REPORT
OF
THE PROVOST
OF THE
UNIVERSITY OF PENNSYLVANIA

For the two Years ending October 1, 1889

WITH ABSTRACTS FROM THE TREASURER’S
ANNUAL REPORTS

PRINTED FOR THE UNIVERSITY
1890
REPORT OF THE PROVOST.

To the Board of Trustees of the University of Pennsylvania:

The present report, which has been much delayed by various causes, covers the period from September, 1887, to September, 1889. Occasional references are made to occurrences of a later date. The period has been one of great interest and unprecedented prosperity in University affairs. I am able to submit reports from the various Departments of such fullness and detail as to render it unnecessary in several cases to do more than to refer to them as published in the appendices of this report. Your Board has lost the following members:

In April, 1888, John Ashhurst, Esq., who since 1865 had served the University as a Trustee, tendered his resignation on account of his advanced years, and the resignation was accepted with regret, and with warm assurances of the esteem of his colleagues, with whom he had been associated for so many years.

On December 27, 1889, Dr. James Howell Hutchinson was suddenly taken from us. A graduate of both the College and Medical Departments of the University, and a grandson of one of its distinguished professors, he brought to its service as a Trustee the valuable qualities of an accurate knowledge of its traditions and needs, a high degree of professional learning, and a practical knowledge of affairs, all of which were utilized in the zealous discharge of the duties of his office. His loss was deeply felt, and his memory will long be cherished by his associates in University work.

The changes to the Faculties caused by resignation or death have been unusually numerous, and are fully stated in Appendix No. 1. The following merit special mention:

In March, 1888, the Rev. Frederick A. Muhlenberg, D.D.
LL.D., resigned the chair of Greek, which he had held for twelve years. Professor Muhlenberg's career in the University was one which uniformly secured the affectionate esteem of colleagues and students, and his retirement from the chair which he had so long occupied called forth many expressions of the regard inspired by his scholarly and gentle character.

In May of the same year Dr. Richard A. F. Penrose, M.D., LL.D., resigned the chair of Obstetrics and of the Diseases of Women and Children, which he so ably filled since 1863. In recognition of his long and valuable services he was made Emeritus Professor, and received from the Trustees an assurance of the high appreciation in which those services were held.

In August, 1888, Professor F. A. Genth retired from the chair of Chemistry and Mineralogy which he had held for sixteen years. During this time the contributions to chemical and mineralogical science made by this eminent chemist have been numerous and important, and have reflected great credit upon the institution from which they emanated. The retirement of so distinguished an investigator and observer calls attention forcibly to the pressing need in all our colleges of special endowments for professorships and laboratories, the occupants of which should be expected to take but little direct part in teaching, while the results of their labors and the stimulus of their presence would have a powerful and direct effect upon the didactic work.

In the resignation of Professor D. Hayes Agnew the University, and especially the Medical School, suffered a serious loss. Although in the fullest enjoyment of his remarkable power as a teacher, an author and a practitioner, he felt it judicious to withdraw on the score of advancing years. His connection with the University has been long and honorable, and no one has contributed more influentially than he to the maintenance of our Medical School in the foremost position. He received the degree of M.D. in 1838, was appointed Demonstrator of Anatomy in 1863, Professor of Clinical Surgery in 1870, and Professor of Surgery in 1871.

In recognition of his unusual services and reputation he was elected Emeritus Professor of Surgery, and at the same time
accepted the office of Honorary Professor of Clinical Surgery, which retains his connection with the University Hospital, and encourages the hope that from time to time he will deliver clinical lectures before the classes. At the time of this resignation there were many touching expressions of the singular affection and esteem entertained for him by the entire community, and especially, of course, by the medical profession and the graduates of the Medical School. He carries with him the warmest wishes of the Trustees and Faculties that he may be preserved in health and vigor for many years in the service of the profession of which he is so conspicuous an ornament.

In December, 1888, the Hon. J. I. Clark Hare resigned the chair of the Institutes of Law, which he had occupied since 1868 with great advantage to the Law School and to the profession. He was elected Emeritus Professor, and his retirement, with the losses in the Faculty heretofore reported, made necessary the reconstruction of the Faculty, and a redistribution of the work of the several chairs, which is indicated in their present titles.

The only loss by death in the teaching staff was that of Edward Tunis Bruen, M.D., Assistant Professor of Physical Diagnosis, who died, after a brief illness, on March 31, 1889. Professor Bruen, while still a young man, had achieved for himself an enviable reputation as a practitioner and teacher, and his future seemed full of promise. His social and professional qualities were such as to endear him to a wide circle of friends, and in either sphere his early death is sincerely mourned.

Professor William Osler resigned the chair of Clinical Medicine at the close of the past session, having accepted a call to the important position of Physician-in-Chief to the Johns Hopkins Hospital, in Baltimore. He was elected in 1884, and during his connection with the University established for himself not only a brilliant reputation as a teacher and a practitioner, but a hold upon the affections of his colleagues and students which made his withdrawal a matter of deep regret. The reorganization made necessary by these removals are exhibited in the appendix before referred to, and of the advancements and additions then made it need
only be said that there is every reason to believe that the reputation of the University will be fully maintained by the carefully chosen and well-tried men to whom it has been entrusted.

The most important event affecting the general interest of the University has been the acquisition of ten acres of additional ground extending from the line of the University property on Thirty-fourth street south to the line of the Pennsylvania Railroad at South Street Station. The acquisition of this territory brings the holdings of the University in West Philadelphia up to 40.4 acres, as is shown by the accompanying map. This land is most advantageously distributed. It forms a continuous tract, protected to the southwest by Woodland avenue; thence it follows the line of Woodland avenue for 2,000 feet to Walnut and Thirty-fourth streets, and thence in a southeasterly direction it extends almost to the river, where it is protected by the lines of the Pennsylvania Railroad. This tract encircles a space of seventy-three acres, which has been preserved by the city to be improved for a Public Park. The amount of ground thus available for University buildings will probably suffice for many years to come; while the convenience of the position and the ample means of access from all directions leave nothing to desire. For the past fifteen years, since the transfer of the University to its present location, it has been a source of unceasing anxiety to secure sufficient ground for the future purposes and growth of the institution. The accomplishment of this will enable means and energy to be employed in other directions.

It is proper to call special attention to the approaching completion of the Library Building. Reference was made in several previous reports to the absolute necessity of such a building; the rapidly growing collections of books could not be displayed or consulted; the intellectual life and activity of the University were cramped in every direction owing to this want. As always happens, the clear statement and recognition of this need was followed by a determined effort to supply it. As the University had no free funds available for the purpose, a committee was organized and subscriptions amounting to $220,000 have already been received, of which $180,000 are for construction, and $40,000 are specifically for additions
to the endowment funds. Great care was given to the preparation of the plans, and a course was pursued which, it is believed, has resulted in a structure remarkably well adapted to its purposes. Mr. Frank Furness, the well-known architect, was selected by the Board. He prepared a preliminary plan, and a conference of eminent librarians from various cities was held at the University. The plans were made the subject of minute and critical study. Many criticisms and suggestions were offered, the discussion was of marked interest and value, and as a result the plans were widely altered in many respects by Mr. Furness, whose revised plans were then sent to the expert consultants for final study. A few suggestions only were made, some of which were adopted and others rejected. As already stated, it is believed by competent authorities that the building thus planned will prove a singular success in library construction. The formal opening will take place early in the autumn. The storage capacity is for 350,000 volumes, but the book stack admits of indefinite extension. The remarkable rapidity of growth of the Library during the past few years indicates that such extensions will be needed within the present decade.

I desire to call attention emphatically to the point that this Library is to be maintained as a free public Library of reference, open to the entire community at all proper times. An application was made to City Councils for a piece of ground containing about three-quarters of an acre necessary to complete the University frontage on Woodland avenue, and in this petition a formal pledge was given that if the land were ceded to the University a fire-proof Library building would be constructed upon the University property, and would be maintained as a Free Public Library of reference. With wise liberality this petition was granted (see Ordinance, Appendix 2), and it is with satisfaction that we can point to the completed building, standing in the most accessible and convenient site. Although, however, there have been important additions to the Library endowment, the income available for conducting the Library on the basis proposed will be utterly inadequate. On the lowest estimate, an addition of $100,000 to the present endowment, or subscriptions to the current expenses of the Library amount-
ing at least to $5,000 per annum, must be secured without
delay. As this is a matter which concerns intimately both the
honor of the University and the interest of the entire commu-
nity, it is proper that an earnest appeal should here be made in
its behalf.

The Librarian's report (Appendix No. 3) gives a concise
statement of the growth of the Library and the rapidly
increasing use which is made of it even in its present cramped
quarters. There have, moreover, been various gifts of the
utmost importance which have not yet been placed upon the
shelves, and to which it is not proper to allude at present.
Especial mention must be made of the generous contribution
of $25,000 by Mr. Joseph Wharton for the endowment of the
Library of the Wharton School of Finance and Economy.
This wise and timely gift ensures the future prosperity of this
branch of the University Library. It is earnestly hoped that
other individuals will recognize the propriety of endowing in
a similar manner special branches of the Library in which
they are most interested. Nothing has been more encouraging
than the voluntary exertions of various members of the Faculty
by which collections of the highest importance have been
secured. I would allude especially to the acquisition of the
Pott Philological Library through the exertions of Professor
McElroy, that of the Leutsch Library of Classics by Professor
Jackson and that of the Arabic Collection by Professor Jastrow.
In every such instance the direct appeal of a recognized
authority in favor of securing a collection of unquestionable
value and of immediate utility has been responded to promptly
and liberally.

The thanks not only of their colleagues and of the students,
but of the entire community are due to these and other gentle-
men for the important acquisitions thus secured. They place
the University Library in the very front rank in many direc-
tions, and it is to be hoped that similar determined efforts will
be maintained until it is equally strong in all lines.

The system of organization by which the co-operation of
various Boards composed only in part of the Trustees and mem-
bers of Faculties is secured has been cautiously extended. The
privilege of obtaining such co-operation is one of the great ad-
vantages attaching to the location of the University in a great city. Attention will be called elsewhere to the excellent results accomplished by the Board of Managers of the University Hospital, and by the Board of the Veterinary Hospital. The University Lecture Association has greatly extended its field of operations and with constantly increasing success. The courses of lectures which have been given under its auspices, and which are briefly stated in Appendix No. 4, have been attended by large and studious audiences, and have constituted a solid addition to the intellectual life of the community in each season. The increasing prosperity of the Association will render much more liberal arrangements possible, and it may be confidently expected that the scope and influence of this work will steadily enlarge.

The highly important subject of University extension, which has speedily attained such remarkable proportions in Great Britain, has naturally come up in connection with the work of the Lecture Association. It seems to be felt by all that the peculiar position of the University in Philadelphia enables it to initiate the work with singular advantages. The cooperation of many institutions will be sought, a special Association will be formed, and I venture to predict that my next report will contain a record of much vigorous and successful work in this new field.

The acquisition of more land enabled your Board to extend a long-contemplated offer to several institutions to acquire, in fee, adequate portions of this territory, and to move to the vicinity of the University in order to insure concentration and co-ordination of energy on the part of students, teachers and investigators in kindred branches. The only formal offer made was to the Academy of Natural Sciences, which body, after due deliberation, decided that such a change of location would not be conducive to its interests. The official correspondence will be found in Appendix 5. It is given here as an interesting feature in the experience of these institutions, whose relations must ever be in the future as in the past close and harmonious, in spite of the fact that actual approximation cannot now be secured. It is to be hoped that a continuation of this liberal and wise policy on the part of the University will make
it more and more clearly recognized as the intellectual centre of this great community, around which will naturally group themselves the various scientific and literary institutions, whose work is an essential part of a comprehensive university scheme.

The deep interest excited in the Babylonian explorations conducted by the University has led to the suggestion that a broader organization should be effected, so as to cover various fields of research now not represented in the University. The plan will be to form an Archaeological Association, whose officers and council shall consist in part of members of your Board and in part of members of the Association, and to develop a great museum, embracing Palaeontology, Ethnology and Archaeology, which will be under a special Board of Managers.

In Appendix 6 there are given the plans of organization and the composition of the above Boards. The work entrusted to this Association is largely varied and most attractive. There is already evidence to show that the movement meets with widespread favor and support. Fortunately there is ample space in the new Library Building to accommodate large collections, and thus it may be several years before the necessity for a great museum building becomes urgent. This is highly desirable in order that time may be furnished for mature study of our exact needs in this direction.

In passing to the consideration of the reports of the several departments, I would first call attention to the highly important report of Dr. Jayne (Appendix 7), the Dean of the College Department. I will refrain from extended comment, as I trust this interesting paper will be read by all. It affords conclusive evidence as to the healthy state of the College. The number of students in attendance is increasing and the standard of scholarship is rising. Especial attention is invited to the judicious remarks on the Certificate privilege and upon the most urgent needs of this Department. The retirement of Vice-Provost Kendall from his duties as Dean, which occurred in January, 1889, was followed by the election to that office of Dr. Jayne, who had formerly been acting as Dean of the Biological School. It would be improper to pass over this change without a brief but earnest acknowledgment
of the rare value of the influence exerted by the Vice-Provost during his tenure of office as Dean of the College. It is not too much to say that his personal qualities and influence have created a standard of courteous action and of genial feeling amongst teachers and students which will last far beyond this generation.

The report of the Medical Department (see Appendix 8) presents gratifying evidence of increasing prosperity. One of the most important points noted in it refers to the serious damage to the Medical Hall by the fire of May 1, 1888. Although the results were far less serious than were feared, and although the condition and equipment are far better now than prior to the fire, the accident emphasizes in the strongest manner the importance of having every building in which valuable collections are to be stored of fire-proof construction.

The argument in favor of the addition of a fourth year to the Medical curriculum, as stated by Dr. Tyson, is simply unanswerable. This matter was urged strongly in my last report, and it should be kept before the notice of the medical profession and of the community until it becomes an accomplished fact. The loss incurred by the community in employing half educated and imperfectly qualified practitioners is too serious to contemplate with equanimity, although long usage has inured us to the faulty system on which nearly all American medical schools are conducted.

The influence of the successful establishment of a graded three-year course at Harvard and the University has been of incalculable value. The time has now come when the further and final step of establishing an obligatory fourth year must be undertaken. The calculation by Dr. Tyson of the endowment required to render this movement a permanent success agrees closely with the sum mentioned in the report upon this subject by Dr. Bowditch, the Dean of the Harvard Medical College.

It is with deep thankfulness I find myself able to record that the Trustees and the Medical Faculty, in accepting the generous offer of Mr. Henry C. Lea to erect a building for a complete School of Hygiene, deliberately assumed a binding condition that so soon as the stipulated endowment of $200,000
for the Department of Hygiene shall be secured, a movement shall be started to raise a further sum of $250,000 to enable an obligatory fourth year to be added to the Medical curriculum. The offer of Mr. Lea above mentioned, although affecting other departments of the University, will mark an epoch in the history of the Medical School. It may be predicted confidently that the conditions attached to his generous offer will all be complied with, and that the Department of Hygiene will be open for instruction at the beginning of the course 1891-2. It is to be hoped that the general recognition of the immense importance of the prolongation of the obligatory term of medical studies will make it easy to secure the sum stipulated for this purpose within a short period of time.

The period embraced in this report has witnessed notable changes to the Law Department, which are fully described in the report of the Dean, Professor Patterson. (Appendix 9.) The changes of the Faculty amount to a reorganization of that body, and have permitted a better distribution of subjects to be effected, as well as the introduction of several interesting topics which have hitherto been unavoidably neglected.

The removal of the Law School to the centre of the city, at Broad and Chestnut streets, in the immediate vicinity of the law courts, is a change which was dictated by every reason of convenience and propriety; it effects a great saving of time on the part of the Faculty and students, and enables the latter to have far more frequent access to the law courts, which in this school correspond to the laboratories and the hospital wards in the Medical Department. The addition to the curriculum of a third year naturally caused a temporary falling off in the number of students, but the increased teaching force and the improved facilities will, with equal certainty, result in rapid gains which will soon far exceed the temporary losses. All interested in this important department of the University are to be congratulated upon the present satisfactory position; but it should be maintained steadily as an object of prime importance, that must be accomplished as soon as possible, that the Law School is to be housed in a suitable, dignified building of its own. It is probable that the position and the arrangements of this building might be made such as to accommodate the
offices of the University and the places of meeting for the various associations connected with the University.

The Dental Department continues to prosper (see Appendix 10), and its success is so great that the effect of the approaching prolongation of its term may be looked forward to with confidence. This is especially the case because all dental schools in respectable standing will make an equal prolongation simultaneously. It has been a source of regret that in spite of the growing recognition of the importance of thorough dental education, there has, as yet, been no endowment to given this department. There is, however, an urgent need for it; extended facilities are required and additional teachers should be added to the Faculty. It is to be hoped that a remembrance of the immense benefits conferred on society by the science and art of dentistry in their present advanced form will prompt to such liberal endowment of this department as will enable it to get abreast with advances made in other lines of scientific training. I feel that the time is approaching when a special effort in this direction would meet with a hearty response from all sections of the community.

The progress of the Veterinary Department has presented many points of interest, but, owing to the recent change in the office of Dean, necessitated by the resignation of Prof. R. S. Huidekoper, there is no report from this department. The most important occurrence was the passing of an appropriation of $25,000 by the State Legislature for the Veterinary Hospital. This appropriation was secured exclusively through the indefatigable exertions of Dr. Huidekoper, to whom the department must ever remain under a debt of gratitude, not only for such services as these, but for the admirable curriculum and the high standard of requirements adopted upon his recommendation. In order to facilitate the administration of this department, a complete official separation was made between the school and the hospital by resolution of the Board of Trustees, dated September 10, 1889.

The school remains in the charge of the Committee of your Board and of the Veterinary Faculty; while a Board of Managers (see Appendix 11) was created, to whom was entrusted the entire management of the hospital. The continued
liberality of the family of your late colleague, J. B. Lippincott, Esq., will, with the improved methods of administration introduced under the above reorganization, result in the financial prosperity both of school and hospital, so that fair salaries can be paid to the Faculty, and the hospital can be conducted without deficit, or even, it is hoped, ere long at a profit.

Your attention is called to the extent of original publications by the University staff during the past two years (Bibliography, Appendix 13), as indicating approximately the activity of its members in all departments of professional research, and showing how the intellectual forces here at work extend far beyond the classes attending instruction. Some of the brief titles there recorded indicate the labor and the ripened thought of years; some are of works that have secured for their authors honors and rewards both here and in foreign lands; and all are evidences of that diligence in the pursuit of literature and science which ought to characterize the members of a vigorous university.

In conclusion, I beg to call attention to the financial condition of the University as shown in Appendix 14, which is an abridgment of the two admirable annual reports made by your Treasurer, and to the record there made of the donations received during the last two years.

WILLIAM PEPPER,
Provost.
APPENDIX I.

DEATHS.

Mar. 31, 1889. Edward Tunis Bruen, M.D., Assistant Professor of Physical Diagnosis.

Dec. 27, 1889. James Howell Hutchinson, M.D., Trustee.

RESIGNATIONS.

Nov. 1, 1887. Robert P. Robins, M.D., as Instructor in Physical Diagnosis.

Mar. 6, 1888. Frederick A. Muhlenberg, D.D., LL.D., as Professor of the Greek Language and Literature.

April 3, 1888. John Ashhurst, Esq., as Trustee.


May 15, 1888. J. William White, M.D., as Director of Physical Education.

Nov. 5, 1888. William Osler, M.D., as Professor of Clinical Medicine.

" " George E. De Schweinitz, M.D., as Prosector to the Chair of Anatomy.

Dec. 4, 1888. A. Sydney Roberts, M.D., as Instructor in Orthopedic Surgery.

" " D. Hayes Agnew, M.D., LL.D., as Professor of the Principles and Practice of Surgery.

" " J. I. Clark Hare, M.D., LL.D., as Professor of the Institutes of Law.

" " Milton Powel, D.D.S., as Assistant Demonstrator of Operative Dentistry.

April 23, 1889. James Tyson, M.D., as Professor of Pathology and Morbid Anatomy.

May 7, 1889. Otis H. Kendall, Ph.D., as Assistant Professor of Mathematics.

" " J. William White, M.D., as Demonstrator of Surgery.

" " Edward Martin, M.D., as Assistant Demonstrator of Surgery.
May 7, 1889. Harry R. Wharton, M.D., as Instructor in Clinical Surgery.

May 28, 1889. Howard A. Kelley, M.D., as Associate Professor of Obstetrics.

June 20, 1889. William D. Marks, Ph.B., C.E., as Whitney Professor of Dynamical Engineering.

Aug. 6, 1889. Rush S. Huidekoper, M.D., Veterinarian (Alfort), as Professor of Veterinary Anatomy and Pathology.

APPOINTMENTS.

GENERAL.


Nov. 1, 1887. John Barnard Gest, A.M., to be Trustee.

June 19, 1888. Morris Jastrow, Jr., Ph.D., to be Assistant Librarian.


May 7, 1889. Joseph S. Harris, to be Trustee.

Jan. 1, 1889. D. Hayes Agnew, M.D., LL.D., to be Emeritus Professor of Surgery and Honorary Professor of Clinical Surgery.

June 4, 1889. J. I. Clark Hare, LL.D., to be Emeritus Professor of the Institutes of Law.


UNLIMITED, OR FOR A PERIOD OF THREE YEARS OR MORE.

COLLEGE DEPARTMENT.

May 7, 1888. William A. Lamberton, A.M., to be Professor of the Greek Language and Literature.

May 29, 1888. Simon N. Patten, Ph.D., to be Professor of Political Economy.

Sept. 10, 1888. Edgar F. Smith, Ph.D., to be Professor of Analytical Chemistry.

Jan. 1, 1889. E. Otis Kendall, LL.D., to be Honorary Dean of the Faculty.

Jan. 1, 1889. James McKeen Cattell, Ph.D., to be Professor of Psychology.
June 4, 1889. Arthur W. Goodspeed, Ph.D., to be Assistant Professor of Physics.

Aug. 6, 1889. George E. Fisher, A.M., to be Assistant Professor of Mathematics.

Sept. 24, 1889. Edwin S. Crawley, B.S., to be Assistant Professor of Mathematics.

" " Francis A. Jackson, A.M., to be Secretary of the Faculty.

Oct. 4, 1889. Felix E. Schelling, A.M., to be Assistant Professor of English Literature.

DEPARTMENT OF MEDICINE.

May 7, 1888. Howard A. Kelley, M.D., to be Associate Professor of Obstetrics.

" " Barton Cooke Hirst, M.D., to be Associate Professor of Obstetrics.


Jan. 1, 1889. John Ashhurst, Jr., M.D., to be John Rhea Barton Professor of Surgery.

" " James Tyson, M.D., to be Professor of Clinical Medicine.

Feb. 5, 1889. J. William White, M.D., to be Professor of Clinical Surgery.

" " John Guiteras, M.D., to be Professor of Pathology and Morbid Anatomy.

Mar. 5, 1889. De Forest Willard, M.D., to be Clinical Professor of Orthopaedic Surgery.

" " George A. Piersol, M.D., to be Professor of Histology and Embryology.

" " Samuel G. Dixon, M.D., to be Professor of Hygiene.

June 4, 1889. John H. Musser, M.D., to be Assistant Professor of Clinical Medicine.

Aug. 6, 1889. Barton Cooke Hirst, M.D., to be Professor of Obstetrics.

Sept. 24, 1889. John Marshall, M.D., Nat.Sc.D., to be Assistant Professor of Chemistry.

DEPARTMENT OF LAW.


" " George S. Graham, to be Professor of Criminal Law.
DEPARTMENT OF BIOLOGY.

Feb. 7, 1888. Charles S. Dolley, M.D., to be Professor of General Biology.

Feb. 5, 1889. James McKeen Cattell, Ph.D., to be Professor of Psychology.

DEPARTMENT OF VETERINARY SURGERY.

Sept. 24, 1889. Simon J. J. Harger, V.M.D., to be Assistant Professor of Veterinary Anatomy.

DEPARTMENT OF PHILOSOPHY.

Feb. 7, 1888. Horace Jayne, M.D., to be Professor of Biology.

" " John A. Ryder, Ph.D., to be Professor of Biology.

" " Charles S. Dolley, M.D., to be Professor of Biology.

" " William Powell Wilson, Sc.D., to be Professor of Botany.

" " John Bach McMaster, A.M., to be Professor of American History.

" " Samuel P. Sadtler, Ph.D., to be Professor of Organic Chemistry.

" " Oswald Seidensticker, Ph.D., Litt.D., to be Professor of Germanic Philology.

Oct. 2, 1888. Simon N. Patten, Ph.D., to be Professor of Political Economy.

" " William A. Lamberton, A.M., to be Professor of the Greek Language and Literature.

" " Edgar F. Smith, Ph.D., to be Professor of Analytical Chemistry.

Feb. 5, 1889. James McKeen Cattell, Ph.D., to be Professor of Psychology.

June 4, 1889. Edward T. Reichert, M.D., to be Professor of Physiology.

ANNUAL, OR FOR A PERIOD LESS THAN THREE YEARS.

COLLEGE DEPARTMENT.

Oct. 4, 1887. A. H. P. Leuf, M.D., to be Assistant Director of Physical Education.

" " Edwin A. Kelley, to be Instructor in Mammalian Anatomy.
Sept.  4, 1888.  George F. Stradling, A.B., to be Hector Tyndale Fellow.
May.  7, 1889.  Carl Hering, B.S., to be Instructor in Electrical Engineering.
April  3, 1888.  Felix E. Schelling, A.M., to be Assistant Professor of English Literature.
April  2, 1889.  Edgar P. Earle, B.S., M.E., to be Instructor in Mechanical Engineering.
May 29, 1888.  Marsha11  R  P  u  E.M., to be Assistant in
May 7, 1889.  Metal
I
gy  and  Mining.
April  3, 1888.  George F. Stradling, A.B., to be Hector Tyndale Fellow.
May 29, 1888.  Carl Hering, B.S., to be Instructor in Electrical Engineering.
June  19, 1888.  Felix E. Schelling, A.M., to be Assistant Professor of English Literature.
"  
"  
"  Edgar P. Earle, B.S., M.E., to be Instructor in Mechanical Engineering.
June  5, 1888.  A. H. P. Leuf, M.D., to be Director of Physical Education.
June  19, 1888.  James A. Montgomery, A.B., to be Instructor in Hebrew.
June  19, 1888.  James McKeen Cattell, M.D., to be Lecturer on Psycho-Physics.
Sept.  4, 1888.  Edwin S. Crawley, B.S., to be Instructor in Mathematics.
May  7, 1889.  Edgar P. Cheyney, A.M., to be Instructor in History and Latin History.
Sept.  4, 1888.  Hugo A. Rennert, B.S., to be Instructor in French and German.
May  7, 1889.  Hobart A. Hare, M.D., to be Instructor in Physiology.
Oct.  4, 1887.  Benjamin Franklin, B.S., C.E., to be Instructor in Civil Engineering.
Sept.  4, 1888.  Roland P. Falkner, Ph.D., to be Instructor in Bookkeeping.
May  7, 1889.  Milton W. Greenman, to be Assistant in Biology.
Sept.  4, 1888.  "  "  "  to be Assistant Instructor in Biology.
May  7, 1889.  Charles A. Peterson, A.B., B.S., to be Instructor in Electrical Engineering.
Sept.  10, 1888.  Horace Jayne, M.D., to be Dean of the Faculty.
Feb.  5, 1889.  Francis N. Thorpe, Ph.D., to be Lecturer on Civil Government.
May 7, 1889. William Romaine Newbold, A.M., to be Instructor in Latin.

" " Charles Hermann Haupt, to be Instructor in Civil Engineering.

" " Lee K. Frankel, B.S., P.C., to be Instructor in Analytical Chemistry.

" " Charles Meredith Burk, to be Assistant Instructor in Zoology.

June 20, 1889. Daniel B. Shumway, B.A., to be Instructor in English.

" " Edgar Kidwell, A.M., M.E., to be Instructor in Dynamical Engineering.

DEPARTMENT OF MEDICINE.


" " Barton Cooke Hirst, M.D., to be Lecturer on Clinical and Operative Obstetrics.

" " Henry W. Cattell, M.D., to be Assistant Demonstrator of Chemistry.

June 19, 1888. John H. Musser, M.D., to be Instructor in Clinical Medicine, 4th year.

Nov. 1, 1887. Barton Cooke Hirst, M.D., to be Demonstrator of Practical Obstetrics.

" " John B. Roberts, M.D., to be Assistant Demonstrator of Anatomy.

" " James Tyson, M.D., to be Dean and Secretary.

" " Roland G. Curtin, M.D., to be Lecturer on Physical Diagnosis.

May 28, 1889. Charles K. Mills, M.D., to be Lecturer on Mental Diseases.

June 19, 1888. Samuel D. Risley, M.D., to be Instructor in Ophthalmology.

May 28, 1889. De Forest Willard, M.D., to be Lecturer on Orthopaedic Surgery.

" " Adolph W. Miller, M.D., to be Lecturer on Materia Medica and Pharmacy, and Instructor in Practical Pharmacy.


June 19, 1888. George A. Piersol, M.D., to be Demonstrator of Normal Histology.
June 19, 1888. Henry F. Formad, M.D., to be Demonstrator of Morbid Anatomy and Pathological Histology, Lecturer on Experimental Pathology, and Librarian of the Stillé Medical Library.

May 28, 1889. Walter M. L. Ziegler, M.D., to be Instructor in Otology.

June 19, 1888. Carl Seiler, M.D., to be Instructor in Laryngology.

May 28, 1889. Albert L. A. Toboldt, M.D., to be Assistant Demonstrator of Practical Pharmacy.

June 19, 1888. Harry R. Wharton, M.D., to be Instructor in Clinical Surgery and Lecturer on the Surgical Diseases of Children.


June 19, 1888. John B. Deaver, M.D., to be Demonstrator of Anatomy, and Lecturer on Topographical Anatomy.

May 28, 1889. Francis X. Dercum, M.D., to be Instructor in Nervous Diseases.

June 19, 1888. Thomas R. Neilson, M.D., to be Assistant Demonstrator of Anatomy, and Instructor in Genito-Urinary Diseases.

May 28, 1889. Edmund W. Holmes, M.D., to be Assistant Demonstrator of Anatomy.

June 19, 1888. Judson Daland, M.D., to be Instructor in Clinical Medicine.

May 28, 1889. William A. Edwards, M.D., to be Instructor in Clinical Medicine.

June 19, 1888. J. Hendrie Lloyd, M.D., to be Instructor in Electrotherapeutics.

May 28, 1889. A. Sydney Roberts, M.D., to be Instructor in Orthopedic Surgery.

June 19, 1888. J. P. Crozer Griffith, M.D., to be Assistant to the Professor of the Theory and Practice of Medicine.

May 28, 1889. Henry W. Stelwagon, M.D., to be Instructor in Dermatology.


May 28, 1889. Gwillym G. Davis, M.D., to be Assistant Demonstrator of Surgery.

June 19, 1888. Hobart A. Hare, M.D., to be Instructor in Physical Diagnosis, Demonstrator of Therapeutics and Instructor in Physiology.

May 28, 1889. W. Frank Haehnnlen, M.D., to be Lecturer on Clinical and Operative Obstetrics.


May 28, 1889. George H. Chambers, M.D., to be Assistant Demonstrator of Normal Histology.

June 19, 1888. James K. Young, M.D., to be Assistant Demonstrator of Surgery and Instructor in Orthopaedic Surgery.

Sept. 4, 1889. David D. Richardson, M.D., to be Assistant Demonstrator of Anatomy and Curator of Wister and Horner Museum.


June 19, 1888. Henry W. Cattell, M.D., to be Assistant Demonstrator of Chemistry.

May 28, 1889. Allen J. Smith, M.D., to be Assistant Demonstrator of Morbid Anatomy and Pathological Histology.


Oct. 19, 1888. T. Passmore Berens, M.D., to be Instructor in Physical Diagnosis.

May 28, 1889. Arthur W. Stevens, M.D., to be Instructor in Physical Diagnosis.

June 19, 1888. Andrew J. Plumer, M.D., to be Assistant Demonstrator of Morbid Anatomy and Pathological Histology.

May 28, 1889. Edward Tatum, M.D., to be Demonstrator of Physiology.

June 19, 1888. Guy Hinsdale, M.D., to be Instructor in Physical Diagnosis.

May 28, 1889. Benjamin F. Stahl, M.D., to be Instructor in Physical Diagnosis.

Mar. 5, 1889. John C. Heisler, M.D., to be Prosector to the Chair of Anatomy.

May 7, 1889. Walter D. Green, M.D., to be Assistant Demonstrator of Surgery.
May 7, 1889. Charles B. Penrose, M.D., to be Instructor in Clinical Surgery.

May 28, 1889. Harry R. Wharton, M.D., to be Demonstrator of Surgery.

May 7, 1889. Edward Martin, M.D., to be Instructor in Clinical Surgery.

May 28, 1889. Albert L. A. Toboldt, M.D., to be Assistant Instructor in Practical Pharmacy.

J. P. Crozer Griffith, M.D., to be Instructor in Clinical Medicine.

Hobart A. Hare, M.D., to be Demonstrator of Experimental Therapeutics and Instructor in Physical Diagnosis.

Thomas R. Neilson, M.D., to be Instructor in Genito-Urinary Diseases.

Gwillym G. Davis, M.D., to be Instructor in Clinical and Operative Surgery, and Instructor in Emergency Surgery.

Harry C. Deaver, M.D., to be Assistant Demonstrator of Anatomy.

Harry H. Kynett, M.D., to be Assistant Demonstrator of Anatomy.

Walter Chrystie, M.D., to be in Instructor in Physical Diagnosis.

Frederick C. Packard, M.D., to be Instructor in Physical Diagnosis.

AUXILIARY FACULTY OF MEDICINE.

Oct. 4, 1887. Samuel G. Dixon, M.D., to be Professor of Hygiene.

Nov. 1, 1887. John J. Reese, M.D., to be Professor of Medical Jurisprudence and Toxicology.

Nov. 5, 1888. Samuel B. Howell, M.D., to be Professor of Mineralogy and Geology.

Nov. 1, 1887. Joseph T. Rothrock, M.D., B.S., to be Professor of Botany.

Nov. 5, 1889. Joseph Leidy, M.D., LL.D., to be Professor of Zoology and Comparative Anatomy.

Nov. 5, 1888. Samuel G. Dixon, M.D., to be Professor of Hygiene.
Dec. 4, 1888. Seneca Egbert, M.D., to be Demonstrator of Hygiene.

Nov. 5, 1889. Edward D. Cope, Ph.D., to be Professor of Mineralogy and Geology.

DEPARTMENT OF PHILOSOPHY.

Feb. 7, 1888. Francis N. Thorpe, Ph.D., to be Lecturer on American History.

June 1, 1889. George Stuart Fullerton, B.D., to be Dean of the Faculty.

DEPARTMENT OF DENTISTRY.


J. Judson Edwards, D.D.S., to be Demonstrator of Mechanical Dentistry.


James E. Loder, D.D.S., to be Assistant Demonstrator of Operative Dentistry.

Henry B. McFadden, D.D.S., to be Assistant Demonstrator of Mechanical Dentistry.

Ambler Tees, Jr., D.D.S., to be Assistant Demonstrator of Mechanical Dentistry.


Frederick W. Amend, Jr., D.D.S., to be Assistant Demonstrator of Mechanical Dentistry.


Horace McCanna, D.D.S., to be Assistant Demonstrator of Mechanical Dentistry.


Milton N. Keim, Jr., D.D.S., to be Assistant Demonstrator of Mechanical Dentistry.

June 20, 1889. James Truman, D.D.S., to be Dean of the Faculty.
John G. Fuller, D.D.S., to be Assistant Demonstrator of Mechanical Dentistry.
Charles A. E. Codman, D.D.S., to be Assistant Demonstrator of Operative Dentistry.
Frederick A. Peese, D.D.S., to be Demonstrator of Crown and Bridge Work.
John D. Thomas, D.D.S., to be Lecturer on Nitrous Oxide.

DEPARTMENT OF LAW.

Nov. 5, 1888. C. Stuart Patterson, A.M., to be Dean of the Faculty.
Mar. 5, 1889. A. Sydney Biddle, A.M., to be Secretary of the Faculty.

DEPARTMENT OF VETERINARY MEDICINE.

Dec. 4, 1888. Henry Formad, M.D., to be Demonstrator of Pathology and Morbid Anatomy.
" " Simon J. J. Harger, V.D.M., to be Demonstrator of Veterinary Anatomy.
" " Charles Williams, V.D.M., to be Demonstrator of Surgical Pathology.
" " John Marshall, M.D., Nat.Sc.D., to be Demonstrator of Practical Chemistry.

Sept. 4, 1889. John Marshall, M.D., Nat.Sc.D., to be Assistant Professor and Dean of the Faculty.
Dec. 4, 1888. Alexander Glass, V.S., to be Demonstrator of Therapeutics, Materia Medica and Pharmacy.
" " Garrett Edwards, to be Farrier and Demonstrator of Forging and Horseshoeing.
" " Louis Olney Lusson, V.M.D., to be Demonstrator of Internal Pathology and Zootechnics.
" " Guldin R. Hartman, V.M.D., to be Assistant Demonstrator of Veterinary Anatomy.

Sept. 4, 1889. Assistant Professor John Marshall, M.D., to be Dean of the Faculty.
DEPARTMENT OF BIOLOGY.

Oct. 4, 1887. Hobart A. Hare, M.D., to be Instructor in Physiology.

" " Edwin A. Kelley, to be Instructor in Mammalian Anatomy.


Oct. 4, 1887. Milton W. Greenman, to be Instructor in Biology.

Dec. 4, 1888. Emily Gregory, to be Fellow in Biology.

" " Charles Meredith Burk, to be Assistant in Zoology.

" " Edward Bancroft, to be Assistant to the Professor of Comparative Embryology.

" " George Fetterolf, to be Assistant to the Professor of Botany.

" " Robert S. Maison, to be Assistant to the Professor of Botany.

" " Henry S. Kiersted, to be Assistant to the Professor of Botany.

" " Jesse Greenman, to be Assistant to the Professor of Botany.

Jan. 1, 1889. Charles S. Dolley, D.D., to be Dean of the Faculty.

Mar. 5, 1889. William Powell Wilson, D.D., to be Secretary of the Faculty.

APPENDIX II.

An ordinance to sell and convey a certain lot of ground to the Trustees of the University of Pennsylvania.

SECTION 1. The Select and Common Councils of the City of Philadelphia do ordain—

That the Mayor of the city be authorized to sign and affix the seal of the city to a deed, in form to be approved by the City Solicitor, which shall convey unto the Trustees of the University of Pennsylvania and their successors, all that certain lot or piece of ground situated in the Twenty-seventh Ward of the City of Philadelphia, described as follows, viz.: Beginning at a point the intersection of the westerly line of Thirty-sixth Street with the southeasterly line of Woodland Avenue, thence extending along the southeasterly line of said Woodland Avenue south 70° 18' 7" west two hundred and forty-eight (248)
feet; three (3) inches to ground occupied by the City Police Station; thence along said ground south 4° 20' 26" east one hundred and fifteen (115) feet six (6) inches to the northerly line of Spruce Street; thence along said line 78° 59' east one hundred and eighty-two (182) feet ten and five-eighths (10½) inches to the westerly line of said Thirty-sixth Street; thence along the same north 10° 1' east two hundred and thirty-seven (237) feet eleven (11) inches to the southeasterly line of Woodland Avenue and place of beginning, in consideration of the sum of one dollar to have and to hold the said lot to the said Trustees for the use of the said University for its authorized educational purposes, subject also to the following conditions: That the said land shall never be alienated by the Trustees of the University of Pennsylvania without the consent of the city; and further, that no buildings other than such as shall be essential to the educational system of the University shall be erected thereon, and further, that the said Trustees will erect and maintain a fire-proof library building and provide means to maintain it as a free library of reference open to the entire community, and that work thereon shall be begun within four months from the date of conveyance.

Approved this Twenty-first day of March, A.D. 1888.

EDWIN H. FITLER,
Mayor of Philadelphia.

Attest: HENRY W. ROBERTSON,
Assistant Clerk of Select Councils.

APPENDIX III.

REPORT OF THE LIBRARIAN.

UNIVERSITY OF PENNSYLVANIA, October 1st, 1889.

WILLIAM PEPPER, M.D., LL.D., PROVOST.

DEAR SIR:—Since January 31, 1888, the date of the last report, the most noteworthy event in the history of the Library has been the beginning of the erection of a much-needed new Library building, the corner-stone of which was laid the 15th of last October, and the construction of which was sufficiently advanced by the opening of the present College year to render it available for the storage of books.
The accessions to the Library have been very valuable during this period, aggregating 11,573 bound volumes and 14,850 unbound volumes, pamphlets and periodicals.

Among the most conspicuous of these is the noted philological library of the late Professor F. A. Pott, of the University of Halle, purchased by private subscription by friends of the University, mainly through the efforts of Professor McElroy. It consists of about 4,000 works, representing almost every prominent language and dialect.

A remarkably fine collection of Arabic books, numbering 1,136 volumes, to be supplemented by works in other branches of Semitic literature, has recently been acquired with funds obtained in the same way by Professor Jastrow.

General Samuel Wylie Crawford presented nearly 1,000 volumes, on a great variety of subjects, scientific, literary and historical.

We are indebted to the widow of Dr. Ferdinand V. Hayden, formerly Professor of Geology in the University, for 350 bound volumes and 1,600 unbound volumes, pamphlets and periodicals relating to the natural sciences, from the private library of her distinguished husband.

Professor Frederick Prime, Jr., has given us 570 bound volumes and 300 unbound books and periodicals, of his own collection, on chemistry, metallurgy, geology, mineralogy and allied topics.

Charles Hare Hutchison, Esq., besides presenting numerous books from his private library, generously contributed the cost of many works required in the Department of Greek.

Francis Campbell Macauley, Esq., made a valuable gift of 300 volumes of Italian literature.

To the Class of 1889 in the College Department we are indebted for the handsome present of 75 volumes of English literature of the Elizabethan period, and to Mr. Hisaya Iwasaki, an undergraduate in the same Department, for 132 books in Japanese.

Our store of public documents has gained 3,000 volumes from various sources, making it one of the largest collections of that kind in this vicinity.

The Tobias Wagner Library Fund has been drawn upon for 106 volumes, philosophical, literary and historical.

The Henry Seybert Library of Modern Spiritualism and the Krauth Library of Philosophy have both received accessions, and, through the liberality of B. B. Comegys, Esq., a collection of books is forming, to be known as "The B. B. Comegys, Jr., Library of Philosophy."

The Librarian of the Law Department reports 5,302 volumes in that library, 5,116 of these being comprised in the Biddle collection. These
books are now very satisfactorily arranged in a fine suite of rooms at Broad and Chestnut Streets.

The Librarian of the Biological Department reports 1,400 bound volumes and 1,500 unbound books and pamphlets in that library, and states that 28 periodicals are received, of which 15 are in English, 11 in German, 1 in Swedish and 1 in French.

The fire which occurred in the Medical building on the 31st of May, 1888, necessitated the immediate removal of the Stilé Library to the Biological Laboratory, and during the following summer the books were brought to the College building where they were catalogued last winter. It is matter of regret that many of them were damaged by the water used to extinguish the fire which threatened them; and about one-fourth of the entire collection will have to be repaired or rebound.

The cataloguing of the whole Library has proceeded as usual, and since the last report 20,389 cards have been written, representing 6,168 works, comprised in 12,254 volumes. In addition to this, nearly all books heretofore catalogued have been numbered and are now ready to be placed on the shelves of the new Library building, so soon as these are ready to receive them. $887.95 of a sum of $950, appropriated by the Board of Trustees of the University for the binding of books, has been expended in binding 3,435 volumes, leaving a balance of $62.05 for future use.

Respectfully submitted,

GREGORY B. KEEN,

Librarian.

APPENDIX IV.

UNIVERSITY LECTURE ASSOCIATION.

The following Lectures and Courses of Lectures were delivered under the auspices of the Association during the years 1888 and 1889 respectively:

1888.

1. Thirteen lectures on the AMERICAN REVOLUTION, Mr. John Fiske.
2. Two lectures on AMERICAN HISTORY, Prof. J. B. McMaster.
3. Three lectures on MIGRATION, CONQUEST AND EXPANSION, Mr. J. Foster Kirk.
4. Four lectures on Greek Lyric Poetry, Prof. Herbert Weir Smyth.
5. Six lectures on Mohammed and Mohammedanism, Prof. Morris Jastrow, Jr.
6. Ten lectures on Psycho-Physics, Prof. James McK. Cattell.

1889.

1. A lecture on Assyrian and Hebrew Chronicles, Prof. Morris Jastrow, Jr.
4. A lecture on the Hittites, Dr. W. H. Ward.
9. Four lectures on Shakespeare, Horace Howard Furness, LL.D.
10. Three lectures on Japan and its Customs, Prof. E. S. Morse.
11. A lecture on Ten Days in Greece, Samuel Dickson, Esq.
12. Ten lectures on Scenes and Characters in American History, Mr. John Fiske.
13. Three lectures on the Greek Historians and Orators, Prof. Wm. A. Lamberton.

APPENDIX V.

University of Pennsylvania, April 10th, 1889.

To the Officers and Members of the Academy of Natural Sciences:

It has been felt for many years that if the various leading scientific and learned institutions of Philadelphia could be approximated so as to facilitate consultation of their collections and attendance upon
their courses of instruction, it would inevitably result in great good to the community and to each and all of the institutions.

The absence of any suitable location where such a concentration might be effected made it fruitless to discuss the advantages which would ensue.

Recent events have made available an adequate extent of ground in immediate proximity to the University of Pennsylvania, as a tract of ten acres, extending from Thirty-fourth Street to the lines of the Pennsylvania Railroad at South Street, and from Locust to Spruce Streets, has been bought from the city.

The special advantages of this location are its central and highly accessible position, adjoining South Street Station; five minutes from Broad Street Station; twenty minutes from Broad and Walnut Streets by the Walnut Street bridge; ten minutes from Powelton Avenue Station; and the fact that it forms the northern boundary of the Park of eighty acres which is about to be laid out by the city.

It is felt by the authorities of the University to be a public duty to offer immediately to certain institutions the opportunity of co-operating in the development there of a grand centre of scientific and educational activity. It will probably be appreciated by all that if such co-operation can be secured, Philadelphia would possess advantages not enjoyed by any city of the world. The juxtaposition of several great independent institutions, administered in harmony for the common purposes of the increase and diffusion of knowledge, would, it is conceived, vastly increase the dignity of each institution and render its work more economical and effective. All such institutions are the servants and beneficiaries of the public, and that which improves the public service must strengthen the institution.

It is felt to be of prime importance in approaching this great question, that the co-operation of the Academy of Natural Sciences should be secured. The collections of the Academy are of immense extent and priceless value; the library is rich and admirably selected. The Academy is a teacher of science, as well as a vast treasure-house for the investigator and the advanced student. The University of Pennsylvania is forced to push ahead in lines of teaching and of collecting altogether parallel with those of the Academy. If these two institutions could be approximated, the resources and efficiency of each would be enhanced. If they continue to work at a distance, the future discloses nothing but an incalculable waste in competitive duplication of teachers, laboratories and museums, while the public will never be enabled to profit fully by their advantages.

In venturing to address this communication to your learned body, we
are keenly alive to the delicacy of our action, for we are as proud as any others can be of the high repute and splendid position and prospects of the Academy. It is of course understood that nothing in the proposed plan would in the least degree compromise the complete independence of the Academy. On the other hand, it is believed that incomparably superior advantages would result for the development to the highest degree of its functions as a teaching and collecting institution. It would at the same time manifestly be to the interest of the University to have thus preserved the entire autonomy of the Academy, with its large body of scientific workers, with its splendid collections constantly reinforced from all quarters, and with its growing endowments drawn from independent sources. A sense of public duty therefore compels us to submit the following proposition for your consideration:

That if the Academy of Natural Sciences will remove to the location above described, the University of Pennsylvania will transfer whatever available site may be selected by the Academy, of ample size for all future needs for museum and library purposes. The transfer shall be in absolute fee simple, subject to no condition or covenant whatsoever. The terms of the transfer shall be as favorable to the Academy as possible, certainly not exceeding the cost price of said ground, and it is hoped that new funds can be secured to effect a considerable reduction in the charge upon the Academy, and to enable the land to be carried without charge for interest until the Academy is ready to move. This definite proposition is accompanied by the suggestion that, if the Academy finds it practicable and desirable to accept this proposition, a syndicate shall be formed by friends of the two institutions to take over from the Academy, at a proper figure, the present grounds and building of the Academy (at Nineteenth and Race Streets), the purchase-money being advanced to enable the Academy to erect its new building upon its new site in West Philadelphia.

Trusting that this communication will be received in the spirit in which it is submitted, I have the honor to remain, on behalf of the authorities of the University,

WILLIAM PEPPER, Provost.

GERMANTOWN, PA., May 30th, 1889.

DR. WM. PEPPER.

MY DEAR SIR:—I regret that an engagement with our local School Board prevented me from being at the Academy on Tuesday evening, when the inclosed resolutions were passed; but it affords me great
pleasure to say that at the meeting of the Council which I attended on Monday afternoon, and where the proposition was fully discussed, nothing but the kindliest feelings were expressed toward the University, and I am quite sure it is the earnest wish of the members of the Academy to aid that institution in every way they consistently can in the good work it is doing for the intellectual fame of Philadelphia.

Very truly yours,

THOMAS MEEHAN,
Senior Vice-President Academy Natural Sciences

Resolved, That the Academy, in accordance with the recommendation of the Council, declines to accept the proposition made by the Provost of the University under date of April 10th, 1889, to move the institution to West Philadelphia.

Resolved, That the presiding officer of the Academy be requested to communicate this action to the Provost of the University.

THOMAS MEEHAN, Esq.,
Senior Vice-President of Academy of Natural Sciences.

Dear Sir: — I beg to acknowledge the receipt of your communication of May 30th, informing me of the action of the Academy upon the proposition submitted by me in regard to a removal of that institution to a site in West Philadelphia adjacent to the University of Pennsylvania.

The kindly spirit in which this was discussed by the Council of the Academy is highly appreciated. These two great institutions are working for a common purpose, and whether they continue working at some distance from each other, or should approximate and concentrate their material resources, I am confident that their relations will ever remain cordial and harmonious.

I cannot close this brief note of acknowledgment without an expression of my sincere congratulations upon the fact that you will receive, as you so richly deserved, the full appropriation which you asked from the State.

I have the honor to remain, my dear sir,

Yours respectfully and faithfully,

(Signed) WILLIAM PEPPER,
Provost of the University.

May 31st, 1889.
APPENDIX VI.

MUSEUM OF ARCHÆOLOGY AND PALÆONTOLOGY.

Provost,
WILLIAM PEPPER, M.D., LL.D.

Managers,
RICHARD WOOD,
CHARLES C. HARRISON,
HORACE HOWARD FURNES, LL.D.,
JOHN C. SIMS, Jr.,
HENRY H. HOUSTON,
JOSEPH D. POTTS,
SAMUEL DICKSON,
SAMUEL W. PENNYPACKER, LL.D.,
JAMES MACALISTER,
MAXWELL SOMMERVILLE,
FRANCIS C. MACAULEY,
JOSEPH LEIDY, M.D., LL.D.,
HORACE JAYNE, M.D.,
CLARENCE S. BEMENT,
JOSEPH WILLCON,
ROBERT H. LAMBORN,
H. C. MERCER,
CHARLEMAGNE TOWER, Jr.

STEWART CULIN, Secretary.

REV. HERMANN V. HILPRECHT Ph.D., Curator of Babylonian Collections.
CHARLES C. ABBOTT, M.D., Curator of American Collections.
EDWARD D. COPE, Ph.D., Curator of Paleontological Collections.
UNIVERSITY ARCHAEOLOGICAL ASSOCIATION.

Officers.

President,
JOSEPH LEIDY, M.D., LL.D.

Vice-Presidents,
GEORGE W. CHILDS,
CLARENCE H CLARK, EDWARD W. CLARK,
CLARENCE S. BEMENT, ROBERT H. LAMBORN,
FRANCIS C. MACAULEY, STUART WOOD,
HENRY C. GIBSON, EDWARD H. COATES,
MAXWELL SOMMERVILLE.

Treasurer,
JOSEPH H. COATES, 116 Chestnut St.

General Secretary,
HORACE JAYNE, M.D., University of Pennsylvania.

REV. JOHN P. PETERS, Ph.D., Director of Babylonian Fund.
DANIEL G. BRINTON, M.D., Director of American Fund.
TALCOTT WILLIAMS, Secretary of Egyptian Fund.
REV. H. V. HILPRECHT, Ph.D., Secretary of Babylonian Fund and Curator.
CHARLES C. ABBOTT, M.D., Curator of American Collections.

The Council.

JOSEPH LEIDY, M.D., LL.D., President.
GEORGE W. CHILDS, HORACE JAYNE, M.D.,
CLARENCE H. CLARK, DANIEL G. BRINTON, M.D.,
CLARENCE S. BEMENT, REV. H. V. HILPRECHT, Ph.D.,
FRANCIS C. MACAULEY, REV. JOHN P. PETERS, Ph.D.,
HENRY C. GIBSON, TALCOTT WILLIAMS,
MAXWELL SOMMERVILLE, CHARLES C. ABBOTT, M.D.,
EDWARD W. CLARK, EDWARD H. COPE, Ph.D., Ex officio,
ROBERT H. LAMBORN, MRS. CORNELIUS STEVENSON,
STUART WOOD, MRS. MATTHEW BAIRD,
EDWARD H. COATES, MRS. JOHN HARRISON,
JOSEPH H. COATES, GEN. LUCIUS H. WARREN,
WILLIAM PEPPE, M.D., LL.D., CARL EDELHEIM,
THOMAS HOCKLEY, H. CLAY TRUMBULL, D.D.,

HORACE JAYNE, M.D., Secretary.
APPENDIX VII.

ANNUAL REPORT OF THE DEAN OF THE COLLEGE FACULTY.

To the Provost of the University, February, 1890:

Sir:—I have the honor to submit herewith my first annual report as Dean of the College Faculty. The tables which are given exhibit the work done during the entire college year of 1888–89, but it has been deemed best to deal mainly with the period from the beginning of the second term of that year—when I entered upon the duties of the office—to the end of the first term of the present year.

The accompanying tables, prepared from the reports of the Professors to the Dean, show the courses of instruction offered by the College Faculty, the work actually accomplished in each course, with the hours per week in one or both terms, the grade of the students for whom the courses are prescribed or by whom they are elected, and the attendance upon each subject. It will be observed that the division of the courses, their order under the different heads, and in some cases the titles of the subjects themselves, do not correspond exactly with the nomenclature, division and arrangement adopted in the new catalogue for 1889–90. In explanation of this want of harmony it may be said that the tables were prepared during the summer months, and were in type before the revision of the catalogue was begun.

At the close of the year 1887–88, 136 students left college, 82 by graduation, 18 having completed special courses and 36 to engage in business pursuits or professional study. In the autumn of 1888, 180 new students matriculated, making a total of 406 at the beginning of last year. Of the new students 94 were Freshmen, 34 in Arts and 60 in Science. Of those in Arts 30 entered for the regular course. Of the Freshmen in Science 40 offered for admission French and German, 9 Latin and German and 9 Latin and French. Two partial students presented French only. The following tables show the changes which took place in the composition of the classes between September, 1887, and September, 1888, and during the college year of 1888–89.
# Table

Showing the composition of the classes during the year 1887–88, and the number of students on the rolls at the beginning of the year 1888–89.

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37 | 63 | 69 | 69 | 69 | 69 | 69 |

34 | 44 | 54 | 54 | 54 | 54 | 54 |
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<th>1889 Loss</th>
<th>1890 Gain</th>
<th>1889 Loss</th>
<th>1890 Gain</th>
<th>1889 Loss</th>
<th>1890 Gain</th>
<th>1889 Loss</th>
<th>1890 Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td>23</td>
<td>1 to '91</td>
<td>1</td>
<td>25</td>
<td>1 to Sc.</td>
<td>4 from Sc.</td>
<td>6 to Wh.</td>
<td>1 from '90</td>
<td>34</td>
<td>1 to Sc.</td>
</tr>
<tr>
<td>Science</td>
<td>29</td>
<td>15</td>
<td>14</td>
<td>47</td>
<td>1 to '91</td>
<td>1</td>
<td>38</td>
<td>13 to Wh.</td>
<td>13 to '90</td>
<td>19</td>
</tr>
<tr>
<td>Finance</td>
<td>20</td>
<td>5</td>
<td>10</td>
<td>1</td>
<td>2 fr Sc.</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>13 fr Sc.</td>
<td>6 fr A.</td>
</tr>
<tr>
<td>Philosophy</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2 from Sc.</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2 from Sc.</td>
</tr>
<tr>
<td>Natural History</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Biology</td>
<td>16</td>
<td>19</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>2 from Sc.</td>
<td>2</td>
<td>30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Music</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>15</td>
<td>8</td>
<td>7</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
At the beginning of the present year there were 430 students on the rolls, the largest number in the history of the College. The following table gives the number of instructors and students for the last twenty years.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>70-71</th>
<th>71-72</th>
<th>72-73</th>
<th>73-74</th>
<th>74-75</th>
<th>75-76</th>
<th>76-77</th>
<th>77-78</th>
<th>78-79</th>
<th>79-80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructors, . . . .</td>
<td>13</td>
<td>17</td>
<td>28</td>
<td>28</td>
<td>31</td>
<td>32</td>
<td>34</td>
<td>34</td>
<td>33</td>
<td>36</td>
</tr>
<tr>
<td>Students, . . . .</td>
<td>187</td>
<td>157</td>
<td>196</td>
<td>215</td>
<td>215</td>
<td>240</td>
<td>236</td>
<td>264</td>
<td>279</td>
<td>286</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>YEAR</th>
<th>80-81</th>
<th>81-82</th>
<th>82-83</th>
<th>83-84</th>
<th>84-85</th>
<th>85-86</th>
<th>86-87</th>
<th>87-88</th>
<th>88-89</th>
<th>89-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructors, . . . .</td>
<td>30</td>
<td>24</td>
<td>56</td>
<td>31</td>
<td>38</td>
<td>39</td>
<td>42</td>
<td>47</td>
<td>48</td>
<td>56</td>
</tr>
<tr>
<td>Students, . . . .</td>
<td>296</td>
<td>335</td>
<td>356</td>
<td>416</td>
<td>381</td>
<td>338</td>
<td>375</td>
<td>352</td>
<td>406</td>
<td>430</td>
</tr>
</tbody>
</table>

The sudden increase in the size of the classes seen in 1883–84 was due to the establishment in the College of the fifty free city scholarships. In 1887 these scholarships were distributed among the different departments of the University, and as most of the students originally admitted to these privileges had graduated, the attendance fell in that year to about the number for 1882–83. Of the 430 students now in College, 255 were continued from last year and 175 are new matriculates. The loss (151) was by Post-Seniors 18, Seniors 81, Juniors 20, Sophomores 19, and Freshmen 18. The additions were Fellows 1, Seniors 4, Juniors 47, Sophomores 13, and Freshmen 110. The table on the preceding page shows the loss and gain for each class, including the changes of class and course. The Freshman class comprises 113 students, 48 of whom are in the Arts, 60 in the Sciences, and 5 in the course in Natural History. Of those in Arts 4 are partial students, and of the remaining 44 in full standing 2 were derived from the preceding Freshman class. The Science Freshmen include 47 regular and 13 partial students. As two of three languages are required for
admission to the Science course, 40 of the regular students offered German and French, 8 Latin and German, and 8 Latin and French. Two of the 5 Freshmen in Natural History presented the requirements for the course in Arts and 2 those for Science. The fifth was admitted on a School certificate, having been one year in the special course in Biology.

The distribution of the students now in College in the various courses and classes is exhibited in the following table.
# Table

Showing the number of students (regular and special or partial) in the several classes and courses, 1889-90.

<table>
<thead>
<tr>
<th>Class</th>
<th>Regular</th>
<th>Partial or Special</th>
<th>Total</th>
<th>Regular</th>
<th>Partial or Special</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen in Arts</td>
<td>44</td>
<td>4</td>
<td>48</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Freshmen in Science</td>
<td>47</td>
<td>43</td>
<td>60</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Freshmen in Natural History</td>
<td>5</td>
<td></td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Sophomores in Arts</td>
<td>21</td>
<td>6</td>
<td>27</td>
<td>17</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>Sophomores in Science</td>
<td>38</td>
<td>20</td>
<td>58</td>
<td>9</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Juniors in Arts</td>
<td>17</td>
<td>9</td>
<td>26</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Juniors in Finance</td>
<td>14</td>
<td>13</td>
<td>27</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Juniors in Philosophy</td>
<td>2</td>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Juniors in Chemistry</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Juniors in Civil Engineering</td>
<td>5</td>
<td>6</td>
<td>11</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Juniors in Mechanical Engineering</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Juniors in Mining</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>12</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Juniors in Architecture</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Seniors in Arts</td>
<td>23</td>
<td>25</td>
<td>48</td>
<td>7</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Seniors in Finance</td>
<td>7</td>
<td>10</td>
<td>17</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Seniors in Philosophy</td>
<td>2</td>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
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</table>

Total: 430
<table>
<thead>
<tr>
<th>Instructor</th>
<th>Subject of Course</th>
<th>HOURS PER WEEK.</th>
<th>COMPOSITION OF CLASSES</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>TERM</td>
<td>1</td>
</tr>
<tr>
<td><strong>LINGUISTICS.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professor Easton</td>
<td>Whitney's Language and the Study of Language. Lectures on Phonetics and the Principles of Comparison</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>HEBREW.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mr. Montgomery</td>
<td>Harper's Elements and Method and Manual. Selections from Genesis and Judges. English into Hebrew</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>SANSKRIT.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prof. Easton</td>
<td>Sanskrit Grammar and Lanman's Reader</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Prof. Easton</td>
<td>Advanced Course. Lanman's Reader. Selected Hymns from the Veda</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>GREEK.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prof. Lamberton</td>
<td>Lysias' Orations against Eratosthenes and against Agoratus. Essays on the life of Lysias, the Thirty Tyrants, and the Courts at Athens. The preparation of written translations on set passages from the orations. The Oeconomicus of Xenophon. Greek Syntax and Greek Composition</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Prof. Lamberton</td>
<td>lectures and topics</td>
<td>number</td>
<td>course code</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>--------</td>
<td>----------------------</td>
</tr>
<tr>
<td>2.</td>
<td>The greater part of the Sixth Book of Herodotus. Lectures on Greek Tragedy, its origin, connection with religion, development and decay. Description of the Greek Theatre and an account of dramatic representation. Portions of the Antigone of Sophocles. Greek Composition.</td>
<td>3</td>
<td>Arts Soph. 20-21.</td>
</tr>
<tr>
<td>4.</td>
<td>Lectures on Socrates and his significance in the history of Philosophy and of Science. The Phaedo of Plato. Lectures on Greek Comedy and its representation. The Clouds of Aristophanes. Lectures on the principles of Greek Rhythmic and Metric.</td>
<td>2</td>
<td>Arts Sen. 9-8.</td>
</tr>
<tr>
<td>5.</td>
<td>Lectures on Demosthenes and his times. Study of Demosthenes on the Crown.</td>
<td>1</td>
<td>Arts Sen. 4.</td>
</tr>
<tr>
<td>6.</td>
<td>Greek Seminary. Five lectures on Demosthenes and his works, with the transmission of these works to modern times. Study of portions of the first Philippic of Demosthenes.</td>
<td>1</td>
<td>Arts Sen. 4.</td>
</tr>
<tr>
<td>8.</td>
<td>Three Public Lectures on Herodotus, Thucydides and Demosthenes.</td>
<td>1</td>
<td>Arts Sen. 4.</td>
</tr>
</tbody>
</table>
## COURSES OF INSTRUCTION.—CONTINUED.

### LATIN.

<table>
<thead>
<tr>
<th>Professor Jackson</th>
<th>Course Description</th>
<th>Credits</th>
<th>Year</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Selections from Livy and from Horace's Satires. Written historical examination. Oral examination on the text.</td>
<td>5</td>
<td>5</td>
<td>Arts Fresh. 31.</td>
<td>31</td>
</tr>
<tr>
<td>2. Sallust (Catiline). Selections from Ovid</td>
<td>3</td>
<td>3</td>
<td>Sc. Fresh. 18.</td>
<td>18</td>
</tr>
<tr>
<td>4. Tacitus (Agricola). Selections from Horace</td>
<td>3</td>
<td>3</td>
<td>Sc. Soph. 4.</td>
<td>4</td>
</tr>
<tr>
<td>5. Selections from Juvenal. The De Amicitia of Cicero. The Odes of Horace. Reading at sight. (Examinations oral)</td>
<td>3</td>
<td>3</td>
<td>Arts Jun. 21.</td>
<td>21</td>
</tr>
<tr>
<td>6. Selections from Juvenal. The Ars Poetica of Horace. Cicero's De Amicitia and Pro Cluentio. Written examinations upon the subject matter of the Pro Cluentio; oral upon the other works.</td>
<td>3</td>
<td>3</td>
<td>Arts Sen. 12.</td>
<td>12</td>
</tr>
</tbody>
</table>

### GOTHIC.

<table>
<thead>
<tr>
<th>Prof. McElroy</th>
<th>Course Description</th>
<th>Credits</th>
<th>Year</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Stamm and Heyne's Ulfilas</td>
<td>2</td>
<td>2</td>
<td>Arts Jun. 1.</td>
<td>1</td>
</tr>
<tr>
<td>2. Advanced Course on Stamm and Heyne's Ulfilas</td>
<td>2</td>
<td>2</td>
<td>Arts Sen. 2.</td>
<td>2</td>
</tr>
</tbody>
</table>

### ANGLO-SAXON.

<table>
<thead>
<tr>
<th>Prof. Seidensticker</th>
<th>Course Description</th>
<th>Credits</th>
<th>Year</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Béowulf (entire)</td>
<td>2</td>
<td>2</td>
<td>Omitted in 1888-89.</td>
<td></td>
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</table>
ENGLISH LANGUAGE.

<table>
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<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. English Composition. Prescribed for Sophomores. Four Themes written and read by each student</td>
<td>II. 2</td>
<td>II. 2</td>
<td>Soph. 69.  In small sections.</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>3. English Composition. Prescribed for Juniors. Four Themes written and read by each student</td>
<td>III. 2</td>
<td>III. 2</td>
<td>Jun. 54.  In small sections.</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>4. English Composition. Prescribed for Seniors. Four Themes written and read by each student</td>
<td>I. 2</td>
<td>I. 2</td>
<td>Sen. 44.  In small sections.</td>
<td>44</td>
</tr>
</tbody>
</table>

ENGLISH LITERATURE.

<table>
<thead>
<tr>
<th>Professor Schelling</th>
<th>1. Lectures on Modern Essayists. Lectures on Modern Novelists. Gummere's Poetics. Themes, written in Instructor's presence, on subjects set from works of authors lectured upon</th>
<th>I. 2</th>
<th>I. 2</th>
<th>Sc. Soph. 44. Arts Soph. 28.</th>
<th>72</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Lectures on the Period of French Influence. (Dryden to Cowper)</td>
<td>II. 2</td>
<td>II. 2</td>
<td>Arts Jun. 25.</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>3. Seminary. Discussion and criticism of papers prepared on subjects selected from authors treated in lectures</td>
<td>III. 2</td>
<td>III. 2</td>
<td>Arts Jun. 25.  In three sections, each section every third week.</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Lectures on English Versification</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asst. Prof. Schelling</td>
<td>6. Seminary. Discussion and criticism of papers prepared on subjects selected from authors treated in lectures</td>
<td>1. 2</td>
<td>Arts Sen. 21. Phil. Sen. 3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In two sections, once in three weeks.</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GERMAN.**

| Mr. Rennert | 1. Review of Grammar. Fünftes Lesebuch | I. 2 | Sc. Fresh. 49. 1. 2 | 50 |
| | Storm's Immensee | II. 1 | Sc. Soph. 1. |
| | Practical Exercises | II. 2 | 39 |
### FRENCH

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Instructor(s)</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>French Readings. La poudre aux yeux. La bataille de dames. Super's French Reader. Fleury's Histoire de France. Translations into French (daily).</td>
<td>Prof. Easton and Mr. Rennert</td>
<td>52</td>
</tr>
<tr>
<td>5.</td>
<td>French Readings. Translation into French once weekly.</td>
<td>Prof. Easton</td>
<td>4</td>
</tr>
</tbody>
</table>

### OLD FRENCH

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Instructor(s)</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Extracts from Clédat's Chrestomathy</td>
<td>Prof. Easton</td>
<td>6</td>
</tr>
</tbody>
</table>

### ITALIAN

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Instructor(s)</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Toscani's Grammar. Pellico's Le mie prigioni.</td>
<td>Mr. Rennert</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Dante. Selections from the Inferno. Boccaccio (selections.) Lectures on Italian Literature.</td>
<td>Mr. Rennert</td>
<td>2</td>
</tr>
</tbody>
</table>

Omitted in 1888-89.
<table>
<thead>
<tr>
<th>COURSES OF INSTRUCTION.—CONTINUED.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHILOSOPHY.</strong></td>
</tr>
<tr>
<td>Prof. Fullerton</td>
</tr>
<tr>
<td>Prof. Fullerton</td>
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<tr>
<td>Prof. Fullerton</td>
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<tr>
<td>Prof. Fullerton</td>
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<tr>
<td>Prof. Fullerton</td>
</tr>
<tr>
<td>Prof. Fullerton</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PSYCHOLOGY.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Fullerton</td>
</tr>
<tr>
<td>Prof. Cattell</td>
</tr>
<tr>
<td>2. Experimental Psychology with Laboratory Work</td>
</tr>
<tr>
<td>Prof. Cattell</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>HISTORY.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Thompson</td>
</tr>
<tr>
<td>1. Freeman's General Sketch of History.</td>
</tr>
<tr>
<td>Mr. Cheyney</td>
</tr>
<tr>
<td>Prof. Thompson</td>
</tr>
<tr>
<td>Mr. Cheyney</td>
</tr>
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<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>DATES AND TIMES.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts Jun. 25.</td>
</tr>
<tr>
<td>Sc. Jun. 19.</td>
</tr>
<tr>
<td>Wh. Sch. Jun. 15.</td>
</tr>
<tr>
<td>Arts Sen. 19.</td>
</tr>
<tr>
<td>Phil. Sen. 3.</td>
</tr>
<tr>
<td>Arts Sen. 19.</td>
</tr>
<tr>
<td>Sc. Jun. 19.</td>
</tr>
<tr>
<td>Wh. Sch. Jun. 15.</td>
</tr>
<tr>
<td>Arts Sen. 19.</td>
</tr>
<tr>
<td>Phil. Sen. 2.</td>
</tr>
<tr>
<td>Sc. Jun. 19.</td>
</tr>
<tr>
<td>Wh. Sch. Jun. 15.</td>
</tr>
<tr>
<td>Arts Sen. 19.</td>
</tr>
<tr>
<td>Phil. Sen. 2.</td>
</tr>
<tr>
<td>Arts Sen. Wh. Sch. Sen.</td>
</tr>
<tr>
<td>Sc. Sen.</td>
</tr>
<tr>
<td>Arts Jun. 24.</td>
</tr>
<tr>
<td>Phil. Jun. 1.</td>
</tr>
<tr>
<td>Arts Jun. 10.</td>
</tr>
<tr>
<td>Gr. 5. Sc. Jun. 2. Biol. Sen. 2.</td>
</tr>
<tr>
<td>Arts Fresh. 33.</td>
</tr>
<tr>
<td>Sc. Fresh. 61.</td>
</tr>
<tr>
<td>In two sections.</td>
</tr>
<tr>
<td>Arts Soph. 26.</td>
</tr>
<tr>
<td>Wh. Sch. Jun. 1.</td>
</tr>
<tr>
<td>Arts Soph. 42.</td>
</tr>
<tr>
<td>Professor</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Mr. Cheyney</td>
</tr>
<tr>
<td>Mr. Cheyney</td>
</tr>
<tr>
<td>Prof. Thompson</td>
</tr>
<tr>
<td>Prof. Thompson</td>
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<td>Prof. Thompson</td>
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</tbody>
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**POLITICAL ECONOMY AND SOCIAL SCIENCE.**

<table>
<thead>
<tr>
<th>Professor</th>
<th>Course</th>
<th>Seminars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Patten</td>
<td>1. Walker's Political Economy and Adam Smith's Wealth of Nations</td>
<td>3</td>
</tr>
<tr>
<td>Prof. Patten</td>
<td>2. Jevon's Money and Mill's Political Economy</td>
<td>3</td>
</tr>
<tr>
<td>Prof. Patten</td>
<td>3. Seminary. Original Papers and Discussions</td>
<td>1</td>
</tr>
<tr>
<td>Prof. Thompson</td>
<td>6. Social Science. Composition and Lectures</td>
<td>3</td>
</tr>
</tbody>
</table>
COURSES OF INSTRUCTION.—CONTINUED.

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Falkner</td>
<td>17. Mercantile Practice (Lectures)</td>
<td>1</td>
</tr>
<tr>
<td>Mr. Falkner</td>
<td>18. Statistics, General Theory, Statistics of Population (Lectures)</td>
<td>2</td>
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<tr>
<td></td>
<td><strong>MATHMATICS.</strong></td>
<td></td>
</tr>
<tr>
<td>Mr. Wylie</td>
<td>1. Algebra. Wentworth College Algebra. Geometry (Chauvenet's),</td>
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<tr>
<td></td>
<td>2. Algebra. (Wentworth's College Algebra)</td>
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<tr>
<td>Asst. Prof. Kendall, Jr.</td>
<td>3. Plane and Spherical Trigonometry (Chauvenet). Analytical</td>
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<tr>
<td></td>
<td>4. Analytical Geometry (Bowser). Elementary Differential and Integral</td>
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</tr>
<tr>
<td>Mr. Crawley</td>
<td>5. Analytical Geometry. Elementary Differential Calculus</td>
<td></td>
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<tr>
<td>Asst. Prof. Kendall</td>
<td>6. Descriptive Geometry</td>
<td>1</td>
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<tr>
<td></td>
<td>7. Theory of Equations (Todhunter). Advanced Trigonometry and Analytical</td>
<td></td>
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<tr>
<td>Mr. Haupt and Mr.</td>
<td>9. Differential and Integral Calculus</td>
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<tr>
<td>Franklin</td>
<td>10. Methods of Computation (optional with Science Seniors)</td>
<td></td>
</tr>
<tr>
<td>Asst. Prof. Kendall</td>
<td>11. Astronomy (Newcomb's)</td>
<td></td>
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<td>Prof. Kendall</td>
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<table>
<thead>
<tr>
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<tr>
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</tr>
<tr>
<td>Wh. Sch. Sen. 19.</td>
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<tr>
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<td>Sc. and Phil. Fresh. 59.</td>
<td>59</td>
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<td>57</td>
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<td>Sc. Soph. 27.</td>
<td>27</td>
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<td>Arts Sen. 4.</td>
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<tr>
<td>Sc. Jun. 31.</td>
<td>31</td>
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<tr>
<td>Omitted in 1888-89.</td>
<td>36</td>
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COURSES OF INSTRUCTION.—CONTINUED.

<table>
<thead>
<tr>
<th>COURSE</th>
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<tbody>
<tr>
<td><strong>PHYSICS.</strong></td>
<td></td>
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<tr>
<td>Prof. Barker and Mr. Goodspeed</td>
<td>2. Physics. Sound, Heat, Light and Electricity. Lectures (3) and recitations (1).</td>
</tr>
<tr>
<td>Prof. Barker</td>
<td>4. Practical Physics. Lectures and Recitations.</td>
</tr>
<tr>
<td>Prof. Barker and Mr. Goodspeed</td>
<td>5. Laboratory Course in Physics (optional except for Dynamical Engineers).</td>
</tr>
<tr>
<td><strong>MINERALOGY.</strong></td>
<td></td>
</tr>
<tr>
<td>Prof. Koenig</td>
<td>2. Mineralogy. Oxides, Chlorides and Fluorides, Sulphates, etc. Phosphates, etc. Carbonates and Silicates.</td>
</tr>
<tr>
<td>Prof. Koenig</td>
<td>3. Determinative Mineralogy.</td>
</tr>
<tr>
<td><strong>GEOLOGY.</strong></td>
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<tr>
<td>Instructor</td>
<td>Course</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Prof. Koenig</td>
<td>2. Geology. Stratigraphy in connection with Palaeontology of the rock systems. Laws of Dynamic Geology</td>
</tr>
<tr>
<td>Prof. Koenig</td>
<td>3. Geology. Palaeontology of Mollusca and Crustacea</td>
</tr>
<tr>
<td>Prof. Koenig</td>
<td>4. Geology. Structural Geology of North America, with reference to that of Europe, with the principal minerals and fossils, and distribution of metals and fuels</td>
</tr>
<tr>
<td>Prof. Koenig</td>
<td>5. Geology. The topographical and structural relations of the principal ore deposits in America and Mexico</td>
</tr>
<tr>
<td>Prof. Dolley and Mr. Greenman</td>
<td>1. General Biology. Microscopical Technique. A series of Animal and Plant forms studied</td>
</tr>
<tr>
<td>Prof. Leidy</td>
<td>2. Systematic Zoology. Lectures</td>
</tr>
<tr>
<td>Prof. Jayne and Mr. Burk</td>
<td>3. Mammalian Anatomy. Lectures. Practical work on the Anatomy of the Cat</td>
</tr>
<tr>
<td>Prof. Ryder</td>
<td>5. Animal Histology. Comparative Study of Animal Tissues and Organs. Lectures and Laboratory work</td>
</tr>
<tr>
<td>Prof. Ryder</td>
<td>6. Animal Embryology. Lectures and Laboratory work on the development of several types</td>
</tr>
<tr>
<td>Dr. Hare</td>
<td>7. Animal Physiology. Lectures, Demonstrations and Recitations</td>
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</table>

**BIOLOGY.**

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Course</th>
<th>Week</th>
<th>Year</th>
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</thead>
<tbody>
<tr>
<td>Prof. Dolley and Mr. Greenman</td>
<td>1. General Biology. Microscopical Technique. A series of Animal and Plant forms studied</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>Prof. Leidy</td>
<td>2. Systematic Zoology. Lectures</td>
<td>1</td>
<td>96</td>
</tr>
<tr>
<td>Prof. Jayne and Mr. Burk</td>
<td>3. Mammalian Anatomy. Lectures. Practical work on the Anatomy of the Cat</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Prof. Ryder</td>
<td>5. Animal Histology. Comparative Study of Animal Tissues and Organs. Lectures and Laboratory work</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Prof. Ryder</td>
<td>6. Animal Embryology. Lectures and Laboratory work on the development of several types</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Dr. Hare</td>
<td>7. Animal Physiology. Lectures, Demonstrations and Recitations</td>
<td>2</td>
<td>17</td>
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</table>
### COURSES OF INSTRUCTION.—CONTINUED.

<table>
<thead>
<tr>
<th>Professor</th>
<th>Subject</th>
<th>Section(s)</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Prof. Wilson</td>
<td>8. Structural Botany. Lectures</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Prof. Wilson</td>
<td>9. Structural Botany. Laboratory Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Prof. Wilson</td>
<td>10. Plant Histology. Laboratory Course</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Prof. Rothrock</td>
<td>11. Systematic Botany. Lectures on General Outlines of Plant Classification</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Prof. Rothrock</td>
<td>12. Systematic Botany. Analytical Laboratory Exercises</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Prof. Rothrock</td>
<td>14. Special Course in Systematic Botany</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Miss Gregory</td>
<td>15. Plant Anatomy. Laboratory Course</td>
<td></td>
<td>10</td>
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</table>

**CHEMISTRY.**

<table>
<thead>
<tr>
<th>Professor</th>
<th>Subject</th>
<th>Section(s)</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Smith</td>
<td>2. General Inorganic Chemistry. Second and more extended Course</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Prof. Smith</td>
<td>3. Analytical Chemistry. Laboratory practice in Qualitative Analysis.</td>
<td></td>
<td>II. 12</td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td>II. 12</td>
</tr>
<tr>
<td>Prof. Smith</td>
<td></td>
<td></td>
<td>III. 6</td>
</tr>
<tr>
<td>Mr. Frankel</td>
<td></td>
<td></td>
<td>III. 6</td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td>III. 8</td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td>III. 8</td>
</tr>
<tr>
<td>*</td>
<td></td>
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<td>VI. 5</td>
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</table>

Recitations, one each week for each of the four sections.
<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Time</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>Analytical Chemistry. Laboratory practice in Gravimetric and Volumetric Analysis</td>
<td>I. 5</td>
<td>18</td>
</tr>
<tr>
<td>5.</td>
<td>Mechanical Drawing, with special reference to Chemical applications</td>
<td>II. 7-9</td>
<td>6</td>
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</table>
### COURSES OF INSTRUCTION.—CONTINUED.

#### MINING.

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Course</th>
<th>Credits</th>
<th>Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Pugh</td>
<td>2. Mining Engineering. Lectures on the methods used in prospecting for and in developing ore and coal deposits</td>
<td>3</td>
<td>Sc. Min. Sen. 2</td>
</tr>
<tr>
<td>Prof. Koenig</td>
<td>3. Mining Engineering. Lectures on the ventilation and drainage of Mines. Special Mining problems in faulted strata, more especially in coal mining. Excursion for two weeks to the Anthracite Coal Region, to make underground survey and to learn how to examine a mine and report its condition</td>
<td>2</td>
<td>Sc. Min. Post-Sen. 1</td>
</tr>
</tbody>
</table>

#### METALLURGY.

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Course</th>
<th>Credits</th>
<th>Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Koenig</td>
<td>4. Lectures on the production of pig, weld and temper iron and of silver, copper and lead. Experimental testing of metallurgical processes. Electricity applied to Metallurgy. Visits to Metallurgical works in the City and State.</td>
<td>4</td>
<td>Sc. Min. and Chem. Post-Sen. 4.</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>----</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Prof. Haupt and Mr. Haupt</td>
<td>4. Topographical Charts in ink and colors. Details of frames, joints, etc.</td>
<td>2</td>
<td>Sc. Min. Jun. 4.</td>
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</table>
COURSES OF INSTRUCTION.—CONTINUED.

<table>
<thead>
<tr>
<th>Prof. Haupt and Assistants</th>
<th>COURSES</th>
<th>TENTATIVE</th>
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</thead>
<tbody>
<tr>
<td>Instructor</td>
<td>Course Details</td>
<td>Credits</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Prof. Spangler</td>
<td>2. Hydrostatics. The equilibrium and pressure of fluids, as water, air, steam, etc. The equilibrium of fluids with other bodies; stability of vessels; determinations of specific gravity; use of hydrometers, manometers, gauges, etc.</td>
<td>2</td>
</tr>
<tr>
<td>Course</td>
<td>Faculty</td>
<td>Description</td>
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<tr>
<td>--------</td>
<td>---------</td>
<td>-------------</td>
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<tr>
<td>Instructor</td>
<td>Course</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Mr. Peterson</td>
<td>12. Electricity. The measurement and discussion of electrical quantities, and their application to the construction and use of galvanometers, batteries, accumulators, etc.</td>
<td>1</td>
</tr>
<tr>
<td>Mr. Earle</td>
<td>13. Engineering Appliances. Lectures on steam engine indicators, injectors, gauges, safety valves, oil cups, pumps, speed indicators, dynamometers, testing machines, etc.</td>
<td>1</td>
</tr>
<tr>
<td>Prof. Spangler</td>
<td>15. Hydrodynamics. Continuation of work of Senior Year. Laboratory work</td>
<td>3</td>
</tr>
<tr>
<td>Mr. Peterson</td>
<td>17. Electrodynamic. Measurement of electrical quantities and their application to the theory, construction and use of dynamos, motors, galvanometers, batteries, etc. Laboratory work. Wiring, the operation and testing of dynamo and storage batteries, photometry, calorimetry, measurement of currents, insulation, etc.</td>
<td>5</td>
</tr>
</tbody>
</table>
COURSES OF INSTRUCTION.—Continued.

| Prof. Spangler | 19. Designing. Continuation of Designing from Senior Year, after shop visits were finished (18 weeks) | 4 | 4 | Sc. Dyn. Eng. Post-Sen. 4 | 4 |
| Mr. Earle | 20. Visits to Manufacturing Establishments. Machine shops, foundries, iron and steel rolling mills, ship yards, electric light plants, etc. Illustrated reports made on general arrangement of plant, arrangement of power, tools, etc. Description of particular machines and process. 16 weeks. One visit per week. | | | Sc. Dyn. Eng. Post-Sen. 4. | 4 |
| | Experimental work in Laboratory on Theses. | | | | |

**DRAWING.**

<p>| Prof. Richards | 1. Geometric and Isometric Drawing (Minifie) and Drawing from the flat. Freehand Sketching. Use of scale and protractor. Shading in India Ink. Graphical representations from Geometry | 3 | 3 | Sc. Fresh. 60. | 70 |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Professor</th>
<th>Description</th>
<th>Credits</th>
<th>Class Year</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Counterpoint. Simple and Double Counterpoint. Canon and Fugue.</td>
<td>Prof. Clarke</td>
<td>2</td>
<td>Mus. II.</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>3. Form and Orchestration. The Development of the Sonata and Rondo forms from the Lyrics. The range, quality, and the construction of Instruments in the Orchestra</td>
<td>Prof. Clarke</td>
<td>2</td>
<td>Mus. III.</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
The total number of courses offered was one hundred and eighty-four; of these thirty-four were half-year courses. By estimating two half-year courses as equal to one whole year course the number is reduced to one hundred and sixty-eight. The hours of instruction per week varied from one to fourteen. Twenty-two courses required the equivalent of one hour throughout the year; seventy-seven, two hours; twenty-four, three hours; eighteen, four hours; and twenty-seven from five to fourteen hours. The average number of hours of attendance required in these courses was about two and four-fifths per week. Twelve courses were omitted during the year. One each in Sanskrit, Gothic, Italian, and two in Architecture, as they were not elected by students, and one in Dynamical Engineering from lack of time. Six of the regular courses in the Wharton School were not given, but others were substituted in their stead.

The following tables show the courses taken by the regular and partial students in the Freshman and Sophomore class in Arts. The number of hours required of each student and the attendance upon each course are also given.

**FRESHMEN IN ARTS.**

<table>
<thead>
<tr>
<th>COURSES</th>
<th>HOURS PER WEEK</th>
<th>REGULAR STUDENTS</th>
<th>PARTIAL STUDENTS</th>
<th>TOTAL IN EACH COURSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhetoric</td>
<td>(2)</td>
<td>30</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Greek</td>
<td>(4)</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latin</td>
<td>(5)</td>
<td>30</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>History</td>
<td>(2)</td>
<td>30</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>(5)</td>
<td>30</td>
<td></td>
<td></td>
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</table>

Hours per week...  18  18  14  4

**SOPHOMORES IN ARTS.**

<table>
<thead>
<tr>
<th>COURSES</th>
<th>HOURS PER WEEK</th>
<th>REGULAR STUDENTS</th>
<th>PARTIAL STUDENTS</th>
<th>TOTAL IN EACH COURSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhetoric</td>
<td></td>
<td>18</td>
<td>2 1 1 1 1 1 1 1 1 25</td>
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<tr>
<td>English.Literature</td>
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<td>18</td>
<td>2 1 1 1 1 1 1 1 1 26</td>
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<tr>
<td>Greek</td>
<td></td>
<td>18</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Latin</td>
<td></td>
<td>18</td>
<td>2 1</td>
<td>1 1</td>
</tr>
<tr>
<td>History</td>
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<td>18</td>
<td>2 1 1 1 1 1 1 1 1 26</td>
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</tr>
<tr>
<td>Mathematics</td>
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<td>18</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Mechanics</td>
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<td>18</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Chemistry</td>
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<td>18</td>
<td>1</td>
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<tr>
<td>Drawing</td>
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<td>3</td>
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</tbody>
</table>

Hours per week...  18  18  8 13 9 7 11 10 11

As part of the work done by the Juniors and Seniors in Arts is elective, the number of groups or combinations of studies is considerable.
These are given below with the number of students in each group, the character and number of the courses chosen, and the hours required per week. The attendance upon each study and the average number of courses and hours are also shown. The numerals in parentheses placed after the subjects indicate the hours of instruction per week.

### JUNIORS IN ARTS.

<table>
<thead>
<tr>
<th>NO. OF COMBINATIONS</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>7</th>
<th>8</th>
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<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>TOTAL</th>
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<tbody>
<tr>
<td>Required</td>
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<td></td>
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Freshmen in Science are required to elect French and German, Latin and German, or Latin and French. The first three combinations in the following table therefore are those made by regular students. Combinations 4 and 5 show the courses pursued by the three partial students in the class.

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Regular Sophomores in Science are divided into six groups according as they take (1) French, German and Drawing; (2) French, German and American History; (3) Latin, German and Drawing; (4) Latin, German and American History; (5) Latin, French and Drawing; (6) Latin, French and American History. There were no students in group 5 last year. The remaining seven combinations shown below are those of partial students.

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66
The following tables show the work done by Juniors in Science and Philosophy. The former elect one of the two languages offered, but Juniors in Chemistry and Mining are not required to take Logic and Ethics, and Juniors in Mining are further excused from History. Language and Mathematics are not prescribed for Juniors in Philosophy.

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<th>PHIL.</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhetoric (composition)</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
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<tr>
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<tr>
<td>English Literature (2)</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>History (2)</td>
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<tr>
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<td>2</td>
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<tr>
<td>Physics (4)</td>
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<td>Technical Subjects (11-20)</td>
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<td>1</td>
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<td>2</td>
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All the Seniors in Science and Philosophy pursued the full prescribed courses, excepting eight in Chemistry and one in Mining, who took the technical studies only.

**SENIORS IN SCIENCE AND PHILOSOPHY.**

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>CHEM.</th>
<th>MINING.</th>
<th>CIV. ENG.</th>
<th>DYN. ENG.</th>
<th>ARCH.</th>
<th>PHIL.</th>
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<tr>
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<td>1</td>
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<td>4</td>
<td>1</td>
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<tr>
<td>Technical Subjects (9-25)</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
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The work of the Post-Seniors in Science is entirely technical, and that of the students in Finance, Biology and Music confined to these subjects. Tables showing further details have been judged unnecessary.

It is of course impossible to describe in detail the work which has been accomplished in the various subjects during the year; a few points of general interest, however, may be briefly mentioned.

Latin and Greek have remained the leading languages in the Arts Course, and there appears no disposition to abandon these in favor of the Modern Languages. This is due in a large measure to the thorough and active spirit which characterizes the work in the classics. There is every reason to congratulate the University in having secured for the chair of Greek an instructor at once competent, enthusiastic
and progressive. I cannot do better, to show the condition of the courses in Greek, than to use Professor Lamberton’s words:

“The aim of the department is to introduce the students to the Greek people in their language, in their literature and in their life. In other words, the student is to be made to feel that in reading a Greek work of any sort he is reading the natural expression of an actually living person under actually existing circumstances. These circumstances and their consequences must be made clear to him, and he must then be required, as far as his powers will admit of it, to render the Greek phrases into the English phrases that properly correspond. Familiar phrases must be rendered by familiar phrases; badinage by badinage; current expressions of politeness by current expressions of politeness; bombast by bombast; poetically-colored language by poetically-colored language. To this, it will be observed, more goes than the mere conning of the pages of a grammar and turning over the leaves of a dictionary. A certain knowledge of the outline of his people, his education and his surroundings, and a constant observation of the action and reaction of thought upon expression and of expression upon thought is needful. The personality of the author, the characteristics of his race, the sphere of literature within which he moves—all must be studied and taken into account. Much of this, most of it indeed, must be given to the student by his teacher; but if the student be not led to verify what he has been told by observations of his own, and to add to it also, comparatively little has been gained. He must not only be constantly drilled in the application of principles and truths learned from authoritative statements; he must be drilled as well in the habit of reading with his eyes open. The works read must be shown to be mines from which facts of all kinds, historic, biographical, antiquarian, may be gathered and pieced together to give us the framework of Greek life and thought. Even within the sphere of grammar the language must be presented, not as dead matter to be fitted into a Procrustean bed of cast-iron rules, but as a living thing, some of the features of whose life have been imperfectly summarized in the rules of syntax. To the facts of the language, and especially to comparisons of related facts, he must be directed for the testing of these rules. And in the matter of verbal forms and of the signification of words the same principle holds; the paradigms of the grammar and the definitions of the dictionary are to be checked off by the facts observed, and the student should be shown how, by comparison of parallel passages, to determine for himself the normal paradigms and the established usage of words. So pursued, it seems to me the study of Greek may become a school of expression, a school of literature, a school of hu-
manity, and a school of scientific observation as well. To this may easily be added a most useful training in consulting standard books of reference and in reporting accurately what is found in them. Many limitations will of course be encountered, arising from defective preparation, from the youth of the students, from deficiency in the power of systematic thought (in most cases this is directly attributable to youth); but in the main I think it practicable, and calculated to awaken interest and enthusiasm. It has been my endeavor during the past year to teach Greek in this fashion, and to present it as a language that has a principle of life in it, and that was once found adequate to all the wants of a highly intellectual people, from the expression of the most vulgar details of everyday life to the highest flights of poetry and the profoundest speculations of metaphysics. Before taking up the reading of any work it has been my practice to deliver one or two introductory lectures, with the aim of placing before the class the facts as to the author and the particular work to be read, and such other matter as might be necessary for an understanding of its occasion, its purport and its position in the literature. To this has been added the mention of certain standard works, easily accessible, which I have encouraged them and, as far as possible, forced them to read. I have not hesitated to advise the proper use of standard translations, such as Jervitt's Plato and Rawlinson's Herodotus. In the recitations I have insisted on a free translation in current English of to-day, however far it might be necessary to depart from the form of the Greek expression, but have always required an explanation and defense of the rendering given. Nothing is more injurious than the ordinary so-called literal translation; the students are thereby led to believe, as an English teacher has well said, that 'any nonsense was good enough for the Greeks to talk and write.' Throughout, the endeavor has been made to get the student to observe for himself, to observe series of facts, to compare related passages and make deductions from the comparisons. How much has thus been accomplished it would be difficult to say, but something, I am satisfied, has been. On the literary side, the quality of the thought, the form of its expression, the stylistic effect of syntax, of the order of words, of the use of expletives, have been given due prominence.

Beyond all question, adequate and thorough instruction in the English Language is the most essential part of a college curriculum. This position of the subject has been fully appreciated by the Professor of English, who has labored to discover and apply the true methods of obtaining the best results. Unfortunately, from the lack of proper assistants and the limited number of hours assigned the courses, these
endeavors to reach the desired standard of excellence have been but partially successful. In no department is a large teaching force so necessary as for this work, which demands such close attention and so much labor in reading the literary attempts of almost every student in college. Unless this need is supplied, not only the prescribed work in Rhetoric and Composition suffers, but the development of the advanced work in Philology, Old English, Anglo-Saxon and the like is absolutely impossible. It is gratifying to be able to report that this year a suitable assistant has been secured and more time has been allotted to the department.

Since the publication of your last report the courses in English Literature have been entirely reorganized and given a more prominent place among the other studies. A new professorship has been created, the incumbent of which gives his attention exclusively to this subject. The courses, none of which are elective, but prescribed for all Sophomores and Juniors, and for Seniors in Arts, occupy nearly four times as many hours as formerly. Besides this important increase in hours, the method of instruction has been radically changed by the introduction of the seminary system, the aim of which, as applied to Undergraduates, is to insure a sufficient amount of reading and the evidence that this has been carefully done. It has been suggested to still further increase the hours for English Literature—not for the purpose of extending the courses, but of rendering the instruction more thorough; unless, however, some of them are made elective the measure seems at present impracticable. The request for more books, and especially the publications of the literary societies, is a reasonable one, and it is to be hoped that in the rapid increase of our collections this branch will not be overlooked.

Mention should be made in this place of an admirable course of Lectures on Shakespeare, delivered in the Chapel by Dr. Horace Howard Furness. These were of great interest and of the highest value, and their marked success suggests that a further extension of the plan to embrace lectures by eminent specialists in all lines of work would produce admirable results, provided the students were expected to attend as part of their required work.

The instruction in German and French in the earlier years of the Course in Science still suffers from the general inferiority of the preparatory training, in which a more thorough drill in ordinary parsing is imperatively needed. Without doubt this is, in part, the fault of the College in years past in not exacting better work at the entrance examinations, and, in part, owing to the different views held by instructors engaged in the preparatory work, of the true nature of the
requirements and the best methods of instruction calculated to satisfy them. These faults can be corrected by more rigid examinations, and by making clear that the ability to converse in a language, however freely, if unaccompanied by an accurate knowledge of its structure, will be by no means considered as preparation for the college work, the aim of which is, in addition to general mental training, to provide the student with such an acquaintance with the language as will enable him to read readily and accurately the scientific literature of his profession.

In the Arts Course, in which French and German are elective in Junior and Senior year, notwithstanding the requirement that the students shall know something of these languages before beginning the work, the classes were large; in French, indeed, the largest, in the Junior year, of any since elections were introduced.

The well known excellence of the instruction in Mathematics and Physics has been fully maintained, and further increased by careful revision of the courses and the employment of additional instructors. These departments have therefore been able to offer this year a larger number of electives, particularly in advanced Mathematics and laboratory instruction in Physics.

It is interesting to note that the work in Philosophy is tending steadily toward the scientific aspect of the subject. This has led to the development of the laboratory courses in Psychology, which, although opened late in the year, were well attended. The laboratories of Experimental Psychology in Biological Hall are held to be, with a single exception, the best in existence.

The recent publication of a Handbook of Information concerning the School of Biology renders a detailed report of the condition of that department unnecessary. The instruction has been rendered more effective by increasing the number of assistants, by the preparation of laboratory guides and the accumulation of better supplies of illustrative material. The amount and character of the original work done by members of the faculty during the year have been notable, and papers of importance are ready for publication. The number of students has increased to such an extent that the problem of handling the large classes in the present laboratories has become a source of much anxiety. The Zoological and Botanical collections have outgrown the Museum room, and are now packed in available spaces throughout the building. This is unfortunate, as there is practically no limit to the amount of material which can be obtained without expense.

The work of the Technical Departments, the amount and scope of which are sufficiently shown in the tables on pp. 56–63, was characterized by great energy and thoroughness.
A large proportion of theses of the Seniors and Post-Seniors were based upon original investigations, and some have been already published. In view of the increasing worth of these researches, it is proposed at the close of the present year to print a bulletin containing abstracts of the papers and theses prepared during the year.

There can be no stronger proof of the value of our technical courses and of the high rank they take in popular estimation than the fact that almost all the graduates of last year have already found professional positions, some of which are exceptionally lucrative.

In addition to the routine of regular class work, the instructors in Mechanical Engineering have been busily engaged during much of the year in planning and completing the very important alterations in the laboratories described on page 77, and in selecting and regulating the machinery and other apparatus purchased with funds collected by the Committee of the Board. The Professor in charge gave his entire summer to these improvements, and has every reason to feel gratified with the results.

I desire to call particular attention to the condition of the courses in Drawing and Architecture. These during the year were under the charge of a single Professor and attended by 116 students.

When one remembers the character of these subjects and the consequent impossibility of giving the instruction by lecture and recitation, it becomes at once evident that with one instructor and such a number of students satisfactory results cannot be obtained. This is particularly true of the elementary courses in Freehand and Mechanical Drawing, the hours for which were necessarily restricted. As many as sixty students—Freshmen of all grades of ability and diligence—were assigned to the instructor at one time, thus allowing on an average one minute of personal supervision to each student. The Sophomores were more fortunate, as the class was much smaller. The majority of the students taking the courses in Architecture were from the Civil Engineering section, and but four were in the Architectural course proper. There is no prospect that the number of applicants for this important professional training will increase unless prompt action is taken to improve the instruction in Drawing in the earlier years, and means are found to develop and add attractions to the course itself. To do this it is suggested that at least two additional instructors be secured, one of whom shall be thoroughly acquainted with the kind of work needed in preparation for the Engineering courses; the classes be divided into small sections to secure direct instruction; the student be allowed to take the kind of drawing most suitable for the line of study he proposes to follow in Junior year; and more thorough courses in additional lines
of artistic work be established, and the illustrative material largely
increased.

The remarkable success of the Wharton School has justified the
most sanguine expectations, and has proved conclusively the import-
ance of the subjects taught as elements in general education and as prep-
aration for business life, or the professions of law, politics and jour-
nalism. The School has been greatly strengthened by the election of
Dr. Patten to the chair of Political Economy and by the reconstruc-
tion of the courses in Business, Law and Practice.

The instruction in Bookkeeping, which was open to criticism in
previous years, has been put upon a new basis and is now one of the
features of the department. The high grade of the work in American
History is too well known to call for special mention, but attention
should be directed to the admirable workings of the Seminary meth-
ods and the practical value of the Wharton School Congress—a body
fashioned after the Congress of the United States for the discussion of
the topics of the day and instruction in legislative procedure. For
some time the School has been sorely hampered by insufficiency of
library facilities. Fortunately this urgent need has been met by a
further gift from Mr. Joseph Wharton of twenty-five thousand dol-
ars, the interest of which shall be spent for works on Economics and
Politics.

Owing to Professor James' absence in Europe last year, a special
arrangement in the curriculum was found necessary, but no courses
were actually omitted, as the work was divided among the other
members of the Faculty.

The course in Physical Education given during the last College year
was far from satisfactory. A certain proportion of the students were
given the physical examinations, but systematic work by all, whether
interested or not in athletics, was practically a failure, and the
gymnasium was closed for the greater part of the time to the College
at large. This was due to the neglect to provide an experienced
trainer who should be continuously in the gymnasium to give the
necessary instruction, and to the fact that although the Faculty
required all Freshmen and Sophomores to spend at least two hours
a week in the gymnasium, no hours were assigned upon the roster
for this work. This year happily the system has been reorganized.
The gymnasium hours for Freshmen and Sophomores have been
carefully arranged where they will be of most use in breaking the
mental strain induced by continuous work in the recitation room and
labouratory. An expert instructor is in the gymnasium not only at
those hours, but meets the upper classes at regular periods. With
very few exceptions all the lower class men have been carefully examined. These examinations show a marked gain in the average physical development and that the general health of the students has been very good. While the importance of proper physical training can scarcely be overestimated, there is always present the danger of serious interruption of the intellectual side of the student's education by the abuse of athletic sports. To guard against this danger and to check other evils which have already arisen, the Faculty has appointed a Committee which, with the assistance of representatives from the Graduate Advisory Committees, shall formulate the regulations necessary to properly govern College Athletics.

No alterations in the requirements for admission to the Freshman Class for the Courses in Arts or Science have been made during the year. English, History and Mathematics, including Arithmetic, Algebra and Plane Geometry, are prescribed for all candidates irrespective of the course they propose to enter. In addition to these subjects, applicants to the Arts Course must present Latin and Greek, and students who desire to take the Course in Science are examined in Solid Geometry and two of the three languages, Latin, German and French. The requirements for the Arts or Science Course will be accepted for entrance to the new Course in Natural History, or candidates may offer a third combination of studies. Some of these subjects are prescribed and some are elective. Of the former class are the English, History and Mathematics required of all candidates, Physical Geography and Advanced English. The electives, four of which must be chosen, are Latin, English History, Mathematics, Astronomy, Geology, Physics, Chemistry, Zoology, Botany and Physiology.

The adoption of such requirements marks an important step in the history of the University. It is not only a recognition of the educational value of the Sciences in preparation for College work, but will tend to bridge the gap which has hitherto unfortunately existed between the University and the high schools of the State. It has been thought by some that this action has lowered the standard of the entrance examinations. This is in no sense the case. A closer examination of the requirements will show that to pass the examinations—and for the present no certificates covering these subjects can be received—will demand more time in preparatory study, and consequently a higher degree of mental maturity. A student, it is true, may now enter the Natural History Course without the knowledge of any language except English, but in that case, to avoid unequal development, he must devote a larger proportion of his course to the
acquisition of Latin, German or French. It is of interest in this connection to be able to say that the progress made by the few students who have begun the study of these languages in College has been most satisfactory.

The admission of students to College without examination, upon the certificate of the schoolmaster, has not been in operation for a sufficient time to enable us to form a decided opinion or to offer statistics of value. The results thus far obtained appear to show little difference with regard to the quality of the preparatory training between the students admitted by this method and those who pass the regular examinations. It should be remembered, however, when making comparisons between the two classes, that the student's progress during the first term of Freshman year is not a safe index of his preparation, since it not infrequently happens that the most carefully trained pupil falls into careless ways, while others who have had but indifferent opportunities attain creditable rank by additional labor. It has been shown, however, by the experience of two years that the admission of students by certificate must be most carefully guarded, not only in the interest of the College, but for the protection and encouragement of the schoolmaster. With these objects in view the Faculty has recently established two important rules. The first of these requires that the certificate shall cover all the studies prescribed for admission to the course selected, and the full requirement in each subject. No partial certificate can therefore be accepted. The second rule states that certificates will be received from the private tutors who have been especially accorded this privilege, only on condition that the pupil has been under his care for at least two consecutive school years. It is felt to be essential to the development of a higher standard of preparatory training that the student shall deliberately and thoroughly carry to completion the courses of study which have been so carefully arranged by the masters of our schools. There will certainly be fewer cases of failure in College if parents can realize more fully that hasty preparatory work, even if it effects the completion of the technical requirement for admission, can never have great educational value.

Some changes have been made recently in the courses of instruction offered by the College Faculty. The Course in Philosophy for Undergraduates has been replaced by a four-year's course in Natural History, leading to the degree of Bachelor of Science. This course differs from those in Arts, Science or Finance in being broadly elective. No electives, it is true, are offered in Freshman year, and in addition to English, Mathematics, History and Drawing, General Biology is required, but
after this year the student is at liberty to choose almost freely from an excellent list of subjects, which are in the main scientific. The required work in the foreign languages may be confined to a single year or be taken through the four. The course is open in the Junior year to students who have passed the Freshman and Sophomore years in Arts or Science. In these courses the Freshman work in English has been increased from two to three hours per week. The additional hour is used for practical exercises in composition. An important change has been made in the method of teaching Chemistry to all Sophomores and other beginners. The old plan of illustrated lectures with weekly recitations was found unsatisfactory, and it was decided to place the students at once in the laboratories and limit the lectures to informal explanatory talks and the recitation to frequent quizzes. This has not been an easy task, and has cost the expenditure of much energy, time and money. A room which could be transformed into a laboratory was found and fitted up with the necessary furniture and apparatus. To insure direct personal supervision by the instructors, the class was divided into five sections of about twenty-five each, one afternoon per week being given to each section. The results thus far obtained have been most encouraging. The students take a lively interest in the work, and although they will not succeed in covering so much ground as under the old lecture system, their knowledge will be more exact and thoroughly practical.

The Course in Arts remains substantially the same as heretofore. New electives in English, Psychology, Biology, Physics, Chemistry and Mathematics are offered in the later years; the instruction in Astronomy and Political Economy is increased to two hours for each subject throughout the year, and equivalent courses in Psychology can be substituted by Seniors for the required work in Philosophy. A few changes additional to those already mentioned have been made in the curriculum of the Course in Science. In the Sophomore year Descriptive Geometry has been given two hours a week in place of one throughout the year. The advantage of this addition has been already shown in the fact that very few students failed in the mid-year examinations, whereas in former years the majority of the class were conditioned in this subject at the close of the first term. The course in History, which is taken in place of those in Descriptive Geometry and Drawing by Sophomores who intend entering the Wharton School in Junior year, has been increased to three weekly exercises throughout the year. The course in the Wharton School has been further modified only in some unimportant details. In the technical courses in the Towne Scientific School a few alterations have been effected. Additional hours for
analytic work have been secured for Senior Chemists, and much time
has been gained for the Juniors and Seniors in Mechanical Engineering
by having the workshops in the College building.

Much attention has been bestowed upon the condition of the College
buildings, and a general renovation has been begun and many impor-
tant improvements have been effected. The entire basement has
been calssomined and painted. The dressing rooms have been enlarged
and furnished with new ventilated water-closets, wash-stands and mir-
rors; the old asphalt floor has been replaced by one of concrete, and
the windows cut down to admit more light. The laboratories of
Mechanical Engineering have been entirely remodeled and increased
by the addition of a large room formerly used for the storage of
chemical apparatus. The suite now consists of three laboratories; one
is devoted entirely to electrical work, and is fitted up with all the
necessary instruments of precision. The middle one, the former dy-
namical laboratory, is devoted mainly to testing experiments, and con-
tains a 10 x 24 Hamilton-Corliss engine, an Olson testing machine,
pumps, condensers, etc. In the new laboratory are the workshops—one
for woodwork and the other for ironwork—equipped with benches,
lathes and the necessary hand tools. Power is furnished by an 8 x 16
Porter-Allen engine, supplied by steam from a steel boiler with
a capacity of 25 horse-power, which also supplies the Corliss engine
in the other laboratory. An Edison dynamo generates the electric-
ity used in lighting the laboratories and charging the storage
batteries, and in the electrical tests.

The department of Metallurgy and Mining has likewise been pro-
vided with additional accommodations. The two rooms adjoining the
assay room have been fitted up as laboratories for mineralogy and
mining. The larger one, formerly the carpenter shop, has been divided
by wooden and glass partitions into a chemical laboratory, furnished
with desks, hoods and the special apparatus required; a drawing room
and a dark room for spectroscopic and goniometric work. The smaller
room, hitherto not used, forms a very well-equipped private laboratory
for the Professor in charge. The room formerly used as a restaurant has
been utilized as a carpentershop. New benches and tools have been added
for the use of the students in the Civil Engineering Course. On the first
floor a private room for the Professor of Mechanical Engineering has
been obtained by cutting off ten feet from the rear of the large chemi-
cal lecture room. The old chemical reading room, once the private
laboratory of the Professor of Chemistry, is now used as the Dean’s
office, and with the Secretary’s office, which adjoins, has been com-
pletely refurnished. A door has been introduced between the small
chemical lecture room and the old balance room, and the latter converted into a private room for the Professor of Organic Chemistry. Much space has been gained in the organic laboratory by the removal of the mineralogical work to the lower floor. On the second floor one of the larger Wharton School rooms has been divided and an additional recitation room has been added to the suite, thus making in all five rooms strictly devoted to the work of this School.

The old mining drawing room has been fitted up as a chemical laboratory for beginners. New backs have been put in most of the benches in the Chapel and the platforms have been recarpeted. A private room for the Professor of Assyrian has been secured by reducing the size of the largest mathematical recitation room. The old examination hall or law room has been painted and calsomined and two large sky-lights let into the roof. It has been divided by low partitions into a number of smaller rooms which are now occupied by the archaeological and ethnological collections, but which are intended for the different branches of architectural instruction, such as modeling, water-color painting, sketching, etc. It is the intention to thoroughly repair the entire building. This can be done at a small cost; a painter and plasterer have been added to the force of employees, and the work progresses at the rate of about one room finished each week. The difficult problem of cleaning a large building in constant use during the day has been more nearly solved by having the work done at night. Once in twenty-four hours all the halls, dressing rooms and assembly rooms can be scrubbed, the recitation rooms swept and dusted, and a certain number of the latter more thoroughly cleaned.

The College building is now badly crowded; almost every room is used continuously from nine until four, and a special roster for the use of rooms has been found necessary. Further extension of the courses will soon be impossible from lack of accommodation. In addition to the great need of more recitation and private rooms, space must be found for the proper display of the growing collections illustrating industrial chemistry, engineering and the arts. If certain of the technical departments could be provided with a separate building, the rooms they now occupy could be profitably devoted to the literary and pure science work, and if the religious services could be conducted in a chapel building, the present Chapel would give an ample hall well adapted for museum purposes.

Owing to the unavoidable disorder produced by the erection of the library building, little has been done toward improving the main College campus. The drives and walks have been repaired and a few new drains added. The work on the botanical garden, lying to the east and
west of Biological Hall, has been pushed as fast as the available means would permit. Already a large plot of ground is under cultivation, and it is expected that by the end of the coming summer the remainder of the space set aside for this purpose will be in order. Additional greenhouse facilities are needed, as the present small building is now entirely inadequate.

The dining-hall, a temporary wooden building one hundred feet long by fifty wide, with a kitchen annex fifty by twenty five feet, was erected this autumn and is an important addition. No lectures or recitations are now held during the hour from one until two, which ensures a fixed time for rest and a proper mid-day meal for all instructors and students. Under the present conditions of college life it has not been found practicable to increase the intermission to two hours, as was suggested by an alumni committee. While it is probable that the majority of students in the College Department will always reside at home, for a constantly increasing class dormitories are imperatively needed. It has been found practically impossible to exercise the supervision which is expected—and often directly requested—by guardians if the students live in boarding houses over which our control is at best but indirect.

The general order in the College during the year has been excellent and no serious case of discipline has been brought before the Executive Committee. The personal conduct of the students has been marked by a more manly tone, due without doubt to a more thorough enjoyment of college life, the absence of all espionage, and the more intimate association of the instructor with the pupil. As this personal relation is regarded as the most important of all educational means, every effort has been made to abandon the instruction of large classes by substituting, where possible, practical exercises for lectures and by subdividing the lower classes into smaller sections. The elections permitted in Junior and Senior years separate the students in these classes into convenient divisions, and the general adoption of the informal seminary methods is producing most excellent results.

Although religious instruction is not a part of the College curriculum, and while any teaching having a denominational character would be in violation of the traditions and pledges of the University, yet the fact that four or five hundred students are placed under our care at a critical and impressionable age offers an opportunity for effecting so much good that the moral responsibility of providing adequate ethical influence is keenly felt. It is certain that very little is accomplished by the present system of compulsory attendance upon the Chapel exercises. Indeed it has been questioned if actual harm is not done to those
interested by the presence of a body of students who are entirely indifferent. Although the services have been greatly improved during the past few years, until in their present form they appear admirably suitable, a decided lack of interest is noticeable. This is due in part to the fact that the attendance is compulsory, and in part to the absence of all religious association connected with the hall in which the exercises are held, since the present Chapel on the second floor of the College building, as the only large and handsomely furnished hall in the University, is used for all large entertainments given by the University, the Alumni or the students. With the existing hours and accommodations, and the consequent impossibility of reaching students in other departments of the University, it is probable that if Chapel were at once made voluntary the attendance would be very meagre.

It is evident therefore that for the proper development of this work there exists a real need for a separate Chapel building. The morning exercises might then be made voluntary and would be well attended, and Sunday services conducted by clergymen of different denominations could be made a real feature in the University life.

In addition, the most active encouragement should be given to the various religious societies existing among the students, and it is to be hoped that the friends of these movements will give the comparatively small sum of money needed to build the guild houses and halls which are contemplated.

I have the honor to remain, very respectfully,

HORACE JAYNE, Dean.

APPENDIX VIII.

DEPARTMENT OF MEDICINE.

TO THE PROVOST OF THE UNIVERSITY.

DEAR SIR:—As Dean of the Department of Medicine I beg to submit the following report:

During the session of 1887–8 four hundred and thirty-five students attended the instruction in this Department. Of these—

3 were students of the fourth year,
136 " third "
150 " second "
128 " first "
18 were special students, making a total of 435.
During the session of 1888–9 there were four hundred and forty-four students in attendance, made up as follows:

- 2 were students of the fourth year,
- 160 " third "
- 134 " second "
- 139 " first "

9 were special students, or a total of 444.

This number was the largest in attendance since the session of 1859–60, when 528 matriculates appear to have been enrolled, but an examination of the catalogue of that year discovers 90 of these to be graduates in Medicine, almost none of whom were probably bona fide students, it being the practice in those days to invite graduates to enroll their names regardless of attendance, a practice which I am glad to say has long been discontinued; and if these be deducted the list of that day will be reduced to 438, making the class in attendance for the session of 1888–9 probably the largest in the history of the school.

It will be seen, however, from the above that while the total number of students is steadily increasing, that of the fourth year not only exhibits no increase, but even shows a falling off. If we add to this the fact that among those who take the fourth year course are almost none of our own students, but that they consist mainly of men from other schools who desire to complete their preparation by means of the better elaborated courses, and especially the clinical facilities afforded by a large city and an old school, it is plain that we cannot expect for a long time, if ever, to establish a fourth year through the voluntary election of students themselves. At the same time it is fully realized by all who are brought into intimate contact with our students that the willing ones are overworked, that insufficient time is given to recreation and physical exercise, and that the health of many suffers in consequence. Scarcely a year passes in which one or more of our graduates do not perish from consumption or typhoid fever, the conditions favoring their development having been furnished by too close application to study. On the other hand, we realize more fully each year that the amount of clinical instruction given is altogether insufficient to secure that familiarity with disease and its treatment which is the ultimate object of the medical education. More hours are needed for this purpose, and these can only be acquired by the addition of a fourth year to the curriculum, while a much needed relief to the actions of an overcrowded third year can only be met in the same way.

Naturally, therefore, our thoughts are much turned to this greatly needed change, and to a consideration of the difficulties and objections in the way of its immediate attainment. These, to my mind, resolve
themselves into but one difficulty and one objection, and each grows out of a single consequence, viz., the apparently inevitable falling off in the number of students. The difficulty thus resulting is the reduced revenue to the school, and consequent inadequate compensation of its teachers, and the objection is the diminished influence of the school which must result from a decrease in its disciples, each one of whom is an advertisement of its qualities and its methods, as well as a distributor of its good work. A sufficient endowment fund would obviate both difficulty and objection. Let us consider our wants in this respect. At present it will be sufficiently correct, basing the estimate on the class of 1888-9, to place the total number of paying students at 375, or an average in each class of 125, each of whom pays $150, making an annual income from this source at $56,250. Should, however, a compulsory four years’ course be instituted, it may reasonably be expected that there will be a falling off of at least 25 per cent., reducing each class to 94 (93.4). But since, as soon as the four years’ course is fully established, there will be four classes in attendance, there will still be 375 in all, which, at $150 each, would yield $56,250, as before. But if the fee for the fourth year were reduced to $100, as, for many reasons, seems desirable, the annual income from this source would be reduced to $51,550, a loss of $4,700. This is independent of matriculation fees, which would be reduced from an average of $625 annually to $470, a further loss of $155, or a total of $4,855. A principal sum of $100,000, at 5 per cent.—a high rate of interest to-day—would little more than make up this deficiency, to say nothing of increased outlay demanded for additional instructors required by a four years’ course. Suppose, however, such a sum of $100,000 could be raised with the understanding that the income therefrom should be used to increase the number of free scholars, what would be the effect on the classes? At the same rate of interest, each $3,000 of principal would yield $150, a single tuition fee, and the whole sum would yield enough to permit the admission of 33 free students, which, added to the 375 paying men, would be 408; and if to these be added the 18 existing free scholarships, the total of students would be 426, essentially as many as at the present day. So that the influence of the school, so far as dependent on numbers, would be maintained, while its reputation would be greatly enhanced by the fact that it maintained a four years’ curriculum.

It is reasonable to suppose that an appeal for an endowment fund, with the understanding that its income shall be devoted to increasing the number of free students, would be favorably considered by the community, while there can be little doubt but that the Medical
Faculty would feel justified in recommending the change if such a sum could be secured.

A noteworthy fact, and one requiring explanation, is the very large number of students in the third or graduating year for the session of 1888–9. This is chiefly due to the fact that in this class are included a rather larger number than usual who, having failed the previous year to pass the final examinations, repeated the third year, or certain branches in it. A smaller accession is caused by admissions to advanced standing, those to the third year seldom exceeding two or three. It is the second year which receives the largest accession from this source, the larger number being graduates of Pharmacy who are admitted on their diplomas to this year. The second year class of 1887–8 contained 17 from this source, and the second year class of 1888–9, 8. These students do not as a rule do us much credit. They enter without any knowledge of Anatomy and Physiology, and have to finish these courses in one term, while the students who are with us three years repeat the courses in Anatomy and Physiology. There are, however, a few signal exceptions to this, and from the last class one of these graduates of Pharmacy passed the very rigid examination of the Naval Board even before he passed his final graduation examination with us.

Of the students admitted to the Freshman or first year class of 1887–8, numbering 128, 28, or 22 per cent. only, possessed degrees in Arts or Science, 76, or 60 per cent., were admitted upon certificates from recognized high schools and academies, and 24, or 18 per cent., were admitted after examination in Physics and English. Of those examined in Physics 10 were admitted conditioned on this branch, which seems to be much neglected in the preparatory schools. Of the total number of students in the class of 1887–8 (435, omitting special students, 417), 107 possessed literary or scientific degrees, 25 were admitted to advanced standing, 20 to the second year, 3 to the third and 2 to the fourth.

Of the Freshman class of 1888–9, 42 were admitted on degrees in Arts or Sciences, 81 were admitted upon certificates, and 16 were admitted after examination in Physics and English. Of those examined in Physics, 12 were admitted conditioned on this branch. It is an interesting fact that up to the present time no student who was admitted conditioned failed on any studies in course, the failures being among those admitted on certificates. It is intended to diminish gradually the admissions upon certificate. Of the total number of students in the class of 1888–9 (444, omitting special students, 435), 121 possessed Literary or Scientific degrees, 21 were admitted to advanced standing, 13 to the second year, 6 to the third and 2 to the fourth.
I append an interesting table showing how many of the first year class held degrees in Arts or Science at date of admission in each of the last twelve years, since the compulsory three years' course was established:

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TOTAL CLASS</th>
<th>DEGREES</th>
<th>PER CENT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1877-8</td>
<td>136</td>
<td>19</td>
<td>13.9</td>
</tr>
<tr>
<td>1878-9</td>
<td>123</td>
<td>20</td>
<td>16.2</td>
</tr>
<tr>
<td>1879-80</td>
<td>133</td>
<td>33</td>
<td>24.8</td>
</tr>
<tr>
<td>1880-81</td>
<td>109</td>
<td>34</td>
<td>31.1</td>
</tr>
<tr>
<td>1881-2</td>
<td>98</td>
<td>24</td>
<td>24.5</td>
</tr>
<tr>
<td>1882-3</td>
<td>115</td>
<td>33</td>
<td>28.7</td>
</tr>
<tr>
<td>1883-4</td>
<td>140</td>
<td>43</td>
<td>30.8</td>
</tr>
<tr>
<td>1884-5</td>
<td>101</td>
<td>33</td>
<td>31.5</td>
</tr>
<tr>
<td>1885-6</td>
<td>131</td>
<td>35</td>
<td>27.0</td>
</tr>
<tr>
<td>1886-7</td>
<td>137</td>
<td>43</td>
<td>31.4</td>
</tr>
<tr>
<td>1887-8</td>
<td>128</td>
<td>28</td>
<td>22.0</td>
</tr>
<tr>
<td>1888-9</td>
<td>139</td>
<td>42</td>
<td>30.0</td>
</tr>
</tbody>
</table>

It will be noted that the percentage is a very irregular one, and cannot even be said to be gradually increasing. If, however, the average of the five years, 1877-8 to 1881-2 inclusive, be compared with the average of the second five, 1882-3 to 1886-7, it will be found that there is an increase in the percentage of college graduates of 4.7 per cent. only.

The fire which consumed the entire fourth story of Medical Hall on the morning of May 31st, 1888, destroying almost everything in the way of apparatus and preparations in the Histological and Pathological Laboratories, and irreparably injuring in certain respects the Wistar and Horner Museum and the Stille Medical Library, proved in some respects a blessing in disguise. The insurance companies were very liberal in their allowances, making an award of $14,825.00 for loss on building and $15,098.75 on Museum and apparatus, including the portraits in the Museum, two of which alone were completely destroyed.

Advantage was taken of the rebuilding to remodel the Histological and Pathological Laboratories, which had become somewhat antiquated, to better adapt the light for microscopic work, to provide facilities for micro-photography in both departments, and for the study of Bacteriology. The elements of this important department of modern Pathology are now taught to each member of the graduating class, and each one has a sufficient knowledge to enable him to undertake work of this kind if he cares to do so. A very superior animal house was also built in the upper story, with every facility for washing and
draining, and up to the present time has been found eminently satisfactory. In other ways, too, the new superstructure is superior to the old. This renewal of Medical Hall, as was expected, was found to cost more than the insurance recovered, and as it soon became evident that it would not be necessary or even possible to replace all the lost and injured specimens and portraits of the Wistar and Horner Museum, and that therefore some of the insurance money allowed for these would not be needed; also that certain expenditures could not be sharply defined as chargeable to one or other insurance fund, by decision of the Trustees the two funds were regarded as one, against which all renewals and replacements were charged. The total thus rendered available was $29,923.75. Out of this the Medical Hall was restored, the outfit of microscopes was practically renewed, the Histological and Pathological Laboratories were supplied with a full outfit of other apparatus of all kinds required for conducting the work of these departments, the portraits in the Museum were cleaned, reframed and rehung, and by order of the Trustees $370 were appropriated to make up the deficit in the sum raised by the class toward the new portrait of Professor Agnew. The anatomical losses of the Wistar and Horner Museum were replaced as far as they could be in this country, and $2,500 were appropriated for the purchase of anatomical preparations in Europe by Professor Leidy, who is at this time abroad for the purpose. Certain renewals of plastering in different parts of Medical Hall, made in June and July of this year, were also ordered by the Chairman on Buildings, Estates and Properties to be charged to the insurance fund, because deemed indirectly caused by the fire. The estimated cost of these was $330. Notwithstanding these extensive repairs and purchases, a balance of the insurance fund, amounting to about $8,000, remains unexpended. This balance has been further diminished by charges made against it. At this time the Medical Department is in possession of 78 excellent microscopes, essentially new, including one first-class Zeiss instrument, with Abbe condenser, and lenses BB, DD, and a \( \frac{1}{2} \) oil immersion, three compensating oculars and one projecting ocular. The remaining instruments include, in the Histological Laboratory, 36 Zentmayer's microscopes, each with double nose piece, an \( \frac{3}{10} \) in. and \( \frac{1}{2} \) in. objective and A and B oculars; in the Pathological Laboratory, 34 Zentmayer's microscopes, each with \( \frac{1}{4} \) objective and B ocular; and in the Clinical Laboratory at the Hospital, one Leitz stand, equipped with a \( \frac{3}{4} \), a \( \frac{1}{2} \), and a \( \frac{1}{4} \) oil immersion lenses, eye-pieces A and C, iris diaphragm and Abbe condenser.

The largest irreparable loss, the result of the fire, was that of the
Stillé Medical Library, almost entirely from the water with which the building was deluged. This loss consisted in damage to the books and their bindings amounting to $7,500, estimated by Mr. Gregory B. Keen, the Librarian of the University; and as there was no insurance on this it is total. With the consent of the founder, Dr. Alfred Stillé, the library is temporarily stored in the building of the Department of Arts and Sciences until the completion of the new fire-proof library building, where it will be suitably housed. The accident to the Wistar and Horner Museum also emphasized a point long insisted upon by Professor Leidy, that it was most important to the interests of the Museum that it should have a paid Curator in charge of the collection and responsible for its condition, including the renewal of worn-out specimens, and the preparation of a revised catalogue for publication, this in addition to the mechanician or preparer who is already employed for this purpose, and who needs direction in his work. It having been intimated that friends of the University would ultimately provide a principal sum, the interest of which would pay for the services of such a Curator, it was decided to attempt to raise a temporary fund to last until such time as the larger sum is provided. In response to this effort, $1,800 were subscribed as follows: $250 each by Isaac J. Wistar, Esther F. Wistar, Henry C. Gibson, Charles E. Smith, Charles C. Harrison and the Medical Faculty; and $150 each by Clarence S. Bement and Richard Wood. It is hoped that other subscriptions will be obtained, raising the sum to $2,500.

The collection of morbid specimens intended for hand-to-hand demonstration has been very largely increased since my last report, through the enthusiastic efforts of Dr. Henry F. Formad, the Demonstrator of Pathology. The collection now contains 600 specimens, notwithstanding many lost by the fire remain unreplaced. They are stored on shelves provided in the reconstruction of the Laboratory, and are classified, those of a kind being placed in separate labeled jars, whence they can be easily removed when desired to illustrate a given disease. They are also used in the final examinations to test the knowledge of the student in Practical Pathology. Glass for their storage to the value of $500 has been gradually accumulated.

The past two years have witnessed the construction and equipment of a small Maternity Hospital out of funds which have been raised for the purpose by Professor Barton Cooke Hirst. It will go into operation with the beginning of the coming winter session, and will be used in connection with the general hospital of the University. By means of this arrangement, notwithstanding the limited capacity
of the Maternity Department, the beds can be rapidly emptied, and it is expected that a sufficient number of cases may be admitted to permit each member of the graduating class to have some experience.

The appended table indicates the subjects taught and the number of hours per week devoted thereto in the past winter’s session, 1888–9, by the professors and instructors:

### First Year

<table>
<thead>
<tr>
<th>Instructors</th>
<th>Subjects</th>
<th>Exercises per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Leidy</td>
<td>Descriptive Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>Dr. Deaver</td>
<td>Topographical Anatomy</td>
<td>2</td>
</tr>
<tr>
<td>Drs. Deaver, Holmes, Neilson, Richardson and Roberts</td>
<td>Practical Anatomy (Dissection)</td>
<td>10</td>
</tr>
<tr>
<td>Drs. Piersol, Chambers and Robert Formad</td>
<td>Histology, laboratory instruction, 10; 1 hour demonstration</td>
<td></td>
</tr>
<tr>
<td>Dr. Miller</td>
<td>Mat. Medica and Pharmacy, lecture</td>
<td>1</td>
</tr>
<tr>
<td>Dr. Toboldt</td>
<td>Practical Pharmacy, laboratory exercises</td>
<td>4</td>
</tr>
<tr>
<td>Prof. Wormley</td>
<td>General Chemistry, including Chemical Physics</td>
<td>2</td>
</tr>
<tr>
<td>Drs. Marshall and Cattell</td>
<td>Practical Chemistry, laboratory</td>
<td>4</td>
</tr>
<tr>
<td>Prof. Reichert</td>
<td>Physiology</td>
<td>3</td>
</tr>
<tr>
<td>Prof. Tyson</td>
<td>General Pathology</td>
<td>1</td>
</tr>
<tr>
<td>Prof. Dickson</td>
<td>Hygiene</td>
<td>1</td>
</tr>
<tr>
<td>Profs. Agnew, Pepper and Ashhurst</td>
<td>General Clinics, Medical and Surgical</td>
<td></td>
</tr>
</tbody>
</table>

### Second Year

<table>
<thead>
<tr>
<th>Instructors</th>
<th>Subjects</th>
<th>Exercises per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Leidy</td>
<td>Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>Dr. Deaver</td>
<td>Topographical Anatomy</td>
<td>2</td>
</tr>
<tr>
<td>Drs. Deaver, Holmes, Neilson, Richardson and Roberts</td>
<td>Dissection</td>
<td>10</td>
</tr>
<tr>
<td>Prof. Wormley</td>
<td>Medical Chemistry, lecture</td>
<td>1</td>
</tr>
<tr>
<td>Drs. Marshall and Cattell</td>
<td>Laboratory Exercises in Medical Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Prof. Reichert</td>
<td>Physiology</td>
<td>3</td>
</tr>
<tr>
<td>Prof. Tyson</td>
<td>General Pathology and Morbid Anatomy</td>
<td>2</td>
</tr>
<tr>
<td>Drs. H. F. Formad and A. J. Smith</td>
<td>Laboratory Exercises in Pathological History</td>
<td>5</td>
</tr>
<tr>
<td>Prof. Bruen</td>
<td>Physical Diagnosis, 1 lecture per week, 2 hours' practical instruction</td>
<td>3</td>
</tr>
<tr>
<td>Prof. Wood</td>
<td>Therapeutics</td>
<td>2</td>
</tr>
<tr>
<td>Prof. Pepper</td>
<td>Theory and Practice of Medicine</td>
<td>3</td>
</tr>
<tr>
<td>Prof. Agnew</td>
<td>Surgery</td>
<td>3</td>
</tr>
<tr>
<td>Instructors</td>
<td>Subjects</td>
<td>Exercises per week</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-----------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Prof. Hirst and Kelly</td>
<td>Obstetrics</td>
<td>2</td>
</tr>
<tr>
<td>Prof. Agnew, Pepper, Ashhurst and Osler</td>
<td>General Clinics, Medical and Surgical</td>
<td>4</td>
</tr>
<tr>
<td>Prof. Wood, Norris, Strawbridge, Goodell and Dr. Stelwagon</td>
<td>Special Clinics (Nervous Diseases, Diseases of the Skin, Eye, Ear, Diseases of Women and Children)</td>
<td>5</td>
</tr>
</tbody>
</table>

**Third Year.**

- **General Pathology and Morbid Anatomy, including demonstrations** 3
- **Demonstrations in Morbid Anatomy** 2
- **Therapeutics** 2
- **Theory and Practice of Medicine** 3
- **Surgery** 3
- **Operative Surgery, Minor Surgery and Bandaging, 1 lecture per week, 2 hours’ practice** 3
- **Operative Obstetrics, 1 hour practice,** 1 term 1
- **Gynecology, 1 lecture per week, 3 hours’ bedside teaching** 4
- **Bedside Instruction in Practical Medicine** 3
- **Bedside Instruction in Practical Surgery** 3
- **General Clinics, Medical and Surgical** 4
- **Special Clinics (Nervous Diseases, Diseases of the Skin, Eye, Ear, Gynecology, Children, Genito-urinary Diseases)** 6½
- **Medical Jurisprudence and Toxicology** 1

**Fourth Year.**

- **Clinical Medicine and Physical Diagnosis, including Laryngology—practical instruction before Jan. 1.** 4
- **Operative Surgery and Genito-urinary Diseases—practical instruction** 3
- **Clinical Instruction in Genito-urinary Diseases** 1

Profs. Pepper and Osler, and Drs. Musser and Seiler 5 after Jan. 1.
Profs. Agnew and Ashhurst 3
Drs. Neilson and Martin 1
Prof. White 1 after Jan. 1.
Instructors. | Subjects. | Exercises per week.
--- | --- | ---
Prof. Wood and Drs. Lloyd and Dercum | Nervous Diseases and Electro-Therapeutics—clinical lecture, practical instruction | 3 until Jan. 1.
Dr. Mills | Mental Diseases | 2 after Jan. 1.
Prof. Goodell and Dr. Taylor | Gynecology—didactic lecture, clinical lecture, practical instruction | 3
Prof. Starr | Diseases of Children—1 hour clinical lecture | 1 until Jan. 1.
Dr. Stelwagon | Dermatology—didactic lecture, clinical lecture, practical instruction | 2 after Jan. 1.
Prof. Strawbridge and Dr. Ziegler | Otology—didactic lecture for half session, practical instruction for half session | 1 until Jan. 1.
Prof. Norris and Dr. Risley | Ophthalmology—didactic lecture, clinical lecture, practical instruction | 3
Prof. Hirst | Clinical and Operative Obstetrics—practical instruction for half the session | 1 until Jan. 1.
Drs. Willard and Young | Orthopedic Surgery—didactic lecture for half session, practical instruction for half session | 1 after Jan. 1.
Prof. Reese | Medical Jurisprudence and Toxicology | 1

Appended is a condensed statement of income and disbursements for session 1888-9:

### Income.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition and Matriculation Fees</td>
<td>$57,720.00</td>
</tr>
<tr>
<td>Fees from previous years</td>
<td>407.50</td>
</tr>
<tr>
<td>Dental Department Fees, Gas and Chemicals</td>
<td>550.25</td>
</tr>
<tr>
<td>Dissecting Room</td>
<td>528.50</td>
</tr>
<tr>
<td>Chemical Laboratory (breakage)</td>
<td>205.09</td>
</tr>
<tr>
<td>Biological Department (alcohol)</td>
<td>75.90</td>
</tr>
<tr>
<td>Veterinary Department (alcohol and chemicals)</td>
<td>61.62</td>
</tr>
<tr>
<td>Closet Fees</td>
<td>99.00</td>
</tr>
<tr>
<td>Duplicate Diploma</td>
<td>10.00</td>
</tr>
<tr>
<td>Special Students (7)</td>
<td>615.00</td>
</tr>
<tr>
<td><strong>Total from Students and allied sources</strong></td>
<td><strong>$60,272.85</strong></td>
</tr>
<tr>
<td>Less Fees returned</td>
<td>658.75</td>
</tr>
<tr>
<td><strong>Total from Students and allied sources</strong></td>
<td><strong>$59,614.11</strong></td>
</tr>
<tr>
<td>Additional income: Barton Fund</td>
<td>1,488.57</td>
</tr>
<tr>
<td>Fell</td>
<td>87.48</td>
</tr>
<tr>
<td>Unexpended balance, 1887-8</td>
<td>811.72</td>
</tr>
<tr>
<td><strong>Total income from all sources</strong></td>
<td><strong>$62,006.88</strong></td>
</tr>
</tbody>
</table>
Disbursed as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenses of session, including Demonstrators' Salaries</td>
<td>$24,865.00</td>
</tr>
<tr>
<td>Equipment Associate Professor of Obstetrics</td>
<td>1,000.00</td>
</tr>
<tr>
<td>Contingent Fund, Medical Department</td>
<td>151.41</td>
</tr>
<tr>
<td>Salaries of Professors</td>
<td>35,990.47</td>
</tr>
</tbody>
</table>

Total: $62,006.88

Respectfully submitted,

JAMES TYSON, Dean.

UNIVERSITY OF PENNSYLVANIA, July 1, 1889.

REPORT OF THE DEMONSTRATOR OF PATHOLOGY AND MORBID ANATOMY.

PROF. JAMES TYSON, DEAN OF THE MEDICAL FACULTY.

Dear Doctor:—I herewith respectfully submit a report upon the practical teaching and work in the Pathological Department for the session of 1888-9, and some recommendations as to desirable improvements.

Suggestions relating to certain corrections and repairs in the faulty plumbing, and to the completion of some unfinished parts of the Laboratory, and to certain minor defects, are contained in the various parts of this report. I further urge an increase in the yearly appropriation for the Laboratory, in order to meet more nearly the actual expenses of this department.

I have made this report more extensive than any I have submitted heretofore, thinking it appropriate at this time of your withdrawal from the immediate guidance of the Pathological Department to give a complete report and sketch of its development and of the condition to which it has gradually grown under your management. The details of the working of this department of the University are not sufficiently known, because Morbid Anatomy studies and teaching have features that naturally keep them from the public eye and ear, and consequently the perfection of the work in Practical Pathology and the scope it covers are insufficiently known to those in care of the University, and even to the Faculty itself.

The Pathological Department, both as to its didactic and practical parts, compares favorably with every other department of the University, and has contributed largely to its success. It also compares favorably with the Pathological Department of Harvard University, in fact excels it in so far as Morbid Anatomy material is concerned, and the rest of American schools offer instruction of students in systematic Morbid Anatomy demonstrations only on paper.
INVENTORY OF THE PATHOLOGICAL LABORATORY.

The statement below given is correct as to the present total value of the various permanent Laboratory possessions, an itemized account of which may be seen in the Laboratory.

The value of the (about) 600 good Morbid Anatomy specimens which, in good jars now, represent quite a formidable new Pathological Museum, is, of course, not stated.

34 microscopes (Zentmayer's), (each with \(\frac{1}{2}\) objective and B eye-piece; other accessories not being replaced after the fire), value each $35, $1,200 00

Scales, microtomes, air-pump and apparatus and instruments of various kinds, 300 00

Bacteriological apparatus, 200 00

600 museum jars, 200 large and 400 small ones, 500 00

Glass and tin utensils, 100 00

Alcohol and objects of temporary value, 100 00

Furniture (cases, tables, shelves and special fixtures), 1,000 00

Total value, $3,400 00

Remark.—The fire insurance recovered last year by the University for damages to the Pathological Laboratory property ($2,748) included $400 for books, microscopical chests and specimens, diagrams, etc., that were my own and partially Prof. Tyson's private property. The insurance was allowed because these objects had been in use for Laboratory instruction. Instead of replacing them, however, we spent these $400 for museum jars, furniture and apparatus more urgently needed in the Laboratory.

Will the University be so generous now as to allow at least $200 to replace the books of reference and diagrams lost, and which are much needed?

The following comprises the outline of the official work consigned to me in the Pathological Department:

A.—WITH STUDENTS OF SECOND YEAR.

I. Instruction in Pathological Histology and the Microscopy of Urine. Laboratory work, seven hours per week throughout the session.

B.—WITH STUDENTS OF THIRD YEAR.

Instruction in Practical Gross Morbid Anatomy, Autopsies and Bacteriology, as follows:
II. Demonstrations in Morbid Anatomy.—Two hours per week (Tuesdays, 10 to 12), throughout the session, the class being divided into two sections, each attending one hour per week.

III. Autopsies.—This instruction is subdivided into, first: “Autopsy Demonstrations” to the whole class (Thursdays, 9 A.M.), one hour per week throughout session. Second: “Autopsy Exercises” to small sections of two or three students daily throughout the year, each student executing himself one or more complete autopsies.

IV. Practical Bacteriology.—One hour per week throughout session (Fridays, 9 A.M.). The whole third year class attend six lectures in Bacteriology, and subsequently each section of twelve students receives six lessons in Laboratory work.

C.—Private Laboratory Courses.

The following are private classes for which a fee of $10 to $15 is received, but which fee is waived in many instances in the cases of our own students and graduates who do original research; students attend either one or all of the following three courses for one fee:

I. Instruction in the Technique of Microscopy and Pathology.—Attended chiefly by students who enter the second or third year studies of the University from other schools, or by graduates in Pharmacy or Dentistry entering second year.

II. Instruction in Pathological Histology, Examination of Urine, Clinical Microscopy and Bacteriology.—Attended by graduates in Medicine, chiefly of other schools.

III. Instruction to Advanced Students in the Details of Pathological Technique, Medico-Legal Microscopy and Autopsies and Guidance in Original Research.—Attended largely by our own students. No fee is charged for this course. Time for work is in the afternoons or evenings, three times weekly during the winter session, and every morning during the spring session.

The Laboratory is open during the entire day from September 15th to June 15th. Students who conduct original research have been permitted to work in the Laboratory during the summer months.

Recommendations Regarding the Completion of the Laboratory Construction and Certain Repairs.

I may omit minor defects or needs that can be met with from the annual Laboratory appropriation, but the following wants cannot, and I pray for these in particular:

1. The replacement of the destroyed diagrams and books of refer-
ence in the Laboratory, which are much missed by the students and myself (would cost about $200).

2. Construction of Autopsy table; and,

3. Completion of the Autopsy Amphitheatre in the Laboratory which cannot be used in its present unfinished state; cost for both, about $200 to $300.

4. Reconstruction of the elevator, which has always been a great source of annoyance and delays, and requiring mainly a new rope—best, possibly, one of wire.

5. Repairs and modification of the faulty and imperfect water and waste-pipe plumbing, which is not of an expensive nature, and is imperatively necessary.

6. The transference of all Morbid Anatomy material of the University Hospital to the care of the Pathological Department.

EXAMINATIONS OF STUDENTS IN PRACTICAL PATHOLOGY.

The best idea of the various parts and the scope of the teaching of Practical Pathology and Morbid Anatomy may be formed from the nature of the questions asked the candidate for graduation at the final examination. The result of this examination is reported to the Professor of Pathology, who takes into consideration the mark reported when examining him didactically or when marking him finally.

Below is given such an instance and about the average number of questions put to one man. These questions, as is seen, refer, outside of a few that relate to Bacteriology and Autopsies, exclusively to specimens under the microscopes before the student, or to specimens standing or spread before him, or which he examines in my presence upon the Laboratory table.

One hour's time is allowed each student to examine the specimens before him before he is expected to answer all the questions or, rather, to label the specimens. On the average, within half an hour a moderately good student labels and describes orally all the specimens before him; the majority of the students answer very satisfactorily, some perfectly, a few only poorly. The specimens are, of course, changed all the time, so that no two students see the same specimens on any one examination day. Two students are admitted at one time for examination in different parts of the Laboratory. I append some

ILLUSTRATIVE QUESTIONS.

1. Six or more slides, microscopical preparations, of various tumors or diseased organs are given the student to diagnose and to describe under the microscope.
2. Question: Do you see or not under this microscope tubercle bacilli stained by the Violet-Vesuvian Method? And if you do, point out what other forms of bacteria you see in the same specimen.

3. Describe the procedure and all its steps of a bacteriological examination if called upon to determine a case of suspected Anthrax Disease.

4. How do you make a complete bacteriological examination of drinking water, and what are the sources of error?

5. Point out and describe the different forms of fungi and bacteria common in the air that have grown upon these potatoes.

6. Point out, in this collection of kidneys, specimens representing each of the four forms of Bright's Disease, and

7. Select among these bottles of urine the specimens that may correspond to each, by naked eye appearance; also,

8. Indicate the specimens of tube-casts under these four microscopes that correspond to each of those four forms of Bright's Disease.

9. Select from among this lot of kidneys a specimen of each:
   a. Tubercular kidney.
   b. Sarcoma of kidney. Is this a primary or secondary affection? Describe the difference.
   c. Cystic kidney. Does this particular specimen represent an acquired or congenital affection? Describe appearance of each and differences between them.

10. Select specimens that appear to contain separately uric acid, phosphates, oxalates, mucus, pus, blood; and

11. Under which of these microscopes do you see each of the various substances before named, and where do you see spores of fungi, oil globules and crystals of urate of ammonium which may simulate blood corpuscles?

12. Under what circumstances may you have albumin without tube-casts in urine?

13. Point out among these lungs, by naked eye appearances:

   Croupous pneumonia.
   Embolic pneumonia.
   Acute phthisis.
   Chronic phthisis.
   Broncho-pneumonia.
   Miliary tuberculosis.

Describe anatomical differences between them.
14. Select from this series of hearts:
   a. Simple acute endocarditis.
   b. Chronic endocarditis, and
   c. Mycotic

15. What else is abnormal in these specimens?
What was the cause of rupture of this heart?
16. Dissect this heart properly.
What is the normal average weight of an adult's heart?
17. What is the name and causation of each of these various forms of hemorrhages?
   (Some ecchymosis, infarcts and massive hemorrhage in organs being shown to student.)
18. Is this a specimen of primary or secondary cancer?
19. Point out among this lot of breast tumors, one each, the following: adenoma; cancer; sarcoma, round-celled; sarcoma, spindle-celled; fibroma; lipoma; Paget's Disease and a galactocele. Which would give metastasis?
20. What five forms of tumors may these polypi represent?
21. What tumors may these ulcerating new growths be? Prognosis.
22. Which of these skulls presents, presumably, a fracture from a fall, and which one from a blow?
23. What forms of poisoning does the appearance of these various stomachs suggest?
24. Which of these two sets of specimens is arsenical poisoning, and which came probably from a case of cholera morbus?
25. Are this uterus and fetus from a natural or a criminal abortion?
26. How does an extra uterine pregnancy kill? And how soon after the sac ruptures?
27. What is an "over-layed" child?
28. In what modes of death does the blood remain fluid in the body? In which do we have thrombosis and heart clots?
29. What is the surest sign of death next to putrefaction?
30. What mode of death is indicated by anemia of brain?
31. Which of these cerebral hemorrhages is traumatic? And which shows natural apoplexy, and from what cause?
What appearance and kind of hemorrhage would positively exclude murder in the absence of a history of the case?
32. When will rigor mortis ensue rapidly, and when will it fail to set in?
EXTRA OR VOLUNTEER COURSES IN MICROSCOPY FOR THIRD YEAR STUDENTS.

This work in the Pathological Laboratory is not upon the regular University roster, and not compulsory, yet it is one of the most popular and best attended courses in the University. It consists of a series of practical exercises in Microscopical Diagnosis of tumors and diseased organs, etc., the course being open from 2½ to 3½ P.M. daily, to all third year students during the entire year, free of charge. I instituted this course ten years ago at the request of students, to enable them to go once more over the second year Microscopical work as well as that of third year, prior to the final examination. The third year class is divided into four sections, each attending the exercises one month daily, one hour as stated.

Many students do not own microscopes and come principally during those hours to consult about autopsies or to examine sputum, urine specimens, etc., for themselves. A number of students exercise in Photography and Photo-micrography. The excellent photo-microscope in the Laboratory has been loaned by Dr. Carl Seiler, and some good work has been done in this direction lately.

PRIVATE LABORATORY CLASSES.

These are the courses in General and Clinical Microscopy and Pathological Histology, etc., referred to on page 92 of this report. They originally were instituted by Professor Tyson nearly twenty years ago; they have attracted students in Microscopy and Pathology from all over the country, and continue to do so. Since 1878 they have been conducted by myself.

These courses have the most intimate relation with the development of the Pathological Department of the University, and were in fact its cradle when Pathology was introduced, in 1877, as a compulsory branch of the Medical course.

To the courses in Pathological Histology for second year students that had been made compulsory at once were added for third year students, Demonstrations in Gross Morbid Anatomy in 1881, and practical instruction in Autopsies in 1882. Bacteriology was introduced in 1883, though not made compulsory until 1888. The examination of students in Practical Pathology by the Demonstrator is in force since 1885. Ample opportunities have also been afforded to the students, during the last six years, in acquiring knowledge in Medico-Legal studies, as a great amount of Medico-Legal material from murder trials, etc., is sent to me and is demonstrated to all those who interest themselves in it.
Private classes in Pathological Laboratory work nevertheless have to be continued. They are for the benefit of, First, post-graduates, many of whom come to the University for Pathological studies exclusively. Second, for students who enter the University to advanced standing and who have not had laboratory facilities corresponding to those of our second year; and Third, for those of our own and other students who wish more instruction in Pathology than they receive in the regular course, or who prepare themselves as teachers in Microscopy or Pathology.

A considerable amount of original work has also been done in this Department of the University in the course of years. As far as original research, executed by the students themselves, is concerned, the work in the Pathological Department exceeds in quantity the original work of the students of all the other Laboratories or Departments combined, as is shown by the number of prizes awarded to graduates at the Annual Commencements of the last decade.

The following are the names of the prize essayists of the years 1879 to 1889 as given by our yearly official University Catalogues. The titles of their essays I give abridged:

**Prize Essays in Pathology for the Last Decade.**

1879. Wm. G. Davis . . . . . . . . Liver, Structure of.
        John Whitehead . . . . . . . . . Marrow of Bones.
        Alex. Randall . . . . . . . . . Inflammation.
1881. J. P. Crozer Griffith . . . . . . . Serotum, Structure.
        Geo. E. de Schweinitz . . . . . . . Neuroma.
        Orlando C. Robinson . . . . . . . Tuberculosis.
        Eugene H. Dickenshied . . . . . . Atheroma.
        Henry Wile . . . . . . . . . . Secondary Tumors.
        Geo. T. Robinson . . . . . . . . . . Retina.
        J. W. Blackburn . . . . . . . . . . . . . Tumors.
        Wm. H. Mercur. . . . . . . . . . . . Tuberculosis.
        Edward Martin . . . . . . . . . . . Heart Muscle.
        W. Frank Haehnlen . . . . . . . . . . Bacteria.
1885. Frank S. Sutton . . . . . . . . . . Arsenical Poisoning.
        F. E. E. Emery . . . . . . . . . . . . Nephritis.
1886. Allen J. Smith . . . . . . . . . . . Sewage Bacteria.
        Elijah J. Kerlin . . . . . . . . . . . Fungi in Air.
1887. Wm. C. Fownes ... Tumors.
1888. John L. Hatch ... Cadaveric Poisoning.
   C. W. Sharpless ... Tumors.
1889. R. Gerlach ... Uterus, Structure of.

In the award of "Distinguished Merit" by the prize essay committee of the Faculty the work of the Pathological Laboratory is always conspicuous.

I do not think that the abolition of the compulsory graduation thesis has proved itself a successful measure, for reasons stated in a former report.

NEW OFFERS OF AWARDS OF PRIZES FOR THE BEST STUDIES IN PRACTICAL PATHOLOGY.

The appreciation of the profession of the advances that are being made by the University in the teaching of Pathology finds expression in the fact that two of the Alumni offer yearly prizes: A prize of $100 for the best examination in Practical Morbid Anatomy by Dr. Frank Hinkle, of Columbia, and a prize of $50 for the best essay in Practical Morbid Anatomy or Pathological Histology, illustrated by specimens and drawings.

Respectfully,
HENRY F. FORMAD,
Demonstrator.

APPENDIX IX.

REPORT OF THE LAW DEPARTMENT.

Sir:—I have the honor to submit my report of the operations of the Department of Law for the scholastic year 1888–9.

The session of 1888–9 was opened on October 1, 1888, by an address delivered by Mr. Justice Miller, of the Supreme Court of the United States, in the Chapel of the University.

THE FACULTY.

Instruction in the subjects named has been given during the year by the following Professors:
Professor Hare, in Constitutional Law.
Professor Parsons, in Marriage and Divorce and Decedents' Estates.
Professor Bispham, in the Principles of Equity, and in Equity Pleading and Practice.
Professor Patterson, in Real Estate and Conveyancing.
Professor Biddle, in Pleading at Law.

Professor Hare having, to the great regret of his colleagues, resigned his professorship, the chairs in the Faculty have been reconstituted as follows:

1. A professorship of Commercial Law, Contracts and Decedent Estates; incumbent, Professor Parsons.
2. A professorship of Equity Jurisprudence, including the Principles of and Pleading and Practice in Equity and Orphans Court Practice; incumbent, Professor Bispham.
3. A professorship of Constitutional Law, including the History and Interpretation of the Constitution and the Relations between the United States and the States, and the Law of Real Property and Conveyancing; incumbent, Professor Patterson.
4. A professorship of the Law of Torts, Evidence and Practice at Law; incumbent, Professor Biddle.
6. A professorship of Criminal Law; Professor-elect, George S. Graham.

Three Fellowships have also been created, the incumbents to be selected from the Graduating Class, each to hold office for three years and to perform, under the direction of the Dean of the Faculty, such duties of instruction as may be assigned to them; Fellow-elect, George Wharton Pepper.

During the year lectures have been given as follows:

First Term.—Professor Parsons, two hours a week; Professor Biddle, three hours a week; Professor Hare, one hour a week; Professor Bispham, one hour a week; Professor Patterson, four hours a week.

Second Term.—Professor Parsons, two hours a week; Professor Bispham, two hours a week; Professor Biddle, four hours a week; Professor Hare, one hour a week; Professor Patterson, five hours a week.

Copies of the questions for the written examinations of this year are herewith submitted.
THE STUDENTS.

During the year two classes have been in attendance.
The Senior Class had fifty-six members, six of whom failed in their
final examinations, and fifty of whom were recommended for a degree
and were graduated at the Annual Commencement.
The Junior Class had eighty-five members. There were five free
scholarships, one upon the foundation of the City of Philadelphia, and
four admitted by the Faculty. Three members were matriculated, but
did not pay term fees nor attend the lectures. Eighteen paid for the
first term and left before its end. Two paid for both terms and left
without examination. Sixty-one attended both terms, and fifty-eight
presented themselves for examination. Thirteen were conditioned
with one professor. Four were conditioned with two professors and
four with three professors, and reduced to the next class. Three at-
tended the lectures of both terms, but did not appear for examination
and were reduced to the next class, and thirty-seven have passed a
satisfactory examination and been admitted to the second year’s class.

PRIZES AND HONORS.

The following is a list of the prizes and honors awarded during the
year:
The Sharswood Prize for the best essay by a member of the Gradu-
ating Class to George Wharton Pepper, for his essay entitled "The
border land of Federal and State decisions."
The Meredith Prize for the second best essay by a member of the
Graduating Class to Samuel Carman Kintzing, for his essay entitled
"The conflict of laws relating to negotiable paper taken as collateral
security for antecedent indebtedness."
Honorable mention for essays of more than ordinary merit: Francis
Fisher Kane, for his essay entitled "The recovery of money paid under
protest."
Joseph Snowden Rhoads, for his essay entitled "The law of equit-
able conversion."
Joseph Rosenbaum Fahy, for his essay entitled "The doctrine of
consideration as applied to bills of exchange and promissory notes."
Solomon Stanger Iszard, for his essay entitled "The criterion of fel-
low-service."
Christopher Magee, Jr., for his essay entitled "The liability of rail-
roads for baggage of passengers."
Joseph Siegmund Levin, for his essay entitled "Pooling Trusts."
Edward Joseph Coll, for his essay entitled "The law of Pennsylva-
nia on the responsibility of common carriers as restricted and qualified by notice and special contract."

The P. Pemberton Morris Prize for the best examination by a member of the Graduating Class in Evidence, Pleading and Practice at Law and in Equity to George Wharton Pepper, with honorable mention of Joseph Siegmund Levin.

The Faculty Prize for the best examination by a member of a Junior Class to Charles Cooper Townsend, with honorable mention of Russell Duane and George Stuart Patterson.

Honors of the Graduating Class.

Arthur Straus Arnold, William Michael Byrne, Horace Lincoln Cheyney, Francis Fisher Kane, Frederick Jacob Knaus, Alexander Durbin Lauer, Joseph Siegmund Levin, Harvey Klapp Newitt, Jr., George Wharton Pepper.

Honors of the Junior Class.

Russell Duane, George Stuart Patterson, Charles Cooper Townsend.

Mr. George Wharton Pepper of the Graduating Class was elected a "Fellow" of the Department of Law.

The Removal to Broad Street.

For many years past the Faculty had been impressed with the disadvantages necessarily incident to the location of the Law School in the University buildings in West Philadelphia, at an inconvenient distance from the Courts and the offices of the professors and of the private preceptors of the students. It was therefore determined to move the school to some suitable location in the business centre of the city and in convenient proximity to the Courts and the law offices, and the Trustees authorized the Faculty to lease from the Girard Life Insurance, Annuity and Trust Company the sixth floor of their new building at the northeast corner of Broad and Chestnut Streets, at a rental averaging $3,300 per annum during the demised term, and payable upon a sliding scale beginning at the rent of $2,200 per annum. The space not needed by the school will be rented, it is to be hoped, at such rates as will materially reduce the rental to be paid by the Department. The space reserved will afford one large lecture room, one smaller lecture room and a well-lighted library hall, with ample space for 12,000 volumes and the accommodation of 250 students.

The Trustees have agreed to advance, from the funds of the University, $2,500 to fit up and furnish the lecture rooms and library hall.

During the last year the Department of Law has, by the courtesy of the Hon. Samuel C. Perkins, Chairman of the Public Buildings Commission, and of the Hon. Edwin M. Paxson, Chief Justice of Pennsylvania, been permitted to use the Supreme Court room and the License Court room as lecture rooms, and the Library has been placed in a room in the Public Buildings where the professors and students have had full opportunity of using it.

THE GEORGE BIDDLE MEMORIAL LIBRARY.

Until the current year the Department has not had a library devoted to the use of the school, and its students have been forced to consult authorities in the library of the Law Association and in such private libraries as were accessible to some favored students; but now that deficiency has been amply supplied. The family of the late George Biddle have presented to the Department a valuable and well-selected library of reports, and material additions have since been made from other sources.

The library as presented by the family of Mr. Biddle consisted of:

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<tr>
<th>Type of Material</th>
<th>Quantity</th>
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<tr>
<td>English, Irish and Scotch Reports</td>
<td>1,388 vols.</td>
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<tr>
<td>Federal and State Reports</td>
<td>3,599 vols.</td>
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<tr>
<td>Books added by Faculty</td>
<td>129 &quot;</td>
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<tr>
<td>Received from University</td>
<td>133 &quot;</td>
</tr>
<tr>
<td>Given by Mr. Justice Strong</td>
<td>34 &quot;</td>
</tr>
<tr>
<td>&quot; Professor Bispham</td>
<td>2 &quot;</td>
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<tr>
<td>Grand Total</td>
<td>5,347 &quot;</td>
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The Department is also a residuary legatee under the will of the late Professor Morris, and ultimately his library, amounting to some 1,500 volumes, will be placed on the shelves of the Department.

A book catalogue has been completed during the year, and a card catalogue will shortly be completed.

ADDITION TO RULE VI OF THE SUPREME COURT.

Graduates of the Law Department of the University of Pennsylvania who have passed the preliminary examination before the Board of Examiners of Philadelphia County, and an examination upon Latin, and who have taken the full course of three years and received the diploma and degree of Bachelor of Laws may be admitted to practice in this Court upon the expiration of three full years from the date of their preliminary examination, upon filing with the Prothonotary a certificate of the Dean of the Law Department stating these facts, and upon exhibiting their diploma, together with a certificate of good character, as in other cases. March 18, 1889.

It is ordered that the above shall be in addition to Rule VI of this Court.

PER CURIAM.

True copy from the Record.

(Signed), CHAS. S. GREENE,
Prothonotary.
The past year's experience has conclusively shown the advantages of the Law Library in the efficient conduct of the work of the school.

I avail myself of this opportunity to express my sense of the faithful and intelligent service that has been rendered by the late Librarian, Lightner Witmer, Esq.

The Library account is as follows:

1887-8. To credit set aside out of the receipts of the Department, $1,300.00

1888-9. " credit set aside out of the receipts of the Department, 1,300.00

1888-9. Nov. 20. By insurance on Library, $300.00
Dec. 6. " book plates, 6.00
" " janitor's fees, 20.00
" " Librarian's salary, Dec., 33.33
" " Johnson & Co., moving books, 183.35
" " " new books, 526.34
Jan. 31. " Librarian's salary, Jan'y, 33.33
Feb. 28. " do. Feb'y, 33.34
Mch. 31. " do. March, 33.33
Apl. 30. " do. April, 33.34
June 1. " do. May, 33.34
" 14. " Library stationery, 26.26
" 15. " balance to credit of Library account, 1,337.44

$2,600.00

RECEIPTS AND EXPENDITURES.

The following balance sheets show the receipts and expenditures during the past year and the preceding year:

1887-8. Dr.
To balance from 1886-7 account, $412.89
" fees 1887-8, 11,815.00
" fees 1888-9, 1889-90, 200.00
" cash from E. S. Miller, 80.00
" interest on deposits, 36.03

$12,543.92
By 8 per cent. paid University on account 1886-7, $377.60

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<th>By 8 per cent, paid University on account 1886-7distributed:</th>
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<td>Mr. Mitchell,</td>
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<td>Prof. Bispham,</td>
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<td>Prof. Parsons,</td>
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<td>Prof. Hare,</td>
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By 8 per cent. paid University on account 1887-8, 945.20

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<th>and $200 fees of 1888-9 and 1889-90),</th>
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1888-9.

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<tbody>
<tr>
<td>To balance from 1887-8, including $1300 to credit of Library Fund and $50 fees paid by Mr. Edward Stern in advance for Oct. Term, 1888, $50 for Feb. Term, 1889, and $100 for 1889-90, $1,500.00</td>
</tr>
<tr>
<td>&quot; matriculation fees of non-attending students, 30.00</td>
</tr>
<tr>
<td>&quot; fees Oct. Term 1888-9 (not including Mr. Stern's payment in advance), 6,840.00</td>
</tr>
<tr>
<td>&quot; fees Feb. Term 1888-9 (not including Mr. Stern's payment in advance), 5,605.00</td>
</tr>
<tr>
<td>&quot; proceeds of sale of Judge Miller's lecture, 11.75</td>
</tr>
<tr>
<td>&quot; interest on deposits, 51.70</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Total, $14,038.45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>By 8 per cent. of gross fees paid to the University, $1,002.00</td>
</tr>
<tr>
<td>&quot; return to Mr. Stern of fees paid in advance for Feb. Term 1889, and 1889-90, 150.00</td>
</tr>
<tr>
<td>&quot; expenditures for opening of session and printing Judge Miller's lecture, 179.25</td>
</tr>
</tbody>
</table>
By advertising disbursements, ................................................. $43 25
" Salary of Dean’s clerk, ............................................ 150 01
" Dean’s disbursements for sundry expenses, ....................... 85 89
" payment to architects on account of 6th and Locust Streets, .... 50 00
" Faculty Prize, ................................................................ 50 00
" Moot Court briefs, .......................................................... 62 50
" disbursements for examination and graduation, .................. 172 09
" disbursements for Library account, including books, salary of Librarian and incidentals, ................... 1,262 56
" net fees of 1888-9 distributed:

<table>
<thead>
<tr>
<th>Name</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Hare</td>
<td>$1,186 69</td>
</tr>
<tr>
<td>Parsons</td>
<td>2,373 36</td>
</tr>
<tr>
<td>Bispham</td>
<td>1,186 69</td>
</tr>
<tr>
<td>Patterson</td>
<td>2,373 36</td>
</tr>
<tr>
<td>Biddle</td>
<td>2,373 36</td>
</tr>
<tr>
<td></td>
<td>9,493 46</td>
</tr>
</tbody>
</table>

" balance to account of 1889-90 to credit of Library Fund .... 1,337 44

Total. ................................................................. $14,038 45

On May 7th, 1889, the Trustees adopted the following system for the regulation of the financial relations between the University and the Department of Law:

I. From the gross receipts of the Law Department there shall be paid:

1st. Maintenance of the Law Library, twelve per cent.

2d. To the Trustees of the University, eight per cent.

3d. Current general expenses of the Law Department, including expenses of rental; salary of the Dean, five hundred dollars; salaries of Fellows, not exceeding, say, nine hundred dollars for three Fellows; advertising, postage, stationery and diplomas, five hundred dollars; and also the costs of any special contracts granted from year to year.

II. From the remainder of the gross receipts as much as is necessary to pay each of the Faculty (except such as may be elected under special contract) up to fifteen hundred dollars per annum, provided the remainder be sufficient therefor.

III. As to surplus:

All balances remaining after the above disbursements to a point at which each professor not under contract would receive two thousand
dollars to be distributed into three parts which shall be distributed as follows:

1st. One-third to be equally divided among the professors not having special contracts until the total sum received by each shall reach two thousand dollars.

2d. One-third to the Law Department for betterments or endowments.

3d. One-third to the Trustees of the University.

IV. As to extra surplus:

Any balance remaining after the above second distribution shall be distributed as follows:

1st. One-sixth to the Faculty, to be equally divided among the professors not having special contracts.

2d. Three-sixths to the Law Department for betterments or endowments.

3d. Two-sixths to the Trustees of the University.

V. Each professor upon notification of his election shall receive simultaneously a memorandum of these financial relations of the Department to the University, with the understanding that the basis may be changed by the Trustees from time to time as they may deem proper.

VI. The Treasurer of the Law Faculty is instructed to deposit the funds of the Department with the Treasurer of the University.

VII. The Trustees will loan to the Law Faculty a sum not exceeding twenty-five hundred dollars for fitting up the rooms of the Department at five per cent. interest, the interest to be reckoned among the fixed charges, and the principal to be repaid out of item 2 of the first surplus as stated above, and in such installments as may be convenient to the Law Faculty.

At the same meeting of the Trustees it was also "Resolved, that in adopting the foregoing scheme of financial relations between the University and its Department of Law, the Trustees make this minute of their appreciation of the liberal and unselfish spirit which has been evinced by the members of the Law Faculty in all the conferences in which the details of this scheme were agreed upon, and their confidence that it will be ultimately found to be equally advantageous to the University and the Department."

**General Remarks.**

I submit herewith a copy of the Prospectus of the Department just issued for the year 1889-90.

I have only to add that the Department will in September next
take possession of its new quarters, and that the prospects of the school are certainly as bright as ever before. I have the honor to be with sincere respect, 

Your obedient servant,

C. STUART PATTERSON,  
Dean.

To the Provost.

APPENDIX X.

DEPARTMENT OF DENTISTRY.

PHILADELPHIA, June 24th, 1889.

W. PEPPER, M.D., LL.D., Provost of the University of Pennsylvania.

Dear Sir:—As Secretary I have the honor to report to you the condition of the Dental Department during the years 1887–8 and 1888–9.

The number of students matriculated, 1887–8 . . . . . 123
Of these there were students of the first year . . . . . 57
" " " " " " " second year . . . . . 65
Special student . . . . . 1 — 123

Number of new matriculates, including those admitted to advanced standing 1887–8 . . . . . 75
Students matriculated in 1888–9 . . . . . 127
Of these there were students of the first year . . . . . 63
" " " " " " " second year . . . . . 63
Special student . . . . . 1 — 127

Number of new matriculates, including those admitted to advanced standing 1888–9 . . . . . 77

SUMMARY 1887–8 AND 1888–9.

Students in full attendance 1887–8 and 1888–9 . . . . . 248
Special students . . . . . 2
Total two years . . . . . 1887–8. 1888–9. 250

Of these there were admitted upon presentation of certificates . . . . . . . 42 45
Admitted upon examination . . . . . . . 14 14
" to advanced standing . . . . . . . 14 11
Those admitted to advanced standing presented certificates and diplomas from the following institutions:

<table>
<thead>
<tr>
<th>Institution</th>
<th>1887-8</th>
<th>1888-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pennsylvania College of Dental Surgery</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Ohio College of Dental Surgery</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Louisville Dental College</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Dental Hospital, London, Eng.</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Halifax Medical College</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>New York Dental College</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Dental Department, Medical College, Rio Janeiro, Brazil</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>University of Leipzig</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>&quot; Munich</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>&quot; Michigan</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>&quot; &quot; Pennsylvania, Medical Department</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>&quot; Berlin, Germany</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Boston Dental College</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>University of Geneva, Switzerland</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

The countries represented in the Department are as follows:

<table>
<thead>
<tr>
<th>Region</th>
<th>1887-8</th>
<th>1888-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle States</td>
<td>60</td>
<td>67</td>
</tr>
<tr>
<td>New England States</td>
<td>18</td>
<td>11</td>
</tr>
<tr>
<td>Western States</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Southern &quot;</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Pacific &quot;</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Dominion of Canada</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Australia</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>West Indies</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>South America</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Central &quot;</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>England</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Germany</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Russia</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Spain</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>France</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Switzerland</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Turkey</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

123 127
SUMMARY.

<table>
<thead>
<tr>
<th></th>
<th>1887-8</th>
<th>1888-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States and Canada</td>
<td>103</td>
<td>108</td>
</tr>
<tr>
<td>Foreign countries</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>123</td>
<td>127</td>
</tr>
</tbody>
</table>

The amount of work performed in the operative and mechanical branches has been as follows:

<table>
<thead>
<tr>
<th></th>
<th>1887-8</th>
<th>1888-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of operations</td>
<td>14,616</td>
<td>16,778</td>
</tr>
<tr>
<td>Mechanical.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of operations</td>
<td>687</td>
<td>765</td>
</tr>
<tr>
<td>Total</td>
<td>15,303</td>
<td>17,543</td>
</tr>
</tbody>
</table>

Amount of gold used for stoppings, exclusive of that used in mechanical work, 1887-8, 52 ounces (4 lbs. 4 oz).

Amount of gold used for stoppings, exclusive of that used in mechanical work, 1888-9, 64 ounces (5 lbs. 4 oz).

Number of patients, 1887-8 | 5,646 |
| “ “ “ 1888-9 | 6,209 |

These operations are performed exclusively by students, and involve an expenditure of time and labor rarely understood by those not familiar with dental operations. The practical training is mainly upon patients, a preliminary period being given to instruction out of the mouth. While this mode of teaching has its objections, it has been found impossible to cultivate manual dexterity by any other process. The result has the practical value that, at the expiration of the term of pupilage, the graduate is fully prepared to meet all ordinary emergencies that may occur to the living subject; and, this being now so generally understood, confidence is at once inspired and practice more rapidly secured. The work, year by year, grows more and more difficult, and involves a greatly increased amount of time in the treatment and finishing of cases, and, of necessity, more accurate knowledge of various collateral branches. The use of gold and platinum in the insertion of crown and bridge-work and continuous gum sets has grown rapidly, requiring increased skill in manipulation, as well as a necessity for trained specialists in these directions. It has been found necessary, therefore, from time to time, to add to the list of Demonstrators, and the effort has been to do this from our own graduates, and thus far with success. This rapid advance of the practical side of Dentistry has required continued additions to the facilities, and these have been met as occasion required.
COURSE OF INSTRUCTION, SESSIONS 1887-8 AND 1888-9.

Length of session, seven months—from October 1st to May 1st.

Lectures on Mechanical Dentistry . . . . . 2 hours each week.
  " " Operative " . . . . . 2 " " "
  " " Dental Pathol., Ther. and Mat. Med. 2 " " "
  " " Anatomy . . . . . 3 " " "
  " " Chemistry . . . . . 2 " " "
  " " Physiology . . . . . 3 " " "

Instruction in General and Special Histology 2 " daily.

Chemical Laboratory, first year students . 4 " each week.

Mechanical Laboratory, under care of Demonstrators . . . . . . . . . . . . . . . 24 " " "

Dental Infirmary, under care of Demonstrators . 24 " " "

The Infirmary and Mechanical Laboratory are open daily from 9 A.M. to 4 P.M. for practical work.

During the past year Histology, both General and Special, has been added to the curriculum, and Prof. George A. Piersol has been selected as the instructor in this important branch.

The amount of labor, mental and physical, required of our students has been a difficulty in adding any more to the requirements, and until the Department can have the time extended to three years, further increase would neither be possible nor profitable.

CHANGES MADE IN THE DEMONSTRATORS, 1887-8.

Additional Appointments to the Staff:

Ambler Tees, Jr., D.D.S., Assistant Demonstrator of Mechanical Dentistry and Demonstrator of Continuous Gum-work.
R. Hamil D. Swing, D.D.S., Assistant Demonstrator of Mechanical Dentistry.
Frederick W. Amend, D.D.S., Assistant Demonstrator of Mechanical Dentistry.

1888-9.

Milton N. Keim, Jr., D.D.S., Assistant Demonstrator of Mechanical Dentistry.
Horace McCanna, D.D.S., Assistant Demonstrator of Mechanical Dentistry.
George A. Peirsol, M.D., Histology.
Chas. A. E. Codman, D.D.S., Assistant Demonstrator of Operative Dentistry.
John G. Fuller, D.D.S., Assistant Demonstrator of Mechanical Dentistry.
J. D. Thomas, D.D.S., Lecturer on Nitrous Oxide.

Resignations.
1887–8.

1888–9.

The history of this Department has shown the wisdom of its founders and demonstrated beyond fear of criticism that its legitimate work can be carried on most successfully in combination with other branches of scientific effort; and in many respects this can be accomplished more successfully than is possible in independent and isolated schools. The decade just closed since this Department was first organized has been a period of earnest labor, but the Faculty has the assurance that the second period will show better results in a constant and healthy advance of the standard of instruction.

Respectfully submitted,
JAMES TRUMAN,
Secretary.

APPENDIX XI.

VETERINARY HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

BOARD OF MANAGERS:
William Pepper, M.D., LL.D., ex-officio.
Joseph E. Gillingham, President.
J. Bertram Lippincott, Secretary and Treasurer.
S. Weir Mitchell, M.D., Archibald Montgomery,
Richard Wood, Walter R. Furness,
William Hunt, M.D., Charlemagne Tower, Jr.,
H. Pratt McKean, Jr., William L. Zuill, M.D., D.V.S.
W. W. Dowell, Superintendent of the Hospital.
The Hospital of the Veterinary Department of the University of Pennsylvania is supplied with every possible facility for the best handling and care of sick animals of all kinds.

An ambulance is provided for the conveyance of sick and lame horses. For this service the charges are made according to distance traveled.

Animals are received into the Hospital at any time, day or night.

APPENDIX XII.

DEPARTMENT OF PHILOSOPHY.

To the Provost of the University.

Sir:—I have the honor of submitting the following report of the state of the Department of Philosophy from the first of October, 1887, to the first of January, 1890:

The Department of Philosophy, organized in 1884, for the purpose of affording advanced instruction in the various branches of Literature and Science, was reorganized in 1889, and put upon its present basis. Its officers are a Dean, a Secretary and an Executive Committee of five members. All ordinary business is transacted by the Dean and the Executive Committee, and a report made to the Faculty at its yearly meeting on the third Saturday in May. All perplexing or doubtful cases are referred to the Faculty.

The students are either matriculates (candidates for the degree of Doctor of Philosophy) or special students. All instruction in each branch of study is open to special students (whether college graduates or not) who in the judgment of the professor in charge of that branch are qualified to profit by the instruction given.

The Degree of Doctor of Philosophy is conferred upon the following conditions:

1. The candidate must be a baccalaureate graduate either in Arts or in Science of an American college whose degrees are accepted by this University as equivalent to its own, or he must satisfy the Executive Committee of the Faculty, by examination or otherwise, that he possesses an equivalent preparation for graduate studies.

2. He must pursue graduate studies for at least two years after taking his Bachelor’s degree.

3. He must spend at least one year of this time in residence at this
University. The remainder may be spent in residence at other universities.

4. He must present himself for examination in three of the following subjects, one of which he must designate as his principal or major subject, and the other two as his subordinate or minor subjects. Any subject may be taken either as major or as minor.

1. American Archaeology and Languages.
6. Comparative Philology and Sanskrit.
7. Experimental Psychology.
8. Germanic Philology and Literature.
9. Greek Language and Literature.
12. Mineralogy and Geology.
13. Political Economy.
15. Philosophy.
17. Romance Philology and Literature.
18. Semitic Languages and Literature.

Under favorable circumstances it is possible to obtain the degree after two years' graduate study; but if the subjects selected by the candidate are new to him, or if he does not give up his undivided time to the work of the course, this period is sufficient only in exceptional cases.

Women are admitted to any course for the degree on the same conditions as men.

An idea of the nature and scope of the instruction given to students in this Department may be gathered from the following list of courses offered for the current year 1889-90:

**George F. Barker, Professor of Physics.**
Instruction in the Physical Laboratory, 4

**Daniel G. Brinton, Professor of American Archaeology and Linguistics.**
1. General Philology of American Languages, 2
2. Special Readings on the Grammatical Structure of the following groups of American tongues:

- The Algonquin, 1
- The Nahuatl, 1
- The Maya, 1
- The Kechua, 1

3. Archaeology—Methods of Study in Archaeology, General outlines of American Archaeology, 1

JAMES MCKEEN CATTELL, Professor of Psychology.
1. Advanced Psychology, 2
2. Research in Laboratory.
3. Seminar, 2

EDWIN S. CRAWLEY, Assistant Professor of Mathematics.
1. Advanced Calculus, including Elliptic Functions, 2
2. Quaternions, 2

CHARLES S. DOLLEY, Professor of General Biology.
1. General Biology; Laboratory Work,* with Supervision, 8
2. Invertebrate Morphology, Laboratory Work, with Supervision, 4

MORTON W. EASTON, Professor of Comparative Philology.
1. Sanskrit Grammar and Readings, 2
2. Cakuntala and the Veda, 2

FISHER, Assistant Professor of Mathematics.
1. Advanced Analytic Geometry, including methods of Abridged Notation, Reciprocal Polars, Anharmonic Properties and Invariants and Covariants, 2
2. Theory of Functions, 2

GEORGE S. FULLERTON, Professor of Intellectual and Moral Philosophy.
- History of Ancient Philosophy, 2
- Psychology, 1
- Seminar, 1

* Students taking work in any of the laboratories are not limited to the hours in which instruction is given, but have the privilege of the laboratories daily, under the general supervision of the Professor in charge.
Hermann V. Hilprecht, Professor of Assyrian.
1. Assyrian Grammar, 3
2. Selected Babylonian Texts, 3
3. Cursive Reading of Assyrian Texts, 1
4. Interpretation of Ethiopic Texts, 2

Edmund J. James, Professor of Political and Social Science.
Political Science—History and Theories of the State, 2
Seminar, 1

Morris Jastrow, Jr., Professor of Arabic.
Hebrew.
The Elements of Hebrew Grammar, with practical exercises and selected readings, 2
Study of some Historical Text of the Old Testament, 1
Critical Study of the Book of Jeremiah, Chapters 1–39, 1

Biblical Aramaic.
Elements of the Grammar, with readings from the Books of Daniel and Ezra, 1

Arabic.
Elements of the Grammar, with exercises and readings, 2
Selected Suras from the Koran, with constant reference to the Arabic commentators, 2
The Moallakat Kasidê of Imru‘l-Kais, 1

Post-Biblical and Rabbinical Literature.
The Misnâ to the Talmudic Treatise, Abodâ Zârâ, i.e., “Idolatry,” 1

Syriac.
Elements of Syriac Grammar, with selected readings, 1

Horace Jayne, Professor of Vertebrate Morphology.
1. Vertebrate Morphology.
   Lectures and Laboratory Work, during second term, 7
2. The Osteology of the Mammalia.
   Laboratory Work, 4

George A. Koenig, Professor of Mineralogy and Metallurgy.
1. Physiography of Minerals, and Paragenesis, 1
2. Theoretical Crystallography, 1
3. Chemical Geology, 1

William A. Lamberton, Professor of the Greek Language and Literature.
1. Critical Study of the Greek Historians, 2
2. Critical Study of the Greek Orators, 2

* In the absence of Prof. Peters on the University of Pennsylvania expedition to Mesopotamia, Prof. Jastrow announces courses in Hebrew also.
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Bach McMaster</td>
<td>Professor of American History</td>
<td>Constitutional History of the United States from 1789 to 1888, 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Political History of the United States from 1787 to 1889, 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seminar, 1</td>
</tr>
<tr>
<td>James Parsons</td>
<td>Professor of Law</td>
<td>Roman Law and Jurisprudence, 2</td>
</tr>
<tr>
<td>Simon N. Patten</td>
<td>Professor of Political Economy</td>
<td>Investigation of Economic Methods, 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seminar, 1</td>
</tr>
<tr>
<td>Joseph T. Rothrock</td>
<td>Professor of Botany</td>
<td>The Classification of Plants, 12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Laboratory Work, with Instruction, during second term, 12</td>
</tr>
<tr>
<td>John A. Ryder</td>
<td>Professor of Comparative Embryology</td>
<td>1. Comparative Histology, 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lectures and Laboratory Instruction, during first term, 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Comparative Embryology, 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lectures and Laboratory Instruction, during second term, 8</td>
</tr>
<tr>
<td>Samuel P. Sadlter</td>
<td>Professor of Organic and Industrial Chemistry</td>
<td>1. Methods of Proximate Analysis of Organic Compounds, 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Lectures on Synthetic Methods of Organic Chemistry, 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Lectures on the Industrial Applications of Chemistry, 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Laboratory Work, with Supervision, Seminar, 2</td>
</tr>
<tr>
<td>Oswald Seidensticker</td>
<td>Professor of German Language and Literature</td>
<td>Gothic.—Phonology, Grammar and Readings in Ulfilas.</td>
</tr>
<tr>
<td>Edgar F. Smith</td>
<td>Professor of Inorganic Chemistry</td>
<td>Chemical Theory, 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thermo-Chemistry, 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lectures on Special Topics in Pure Inorganic and Analytical Chemistry, 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Laboratory Work, with Supervision, Seminar, 2</td>
</tr>
<tr>
<td>Robert Ellis Thompson</td>
<td>Professor of History</td>
<td>Philosophy of History, 2</td>
</tr>
<tr>
<td>Francis N. Thorpe</td>
<td>Lecturer on American History</td>
<td>Development of Constitutional Government in the United States, I. State. 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>II. National, 2</td>
</tr>
</tbody>
</table>
WILLIAM POWELL WILSON, Professor of the Anatomy and Physiology of Plants.

1. **Plant Histology.**
   - Laboratory Work, with Instruction, first term, 6

2. **Plant Physiology.**
   - Laboratory Work, with Instruction, first term, 6

The growth of the Department may be seen from the following statement:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students continued from 1886-7</td>
<td>3</td>
</tr>
<tr>
<td>Matriculated 1887-8</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total at the close of 1887-8</strong></td>
<td><strong>7</strong></td>
</tr>
<tr>
<td>Matriculated 1888-9</td>
<td>8</td>
</tr>
<tr>
<td>Withdrew 1888-9</td>
<td>2</td>
</tr>
<tr>
<td>Received the Degree 1888-9</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total at the close of 1888-9</strong></td>
<td><strong>12</strong></td>
</tr>
<tr>
<td>Matriculated 1889-90</td>
<td>22</td>
</tr>
<tr>
<td>Withdrew 1889-90</td>
<td>1</td>
</tr>
<tr>
<td><strong>Whole number of matriculates January, 1890</strong></td>
<td><strong>33</strong></td>
</tr>
</tbody>
</table>

These students are from nine universities or colleges. Seventeen of them pursued their undergraduate studies at the University of Pennsylvania. The remainder at other institutions. Three of the students are women.

The choice of major subjects is as follows:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assyrian</td>
<td>4</td>
</tr>
<tr>
<td>Botany</td>
<td>3</td>
</tr>
<tr>
<td>General History</td>
<td>1</td>
</tr>
<tr>
<td>Geology</td>
<td>1</td>
</tr>
<tr>
<td>Hebrew</td>
<td>2</td>
</tr>
<tr>
<td>Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>Jurisprudence</td>
<td>3</td>
</tr>
<tr>
<td>Organic Chemistry</td>
<td>2</td>
</tr>
<tr>
<td>Philosophy</td>
<td>5</td>
</tr>
<tr>
<td>Physics</td>
<td>2</td>
</tr>
<tr>
<td>Political Economy</td>
<td>3</td>
</tr>
<tr>
<td>Political Science</td>
<td>3</td>
</tr>
<tr>
<td>Zoology</td>
<td>1</td>
</tr>
</tbody>
</table>

33
The choice of minor subjects is as follows: *

<table>
<thead>
<tr>
<th>Subject</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>American History</td>
<td>4</td>
</tr>
<tr>
<td>Arabic</td>
<td>2</td>
</tr>
<tr>
<td>Assyrian</td>
<td>1</td>
</tr>
<tr>
<td>Botany</td>
<td>3</td>
</tr>
<tr>
<td>Comparative Philology</td>
<td>1</td>
</tr>
<tr>
<td>General History</td>
<td>2</td>
</tr>
<tr>
<td>Hebrew</td>
<td>4</td>
</tr>
<tr>
<td>Inorganic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics</td>
<td>2</td>
</tr>
<tr>
<td>Mineralogy and Geology</td>
<td>4</td>
</tr>
<tr>
<td>Organic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>Philosophy</td>
<td>13</td>
</tr>
<tr>
<td>Physics</td>
<td>1</td>
</tr>
<tr>
<td>Political Economy</td>
<td>8</td>
</tr>
<tr>
<td>Political Science</td>
<td>3</td>
</tr>
<tr>
<td>Psychology</td>
<td>6</td>
</tr>
<tr>
<td>Romance Philology</td>
<td>1</td>
</tr>
<tr>
<td>Zoology</td>
<td>2</td>
</tr>
</tbody>
</table>

Special students in the Department of Philosophy (not candidates for the Degree) are allowed to choose, with the consent of the professors concerned, such courses as may suit their purposes, and are not limited in the number.

In the year 1888–9 there were eighteen special students in the department. Their choice of subjects was as follows:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>4</td>
</tr>
<tr>
<td>Aramaic</td>
<td>1</td>
</tr>
<tr>
<td>Assyrian</td>
<td>3</td>
</tr>
<tr>
<td>Hebrew</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics</td>
<td>1</td>
</tr>
<tr>
<td>Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>Political Economy</td>
<td>1</td>
</tr>
<tr>
<td>Rabbinical Literature</td>
<td>1</td>
</tr>
</tbody>
</table>

In 1889–90 there are nine Special students. Their choice is as follows:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>1</td>
</tr>
<tr>
<td>Hebrew</td>
<td>1</td>
</tr>
<tr>
<td>Greek</td>
<td>2</td>
</tr>
<tr>
<td>Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>Zoology</td>
<td>1</td>
</tr>
</tbody>
</table>

* It will be remembered that each matriculate chooses two minors.
The matriculates in the Department of Philosophy are largely under the authority of the professor in charge of their major subject. It is our endeavor to train specialists and to cultivate an aptitude for and an interest in original research. The applicant for the degree must prepare a thesis showing a capacity for creditable work, and the thesis must be worthy of publication. With the consent of the Executive Committee the successful candidate may print his thesis as one submitted for the degree. The thesis of Professor Goodspeed, who received his degree in June last, was an excellent piece of original work on "The Force of Gravity at Philadelphia," and will be printed.

It is evident from the list of courses mentioned earlier in this report that the Department offers good facilities for advanced work in a number of subjects. It is also evident that there are serious gaps in the instruction offered. No courses are offered in Latin, English Literature, or English Philology, although there have been many applications for work in these very popular subjects. No courses exclusively for graduates are now offered in General History, although there is a considerable demand for such courses. The provision for Romance Philology is too inadequate. The professors in charge of these subjects at the University are overburdened with undergraduate work, and could not be expected to do more than they are now doing. It is necessary to the success of the graduate work that these gaps be filled.

In closing I cannot too much emphasize the importance of graduate fellowships of the annual value of at least $260, to be awarded on a competitive basis to graduates of any reputable American college pursuing studies in the Department of Philosophy at the University. Such aids are to be found at several other institutions, and we will labor under a great disadvantage until we have them here. In some respects the University of Pennsylvania has, from its location, peculiar advantages for advanced work. There is no reason why the number of graduate students should not greatly increase and the University take a very active part in the training of specialists in the Sciences and Literature. We need only a little energy to bring this about.

GEORGE STUART FULLERTON,
Dean.

February, 1890.
APPENDIX XIII.

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1888.
1889.
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22. Intra-ligamentous Cyst.
24. Four Cases of Septic Infection in the Newly-born.
25. Modified Braun’s Cranioclast.
27. An Anencephalic Monster.
28. Foetus Papyraceus.
29. Endometritis Gravidarum Polyposa.
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Bot-larvae in the Terrapin.

Cirolana feasting on the Edible Crab.

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Trematodes of the Muskrat.

Entozoa of the Terrapin.

A Crustacean Parasite of the Red Snapper.

Parasitic Crustacea.

Parasites of the Rock Fish.

Louse of the Pelican.

Parasites of the Pickerel.

Food of Barnacles.

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Cornual Hemorrhagic Myelitis at Different Levels. Times and Register. December 7, 1889.

JOHN K. MITCHELL, M.D.

General and Local Effects of Paraffin Oil upon those working in it. Medical News. August, 1888.


Pyo-pneumo-thorax. (Notes of Case and Specimen shown before Philadelphia Pathological Society.) University Medical Magazine. March, 1889.

Painful Subcutaneous Nodules. University Medical Magazine. April, 1889.


JAMES PARSONS, A.M.

An Exposition of the Principles of Partnership.

C. STUART PATTERSON, A.M.


SIMON N. PATTEN, PH.D. (Halle).

ARTICLES IN MONTHLIES.
Economy of Memory in the Study of Arithmetic.
Part I. Education. September, 1888.
Part II, " October, "

REVIEWS.
The Economic Basis of Prohibition. The Quill. June 8, 1889.

REVIEW.
Jenk’s Road Legislation for the American State Political Science Quarterly. September, 1889.

CHARLES B. PENROSE, M.D.

Eleven Consecutive Cases of Abdominal Section for Disease of the Uterine Appendages. Proceedings of the Philadelphia County Medical Society. Vol. VIII.
Sulphate of Magnesia in Abdominal Distension and Peritonitis after Laparotomy. Medical and Surgical Reporter. Vol. LVII.
Intestinal Obstruction after Laparotomy. Medical and Surgical Reporter. Vol. LIX.
Secretion of Milk following Ovariectomy. Medical and Surgical Reporter. Vol. LX.
Tuberculosis of the Testicle in a Child Nine Months Old. Medical and Surgical Reporter. Vol. LXI.
Drainage in Abdominal Surgery. Journal of the American Medical Association for 1890.
The Organization and Absorption of Sterilized Dead Bone Dowels. By Dr. W. B. Hopkins and Dr. C. B. Penrose. Journal of the American Medical Association for 1890.
WILLIAM PEPPER, M.D., LL.D.

Diseases of Cecal Region. Transactions of the Philadelphia Medical Society.
Higher Education of Women. Ogontz.
Cardiocentesis. University Medical Magazine. September, 1887.
The University in Modern Life. Presidential Address before the College Association of the Middle States and Maryland. November, 1889.

JOHN P. PETERS, PH.D.

Miller's Political History of Recent Times. 1815 to 1882. Harper's. 1815 to 1875, Translation. 1875 to 1882, Addition by Translator.
The Hebrew Story. Vol. I.
The Hebrew Literature. Vol. II.
With Dr. Bartlett, as Scriptures Hebrew and Christian. 3 vols. Putnam's. 1886–1889.

GEORGE A. PIERSOL, M.D.

Note on Henle's Loops of the Kidney. University Medical Magazine. March, 1889.
The Structure of Spermatozoa, especially those of Amphiuma Tridactylum. One Plate. University Medical Magazine. September, 1889.

Fixing Paraffine Sections to the Slide. University Medical Magazine. December, 1889.


JOHN J. REESE, M.D.

Suicide in its Relation to Insanity. An Address delivered before the Medical Jurisprudence Society of Philadelphia. December 13, 1887.

Review of “Ptomaines and Lucomaines; or, The Putrefactive and Physiological Alkaloids.” By Victor G. Vaughan, M.D., Professor of Hygiene and Physiological Chemistry in the University of Michigan. Medical News. September 8, 1888.


Live Birth in its Medico-Legal Relations. A Paper read before the American International Congress of Medical Jurisprudence, held in New York, June, 1889.

EDWARD T. REICHERT, M.D.


SAMUEL D. RISLEY, M.D.


2. “Hypermetropic Refraction, passing while under Observation into Myopia.” Transactions of the American Ophthalmological Society. 1887.


JOHN B. ROBERTS, M.D.


The Cure of Crooked and Otherwise Deformed Noses. P. Blakiston, Son & Co. 1889. 8vo., cloth.

Laparotomy for Stab-wounds of the Abdomen. Medical News. 1887 LI., 693.


An Attempted Nephro-lithotomy; Wound of Diaphragm; Recovery. Medical and Surgical Reporter. 1888, p. 99. Vol. LXVIII.


Present Need of a State Board of Medical Examiners. Transactions of the Medical Jurisprudence Society for 1889.

Extraction of Cataract, with Cases showing Result of Operation. Proceedings Philadelphia County Medical Society. 1889.


Trephining for Cortical Epilepsy. Polyclinic. April, 1889.

A Successful Hysterectomy. University Medical Magazine. 1889.

JOHN A. RYDER, PH.D.


8. Evolution of the Specialized Vertebral Axes of the Higher Types University Medical Magazine. April, 1889.


REVIEWS.


BOTANICAL.


SAMUEL P. SADTLER, PH.D.


FELIX E. SCHELLING, A.M.


REVIEWS.


Oswald Seidensticker, Ph.D. (Göttingen), Litt.D.


Allen J. Smith, M.D.

An Article upon the Urine and Feces in Children, entitled "The Soiled Napkin in Babyhood."


The Articles in Annual of Universal Medical Sciences (with Prof. J. Tyson) on Urinalysis and Diseases of Kidneys, Suprarenal Capsules and Bladder.

In the hands of publishers (with Dr. J. C. Da Costa), a work upon Acquired Insanity, a Hand-book for Students and Practitioners of Medicine.

Besides publishing articles with above titles, Dr. Smith has illustrated a number of articles published by physicians in Philadelphia.

Pepper—A Case of Glioma of Right Ano. (Two Drawings.)
   A Case of Syphilis of Lungs. (One Drawing.)
   A Case of Aneurism of Arch. (Two Drawings.)

Pepper and Hare—Position of Viscera of Children. (Two Drawings.)

Agnew—Mixed Tumor of Parotid. (One Drawing.)

Lupus of Tongue. (Two Drawings.)

Wood—Syphilis of Nervous System. (Three Drawings.)

Osen—A Case of Spinal Sclerosis. (Six Drawings.)
Dercum—A Case of Cholesteatoma. (One Drawing.)
A Case of Myxœdema. (Five Drawings.)
Hemorrhage of Cord. (One Drawing.)
S. W. Mitchell—Basal Tumor. (Two Drawings.)
Starr—Illustrations of “Hygiene of Nursery.” (Twenty-five Drawings.)
Deaver—Radical Cure of Hernia. (Two Drawings.)
Lecture Illustrations of Nerves of Pelvis. (Two Drawings.)
Hirst—Congenital Syphilis. (One Drawing.)
Congenital Apoplexy. (One Drawing.)
Lecture Illustrations on Obstetrics. (Thirteen Drawings.)
Tyson—Lecture Drawings. (Ten Drawings.)
Dixon—Lecture Drawings. (Three Drawings.)
W. W. Keen—Cerebral Surgery. (Three Drawings.)
A. V. Meigs—Nervous Degeneration. (One Drawing.)
Case of Epithelial Invasion of Corium of Scalp. (Two Drawings.)
W. B. Hopkins—Organization of Sterilized Bone Pegs in Living Bone. (Five Drawings.)
Deaver and Lloyd—Brain and Spinal Surgery. (Eight Drawings.)
Formad—Cholesteatoma. (One Drawing.)
Smith—Lecture Illustrations on Urinary Sediments. (Twelve Drawings.)
Eighteen Illustrations from Martin’s Minor Surgery. Articles on Renal Diseases and Diseases of Bladder, and on Urinalysis (Annual Universal Medical Sciences, 1889), Early Skin Affections, in “Babyhood.”
Besides these there have been a number of small ones, and some I cannot recall, making in all a total of about 120 or 125 illustrations, microscopic and macroscopic, of medical subjects.

**Edgar F. Smith, Ph.D. (Göttingen).**

The Electrolytic Separation of Cadmium from Zinc. With Mr. Lee K. Frankel. American Chemical Journal, etc., etc.
Derivatives Obtained from Monochlordinitrophenol and Bases of the Aromatic Series. *Journal of Franklin Institute, and Chemical News.*

Electrolytic Separations: Cadmium from Copper, etc. With Mr. Lee K. Frankel. *Journal of Franklin Institute, Chemical News, etc.* Vanadium in Caustic Potash. *Journal Franklin Institute, etc.* 1889.

Action of the Gas from $\text{As}_2\text{O}_3$ and $\text{HNO}_3$ upon p-Oxybenzoic Acid. *Journal Franklin Institute, etc.* 1889.

Electrolytic Separations (Second Paper). With Mr. K. Frankel. *American Chemical Journal, etc.* 1890.

**Louis Starr, M.D.**


**Henry W. Stelwagon, M.D.**


A Case of Purpura with Circinate Lesions. *Journal of Cutaneous and Genito-Urinary Diseases.* October, 1887.


Articles on *Tinea Favosa, Tinea Trichophytina and Tinea Versicolor.* Buck’s Reference Handbook of Medical Sciences. 1887–1888.


WILLIAM L. TAYLOR, M.D.
Vaginal Hysterectomy. Read before Obstetrical Society of Philadelphia.
Fixed Uteri. Read before Obstetrical Society of Philadelphia.
Uterine Hemorrhage. University Medical Magazine.

J. D. THOMAS, D.D.S.
"The Practice of Extracting Teeth with Nitrous Oxide Gas as a Specialty." Read before the Odontological Society of Pennsylvania in January, 1885. Published in Cosmos in February, and Dental Office and Laboratory in April, 1885.
"Wisdom Teeth." Written for the Dental Practitioner in January, 1886. Read before the Odontological Society in the same month. and published in pamphlet by request.

ROBERT ELLIS THOMPSON, D.D.
5. Editorial Articles and Paragraphs, Special Articles and Book Reviews in the American, a National Journal, published weekly in Philadelphia.
7. Two Articles on the Tariff Controversy in the Independent of New York, during the summer of 1888.

Francis N. Thorpe, Ph.D.
Articles on American History and Politics. In Education. Boston. May, June, 1887; March, 1888.
Civil Rights Guaranteed by the State Constitutions. Education. Boston. May, June, 1889.

A. L. A. Toboldt, M.D.
"The Use of Moorsalt in Gynecological Practice." October 1, 1887.
"Natural vs. Artificial Mineral Waters."
"Sanitariums and Health Resorts."
"Mattoni's Giesshübler."
"The Study of Mineral Spring Waters in the United States."
"Carlsbad Mineral Waters and Sprudel Salts."
Translated from the German:
Article of Mr. L. Fleckles, Royal Prussian Medical Counsellor, on Diseases of the Liver, complicated with Chronic Disease of the Stomach, Gastric, Gastro-duodenal or Enteric Cataract.
On Diseases of the Liver, complicated with Affections of the Bile Ducts.
On Diseases of the Liver, complicated with Heart Disease.
On Diseases of the Liver, complicated with Diabetes Mellitus.
On Diseases of the Liver, complicated with Bright's Disease.
Chronic Catarrh of the Stomach. (Same author.)
Simple Ulcer of the Stomach. (Same author.)
Article on Diabetes. By Dr. J. Ruff.
(Edited) "Medical Clippings and New Chemicals," and "Journal of Balneology and Medical Clippings."

JAMES TRUMAN, D.D.S.


JAMES TYSON, M.D.

BOOK.
PAPERS.
5. On the Relation of Albuminuria to Life Insurance. A Paper read September 19, 1888, before the Association of American Physi-
cians at the Third Annual Meeting and published in its Transactions for 1888.
9. Treatment of Acute Pneumonia. Medical and Surgical Reports. September 21, 1889.

DE FOREST WILLARD, M.D.

Spina Bifida. University Medical Magazine. April, 1889.
Foreign Bodies in the Urethra and Bladder—Removal with Evacuator. Transactions of the Philadelphia County Medical Society. 1887.
“Congenital Malformations of the Penis, Bladder and Urethra.” In Keating’s American Cyclopedia of Diseases of Children. Vol. III.

HARRY R. WHARTON, M.D.

Seven Cases of Gangrenous Stomatitis, with Remarks. Medical and Surgical Reporter. September 17, 1887.


Amputations in Extreme Old Age. University Medical Magazine. October, 1888.


Article upon Tracheotomy. Keating's Cyclopedia of Diseases of Children. Vol. II.


Surgical Memoranda for the University Medical Magazine.

EXHIBITED BEFORE THE PHILADELPHIA PATHOLOGICAL SOCIETY, WITH REPORTS, THE FOLLOWING SPECIMENS:

Specimens from Cases of Excision of the Knee-Joint.
Specimens of Necrosis of the Jaw in Children.
Prostatic Calculi.
Glatiniform Arthritis of Knee-Joint.
Specimens for Case of Re-Excision of Knee-Joint.
Carcinoma of Breast.
Fibrous Nasal Polypus.
Sarcoma of Thigh.
Excision of Knee-Joint.
Scirrhous of Breast.
Sarcoma of Breast.
Carcinoma of Breast.
Degenerated Sebaceous Cyst.
Melanotic Sarcoma of Axilla.
Tuberculous Testicle.
Lymphomata of Neck.
Specimens of Ganglion.
Loose Cartilages from the Knee-Joint.
Sarcoma of Tibia.
Sarcoma of Femur.
Sarcoma of Testicle.
Tuberculous Testicle.
Specimens from a Case of Strangulated Femoral Hernia.

J. WILLIAM WHITE, M.D.

1. A Century of Medicine. Pamphlet. (Reprint.)
2. Antiseptic Nursing. Pamphlet. (Reprint.)
4. The Relation of the Prostate to Chronic Urethral Discharge. University Medical Magazine. 1888.
10. A Record of One Term of Service in the Surgical Wards of the German Hospital of Philadelphia. Medical and Surgical Reporter. October 20, 1888.
17. Iodide of Potassium in Syphilis. A Discussion by J. William


22. Anaesthetics. A Lecture delivered to the Graduating Class of the University of Pennsylvania. Reprint from the Medical and Surgical Reporter. March 9, 1889.


24. The Surgical Aspects of Dr. Wood's Case of Brain Tumor. University Medical Magazine. April, 1889.


31. The Toxic Action of Chromic Acid used as a Cauterant.

32. The Relation of Subdiaphragmatic Abscesses to the Thoracic Viscera.

33. Gangrenous Abscess of the Lung; Resection of Ribs; Antiseptic Irrigation. Recovery.

34. An Enormous Encysted Vesical Calculus successfully removed by the Suprapubic Method, with a brief Review of some Celebrated Cases of the same character.

35. A Case of Litholopaxy followed by Septicaemia; Suppurative Scapulo-Humeral and Sterno-Clavicular Arthritis; Thyroid, Perineal, Gluteal and other Abscesses.
36. Bone-Grafting in Ununited Fracture.
37. A Note on the Surgical Treatment of Epilepsy.
38. Three Additional Cases of the Radical Cure of Hernia.
40. Modern Methods of Antiseptic Wound Treatment. (Reprint.)
41. Hanging vs. Electricity.


Horatio C. Wood, M.D.

An Address on Trophic Lesions before the American Association of Physicians and the American Association of Physiologists in Joint Session.

An Address, entitled “The Medical Profession, the Medical Sects, and the Law,” before the Alumni Society of Yale College.


Contributions on Nervous Diseases to the University Medical Magazine, and upon Pharmacology to the Therapeutic Gazette and The Medical News.

James K. Young, M.D.


In University Medical Magazine.

Memoranda:—Paraplegia of Pott’s Disease. March, 1889.
Report of Clinical Lecture. By Prof. John Ashhurst, Jr., M.D.

In The Medical News.

A Case of Club-Hand. May 12, 1888.
Unilateral Anophthalmus, with a Case. June 9, 1888.

In American Journal of Medical Sciences.

Reviews on Orthopedic Surgery.

In Medical and Surgical Reporter.

The Treatment of Spinal Caries. April 13, 1889.

In New York Medical Record.

Pes Vagus Aquisitus, or Flat Foot. July 6, 1889.
APPENDIX XIV.

Abstracts of Reports of Wharton Barker, Treasurer of the University, for the years ending August 31, 1888, and August 31, 1889.

FROM REPORT, AUGUST 31, 1888.

General Summary.

GENERAL FUND—
West Philadelphia Real Estate, Library, Museum, Perpetual Insurance, etc. $1,099,183 41
Less Ground Rent. 10,000 00

$1,089,183 41

Real and Personal Property $4,062 52 $1,093,245 93

HOSPITAL FUNDS—
Real Estate, Perpetual Insurance and Furniture 263,342 85
Real and Personal Property 254,133 59 517,476 44

WARD FOR CHRONIC DISEASES FUND—
Real Estate (Gibson Wing) and Perpetual Insurance 65,825 00
Personal Property 109,324 51 175,149 51
Special Hospital Funds 143,529 79 143,529 79

VETERINARY FUND—
Real Estate, Perpetual Insurance and Furniture 44,945 94 44,945 94

DEPARTMENT OF BIOLOGY FUND—
Real Estate, Perpetual Insurance and Furniture 25,662 21 25,662 21

MEDICAL DEPARTMENT FUNDS 88,776 00 88,776 00

VARIOUS SPECIAL TRUSTS 804,633 90 804,633 90

$1,488,959 41 $1,404,460 31 $2,893,419 72

Balance, August 31, 1887, of uncancelled deficit prior to August 31, 1886 $17,310 81
Deficit, Department Science and Arts, 1888 5,553 95
" University, 1888 7,888 64

$31,053 40

Deduct donations, 1888 13,000 09

Balance August 31, 1888, of uncancelled deficit prior to August 31, 1886 $18,053 40
The Medical, Dental and Law Departments were self-sustaining.
The Departments of Arts and Science were maintained at a loss of
$5,853.95.
The Hospital Department has an annual deficit which is made good
by the Board of Managers of the Hospital.

RECEIPTS AND DISBURSEMENTS.

<table>
<thead>
<tr>
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<th>Receipts</th>
<th>Disbursements</th>
<th>Balances</th>
<th>Deficits</th>
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<tr>
<td>University</td>
<td>$14,614 00</td>
<td>$26,814 34</td>
<td>$12,199 45</td>
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<tr>
<td>Departments</td>
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<tr>
<td>Arts and Science</td>
<td>71,431 59</td>
<td>77,285 54</td>
<td>5,853 95</td>
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<td>Wharton School</td>
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<td>8,430 99</td>
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<td>Biology</td>
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<td>7,694 27</td>
<td>8 19</td>
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<td>59,650 43</td>
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<td>2,969 97</td>
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<tr>
<td>Hospital</td>
<td>35,440 60</td>
<td>32,153 15</td>
<td>3,287 45</td>
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DONATIONS RECEIVED DURING THE YEAR ENDING AUGUST 31, 1888.

Charles C. Harrison, General Expenses .................................. $2,500 00
H. H. Houston, " " ......................................................... 2,500 00
Richard Wood, " " .......................................................... 3,500 00
Joseph D. Potts, " " ....................................................... 2,500 00
Charles C. Harrison (additional), General Expenses, balance of defi-
ciency, 1888 ........................................................................ 2,000 00
Thomas Dolan, Department of Applied Organic Chemistry ................. 5,000 00
Estate Lucretia C. Towne, J. H. Towne Estate .................................. 23,762 34
Anna B. Clayton, Library Building ............................................ 1,000 00
Mrs. C. L. Pattan, " " ......................................................... 100 00
Harrison, Frazier & Co., " " ................................................. 10,000 00
James Hay, " " ........................................................................ 500 00
Wm. L. Conyngham, " " .......................................................... 5,000 00
Alexander Brown, " " ................................................................ 5,000 00
" An old Alumnus," " ................................................................ 500 00
C. B. Wright, " " .................................................................... 5,000 00
J. Vaughan Merrick, " " ......................................................... 2,500 00
Wharton Barker, " " .................................................................. 2,500 00
Dr. Wm. Pepper, " " .................................................................. 2,500 00
Edward S. Willing, John F. Frazer Chair of Physics .......................... 2,000 00
Phí Kappa Sigma Fraternity, Phi Kappa Sigma Fraternity Prize
Fund ....................................................................................... 400 00
Dr. Geo. Fales Baker, Hospital Department ........................................ 50 00
H. P. McKean, " " .................................................................... 500 00
Wm. Weightman, " " .................................................................. 250 00
C. H. Hutchinson, " " .................................................................. 50 00
Charles Smith, " " ................................................................... 100 00
### General Summary

**General Fund**—

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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<tr>
<td>West Philadelphia Real Estate, Library, Museum, Perpetual Insurance, etc.</td>
<td>$1,248,857.93</td>
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<tr>
<td>Less Ground Rent</td>
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<td>Real and Personal Property</td>
<td>$1,238,857.93</td>
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<td>Amount available for payment of note for $70,000, given Mr. Charles C. Harrison</td>
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<td>Debt of Fund</td>
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<td>$1,083,245.93</td>
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**Total**                                                                            $97,184.91
Amount brought forward ................................................. $1,093,245.93

HOSPITAL FUNDS—
Real Estate, Perpetual Insurance and Furniture ........................ $263,342.85
Real and Personal Property ........................................... $254,197.66

WARD FOR CHRONIC DISEASES FUND—
Real Estate (Gibson Wing) and Perpetual Insurance .............. 65,825.00
Personal Property ..................................................... 109,324.51
Special Hospital Funds ............................................... 143,814.35

VETERINARY FUND—
Real Estate, Perpetual Insurance and Furniture ..................... 44,945.94
Personal Property ..................................................... 12,500.00

DEPARTMENT OF BIOLOGY FUND—
Real Estate, Perpetual Insurance and Furniture ..................... 25,662.21
Personal Property ..................................................... 10.00

MEDICAL DEPARTMENT FUNDS—
88,776.00

VARIOUS SPECIAL TRUSTS ............................................ 939,176.80

$3,040,821.25

Balance August 31, 1888, of uncancelled deficit ....................... $18,053.40
Departments of Science and Arts, 1889 ............................... 1,412.85

Deficit, University, 1889 ............................................. 8,763.74

Deduct donations ..................................................... 11,000.00

Balance August 31, 1889, of uncancelled deficit ....................... $14,404.29

The Medical, Dental and Law Departments were self-sustaining.
The Departments of Arts and Science were maintained at a profit of $1,412.85.
The Hospital Department has an annual deficit, which is made good by the Board of Managers of the Hospital.
The Wharton School of Finance and Economy was maintained at a loss of $1,059.94, making deficiency account $2,028.95.
Market value of securities in the Wharton School Fund, $109,890.
### Receipts and Disbursements.

<table>
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<tr>
<th>Department</th>
<th>Receipts</th>
<th>Disbursements</th>
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<th>Deficits</th>
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<td>$27,819.14</td>
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<td>Wharton School</td>
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### Donations Received During the Year Ending August 31, 1889.

#### Library Building.

- C. H. Clarke: $5,000.00
- A. J. Drexel: $10,000.00
- A. M. Moore: $1,250.00
- Jos. F. Sinnott: $1,250.00
- Thos. McKean: $5,000.00
- H. C. Gibson: $10,000.00
- Hugh Copeland: $2,500.00
- Geo. Bullock: $25.00
- Wm. B. Hanna: $9,000.00
- H. H. Houston: $5,000.00
- Jos. D. Potts: $50.00
- A. B. Spooner: $2,500.00
- Samuel Dickson: $591.17
- Furness, Evans & Co.: $2,500.00
- Wharton Barker: $20.00
- Class of 1865: $1,000.00
- Strawbridge & Clothier: $2,500.00
- Dr. Wm. Pepper: $1,000.00
- Lewis Bros. & Co.: $1,000.00
- A Friend: $1,000.00
- Dr. S. Weir Mitchell: $500.00
- Charity Ball: $2,000.00
- J. T. Morris: $500.00
- E. W. Clark: $2,500.00
- Harriet Blanchard: $2,000.00

#### Salaries, Science and Arts.

- Estate of Eli K. Price: $1,000.00
### GENERAL EXPENSES.

<table>
<thead>
<tr>
<th>Name</th>
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<td>Anna W. Power</td>
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<tr>
<td>Dr. Wm. Pepper</td>
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<td>Coffin, Altemus &amp; Co.</td>
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### DEFICIENCY AND REPAIR FUND, HOSPITAL DEPARTMENT

<table>
<thead>
<tr>
<th>Name</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Dr. Wm. Pepper</td>
<td>$400</td>
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<tr>
<td>Thos. Dolan</td>
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<tr>
<td>Richard Wood</td>
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### DYNAMICAL LABORATORY.

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>J. T. Morris</td>
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<tr>
<td>Neafie &amp; Levy</td>
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</tr>
<tr>
<td>E. B. Coxe</td>
<td>$500</td>
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<tr>
<td>James Moore</td>
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<tr>
<td>Baldwin Locomotive Works</td>
<td>$1,000</td>
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<tr>
<td>Bement, Miles &amp; Co.</td>
<td>$500</td>
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<tr>
<td>Wm. Sellers &amp; Co.</td>
<td>$500</td>
</tr>
<tr>
<td>Henry Disston &amp; Sons</td>
<td>$500</td>
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<tr>
<td>Hughes &amp; Patterson</td>
<td>$250</td>
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<tr>
<td>Wm. Weightman</td>
<td>$500</td>
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<tr>
<td>Wm. Cramp &amp; Sons</td>
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### LABORATORY OF EXPERIMENTAL PSYCHOLOGY.

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Prof. Geo. S. Fullerton</td>
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</tr>
<tr>
<td>Jos. D. Potts</td>
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<tr>
<td>Prof. J. McK. Cattell</td>
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<tr>
<td>Frederick Fraley</td>
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<tr>
<td>Dr. S. Weir Mitchell</td>
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<tr>
<td>H. H. Houston</td>
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<tr>
<td>E. W. Clark</td>
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<tr>
<td>Samuel Dickson</td>
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<td>Richard Wood</td>
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<tr>
<td>Charles C. Harrison</td>
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</tr>
<tr>
<td>J. V. Merrick</td>
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<tr>
<td>J. G. Rosengarten</td>
<td>$10</td>
</tr>
<tr>
<td>Alfred G. Baker</td>
<td>$25</td>
</tr>
<tr>
<td>Mrs. Anna W. Baird</td>
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<tr>
<td>Dr. William Pepper</td>
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<td>Wm. Sellers</td>
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<td>E. Delano</td>
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<td>J. H. Converse</td>
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### Maternity Hospital Fund

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<tr>
<td>Mrs. E. W. Field</td>
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<tr>
<td>Charles M. Lea</td>
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</tr>
<tr>
<td>Richard Wood</td>
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</tr>
<tr>
<td>D. Halkulem</td>
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<tr>
<td>Dr. J. K. Mitchell</td>
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<tr>
<td>Jas. H. Lloyd</td>
<td>10.00</td>
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<tr>
<td>Dr. Goodell</td>
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<tr>
<td>Dr. S. S. Stryker</td>
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</tr>
<tr>
<td>Dr. Wm. Pepper</td>
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### Hospital Department

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<td>Allison Manufacturing Company</td>
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<tr>
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<tr>
<td>Chas. C. Hutchison</td>
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<tr>
<td>Chas. Peabody</td>
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<tr>
<td>S. P. Morris</td>
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<tr>
<td>Mary A. W. Brown</td>
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<tr>
<td>Richard Wood</td>
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<td>H. H. Houston</td>
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<tr>
<td>Wm. Weightman</td>
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<tr>
<td>Moore &amp; Simott</td>
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<td>Dr. Geo. F. Baker</td>
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<tr>
<td>W. S. Reyburn</td>
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<tr>
<td>Coffin, Altemus &amp; Co.</td>
<td>100.00</td>
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<tr>
<td>Berwind, White &amp; Co.</td>
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### Alumni Hall Fund

<table>
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<tr>
<td>C. R. Woodruff</td>
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### Prize Fund Law School

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<tr>
<td>Mrs. P. P. Morris</td>
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### Dr. Wm. Pepper Medical Library Fund

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<tr>
<td>Anna H. Lucas</td>
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<tr>
<td>A Friend</td>
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### Veterinary Fund

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<tr>
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### Physiological Laboratory for Plants

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<tbody>
<tr>
<td>J. V. Merrick</td>
<td>100.00</td>
</tr>
<tr>
<td>Wm. H. Furness</td>
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<tr>
<td>Dr. C. S. Dolley</td>
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<tr>
<td>Wharton Barker</td>
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DEPARTMENT OF BIOLOGY.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Joseph Ross</td>
<td>$10 00</td>
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<tr>
<td>Dr. Horace Jayne</td>
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VETERINARY DEPARTMENT.

<table>
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<th>Name</th>
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<tbody>
<tr>
<td>Heirs of J. B. Lippincott, deceased</td>
<td>$4,000.00</td>
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MATERNITY HOSPITAL FUND.

<table>
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<th>Name</th>
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<tbody>
<tr>
<td>Dr. Barton C. Hirst</td>
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AGRICULTURAL LIBRARY FUND.

<table>
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<tr>
<th>Name</th>
<th>Amount</th>
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<tbody>
<tr>
<td>George Blight, Treasurer of the Philadelphia Society for Promoting Agriculture</td>
<td>$500.00</td>
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CHAIR OF CHRISTIAN ETHICS.

<table>
<thead>
<tr>
<th>Name</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Dr. George Dana Boardman</td>
<td>$15.00</td>
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$120,788.80