laboratory.
- SPEESE, J., (Dr.), Vol. Asst. Dem. [47]
1342 Pine St.
- SPILLER, W. G., Associate Prof. [32]
4409 Pine St.
- STAHL, B. F., (Dr.), Lecturer. [35]
1727 Pine St.
- STANFORD, J. V., Asst. Professor. [33]
350 N. 62d St.
Engineering Laboratory.
- STANNARD, J. H., Jr., Instructor. [46]
1316 Divinity Place.
- STEELE, J. D., (Dr.), Associate. [37]
N. E. Cor. 40th and Locust Sts.
- STENDEL, A., Professor. [31]
1811 Spruce St.
- STEVENS, A. A., (Dr.), Lecturer. [35]
314 S. 16th St.
- STOUT, P. S., (Dr.), Vol. Asst. Dem. [44]
5th St. and Glenwood Ave.
- SULLIVAN, J. J., Instructor. [47]
1910 Walnut St.
225 Land Title Building.
- SUTPHEN, N. E., Instructor. [48]
212 E. Willow Grove Ave., Chestnut Hill.
- SUTTON, H. A., (Dr.), Asst. Dem. [40]
Haverford, Pa.
320 S. 16th St.
- SWING, R. H. D., Asst. Professor. [33]
703 N. 40th St.
- TAGGART, W. T., (Dr.), Asst. Prof. [35]
717 Corinthian Ave.
Chemical Laboratory.
- TAYLOR, E., (Dr.), Associate. [45]
214 St. Mark's Sq.
Logan Hall.
- TEES, A., (Dr.), Demonstrator. [35]
St. Davids, Pa.
1524 Chestnut St.
- TEMPLE, W. E. S., Instructor. [44]
Dorm. 35 Morris.
- TERRY, A. G., Assistant.
216 De Kalb Sq.
- THOMAS, J. D., (Dr.), Lecturer. [35]
1122 Walnut St.
- THOMAS, T. T., (Dr.), Asst. Instr. [38]
1636 Francis St.
- TRUMAN, J., Professor. [27]
4505 Chester Ave.
- TURNER, C. R., Professor. [32]
Dorm. 169 Franklin.
- TWITMYER, E. B., (Dr.), Instructor. [38]
Dorm. 138 Hopkinson.
College Hall.
- TYSON, J., Professor. [27]
1506 Spruce St.
- UHLE, A. A., (Dr.), Asst. Instructor. [45]
1327 Jefferson St.
- VAN KAATHOVEN, J. J. A., (Dr.), Assistant
Instructor. [44]
University Hospital.
- VURPILLOT, Rev. F. J. C., Instr. [39]
205 De Kalb Sq.
- WALKER, H., (Dr.), Instructor. [40]
5429 Lansdowne Ave.
- WALLACE, D. L., Instructor. [36]
6009 Sanson St.
Chemical Laboratory.
- WALSH, J. F., (Dr.), Asst. Prosecutor. [39]
323 Penn St., Camden, N. J.
- WEEKS, S. M., (Dr.), Demonstrator. [40]
4909 Warrington Ave.
- WEISENBURG, T. H., (Dr.), Instr. [42]
2030 Chestnut St.
- WELLS, R. C., (Dr.), Instructor. [45]
2615 Locust St.
Chemical Laboratory.
- WENNER, F., Instructor.
3411 Walnut St.
Physical Laboratory.
- WESSELHOEFT, E. C., Asst. Prof. [33]
4359 Larchwood Ave.
College Hall.
- WESTCOTT, T. S., (Dr.), Instructor. [37]
1833 Spruce St.
- WEYGANDT, C., Asst. Professor. [34]
Wissahickon Ave., Germantown.
College Hall.
- WHITE, J. W., Professor. [28]
1810 S. Rittenhouse Sq.
- WHITNEY, P. R., Instructor. [43]
6368 Woodbine Ave.

DIRECTORY OF OFFICERS.

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- WIEDER, H. S., (Dr.), Asst. Dem. [44]
2131 N. 15th St.
- WILLARD, DA F., Professor. [28]
1818 Chestnut St.
- WILLSON, R. N., (Dr.), Instructor and
Students' Physician. [39]
1708 Locust St.
- WITMER, L., Professor [30]
2426 Spruce St.
College Hall.
- WOOD, A. C., Asst. Professor. [32]
128 S. 17th St.
- WOOD, H. B. (Dr.) Asst. Dem. [47]
5038 Pine St,
- WOOD, H. C., Professor. [27]
1925 Chestnut St.
- WOOD, H. C., Jr., (Dr.), Dem. [38]
3942 Walnut St.
- WOOLLEY, V. B., Lecturer. [40]
1505 W. 14th St., Wilmington, Del.
- YOUNG, J. K., (Dr.), Associate. [35]
222 S. 16th St.
- YOUNG, J. T., Asst. Prof. and Director. [34]
3719 Locust St.
Logan Hall.
- ZERFING, W., (Dr.), Asst. Dem. [38]
4718 Chester Ave.

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	<hr/>
	438
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	<hr/>
Total.....	347

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					<hr/>
					3671
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					<hr/>
Total.....					3558

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Belgium.....	1	Chile.....	3	Dist. of Columbia..	24
Brazil.....	6	China.....	1	England.....	10
British Columbia... 1		Colorado.....	8	Florida.....	7

France	15	Minnesota	11	Roumania	1
Georgia	8	Mississippi.....	3	Russia	7
Germany.....	6	Missouri.....	9	South Carolina....	6
Hayti	1	Montana.....	1	South Dakota.....	3
Hawaiian Islands... 1		Nebraska.....	2	Sweden.....	1
Holland.....	1	New Hampshire ...	14	Syria.....	1
Honduras.....	1	New Jersey.....	262	Tennessee.....	2
Idaho	3	New Mexico.....	1	Texas.....	15
Illinois	16	New York.....	134	Turkey.....	1
India.....	1	New Zealand.....	7	Utah	3
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Italy.....	4	North Dakota.....	1	Washington	12
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