

New Series, 1917  
No. 10

Whole Number 300

THE  
JOHNS HOPKINS  
UNIVERSITY CIRCULAR

EDITED BY  
THOMAS R. BALL

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REPORT OF THE PRESIDENT  
OF THE UNIVERSITY

1916-17

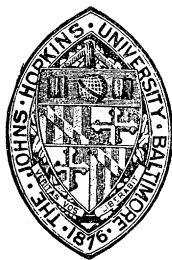
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ANNUAL REPORT  
OF  
THE PRESIDENT OF  
THE JOHNS HOPKINS UNIVERSITY  
1916-17



BALTIMORE  
THE JOHNS HOPKINS PRESS  
1917

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**ANNUAL REPORT OF THE PRESIDENT**

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TO THE TRUSTEES OF THE JOHNS HOPKINS UNIVERSITY:—

*Gentlemen:*

I have the honor to submit to you my annual report as President of the University for the academic year ending September 30, 1917. Attached hereto are the reports from the different departments of the University, which contain a statement both of the work done during the year and of some of our most pressing needs.

The year that has just closed will be memorable in the annals of the University for several reasons. In the first place the past year was the first year during which the work of the Philosophical Faculty was carried on at Homewood. Our year's experience has shown that the move to Homewood at the time determined was amply justified, although some departments have suffered a certain amount of inconvenience. This is particularly true of the department of Zoölogy. It is to be hoped that in the near future better quarters may be provided for this department. In the meantime, however, its members have endeavored with commendable cheerfulness to adjust themselves to the new conditions

and the work has not suffered. The disadvantages due to cramped and inadequate quarters have been offset by greater facilities for work due to the existence of small ponds on the grounds, where experiments impossible at the old site have been carried on.

The conditions of the department of Chemistry have been much more favorable than was anticipated when it was decided to move to the new site. The generosity of Mr. J. E. Aldred, of New York City, enabled us to equip an undergraduate chemical laboratory in the basement of the south wing of the Mechanical and Electrical Engineering Building. The result has been that all the undergraduate work in chemistry has been carried on during the past year at Homewood. The centralization of this work has been of great advantage, not only because of considerations of convenience to our undergraduate students, but also because it has freed much room in the old chemical laboratory which was sorely needed for the purposes of graduate work.

The wisdom of the move to Homewood was shown especially in the large freshman class which entered at the beginning of the year. For the first time in the history of the University the number of freshmen exceeded one hundred and fifty.

The year that has just closed was notable also for the inauguration of evening courses. The University had for a number of years made provision for courses in the late afternoon, which were particularly designed for teachers desiring to render themselves better prepared for their work in the schools. Owing to the generosity of friends of the University in the city of Baltimore, it became possible to offer during the past year to the people of the city two sets of evening courses, viz., the Courses in Business Economics and the Courses for Technical Workers. The attempt was made further to add considerably to the work done in the College Courses for Teachers, some of which also were given in the evening.

The registration in these late afternoon and evening courses, which amounted to more than eleven hundred, was conclusive

proof that evening courses of a varied but systematic character were needed in the city. Up to the time the University determined to undertake this work there was practically no place in Baltimore where those who had finished their schooling and had begun the task of earning their living could go for further needed instruction. It was this consideration that determined the University authorities to undertake the work as soon as the necessary resources were provided. A number of far-seeing men in the city were convinced that the changes in the economic life of Baltimore, due to the increase in the number of industrial enterprises which were being established in the neighborhood, made it absolutely necessary that such evening classes should be started, and offered to assist the University in taking the step.

The past year has, finally, been memorable because of the entrance of this country into the great world war which has been waged during the last three years. Prior to the entrance of the United States into the struggle, the University determined to organize, under the National Defense Act of 1916, a Reserve Officers' Training Corps Unit. The approval of the War Department was secured in the summer of 1916, and the University opened its academic year in October, 1916, with a fully organized infantry battalion under the command of Captain C. W. Elliott, U. S. A., detailed here as Professor of Military Science and Tactics by the War Department.

It is the belief of all those who have observed the year's work that, apart entirely from the service which such instruction may be to the country in this great crisis in its life, the military instruction which has been given has had the most salutary effect upon the student body. The work was carried on with enthusiasm and was commented upon most favorably by the officer sent by the War Department to inspect it.

It was, however, particularly fortunate that the University determined to include military instruction in its curriculum at so early a date. For the instruction given enabled a large number of our older students to go to the Officers' Training

Camps established last spring, with a preparation which was invaluable to them in the work undertaken in those camps.

The call to arms to which the college men of this land responded so generally last spring has necessarily had serious effects on our institutional life. Many members of our Faculty and many former students are now serving their country in the military services. Others have entered some one of the civil services. The result is that we shall open the coming year short-handed so far as concerns our teaching force, and with a considerably smaller number of students than we should have had the right to expect in normal times.

The Medical Faculty has suffered greater losses in this respect than the other faculties of the University. Sixty of the members of this faculty and of the hospital staff have entered the medical services of the United States Government. At the same time there is no faculty some of whose members are not now in the service of their country. The greater loss of the Medical Faculty is due, of course, to the organization of the Hopkins Hospital Unit now "somewhere in France." In addition to the hospital unit, there was organized also the Hopkins Ambulance Unit which, with other units of the same character, has been spending the summer in training.

Either members of the faculty or former students are to be found at the present time in the Navy, the Regular and National Armies, the National Guard, or in the civilian bureaus of the United States Government.

Finally, at the University itself considerable work has been carried on at the request of the Government. Of this character of work was the organization, under the Shipping Board, of day and evening Schools of Navigation and Marine Engineering for the education of deck and engine-room officers for the ships of the new Mercantile Marine which the Shipping Board is constructing. Already more than fifty men have been sent from these schools into the American Mercantile Marine.

In addition to these schools much work has been done in the laboratories of the University at the request of the Gov-

ernment. I may say, indeed, that there has been no call made upon us by the Government, either for the services of our instructors or for the use of our equipment, to which the University has not responded. In some cases departments have been closed and work in them discontinued in order to meet the calls made upon us.

I have mentioned these things only as an indication of the willingness of the University to do what it can for the country at this time. We all wish that our facilities were such that we might do more than we have been able to do. The fact that we have no dormitories has necessarily greatly circumscribed the character of the work which we can do. For so many of the schools which have been opened by the Government at the various universities have used the university dormitories and commons for housing and feeding the students in those schools.

#### MEDICAL SCHOOL

The most important happening in the Medical School during the past year was the resignation by Dr. Welch of the Professorship of Pathology which he has filled with such distinction since its establishment. Dr. Welch's resignation was due to his acceptance of the Directorship of the recently organized School of Hygiene and Public Health. The vacancy caused by Dr. Welch's resignation was filled by the appointment of Dr. William George MacCallum, Professor of Pathology in Columbia University, a graduate of the first class in our Medical School and afterwards a member of its Faculty.

Owing to a generous gift from the General Education Board, it has been possible to strengthen considerably the work of the department of Pediatrics, as well as that of a number of the laboratory departments in the Medical School, including the department of Pathology.

#### THE ENGINEERING SCHOOL

The most notable event in the Engineering School was the gift by Mr. J. E. Aldred, of New York City, of funds for

furthering and improving undergraduate instruction in the methods and problems of engineering practice. With the funds so generously given we were able to make provision for a series of lectures on some of the practical problems which are presented to the engineer for solution. The lectures were given by men of eminence in their particular lines, who, at the same time, were engaged in practical work, and they were of great interest and value to our engineering students. These lectures were subsequently published by the University Press as "The J. E. Aldred Lectures on Engineering Practice."

#### THE SCHOOL OF HYGIENE AND PUBLIC HEALTH

Progress has been made in the organization of the faculty of this school, as well as in providing quarters in which the work may be carried on. Professor Elmer V. McCollum, of the University of Wisconsin, was called to fill the chair of Chemistry, and he began his work in July in temporary quarters in the basement of the physiological building. Land for the new building has been purchased at Monument and Wolfe streets and plans for the building have been decided upon. The school will, however, open next October for its first year of work in the old Physical Laboratory on West Monument street, which will be fitted up for this purpose. It was felt that it would be unwise for us to delay the opening of the school until the completion of the new building, as war conditions made it impossible to anticipate with any certainty the time of completion of any new work which might be undertaken.

#### THE SUMMER COURSES

The usual courses were given during the past summer. Notwithstanding the fact that a greater number and variety of courses were offered, the attendance was less than the summer before, evidently due to the effect which the existence of the war is having upon our educational institutions. A feature of the summer courses was the cooperative arrangement made with the Maryland Institute. By this arrangement the

summer art courses of the Institute were made a part of the work of the University and given at Homewood.

#### NEEDS OF THE UNIVERSITY

The most pressing need of the University is the same to which attention was called in my last report. That is an increase in the endowment applicable to general purposes. This increased endowment is necessary in the first place to make it possible for us to carry on our work on its present scale without a continually recurring deficit, and second to provide for necessary salary increases.

On the other hand salary increases are now even more imperative than ever, because of the continual increase in the cost of living. If we cannot in some measure meet this increase, we may not be able to keep with us some of the most valuable members of our teaching force.

We need, of course, some new buildings to do our work in the most effective manner. We can, however, for the present do without them, if absolutely necessary. But we must have greater resources if we are to continue to do even the work we are now doing, which is chargeable to our general funds.

#### FINANCIAL STATEMENT

The Financial Report, showing in detail the operations for the year ending June 30, 1917, and the condition of the University finances on that date, has been published, and copies may be obtained from the Treasurer by those interested. Reference to this report will reveal the following facts:

The operations of the year resulted in an excess * of expenditures over ordinary income of .....		\$69,692.12
On Philosophical and Collegiate account...	\$33,120.51	
and on Medical School Account.....	36,571.61	

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\* Covered by Hopkins Maintenance Fund for 1916-17 of \$70,000.00.

The excess for the preceding year was.....	71,925.59
For Philosophical and Collegiate Departments .....	\$43,368.95
For the Medical School.....	28,556.64
	<hr/>
A decrease this year of.....	\$2,233.47
It will be noted that the deficit on the Philosophical and Collegiate account decreased during the year as compared with the year before.....	10,248.44
And the deficit in the Medical School increased .....	8,014.97
	<hr/>
Making a net decrease as above of.....	2,233.47
	<hr/>
The total income from operations for the year was....	\$709,315.89
An increase this year of.....	143,616.39

This increase came from the following sources:

Tuition .....	\$14,489.43
Other items, of which \$17,616.60 is accounted for by a consideration for the first time in the receipts of the Carnegie Allowances, and \$20,201.00 by the receipts from the Courses in Business Economics and the Night Courses for Technical Workers, these courses having been started in 1916-17 .....	\$59,126.96
Hopkins Maintenance Fund.	\$70,000.00

Of the total income, the amount received from students was 20 per cent., the income from invested funds 44 per cent., from the State of Maryland 10 per cent. and from other items 26 per cent.



The total operating expenses for the year were..... \$709,008.01

A net increase for the year of..... \$71,382.92

The increase is accounted for as follows:

In salaries.....	\$43,049.52
In expenses.....	30,108.43
	<hr/>
	\$73,157.95
Less decrease in apparatus and books .....	1,775.03
	<hr/>
	\$71,382.92

The amount paid for salaries during the year constituted 67 per cent. of the total expenses, the amount paid for expenses 30 per cent., and the amount paid for apparatus, equipment, and other items 3 per cent.

The gratifying increase in the income of the University shown in the statement above set forth, is largely due to gifts for special purposes, the fulfillment of which has necessitated larger expenditures. The result has been that while the sphere of our activity has been enlarged, our general budgetary situation has not been greatly relieved.

The increase in the income of the University is due also, of course, to payments amounting to \$70,000 on account of the Hopkins Maintenance Fund and in quite a measure to tuition fees which were considerably larger during the past year.

The result of the increase in income which has been noted, is that for the first time in a number of years we closed the year without a deficit. This result is, of course, extremely gratifying. It does not, however, in any way make less necessary the endeavor to secure a larger endowment. The loss of students due to war conditions will unquestionably reduce our income from tuition fees. On the other hand the maintenance fund which has been such a help to us during the year can be relied on only for the coming two years.

## ASSETS AND LIABILITIES (JUNE 30, 1917)

The University has Assets as follows:

Stocks, Bonds, Productive Real Estate, etc., belonging to Endowment Funds	\$6,364,874.91
Bonds, etc., belonging to Special Funds	45,000.00
Plant, Equipment, etc.—	
Howard St. Buildings.....	\$ 990,189.16
Medical School Buildings.....	187,028.34
Homewood Land and Development...	2,243,394.14
New Hunterian Laboratory.....	124,779.18
Equipment, Books, etc.....	654,273.44
	<hr/> 4,199,664.26
Accounts receivable.....	135,982.27
Cash on hand.....	39,545.56

*Making Total Net Assets (Book Value)* \$10,785,067.00

Corresponding to Liabilities, i. e., Funds  
and Balances, as follows:

Permanent Endowments (Trust Funds):

Funds Consolidated for investment .....	\$5,065,022.28
Funds separately in- vested .....	1,878,967.11
	<hr/> \$6,943,989.39

Unexpended Income of Special Funds.. 16,894.48

Sundry Open Accounts..... 104,459.81

Engineering School Building Fund.... 49,057.81

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\$7,114,401.49

*Leaving* ..... \$3,670,665.51

Which is represented by—

Plant, Equipment, etc..... \$4,199,664.26

Unrestricted Bequests ..... 225,093.91

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\$4,424,758.17

Against which has been charged

Loss on investments.... \$28,524.75

Deficit in Operations to  
date ..... 334,023.70

Homewood Development  
in excess of Funds  
available ..... 391,544.21

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\$754,092.66

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\$3,670,665.51

These liabilities deducted should be offset by cash on hand and good current assets. That such is not the case is due to the fact that the University has had to provide cash to meet the accumulated deficits of \$334,023.70 and an amount from General Account for Homewood Development, \$391,554.21, a total of \$725,577.91.

The University has a number of unrestricted legacies, which, together with the proceeds of the University property on Howard Street, when sold, could be applied to liquidate the above liabilities.

In addition to these present assets, the University is interested as remainderman in a number of estates which will be available on the termination of existing life estates. These amount in all to about \$900,000. There are, apart from the liabilities just enumerated, no debts or obligations except that under the will of John W. McCoy the University must pay an annuity, etc., of \$950, which will terminate on the expiration of the life tenancy.

#### GIFTS AND BEQUESTS

It is a pleasure to be able to report another favorable year so far as concerns the gifts and bequests which the University has received. The General Education Board added \$100,000 to the William H. Welch Endowment for Clinical Research in order to make possible more work in the department of Pediatrics, and also gave us \$250,000 to strengthen the work in the laboratory departments of the Medical School.

Mrs. George Huntington Williams, of this city, her two sons, and Miss Cornelia Williams, of Utica, N. Y., have given the University a fund to be known as "The George Huntington Williams Memorial Fund." One-half of the income of this fund is to be devoted to promoting investigation in the department of Geology. In case a fellowship be established in this department to carry out the purposes of the donors, it is to be known as "The George Huntington Williams Memorial Fellowship." The other half of the income of the fund is to be used to secure a lecturer of distinguished attainments,

who shall lecture upon some topic of widespread contemporary interest, the lectureship to be called "The George Huntington Williams Memorial Lectureship."

Mr. Isaac Forrester Nicholson, of Baltimore, gave to the University the sum of fifteen thousand dollars, the income of which is to be devoted to aiding poor young men to obtain a university education, or to any other purpose which seems desirable to the Trustees of the University.

An anonymous donor has given to the University the sum of \$10,000 to establish a fund, the income of which is to be devoted to the encouragement of research and investigation in Physiology.

Mr. Frank Jewett Mather, Jr., an alumnus of the University, gave us the sum of \$2,000 to be known as the "Morris C. Sutphen Fund," the income of which is to be devoted to the purchase of books for the advanced study of Latin in the graduate department.

Mr. Kenneth Dows, of New York, gave \$19,000 for carrying on research in Tuberculosis and for remodelling the laboratory.

Mr. J. E. Aldred, of New York, gave \$5,000 for fitting up the undergraduate Chemical Laboratory and for the furtherance of the practical side of engineering instruction.

Mr. Henry Phipps, of New York, gave \$8,500 to meet the expenses of instruction in the department of Psychiatry, which conducts the Phipps Clinic.

An anonymous donor gave \$5,000 for the department of Art as Applied to Medicine.

Mr. Robert Winsor, of New York, gave \$1,000 for the encouragement of research in the department of Psychiatry.

Dr. Albert Shaw, an alumnus of the University, made his annual gift of \$250 for the honorarium of the lectures on "Diplomatic History."

Gifts totaling \$500 were received during the year to cover the cost of assistance in Geology.

A gift of \$1,500 was received from the Rockefeller Foundation for assistance in research in Pharmacology.

A gift of \$1,200 was reported by Dr. Adolf Meyer to defray the salary of an assistant in Psychiatry.

A number of alumni and friends contributed during the year to the Fund for Mathematics, the names of the subscribers being F. D. Murnaghan, Wm. Winchester, A. E. Landry, Simon Dalsheimer, and Miss Teresa Cohen.

For the continuation of the publication of "Modern Language Notes," Mrs. Julia E. Bartlett, of Baltimore, and Mr. L. Dietrich each gave \$100.

In order to provide quarters for the undergraduate students, one of the old Carroll buildings was remodelled into the Students' Activities Building. This building houses a lunch room, a barber shop, students' lounging room, and the Young Men's Christian Association. The building has been a great success. \$1,200 of the fund for the alterations were collected by Dean Brush from alumni and friends.

A gift of \$25 was received to cover the expense of a lecture by Dr. John H. Finley.

Gifts aggregating \$250 were received which enabled us to have Mr. William H. Taft deliver the principal address at the Commemoration exercises held on February 22, 1917.

Mr. H. A. Wagner, President of the Consolidated Gas, Electric Light and Power Company of Baltimore, contributed \$100 for lectures on engineering topics.

In order to assure the giving of courses in Semitic Languages in connection with the Summer Courses of 1917, the following gentlemen made contributions: Jacob Epstein, Simon Dalsheimer, and Harry Friedenwald.

Mrs. Henry Lee Smith gave \$100 for the "Joseph Kenochan Garr" scholarship annually awarded in the Medical School.

The Courses in Business Economics were made possible by the subscriptions and friendly support of the following:

Baltimore Trust Company; Safe Deposit & Trust Company; Fidelity Trust Company; Citizens National Bank; Merchants-Mechanics-First National Bank; New Amsterdam Casualty Company; Central Metal & Supply Company; Robert Garrett & Sons; Manu-

facturers' Record; E. Stanley Gary; William H. Fehsenfeld; Merchants & Miners Transportation Company; Falconer Company; G. B. S. Brewing Company; Maryland Casualty Company; Hambleton & Company; Tidewater Portland Cement Company; Consolidated Gas, Electric Light & Power Company; Swift & Company; William B. Oliver; National Bank of Baltimore; Charles H. Koppelman; Robert Ramsay Company; E. B. Hunting; Lawrason Riggs; Alexander Brown & Sons; Mercantile Trust & Deposit Company; Samuel Kirk & Sons; Cahn, Coblens & Company (The Leader); McCormick & Company; Hutzler Brothers; A. W. Gieske; Sharp & Dohme; Commercial Credit Company; Charles T. Crane; W. W. Lanahan & Company; United Railways & Electric Company; Maryland Trust Company; Henry Sonneborn & Company; William H. Grafflin; German Fire Insurance Company; Summerfield Baldwin; United States Fidelity & Guarantee Company; J. S. Cosden; Life Insurance Underwriters; H. D. Bush; Charles M. Stieff; Maryland Biscuit Company; John K. Shaw; Builders' Exchange; Board of Trade.

The Night Courses for Technical Workers were made possible, through a guaranty to cover any deficit to the extent of \$10,000, by the following:

Consolidated Gas, Electric Light & Power Company; United Railways and Electric Company; Baltimore Copper Smelting & Rolling Company; Bethlehem Steel Company; Walter B. Brooks; Norman James; Eugene L. Norton; Summerfield Baldwin; George Beadenkopf; Benson & Karr; Victor G. Bloede; Howard Bruce; John M. Dennis; Frank A. Furst; Carl R. Gray; Hambleton & Company; P. O. Keilholtz; Gustavus Ober, Jr.; Poole Engineering & Machine Company; William H. Matthai; J. C. Taliaferro; Joseph P. Kennedy; and one other person whose name is reserved at his request.

#### PERSONAL MENTION

The University has sustained a most severe loss through the death of Dr. William Bullock Clark, Professor of Geology and Director of the Geological Laboratory, which occurred suddenly at his summer home on the twenty-seventh of July. Professor Clark became an instructor in Organic Geology in this University in 1887 and was promoted through the successive grades until he became Professor in 1894, on the death

of Professor G. H. Williams. Under his efficient leadership the Geological Survey of Maryland was organized in 1896 and he became State Geologist. He also organized the State Weather Service, and was prominently identified with many of the movements in State and City tending to the betterment of the community.

Dr. Edward C. Armstrong, Professor of the French Language, left us at the close of the academic year to assume the duties of a similar chair in Princeton University. Professor Armstrong came to this University as a graduate student in 1893 and has been successively a fellow, instructor, associate, associate professor, and professor. Since the death of Professor Elliott, in 1910, Dr. Armstrong has served as chairman of the Romance Language staff and has in that capacity rendered invaluable service to the University. He has likewise been a most capable and inspiring teacher. Some of the work conducted by him has been intrusted to Dr. David S. Blondheim, a Bachelor of Arts and Doctor of Philosophy of this University, recently Assistant Professor in the University of Illinois, who has been appointed Associate Professor of French.

In the last report it was stated that Professor C. Carroll Marden had assumed the duties of Professor of Spanish in Princeton University. Dr. Marden continued to direct the Spanish work here during the year, coming to Baltimore each week and conducting several graduate courses. He has been connected with this University, as student and teacher, since 1886. He is a Johns Hopkins Bachelor of Arts and Doctor of Philosophy, and has held the posts of instructor, associate, associate professor, and professor, beginning in 1894. We shall miss his valuable service in the important field of study to which he has devoted himself.

The department of Romance Languages has lost another valued teacher through the resignation of Dr. James E. Shaw, Associate Professor of Italian. Dr. Shaw is a Bachelor of

Arts and a Doctor of Philosophy of this University and has been a member of the Faculty since 1900. He has accepted the post of Professor of Italian in the University of Toronto. Dr. G. Gruenbaum has been made Associate in Romance Languages and he will conduct the courses in Italian.

Promotions and appointments, for the next year, in the Philosophical Faculty have been made as follows:

MURRAY P. BRUSH, Ph. D., Dean of the College Faculty.

EDWARD W. BERRY, formerly Associate Professor, Professor of Paleontology.

GEORGE R. GUILD, Major, U. S. Army (retired), Collegiate Professor of Military Science and Tactics.

ROBERT B. ROULSTON, Ph. D., formerly Associate, Associate Professor of German.

JOSEPH T. SINGEWALD, JR., Ph. D., formerly Associate, Associate Professor of Economic Geology.

DAVID S. BLONDHEIM, Ph. D., Associate Professor of French.

EDWIN P. DARGAN, Ph. D., Lecturer in French Literature.

FLORENCE E. BAMBERGER, A. M., formerly Instructor, Associate in Education.

GUSTAV GRUENBAUM, Ph. D., formerly Instructor, Associate in Romance Languages.

WALTER A. PATRICK, Ph. D., Associate in Chemistry.

LEO WOLMAN, Ph. D., Associate in Insurance.

WILLIAM S. GORTON, Ph. D., Instructor in Physics.

CLARE E. GRIFFIN, A. M., Instructor in Transportation.

ARTHUR C. MILLSPAUGH, Ph. D., Instructor in Political Science.

AARON SCHAEFFER, Ph. D., Assistant in German.

DAVID E. WEGLEIN, Ph. D., Instructor in Education.

In the School of Hygiene and Public Health the following faculty appointments have been made:

ELMER V. MCCOLLUM, Ph. D., Professor of Chemistry.

WILLIAM W. FORD, M. D., Associate Professor of Bacteriology.

VICTOR E. NELSON, M. S., Associate in Chemistry.

HELEN TRACY PARSONS, M. S., Instructor in Chemistry.

NINA SIMMONDS, B. S., Assistant in Chemistry.

BARNETT SURE, M. S., Assistant in Chemistry.

Recent appointments in the Medical Faculty are mentioned in the report of the Dean (see Appendix).



## JOHNSTON SCHOLARSHIPS

The incumbents of the Johnston Scholarships were Howard S. Fawcett (M. S., University of Florida, 1908), Associate Professor in the University of California (on leave of absence), in the department of Plant Physiology; Alexander Green (Ph. D., Columbia University, 1914), recently Instructor in the University of Illinois, in Germanic Philology; Karl S. Lashley (Ph. D., Johns Hopkins University, 1914), in the department of Psychology (reappointed from the previous year).

## COMMEMORATION DAY

The University observed the forty-first anniversary of its opening with public exercises in the Lyric Theatre on the morning of Thursday, February 22. The opening prayer and the benediction at the close were said by the rector of Grace and St. Peter's Church, Rev. Romilly F. Humphries. The orator of the day was the Honorable William H. Taft, who chose for his subject "Wise and Unwise Extension of Federal Power." An oil portrait of the late Dr. Christopher Johnston, Jr., Professor of Oriental History and Archaeology in this University, was presented by the Maryland Society of Colonial Dames of America, Dr. David M. Robinson reading the letter of presentation. The President spoke of the progress and achievements of the University during the preceding twelve months. He announced that the Trustees had since the last Commencement authorized the conferring of degrees as follows: Doctor of Philosophy upon Clarke Cothran Minter, of North Carolina, and Elias N. Rabinowitz, of Baltimore; Doctor of Medicine upon Rowland Sill Briggs, of California, and George William Henry, of New York; Bachelor of Arts upon Myron Everhart Bagley, of Maryland, and Ira Owen Wade, of Virginia; Bachelor of Science upon Mary Stella Johnson, of Georgia. The general Alumni Association held its annual meeting at the Lyric Theatre immediately

after the public exercises; the usual banquet was omitted. The addresses of Mr. Taft and the President are printed in the *University Circular*, February, 1917, together with the proceedings of the Alumni Association's meeting.

#### CONFERRING OF DEGREES

Degrees were conferred Tuesday, June 12, at 4 o'clock, in the Lyric Theatre. Rev. Morris S. Lazaron, Rabbi of the Madison Avenue Temple, offered the invocation. Hon. Newton D. Baker, Secretary of War, a member of the Class of 1892, spoke of the part which University men must play in the upbuilding of the nations devastated by the present world war. The substance of his address is printed in the *University Circular*, June, 1917. The President of the University addressed the candidates for degrees and awarded diplomas as follows: Bachelor of Arts, forty-two; Bachelor of Science in Engineering, thirty-seven; Bachelor of Science, two; Master of Arts, thirteen; Doctor of Philosophy, forty-two; Doctor of Medicine, ninety. He also announced several important gifts. In the evening the graduates and their friends were received informally by the President and Faculty in Gilman Hall. In connection with the Commencement exercises the Class of 1892 celebrated the twenty-fifth anniversary of their graduation, a considerable proportion of the class being present.

#### ACADEMIC CELEBRATIONS

Representatives of the University have attended the following academic and educational gatherings: The annual meeting of the Association of American Universities, President Goodnow and Professor Howell; the Conference of Southern Colleges and Secondary Schools, Professor French; the annual meeting of the Association of Urban Universities, Professor Robinson; the inauguration of the new Presidents of Mills College in California and the State University of Iowa,

the delegates being alumni of this University, Professors A. C. Lawson and G. L. Houser, respectively.

#### PUBLIC LECTURES AND ASSEMBLIES

The twenty-second course of lectures on the Percy Turnbull Memorial Foundation was given by Professor Edward Capps, of Princeton. The general subject was "Formative Influences in Greek Tragedy," which was treated in six lectures. (April 30-May 11).

The James Schouler Lectures on History and Political Science, being the eighth course on this foundation, were delivered by Dr. David Jayne Hill, author and diplomat. He gave six lectures, his subject being "International Readjustments." (March 6-22).

The J. E. Aldred Lectures on Engineering Practice were inaugurated this year with a course of nine lectures by practical engineers and managers of industrial corporations. Three lectures were given in each of the three general subjects provided for in the Department of Engineering. The lecturers and their topics are named in the statement of the Department of Engineering appended to this report. The lectures were given in March and April.

A course of five lectures was given the last week in April by Dr. George Sarton, Editor of *Isis* and Lecturer in Harvard University, on "Science and Civilization in the Time of Leonardo da Vinci."

The first lecture in the second series under the joint auspices of the University and the Women's Civic League was given in the Civil Engineering Building on December 6. The lecturer was Dr. William H. Park, of the New York Department of Health, who spoke of the "Dangers of Impure Milk and the Importance of Milk as a Food." The second lecture was given in the Mount Vernon Place Methodist Church, December 13, the lecturer being Dr. Simon Flexner, of the Rockefeller Institute, New York, and his subject "Infantile Paralysis in Relation to Public Health." The third lecturer

was Dr. John H. Finley, Commissioner of Education of the State of New York, who spoke on January 26, also in the Mount Vernon Place Church, on "Training for Leisure."

The Albert Shaw Lectures on Diplomatic History were given this year by Professor Payson J. Treat, of Leland Stanford University. The subject was "Early Relations between the United States and Japan." The course was given in January and consisted, as usual, of ten lectures.

Mr. L. O. Armstrong, of the Department of Public Instruction of the Bureau of Commercial Economics in Washington, lectured on the "Water Power of Canada," January 9.

The University coöperated with Goucher College in providing a lecture by Professor Charles W. Wallace, of the University of Nebraska, on "New Shakespeare Discoveries from English Archives." The lecture was given in the College auditorium, March 21.

The following local and national organizations have used the halls of the University: The Baltimore Society of the Archaeological Institute of America; the American Red Cross; the Baltimore Municipal Art Society.

#### AWARD OF PRIZES

The Severn Teackle Wallis Memorial Prize, established by the Wallis Memorial Association of Baltimore, was won this year by Winifred Sturdevant, A. B., who presented an essay entitled "A Comparison of the *Misterio de los Reyes Magos* with the Latin Liturgical Epiphany Plays."

The Tocqueville Medal, annually given to the University by Baron Coubertin, of Paris, was awarded on Commencement Day to Joseph Louis Krieger (of the third-year undergraduate class), the subject of whose speech in the contest held in the spring was "The French Revolution of 1848."

The twentieth annual Inter-class Debate and Contest in Public Speaking for the Adams prizes and medal, respectively, were held March 3. The subject of the debate was "Compulsory Arbitration of Labor Disputes." The Senior

Class team, composed of Eugene A. Edgett, Reuben Oppenheimer, and Alexander A. Steinbach, which had chosen the negative side of the subject, was adjudged winner of the debate. The speaking contest was won by Corydon P. Gowman, of the second-year class.

#### VISITS TO SOUTHERN UNIVERSITIES

During the month of April Professor David M. Robinson visited several of the Southern universities, including the University of Cincinnati, the University of Louisville, Vanderbilt University (Nashville), the George Peabody College (Nashville), the University of the South (Sewanee), the University of Chattanooga, the University of Tennessee (Knoxville), Trinity College (Durham), the University of North Carolina (Chapel Hill). In almost every case an address was given before an assembly of the students of the institution visited, or an illustrated lecture was given before a larger audience in some public hall. The cordial reception everywhere accorded and the opportunity given at luncheons and smokers, as well as at the lectures themselves, to meet the members of the various faculties and the alumni made it perfectly apparent that the plan of sending a yearly visitor to the South is of mutual benefit to the University and our alumni and should be continued.

Dean Brush also spent the last week in February among our alumni in Virginia and Georgia. He spoke at the alumni dinners in Richmond and Atlanta, and found the interest in the Johns Hopkins keenly alive in both places; in Atlanta, particularly, there is a large and flourishing group of men. He also addressed the students of the University of Georgia and met the Hopkins Alumni in the Faculty.

Respectfully submitted,

FRANK J. GOODNOW,

*President.*

September 30, 1917.

## REPORTS ON THE INSTRUCTION IN THE CHIEF BRANCHES OF STUDY, 1916-17

Prepared by the Principal Instructors in the Several Departments

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### CHEMISTRY

The following courses of instruction were given:

I. *An elementary course of experimental lectures*, accompanied by classroom conferences and examinations and extending through the year.

II. *A laboratory course*, also extending through the year, which was taken simultaneously with Course I, and was designed to familiarize beginners with the experimental side of chemistry.

Courses I and II were under the direction of Professor Gilpin, who was aided by Dr. Miller and two assistants.

III. *Systematic Inorganic Chemistry*, a lecture course extending through the year, taken by undergraduates who had previously completed courses I and II, and by some graduates from other institutions.

IV. *A laboratory course*, extending through the year, in the reactions and preparations of inorganic compounds and in quantitative and qualitative analysis. This course was taken in conjunction with Course III.

Courses III and IV were under the direction of Associate Professor Lovelace and Dr. Miller, who were aided by two laboratory assistants.

V. *Systematic Organic Chemistry*, a course of lectures given by Professor Gilpin, which extended through the year and was taken by the more advanced undergraduates and by the less advanced graduates from other institutions.

VI. *A laboratory course*, under the direction of Professor Gilpin in the reactions and preparations of organic compounds.

VII. *Advanced Inorganic Chemistry*, a course of lectures by Associate Professor Lovelace, which extended through the year.

VIII. *Advanced Organic Chemistry*, a course of lectures, extending through the year, by Professor Reid.

IX. *A laboratory course*, extending through the year, in the reactions and preparation of organic compounds, by Professor Reid.

X. *Quantitative Chemistry*, a laboratory course, extending through the year, by Professor Frazer.

XI. *Physical Chemistry*, a course of lectures, extending through the year, by Dr. Lloyd.

XII. *Physical Chemical Methods*, a laboratory course conducted by Mr. Sease.

XIII. *History of Chemistry*. A course of lectures by Professor Remsen.

XIV. *Quantitative Chemistry*. A course of lectures by Professor Frazer.

XV. *Special Lectures*. Brief courses of lectures were given by Professor G. N. Lewis, of the University of California, Professor J. Stieglitz, of the University of Chicago, Dr. Irving Langmuir, of the General Electric Company Laboratory, Dr. W. A. Patrick, of Syracuse University, Professor E. C. Bingham, of Lafayette College, Dr. F. H. Getman, Professor J. L. Howe, of Washington and Lee University, and Professor H. N. Holmes, of Oberlin College.

XIV. *Lectures by Advanced Students*. To each of the more mature students, there is assigned for historical investigation some important topic in chemistry. The results of his investigations are incorporated in a lecture which he gives before the teaching staff and the students. Seventeen such lectures have been given during the past academic year.

#### RESEARCH

During the past year a great variety of problems has been under investigation by the teaching staff and the advanced students who were associated with them.

Professor Morse, working under grants from the Carnegie Institution of Washington, has had Dr. J. M. Blocher associated with him. The problem which has been investigated is:

The accurate measurement of the osmotic pressure of cane sugar solutions of the same concentrations and at the same temperatures as in the original experiments of Pfeffer.

Professor J. C. W. Frazer has had associated with him Dr. C. C. Minter, Messrs. G. H. Whiteford, and W. L. Linton. The problems which have been investigated are:

1. The osmotic pressure of aqueous solutions of glucose over the whole range of its solubility (with Dr. Minter).
2. Improvements in cells for measuring the osmotic pressure of concentrated solutions (with Dr. Minter).
3. The use of protective agents in the measurement of the osmotic pressure of electrolytes (with Dr. Blocher).
4. The use of barium salts in the decomposition of silicates (with Mr. Whiteford).

Professor Reid had associated with him in research Messrs. Faber, Freas, Gordon, Lyons, Helm and Lotz. The problems which they studied are:

1. The esterification of aliphatic acids by mercaptans. (Mr. Faber.)

2. The limits of esterification of benzoic and the toluic acids by alcohols. (Mr. Freas.)
3. The solubilities of liquids in liquids. (Mr. Gordon.)
4. The identification of acids. (Mr. Lyons.)
5. Azodyes derived from mercaptans. (Mr. Helm.)
6. The constituents of coal. (Mr. Lotz.)

Professors Frazer and Lovelace have had associated with them in their investigations on the vapor pressure of solutions Messrs. Sease and Rogers. The problem under investigation consisted in measuring the vapor pressures of aqueous solutions of mannite and of potassium chloride.

Dr. Davis, working under a grant from the Carnegie Institution of Washington with the assistance of Mr. H. I. Johnson, was engaged in the completion of research work begun under the direction of the late Professor H. C. Jones. The following problems were investigated:

1. The viscosity of solutions of caesium salts in mixed solvents containing glycerol.
2. The conductivity and viscosity of solutions of certain organic salts in formamid and in mixed solvents containing formamid.

#### PUBLICATIONS

The publications here mentioned relate largely, of course, to work which was completed during the academic year 1915-1916; much of the work of 1916-1917 will be published next year.

J. C. W. Frazer, with W. W. Holland and E. Miller.

The Recovery of Salts of Potassium and Aluminium from Mineral Silicates. Presented at the Buffalo Meeting of the *Am. Inst. of Chem. Eng.* June 20-22, 1917.

J. C. W. Frazer, with W. W. Holland and E. Miller.

A New Method for the Recovery of Salts of Potassium and Aluminium from Mineral Silicates. *Jour. Ind. and Eng. Chem.*, 9, 935.

E. Emmet Reid.

Studies in Identification. II. The Identification of Phenols. *Jour. Amer. Chem. Soc.*, 39, 304 (1917).

E. Emmet Reid with J. A. Lyman.

The Identification of Acids II. *Jour. Amer. Chem. Soc.*, 39, 701 (1917).

E. Emmet Reid, with Edward Lyons.

The Identification of Acids III. *Jour. Amer. Chem. Soc.*, 39, 1727 (1917).

E. Emmet Reid, with Edgar M. Faber.

Studies in Esterification IX. The Esterification of Acetic and Propionic Acids by Methyl, Ethyl, Propyl, Isobutyl and Isoamyl Mercaptans. *Jour. Amer. Chem. Soc.*, 39, 1930 (1917).



Paul B. Davis.

Report on investigations carried out under the direction of the late Professor Harry C. Jones by Connolly, G. C., Davis, P. B., Hulburt, E. O., Hutchinson, J. F., Johnson, H. I., Lloyd, H. H., Ordeman, G. F., and Pardee, A. M. Studies on Solution in its Relations to Light Absorption, Conductivity, Viscosity and Hydrolysis. *Carnegie Inst., Wash., Pub. No. 260.*

B. F. Lovelace.

Editor: Chemical Directory of the United States.

#### STUDENTS

The number of students working in the Chemical Laboratory was 154. Of these 37 were graduates, 35 of them following Chemistry as their principal subject.

Nine students were promoted to the degree of Doctor of Philosophy. Their names and the titles of their dissertations are given below:

E. M. Faber: The Esterification of Acetic and Propionic Acids by Methyl, Ethyl, Propyl, Isobutyl and Isoamyl Mercaptans.

R. Freas: Esterification Limits of Benzoic and Toluic Acids with Lower Alcohols.

N. E. Gordon: The Solubility of Liquids in Liquids.

H. I. Johnson: The Conductivity and Dissociation of certain Inorganic and Organic Salts in Formamid and in mixtures of Formamid and Ethyl Alcohol.

E. L. Lyons: The Identification of Acids.

C. C. Minter: Osmotic Pressure and Heat of Dilution of Concentrated Glucose Solution.

T. H. Rogers: Vapor Pressure and Osmotic Pressure of Mannite at 20 degrees.

V. B. Sease: Vapor Pressure Lowering of Potassium Chloride Solution at 20 degrees.

G. H. Whiteford: A study of the Decomposition of Silicates by Barium Salts.

E. EMMET REID,  
*Secretary, Chemical Staff.*

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### CLASSICAL ARCHAEOLOGY AND ART

The work in Classical Archaeology and Art has been carried on by means of the Archaeological Seminary, various courses of lectures and practical exercises, demonstrations in the museum of the University, and especially by means of conferences with individual students. The members of the Seminary, meeting weekly, devoted their attention to topics and problems in Greek Private Life and Mythology.

In addition to his direction of the Seminary for the year, Professor Robinson lectured once a week through the year on Greek Private Antiquities and once a week through the year on Greek Vases and Greek Mythology. In the courses for teachers he conducted the course on the History of Art for the first half year. In the Greek Department he conducted a course, meeting once a week, on the Dialogues of Plato which deal with the subject of rhetoric. He also lectured once a week on the History of Greek Literature.

During the year Professor Robinson has also given a number of public lectures. In November he attended the Association of Urban Universities in New York and spoke on "The Work of the Johns Hopkins University" along those lines. In the same month he made the principal address at the Classical Section of the Michigan State Teachers' Association which met at Grand Rapids. During the Christmas holidays he attended the meetings of the American Philological Association and of the Archaeological Institute of America at St. Louis, and read a paper on "The Greek Vases at the Johns Hopkins University." On February 16, he gave the first lecture in the course on Art Appreciation given at the Peabody Institute, under the auspices of the School Arts League, of which he is honorary president. The subject was "Greek and Roman Art." At the meeting of the College Art Association in Cincinnati, April 5, he read a paper on "Reproductions for the College Art Museum." On April 6, at the University of Cincinnati, he lectured on "Caricature in Ancient Art." On the evening of the same day, he was the guest of the Classical Association of the Middle West and South at their Thirteenth Annual Meeting held at Louisville, and he gave an illustrated address on "Classical Sites in Asia Minor including the Seven Churches." He then made a trip to several of the southern universities as the visitor of the Johns Hopkins University for the year, and gave lectures on archaeological subjects in Nashville (Vanderbilt University), Sewanee (University of the South), Knoxville (University of Tennessee), Durham (Trinity College), Chapel Hill (University of North Carolina). At the Eastern High School, on April 21, he gave an illustrated lecture on "Asia Minor." At the University Club, on May 11, he gave an illustrated talk on "Excavated Cities of Asia Minor with an account of the Modern Turk and His Customs."

Associate Professor Magoffin lectured once a week through the year on Roman Epigraphy. In addition to the reading and interpretation of many inscriptions from the *Corpus Inscriptionum Latinarum*, there were practical exercises in the dating and reading of the in-

scriptions on the original stones, bronzes, and terra cottas in the Archaeological Museum of the University.

The undergraduate course in Roman Life has been carried on by lectures supplemented by the stereopticon and other kinds of illustrative material, and by visits to the Museum, where Roman building materials, household utensils, coins, bronzes, and marbles were studied at first hand.

Associate Professor Magoffin gave two open lectures on "Roman Archaeology" and on "Athletic Sports among the Greeks and Romans" to the students of the Columbia University Summer Session of 1916, where he gave two courses in Greek and Roman History. He was sent, in November, by the Archaeological Institute of America, of which he is Recorder, on its Middle West lecture circuit, on which he gave an illustrated lecture entitled "On Foot through the Alban Hills of Italy" before twenty-five local societies and college gatherings. He lectured on December 5 on "Roman Life and Manners" before the Baltimore Chapter of the Federation for Child Study, on January 11, 1917, on "Roman Home and Family Life" before the Latin Club of the Western Female High School of Baltimore, and on January 31 on "Some Classic Sidelights on Efficiency" before the Fortnightly Club at the Naval Academy, at Annapolis, Md. He attended, as outside lecturer, the fifty-second annual meeting of the Michigan Schoolmasters' Club at the University of Michigan, March 26-30, where he delivered four illustrated lectures on "Roma Imperatrix Mundi," "Contemporaneous Pictures of Roman Life and Death," "The Roman in his Hours of Ease," and "The Serious Work of Roman Life."

Lectures were given under the auspices of the Archaeological Society by Mr. Herbert J. Spinden of the American Museum of Natural History, Professor George H. Edgell of Harvard University, Professor L. B. Paton of the Hartford Theological Seminary, and Professor Clarence P. Bill of Adelbert College, Western Reserve University. Students of the Archaeological Department attended these lectures as part of their work.

Miss Shields, now instructor at Smith, who took her Ph.D. in Classical Archaeology in June, 1915, has published her dissertation on "The Cults of Lesbos"; and Miss Armstrong, now instructor at Goucher, who took her Ph.D. in June, 1915, has published her dissertation on "Color in Roman Ritual."

*Needs.*—The needs of the Department of Archaeology and Art, which was established only twelve years ago, and which has received inadequate appropriations, are great. Many of the important archaeological publications are lacking in the library, and funds are especially needed to purchase photographs, to mount and care for those we have, and to buy some of the more expensive illustrated archaeological books, to provide a fine collection of lantern slides, and to purchase antiquities and casts to add to our excellent archaeological museum. Funds are also needed to publish a catalogue of the museum and especially of the beautiful collection of coins recently presented by one of our former trustees, Mr. Buckler. Ultimately a chair of mediaeval and modern art should also be established. Money is needed for all these things and there are

always many opportunities for archaeological research such as the excavation of Sardis, which has already yielded things of the highest artistic and linguistic importance, the inscriptions being published by Mr. Buckler and Professor Robinson.

## PUBLICATIONS

David M. Robinson.

Review of Thompson's, *The Greek Tradition, Essays in the Reconstruction of Ancient Thought*. *Art and Archaeology*, iv, 1916, p. 126.

Review of Wolfson's *Ancient Civilization*. *Art and Archaeology*, iv, 1916, p. 189, and *The Classical Weekly*, x, 1917, pp. 111-112.

Review of Carus' *The Venus of Milo. An Archaeological Study of the Goddess of Womanhood*. *Art and Archaeology*, iv, 1916, p. 190, and *The Classical Weekly*, x, 1917,, p. 216.

Review of Fowler's *A History of Sculpture*. *Art and Archaeology*, iv, 1916, pp. 252-253.

The Place of Archaeology in the Teaching of the Classics. *The Classical Weekly*, x, 1916, pp. 2-8.

An Important Egyptian Collection for the Brooklyn Museum of Art. *Art and Archaeology*, v, 1917, p. 122.

Review of Droop's *Archaeological Excavation*. *Art and Archaeology*, v, 1917, p. 124.

Review of Fox's *Greek and Roman Mythology. The Mythology of All Races. Vol. I*. *Art and Archaeology*, v, 1917, pp. 126-127.

The Altoviti Venus acquired by Mr. John D. Rockefeller. *Art and Archaeology*, v, 1917, pp. 181-183.

More Modern Versions of the Harmodius Hymn. *The Classical Weekly*, x, 1917, pp. 138-142.

Some Greek Vases at the Johns Hopkins University. *American Journal of Archaeology*, xxi, 1917, pp. 86-87.

The College Museum of Reproductions. *Bulletin of the College Art Association of America*, No. 2, 1917, pp. 27-29.

Review of Holborn's *The Need for Art in Life*. *Art and Archaeology*, v, 1917, p. 186.

Review of Miss Rider's *The Greek House. Its History and Development from the Neolithic Period to the Hellenistic Age*. *Art and Archaeology*, v, 1917, pp. 186-187.

Review of Jardé's *La Grèce Antique et la Vie Grecque*. *The Classical Weekly*, x, 1917, p. 175.

Reproductions of Classical Art. *Art and Archaeology*, v, 1917, pp. 221-234.

The Cervantes Monument in Golden Gate Park. *Art and Archaeology*, v, 1917, p. 247.

Review of Diana Watts' *The Renaissance of the Greek Ideal*. *Art and Archaeology*, v, 1917, p. 251.

The Pollaiuolo Madonna recently acquired by Mr. Martin A. Ryerson. *Art and Archaeology*, v, 1917, pp. 304-307.

The Theft of a Greek Head. *Art and Archaeology*, v, 1917, p. 309.

- Review of Barstow's Famous Sculpture. *Art and Archaeology*, v, 1917, pp. 315-316.
- Review of Miss Seachrest's Greek Photoplays. *Art and Archaeology*, v, 1917, p. 316.
- A Vase Fragment in the Style of Oltos used in Restoring a Cylix with a reminiscence of a Satyr-play. *American Journal of Archaeology*, xxi, 1917, pp. 159-168.
- Editorial work for *Art and Archaeology*, *The Classical Weekly*, The Johns Hopkins Philological Association, 1916-1917, and *The Johns Hopkins University Circular*, 1917, pp. 30-52.
- Ralph V. D. Magoffin.
- Review of L. R. Dean's "A Study of the Cognomina of Soldiers in the Roman Legions." *American Journal of Philology*, xxxvii, pp. 217-219.
- Review of M. Clerc's "Aquae Sextiae: Histoire d' Aix-en-Provence dans l'antiquité." *American Journal of Philology*, xxxvii, pp. 349-353.
- Review of H. B. Van Hoesen's "Roman Cursive Writing." *American Journal of Philology*, xxxvii, p. 354.
- The Classical Conference at Columbia University. *Art and Archaeology*, iv, 1916, p. 124.
- Review of E. S. Bouchier's "Syria as a Roman Province." *American Historical Review*, xxii, 1916, pp. 193-194.
- Review of H. O. Taylor's "Deliverance: The Freeing of the Spirit in the Ancient World." *Classical Weekly*, x, 1916, pp. 30-31.
- Review of W. A. Oldfather and H. V. Canter's "The Defeat of Varus and the German Frontier Policy of Augustus." *Classical Weekly*, x, 1916, pp. 47-48.
- Review of P. V. N. Myers' "Ancient History." *Art and Archaeology*, v, 1917, p. 125.
- Review of E. Cug's "Une Statistique de locaux affectés à l'habitation dans la Rome impériale." *American Journal of Philology*, xxxviii, pp. 96-98.
- Luigi Rossini, Engraver. *Art and Archaeology*, v, 1917, pp. 200-212.
- Review of Dio's Roman History, Vol. IV (Loeb). *American Historical Review*, xxii, 1917, pp. 693-694.
- Review of Miss M. A. Hamilton's "Outlines of Greek and Roman History to A. D. 180." *Classical Weekly*, x, 1917, p. 198.
- Review of W. C. Morey's "Ancient Peoples." *Classical Weekly*, x, 1917, p. 198.
- Review of J. H. Breasted's "Ancient Times: A History of the Early World." *Classical Weekly*, x, 1917, pp. 199-200.
- Current Notes and News. *Art and Archaeology*, iii, no. 6, p. 359; iv, no. 1, pp. 57-58; no. 2, pp. 124-125; no. 3, pp. 186-187; v, no. 1, pp. 51-54; no. 2, pp. 120-122; no. 3, pp. 183-184-185.
- Report of Revue de Philologie. *American Journal of Philology*, xxxviii, pp. 100-105.

DAVID M. ROBINSON,

*Professor of Classical Archaeology and Epigraphy,  
and Lecturer on Greek Literature.*

## EDUCATION

The second year of work in this subject as a separate department has been very satisfactory.

The Educational Seminary devoted its attention to the field of educational administration, and to the administrative aspects of the problems of specific professional interest to the members. The instruction was directed by Professor Buchner. Subsequent upon a study of the historic development of the problems and the methods of administration special reports and papers were presented as follows: M. Theresa Dallam, "The effects of the study of Latin upon the study of English in high school pupils"; W. H. H. White, "Modes of testing the efficiency of a county school system"; R. E. de Russey, "The formation of a scale for English Composition in the high school"; H. J. Kefauver, "The scientific measurement of the efficiency of teachers"; R. M. Heine, "The adjustment of secondary and collegiate curricula in Maryland"; Selma M. Borchardt, "The history of the use of the school as a community center"; A. R. Gminder, "Organization within the school"; R. H. Dotterer, "Measuring the efficiency of the administration of city school systems."

At the opening of the year, Dr. Bird T. Baldwin, Professor of Psychology and Education, Swarthmore College, was appointed Lecturer in Education. He visited the University regularly on Saturdays, during the year, and gave the instruction and directed the investigations in the course on educational measurements, two hours weekly. The need of experimental work in education was set forth by illustrations from contemporary studies, and training was given in the collection and treatment of data. Reports of the following studies were made: R. R. Long, "Blood pressure norms for school children"; R. M. Heine, "Elimination and retardation of pupils in the public high schools of Maryland"; J. P. Hands, "A comparative study in intelligence of normal white and colored children"; J. H. Owens, "The present status of high school costs for the county high schools of Maryland"; W. H. H. White, "The psychology and pedagogy of adolescence"; H. J. Kefauver, "The organization of a high-school psycho-educational laboratory and some results"; F. Astor, "Memory tests in schools"; Isabel Lazarus and Susan C. Collins, "Individual and group tests for kindergarten children"; B. T. Baldwin and W. F. Shenton, "The relation of the growth of parts of the body to total growth for girls and boys between 6 and 18 years of age."

## UNDERGRADUATE COURSES

Undergraduate instruction has been conducted in the College Courses for Teachers. In anticipation of the needs of the new state law, which was to go into effect June 1, 1916, the number of courses was increased so as to enable students at this University to meet the requirements completely.

Professor Buchner gave instruction in the History of Education, Educational Psychology, and Secondary Education, each course meeting two hours a week through the year. He was assisted in the course in Secondary Education by Dr. David E. Weglein, Fellow by Courtesy and Principal of the Western Female High School, who conducted the work from December to May.

Associate Professor C. Macfie Campbell, of the Medical School and the Phipps Psychiatric Clinic, gave a course of ten lectures, accompanied by clinical demonstrations, on the sub-normal child and its training.

At the beginning of the year, Miss Florence E. Bamberger assumed her duties as Instructor in Education, devoting her attention to the development of instruction and investigation in the field of Elementary Education and Supervision. She conducted a course on Elementary Education, two hours a week through the year, and a course on Elementary Supervision, one hour a week through the year. Types of representative lessons were developed in the class room by means of demonstration exercises with a number of classes of children who came to Gilman Hall on Saturday forenoons.

By special arrangement, the opportunity of attending the courses on educational measurements by Professor Baldwin was extended to undergraduate students registering in the College Courses for Teachers.

Towards the close of the year the State Board of Education of Maryland gave an official interpretation of that portion of the new law which specifies that college graduates may qualify for the state high school teacher's certificates "provided they had not less than two hundred recitation hours of instruction in education, including the aims of secondary education, and in the method, observation, and practice teaching of high school studies." The definition of this requirement permitted the department to arrange a sequence of courses of instruction in the history and the principles of education, educational psychology, principles of teaching and special methods in high school subjects, and high school organization and class-room management. These courses are to be opened also to students in the academic department who desire to prepare themselves as secondary teachers and can hereby be enabled to secure a state certificate on the basis of their graduation by the University.

During the year Professor Buchner was occupied as President of the Educational Society of Baltimore, as Vice-President of the American Association for the Advancement of Science and Chairman of Section L, Education. At the two weeks' annual institute of the teachers of Prince George's County, Maryland, in August and September, he delivered two series of lectures, of ten each, on educational psychology and principles of teaching. He gave a series of three lectures in educational theory before all the elementary school teachers of Baltimore during the period of the delayed opening of schools owing to the infantile paralysis situation. He also gave addresses on topics in education before the Maryland High School Teachers Association, The Ministers' Union of Baltimore, The Bal-

timore Teachers Training School, The Potomac Valley Teachers Round Table, Berkeley Springs, W. Va., and on the occasion of the commencements of the Florida State College for Women and the City Teachers Training School, Richmond, Virginia. Miss Bamberger gave addresses before the teachers of Mauch Chunk, Chester, and Lansford, Pennsylvania, conducted a series of experiments in practice-teaching in Baltimore, and an investigation in spelling in Baltimore and Baltimore County Schools with reference to the Ayres scale.

## PUBLICATIONS

## E. F. BUCHNER.

Educational Surveys, 1916. *Report of the United States Commissioner of Education for the year ended June 30, 1916*. Washington, D. C., 1916, Vol. 1, pp. 353-371, Chapter 21.

The 1916 Summer Courses of the Johns Hopkins University. *Fiftieth Annual Report of the State Board of Education of Maryland*, 1916. Annapolis, 1916, pp. 115-122.

The Summer Courses. *The Johns Hopkins Alumni Magazine*, March, 1917, Vol. v, pp. 168-171.

## F. E. BAMBERGER.

Democratization of the Recitation Period. *Proceedings of Schoolmen's Week, University of Pennsylvania*, April 12-14, 1917, p. 179.

## B. T. BALDWIN.

A Measuring Scale for Physical Growth and Physiological Age. *The Fifteenth Year Book of the National Society for the Study of Education*. Chicago, 1916, pp. 11-22.

## J. H. OWENS.

Tables of High School Costs. *Fiftieth Annual Report of the State Board of Education of Maryland*, 1916. Annapolis, 1916, pp. 80-82, 84-88.

## M. R. PATTERSON.

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A Preparatory Center in Baltimore. *Atlantic Educational Journal*, January, 1917, pp. 234-238.

EDWARD F. BUCHNER,

*Professor of Education.*



## ENGLISH

## 1. Advanced Courses.

The advanced students in English are organized into a Seminary, which is conducted by Professor Bright. Graduate students are admitted to the Seminary as soon as they have satisfied initial requirements for specialization and research. The discipline of the Seminary is designed to impart training in scholarly methods of dealing with literary and linguistic problems. Study and investigation are bestowed on selected periods of literary and linguistic history, on departments of literature extending through successive periods, and on the works of important writers, taken separately or in groups. Usually there is a change of subject each half-year. During the academic year 1916-1917, the sessions of the Seminary occupied four hours a week.

The subject studied in the sessions of the first half-year was the literature of the Late West-Saxon period. During the second half-year the poems of Edmund Spenser were critically read. The principal portion of the time was devoted to a group of the Minor Poems.

Professor Bright met a class twice a week, during the first half-year, for an interpretation of the text of the Anglo-Saxon poem *Eoðodus*.

During the second half-year the same class was conducted in the reading of Chaucer's *Troilus and Criseyde*.

Professor Bright lectured once a week on technical aspects of Grammar and Rhetoric.

He also gave a course in Anglo-Saxon (twice a week) that was to serve as an introduction to Historical English Grammar.

## 2. College Courses.

English Composition 1, a prescribed course in Rhetoric and English Composition, was given three hours weekly throughout the year. The class met in five sections, which consisted, at organization, of about thirty men each. Section A was taught by Associate Professor French, Sections B and C by Dr. Powell, Section D by Mr. Janney, and Section E by Mr. Wise. The work of the course included, besides the study of the principles of prose composition, the regular writing of themes and essays, the reading month by month of certain prescribed works in prose and verse, and, on the more important of the essays, private conferences with the instructors. Lomer and Ashmum's *The Study and Practice of Writing English* was used as a text-book of Rhetoric, and Francis C. Lockwood's *The Freshman and his College* served at the same time as a collection of specimens of expository prose and a source of helpful advice to first-year students. Section A used in addition to these books a privately printed work by Professor Percy W. Long, entitled *Prose Style*.

English Composition 2, prescribed for students graded less than "8" in Composition 1, was prevented by changes in the schedule

from meeting as in previous years. It was therefore conducted as a conference course, the students writing weekly themes and receiving individual criticism and instruction from Dr. Powell and Mr. Janney. Lomer and Ashmun's *The Study and Practice of Writing English* was used for reference.

Professor Greene conducted an elective course in Description and Narration (English Composition 3) twice a week, throughout the year. During the first half-year there was weekly practice in the writing of short papers; during the second half-year longer papers were written at intervals of two or three weeks. The classroom exercises were devoted to the discussion of the written work, and to the critical reading of illustrative passages from standard prose.

English Literature 1 was conducted by Professor Greene, three hours a week, through the year. This class made a general survey of English Literature from the beginning until about 1600. A considerable amount of the poetry of Chaucer and of Spenser was studied critically in the class-room; and more was privately read by members of the class: Books XVIII-XXI of Sir Thomas Malory's *Morte Darthur* and Book II of Sir Thomas More's *Utopia* were also included in the private reading. In addition to the regular class-room exercises, five readings from the poems of Chaucer were given for the benefit of those members of the class who wished to attend them.

English Literature 3 was given by Professor Greene, three times a week, through the year. During the first term a study was made of the English and Scottish Popular Ballads, and of the poems of Burns and Scott. During the remainder of the year the course included a study of poetry as represented in the writings of Wordsworth, Coleridge, Byron, Keats, and Shelley, and of the novel as represented in the writings of Scott and Dickens. In connection with the weekly lectures and discussions the members of the class did a large amount of private reading and prepared eight papers.

Associate Professor French gave an elective course in American Literature (English Literature 4), three hours weekly, through the year. The course consisted of a rapid survey of literary history and literary biography, followed by a more detailed study of the works of American writers as illustrative of the various literary types. Essays, brief papers, and oral reports constituted an important part of the course. W. B. Cairns's *A History of American Literature* was used as a manual, and W. C. Bronson's *American Poems* and the same author's *American Prose* served as anthologies.

English Literature 5, prescribed for engineering students, was conducted by Dr. Powell, three hours a week, through the year. The course included a general survey of English literature from the beginning to 1850. Special study was given to works reflecting important historic movements and to the development of literary types. Cunliffe, Pyre, and Young's *Century Readings in English Literature* was used as a handbook, and collateral reading was assigned.

English Literature 6 was given by Professor Greene, three hours a week throughout the year. This course included (a) the reading

and discussion of fourteen of the plays of Shakspeare, representing various types, and a careful study of *King Henry the Fourth, Part I*, and of *Macbeth*; (b) a survey of the origin and development of the English drama from the liturgical plays to the decline of the drama. The class read and discussed representative Miracle Plays, Moralities, and Interludes; Early Comedy and Early Tragedy; representative plays by Lyly, Peele, Greene, Kyd, five plays by Marlowe, and two plays by Ben Jonson.

Public Speaking 1, a course in Reading and Public Speaking prescribed for undergraduates in their second year, was given, one hour a week, through the year. The class was divided into eight sections, averaging twelve men each, and was taught by Associate Professor French, Mr. Hammond, and Mr. Wise. The first half-year was devoted to a study of the elementary principles of expression and to practice in reading. Selected shorter poems by Browning were used during this term as illustrative material. The second half-year was given to the study and practice of the occasional speech, both prepared and extemporaneous. Knapp and French's *The Speech for Special Occasions* was used as a text-book.

Public Speaking 2, an elective course in debate and oral discussion, was given, one hour a week, through the year, by Associate Professor French. The course included lectures on the theory of argument, class debates and written arguments, and a few lectures on parliamentary law. J. H. Gardiner's *The Making of Arguments* and Robert's *Rules of Order* served as text-books.

The Adams Contest, held March 3, 1917, afforded additional practice in public speaking and debate. Contestants for the Adams medal, chosen from the Class of 1919 by a preliminary contest, and the debating teams of the classes of 1917 and 1918 were trained in delivery by the instructors in public speaking. The Adams trophy and individual prizes were won by the Class of 1917, and the Adams Medal was won by Mr. Corydon P. Gowman, Jr. Arrangements had been made for the usual intercollegiate debates and for the annual oratorical contest; but on account of the declaration of war with Germany these exercises were given up.

### 3. College Courses for Teachers.

A course for teachers, designed to cover practically the same ground as the college course in English Composition 1 but from a somewhat more mature point of view, was given by Dr. Powell, twice a week, through the year. Lomer and Ashmun's *The Study and Practice of Writing English* was used during the first semester as a text-book; the lecture method was employed altogether during the second.

A course in American Literature (English 3) was given by Associate Professor French. The class met for a two-period session one night a week from October to June. The work of the course was as nearly parallel to that of English Literature 4 of the college courses as circumstances permitted. The writing of essays and reports was an essential part of the course. Cairns's *A History of American Literature* and Bronson's *American Poems* and *American Prose* were used as text-books.

## 4. Public Lectures.

The twenty-second course of the Percy Turnbull Memorial Lectures on Poetry was delivered by Professor Edward Capps, of Princeton University, April 30–May 11, 1917. The course consisted of six lectures on "Formative Influences in Greek Tragedy": (1) Introductory; (2) The Primitive Theatre; (3) Change and Experiment; (4) The Athenian Public; (5) Popular Demands; (6) The Conscious Art of Tragedy.

## PUBLICATIONS

James W. Bright.

Rhythmic Elements in English, with Illustrations from Shakespeare. *A Memorial Volume to Shakespeare and Harvey*, published by the University of Texas, 1917, pp. 68-88.

Brief Mention of the following books: James R. Johnston, *The Place-Names of England and Wales*;—G. H. Cowling, *The Dialect of Hackness (North-East Yorkshire)*;—Arthur S. Napier, *Iacob and Iosep, a Middle English Poem of the Thirteenth Century*;—Sir Arthur Quiller-Couch, *On the Art of Writing*;—William Odling, *The Technic of Versification*;—Louis Worthington Smith, *The Mechanism of English Style*;—Frank W. Cady, *The Old Wives' Tale, a Play by George Peele*;—Felix Emil Held, *Christianopolis, an Ideal State of the Seventeenth Century* by Johann Valentin Andreae;—Gertrude Buck, *The Social Criticism of Literature*;—George Van Ness Dearborn, *How to Learn Easily. Mod. Lang. Notes* (xxxix), June, 1916—(xxxix), June, 1917.

John C. French.

Brief Mention of Walter C. Bronson, *American Prose. Mod. Lang. Notes* xxxii, 128.

The Omicron Delta Kappa Society. *The Johns Hopkins Alumni Magazine*, v, 165-167.

Chilton L. Powell.

New Material on Thomas Carew. *Mod. Lang. Review*, xi, 285-297.

English Domestic Relations, 1487-1653. A Study of Matrimony and Family Life in Theory and Practice as revealed by the Literature, Law, and History of the Period. New York, *Columbia University Press*, 1917, 8vo., xii + 274 pp.

JAMES WILSON BRIGHT,  
*Caroline Donovan Professor  
of English Literature.*

## GEOLOGY

The Geological Laboratory was open daily throughout the year for graduate and undergraduate students. Lectures, field studies, and laboratory work were conducted as follows:

## LECTURES

*Undergraduate Courses*

(a) Geology I: Physiography, Dynamical and Historical Geology, by Professor Swartz. *Three lectures and one afternoon of practical work each week throughout the year.*

(b) Geology II: Mineralogy and Elementary Petrography, by Professor Swartz. *Three lectures and two afternoons of practical work each week throughout the year.*

(c) Geology III: Applied Geology, by Professor Mathews. *Three lectures each week throughout the year.*

*Graduate Courses*

(d) Principles of Geology, by Professor Clark. *One lecture each week throughout the year.*

(e) Advanced Historical Geology, by Professor Clark. *One lecture each week throughout the year.*

(f) Geological Physics, by Professor Reid. *Two lectures each week throughout the year.*

(g) Exploratory and Geological Surveying, by Professor Reid. *Two lectures each week throughout the year.*

(h) Petrography, by Professor Mathews. *Three lectures and two afternoons of laboratory work each week throughout the year.*

(i) Paleontology, by Associate Professor Berry, assisted by Dr. Gardner. *Two lectures and two afternoons of laboratory work each week throughout the year.*

(j) Advanced Paleontology, by Associate Professor Berry. *One afternoon each week throughout the year.*

(k) Ore Deposits of the United States, by Dr. Singewald. *Two lectures each week throughout the year.*

(l) Ore Deposits of South America, by Dr. Singewald. *Two lectures each week throughout the second half-year.*

(m) Meteorology, by Dr. Fassig. *One lecture each week for one-half year.*

(n) Geological Conferences, by Professor Clark. *Weekly, throughout the year.*

## FIELD STUDIES

(o) Field trip to study the Paleozoic formations of Western Maryland, by Professor Swartz. *One week in April.*

(p) Field trip to study the ore deposits and mines of Virginia and Tennessee, by Dr. Singewald. *One week in April.*

(q) Summer work on the Maryland Geological Survey. Several of the graduate students were given an opportunity to carry on field work in connection with the various investigations which are being conducted by the Survey. These positions afford unusual opportunities for training in field methods. Payment for services and field expenses is provided.

## LABORATORY WORK

(r) The Geological Laboratory was open *daily during the year* for the work of advanced students under the direction of Professor Clark, assisted by the other members of the staff.

## ACTIVITIES

Professor Clark continued his investigation of Atlantic Coastal Plain geology during the year with the co-operation of several associates. The report on the Geology and Paleontology of the Cretaceous Formations of North Carolina, for which he prepared several chapters, is now in press. Professor Clark prepared, during the year, a manual on the Geography of Maryland including Delaware and the District of Columbia which will be published both by the Federal and State Surveys. A digest of this memoir has been published as the Maryland Supplement to Brigham and McFarlane's "Essentials of Geography." Professor Clark also prepared, with the assistance of his associates, a report on the Surface and Underground Waters of Maryland for the National Research Council and the U. S. Geological Survey and is at present engaged on a report on the materials in Maryland for highway and railroad construction. Professor Clark is also actively engaged, as in the past, in the management of the Maryland Geological Survey and the Maryland Weather Service and also as Executive Officer of the State Board of Forestry. Professor Clark has been made chairman of a subcommittee on Materials for Rapid Highway, Railroad, and Fortification Construction Behind the Front, appointed by the Geological Committee of the National Research Council. He has also been appointed by the Governor of Maryland member of the Maryland Council of Defense and chairman of a committee on Natural Resources and Highways. He was re-elected Treasurer of the Geological Society of America.

Professor Reid was engaged during the year in the continuation of his seismological investigations. He was made member of a committee of the National Research Council to study the application of geology to military affairs and proceeded to Europe in April with other American scientists to examine conditions on the Western Front and to co-operate with English and French scientists. Professor Reid also continued his work on the scientific problems presented by the slides in the Panama Canal, he having been sent, the

past year, as member of a committee of the National Academy of Sciences, to study the difficulties produced by the slides in the Culebra Cut.

Professor Mathews, in the course of his investigations of the Piedmont, has made a study of certain peculiar features of the Susquehanna gorge, their origin and relation to the peneplains. As Assistant State Geologist, he has compiled and edited for the Maryland Geological Survey the Curtis Bay and Sparrows Point sheets, covering 40 square miles of territory south of Baltimore which is now the site of a remarkable industrial development. These sheets are an extension of the map of Baltimore and Environs on the scale of 1000 feet to the inch. Dr. Mathews, acting for the National Research Council, has prepared a report on the Water Resources of Delaware and is at work on a similar report on the Road Materials of Delaware.

Professor Swartz has continued his investigations of the Carboniferous strata of Maryland. His work has contributed to a further knowledge of the stratigraphy of the coal fields of Maryland and aided in the solution of the problem of the correlations of these deposits with those of other parts of the Appalachian coal basin. He has completed his investigations of the Silurian of Maryland, the results of which will be published shortly in a monograph which will be issued by the Maryland Geological Survey.

Professor Berry finished, during the year, a study of the middle and upper Eocene floras of southeastern North America for the U. S. Geological Survey, a study of the fossil plants of the Panama Canal for the Smithsonian Institute, and a study of the fossil flora of Bolivia with relation to the time of elevation of the Andes for the U. S. National Museum. During the spring he made a trip to Florida for the Geological Survey of that State to examine a locality where human remains were found in association with other fossils. A report of the conclusions reached has been prepared and will be published shortly. During the latter part of the year he has been working upon a report on the Underground Waters of Maryland.

Dr. Singewald has been engaged during the year in the elaboration of materials which he collected in South America and in the preparation of a textbook on the Economic Geology of South America.

Dr. Gardner has been engaged in completing her work on the Miocene and Pliocene invertebrate faunas of North Carolina and Virginia. The major part of the year has been employed in faunal studies of the Upper Oligocene faunas of Florida for the U. S. Geological Survey.

An important addition to the resources of the department was received during the year from the family of the late Professor George Huntington Williams in the form of a memorial fund of \$10,000 for the advancement of geological research, a field in which Professor Williams, the first instructor in the Department, was so conspicuous a representative.

Through the generosity of Messrs. Clarence W. Watson, T. Garland Tinsley, C. Wilbur Miller, and Samuel G. B. Cook, Dr. W. P. Woodring was enabled to remain at the University during the aca-

demic session to carry on his investigations on the Bowden fauna of the Island of Jamaica.

The paleontological collections were augmented during the year by a collection from the Devonian of Canada presented by N. H. Cowdry.

Dr. Harvey Bassler, a graduate of some years' standing, was appointed Fellow by Courtesy, and during the year continued his monographic studies of the flora of the Coal Measures. Mr. W. T. Thom, Jr., was appointed University Fellow. Dr. Frank Reeves and Mr. J. D. Sears were also appointed Fellows by Courtesy and were engaged in various research problems during the year.

There were sixteen advanced graduate students in the department with geology as their principal subject. Messrs. Thom and Wade absolved the requirements for the degree of Doctor of Philosophy, presenting dissertations on the following subjects:

W. T. Thom, Jr.—The Cretaceous-Eocene Contact in Montana and Dakota.

Bruce Wade—The Gastropoda of the Ripley Formation in Tennessee.

Joseph P. D. Hull absolved the requirements for the degree of Master of Arts, presenting an essay on Soil Classification. He has been appointed Assistant State Geologist of Georgia.

During the field season of 1916 five of the graduate students were employed in geological work in the far West, under the auspices of the U. S. Geological Survey. Six of the graduate students were employed in geological work under the auspices of the Maryland Geological Survey and one under the auspices of the Tennessee Geological Survey. During the year two students left the department for oil work in Oklahoma, one has taken up similar work in Kentucky, and a fourth has taken up coal work in Western Maryland. Messrs. Woodring and Sears were granted leave of absence for a year's geological work in Costa Rica.

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Geological Surveys with Special Reference to the work of the Maryland Geological Survey. In Contributions to Geology, *Johns Hopkins University Circular n. s.*, No. 3, pp. 1-12, 1917.

Introduction, Physiography, General Geological Relations, and Correlation of the Cretaceous Deposits of North Carolina. In Geology and Paleontology of the Cretaceous Deposits of North Carolina. *North Carolina Geological Survey*. In press.

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Variations in Glaciers. *Jour. Geol.*, vol. xxiv, pp. 511-514, 1916.

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Tolchester Folio Maryland (with B. L. Miller and others). *U. S. Geol. Surv., Geologic Atlas* No. 204, 14 pp., 1917.

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Submerged "deeps" in the Susquehanna River. *Bull. Geol. Soc. Amer.*, vol. xxviii, pp. 335-346, 1917 (in press).

Curtis Bay Sheet. Scale 1 inch equals 1000 feet. *Maryland Geol. Survey*, 1917.

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A Lower Eocene Zamia. *Torreyia*, vol. x, pp. 177-179, 3 figs., 1916.

The Mesozoic Flora of Tennessee. *Bull. Torrey Bot. Club*, vol. xliii, pp. 283-304, 1 pl., 1916.

The Environment of the Ape Man. *Scientific Monthly*, vol. iii, pp. 161-169, 3 figs., 1916.

The Lower Eocene Floras of Southeastern North America. *U. S. Geological Survey*, Professional Paper No. 91, 481 pp., 177 pls., 16 figs., 1916.

The Pliocene Citronelle Formation of the Gulf Coastal Plain and its Flora. *U. S. Geological Survey*, Professional Paper No. 98L, pp. 193-204, pls. 44-47, 1916.

The Catahoula Sandstone and its Flora. *U. S. Geological Survey*, Professional Paper No. 98M, pp. 227-243, pls. 55-60, 1916.

The Mississippi Gulf Three Million Years Ago. *Scientific Monthly*, vol. iv, pp. 274-283, 8 figs., 1917.

Notes on the History of the Willows and Poplars. *Plant World*, vol. xx, pp. 16-28, 1 map, 1917.

The Mesozoic Flora of Arkansas. *Bull. Torrey Bot. Club*, vol. xliv, pp. 167-190, 1 pl., 1917.

The Age of the Bolivian Andes. *Proc. Natl. Acad. Sci.*, vol. iii, pp. 283-285, 1917.

A Middle Eocene Member of the "Sea Drift" *Amer. Jour. Sci.*, 4th ser., vol. xliii, pp. 198-300, 2 figs., 1917.

The Delta Character of the Tuscaloosa Formation. *Johns Hopkins University Circular n. s.*, No. 3, pp. 18-24, 2 figs., 1917.

The Classification of Vascular Plants. *Proc. Natl. Acad. Sci.*, vol. iii, pp. 330-333, 1917.

A Sail Fish from the Virginia Miocene. *Amer. Jour. Sci.*, 4th ser., vol. xliii, pp. 461-465, 2 figs., 1917.

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Substitutes for Coal in the Andes (with Benj. L. Miller). *Coal Age*, vol. ix, pp. 1040-1043, 1916.

The Cerro de Pasco District, Peru (with Benj. L. Miller). *The Eng. and Min. Journal*, vol. ci, pp. 1015-1018, 1916.

The Gold Mines of Brazil (with Benj. L. Miller). *The Eng. and Min. Journal*, vol. cii, pp. 207-212, 1916.

Exploitation of Chilean Mines (with Benj. L. Miller). *The Eng. and Min. Journal*, vol. cii, pp. 289-293, 1916.

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A Remarkable Upper Cretaceous Fauna from Tennessee. *Johns Hopkins University Circular n. s.*, No. 3, pp. 73-101, 2 figs., 1917.

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Dorsey, G. E.

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WILLIAM BULLOCK CLARK,

*Director of the Geological Laboratory.*

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## GERMAN

The German Seminary, which is organized for study and research in Modern and Middle High German Literature and Language, met three times weekly through the year, under the guidance of Professor Wood. During the first half-year, German Literature in the Sixteenth Century was studied. The work centred in the *Sprüche* and Dramas of Hans Sachs, on which each member of the Seminary contributed a paper. Papers were also presented and discussed on: Luther's Language and Style, Ulrich von Hütten's Dialogues, Reuchlin's *Hanno*, Nikolaus Manuel's and Jakob Ruff's religious Dramas, the Fables of Burkard Waldis, and the relation of Jakob Ayren's *Sidea* and *Phoenicia* to Shakespeare's *Tempest* and *Much Ado About Nothing*. During the second half-year, Wolfram von Eschenbach's *Parzival* (third, fifth, ninth, and twelfth to sixteenth books) was read. The Epic was compared in detail with the same author's *Titurel* and *Willehalm*, and Wolfram's relation to his sources for the Grail story, more particularly to Crestien de Troyes, was discussed.

The Germanic Seminary, conducted by Professor Collitz, met two hours weekly (on Monday afternoons) through the year. The work of this Seminary was based on the Old Saxon *Heliland*, the exercises being conducted with a view of training the students both in the

methods of text criticism and in the handling of problems connected with the study of the *Helianth* from a linguistic and a literary aspect. Papers on special topics were read by some of the students, while all of the members of the Seminary took an active part in interpreting the passages selected for translation and discussion.

The Germanic Society, which is conducted by Professors Wood and Collitz, held three meetings, at which the following papers were read and discussed: Professor Wood, *The Three Wedding Nights* in the Eddic *Skirnesmál* and in Shakespeare's *Midsummer Night's Dream*; Miss Elizabeth F. Johnson, *The Relation of Weckherlin's Eclogues to the Bergerie* of Remy Belleau; Dr. Alexander Green, *Review of John Ries, Was ist Syntax?*

Before the University Philological Association (May meeting) Professor Wood read a paper on the theme of 'The Soul's Transfusion,' in modern literature; Dr. Alexander Green read a communication at the meeting of the Modern Language Association, December, 1916, on *The Analytic Syntax and Some Problems of Germanic Philology*, and at the February meeting of the University Philological Association, a paper on *The Jutes in Beowulf*.

Professor Wood gave a graduate course, twice weekly, first half-year, on the *History of German Literature in the latter half of the Seventeenth and the earlier Eighteenth Century*. The authors receiving the largest share of attention were Hofmannswaldau (*Heroical Epistles*), Lohenstein (*Dramas*), Christian Weise (*Dramas and Romances*), von Canitz (*Satires*), Wernike (*Epigrams*), Brockes (*Lyrics*), Hagedorn (*Fables*). On each of these authors papers were presented by the members of the course.

During the second half-year, Professor Wood gave a course, twice weekly, on *Goethe's Lyrical Poems*. The emphasis was placed on the early, formative period, and the poems were studied chronologically in a selection designed to illustrate the gradual change in Goethe's language and style towards classicism.

Professor Wood read, with a class of undergraduates, twice weekly, through the year, *Goethe's Faust, Iphigenie* and *Götz von Berlichingen*. In the Winter Classes for Teachers, he gave a course, twice weekly, first half-year, on the *German Drama in the first half of the Nineteenth Century*. The passage from romanticism to realism was illustrated in detail, and the studies and express statements of Heinrich von Kleist, Grillparzer, Hebbel and Otto Ludwig on the development of the modern German drama were considered. In the case of Hebbel, a comparative study of the *Agnes Bernauer* theme was made in the dramas and dramatic fragments of Törring, Otto Ludwig and Martin Greif. During the second half-year, in the Teachers' Class, twice weekly, selected lyrics from the period of Hans Sachs to the beginning of German Classicism were studied. The method of treatment included not only literary appreciation, but also some systematic attention to rhythmical and metrical expression.

The following graduate courses were given by Professor Collitz:

1. Gothic Grammar. *Twice weekly through the year.* This course was conducted in such a way as to combine with the study of the Gothic language a brief survey of Comparative Germanic grammar, both as regards the grammatical features common to all or to several of the Early Germanic dialects, and their relation to the cognate Indo-Eur. languages. Specimens of the Gothic Bible were read in connection with the study of the grammar.

2. Old Norse Grammar. *Twice weekly, first half-year, and weekly, second half-year.* The elements of Old Icelandic grammar were studied with reference to the language of the Old Norse Runic inscriptions and to the cognate Old Germanic languages (especially Gothic, Anglo-Saxon, and Old High German). Sweet's Icelandic Primer served as a text book both for the study of the grammar and for the reading of selections from Old Icelandic prose.

3. Reynard the Fox in Middle Low German. *Weekly through the year.* The M. L. G. *Reinke de Vos*—although essentially a free translation of the Flemish *Reinaert*—is in some respects the most important of the epic poems generally known as beast epics. It is in any case the best known literary work in Middle Low German literature, and as such was chosen for this course, as an introduction to the study of Middle Low German.

Associate Professor Kurrelmeyer gave the following graduate courses:

Middle High German (Introductory Course). *Two hours weekly, first half-year.* After a rapid survey of Middle High German Grammar, Hartman von Aue's *Armer Heinrich* was read, followed by selections from Bartsch's *Deutsche Liederdichter des zwölften bis vierzehnten Jahrhunderts*.

Middle High German (Advanced Course). *One hour weekly, second half-year.* Selections from the *Nibelungenlied* were read and interpreted, with especial attention to the metre.

He also gave the following undergraduate courses:

Elementary German. *Four hours weekly.* Vos, *Essentials of German*; Grimm, *Kinder- und Hausmärchen*; Gerstäcker, *Germelshausen*; Keller, *Kleider machen Leute*; Wiehr, *Graded Exercises in German Prose Composition*.

German 4. Contemporary Literature in rapid readings. *Three hours weekly.* Sudermann, *Frau Sorge*; C. F. Meyer, *Das Amulet*; Keller, *Romeo und Julia auf dem Dorfe*; Droste-Hülshoff, *Die Judenbuche*; Raabe, *Die schwarze Galeere*; Ernst, *Asmus Sempers Jugendländchen*; Grillparzer, *Die Ahnfrau*; Hebbel, *Herodes und Mariamne*; Ludwig, *Der Erbforster*.

Scientific German Readings. *Two hours weekly.* Lassar-Cohn, *Die Chemie im täglichen Leben*; Walther, *Allgemeine Meereskunde*; Helmholtz, *Populäre Vorträge*.

Dr. R. B. Roulston, Associate in German, gave the following undergraduate courses:

German 1. Modern Prose Readings. *Three hours weekly.*

Section A. Arnold, *Einst im Mai*; Raabe, *Die Schwarze Galeere*; Keller, *Das Fähnlein der sieben Aufrechten*; Storm, *Psyche*; Sudermann, *Der Katzensteg*; Ibsen, *Der Volksfeind*.

Section B. Arnold, *Einst im Mai*; Storm, *Auf der Universität*; Sudermann, *Frau Sorge*; Keller, *Romeo und Julia auf dem Dorfe*; Storm, *Karsten Kurator*; Fontane, *Grete Minde*.

Prose Composition. *Weekly.* Both Sections. Bacon, *German Composition*, Exercises 1-31.

Private Reading. Both Sections. Rosegger, *Der Lex von Gutenhag*; Fulda, *Der Talisman*.

German 2. Goethe and Schiller. *Three hours weekly.* Goethe, *Hermann und Dorothea*, *Sesenheim*, *Egmont*. Schiller, *Wallenstein*.

Prose Composition. Exercises based upon *Hermann und Dorothea*, and selections from Whitney and Stroebe, *Easy German Composition*.

Private Reading. *Goethe in Italy* (ed. Nichols).

German 3. History of German Literature 1700-1832. *Weekly.* Lectures and recitations. Assigned readings.

College Courses for Teachers: German 2 A. Modern Prose Readings. *Two hours weekly.* Keller, *Die drei gerechten Kammacher*; Wildenbruch, *Der Letzte*; Storm, *Der Schimmelreiter*; Stifter, *Brigitta*.

Prose Composition. *Weekly.* Whitney and Stroebe, *Easy German Composition*, thirty exercises.

German 2 B. Practical Exercises. *Two hours weekly.*

Business Courses: Commercial German. *Two hours weekly.* There was no demand for this, and a course in the elements of German was substituted for the benefit of one student, until the first of February.

Mr. Aaron Schaffer conducted the following course:

German 1, Section C. The work was the same as in German 1, Section A.

#### PUBLICATIONS

Henry Wood.

Review of Edward Franklin Hauch, Gottfried Keller as a Democratic Idealist. *Modern Language Notes*, vol. xxxii (1917), pp. 109-113.

Hermann Collitz.

Zu den mhd. kurzen Präterita *gie, fie, lie* (I): *Mod. Lang. Notes*, xxxii, 207-215.

Review of Axel Koch, Brechung und Umlaut im Altschwedischen (Lund, 1916): *Mod. Lang. Notes*, xxxii, 40-44.

William Kurrelmeyer.

Doppeldrucke von Goethe's *Tasso*, 1816. *Modern Language Notes*, xxxi, 94 (1916).

Die Doppeldrucke der zweiten Cottaschen Ausgabe von Goethes Werken. *Modern Language Notes*, xxxi, 275 (1916).

English translations of Wieland. *Modern Language Notes*, xxxii, 225 (1917).

Brief Mention of various books. *Modern Language Notes*.

Alexander Green.

The Opening of the Episode of Finn in Beowulf. *Publ. of Mod. Lang. Association*, xxxi, 759-797.

P. S. Barto, *Tannhäuser and the Mountain of Venus*. New York, 1916. *Mod. Lang. Notes*, xxxii, 63-64.

E. H. Sehart, *Zur Geschichte der westgermanischen Konjunktion und. Hesperia*, VIII. Baltimore, 1916. *Mod. Lang. Notes*, xxxii, 230-235.

T. A. Arnoldson, *Parts of the Body in Old Germanic and Scandinavian*. Diss. Chicago, 1915. *Mod. Lang. Notes*, xxxii, 318-320.

W. M. Patterson, *The Rhythm of Prose*. Diss. Columbia. New York, 1916. *Modern Philology*, xv, 57-60.

HENRY WOOD,  
*Professor of German.*

## GREEK

### SEMINARY

The work of advanced instruction in Greek is carried on chiefly through the medium of the Greek Seminary, which is the laboratory in which the student is trained to use the apparatus of his profession and to carry out investigations of his own. Since the organization of the Seminary in 1876, it has been the custom of the members to concentrate their attention in any one year on some leading author or some leading department of Greek literature. In pursuance of this custom the principal subject of study during the past year has been the Greek Tragedians and more especially Aeschylus. The members of the Seminary were required to present the results of their study and investigation in written and oral communications and the director and members met twice a week to hear and discuss these communications. Besides the usual exercises in textual criticism, exegesis and formal translation, reports were furnished on entire plays, a number of choruses were interpreted and their metrical structure analyzed, and a study was made of the tragic trimeter in the light of its value as an index to the chronology of the undated plays.

## OTHER GRADUATE COURSES

Besides directing the Seminary, Professor Miller, throughout the year, conducted the following weekly courses:

1. Lectures on Greek Tragedy designed to supplement and give further direction to the work of the Seminary.
2. Readings in Aristotle's Poetics and Pseudo-Longinus' treatise on the Sublime.
3. Exercises in Greek Composition. This course was more than a series of exercises in the selection of vocabulary and special idiom, and in the correct use of accents, forms, and syntax. Style was throughout an element of prime consideration.
4. A course in Biblical and Patristic Greek. The whole of the *Διδαχὴ τῶν ἀποστόλων* was interpreted after the text had been read in class room from the facsimile plates of the Bryennios manuscript. Besides this, a careful study was made of more than twenty chapters of the *Σοφία Σειράχ*.

Professor Robinson conducted a course of reading in Plato's *Gorgias*, Menexenus and Phaedrus.

## UNDERGRADUATE COURSES

Undergraduate courses were conducted as follows:

By Collegiate Professor Spieker:

Benner-Smyth's *Beginner's Greek Book*; Xenophon's *Anabasis*, I.  
*Three hours weekly through the year.*

Homer, *Iliad*, I, II. *One hour weekly through the year.*

Xenophon, *Memorabilia* (selections); Plato, *Apology*; Herodotus (selections); Prose Composition. *Four hours weekly through the year.* (Greek I.)

Plato, *Protagoras*; Lyric Poets; Sophocles, *Antigone*; Prose Composition. *Three hours weekly through the year.* (Greek 3.)

Thucydides VII; Aristophanes, *Frogs*. *Two hours weekly through the year.* (Two-thirds of Greek 4.)

By Professor Robinson:

Greek Literature. *One hour weekly through the year.* (One-third of Greek 4.)

Undergraduates have read privately for examination the following:

Plato, <i>Crito</i> .	Euripides, <i>Alcestis</i> .
Homer, <i>Odyssey</i> (two books).	Demosthenes LIV and LV.
Elegiac and Iambic Poets.	

## PUBLICATIONS

B. L. Gildersleeve.

Paulus Silentiarius. *American Journal of Philology*, xxxviii, 42-72.

On the Semantics of -ΘΕΝ, *ibid.*, 200.

Brief Mention, xxxvii, 367-382; 494-505; xxxviii, 110-115; 222-227.



Brief Mention contains, among other things, discussions or notices of Greek Particles; Euripides; Lane Cooper's *Methods and Aims in the Study of Literature*; Sandys' *Scholars, Antiquarians and Bibliographers of the Nineteenth Century*; Gilbert Murray's *Diverse Ideals of English and German Scholarship*; Rendel Harris' *The Origin of the Cult of Aphrodite*; Paton's Translation of the *Fifth and Sixth Books of the Greek Anthology*; Pindar, i, 2, 8,; P. 2, 82; Persius, 5, 165-166; Bréal and the Homeric Question; A Puzzling Passage in one of Poe's Letters; Thomson's *Studies in the Odyssey*; Roberts' *Patriotic Poetry in Greek and English*; Achalmé's views of German achievements in physical science; Grotius' *Mare Liberum*.

C. W. E. Miller.

On the Use of the Article before the Genitive of the Father's Name in Greek Papyri. *American Journal of Philology*, xxxvii, 341-348.

Report on Rheinisches Museum für Philologie, lxx, 4. *ibid.*, xxxviii, 106-109.

Editorial work on the *American Journal of Philology*.

C. W. E. MILLER,  
*Professor of Greek.*

## HISTORY

### SEMINARY IN AMERICAN HISTORY

The Seminary in American history was conducted by Professor Latané. The work of the year was devoted to the study of Anglo-American relations. Among the reports made were the following: "The Treaty of Versailles, 1783," by Elizabeth Merritt; "The Origin of the Policy of American Neutrality," by S. R. Gammon; "American Trade with the British West Indies," by Sallie A. Guarrant; "The United States and the Canadian Rebellion of 1837," by W. K. Gotwald; "The Acquisition of Oregon," by H. E. Corner; "British Interests in Cuba to 1854," by Ruth Tomlinson; "British Interests and Activities in Central America prior to 1850," by F. Bowers; "The Clayton-Bulwer Treaty (1850-1860)," by W. B. Schulz; "The Canadian Reciprocity Treaty of 1854," by C. C. Tansill; "The Enlistment Dispute between Great Britain and the United States during the Crimean War," by C. C. Thach; "The International Waterways between the United States and Canada," by J. K. Dunlap; "The Blockade of the Southern Confederacy as Affecting Relations with England," by A. Aston; "The Fur Seals Arbitration," by W. C. Guess; "The North Atlantic Coast Fisheries Dispute, 1818-1910," by Eleanor Diggs; "The Anglo-Venezuelan Boundary Controversy," by P. R. Fossum; "England and the Open-Door Policy in China," by H. Dorothy Welsh.

The following lecture courses were given by Professor Latané:

1. Anglo-American Diplomacy. *Two hours weekly, through the*

*year.* A study of the diplomatic relations of the United States and England from the American Revolution to the present time.

2. American History, for Undergraduates (History 4). *Three hours weekly, through the year.* A general course covering the whole field of American history, based on lectures, text-books, and assigned readings.

#### SEMINARY IN EUROPEAN HISTORY

Under the direction of Professor Vincent the Seminary of European History devoted the year to an intensive study of the period of Charlemagne. Topics were assigned to each member and reports of progress were rendered in frequent rotation. This field is not furnished with abundant material upon social and economic questions, consequently these investigations called for constant discrimination and the use of close historical reasoning.

Reports upon various phases of Carolingian civilization were given as follows:

Legal aspects of the land question, W. K. Gotwald.

Ordeals and evidence in legal procedure, P. R. Fossum.

Freemen and aristocracy, S. R. Gammon.

The servile classes, Elizabeth Merritt.

Architecture, W. B. Schulz.

Organization of the church, C. C. Tansill.

Agriculture, C. C. Thach.

Commerce, Ruth Tomlinson.

Professor Vincent's lectures to graduate students were in the field of mediaeval civilization, beginning with early Germanic society and continuing through the typical feudal period. Particular emphasis was laid upon the method of investigation required in this work.

The regular undergraduate class in European History was conducted as usual by Professor Vincent by means of text-books, informal lectures, and discussions. The present international situation emphasized more than ever the practical value of seeking the historical roots of modern conditions, as has been the regular practice in this class.

Attention may be called to the excellent collection of historical and topographical maps which Dr. Vincent has been gradually accumulating for the department, especially to the detailed military map of France, sections of which have been mounted and displayed in the Historical Reference Room with the entire battle line from the North Sea to Switzerland marked.

Dr. Ralph V. D. Magoffin conducted the following courses:

1. History of Greece from 404 to 146 B. C. *One hour weekly, through the year.* The work for the year was conducted from the point of view of the military, artistic, and social development of the time. The Greek Leagues were studied from the point of view of Roman extension and influence, and the Hellenistic period was handled from the various local points of view.

2. History of Italy and Rome from the earliest times to the patricio-plebeian amalgamation. *One hour weekly, through the year.* The late discoveries in the Terra Mare and Villa Nova civilization were examined and the spread of the Italian peoples was explained from linguistic and archaeological points of view. The work in the early republic centered about the history of Latium.

3. History of Greece and Rome,—for Undergraduates (History 1). *Three hours weekly, through the year.* The constitutional, political, social, economic, and artistic developments of Greece and Rome were traced by means of translated texts of the ancient historians with the aid of modern authorities. Reports on special topics, with map drawing on the part of the students and occasional lectures on the part of the instructor, served to expand and emphasize the important phases of this history.

Special Lectures. Professor Charles Downer Hazen, of Columbia University, gave a course of lectures to graduate students on European Diplomacy since 1815. *One hour a week from October to April.*

The lectures on the James Schouler Foundation were delivered in March by the Honorable David Jayne Hill, former ambassador to Germany. His subject was "International Readjustments;" and the six lectures, which were given in the Civil Engineering Building and were open to the public, attracted an audience which was larger than the hall could conveniently accommodate.

The lectures on the Albert Shaw Foundation were delivered in January by Dr. Payson J. Treat, Professor of Far Eastern History in Leland Stanford Jr. University. The subject of the ten lectures, which were delivered to graduate students in the departments of history and political science, was "Early Diplomatic Relations between the United States and Japan, 1853-1865." These lectures are now in press, and will shortly be issued by the University in book form. The Albert Shaw lectures, delivered in 1912 by Professor Isaac J. Cox, of the University of Cincinnati, will also be issued during the summer by the Johns Hopkins Press. These two volumes are being published under the editorial supervision of Professor Latané.

The dissertation of Dr. J. Miller Leake, entitled "The Virginia Committee System and the American Revolution," appeared as the first number of the thirty-fifth series of the Johns Hopkins University Studies in Historical and Political Science.

#### PUBLICATIONS

John H. Latané.

Review of Ellery C. Stowell and Henry F. Munro's "International Cases: Arbitration and Incidents Illustrative of International Law as Practiced by Independent States." *American Political Science Review*, February, 1917, pp. 146-148.

Review of T. Baty and J. H. Morgan's "War: Its Conduct and Legal Results." *American Journal of International Law*, April, 1917.

Sketch of Herbert B. Adams. *The News-Letter*, Nov. 7, 1916.

"The Monroe Doctrine and the American Policy of Isolation in Relation to a Just and Durable Peace." *Annals of the American Academy of Political and Social Science*, July, 1917.

"A History of the United States" (for high schools). Allyn and Bacon, Boston. (In press.)

Ralph V. D. Magoffin.

The Classical Conference at Columbia University. *Art and Archaeology*, vol. iv, 1916, p. 124.

Luigi Rossini, Engraver. *Art and Archaeology*, vol. v, 1917, pp. 200-212.

Current News and Notes. *Art and Archaeology*, vol. iii, No. 6, p. 359; vol. iv, No. 1, pp. 57-58; No. 2, pp. 124-125; No. 3, pp. 186-187; vol. v, No. 1, pp. 51-54; No. 2, pp. 120-122; No. 3, pp. 183, 184-185.

Reports. Revue de Philologie, vol. xxxviii. *American Journal of Philology*, vol. xxxviii, 1917, pp. 100-105.

Review of L. R. Dean's "A Study of the Cognomina of Soldiers in the Roman Legions." *American Journal of Philology*, vol. xxxvii, 1916, pp. 217-219.

Review of M. Clerc's "Histoire d'Aix-en-Provence dans l'antiquité." *American Journal of Philology*, vol. xxxvii, 1916, pp. 349-353.

Review of H. B. Van Hoesen's "Roman Cursive Writing." *American Journal of Philology*, vol. xxxvii, 1916, p. 354.

Review of E. S. Bouchier's "Syria as a Roman Province." *American Historical Review*, vol. xxii, 1916, pp. 193-194.

Review of H. O. Taylor's "Deliverance: The Freeing of the Spirit in the Ancient World." *The Classical Weekly*, vol. x, 1916, pp. 30-31.

Review of W. A. Oldfather and H. V. Canter's "The Defeat of Varus and the German Frontier Policy of Augustus." *The Classical Weekly*, vol. x, 1916, pp. 47-48.

Review of P. V. N. Myers's "Ancient History." *Art and Archaeology*, vol. v, 1917, p. 125.

Review of E. Cuq's "Une Statistique de locaux affectés à l'habitation dans la Rome impériale." *American Journal of Philology*, vol. xxxviii, 1917, pp. 96-98.

Review of Dio's Roman History, vol. iv (Loeb). *American Historical Review*, vol. xxii, 1917, pp. 693-694.

Review of M. A. Hamilton's "Outlines of Greek and Roman History to A. D. 180." Second edition. *The Classical Weekly*, vol. x, 1917, p. 198.

Review of W. G. Morey's "Ancient Peoples." *The Classical Weekly*, vol. x, 1917, p. 198.

Review of J. H. Breasted's "Ancient Times: A History of the Early World." *The Classical Weekly*, vol. x, 1917, pp. 199-200.

JOHN H. LATANÉ,

Professor of American History.

## LATIN

The Seminary, which is the most important organ of graduate instruction, consists of the director, fellows, and such graduate students as have given satisfactory proof of their ability and training. Each year special attention is given to some one department of the literature. During the session just completed the centre of work has been the Roman Drama, more particularly Plautus and Terence. The members prepared papers founded upon special investigations, and presented in turn critical and exegetical commentaries upon given passages of those authors. Two meetings a week were held, through the year.

In addition to the Seminary course and the auxiliary work, Professor Smith lectured once a week through the year on Roman Comedy, once a week on Roman Tragedy, once a week on Historical Latin Syntax.

The members of the Seminary met once a week for the systematic reading of Plautus, Terrence, and Seneca.

Undergraduate courses were conducted as follows:

Professor Smith:

Roman Literature (Latin III). *Weekly through the year.*

Collegiate Professor Mustard:

Latin I: Livy, bks. xxi and xxii (selections); Vergil, *Bucolics*; Horace, *Odes*; Latin Composition. *Four hours weekly, through the year.*

Latin IV: Plautus, *Trinummus*; Cicero, *First Tusculan* and *Somnium Scipionis*; Juvenal. *Two hours weekly, through the year.*

Latin IV: Advanced Latin Composition. *Weekly through the year.*

During the year Professor Smith has also given lectures or addresses on the following occasions: November 18, 1916, before the Archaeological Institute of America at the University of Rochester, on "Jason and Medea: A Psychological Study;" December 1, 1916, at the Friends' Meeting House in Baltimore, he gave the same lecture; December 12, 1916, he addressd the Circolo Italiano of Baltimore, on "Italia antiqua nell' Italia moderna;" December 14, 1916, he addressed the Men's Club of the Unitarian Church, Baltimore, on "Italy and the War;" January 9, 1917, he addressed the Men's Club of Christ Church, Baltimore, on "France in 1914;" January 16, 1917, he addressed the Men's Club of Franklin Street Presbyterian Church, Baltimore, on "The Artistic Use of Magic in Classical Literature;" April 28, 1917, before the Classical Club of Washington, he read his poem on "Numa and Egeria;" May 11, 1917, he addressed the Women's Club of York, Pa., on "The Agamemnon of Aeschylus."

Professor Mustard has delivered addresses on classical subjects before the Classical Section of the Virginia Educational Convention,

the Pennsylvania Society of the Archaeological Institute of America, the Maryland Branch of the Southern Association of College Women, and the Baltimore Classical Club.

## PUBLICATIONS

Kirby Flower Smith:

Propertius: a Modern Lover in the Augustan Age. *The Sewanee Review*, xxv, no. 1, pp. 20-39.

Reviews of Mary Rebecca Thayer, *The Influence of Horace on the chief English Poets of the Nineteenth Century*, *Modern Language Notes*, xxxii, no. 4, pp. 240-242; Concetto Marchesi, *Apulei Platonici Madaurensis, De Magia liber, testo critico con introduzione e commento*, *American Journal of Philology*, xxxviii, pp. 203-4; H. E. Butler and A. S. Owen, *Apulei Apologia*. . . With Introduction and Commentary, *American Journal of Philology*, xxxviii, pp. 204-5.

Report of the Rivista di Philologia xlv, fasc. 1-2. *American Journal of Philology*, xxxviii, pp. 218-221.

W. P. Mustard.

Notices, of Ettore Stampini, *Studi di letteratura e filologia latina*; M. R. Thayer, *The Influence of Horace on the chief English Poets of the Nineteenth Century*; *The Cambridge Songs, a Goliard Song Book of the XIth Century*, ed. Karl Breul; *Le Satire di Orazio*, ed. Vincenzo Ussani; William Jacob Keller, *Goethe's Estimate of the Greek and Latin Writers*; *Libri Tres De Calamitatibus Temporum B. Baptistae Mantuani*, ed. G. Wessels. *American Journal of Philology*, xxxviii, pp. 116-118.

Review of A Classical Dictionary of Greek and Roman Antiquities, Biography, Geography, and Mythology, ed. H. B. Walters. *American Journal of Philology*, xxxviii, pp. 211-212.

KIRBY FLOWER SMITH,

*Professor of Latin.*

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 MATHEMATICS

## GRADUATE COURSES

Professor Morley gave the following courses:

1. Higher Geometry. *Three hours weekly, first half-year.*

Special attention was paid to the theory of the quartic curve in a plane, and to the analogous theory of the pencil of cubics.

2. Theory of Functions. *Three hours weekly, second half-year.*

The geometrical side was presented, and some physical applications were considered, notably Lery's extension of Kelvin's theory of images.

3. The Mathematical Seminary. *Weekly through the year.*

Associate Professor Coble gave the following courses:

1. Theory of Groups. *Two hours weekly, second half year.*  
With applications to configurations and the theory of equations.
2. Theory of Probability. *Two hours weekly through the year.*  
Including a study of the laws of dispersion and errors.

Associate Professor Cohen gave the following courses:

1. Elementary Theory of Functions. *Two hours weekly through the year.*

After a preliminary study of the theories of sequences and series, a study of functions of the complex variable, from both the Weierstrass and Cauchy points of view, was made.

2. Theory of Numbers. *Two hours weekly through the year.*

After a detailed study of the theory of rational numbers the theory of algebraic numbers was taken up and developed.

Dr. Bateman gave the following courses:

1. Mathematics for students of chemistry. *Three hours weekly through the year.*

The topics considered were: Differential and integral calculus. Method of least squares. Chemical statics and dynamics. Elementary thermodynamics and theory of solution.

2. Differential equations of mathematical physics. *Two hours weekly through the year.*

Laplace's equation was studied in connection with the theories of electrical and gravitational attraction. The equations of hydrodynamics were next considered and some attention was paid to vortex motion. Solutions of the equations of electromagnetism were obtained and interpreted physically and some time was spent on problems of electrical and aerial vibrations.

The undergraduate courses were given by Professors Hulburt, Coble, and Cohen, and Dr. Shenton.

The *American Journal of Mathematics* is in its 39th volume.

FRANK MORLEY,  
*Professor of Mathematics.*

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### ORIENTAL SEMINARY

In the Oriental Seminary, under the direction of Professor Haupt, twenty-nine courses in the various departments of Oriental research were given during the past year, special attention being paid to the Old Testament and the cuneiform inscriptions bearing on the Scriptures.

Twenty-four hours during the first half-year, and twenty during the second, were devoted to the study of *Hebrew and the Old Testament*. In the *Old Testament Seminary*, two hours weekly, through the year, Professor Haupt gave a critical interpretation of *Selected Psalms* (especially Pss. 1, 2, 3, 4, 8, 13, 14, 15, 19, 20, 21, 22, 24, 53, 102) and of some sections in the Books of Isaiah and Jeremiah. He also conducted, through the year, a course in *Comparative Hebrew Grammar*, with special reference to the formations of the nouns, and gave a series of weekly exercises in *Hebrew Prose Composition*, the students translating idiomatic English sentences into Hebrew. Dr. Blake conducted a course in *Hebrew Phonology* during the first half-year, preceded by a sketch of the Elements of Phonetics, and gave, through the year, a series of lectures on *Hebrew Syntax* with special reference to the combinations formed by words and their modifiers. The instruction in *Elementary Hebrew* was given by Associate Professor Ember, three hours weekly, through the year. The course in *Second Year's Hebrew* was given in two sections, one being conducted by Associate Professor Ember, and the other by Dr. Blake, each two hours weekly, through the year. Dr. Rabinowitz gave the course in *Third Year's Hebrew*, two hours weekly, through the year. Dr. Rabinowitz also conducted courses in *Cursive Reading of the Hebrew Bible* and *Unpointed Hebrew Texts*, each one hour weekly, through the year, and in *Hebrew Conversation* during the first half-year. A series of *Hebrew Exercises* was conducted by Dr. Albright during the first half-year. Dr. Rosenau gave a course in *Post-Biblical Hebrew*, two hours weekly during the first half-year, and three hours weekly during the second, the students reading selections from the Mishna and the Talmud. Dr. Rosenau also lectured on the *History of Israel* during the first half-year, while two series of lectures on Biblical topics were given by Mr. Russell, one on *Biblical Archæology*, and the other on *The Literature of the Bible* with special reference to date and authorship.

In *Biblical Aramaic* Dr. Blake met a class, through the year, for the study of *Biblical Aramaic Grammar* and the *Interpretation of the Aramaic Portions of the Book of Ezra*.

The lectures on the *History of the Ancient East* (Egypt, Babylonia, Assyria, Persia, Israel, Judah, and the minor nations of Western Asia, preceded by a sketch of the prehistoric period) were given, through the year, by Dr. Blake.

In *Arabic*, Professor Haupt conducted weekly exercises in *Arabic Prose Composition*. Associate Professor Ember gave courses in *Jewish Arabic* and in the *Makamat of Hariri*, each one hour weekly through the year. The instruction in *Elementary Arabic* was given by Dr. Albright, two hours weekly during the first half-year, and three hours weekly during the second.



In *Syriac* a series of exercises in *Syriac Prose Composition* was conducted by Professor Haupt.

In addition to weekly exercises in *Ethiopic Prose Composition*, conducted by Professor Haupt, a course in *Elementary Ethiopic* was given by Dr. Blake, both weekly through the year.

Five hours weekly, through the year, were devoted to the study of *Assyriology*. Professor Haupt conducted weekly, through the year, a course in *Assyrian Comparative Grammar* and exercises in *Assyrian and Sumerian Prose Composition*, the students translating some Goethian poems and a number of Hebrew Psalms into Assyrian and Sumerian. Dr. Duncan interpreted the *Code of Hammurabi*, while Dr. Albright conducted a course in *Assyrian Historical Inscriptions*, both through the year. The instruction in *Elementary Assyrian* was given by Dr. Albright, two hours weekly, through the year.

In *Egyptology*, Associate Professor Ember interpreted the *Pyramid Texts*, through the year, and also met a class, through the year, for the reading of selected *Hieratic Papyri*.

The instructors and advanced students of the Oriental Seminary met weekly, through the year, to present new discoveries and reports on important articles in the leading Oriental journals. The following original communications were presented:—Professor Haupt, Oct. 4: Heb. *az* = Ethiop. *enza*; Son of Man = gentleman; Assy. *amîlu*, man, and Heb. *amal*, to work; Heb. *zait*, olive, and Arab. *zawâ*, to wrinkle.—Oct. 12: The Sumerian litanic dialect; Sum. *giš*, man, as an indefinite pronoun.—Oct. 19: Heb. *kilyâ*, kidney, the encapsuled organ.—Nov. 2: Assy. *surriš*, quickly, and Arab. *sara'a*, to hasten: Assy. *zamar*, immediately, and Arab. *ramaza*, to wink.—Nov. 16: Sumerian and the Caucasian languages; Assy. *marû* and *wamtu*.—Nov. 23: Heb. *agérth*, festal assembly, and Arab. *ard*, military review.—Dec. 6: An Arabic parallel to Jonah's whale.—Dec. 13: Assy. *maruštu*, misery, and Arab. *raththa*, be old and worn; Sumer. *gibil*, fire-new.—Dec. 20: Arab. *daššara*, forsake, and Assy. *umdaššer*; Assy. *mašâru*, to cut, forsake = Arab. *wašara*, to saw; Babylonian origin of the story of the Treasury of Rhampsinitus; Heb. *nefillim*, destroyers, Titans.—Jan. 4: Heb. *lê-ma'n tûdê*, that Thou mayest be praised, Ps. 130, 4.—Jan. 11: Crystal-gazing among the Hebrews; Heb. *kî'im*, but, after a negative; Semitic impersonal passives; St. George's dragon.—Jan. 18: Archæological parallels to Babylonian temple-towers.—Jan. 25: The preposition *ina* in Ethiopic.—Feb. 1: Talmudic *inêš*, man = Assy. *nêšu*, people.—Feb. 8: The breaking of the pitcher, Eccl. 12, 6 = cerebral hemorrhage, and the breaking down of the wheel = stoppage of the action of the heart.—March 29: Hebrew words for *gold*; Greek *Tethys* = Babylon. *Tîamat*.—April 19: Assy. *pitru*, rubbish = Syr. *purrâthâ*, crumbling; Heb. *yaggîh* for *tênâ* in Ps. 8, 2.—April 26: Heb. *mašal*, to shine, rule, be similar; Heb. *têšûrâ*, present, miswritten for Heb. *têmûrâ* = Assy. *tamârtu*; Assy. *ikkîba kâlu*, to transgress.—May 3: Arab. *thamala*, to stand by, aid, and Assy. *šamallû*, helper; Assy. *šalummatu*, shine, and Arab. *mathûla*, to be eminent.—May 17: Heb. *šamar*, to watch, to rage, originally to stare.

Associate Professor Ember, Nov. 23: Egyptian *y'bw*, left = sinister, evil; Eg. *št*, fragrance = Heb. *sûk*, to anoint; Eg. *nfr*, good = Bedauye

*enfer*, be sweet; Eg. *fdwt*, sweat = Bedauye *dūf*, Arab. *dif'*, heat; Eg. *yb*, goat = Bedauye *ab*; Eg. *hms*, phallus = Heb. *homš*, abdominal region.—Dec. 20: Semitic words preserved in Egyptian sign-values.—Jan. 11: Eg. *š'*, cut = Arab. *wašara*; Eg. *šwy*, be dry = Arab. *šawā*, roast; Eg. *y'h*, be dry = Heb. *rūh*, wind.—Jan. 18: Eg. *s'*, hog = Heb. *sé*, sheep.—Jan. 25: Arab. *amala*, hope, and *māla*, incline; Heb. *šiwwa'*, cry for help, and \**yāšā'*, help; Eg. *m's* blade, and Arab. *māsa*, shave; Eg. *dw'*, pray = Arab. *da'a*, call.—Feb. 8: Eg. *sr*, giraffe = Heb. *šōr*, bull; Eg. *yf*, flesh, and Heb. *afā*, bake.—March 29: Eg. *šn*, arrow, and *šnt*, spear-head = Arab. *sinān*; Eg. *zwn*, arrow = Heb. *zain*, weapon; Eg. *ššr* (*šhr*) = Heb. *šelb*, lance; Eg. *gmht*, front of the head = Arab. *jabhat*, forehead.—Apr. 19: The sacred poles of Osiris and Asherah.—May 17: Eg. *t* originally *k*; Eg. *mdw* = Heb. *bad*.

Dr. Rosenau, Feb. 1: A new English translation of the Hebrew Bible; Talmudic *dīqā* and Greek *deiknymi*.

Dr. Blake, Oct. 4: The Heb. *nota accusativi* and Heb. *yeš*, existence.—Nov. 16: Coördination in the Philippine languages.—Jan. 4: Heb. *kī'im*, but, after a negative.—Jan. 18: Indo-European analogies to Heb. *kī*, *kē*, verily.—March 1: Conditional particles in Semitic.

Dr. Albright, Nov. 2: Assy. *edlu*, man = South. Arab. *asad*.—Nov. 16: Twenty cases where Egyptian *t* = Semitic *t*.—Dec. 20: Assy. *narābu*, to swell.—Jan. 18: *Engidu-Sakan*, the Babylonian genius of fertility.—Jan. 25: The Babylonian Noah as the prototype of Solomon in the Wisdom-literature; Association of the moon with fertility in Egypt.—Feb. 8: Egypto-Semitic etymologies.—March 1: The Source of the Rivers in Mesopotamian cult and mythology.—March 29: the name of the Assyrian god *Nimurtu*.—April 19: Assy. *rittu*, hand = Egypt. *rd*, Arab. *mirdāt*; Assy. *šēmu* = Arab. *šahm*, grease; Eg. *spr*, arrive = *adripare*; A passage in the Langdon epic.—May 3: The fire-gods *Gibil mār apšī* and *Apām-napāt*.—May 17: Assy. *batūlu*, youth = Ethiop. *batr*, rod; Egypt. *šbk*, Crocodile-god = Arab. *samak*, fish; Arab. *samak* = the *spawner*.

Dr. Seidel: Jan. 25: The Targum to Gen. 48, 22.

Mr. Bloomhardt, May 3: The etymology of *anāku*, I.

In addition to these original communications the following reports were presented:—Professor Haupt, The meeting of the Society of Biblical Literature at Haverford; The meeting of the Oriental Society at Boston; Torrey's explanation of the Koranic *raqīm* and the story of the Seven Sleepers.—Vol. xxxiii, Number 3 of *The American Journal of Semitic Languages and Literatures*.—Dr. Rosenau: Friedländer's *Pirke de Rabbi Eliezer*; Husik's *History of Mediæval Jewish Philosophy*; English translations of Biblical Hebrew.—Mr. Bloomhardt, The Kaaba in Mecca.

At the meetings of the University Philological Association the following communications were presented by members of the Oriental Seminary: Professor Haupt, Oct. 20: Field and Well = Wife; Nov. 17: The First and Second Persons in Sumerian; Dec. 15: The German term *Schweizerdegen*, The Etymology of *Kidney*, The Sperm-whale in the Book of Jonah; Jan. 19: The Prænestine Temple-pyramid; Feb. 16: The Scream of St. George's Dragon; March 16: The Impersonal

Passive in Latin; May 18: Was Teumann epileptic or apoplectic?—Associate Professor Ember, Jan. 19: Egyptian *'wj*, to be long = Heb. *'iwôd*, to desire; April 20: Asherah and Osiris.—Dr. Albright, Dec. 15: The Egyptian names of the Barks of Morning and Evening; Feb. 16: The Lunar Ship in the Langdon epic; March 16: Anatolian Ass- and Vine-deities in Mesopotamia.

At the annual meeting of the Society of Biblical Literature and Exegesis, held at Haverford, Dec. 27-28, Professor Haupt read the following papers: (a) Alcohol in the Bible; (b) Rhabdomancy and Belomancy in the Old Testament; (c) The Language of the Sumerian Penitential Psalms; (d) Ur of the Chaldees.

At the General Meeting of the American Philosophical Society, Philadelphia, April 12-14, Professor Haupt presented a paper on The Waters of Death.

Eleven papers were presented by members of the Oriental Seminary at the annual meeting of the American Oriental Society, held in Boston, April 10-12, *viz.*, Professor Haupt: (a) Semites, Hebrews, Israelites, Jews; (b) The Son of Man; (c) The Last Words from the Cross; (d) The Babylonian Origin of the term *Naphtha*.—Associate Professor Ember: (a) New Semito-Egyptian Words; (b) Some African Words in Old Egyptian.—Dr. Blake and Associate Professor Ember: A new Hebrew grammar.—Dr. Blake: The Etymology of the Semitic Particle *ka*, like; (b) The Compound Particle *ki'im* in Hebrew.—Dr. Albright: (a) Gilgames and Engidu, Babylonian Genii of Fertility; (b) Mesopotamian Vine-goddesses.

The most pressing needs of the Oriental Seminary are:

(1) the appointment of an Assyriologist to the chair of Oriental History and Archæology;

(2) a less inadequate appropriation for new books in the various departments of Oriental research, including Assyriology, Egyptology, Biblical Philology, Oriental History and Archæology, Hebrew, Talmud, Rabbinical Literature, Arabic, Persian, Turkish, Jewish Aramaic, Syriac, Ethiopic, Amharic, Phœnician, Sabeian, Philippine dialects, etc., etc.

#### PUBLICATIONS

Paul Haupt.

Assyr. *mûr-nisqi*, war-horse. *American Journal of Semitic Languages and Literatures*, vol. xxxiii, pp. 45-47.

Assyr. *rabû*, to sink = Heb. *raphâ*. *American Journal of Semitic Languages and Literatures*, vol. xxxiii, p. 48.

The Curse on The Serpent. *Journal of Biblical Literature*, vol. xxxv, pp. 155-162.

Christopher Johnston. *Journal of the American Oriental Society*, vol. xxxvi, pp. 339-341.

*Askari*, soldier, and *Lascar*, sailor. *Journal of the American Oriental Society*, vol. xxxvi, pp. 417-418.

Well and Field = Wife. *Journal of the American Oriental Society*, vol. xxxvi, pp. 418-420.

- Sumerian *tu*, dove, and *nam*, swallow. *Journal of the Society of Oriental Research*, vol. i, pp. 3-9.
- Hebrew *az* = Ethiopic *enza*. *Journal of the Society of Oriental Research*, vol. i, pp. 41-44.
- Was Amos a Sheepman? *Journal of Biblical Literature*, vol. xxxv, pp. 280-287.
- Heb. *galáth šólēmā*, a peaceful colony. *Journal of Biblical Literature*, vol. xxxv, pp. 288-292.
- The Biblical phrase "to ordain a lamp." *Journal of Biblical Literature*, vol. xxxv, p. 319.
- Heb. *awwáth nūfš*, rut, heat. *Journal of Biblical Literature*, vol. xxxv, pp. 319-320.
- Heb. *šegál*, queen = Arab. *thajlá'*. *Journal of Biblical Literature*, vol. xxxv, 320-322.
- Aram. *lēhenā*, concubine. *Journal of Biblical Literature*, vol. xxxv, pp. 322-324.
- The Son of Man (Abstract). *Journal of the American Oriental Society*, vol. xxxvii, p. 14.
- The Last Words from the Cross (Abstract). *Journal of the American Oriental Society*, vol. xxxvii, p. 21.
- The Babylonian Origin of the term Naphtha (Abstract). *Journal of the American Oriental Society*, vol. xxxvii, p. 21.
- Field and Well = Wife. *Johns Hopkins University Circulars*, No. 296, pp. 30-31.
- The First and Second Persons in Sumerian. *Johns Hopkins University Circulars*, No. 296, pp. 34-35.
- The German term *Schweizerdegen*. *Johns Hopkins University Circulars*, No. 296, pp. 35-36.
- The Etymology of *Kidney*.—*Johns Hopkins University Circulars*, No. 296, p. 36.
- The Sperm-Whale in the Book of Jonah. *Johns Hopkins University Circulars*, No. 296, pp. 36-37.
- The Prænestine Temple-Pyramid. *Johns Hopkins University Circulars*, No. 296, pp. 39-40.
- The Scream of St. George's Dragon. *Johns Hopkins University Circulars*, No. 296, pp. 42-43.
- The Impersonal Passive in Latin. *Johns Hopkins University Circulars*, No. 296, pp. 44-45.
- Was Teumann epileptic or apoplectic? *Johns Hopkins University Circulars*, No. 296, pp. 50-51.
- Hebr. *natán*, geben, im Arabischen und Äthiopischen. *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, vol. lxix, p. 564.
- Armenisch *g* für *w*. *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, vol. lxix, pp. 564-565.
- Das aramäische Ittaf'al ein Intaf'al. *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, vol. lxix, pp. 565-566.

Aaron Ember.

Egyptian 'wǝj, to be long, stretch out = Hebrew 'yynā, desire (Abstract). *Johns Hopkins University Circulars*, No. 296, pp. 38-39.

Asherah and Osiris (Abstract). *Johns Hopkins University Circulars*, No. 296, pp. 48-49.

A New Hebrew Grammar (Abstract). *Journal of the American Oriental Society*, vol. xxxvii, p. 10 (with Frank R. Blake).

New Semito-Egyptian Words (Abstract). *Journal of the American Oriental Society*, vol. xxxvii, p. 21.

Some African Words in Old Egyptian (Abstract). *Journal of the American Oriental Society*, vol. xxxvii, p. 21.

Frank R. Blake.

Construction of Coördinated Words in the Philippine Languages. *American Journal of Philology*, vol. xxxvii, pp. 466-474.

The Interrogative Particle *a* in Hebrew. *American Journal of Semitic Languages and Literatures*, vol. xxxiii, pp. 146-148.

The Dual Ending *-aim* in the Hebrew Multiplicative Numerals. *American Journal of Semitic Languages and Literatures*, vol. xxxiii, pp. 148-149.

The Tagalog Verb. *Journal of the American Oriental Society*, vol. xxxvi, pp. 396-414.

A New Hebrew Grammar (Abstract). *Journal of the American Oriental Society*, vol. xxxvii, p. 10 (with Aaron Ember).

The Etymology of the Semitic Particle *ka*, like (Abstract). *Journal of the American Oriental Society*, vol. xxxvii, p. 10.

The Compound Particle *ki'im* in Hebrew (Abstract). *Journal of the American Oriental Society*, vol. xxxvii, p. 10.

W. F. Albright.

The Eighth Campaign of Sargon. *Journal of the American Oriental Society*, vol. xxxvi, pp. 226-232.

The Egyptian Name of the Solar Bark of Morning and Evening (Abstract). *Johns Hopkins University Circulars*, No. 296, p. 34.

The Lunar Bark in the Langdon Epic (Abstract). *Johns Hopkins University Circulars*, No. 296, p. 38.

Anatolian Ass- and Vine-deities in Mesopotamia (Abstract). *Johns Hopkins University Circulars*, No. 296, pp. 45-46.

Gilgames and Engidu, Babylonian Benii of Fertility (Abstract). *Journal of the American Oriental Society*, vol. xxxvii, p. 16.

PAUL HAUPT,

W. W. Spence Professor of the Semitic Languages  
and Director of the Oriental Seminary.

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## PHILOSOPHY

### GRADUATE COURSES

Courses have been given during the year by Professor Lovejoy on the Philosophical Ideas of the Eighteenth Century; on the Conception of Consciousness in the Light of the Problem of Perception; and on Political Philosophy. The last-mentioned course, designed largely for students in Political Science, was given to help fill, in part, the gap caused by Professor Willoughby's absence. It was primarily a historical course on political theories from Hobbes to the early nineteenth century. Dr. Slonimsky gave, throughout the year, a course on the Philosophy of Plato and Aristotle, and during the summer session a course on Typical Views of Life.

It is customary for the American Philosophical Association to devote the greater part of each of its annual meetings, during the Christmas holidays, to a discussion of a special philosophical topic selected and announced in advance. This department has, for several years, made a point of devoting at least a part of one of its graduate courses to the Association's topic, both with a view to adding to the interest and profitableness of the courses, and also to furthering a more effectual coöperation in connected inquiry among American students of Philosophy. The topic chosen for this year's meeting is "Ethics and International Relations," and the opening part of the course announced for 1917-18 under the title of "The Ethical Theory of Distribution" will be devoted to this topic. This course is intended to be of service to students of Political Science and Economics, as well as to those specializing in Philosophy.

### PUBLICATIONS

Arthur O. Lovejoy.

The Meaning of "Romantic" in Early German Romanticism.  
Part I. *Modern Language Notes*, xxxi, 1916, pp. 385-396;  
Part II. *Ibid.*, xxxii, 1917, pp. 65-77.

Topic for Discussion at the 1916 Meeting of the American Philosophical Association. *Journal of Philosophy, Psychology and Scientific Methods*, xiii, 1916, pp. 573-581.

On Some Conditions of Progress in Scientific Inquiry (Presidential Address before the Sixteenth Annual Meeting of the American Philosophical Association). *Philosophical Review*, xxvi, 1917, pp. 123-163.

The Future of the Carnegie Foundation. *The Nation*, ciii, 1916, pp. 417-419.

Academic Freedom. *The Nation*, ciii, 1916, p. 561.

America Impartial. *New Republic*, x, 1917, p. 75.

Benevolent Neutrality? *New Republic*, x, 1917, pp. 229-230.

To Conscientious Objectors. *New Republic*, xi, 1917, pp. 187-189.

(With C. A. Kofoed, G. H. Marx, F. M. Padelford) Report of Committee of Inquiry on Alleged Violations of Academic Freedom at the University of Montana. *Bulletin of the American Association of University Professors*, May, 1917, Part II, 52 pp.  
Notice of Miller's "Bergson and Religion." *The Nation*, ciii, p. 326.

A. O. LOVEJOY,  
*Professor of Philosophy.*

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## PHYSICS

The Physical Laboratory has been open daily during the year for the work of advanced and undergraduate students. Regular courses of lectures have been given, and meetings had been held weekly for the reading and discussion of the current journals. The Physical Seminary has met once a week and the list of papers presented is given below.

The regular courses of instruction were as follows:

By Professor Ames:

1. Physical Seminary. *One hour weekly, through the year.*
2. General Physics: Theoretical Mechanics. *Four hours weekly, through the year.*
3. Undergraduate Physics I. *Three hours weekly, through the year.*
4. Journal Meeting *One hour weekly, through the year.*

By Professor Wood:

Physical Optics. *Three hours weekly, through the year.*

By Professor Bliss:

1. Undergraduate Physics III: Electricity and Magnetism. *Three hours weekly, first half-year.*
2. Undergraduate Physics II: Mechanics. *Three hours weekly, second-half year.*

By Associate Professor Pfund:

1. Undergraduate Physics II: Wave-motion. *Three hours weekly, first half-year.*
2. Undergraduate Physics III: Optics. *Three hours weekly, second half-year.*

By Dr. MacKenzie:

General Astronomy. *Three hours weekly, through the year.*

The work in undergraduate Physics I, II and III was carried out

in part by several assistants: Dr. A. F. Gorton, Mr. F. L. Mohler, Mr. S. M. Burka and Mr. H. L. Dryden.

The laboratory work for undergraduates has been under the direction of Professor Bliss and Dr. Pfund, with the assistance of Dr. Gorton and Messrs. Mohler, Burka and Dryden. The work in the Astronomical Observatory was under the direction of Dr. MacKenzie. The advanced work and the original investigations have been under the direction of Professors Ames, Wood and Pfund.

In the Physical Seminary papers were read as follows:

Miss L. Wilson—Life of Huygens; Modern Theory of the Mechanics of the Atmosphere.

Mr. W. F. Meggers—Measurement of wave-length; Modern practice in "wireless."

Mr. F. L. Mohler—Copernicus, Tycho Brahe and Kepler; Contact Electricity.

Mr. V. Voss—History of the Principle of Virtual Work; Emission of electrons by hot bodies.

Mr. S. M. Burka—Early work in Hydrodynamics; Instruments for measurement of air-pressure.

Mr. R. A. Castleman—Lives of Hooke and Boyle.

Mr. L. H. Crook—Lives of Descartes and Leibnitz; Colloids.

Miss M. D. Darkow—Lives of Torricelli and Pascal.

Mr. H. L. Dryden—Work in Mechanics before Galileo; Principles of Aeronautics.

Mr. M. Koulishover—Early work in Pneumatics.

Mr. E. H. Lange—Life of Newton.

Mr. H. L. Moore—Lives of Stevinus and da Vinci.

Mr. F. L. Robeson—Life of Galileo.

Mr. W. W. Steffey—History of Mechanical Apparatus.

There were fifteen advanced students who followed Physics as their principal subject. Of these four absolved the requirements for the degree of Doctor of Philosophy, and one those for the degree of Master of Arts, their names and the titles of their dissertations and essay being as follows:

Mr. W. F. Meggers—Wave-length Measurements in Spectra from 5600 Å to 9600 Å.

Mr. F. L. Mohler—Resonance Radiation of Sodium Vapor excited by one of the *D* lines.

Mr. V. Voss—The Ratio of the Intensities of the *D* lines of Sodium.

Miss L. Wilson—The Structure of the 2536 Mercury Line.

Mr. R. A. Castleman—The History of Diffraction. [Essay]

Upon the declaration of war against Germany Dr. MacKenzie was called into service as an Ensign in the Naval Reserves; Mr.



Voss entered the British Flying Corps in Toronto; and six other graduate students accepted appointments in the laboratories of the government, several of them not being eligible for military service. Four, who could not enter the Army or Navy, accepted positions as teachers for the coming year.

In April Professor Ames was appointed by the National Research Council the Chairman of a committee of six to go to Europe in order to investigate the progress in Science in France and England since the beginning of the War in 1914, to learn the ways in which science was being applied to military purposes, and to offer the services of the Research Council in any line of scientific work in which it could be useful. This committee was in Europe for two months.

Two Japanese professors, Messrs. M. Kimura and S. Okano, were guests of the department during the year, working in co-operation with Professor Wood upon several important physical properties of sodium vapor and iodine vapor.

Dr. Pfund's researches were largely in the field of Photoelectricity. He also, at the request of one of the Government Bureaus, undertook a study of the cause of the color in various sea shells. He was able to find the explanation as the result of some extremely ingenious experiments.

All these investigations have led to papers which have been published or are in process of publication. The other work of the laboratory is indicated in the titles of the dissertations submitted as given above.

JOSEPH S. AMES,

*Director of the Physical Laboratory.*

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## ANIMAL PHYSIOLOGY

The following scheduled courses were given during the session of 1916-17:

1. The Physiology of Digestion, Secretion and Nutrition. Professor Howell. *Twice weekly during the fall trimester.*
2. The Physiology of Muscle and Nerve and of the Special Senses. Professor Howell. *Three times weekly during the first half of the winter trimester.*
3. Physiological Conferences. Professor Howell. [The first-year class in medicine.] *Once weekly during the winter trimester.*
4. The Physiology of Blood, Circulation, and Respiration. Associate Professor Hooker. *Twice weekly during the spring trimester.*
5. The Physiology of the Central Nervous System. Associate Professor Snyder. *Three times weekly during the second half of the winter trimester.*
6. Laboratory Courses in Experimental Physiology Drs. Howell,

Hooker, Snyder, and Cobb, Mr. Lynch and Mr. Sosman. *Twelve hours weekly during the fall and spring trimester.*

7. Journal Club. Professor Howell. *Once weekly throughout the year.* This exercise was attended by the staff in Physiology, by certain members of the staff in other departments, and by advanced and special students.

#### INVESTIGATIVE WORK

In addition to carrying on the elementary courses for medical students, the members of the staff have all been engaged in physiological research, and under their direction several special students have carried out experimental investigations as follows:

Mr. Vernon Lynch—A study of the conditions for maintenance and growth in unicellular animals.

Mr. Jay McLean—The use of cephalin in controlling hemorrhages.

Mr. A. R. Rich—The nature and properties of metathrombin.

Miss Madge Thurlow—The effect of diet upon the reaction of the blood.

Dr. Tsugane—A study of the vaso-motor reactions of the veins.

Mr. H. M. Winans—Effect of temperature changes upon the activity of the medullary centres.

Mr. W. C. Huyler—The heat production of the heart-beat.

Mr. M. L. Breitstein—The heat production of the stomach muscle stimulated through the vagus nerve.

#### PUBLICATIONS

W. H. Howell.

Harvey lecture upon the coagulation of the blood. April 7, 1917.

The relation of medical studies to the higher degrees given in the University. *Association of American Universities*, Worcester, 1916.

D. R. Hooker.

The perfusion of the mammalian medulla: Note on the action of ethyl alcohol. *Journal of Pharm. and Exp. Therapeutics*, vol. x, 1917.

The perfusion of the mammalian medulla: The effect of carbon dioxide and other substances on the respiratory and cardiac vascular centres. (With D. W. Wilson and Helene Connet.) *American Journal of Physiology*, vol. xliii, 1917.

The perfusion of the mammalian medulla: The action of the bromides, iodides, and nitrates on the respiratory center. (With D. I. Macht.) *American Journal of Physiology* (in press).

C. D. Snyder.

On the heat liberated by the beating heart. *American Journal of Physiology*, vol. xlv, 1917.

A. R. Rich.

The changes in clotting power of an oxalated plasma on standing. *American Journal of Physiology*, vol. xliii, 1917.

The nature and properties of metathrombin. *American Journal of Physiology*, vol. xliii, 1917.

H. G. Fisher.

The histology of the M. retractor penis of the dog. *Anatomical Record* (in press).

W. H. HOWELL,  
Professor of Physiology.

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### POLITICAL ECONOMY

The instruction in Political Economy was directed by Professor Hollander, who met students daily in seminary organization for formal study and for co-operative research. The courses were designed to afford systematic instruction in general economic principles, intimate acquaintance with special fields of economic activity, and, most important of all, knowledge of and ability to employ sound methods of economic research. Dr. George E. Barnett, Professor of Statistics, assisted in the conduct of the work.

*Economic Seminary.* The students following political economy as a principal subject for the degree of Doctor of Philosophy met weekly under the direction of Professors Hollander and Barnett. The work of the year centered in the investigation of representative forms of industrial development in the United States, and in the analysis of significant activities of American labor organizations. The papers and reports presented to the Seminary were as follows: "Capitalization of the New Industrials," by Kemper Simpson; "Labor Disputes in the Lumber Industry," by H. F. Holtzclaw; "The Financing of Cotton Mills in the South," by Broadus Mitchell; "Railroad Pension Systems," by Professor Barnett; "Labor Conditions in the Lumber Industry," by H. F. Holtzclaw; "The Securities of the New Industrials," by Kemper Simpson; "The Influence of Foreigners in the Brewery Workers' Union," by Joshua Bernhardt; "The History of Pension Systems in American Trade Unions," by Rev. John O'Grady; "Industrial Conflicts in the Steel Trade," by J. S. Robinson; "The Working day in the Carpenters' Union," by J. H. McKean; "Social Aspects of Trade Unionism," by C. E. Burgee; "The Standard Rate in the Iron and Steel Trade," by J. S. Robinson; "Economic Aspects of the New Industrial Flotations," by Kemper Simpson; "The Financing of the Southern Cotton Mills," by Broadus Mitchell; "The Inheritance Tax in Japan," by Kenichi Abe; "Profit Sharing in the United States," by Boris Emmet; "A Graphic Representation of the Ricardian Theory of Rent," by Joshua Bernhardt; "The Taxation of Sugar in Great Britain," by T. Yoshikawa; "A Comparison of the Tenets of John Locke and of Henry George with respect to Private Property in Land," by Broadus Mitchell; "The Marketing of the Stock of the New Industrials," by

Kemper Simpson; "The Minimum Cost of Living in Japan," by Dr. K. Morimoto; "A Suggestion for the Study of the Economic History of the South by this Seminary," by Broadus Mitchell; "The Van de Weyr Collection of Senior's Pamphlets," by Broadus Mitchell.

Appreciable progress has also been made by members of the Seminary in the study of special aspects of the several questions assigned for investigation. During the summer field work was carried on in various carefully selected localities, and the data thus collected have since been supplemented and corrected by documentary study and personal interview.

Professor Hollander conducted the following courses of lectures:

1. The Development of Economic Opinion. *Two hours weekly during the year.* A critical survey was made of the historical development and present state of representative economic doctrines.

2. The Theory and Practice of Taxation. *Two hours weekly during the year.* The history of taxation was examined with reference to recent expenditures and present requirements in the United States.

Professor Barnett lectured during the year on labor legislation with particular reference to social insurance.

A reading class was organized and successfully conducted by the more advanced students of the department for the co-operative study of economic texts and for the critical discussion of current literature.

The Seminary collection of economic texts was strengthened by purchases from the Hutzler fund, the McPherson fund and the Glenn fund.

Professor Hollander and Professor Barnett conducted the following undergraduate courses:

Political Economy I. *Three hours weekly, through the year.* In the first half-year the industrial development of England and the United States was studied. In the second half-year systematic instruction was given in the elementary principles of economic science.

Political Economy II. *Three hours weekly, through the year.* In the first half-year the theory and practice of finance were considered. In the second half-year the principles of monetary science were taught.

Political Economy III. *Three hours weekly, through the year.* In the first half-year the theory and methods of statistics were given in advanced economic theory. In the second half-year study was made of the causes and treatment of poverty.

The prime purpose of the department of Political Economy is to train qualified students in methods of economic research so that either as teachers or as investigators they may add to the sum of human knowledge in the field of economic relations. It is believed—and this constitutes the distinctive characteristic of economic study at Johns Hopkins—that this training can only be successfully given by the student's coming into immediate contact, through observation and interview, under proper guidance, with actual economic facts. A quasi-historical study based exclusively upon documentary

material and library apparatus will not afford this training. The student must be trained to investigate and understand the actual working of an existing economic institution.

The successful conduct of economic instruction of this kind requires the use of a Research Fund, comparable to the laboratory appropriations available in the natural sciences. It is required to some extent for the collections of documentary material essential to such investigations, but lying beyond the range of ordinary library purchases. The larger occasion for such a fund is, however, to enable the students at a certain period in their training to continue their investigations by actual field work, this involving repeated visits to and frequent residence in the particular localities where the phenomena under investigation are found in typical form. Without the aid of such a fund the ordinary student is practically obliged to limit his inquiry to a local phenomenon or to remain content with an imperfect induction.

The Johns Hopkins University will offer during the academic year 1917-18, in continuation of the courses given during the past year, a series of evening "Courses in Business Economics," under the general direction of the Department of Political Economy. Such instruction is made available at hours and under conditions designed to meet the convenience of those likely to make use thereof. While designed in the main to offer instruction to young men and women actually engaged in, or contemplating entrance into, business, industry and commerce, the courses will be planned to meet the needs, also, of those who have a more general interest in the subjects.

#### PUBLICATIONS

G. E. Barnett:

Growth of Labor Organization in the United States 1897-1914. *Quarterly Journal of Economics*, August, 1916, pp. 780-795, 837-846.

[with D. A. McCabe] Mediation, Investigation and Arbitration in Industrial Disputes. D. Appleton & Company, 1916, pp. viii, 209.

JACOB H. HOLLANDER,  
*Professor of Political Economy.*

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#### POLITICAL SCIENCE

During the absence of Professor Willoughby, who spent the year in Peking as constitutional adviser to the Chinese government, the Political Science Seminary was conducted by Professor Latané. The general topic for reports and discussions was "Problems of International Law arising out of the European War." Among the papers presented were the following: "The Status of the Declaration of London," by J. T. Carter; "Contraband and the Present War," by R. Howell; "The British 'Blockade' of Germany," by D. Richardson; "Belligerent Interference with Mails," by B. Wil-

liams; "The Status of Armed Merchantmen," by H. M. Blalock; "Detention and Search," by A. S. Jewett; "Japan's Relation to the European War," by G. Wan; "Dollar Diplomacy," by E. T. Fell.

The following lecture courses for graduate students were offered:

1. United States Constitutional Law. *Two hours weekly through the year.* President Goodnow.
2. Anglo-American Diplomacy. *Two hours weekly through the year.* Professor Latané.
3. English Political Philosophy since Locke. *One hour weekly through the year.* Professor Lovejoy.

JOHN H. LATANÉ.

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## PSYCHOLOGY

During the year 1916-1917 advanced courses in objective psychology and experimental psychology were conducted by Professor Watson. Professor Dunlap gave courses in introductory general psychology, experimental psychology and the history of psychology. Professor H. C. Warren, of Princeton University, gave a course in genetic psychology. Dr. Lashley conducted a course in animal behavior.

### PUBLICATIONS

John B. Watson:

- The Psychology of Wish Fulfilment. *Scientific Monthly*, November, 1916, 479-487.
- Behavior and the Concept of Mental Disease. *Jour. Philos., Psy. and Scientific Methods*, October 26, 1916, 589-597.
- Does Holt follow Freud? *Jour. Philos. Psy. and Scientific Methods*, vol. xiv, 85-92.
- Emotional Reactions and Psychological Experimentation. *American Jour. of Psy.*, April, 1917, 163-175. (With J. J. B. Morgan.)
- The Effect of Delayed Feeding upon Learning. *Psychobiology*, vol. i, 1917.
- Practical and Theoretical Problems in Instinct and Habit. (Address before Joint Committee on Education of Chicago, February 17, 1917).
- Edited *Journal of Experimental Psychology*, 1916.
- Edited *Animal Behavior Monographs*, 1914.

Knight Dunlap:

- A New Complication Apparatus. *Jour. Exp. Psychol.*, 1917, ii, pp. 89-91.
- The Stuttering Boy. *Jour. Abnor. Psychol.*, 1917.
- The Johns Hopkins Chronoscope. *Jour. Exp. Psychol.*, 1917, ii, pp. 241-252.
- Internal Secretion in Learning. *Psychobiology*, i, pp. 61-64.

K. S. Lashley:

- Retroactive Association and the Elimination of Errors in the Maze. *Jour. Animal Behav.*, 1917, 7, 130-138. (With Helen B. Hubbert.)
- The Criterion of Learning in Experiments with the Maze. *Jour. Animal Behav.*, 1917, 7, 66-70.
- A Causal Factor in the Relation of the Distribution of Practice to the Rate of Learning. *Jour. Animal Behav.*, 1917, 7, 139-142.
- The Human Salivary Reflex and its Use in Psychology. *Psychol. Rev.*, 1916, 23, 446-464.
- Reflex Secretion of the Human Parotid Gland. *Jour. Exp. Psychol.*, 1916, 1, 461-493.
- Changes in the Amount of Salivary Secretion Associated with Cerebral Lesions in Man. *Amer. Jour. Physiol.*, 1917, 43, 62-72.
- The Accuracy of Movement in the Absence of Excitation from the Moving Organ. *Amer. Jour. Physiol.*, 1917, 43, 169-194.
- Modifiability of the Preferential Use of the Hands in the Rhesus Monkey. *Jour. Animal Behav.*, 1917, 7.
- Sensory Physiology of Animals. *Psychol. Bull.*, 1916, 13, 309-315.
- Smith's "The Investigation of Mind in Animals." *Jour. Philos., Psychol.*, etc., 1916, 13, 614.

JOHN B. WATSON,

Director of the Psychological Laboratory.

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## ROMANCE LANGUAGES

### 1. Graduate Courses.

Professor Armstrong conducted courses in the history of the French language as follows: Pronunciation of French, *weekly*; History of Sounds and Inflections, *three hours weekly, second half-year*; Historical Syntax, *weekly*; Gallic Folk Latin, *three hours weekly, first half-year*. He also gave a weekly course of selected readings in Old French literature, and a weekly course in French and Provençal lyrics.

Professor Marden conducted courses in the Beginnings of Spanish Literature, *weekly*; and in Readings in Old Spanish, *weekly*.

Professor Brush conducted a weekly course in the Eighteenth Century French Drama and Novel.

Associate Professor Shaw conducted courses in the Interpretation of Selections from Leopardi, *weekly*; and in Dante's *Vita Nuova*, *weekly*.

Mr. Carcassonne conducted courses in French literature as follows: Boileau et son temps: Le Mouvement littéraire au début du XIX<sup>e</sup> siècle; Les Questions sociales dans la littérature de 1830 à 1848 (*each weekly*); and Explications d'auteurs français (*two hours weekly*).

The staff and graduate students of the department assembled

weekly in the Romance Journal Club for reviews of recent scientific literature and the presentation of papers of departmental interest.

The Seminary in French Literature met two hours fortnightly, under the direction of Mr. Carcassonne, and was devoted to the study of the *Nouvelle Héloïse*. The members of the Seminary successively submitted to the discussion of the whole group the results of their personal investigation of the text and the editions, the psychological analysis of the characters, the moral and religious ideas developed in the novel and the language and style of Jean-Jacques Rousseau. An effort was made to determine the place of the *Nouvelle Héloïse* in eighteenth-century French literature, to locate the traces of exterior influence which prepared the way for the work, to specify the originality of the thoughts, the sentiments, and the art, and to judge the nature and the bearing of the influence that the book exercised upon the contemporary public.

The Seminary in Spanish met two hours weekly, under the direction of Professor Marden, and continued the study of the *Libro de Apolonio* which had occupied the Seminary during the previous year. During the present session, attention was directed to the syntax of the poem with special reference to the use of the prepositions. the results of each chapter of study were applied, for verification and comparison, to the other literary monuments of the early Spanish period.

In addition to the scheduled courses, the following lectures were given before the department:

Professor Gustave Lanson: "Les Origines françaises du romantisme français," "Ce qu'il y a de classique chez les romantiques," and a text interpretation from Rabelais; Professor F. M. Warren; "The Influence of Surroundings on French Character"; Professor F. de Onís: "Definición de la novela picaresca"; Professor E. D. Dargan: "French Classicism and the Modern Spirit," and "Montesquieu."

## 2. Collegiate Courses.

French Elements, three sections, *each four hours weekly*, Associate Professor Shaw and Mr. Hastings. French 1, three sections, *each four hours weekly*, Professor Brush, Dr. Gruenbaum and Mr. Hastings. French 2, *three hours weekly*, French 3-4, *three hours weekly*, and French 5, *weekly*, Professor Brush.

Spanish 1, Spanish 2, Spanish 3, *each three hours weekly*, Dr. Buceta.

Italian 1, *three hours weekly*, Associate Professor Shaw.

## 3. College Courses for Teachers.

French 1 (the Elements of French), *three hours weekly*, Professor Shelloe. French 2 (Intermediate French), and French 3 (Advanced French), *each two hours weekly*, Dr. Gruenbaum. Spanish Elements, *two hours weekly*, Dr. Gruenbaum. Practical Spanish, *two hours weekly*, Dr. Buceta. The course in Italian 1, listed among Collegiate Courses, was likewise open to teachers.

EDWARD C. ARMSTRONG,  
*Professor of the French Language, Chairman.*



### SANSKRIT AND COMPARATIVE PHILOLOGY

During the session of 1916-17 advanced work in Hindu Philology was concerned with the Vedas and the Hindu Drama. The Vedic Seminary, in rotation between the various phases of the ancient literature, returned once more to the Atharva-Veda (see President's Report for 1904, Johns Hopkins Circulars, No. 173, p. 41). The position and character of this Veda was discussed on the basis of Bloomfield's *Prolegomena* (The Atharva-Veda and the Gopatha Brāhmaṇa; Strassburg, 1899). The reading of Atharvan hymns was arranged according to the various classes of prayers, charms and blessings contained therein. Especially, the extensive class of love charms (philtres) was studied exhaustively with some reference to the similar literatures among European peoples.

Professor Bloomfield delivered his opening address as President of the Johns Hopkins University Philological Association on 'Some Cruces in Vedic Text, Grammar and Interpretation.' This address is published in the *American Journal of Philology* (see below).

The Hindu drama, written regularly part in Sanskrit and part in various popular dialects (Prākṛit), was the theme in advanced work in classical literature. After some conferences dealing with the character and origin of the Hindu drama, the *Mṛchakatikā* ('Toy-Cart'), the single masterpiece of King Qūdraka, was made the theme for the entire session.

The regular beginners' course in Classical Sanskrit, carried on two hours a week during the session, assembled the unusually large number of six students from the various philological schools of the University. This course is the formal introduction to the study of Hindu philology, as well as to the study of the Comparative Philology of the Indo-European languages.

The work in Comparative Philology was two-fold. First, a course of lectures on General Comparative Philology. This began with a definition of the theme and its relation to History, followed by a brief sketch of the development of this science. The bulk of the lectures dealt with the linguistic Ethnology of the Indo-European peoples, their divisions, special inter-relations, and their original home (the so-called 'Aryan Question'). This was followed by sketches of the individual peoples of the family: India, the Vedas, Brāhmaṇism, Sanskrit Literature, and Buddhism; Persia, the Achemenidan cuneiform inscriptions, the Zoroastrian Literature (*Avesta*) and religion; the minor and problematic Indo-European peoples; and finally ethnological sketches of the European peoples, and their national religions.

A second course, in the Comparative Grammar of the Indo-European languages, treated the history of the vowels, and their 'ablaut' relations, with particular reference to Greek, Latin, Teutonic and Sanskrit. This was preceded by a series of conferences on the phonetics of the vowels. A corresponding course on the history of the consonants is offered during the session of 1917-18.

Professor Bloomfield has published: *Rig-Veda Repetitions*; the repeated verses and distichs and stanzas of the Rig-Veda in systematic presentation and with critical discussion. Part I: The repeated passages of the Rig-Veda, systematically presented in the order of the Rig-Veda, with critical comments and notes. Part II: Explanatory and analytic. Comments and classifications from metrical and lexical and grammatical and other points of view. *Harvard Oriental Series*, volumes xx and xxiv. Cambridge, 1916.

Some Cruces in Vedic Text, Grammar, and Interpretation, *American Journal of Philology*, volume xxxviii, pp. 1-18.

On the Art of Entering Another's Body: A Hindu Fiction Motif. *Proceedings of the American Philosophical Society*, volume lvi, pp. 1-43.

On more than one occasion—last time in the President's Annual Report for 1914-15—I have presented to the authorities of the University a plea for assistance in my work, in the shape of an Adjunct Professor of Comparative Philology. By the irony of fate the most obviously duplex school of the University, the school of 'Sanskrit and Comparative Philology,' has been carried on continuously for thirty-six years by a single stable teacher. In the report cited a mere statement of what is now meant by these twin subjects shows that they cover in some sense half the earth. Indological literature, which includes the study of Buddhism all over Asia with its Tibetan and Chinese affiliations, is to be compared in extent and importance with the combined literature of Europe; the languages concerned in this study are scarcely less manifold. A superficial glance at the interests of Comparative Philology shows that this subject involves, in some sense and measure, Iranian, Celtic, and Slavic Philology. The same general theme of Comparative Philology, I need hardly mention, includes also Physiology of Sound, (Phonetics) and Linguistic Science. All these studies keep on expanding, and at the same time deepening. Without these interests a university scarcely justifies its name; it is equally obvious that without permanent assistance these subjects can no longer be treated by a single teacher. However eager he may be to grasp firmly and develop properly the themes he chooses out of this mass, he finds himself checked by considerations of time and working power. I may say that Harvard, Yale, Pennsylvania, and Chicago each have two or more teachers in these subjects. I am convinced that any free funds which may be at the disposal of the University in the immediate future can be applied to no better purpose than to strengthen by a permanent appointment these studies which have been carried on here from the beginning continuously, and, as I believe, with profit and credit to the University as a whole.

MAURICE BLOOMFIELD,

*Professor of Sanskrit and Comparative Philology.*

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**ZOOLOGY, BOTANY, PLANT PHYSIOLOGY****I. ZOOLOGY****INVESTIGATIONS**

The following lines of investigation have been in progress during the past year:

(1) Under the direction of Professor Jennings, researches on genetics, particularly in the lower organisms. Mr. F. M. Root, Bruce Fellow, concluded and prepared for publication his work on Heredity and the Effects of Selection in *Centropyxis aculeata*. Professor Jennings examined the mechanism of heredity and of development in certain favorable characters of *Diffugia*. He also prepared a second mathematical paper on the result of different methods of breeding, with reference to two linked characters. Miss Inez Coldwell undertook a study of certain problems of genetics in Protozoa.

(2) Under the direction of Professor Mast, investigations on the physiology and behavior of lower organisms. Professor Mast himself carried on work on conjugation, encystment, variation and the factors determining the length of life of the race, in the infusorian *Didinium*. He continued also the work on the reactions of organisms to light; and began an investigation of the effects of alcohol on the germ cells of the fish *Gambusia*. Mr. W. H. Taliaferro worked on the reactions of a flatworm to light. Miss Mary Gover finished her study of the relation between light and activity in certain infusoria.

(3) Under the direction of Professor Grave, Mr. H. S. Hopkins has investigated the green algae symbiotic in certain Mollusca.

(4) Professor H. F. Perkins, of the University of Vermont, who has been at work in the laboratory during a year's leave of absence, has investigated the problem of rhythmic activities in certain lower animals.

**LECTURES AND CLASS ROOM WORK**

*Biological Journal Club*:—The instructors and graduate students in Zoology joined with those in Botany and Plant Physiology in a weekly club for the presentation and discussion of recent investigations in these fields.

*Zoological Seminary*:—The Seminary met weekly in the evening, devoting itself to a reading and discussion of Radl's *Geschichte der Biologischen Theorien*. It included, in addition to the instructors and graduate students in Zoology, certain members of the staff of the department of Zoology of Goucher College.

The following courses were conducted by the different members of the staff:

Professor Jennings:

Heredity, Variation and Evolution. *Three lectures weekly, from October 1 to February 1; once a week for the remainder of the year.*

Investigations in Experimental Zoology. *Daily, throughout the year.*

Professor Andrews:

1. General Biology. *Nine hours weekly, October 1 to March 15.*
2. Embryology. *Nine hours weekly, from March 15 to the end of the year.*
3. Zoology of Non-vertebrates. *Nine hours weekly, October to June.*

Associate Professor Grave:

Comparative Anatomy of Vertebrates, Cytology and Embryology.  
*Nine hours weekly throughout the year.*  
Investigations. *Hours as required.*

Associate Professor Mast:

General Physiology and Animal Behavior. *Three lectures or conferences and two laboratory periods weekly, throughout the year.*  
Investigations in Animal Behavior. *Hours as required.*

#### MISCELLANEOUS

*Effect of Removal to Homewood:*—The new location of the laboratory, on the grounds at Homewood, has been of great advantage to all the zoological work, enabling us to keep in closer contact with living organisms in their natural environment and greatly facilitating experimental work. Naturally, in some matters of detail the temporary quarters are unsuited for the work; still further advantages will be realized when a biological laboratory is available. Our most immediate need is a small house for cultures and the keeping of living animals.

In the undergraduate instruction, the class in elementary biology has this year for the first time been able to collect amoeba and other organisms from the ponds preserved for that purpose and from cement tanks in the grounds adjacent to the laboratory, and thus a much greater interest and more adequate conception of organisms and environment was aroused in the students, as compared with the former years when the great distance and inaccessibility of the living materials used in class work necessitated the deputing of all the direct contact with environmental nature to the instructor, to the loss of the student.

It is much to be hoped that in the future this advantage of Homewood may be enhanced by the installation of added aquaria and pools and by the employment of suitable aid in the maintenance of the culture tanks and their protection from such thoughtless interference as naturally has resulted from the exposed location, and the years of comparative neglect which the grounds suffered before actual occupation.

On the other hand the new room assigned to the use of all the undergraduate instruction in Biology has proved inferior to the rooms occupied during some thirty years in the old biological

laboratory, since the present quarters are less in area, much less in space, and present far too inadequate window glass area; besides not having the former specialization for the purpose in hand and not having the separation of work and lecture room so desirable when three courses are to be conducted in the same area. The necessary crowding greatly hampered instruction despite the very patient submission of the students to the annoyances of mutual interferences and despite the ingenious efficiency devices of the assistant. One of the first improvements in the conditions for better work in college Biology will be the allotment of more space and window light.

It should also be emphasized that the biological work of the summer school added much to its effectiveness by being able to move out to Homewood even in the session of 1916, since the pools, tanks, museum and the botanic garden were thus for the first time available for the work of the summer school.

The courses in Biology in the summer school of 1916 were conducted by H. E. Enders (Ph.D., Johns Hopkins University), of Purdue University.

The student assistants in Zoology for the year were W. H. Taliaferro, H. S. Hopkins and Inez Coldwell.

The requirements for the doctor's degree were absolved by F. M. Root.

Professor Grave continues his work during the summer in charge of the course in Invertebrate Zoology at the Marine Biological Laboratory at Wood's Hole, Mass.

Professor Jennings gave four lectures on the Westbrook Foundation of the Wagner Free Institute of Science, of Philadelphia, on *Life, Death and Reproduction; Heredity and Evolution in the Simplest Organisms*. He also lectured for the Educational Committee of the City Club of Chicago, on *The Biology of Children in Relation to Education*; and before the Washington Academy of Science on *Observed Changes in Hereditary Characters in Relation to Evolution*.

#### PUBLICATIONS IN ZOOLOGY

The following list includes the publications that have appeared between July 1, 1916, and July 1, 1917:—

Churchill, E. P.

The Absorption of Nutriment from Solution by Fresh-water Mussels. *Journal of Experimental Zoology*, Vol. 21 (1916), pp. 403-429.

Jennings, H. S.

Heredity, Variation and the Results of Selection in the Uniparental Reproduction of *Diffugia corona*. *Genetics*, Vol. 1 (1916), pp. 407-534.

The Numerical Results of Diverse Systems of Breeding, with Respect to Two Pairs of Characters, Linked or Independent, with Special Relation to the Effects of Linkage. *Genetics*, Vol. 2 (1917), pp. 97-154.

Modifying Factors and Multiple Allelomorphs in Relation to the Results of Selection. *American Naturalist*, Vol. 51 (1917), pp. 301-306.

Observed Changes in Hereditary Characters in Relation to Evolution. *Journal of the Washington Academy of Sciences*, Vol. 7 (1917), pp. 281-301.

Mast, S. O.

The Relation between Spectral Colors and Stimulation in the Lower Organisms. *Journal of Experimental Zoology*, Vol. 22 (1917), pp. 471-528.

Mutation in Didinium Nasutum. *Anatomical Record*, Vol. 2 (1917), pp. 501-502.

The Vitality of Cysts of Didinium Nasutum. *Anatomical Record*, Vol. 2 (1917), p. 534.

The Significance of Conjugation in Didinium Nasutum. *Anatomical Record*, Vol. 2 (1917), pp. 525-536.

Mast, S. O. and Lashley, K. S.

Observations on ciliary currents in free-swimming Paramecia. *Journal of Experimental Zoology*, Vol. 21 (1916), pp. 281-293.

Mast, S. O. and Root, F. M.

Observations on Amoeba feeding on infusoria and their bearing on the surface-tension theory. *Journal of Experimental Zoology*, Vol. 21 (1916), pp. 33-46.

Taliaferro, W. H.

Literature for 1915 on the behavior of the lower invertebrates. *Journal of Animal Behavior*, Vol. 6 (1916), pp. 375-382.

Orientation to light in Planaria (n. sp.) and the function of the eyes. *Anatomical Record*, Vol. 2 (1917), pp. 524-526.

## II. BOTANY

Lectures and laboratory work have been conducted as follows:

Professor Johnson:

The Physiological Anatomy of Plants. Laboratory work, conferences and demonstrations. *Six hours a week, from February to June.*

Reproduction and Phylogeny in Plants. Conferences and laboratory work. *Nine hours a week, February 1 to June. Five field trips on Saturdays.*

The Structure of Root, Stem and Leaf. *Laboratory work, lectures and conferences. Six hours a week, from October 1 to February 1. Field trips on Saturdays.*

Botanical Seminary. (The Classification, Geographical Distribution and Economic Importance of the Monocotyledons.) *One hour a week, November to June.*

Laboratory Instruction and Research. *Daily, October to June.*

## JOURNAL CLUB

The botanists meet in conjunction with the zoologists and plant physiologists for the discussion of current literature.

## ADVANCED WORK

Professor Johnson during July, August and September, 1916, continued his study of the development and proliferation of the fruits of the cacti of Arizona, in the Harpswell Laboratory. The results of these studies are now ready for publication. Much time has been devoted by him to arranging for the co-operation of fifteen American botanical institutions in leasing the Cinchona Tropical Botanical Station for the use of American botanists. This laboratory is now under the control of a committee, consisting of D. S. Johnson, N. L. Britton and J. M. Coulter.

Doctor Grace A. Dunn (Ph. D., 1915), Fellow by Courtesy and Alice Freeman Palmer Fellow of Wellesley College for 1916-17, has initiated here a research on the experimental morphology of reproduction in the bread mould *Rhizopus nigricans*. Her work has already led to important results largely of a physiological nature.

W. E. Seifriz, Student Assistant in Botany, has initiated a study of the structure of protoplasm by the aid of microdissection.

## BOTANICAL GARDEN

Seeds and plants needed for the Garden and in the laboratories have been received from the garden of Lady Hanbury at Mortola, Italy, from the United States Department of Agriculture, the National Museum, and the Missouri Botanical Garden. A number of interesting living plants, native to the northeastern United States, were secured by Professor Johnson while in that region last summer.

The outdoor labels for showing the distribution of native trees have proven very successful. A series of similar labels indicating the geographical distribution of plants not native to North America is now being installed.

Considerable additions have been made during the year to the nursery of valuable shrubs and trees to be used about the grounds at Homewood as the location and construction of buildings is completed. Quite a number of these plants have already been used about Gilman Hall.

The usefulness of the Botanical Garden to members of the University has been greatly increased by the moving of the University to Homewood. The interest the Garden has for other Baltimoreans is evidenced by an ever-growing number of visitors, especially of students of the schools and colleges of the city.

## PUBLICATIONS IN BOTANY

D. S. Johnson.

Two New College Texts. (A review.) *Botanical Gazette*, Vol. 63, p. 324, 1917.

The Cinchona Tropical Station and its Advantages for American Botanists. *Science*. Vol. 45, p. 209, and *Botanical Gazette*, Vol. 63, p. 412, 1917.

Grace A. Dunn.

The Development of *Dumontia filiformis*. II. Antheridia and carpania. *Botanical Gazette*, Vol. 63, pp. 425-467, 1917.

*Needs of the Botanical Department.*—Courses in bacteriology and plant pathology and the desirability of an adequate biological building at Homewood, pointed out in earlier reports, are still our most important needs.

## III. PLANT PHYSIOLOGY

## ACADEMIC WORK

The general course for orientation in this subject (Course I of the *University Register*) was conducted in regular form with an attendance of seven for the lectures and five for the laboratory work. The lectures were given mainly by Professor Livingston and the laboratory work was in charge of Doctor Pulling, who also gave the lectures on photosynthesis. The course on the application of plant physiology to other lines of study (Course III of the *University Register*) was not offered this year, but much of its subject-material was included in the conferences of the course on special problems (Course II of the *University Register*), which was again conducted as an irregular series of informal personal conferences on the early stages of experimental investigations actually being taken up. It was conducted by Professor Livingston and Doctor Pulling. The course on planning, interpretation and presentation of experimental studies (Course IV of the *University Register*) was offered this year for the first time by Professor Livingston, with an attendance of seven. It developed into a series of informal discussions on usually neglected details of logical thinking and analysis and of clear writing, as applied to physiological research.

During the year five students completed the University requirements for the doctor's degree with plant physiology as principal subject, and the degree was conferred upon them in June. Two students completed the requirements for a subordinate in plant physiology. From the establishment of this department, in October, 1909, to June, 1917, the Ph.D., degree has been conferred on nine students with plant physiology as principal subject—an average of about one per year. During the same period fifteen students have completed work in this subject as a subordinate. No undergraduate work has been conducted and no master's degrees have yet been conferred in plant physiology. Of those who have received the doctor's degree with plant physiology as principal subject, one is now



employed in the Bureau of Plant Industry of the U. S. Department of Agriculture, four are employed in state agricultural experiment stations, two are on the staff of the School of Agriculture of the University of the Philippines, and two hold commissions in the U. S. Army.

#### RESEARCH AND RELATED ACTIVITIES

The main effort of the Laboratory of Plant Physiology has continued to be directed toward advancing this science through the accomplishment and publication of original research, and special attention has been given to fundamental physiological problems that give promise of furthering progress in the arts of forestry and agriculture as well as in physiological science as such. Practical problems are not allowed to influence these activities, however, excepting as they furnish suggestions for the choosing of scientific problems upon which serious work may be undertaken. This emphasis upon the basic role to be played by the science of plant physiology in the future progress of the art of plant production is becoming generally recognized, especially with the present world-wide emphasis upon the importance of a scientifically efficient agriculture and forestry to human welfare in general.

A considerable portion of the researches hitherto carried out in this laboratory were suggested by studies originally begun in the arid Southwest, where the influence of the environmental moisture conditions upon plant growth and development is peculiarly patent. It is generally true that the nature of the physiological influence exerted upon an organism by any particular kind of external condition may be much more readily appreciated if the organisms observed are subjected to somewhat pronounced extremes of the condition in question. This is why plant water relations are more generally apparent in an arid than in a humid region. As work has progressed toward a more satisfactory appreciation of the water relations of plants it has become apparent that temperature and light relations require to be studied from the same general point of view, and some attention has already been given to these environmental features. It seemed desirable to supplement the viewpoint of our studies on the conditional control of plant processes by a personal acquaintance with the more superficial aspects of plant growth in a region where temperature rather than moisture is the condition of greatest influence. To accomplish this, and also to gain a superficial familiarity with some aspects of plant behavior when the diurnal period of sunlight is exceptionally prolonged, Professor Livingston and Doctor Pulling spent the latter half of the summer of 1916 in making a preliminary ecological survey of the middle portion of the Nelson river valley, northern Manitoba, in latitude 54° to 56° north. While little quantitative information could be obtained on a canoe trip of this kind, numerous enlightening suggestions were derived from their observations.

On this excursion Professor Livingston and Doctor Pulling made some preliminary observations on light conditions, employing a simple radiation thermometer and photo-sensitive paper. At the same time Professor Livingston collected data for a preliminary study of the rate of tree growth as influenced by climatic conditions

in general and as a criterion for the comparison of different climatic complexes. Doctor Pulling also carried out a study of soil conditions as related to root distribution in this northern region, where such work had not previously been undertaken.

In Baltimore, Professor Livingston has devoted much of the academic year here considered to the perfecting of plans for the artificial control of temperature and moisture conditions for physiological experimentation. With the assistance of Mr. H. S. Fawcett (Associate Professor of Plant Pathology in the Citrus Experiment Station of the University of California, on leave of absence; Johnston Scholar in this University for the year 1916-1917), a large differential thermostat has been planned, constructed and installed. Professor Livingston has also completed plans for three large, glass culture chambers, for the artificial control of temperature and air humidity. These will be employed in experimental studies on the influence of these environmental conditions upon plants growing with natural light fluctuations. With the assistance of Mr. W. E. Tottingham (Assistant Professor of Agricultural Chemistry, University of Wisconsin, on leave of absence for the year 1916-17), these chambers have been erected and a portion of the controls have been installed.

Professor Livingston has also given considerable attention to the further perfecting of the porous-cup atmometer and the radiatmometer, both of which instruments have been mentioned in earlier reports. He also carried out, with the assistance of Mr. E. S. Johnston, a first study on incipient drying and temporary and permanent wilting in plants with their roots in water and their shoots in the rather humid conditions of the experiment greenhouse.

Professor Livingston served as chairman of the Committee on Climatic Conditions, of the Ecological Society of America, a committee for the formulating of plans and the making of recommendations regarding research on the climatic relations of animals and plants. He has continued as managing editor of *Physiological Researches*, and has completed the editorial work on an annotated English translation of Palladin's *Plant Physiology*, based largely on the German translation of the sixth Russian edition, but including the changes made in the seventh Russian edition. This manuscript is now in the hands of the publishers.

Doctor Pulling has continued his studies on the capillary movement of soil moisture as related to water absorption by plants.

Mr. Fawcett made a preliminary study of the relation of temperature to the growth of certain parasitic fungi in culture media, especially with reference to citrus diseases in Florida and California. This work will be continued.

Doctor Donald Reddick, Professor of Plant Pathology in Cornell University (on leave of absence for this year, during which he has been Fellow by Courtesy in the Johns Hopkins University), conducted preliminary studies on the relation of the physiological tone of the host plant to its susceptibility to infection by fungus parasites. Three different methods were employed to obtain bean-plants of different degrees of tone or vigor; (1) causing the plants to absorb

their water supply against different amounts of resistance in the soil; (2) subjecting the plants to widely different soil temperatures while the air temperature was practically the same in all cases; and (3) causing the plants to absorb their nutrient salts from nutrient solutions all of which had the same lowering of the freezing-point but each of which differed from the others in the proportions of nutrient salts.

Mr. E. E. Free continued, and brought to a satisfactory temporary termination, his experimental study of the relation of the free oxygen content of the soil to the health of ordinary rooted plants. Mr. Free received the degree of Ph.D. in June and immediately took charge of the research department of the National Sulphur Company. He afterwards received a commission in the U. S. Army.

Mr. F. M. Hildebrandt continued the interpretation of data obtained by Dr. McLean (now of the College of Agriculture of the University of the Philippines) in the summer of 1914, on the relation of climatic conditions to plant growth at a number of widely distributed stations in Maryland. This work has been carried on partly under the auspices of the Maryland State Weather Service, and the results form a second contribution on this subject. Mr. Hildebrandt received the Ph.D., degree in June and was engaged in plant physiological research in the Bureau of Plant Industry of the U. S. Department of Agriculture until he received a commission in the U. S. Army.

Mr. E. S. Johnston made an experimental study of the seasonal variations throughout the year in the climatic conditions of one of the experimental greenhouses, as these variations are related to plant growth. Mr. Johnston received the Ph.D. degree in June and is now engaged in research in agricultural climatology at the Maryland Agricultural Experiment Station.

Mr. W. E. Tottingham, Assistant Professor of Physiological Chemistry in the University of Wisconsin and the Wisconsin Agricultural Experiment Station, on leave of absence this year, prepared his dissertation on the relation of chlorides to the growth of certain agricultural plants (especially the sugar-beet and potato), the experimentation therefor having been accomplished mainly at the University of Wisconsin. He also continued his studies on plant nutrition in water-cultures. It will be recalled that he spent the year 1912-13 in this laboratory, making a very thorough study of liquid media for plant growth, a report of which has been published. Mr. Tottingham received the Ph. D. degree in June and has returned to his position in the University of Wisconsin.

Mr. S. F. Trelease made an experimental study of the relation between the growth of wheat and the total concentration and salt proportions of a water-culture medium containing all the necessary chemical elements and also chlorine, as potassium chloride. Mr. Trelease received the Ph.D., degree in June and is now Associate Professor of Botany in the University of the Philippines.

Mr. F. S. Holmes has made a preliminary study of the possibility of artificially causing a continuous movement of water (or nutrient

solution) through a mass of soil, while the moisture content of the soil is maintained comparatively low.

#### THE LABORATORY OF PLANT PHYSIOLOGY

During the year in question the apparatus and materials belonging to the laboratory have been thoroughly catalogued by Doctor Pulling, so that it may now be readily determined just what is in stock, where it is, or to whom it has been assigned. Considering the continually increasing number of items in our list of apparatus and supplies, together with the crowded condition of the stock-room, this card index is proving to be a very great help toward the avoidance of waste and duplication in equipment and toward general efficiency. Professor Livingston has been assisted in various ways during the year by Mr. Fawcett, Mr. Johnston, Mr. Free and Miss W. Brenton.

As in previous years, an attempt has been made to utilize the somewhat expensive equipment of this laboratory throughout the entire year, so that the investment has not been allowed to be totally unproductive during the summer months. Professor Livingston and Doctor Pulling continued their work into the summer of 1916, until August 15, when they left for the far north. Mr. Free's experiments were continued until August 1, and Mr. Johnston's series of cultures for the study of naturally varying climatic conditions extended without break from February, 1916, to March, 1917.

Aside from a number of smaller pieces of apparatus and the supplies of various materials required by the researches that have been in progress, two larger and permanent improvements in the equipment of the Laboratory of Plant Physiology have been wholly or partially installed during this year. As has been mentioned, a large differential thermostat has been devised and constructed. This is located in one of the greenhouse rooms, and has the external form of a rectangular box, 25 inches high, 24 inches wide and 14 feet long. It consists essentially of a galvanized iron tank with cross partitions dividing it into ten compartments, the whole furnished with hair insulation. A large compartment at one end contains water and ice. Next to this is a narrow buffer compartment of water with mechanical stirrers, which may be heated when necessary. Then follow seven compartments, each of which contains a water-jacketed chamber opening at the top, the water-jacket being provided with stirrers in each case. The series ends with a small compartment of water with electric heating control and also mechanical stirrers. One end is kept at a low temperature and the other at a high temperature, and a permanent temperature gradient is maintained throughout the series of culture chambers. This apparatus is being used in the experimental study of the influence of temperature upon organisms in the absence of light and has proved very satisfactory.

A beginning has been made in the construction of lighted chambers with automatic control of temperature and air humidity, but these are not yet in operation. They are three in number and are placed in one of the greenhouse rooms. Each consists of a cubical, double-walled, glazed chamber, four feet on a side, provided with rotating

table for cultures. The chambers themselves are finished but the controls are not yet complete. They are planned for the experimental study of temperature and air humidity conditions as these influence the growth of plants that are subjected to the natural fluctuations of light and darkness.

Of the future needs of this department mentioned in the report for 1914-15, that of somewhat increased laboratory space is most pressing. During 1916-17 the rooms have not properly sufficed for the work in hand, so that actual inconvenience and hindrance have frequently resulted, although these have been circumvented by special arrangements, such as the employment of the hall on the second floor as a work-room. The completion of the range of buildings at the south side of the Batonical Garden, as originally planned, ought to be achieved as soon as may be.

The importance of plant physiology as the science underlying agriculture, together with the increasing general appreciation of the need for scientific efficiency in agricultural work, emphasizes another opportunity for increased facilities which has not previously been mentioned. As the investigation of the conditions that control plant growth progress it becomes more and more obvious that an experiment plot of ground in the open would greatly facilitate the extension of our experimentation through field or garden tests, which may aid greatly in the application of our scientific findings to the industries of plant production.

#### PUBLICATIONS IN PLANT PHYSIOLOGY

Cannon, W. A., and E. E. Free.

The ecological significance of soil aeration. *Science N. S.* 45: 178-180. 1917.

Free, E. E.

An ancient lake basin on the Mohave river. *Carnegie Inst. Wash. Year Book* 15: 90-91. 1917.

Underground structure and artesian water in desert valleys of the Great Basin. *Carnegie Inst. Year Book* 15: 91-94. 1917.

Livingston, B. E.

A quarter-century of growth in plant physiology. *Plant World* 20: 1-15. 1917.

The laboratory of plant physiology. *Johns Hopkins Univ. Circ.*, whole number 290: 40-45. 1916.

The department of plant physiology. *Ibid.*, whole number 293: 133-154. 1917.

List of publications from the laboratory of plant physiology. *Ibid.*, 293: 154-159. 1917.

Atmometric units. *Ibid.*, 293: 160-170. 1917.

The vapor tension deficit as an index of the moisture conditions of the air. *Ibid.*, 293: 170-175. 1917.

Incipient drying and temporary and permanent wilting of plants,

as related to external and internal conditions. *Ibid.*, 293: 176-182. 1917.

Livingston, B. E., and E. E. Free.

Relation of soil aeration to plant growth. *Carnegie Inst. Wash. Year Book* 15: 78. 1917.

The effect of deficient soil oxygen on the roots of higher plants. *Johns Hopkins Univ. Circ.*, whole number 293: 182-185. 1917.

Livingston, B. E., and F. T. McLean.

A living climatological instrument. *Science N. S.* 43: 362-363. 1916.

Livingston, B. E., and Edith B. Shreve.

Improvements in the method for determining the transpiring power of plant surfaces by hygrometric paper. *Plant World* 19: 287-309. 1916.

Livingston, B. E., and F. Shreve.

The role of climatic factors in determining the distribution of vegetation in the United States. *Carnegie Inst. Wash. Year Book* 15: 69-72. 1917.

Pulling, H. E.

The angular micrometer and its use in delicate and accurate microscopic measurements. *Amer. Jour. Bot.* 3: 393-406. 1916.

The experimental determination of a dynamic soil-moisture minimum. *Johns Hopkins Univ. Circ.*, whole number 293: 186-188. 1917.

Some unusual features of a subarctic soil. *Ibid.*, 293: 188-190. 1917.

Fawcett, H. S.

The geographical distribution of the citrus diseases, melanose and stem-end rot. *Ibid.*, 293: 190-193. 1917.

Preliminary note on the relation of temperature to the growth of certain parasitic fungi in cultures. *Ibid.*, 293: 193-194. 1917.

Free, E. E.

Symptoms of poisoning by certain elements in *Pelargonium* and other plants. *Ibid.*, 293: 195-198. 1917.

The effect of aeration on the growth of buckwheat in water-cultures. *Ibid.*, 293: 198-199. 1917.

Free, E. E., and S. F. Trelease.

The effects of certain mineral poisons on young wheat plants in three-salt nutrient solutions. *Ibid.*, 293: 199-201. 1917.

Hildebrandt, F. M.

Leaf-production as an index of growth in soy-bean. *Ibid.*, 293: 202-205. 1917.

A method for approximating sunshine intensity from ocular observations of cloudiness. *Ibid.*, 293: 205-208. 1917.

Holmes, F. S.

Moisture equilibrium in pots of soil equipped with auto-irrigators. *Ibid.*, 293: 208-210. 1917.

Johnston, E. S.

Seasonal variations in the growth-rates of buckwheat plants under greenhouse conditions. *Ibid.*, 293: 211-217. 1917.

McLean, F. T.

A preliminary study of climatic conditions in Maryland, as related to plant growth. *Physiol. Res.* 2: 129-208. 1917.

Tottingham, W. E.

On the relation of chlorine to plant growth. *Johns Hopkins Univ. Circ.*, whole number 293: 217-221. 1917.

Trelease, S. F.

A study of salt proportions in a nutrient solution containing chloride, as related to the growth of young wheat plants. *Ibid.*, 293: 222-225. 1917.

The relation of the concentration of the nutrient solution to the growth of young wheat plants in water-cultures. *Ibid.*, 293: 225-227. 1917.

Trelease, S. F., and E. E. Free.

The effect of renewal of culture solutions on the growth of young wheat plants in water-cultures. *Ibid.*, 293: 227-228. 1917.

HERBERT S. JENNINGS,

*Director of the Zoological Laboratory.*

DUNCAN S. JOHNSON,

*Director of the Botanical Laboratory.*

BURTON E. LIVINGSTON,

*Director of the Laboratory of  
Plant Physiology.*

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## REPORT OF THE DEAN OF THE COLLEGE FACULTY, 1916-17

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TO THE PRESIDENT OF THE UNIVERSITY:

The year opened in the new quarters at Homewood with an overwhelming inrush of new students, but it was found possible to make the necessary provision for additional classes without serious difficulty. The courses offered were those listed in the reports of the several departments and did not materially differ from those of previous years.

The Gymnasium Department, however, underwent exceptional expansion by the introduction of a new course in Military Training. With the approval of the Board of Trustees, there was organized at the University a unit of the Senior Division of the Reserve Officers' Training Corps under the direction of an officer detailed by the United States Government, assisted by two non-commissioned officers similarly detailed.

As arranged, the course calls for two drills and one lecture weekly, with supplementary tactical exercises from time to time. It is optional, but when once elected must be followed for two years, as a prerequisite for graduation. Though the course was offered primarily for first and second year students, as an alternative for physical exercise, many upper classmen also enlisted, and a battalion of over one hundred and fifty was formed. After the declaration of war in April, a new impetus was given to the work, and many additional students were enrolled for a period of intensive training. The arms were furnished by the Government.

A supplementary course of five hours a week for two years will be organized as an elective for those students who have had the first two years' work.

When the call for service came, the undergraduate body was not slow to respond, as will be seen by the list below. Many others felt that they could be of service to the country in other lines and withdrew during the last term to lend a helping hand to the farmers.

To all these men provisional marks were given, and they may receive full credit for the term's work if they pass their future courses after their return to college.

Classes were kept up to the end of the term, despite so many withdrawals, but the Board of Collegiate Studies voted to substitute class-room tests for the usual three-hour final examinations.

At the request of the student body, the Board also voted to begin classes at eight-thirty instead of nine o'clock. This was done from the Easter recess on and was found to be satisfactory enough to continue into the coming year.

MURRAY P. BRUSH,  
*Dean of the College Faculty.*



## UNDERGRADUATES (1916-17) IN THE SERVICE

NAME	DEPARTMENT	SERVICE
S. E. Abrams.	Engineering.	Naval Reserve (furlough).
T. W. Allen.	College.	Naval Militia.
W. C. Alvey.	Engineering.	Naval Reserves.
H. S. Baker.	Engineering (B.S., 1917).	1st Lt., Engineers, U. S. R.
W. B. Baxley.	Engineering (B.S., 1917).	2nd Lt., Engineers, U. S. R.
J. O. Benson.	Engineering.	Naval Militia.
C. D. F. Brune.	College.	Field Artillery, U. S. R.
F. R. Calkins.	College.	Reserve Officers Tr. Corps.
M. B. Carroll.	College.	Aviation Corps.
A. K. Chalmers.	College.	Y. M. C. A. (Camp Meade & France).
C. W. Chesley.	Engineering (B.S., 1917).	1st. Lt., Engineers, U. S. R.
S. I. Clark.	College.	1st Sergt., Ambulance Corps.
W. L. Clark.	College.	Ambulance Corps (France).
L. B. Connolly.	College.	Field Artillery, U. S. R.
B. H. Conn.	College (A. B., 1917).	Ambulance Corps.
Hugh Cort.	College.	Field Artillery, U. S. R.
R. A. Cox.	College.	Naval Militia (furlough).
W. F. Cromwell.	College.	Field Artillery, U. S. R.
M. J. Cromwell.	College.	Field Artillery, U. S. R.
J. S. Dempster.	Engineering.	Naval Militia.
R. N. Dempster.	Engineering.	Naval Militia.
R. R. Duncan.	College.	2nd Lt., Field Artill., U. S. R.
J. W. Darley.	Engineering (B.S., 1917).	1st Lt., Engineers, U. S. R.
A. C. Davis.	College (A. B., 1917).	Naval Militia.
F. W. Dawson.	College (A. B., 1917).	Ambulance Corps.
S. W. Egerton.	College.	Field Artillery, U. S. R.
E. E. Evans.	Engineering.	Naval Reserves.
H. C. Evans.	College.	Ambulance Corps (France).
R. W. Evitt.	Engineering (B.S., 1917).	2nd Lt., Aviation Corps.
M. C. Fenton.	College.	Field Artillery, U. S. R.
Robert France.	College (A. B., 1917).	Quartermaster's Corps, A. E. F.
H. F. W. Frank.	College (A. B., 1917).	1st Sergt., Ambulance Corps.
W. J. Fulton.	College.	Medical Corps, Camp Meade.
G. G. Gatchell.	College.	Field Artillery, U. S. R.
H. J. Gorman.	College (A. B., 1917).	1st Lt., U. S. Artillery.
W. G. Gressitt.	Engineering.	Naval Militia (furlough).
E. G. Hall.	Engineering (B.S., 1917).	2nd Lt., Engineers, U. S. R.
G. M. Hampson.	Engineering.	Naval Militia.
W. C. Harden.	College.	Naval Reserves.
R. G. Hoffman.	College.	Aviation Corps.
R. B. Holmes.	Engineering.	117th Trench Mort. Bat. (Fr.).
A. W. Jacobsen.	College.	Field Artillery, U. S. R.
L. E. Johnston.	Engineering.	Aviation Corps.
L. B. Kellum.	Engineering.	Reserve Officers Tr. Corps.
H. F. Knipp.	Engineering.	Naval Reserves.
M. B. Kohn.	College.	Field Artillery, U. S. R.
O. H. Lambert.	College.	Ambulance Corps.

C. C. Marbury.	College.	Field Artillery, U. S. R.
Malcolm Marty.	College.	Naval Reserves (furlough).
R. E. Martz.	Engineering.	Aviation Corps (England).
A. S. McCabe.	Engineering.	2nd Lt., U. S. Field Artillery.
W. A. McKewen.	College.	Ambulance Corps.
Otto Melamet.	Engineering.	1st Lt., Aviation Corps.
R. G. Merriek.	College (A. B., 1917).	1st Lt., U. S. A.
Ferdinand Meyer.	College.	Naval Militia.
J. M. Mowbray.	Engineering (B.S., 1917).	National Army.
G. S. Newcomer.	College.	Clerk, Government Service.
T. G. Parkman.	College.	Clerk, Dept of State.
Abraham Pikoos.	Engineering.	Field Signal Corps.
C. G. Pitt.	College.	Field Artillery, U. S. R.
Alexander Randall.	College.	Field Artillery, U. S. R.
W. A. Reaney.	College.	Field Artillery, U. S. R.
J. D. Roop.	College & Engineering (A. B. & B. S., 1917)	National Army.
J. G. Rouse.	College.	U. S. Infantry.
D. H. Rowland.	Engineering.	Field Artillery. U. S. R.
H. A. Rowland.	Engineering.	Field Artillery. U. S. R.
E. O. Shaw.	College (A. B., 1917).	Ambulance Corps.
G. B. Shawn.	Engineering.	U. S. Infantry.
W. H. Skinner.	College (A. B., 1917).	2nd Lt., U. S. A.
F. R. Smith, Jr.	College.	Field Artillery, U. S. R.
W. A. Strauss.	College.	Ambulance Corps.
W. H. Stokes.	College.	Field Artillery, U. S. R.
W. T. Ström.	College.	Field Artillery, U. S. R.
B. A. Sullivan.	Engineering.	Naval Reserves.
E. G. Stapleton.	Engineering.	National Army.
F. W. Sutton.	College.	Y. M. C. A. (Camp Meade).
W. H. Swartz.	College.	Reserve Officers Tr. Corps.
E. LeRoy Smith.	Engineering (B.S., 1917).	Engineers, U. S. R.
E. L. R. Smith.	College (A. B., 1917).	Field Artillery, U. S. R.
Randolph Smith.	College (A. B., 1917).	U. S. Navy (Radio Service).
P. B. Strobel.	Engineering (B.S., 1917).	Coast Artillery.
E. M. Stuart.	Engineering (B.S., 1917).	2nd Lt., Engineers, U. S. R.
W. L. Taylor, Jr.	College.	Naval Militia.
J. T. Thompson.	Engineering (B.S., 1917).	1st Lt., Engineers, U. S. R.
H. C. Thurman.	College.	Ambulance Corps.
G. D. Turner.	College.	Field Artillery, U. S. R.
J. M. C. Van Hulsteyn.	Engineering.	Aviation Corps.
W. H. Walker.	Engineering.	Naval Reserves.
E. L. Warner.	College.	U. S. Infantry.
Emanuel Wasserman.	Engineering.	Coast Artillery.
J. L. Webb.	College.	Field Artillery, U. S. R.
P. R. Wiggins.	College.	Hospital Service, San Domingo.
F. H. Wilson.	College (A. B., 1917).	2nd Lt., Engineers, U. S. R.
E. S. Wood.	Engineering.	Naval Reserves.
W. A. Wood.	Engineering (B.S., 1917).	2nd Lt., Engineers, U. S. R.
R. H. Woodward.	College.	Ensign, U. S. N.
J. W. Young.	Engineering.	Naval Reserves.
L. M. Young.	Engineering (B.S., 1917).	Aviation Corps (England).

## REPORT OF THE DIRECTOR OF THE COLLEGE COURSES FOR TEACHERS

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### TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor to submit the following report on the work of the College Courses for Teachers, conducted in co-operation with Goucher College, during the academic year, October 9, 1916, to May 26, 1917.

This is the eighth year of these courses, the plans for which are stated in detail in the *University Circular* of June, 1916. Of the courses announced, instruction of collegiate grade was given in the following: History of Art; Chemistry; Education I, II, III, IV and V; English I, II and III; French I, II and III; German I, IIA, IIB and III; History; Hygiene; Italian; Mathematics; History of the Ancient East, History of Israel, Biblical Archaeology, and Literature of the Bible; Political Economy I, II and III; Psychology I and II; Spanish I and II. Owing to the small registration, the course announced in Latin was not given. Political Economy IV (Life Insurance) was transferred, so as to be given under the auspices of the newly organized Courses in Business Economics. At the opening of the session, two new courses were added: Educational Measurements, by Professor Bird T. Baldwin, of Swarthmore College, newly appointed Lecturer in Education; and Genetic Psychology, by Professor Howard C. Warren, of Princeton University, newly appointed Fellow by Courtesy. Education IV was conducted after December by Dr. David E. Weglein, Fellow by Courtesy. These courses were conducted by thirty-one instructors, six of whom were members of the staff of Goucher College, the remainder of the University.

The enrollment in the courses was four hundred twenty-nine the first half-year, and three hundred sixty the second half-year, the total enrollment for the year being four hundred thirty-six, an increase of ninety-three over the preceding year. Forty-three of these were duplicate registrations from other divisions of the University, as follows: Twenty graduate, three medical, seventeen academic, and three engineering. The primary registration of the year in the College Courses for Teachers was three hundred ninety-three, an increase of ninety-seven over the preceding year. Eighty-seven were men and three hundred forty-nine were women. Of the three hundred forty-three students registered in the courses last year, ninety-two continued their registration this year. This gratifying number indicates a growing stability in the registrations in this division of the University, which we may reasonably expect to increase owing to the establishment of the Bachelor of Science degree. There were twenty-nine graduate students among those primarily registering in these courses. This is an increase of nearly fifty per cent. in the corresponding group of last year, and indicates that instructional

service in these courses supplements the usual college course and is correspondingly vocationalized. The amount of work accomplished is best indicated by the following figures: Four students registered in seven courses, six in six courses, two in five courses, five in four courses, eleven in three courses, fifty-three in two courses, and three hundred fifty-five in one course, each. The increased amount of work undertaken by some of these students is due to the new situation in which candidates for the degree of Bachelor of Science are giving full time to the work leading to the degree. There were fifty candidates for the degree attending the courses this year. The remaining three hundred eighty-six were, accordingly, and for the first time, listed as special students.

The occupational distribution of the persons registered continues to indicate the widening range of professional and commercial interests in our community which the University is serving: Teachers and those in preparation for teaching, two hundred sixty-seven; no occupation, sixty-two; students, fifty-three; social workers and nurses, twenty-four; secretaries, etc., thirteen; clergymen, three; manufacturers, three; merchants, two; a single representative of each of the following: agent of the United States Department of Agriculture, librarian, physician, lawyer, sculptor, photographer, water engineer, insurance agent, and bookkeeper.

The annual conference of the presidents and deans of the two institutions, with the instructors in these courses, was held on May 19, 1917. The following amounts of credit for the courses were recommended and authorized: History of Art, six points; Chemistry, six points; Education I, six points (for a grade of eight or more), four points (for a grade of six or less than eight); Education II, six points (for a grade of eight or more), four points (for a grade of six or less than eight); Education III, two points; Education IV, six points (for a grade of eight or more), four points (for a grade of six or less than eight); Education V, two hours, six points (for a grade of eight or more), four points (for a grade of six or less than eight), third hour on Supervision, two points additional; Educational Measurements, six points (for a grade of eight or more), four points (for a grade of six or less than eight); English I, six points (for a grade of eight or more), four points (for a grade of six or less than eight); English II, six points; English III, six points (for a grade of eight or more), four points (for a grade of six or less than eight); French I, eight points; French II, four points; French III, six points; German I, eight points; German IIA, three hours, eight points (for a grade of eight or more), six points (for a grade of six or less than eight), two hours, six points (for a grade of eight or more), four points (for a grade of six or less than eight); German IIB, four points; German III, six points; History, six points; Hygiene, six points; Italian, six points; Mathematics, six points; History of the Ancient East, from two to three points; History of Israel, two points; Biblical Archaeology, two points; Biblical Literature, two points; Political Economy I, six points; Political Economy II, six points; Political Economy III, six points; Psychology I, four points, with laboratory, three points additional; Psychology II, from four to six points; Genetic Psychology, three points; Spanish I, six points;

Spanish II, six points. It was voted that all credits recommended be made a matter of permanent record in the office of the Registrar, as heretofore.

In October, 1916, the Trustees of the University conferred the degree of Bachelor of Science upon Mary Stella Johnson, of Georgia, who had completed the requirements during the preceding session of the Summer Courses. On June 12, 1917, the degree was conferred upon Agnes Emilie Buchholz and Elsie Louise Wirth, both of Baltimore.

EDWARD F. BUCHNER,

*Director.*

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## REPORT OF THE DIRECTOR OF THE SUMMER COURSES

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TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor to present the following report of the seventh session of the Summer Courses of the University, which was held during the six weeks from June 26 to August 7, 1917.

The co-operation with other agencies in the preparation and perfection of the plans for the session was more marked in this than in any former session. The Maryland Institute, which had conducted a summer session in 1916, co-operated with the University to the extent of including its summer faculty and courses entire as the department of Fine Arts of the session. With the exception of the elementary instruction in drawing, these courses were given academic recognition and duly credited towards the Bachelor of Arts and Bachelor of Science degrees. This closer connection between the Maryland Institute and the University was pursuant upon the completion of plans during the last regular session whereby work at the Institute could be offered in partial fulfillment of the requirements of a major in fine arts for the Bachelor of Science degree. The continued benefits of the survey of education in Maryland by the General Education Board became more apparent during this year. The new legal requirements, affecting particularly the certification of educational officials and teachers, made it possible to secure more definite selection of departments and courses for the benefit of prospective students. In further extension of the benefits of this survey, the General Education Board generously delegated Dr. Frank P. Bachman to conduct a week's conference with the County Superintendents at the University on the administrative features of the new school law. State and county superintendents continued to give their assistance in making the opportunities of the University more distinctly serviceable in meeting the needs of the State. The Carnegie Foundation for International Peace again placed this university upon its list of institutions in whose summer sessions it maintained, by gift, courses in international law and Spanish in their relation to American and international affairs. The Board of School Commissioners of Baltimore continued to co-operate with the University by supplying the equipment in domestic science and manual training, and in furnishing some materials of instruction for the graded demonstration school. The Directors of the Park School of Baltimore generously gave the use of their school-room equipment and much of their distinctive material of instruction for use in both the graded and rural demonstration schools. The A. N. Palmer Company, of New York, continued to make provision for instruction in penmanship. As in former years, the Peabody Conservatory continued its extended co-operation. Special gifts were received from three anonymous donors for the support of summer instruction in the department of Semitics.

The scope of the instruction offered included a total of one hundred four courses in the twenty-three subjects listed below. Classical Archaeology, Fine Arts, Philosophy, and Semitics were the subjects offered for the first time. Of the courses announced, Classical Archaeology, Chemistry 3, Education 4, Geography 1, Mathematics 3 and 4, Philosophy 2, Physics 1 and 2, and Semitics 1 and 3 were not given. In response to special demands, unannounced courses were given in Advanced Organic Chemistry, Qualitative Analysis, Integral Calculus in place of Mathematics 3, and Advanced Algebra in place of Mathematics 4. Fine Arts 8 and 9 were combined into a single course; as also, in part, Manual Training 1 and 2.

The persons appointed to give instruction were as follows:

*Biology* ..... 3 courses.

Howard E. Enders, Instructor in Summer Courses.

Charles E. Montgomery, Assistant.

*Chemistry* ..... 6 courses.

J. Elliott Gilpin, Professor.

Benjamin F. Lovelace, Associate Professor.

Ellis Miller, Instructor.

Louise Talbot, Laboratory Assistant.

*Classical Archaeology* ..... 1 course.

Ralph V. D. Magoffin, Associate Professor.

*Domestic Science* ..... 3 courses.

May Seerest, Instructor in Summer Courses.

*Economics* ..... 3 courses.

Nathaniel R. Whitney, Instructor in Summer Courses.

*Education* ..... 23 courses

Alda L. Armstrong, Instructor in Summer Courses.

Frank P. Bachman, Instructor in Summer Courses.

Bird T. Baldwin, Instructor in Summer Courses.

Florence E. Bamberger, Instructor.

Julia F. Beck, Teacher in Graded Demonstration School.

Anna Brochhausen, Instructor in Summer Courses.

Helen M. Burnett, Teacher in Graded Demonstration School.

Clarence G. Cooper, Instructor in Summer Courses.

Ida V. Flowers, Teacher in Graded Demonstration School.

Thomas W. Gosling, Instructor in Summer Courses.

William J. Holloway, Instructor in Summer Courses.

George L. Jones, Instructor in Summer Courses.

Edith A. Lathrop, Instructor in Summer Courses.  
 C. Ethel MacRoberts, Instructor in Summer Courses.  
 Frederick A. Merrill, Instructor in Summer Courses.  
 Persis K. Miller, Lecturer in Summer Courses.  
 Bessie G. Reinhold, Assistant in Rural Demonstration School.  
 Willard S. Small, Instructor in Summer Courses.  
 Maude B. Smith, Teacher in Graded Demonstration School.  
 Matilda Srager, Teacher in Graded Demonstration School.

*English Composition* ..... 4 courses.

Ernest J. Becker, Instructor in Summer Courses.  
 Chilton L. Powell, Instructor.

*English Literature* ..... 4 courses.

Chilton L. Powell, Instructor.  
 James W. Tupper, Instructor in Summer Courses.

*Fine Arts* ..... 11 courses.

George A. Conlon, Instructor in Summer Courses.  
 Henry A. Roben, Instructor in Summer Courses.  
 Carol M. Sax, Instructor in Summer Courses.  
 Edith H. Stewart, Instructor in Summer Courses.  
 C. Y. Turner, Instructor in Summer Courses.  
 Charles H. Webb, Instructor in Summer Courses.

*French* ..... 3 courses.

Gustav Gruenbaum, Instructor.

*Geography* ..... 2 courses.

David G. Thompson, Instructor in Summer Courses.

*German* ..... 5 courses.

Robert B. Roulston, Associate.  
 Henry Wood, Professor.

*History* ..... 4 courses.

Elbert J. Benton, Instructor in Summer Courses.  
 Howard V. Canter, Instructor in Summer Courses.

*Latin* ..... 2 courses.

Howard V. Canter, Instructor in Summer Courses.

*Manual Training* ..... 3 courses.

George M. Gaither, Instructor in Summer Courses.



<i>Mathematics</i> .....	4 courses.
Arthur B. Coble, Associate Professor.	
<i>Penmanship</i> .....	2 courses.
Jack London, Instructor in Summer Courses.	
<i>Philosophy</i> .....	2 courses.
Henry Slonimsky, Associate.	
Israel I. Efros, Instructor in Summer Courses.	
<i>Physics</i> .....	5 courses.
Joseph S. Ames, Professor.	
A. Herman Pfund, Associate Professor.	
<i>Politics</i> .....	2 courses.
Arthur C. Millsbaugh, Instructor in Summer Courses.	
<i>Psychology</i> .....	4 courses.
Knight Dunlap, Professor.	
George R. M. Wells, Instructor in Summer Courses.	
<i>Semitics</i> .....	6 courses.
Frank R. Blake, Associate.	
Aaron Ember, Associate Professor.	
<i>Spanish</i> .....	2 courses.
Erasmó Buceta, Instructor.	

Nineteen of the instructors and assistants were members of the University. To these were added the following representatives of other institutions and school systems: Dr. Frank P. Bachman, of the General Education Board; Professor Bird T. Baldwin, of Swarthmore College; Miss Julia F. Beck, Practice Teacher, Baltimore City Schools; Dr. Ernest J. Becker, Principal, Eastern High School, Baltimore; Professor Elbert J. Benton, of Western Reserve University; Principal Anna Brochhausen, of the Indianapolis Public Schools; Miss Helen V. Burnett, Grade Teacher, Baltimore City Schools; Associate Professor Howard V. Canter, of the University of Illinois; Mr. George A. Conlon, of the Maryland Institute; Mr. Clarence G. Cooper, Assistant Superintendent of Schools of Baltimore County, Maryland; Dr. Israel Efros, of Baltimore; Professor Howard E. Enders, of Purdue University; Miss Ida V. Flowers, Practice Teacher, Baltimore City Schools; Mr. George M. Gaither, Supervisor in the Baltimore Public Schools; Dr. Thomas W. Gosling, Principal, The Lafayette Bloom Junior High School, Cincinnati, Ohio, *vice* E. H. Kemper McComb, Acting Principal of the Manual Training High School, Indianapolis, Ind., who resigned shortly before the opening of the session; Superintendent William

J. Holloway, of Wicomico County, Maryland; Mr. George L. Jones and Miss Alda L. Armstrong, of the Maryland Children's Aid Society; Miss Edith A. Lathrop, of the United States Bureau of Education; Mr. Jack London, of the Palmer School of Penmanship; Miss C. Ethel MacRoberts, of Franklin High School, Reisterstown, Maryland; Professor Frederick A. Merrill, of State Normal School, Athens, Georgia; Principal Persis K. Miller, of the Baltimore City Schools; Dr. Arthur C. Millspaugh, of Whitman College; Mr. Charles E. Montgomery, of Purdue University; Miss Bessie G. Reinhold, Teacher in the Baltimore County Schools; Mr. Henry A. Roben, of the Maryland Institute; Mr. Carol M. Sax, of the Maryland Institute; Miss May Secrest, Head of Household Arts Department, State Polytechnic School, San Luis Obispo, California; Principal Willard S. Small, of the Eastern High School, Washington, D. C.; Miss Maude B. Smith, Teacher in the Baltimore County Schools; Miss Matilda Srager, Grade Teacher, in the New York City Schools; Miss Edith H. Stewart, of the Maryland Institute; Mr. David G. Thompson, of Goucher College; Professor James W. Tupper, of Lafayette College; Mr. C. Y. Turner, of the Maryland Institute; Mr. Charles H. Webb, of the Maryland Institute; Professor George R. M. Wells, of Ohio Wesleyan University, who was appointed Assistant in Psychology at the opening of the session; and Assistant Professor Nathaniel R. Whitney, of Iowa State University.

The enrolment numbered five hundred eighteen. Of these, one hundred forty-seven, or over 28 per cent., were men, and three hundred seventy-one, or nearly 72 per cent., were women. The total number of course registrations was one thousand two hundred ninety-nine, the average number of courses taken per student being 2.5. The distribution of these elections was as follows: One course was taken by fifty-four students; two courses, by one hundred sixty-six; three courses, by two hundred seventy-nine, and four courses, by nineteen, each. Four hundred five, or 78.2 per cent., of the students were administrative and supervisory officers, teachers or prospective teachers in state and county systems, colleges, normal schools, public and private schools. Sixty-five, or 12.5 per cent., were students in colleges, normal schools and other institutions. Twenty, or nearly 4 per cent., represented twelve other occupations, and twenty-eight, or 5.4 per cent., were engaged in no occupation. One hundred three students held academic or professional degrees from fifty-one institutions.

The geographical distribution of the students was as follows: Maryland was represented by four hundred fifty-one students, of whom three hundred six, or 59 per cent., were from the counties, and one hundred forty-five, or 28 per cent., from Baltimore City; twenty-one other states, the District of Columbia, Porto Rico and Persia, by sixty-seven, or 13 per cent. For the third time, each of the twenty-three counties of Maryland was represented among the student body.

This was the third year of graduate work in the summer program, which continues to be attractive to a large number of students. The registration of one hundred two graduate students was a decrease of eight from the registration in 1916. Many of these

students made formal application for admission as graduate students. Under the new Maryland school law, this grade of activity at the University enables many high school teachers and others to secure the supplementary summer work which is called for by their legal status.

In connection with the course on educational administration, a special conference on state and county administration in Maryland was conducted by Dr. Frank P. Bachman, of the General Education Board, from July 9 to 13, inclusive. The lectures and the round table discussions following considered the following topics: The Educational Principles Underlying the State School Law; The Distribution of Duties among County School Officers; Social and Professional Bases of the Certification of Teachers; The Meaning of Professional School Administration; and Supervision and Improving the Quality of Instruction. As a result of this work, the state and county school officials found their administrative problems set in a perspective which should enable them to carry out more effectively the administration of the new school law.

The most distinctive new feature of the session was the maintenance of the graded elementary demonstration school. The new buildings and grounds at Homewood made it physically possible to undertake the organization of such a school, which was conducted as a laboratory for a number of University courses in education. Such a school has been needed since the beginning of the summer work, but the limitations of the old quarters made it impossible for the University to undertake its organization and maintenance. The Board of School Commissioners of Baltimore City joined the University in extending to this demonstration school the nature of a city vacation school, wherein non-promoted and retarded pupils were given opportunity to make up deficiencies and thus gain promotion at the beginning of the next academic year. The school was conducted without expense to the pupils who might be received in the classes provided, namely,—the first, second, fourth, fifth, sixth, and seventh grades. The school proved to be very popular. Over three hundred applications for enrolment were received from children in Baltimore and the suburbs. Owing to the limitations of the class rooms only one hundred fifty-five were enrolled. The work in these grades was so arranged as to enable the University to realize three definite purposes: To give helpful instruction to the pupils directly; to provide specific demonstrations of improved methods of teaching and school organization; and to conduct experimental investigations in the physical and mental development of children and their progress in school studies, which was carried on in the course arranged for this purpose. Many of the children succeeded in making their promotion. The University courses in elementary education were made more helpful. And it is expected that the results of the investigations conducted by the University students will shortly be published as a contribution in the field of experimental education. The more or less complete realization of these three purposes will justify the University in maintaining a graded elementary demonstration school as a regular part of the summer courses in the future.

The rural graded demonstration school was continued, with an enrolment of twenty-one children who were brought in daily from the

vicinity of Catonsville. The maintenance of the graded elementary demonstration school made it possible, for the first time, for the rural demonstration school to direct its attention exclusively to the realization of the primary purpose for which it was organized, namely, to give particular assistance, in both organization and method, to those who are laboring under the complex requirements of the Maryland state elementary course of study.

As a part of the work in connection with the observation in the graded elementary demonstration school, there was conducted a series of conferences which, with a few exceptions, were based on demonstrations given in the grades, as mentioned below. The conference was held at seven thirty a. m., which proved to be a very attractive hour, the attendance ranging from fifty to one hundred seventy-five. The first three topics presented the newer developments in elementary school organization, which have appeared under the leadership of Miss Persis K. Miller, Principal of Public School Number 76, Locust Point, Baltimore.

June 27—Miss Miller, Health.

“ 28—Miss Miller, Vocational Adjustment.

“ 29—Miss Miller, Thrift.

July 2—Professor Baldwin, Use of Standard Tests.

“ 3—Miss Brochhausen, Primary Reading and Phonics.

“ 5—Miss Bamberger, Grammar.

“ 6—Professor Merrill, School Gardens.

“ 9—Miss Bamberger, How to Study.

“ 10—Miss Brochhausen, Spelling.

“ 11—Miss Brochhausen, Primary Arithmetic.

“ 12—Miss Bamberger, Arithmetic, grammar grades.

“ 13—Miss Bamberger, Reading, grammar grades.

“ 16—Mr. Jones, Re-education of the Returned Soldier.

“ 17—Miss Brochhausen, Oral language, primary grades.

“ 18—Miss Bamberger, Oral language, grammar grades.

“ 19—Miss Brochhausen, Reading and Dramatization.

“ 20—Miss Secrest, Domestic Science.

“ 23—Miss Brochhausen, Written Composition.

“ 24—Miss Brochhausen, Teaching a Poem.

“ 25—Miss Bamberger, History and Civics.

“ 26—Miss Bamberger, Project-Problem Method.

“ 27—Professor Merrill, Home Geography.

“ 30—Mr. Sax, Art Instruction in Elementary Schools.

“ 31—Superintendent Cooper, Hygiene.

Aug. 1—Professor Merrill, Agriculture.

“ 2—Superintendent Holloway, Class Management.

“ 3—Professor Baldwin, Summary of Tests.

The tables on pages 105-107 present a survey of the work done by the students in so far as this may be gathered from a list of the courses given in the several subjects, the courses allowed academic credit, the enrolment in each, and the number taking examinations at the close of the session.

As we have long since come to expect, the students exhibited characteristic earnestness in carrying forward the work of the different courses. Under our system of voluntary examinations, 86.7 per cent. completed their work by taking examinations at the close of the session.

The series of Friday evening lectures and entertainments of a more popular character, Sunday afternoon organ recitals, and Wednesday afternoon art exhibits, open to the public, were made especially attractive through the cordial co-operation of the summer session of the Peabody Conservatory of Music and the Maryland Institute. The programs were as follows:

June 27—Exhibition of Students' Art Work.

June 29—Professor Ralph V. D. Magoffin, of the University, "Roma Imperatrix Mundi."

July 1—Mr. John Denues.  
Organ Recital.

July 4—Municipal Community Singing Concert (Druid Hill Park).

July 6—Mr. George F. Boyle, Pianist, and Mr. J. C. Van Hulsteyn,  
Violinist, of the Conservatory.  
Recital.

July 8—Organ Recital.

July 9—Mr. Peter H. Goldsmith, Director, Pan-American Division,  
American Association for International Conciliation.  
"Beauty in South America, as Revealed in Nature and Art."

July 11—One hundred Etchings and Engravings from the work of  
Fantin-Latour.

July 13—Professor Bird T. Baldwin, of Swarthmore College and the  
University.  
"An Evening with Leading Contemporary Educators and  
Psychologists."

July 15—Organ Recital.

July 18—Exhibition of Paintings by C. Y. Turner, Director of the  
Institute.

July 20—Mr. Harold D. Phillips, Organist, and Mr. Bart Wirtz, 'Cel-  
list, of the Conservatory.  
Recital.

July 22—Organ Recital.

July 25—Exhibition of Paintings, work of Baltimore artists.

July 27—Professor J. Elliott Gilpin, of the University.  
“Chemistry and the War.”

July 29—Organ Recital.

August 1—Exhibition of the Lucas Collection of Paintings and  
Barye Bronzes.

August 3—Eugene Martenet, Baritone, of the Conservatory.  
Recital.

The social welfare of the members of the faculty and student body received attention. The Directors gave a reception to the two faculties at the Johns Hopkins Club, Carroll Mansion, Homewood, on Monday evening, June 25. The opening and closing receptions by the University and Conservatory were given to the faculties and students on Friday evenings, June 29 and August 3. The former was given in Gilman Hall, Homewood, and the latter, in the Peabody Art Gallery. A Saturday excursion was taken to Annapolis, July 4; and also to Washington, upon invitation of Dr. P. P. Claxton, United States Commissioner of Education, on July 28.

EDWARD F. BUCHNER,  
*Director.*

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Subjects and Courses *	Points Credit	Enroll- ment	Number taking Examina- tions
<i>Biology</i>			
General Biology.....	4	25	21
Zoology .....	3	11	11
The Teaching of Botany in Secondary Schools .....	4	4	4
<i>Chemistry</i>			
Organic Chemistry.....	Grad.	4	4
Advanced Inorganic Chemistry.....	Grad.	4	2
Quantitative Analysis.....	Grad.	3	2
Qualitative Analysis.....	Grad.	1	1
Advanced Organic Chemistry.....	Grad.	1	1
Household and Textile Chemistry.....	3	9	7
Introduction to General Chemistry.....	4	11	7
<i>Domestic Science</i>			
Advanced Cookery.....	3	6	6
Elementary Cookery.....	3	6	5
Methods of Teaching Domestic Science..	2	9	7
<i>Economics</i>			
Social Reforms.....	Grad.	7	5
Elements of Economics.....	3	14	11
Economic History.....	3	5	5
<i>Education</i>			
Experimental Education.....	Grad.	23	21
Educational Psychology.....	Grad.	36	32
Educational Administration.....	Grad.	17	16
High School Organization.....	Grad.	41	39
The Teaching of Literature in Secondary Schools .....	3	22	20
The Teaching of English Composition in Secondary Schools.....	3	25	22
The Teaching of Mathematics in Sec- ondary Schools.....	3	14	11
The Teaching of Science in Secondary Schools .....	3	10	9
The Teaching of Agriculture in Second- ary Schools.....	3	4	4
School Management.....	2	15	14
Graded Demonstration School.....	1	98	85
Elementary School Supervision.....	3	22	20
Grammar Grade Methods.....	3	29	26
Primary Grade Methods.....	3	55	48
The Teaching of English in the Elemen- tary School.....	3	70	54
The Teaching of Arithmetic and Geogra- phy in the Elementary School.....	3	50	45
The Teaching of Agriculture in the Ele- mentary School.....	3	13	13
Supervision of Rural Schools.....	2	12	10
Rural School: Methods Course.....	3	39	39
Rural Demonstration School.....	2	39	39
The Principles of Elementary Teaching..	2	27	25
School Law and School Management....	2	19	19

\* See top of page 103.

Subjects and Courses *	Points Credit	Enroll- ment	Number taking Examina- tions
<i>English Composition</i>			
Practical Writing.....	3	19	17
Advanced Composition.....	3	8	7
Elements of English Composition.....	0	10	7
English Grammar.....	0	5	4
<i>English Literature</i>			
Wordsworth and Coleridge.....	Grad.	11	9
English Drama.....	Grad.	8	7
Chaucer.....	Grad.	2	2
English Literature, 1775-1892.....	3	16	15
<i>Fine Arts</i>			
Life and Portrait.....	2	11	11
Life and Portrait (Section 2).....	2	7	7
Landscape and Still-Life in Oil Painting.....	2	5	5
Landscape and Still-Life in Oil Painting (Section 2).....	2	5	4
Landscape Sketching, Water Color.....	2	9	7
Elementary School Color Work.....	2	6	6
The Theory and Practice of Teaching Art.....	3	2	1
Principles of Design.....	2	9	9
Principles of Design (Section 2).....			
Drawing.....	2	2	2
Elementary Drawing.....	0	6	5
<i>French</i>			
The Romantic Period.....	Grad.	7	6
Readings in French.....	3	11	6
Elementary French.....	3	24	17
<i>Geography</i>			
Economic and Commercial Geography....	3	11	8
<i>German</i>			
The Period of "Sturm und Drang" in German Literature, 1772-1785.....	Grad.	1	1
German Literary Style, &c.....	Grad.	4	4
Practical Exercises.....	Grad.	7	2
Readings in German.....	2	8	5
Elementary German.....	0	11	6
<i>History</i>			
American History, 1763-1795.....	Grad.	8	5
American History since 1783.....	3	18	18
European History from Charlemagne to the Eighteenth Century.....	3	13	12
Roman History.....	3	5	4
<i>Latin</i>			
The Teaching of Caesar in Secondary Schools.....	3	8	7
Virgil: Aeneid I-VI.....	0	6	6

\* See top of page 103.



Subjects and Courses *	Points Credit	Enroll- ment	Number taking Examina- tions
<i>Manual Training</i>			
Bench Work in Wood and Mechanical Drawing .....	3	6	6
Elementary Manual Training .....	3	16	16
The Theory and Practice of Teaching Manual Arts .....	2	6	4
<i>Mathematics</i>			
Elliptic Functions .....	Grad.	2	2
Projective Geometry and the Algebra of Forms .....	Grad.	2	1
Advanced Algebra .....	3	7	5
Integral Calculus .....	3	3	1
<i>Penmanship</i>			
Penmanship .....	0	24	24
Methods of Teaching Penmanship .....	0	10	9
<i>Philosophy</i>			
Typical Views of Life .....	Grad.	16	11
<i>Physics</i>			
Mechanics and Heat .....	0	7	6
Electricity and Magnetism .....	0	3	3
Teachers' Course in General Physics .....	0	3	3
<i>Politics</i>			
International Relations .....	Grad.	4	4
International Arbitration .....	Grad.	4	3
<i>Psychology</i>			
Research in Psychology .....	Grad.	5	4
Real and Apparent Problems in Psychology .....	Grad.	19	16
Training Course in Laboratory Psychology .....	Grad.	2	2
Introduction to General Psychology .....	3	29	27
<i>Semitics</i>			
Grammar of the Aramaic Idiom of the Babylonian Talmud .....	Grad.	2	2
Elementary Hebrew .....	2	3	3
History of the Ancient East .....	Grad.	10	7
Literature of the Old Testament in the Light of Modern Critical Theories .....	2	5	3
<i>Spanish</i>			
Advanced Spanish .....	3	9	8
Elementary Spanish .....	3	11	7

\* See top of page 103.

## REPORT OF THE DEAN OF THE MEDICAL FACULTY

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TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor to submit the following report of the activities of the Medical Department of the University during the year ending September 30, 1917.

The total enrollment of candidates for the degree of Doctor of Medicine was 362. Four students withdrew for various causes, reducing the number to 358 at the end of the academic year.

Upon the recommendation of the Advisory Board of the Medical Faculty, the University conferred the degree of Doctor of Medicine upon two students on February 22nd, upon two on May 1st, and upon eighty-eight at the Commencement, June, 1917, making a total of 92.

Fourteen physicians registered for special instruction in various branches of medicine and surgery during the year, and sixty physicians were enrolled for the summer courses offered to graduates in medicine during the six weeks beginning June 1st, 1917.

Four hundred and seventy persons made inquiry concerning admission to the 1917-18 session, of whom 212 filed formal applications. On account of uncertainty concerning the effect of the draft upon the enrollment, it was thought advisable to accept a larger number of students than usual, so that eventual losses would not reduce the number of students too greatly. Accordingly, on July 15, 1917, 116 applicants were accepted for the first year class and twenty-eight for advanced standing, with the result that the actual registration on October 1st was:

First Year.....	92
Second Year.....	94
Third Year.....	97
Fourth Year.....	89

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Five students were admitted with conditions,—three in French and two in German.

The most important occurrences in the school during the year were the changes incident to the organization of the School of Hygiene. On April 26, 1917, Dr. Welch resigned the professorship of Pathology which he had held since 1884, to become Director of the new school, and this necessitated the appointment of a successor. The University was fortunate in obtaining for the post Dr. William George MacCallum, Professor of Pathology in Columbia University, a graduate of the first class of this school and afterwards a member of its Faculty in various capacities. Dr. Ford, Associate Professor of Bacteriology in the Medical School, was

likewise transferred to the School of Hygiene with a similar title. The changes in the department of Pathology called for an increased expenditure, made possible by a generous gift from the Rockefeller Foundation, which furthermore enabled us to increase the activities of the departments of Pharmacology, Physiological Chemistry, and Pediatrics.

The organization of the School of Hygiene will entail still other changes and reorganizations. A committee consisting of Drs. Howell, Howland, Jones and Lewis, has been appointed to consider the matter and to make an exhaustive report to the Medical Faculty during the coming year.

In accordance with the desire of the War Department, a course of lectures on Military Administration, Sanitation and Surgery was given to the fourth year students during the months of March, April and May by Dr. Taylor E. Darby, Captain, Medical Corps, U. S. Army. These lectures were well attended and served to increase the interest of the students in military medical affairs.

The Johns Hopkins Base Hospital, now the United States Army Base Hospital No. 18, was called into service in June. This brought about extensive changes in our teaching staff and in the student body, for the reason that Doctors Finney, Boggs, Baer, Guthrie, Heuer, W. A. Baetjer, Bernheim, Bridgman, Fisher, Stone, J. H. King, Slack and Waters went with it as medical officers, and two third year students and thirty-two fourth year students accompanied it as enlisted men. Notwithstanding the absence of these teachers from the school, arrangements have been made to carry on the work with undiminished vigor. The students serving as enlisted men were assured of medical instruction in France and were told that their work in the Base Hospital would be accepted by the University so far as recommended by Doctors Finney and Boggs. In addition to the thirteen members of the Faculty who accompanied the Base Hospital to France, forty-seven other members of the University or Hospital staff have entered the medical services of the nation. A list has been prepared giving their names, titles and assignments up to November 1st, and will be published in the catalogue for 1917-1918.

In view of the increasing cost of medical education new sources of revenue were looked for, and it was decided to increase the fees for tuition from \$240 to \$250 per year, beginning with October, 1918.

The physical examination of the medical students has been continued as in former years, but in order to make it more valuable the Faculty agreed to the recommendation of Dr. Janeway that the examinations should be made more intensive, and the records kept in such a way that they may be immediately available throughout the entire period of residence of the students. It is confidently expected that these changes will aid in the prompter recognition of incipient disease and thus enable a certain number of students to be treated, so that they may continue with their work instead of withdrawing from the school as formerly.

I regret to report that five of our alumni died during the year, viz., Clifton M. Faris (1905), November 16, 1916; Neil D. Graham

(1901), August 25, 1916; Walter C. Haupt (1914), June 3, 1917; Henry D. Long (1903), October 23, 1916, and Douglas H. Morse (1910), May 8, 1917.

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After this report had been completed the entire Medical School was shocked by the unexpected death (November 17, 1917) of Dr. Franklin Paine Mall, Professor of Anatomy since its opening. This is not the place to call attention to the exceptional value of his services, nor to the great loss which the University has sustained, but I would call your attention to the fact that it is the first death to occur in the Medical Faculty as organized in 1893.

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During the year the following members of the teaching staff resigned:

- Dr. William H. Welch, Professor of Pathology, to become Director of the School of Hygiene.
- Dr. William W. Ford, Associate Professor of Bacteriology and Hygiene, to become Associate Professor of Bacteriology in the School of Hygiene.
- Dr. Milton C. Winternitz, Associate Professor of Pathology, to become Professor of Pathology, Yale University.
- Dr. William McK. Marriott, Associate Professor of Pediatrics, to become Professor of Pediatrics, Washington University, St. Louis.
- Dr. Montrose T. Burrows, Associate in Pathology, to become Associate Professor of Pathology, Washington University, St. Louis.
- Dr. Edmund V. Cowdry, Associate in Anatomy, to become Professor of Anatomy, Peking Union Medical College (under Rockefeller Foundation), China.
- Dr. Paul G. Shipley, Instructor in Anatomy, to become Instructor in Pediatrics.
- Dr. Charles A. Laubach, Instructor in Bacteriology, to become Assistant, City Health Department, Baltimore.
- Dr. Everett D. Plass, Instructor in Obstetrics, to enter military service.
- Dr. Norman M. Keith, Instructor in Medicine, to enter military service.
- Dr. Warren R. Sisson, Instructor in Pediatrics.
- Dr. Walter R. Holmes, Instructor in Gynecology, to enter military service.
- Dr. Daniel Davis, Instructor in Obstetrics, to enter military service.
- Dr. J. Cushman Lyman, Assistant in Pathology, to enter military service.
- Dr. Raymond S. Hussey, Assistant in Pathology, to enter military service.
- Dr. Joseph S. Lawrence, Assistant in Bacteriology, to become Bacteriologist-Pathologist, State Department of Health, Albany, N. Y.
- Dr. Virgil P. W. Sydenstricker, Assistant in Medicine, to enter military service.
- Dr. Hiram Fried, Assistant in Medicine.
- Dr. George B. Wislocki, Assistant in Anatomy.
- Dr. Samuel W. Clausen, Assistant in Medicine.

- Dr. Lloyd B. Whitham, Assistant in Ophthalmology.  
 Dr. Samuel S. Watkins, Assistant in Laryngology.  
 Dr. Charles L. McCarthy, Assistant in Laryngology, to enter United States Navy.  
 Dr. Howard E. Ashbury, Assistant in Clinical Orthopedic Surgery, to enter military service.  
 Miss Cathryn Riley, Assistant in Bacteriology.

New appointments and promotions were as follows:

#### I. *New Appointments*

- Dr. William G. MacCallum, Professor of Pathology.  
 Dr. N. Worth Brown, Lecturer in Medicine.  
 Dr. Omer Van der Stricht, Lecturer in Anatomy.  
 Dr. David W. Carter, Jr., Instructor in Medicine.  
 Dr. Benjamin Kramer, Instructor in Pediatrics.  
 Dr. William L. Millea, Instructor in Obstetrics.  
 Dr. J. Howard Müller, Instructor in Pathology.  
 Dr. Thomas W. Rivers, Instructor in Pediatrics.  
 Dr. Augusta R. Scott, Instructor in Psychiatry.  
 Dr. Paul G. Shipley, Instructor in Pediatrics.  
 Dr. Herbert M. N. Wynne, Instructor in Gynecology.  
 Dr. Nathaniel H. Brush, Instructor in Psychiatry.  
 Dr. G. Bedford Brown, Assistant in Laryngology.  
 Dr. Paul W. Christman, Assistant in Pathology.  
 Dr. Janet Howell Clark, Assistant in Pathology.  
 Dr. Stanley Cobb, Assistant in Psychiatry and Physiology of the Nervous System.  
 Dr. Philip S. Evans, Assistant in Physiology.  
 Dr. Ruth E. Fairbank, Assistant in Psychiatry.  
 Dr. William C. von Glahn, Assistant in Pathology.  
 Dr. Phyllis Greenacre, Assistant in Psychiatry.  
 Dr. Esau A. Greenspon, Assistant in Pathology.  
 Dr. Ruth A. Guy, Assistant in Bacteriology.  
 Dr. John W. Harris, Assistant in Obstetrics.  
 Dr. George A. Harrop, Assistant in Medicine.  
 Dr. Alfred C. Kolls, Assistant in Pharmacology.  
 Dr. Fred H. Kruse, Assistant in Medicine.  
 Dr. Esther L. Richards, Assistant in Psychiatry.  
 Dr. Eldon W. Sanford, Assistant in Anatomy.  
 Dr. Alan C. Sutton, Assistant in Medicine.  
 Dr. Adrian S. Taylor, Assistant in Surgery.

#### *Clinical Staff*

- Dr. Edward A. Looper, Assistant in Clinical Ophthalmology.  
 Dr. Alma S. Rothholz, Assistant in Clinical Medicine.  
 Dr. Daniel D. V. Stuart, Assistant in Clinical Neurology.

#### II. *Promotions*

- Dr. Florence R. Sabin, from Associate Professor to Professor of Histology.  
 Dr. Lewis H. Weed, from Associate to Associate Professor of Anatomy.

- Dr. Eli K. Marshall, Jr., from Associate to Associate Professor of Pharmacology.  
 Dr. D. Wright Wilson, from Associate to Associate Professor of Physiological Chemistry.  
 Dr. Stanhope Bayne-Jones, from Instructor to Associate in Bacteriology.  
 Dr. Kenneth D. Blackfan, from Instructor to Associate in Pediatrics.  
 Dr. Arthur L. Bloomfield, from Instructor to Associate in Medicine.  
 Dr. Admont H. Clark, from Instructor to Associate in Pathology.  
 Dr. Charles C. Macklin, from Instructor to Associate in Anatomy.  
 Dr. Harry C. Schmeisser, from Instructor to Associate in Pathology.  
 Dr. Thomas P. Sprunt, from Instructor to Associate in Medicine.  
 Dr. David I. Macht, from Lecture Assistant to Lecturer in Pharmacology.  
 Dr. Marjorie D. Batchelor, from Assistant to Instructor in Medicine.  
 Dr. H. Hays Bullard, from Assistant to Instructor in Pathology.  
 Dr. Jonathan E. Burns, from Assistant to Instructor in Urology.  
 Dr. Mildred Clark Clough, from Voluntary Assistant to Instructor in Medicine.  
 Dr. Frank A. Evans, from Assistant to Instructor in Medicine.  
 Dr. Lloyd D. Felton, from Assistant to Instructor in Bacteriology.  
 Dr. Isidore I. Hirschman, from Assistant to Instructor in Medicine.  
 Dr. John G. Murray, Jr., from Assistant to Instructor in Obstetrics.  
 Dr. Clarence A. Neymann, from Assistant to Instructor in Psychiatry.

#### *Clinical Staff*

- Dr. Mary A. Hodge, from Assistant to Instructor in Clinical Medicine.  
 Dr. John T. King, Jr., from Assistant to Instructor in Clinical Medicine.

The Maryland, Virginia and North Carolina Scholarships for 1916-17 were awarded as follows:

G. E. W. Hardy, W. Hughson, A. S. McCown, Elizabeth M. Reese, D. N. Shulman, and H. S. Willis.

The Joseph Kernochan Garr Scholarship was awarded to L. T. Webster.

The twenty members of the graduating class mentioned below were recommended to the Trustees of the Johns Hopkins Hospital for appointment as House Officers, and are now serving in that capacity:

Dr. W. T. Anderson  
 Dr. J. H. Baird  
 Dr. L. Brady  
 Dr. W. L. Brosius  
 Dr. C. L. Callender  
 Dr. R. D. Fear  
 Dr. H. A. Gailey  
 Dr. T. O. Gamble  
 Dr. L. B. Hohman  
 Dr. S. E. Howard

Dr. F. H. Linthicum  
 Dr. C. V. McMeen  
 Dr. M. D. McNeal  
 Dr. T. S. Moise, Jr.  
 Dr. E. Novak  
 Dr. B. J. Sanger  
 Dr. J. P. Shearer  
 Dr. M. H. Tibbetts  
 Dr. M. Tyler  
 Dr. H. S. Van Nostrand

The positions obtained by other members of the class, either by competitive examination or by personal appointment, are as follows:

- J. B. Amberson, Jr.—Interne, New Haven Hospital, New Haven.
- J. K. Anderson.—Interne, Minneapolis City Hospital, Minneapolis.
- B. E. Belcher.—Assistant Surgeon, U. S. Navy.
- W. C. Blake.—Interne, Post-Graduate Hospital, New York City.
- I. M. Blanchard.—Interne, Minneapolis City Hospital, Minneapolis.
- G. Bedford Brown.—Assistant in Laryngology.
- H. M. Bullard.—Interne, Brooklyn City Hospital, Brooklyn, N. Y.
- J. M. Carter.—Interne, Harper Hospital, Detroit, Mich.
- G. A. Clark.—Interne, Roosevelt Hospital, New York City.
- H. M. Clark.—Interne, Hospital for the Women of Maryland.
- H. P. Davidson.—Interne, New Haven Hospital, New Haven, Conn.
- K. H. Doege.—Interne, City Hospital, Bay View.
- H. P. Doub.—Externe in Roentgenology.
- H. W. Fowle.—Interne, City Hospital, Bay View.
- M. Frishman.—Interne, West Penn Hospital, Pittsburgh.
- G. L. Groover, Jr.—Interne, City Hospital, Bay View.
- R. A. Guy.—Assistant in Bacteriology.
- F. W. Hartman.—Assistant Surgeon, U. S. Navy.
- R. V. Hoffman.—Interne, Henry Ford Hospital, Detroit, Mich.
- W. P. Jackson.—Assistant Surgeon, U. S. Navy.
- L. L. Jacobs.—Interne, Hebrew Hospital, Baltimore.
- J. H. Janney, Jr.—Interne, Peter Bent Brigham Hospital, Boston.
- J. Ketzky.—Externe in Medicine.
- M. W. King.—Interne, Hospital for Women of Maryland.
- J. C. Koch.—Interne, Garrett Hospital, Mt. Airy, Md.
- A. C. Kolls.—Assistant in Pharmacology.
- H. Linden.—Interne, St. Agnes' Hospital, Baltimore.
- C. L. Luckett.—Interne, Union Protestant Infirmary, Baltimore.
- J. S. McCartney, Jr.—Interne, St. Francis' Hospital, Pittsburgh.
- H. M. Mann.—Interne, Mt. Sinai Hospital, New York City.
- K. H. Martzloff.—Interne, Lakeside Hospital, Cleveland.
- K. K. Merritt.—Interne, Children's Hospital, San Francisco.
- G. R. Micklethwaite.—Interne, Union Protestant Infirmary, Balt.
- F. A. Miller.—Interne, New Haven Hospital, New Haven, Conn.
- H. M. Nicholson.—Interne, Royal Victoria Hospital, Montreal, Can.
- L. E. Payne, Jr.—Interne, U. S. Soldiers' Home Hospital, D. C.
- D. S. Pulford, Jr.—Interne, Henry Ford Hospital, Detroit, Mich.
- R. L. Reber.—Interne, Church Home and Infirmary, Baltimore.
- J. L. Rice.—International Health Commission, Rockefeller Foundation.
- I. C. Riffin.—Interne, U. S. Soldiers' Home Hospital, D. C.
- E. W. Schultz.—1st Lieutenant, M. O. R. C.
- R. G. Sharp.—Resident Physician, Boston Free Dispensary, Boston.
- J. W. Sherrill.—Interne, U. S. Government Hospital, Ancon, C. Z.
- G. M. Shipton.—Interne, Roosevelt Hospital, New York City.
- D. N. Shulman.—Univ. of Louisville, School of Medicine, Ky.
- E. E. Smith.—Assistant Surgeon, U. S. Navy.
- M. C. Sosman.—Interne, U. S. Soldiers' Home Hospital, D. C.
- R. H. Staehle.—Interne, Newark City Hospital, Newark, N. J.
- R. B. Stewart.—Interne, Presbyterian Hospital, Philadelphia.

- C. C. Sturgis.—Interne, Peter Bent Brigham Hospital, Boston.  
W. S. Summers.—Detroit Clinical Laboratory, Detroit, Mich.  
W. S. Tillett.—Interne, City Hospital, Bay View.  
I. M. Wason.—Interne, New York State Hospital for X-Ray, Brooklyn, N. Y.  
J. B. White.—Interne, U. S. Soldiers' Home Hospital, D. C.  
G. R. Wilkinson.—Interne, Hospital for Women of Maryland.  
M. Wright.—Interne, Peter Bent Brigham Hospital, Boston.

Respectfully submitted,

J. WHITRIDGE WILLIAMS,  
*Dean.*

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## REPORT OF THE DEPARTMENT OF ENGINEERING

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TO THE PRESIDENT OF THE UNIVERSITY:

We beg to hand you herewith the Fourth Annual Report of the Department of Engineering, for the year ending June 30, 1917:

The total enrollment of students at the opening of the year was 190. Of these 21 were graduates of other institutions, 3 were special students, 142 were candidates for the degree of Bachelor of Science in Engineering, and 4 were candidates for higher degrees. There have been 3 withdrawals, reducing the enrollment at the end of the academic year to 187. Upon the recommendation of the Advisory Committee of the Department of Engineering and of the Board of University Studies respectively, the degree of Bachelor of Science in Engineering was conferred upon 37 students and the degree of Master of Arts upon one student in the Department of Engineering at the Commencement exercises held June 12, 1917.

The total number of scholarships awarded to students in Engineering during the year was 100. Most of these were regular scholarships, provided under the Legislative Act establishing scholarships in the Department of Engineering. A complete list of holders of scholarships of the several types is given at the end of this report.

The new laboratory of Civil Engineering was occupied at the beginning of this year for the first time. Much new equipment has been purchased and installed in the new laboratory, and the facilities of the Department of Civil Engineering thereby greatly extended and improved.

The Department of Engineering has aided greatly in the establishment of the University at Homewood. The laboratories and shops of the department of Physics and a part of the work of the department of Chemistry have found temporary quarters in the Mechanical and Electrical Building. The department of Geology and its allied activities, the University Y. M. C. A., two courses in undergraduate chemistry, and the course in Military Training have occupied space in the Civil Engineering Building.

The greater portion of the Evening Courses of the University have been conducted in the Mechanical and Electrical Building.

In connection with the war, the following activities of members of the Department should be noted: Professor Tilden and Mr. Weaver, members of the Engineer Officers' Reserve Corps, were called into active service several weeks before the close of the year.

Twelve students from the Department have entered the Officers' Training Camp at Fort Myer, Virginia, several of them having already received their commissions.

Students of the Department took an active part in the course in Military Training in the University. The officers of the student corps were, in great measure, drawn from students of the Department of Engineering. A number of other students have been called to work directly related to the needs of the Government, in connection with the war.

The following additions to the Faculty of Engineering were made at the beginning of the year:

John H. Bringhurst, Associate in Civil Engineering.  
William J. Dana, Instructor in Mechanical Engineering.  
Frederick W. Lieberknecht, Instructor in Electrical Engineering.  
Julian C. Smallwood, Teaching Fellow in Mechanical Engineering.  
Louise Talbot, Research Assistant in Mechanical Engineering.

Through the generosity of Mr. J. E. Aldred, there has been donated to the Department of Engineering, for several years, a fund for furthering and improving undergraduate instruction in the methods and problems of the practice of engineering. The principal feature in the use of this fund has been a course of lectures and other activities under Mr. Aldred's gift is given later in this report.

Following is a statement of the activities and courses which were given during the year in each of the branches of Engineering:

#### CIVIL ENGINEERING

##### *Advanced Course*

Seminary and Journal Meeting. *One hour weekly, second half-year.*  
Professor Tilden.

##### *Undergraduate Courses*

Civil Engineering 1. Theory of the Strength of Materials and Elements of Structural Design. *Three lectures or recitation hours, and four hours of drafting room or laboratory work, weekly through the year.* Professor Tilden and Mr. Weaver.

Civil Engineering 2. Theory of Structures and Design. *Three lectures or recitation hours, and six hours of drafting room or field work, weekly through the year.* Mr. Bringhurst.

Civil Engineering 3. Elements of Sanitary Engineering. *Three lectures or recitation hours, and six hours of drafting room or laboratory work, weekly through the year.* Associate Professor Jones.

Civil Engineering 4. Transportation (Elective). *Two lecture or recitation hours, and three hours in drafting room or field, weekly through the year.* Professor Tilden (Railways and Canals). Associate Professor Jones (Highways).

Civil Engineering 5. Advanced Surveying (Elective). *Two lecture or recitation hours, and three hours in drafting room or field, weekly through the year.* Mr. Bringhurst (Railway Surveying). Mr. Weaver (Geodetic Surveying).

Elementary Hydraulics. *Two lectures or recitations (or one lecture and one three-hour period in the laboratory) weekly, second half-year.* Associate Professor Jones.

Engineering Drawing. Lettering, Orthographic and Isometric Projection. *Four hours in the drafting room, weekly, first half-year.* Mr. Weaver.

Surveying. The work in theory and practice of surveying, required of all Engineering students on the completion of the second year, is being given at Homewood, from June 2 to June 30, 1917, inclusive. Associate Professor Jones and Mr. Bringhamst,

In connection with the courses in Strength of Materials and Transportation, Professor Tilden conducted a series of field exercises in emergency bridge-building. Several of these bridge drills were held during the year and a double-lock spar bridge, of about thirty-eight feet span, with a floor nine feet wide, was built across a ravine on the University grounds. The drills were open to volunteers from the Junior and Senior classes and offered opportunity for practice in the rapid handling of heavy timbers, making the right kind of knots and lashings with ropes, and the disposition and ordering of groups of men for doing work of this kind of "man-power."

The Robert Tong Layfield Memorial Flag Staffs of the Class of 1918 were erected by student volunteers under the direction of Professor Tilden.

Several excursions have been made by the Senior class in Civil Engineering to points of engineering interest near Baltimore. These excursions were conducted as regular class exercises, and were in charge of a member of the faculty. The students were required subsequently to submit a written report covering the engineering features of each trip.

Professor Tilden delivered a lecture on "The Romance of Engineering" at the Drexel Institute in Philadelphia, and an address on "The Test of Real Values in Collegiate Education" before the annual convention in Baltimore of the Association of Colleges and Preparatory Schools of the Middle States and Maryland. The first is to be published in a monograph of the Drexel Institute. The second was published in the Proceedings of the Association for 1917, pp. 60-66.

Mr. Weaver, under the direction of Professor Tilden, has continued the investigation of cement mortars and concretes especially with reference to materials and conditions obtaining in Maryland.

Associate Professor Jones delivered the address at the opening of the Baltimore City Filtration Plant. His subject was "The Relation of Public Water Supplies to the Public Health."

Associate Professor Jones and Mr. Weaver have established a system of sixteen triangulation stations covering the entire University grounds. The stations have been permanently marked and their locations and elevations accurately determined. Engineering work on the grounds and the work of the Summer Course in Surveying will

be based on this system. Other work of this nature, in connection with the establishment of grades and location stations for construction, planting, etc., has been done by the Civil Engineering staff.

Through the efforts of Mr. Bringhurst, moving pictures dealing with engineering problems, have been shown Wednesday afternoons throughout the year.

Professor Tilden attended the Annual Meeting in New York in January of the American Society of Civil Engineers, and Associate Professor Jones and Mr. Weaver attended the Convention of the American Water Works Association in Richmond in May.

#### ELECTRICAL ENGINEERING

The Laboratory of Electrical Engineering has been open daily throughout the year, and lectures and laboratory work have been conducted as follows:

##### *Advanced Courses*

Seminary and Journal Meeting. *One hour weekly through the year.* Professor Whitehead.

Theory of Alternating Current Machinery. *Three hours weekly through the year.* Professor Whitehead.

Advanced Electrical Measurements. *Two hours weekly through the year.* Dr. Kouwenhoven.

##### *Undergraduate Courses*

Electrical Engineering 1. Electrical Theory and Direct Current Machinery. *Four hours weekly through the year.* Professor Whitehead and Mr. Pullen.

Electrical Engineering 2. Alternating Current Theory. *Three hours weekly through the year.* Professor Whitehead.

Electrical Engineering 3. Electrical Measurements and Special Topics. *Three hours weekly through the year.* Dr. Kouwenhoven.

Laboratory Work. *Five afternoons weekly through the year.* Professor Whitehead, Dr. Kouwenhoven and Mr. Pullen.

The Seminary and Journal Meeting has met weekly through the year for review of current journals and the presentation of original papers. The following papers were read in the Seminary:

"Correction of the Characteristics of D. C. Generators for Speed Variations." Dr. Kouwenhoven.

"Measurement of Iron Losses at High Frequencies." Dr. Kouwenhoven.

"Characteristics of Water Turbines for Hydro-Electric Plants." Mr. Pullen.

"The Skin Effect." Mr. Pullen.

"The Variation of Ground Conductivity as an Indication of Mineral Deposits." Mr. F. W. Lieberknecht.

"Corona and Sparking in Gases." Mr. F. W. Lieberknecht.

"Measurement of the Crest Value of High Alternating Voltages." Mr. H. B. Brooks.

"History of the Rotary Converter." Mr. H. B. Brooks.

Professor Whitehead, with the assistance of Mr. Pullen, has continued his study of the high voltage corona as a natural standard for measurement. In this work two independent methods of direct measurement of high alternating voltage have been developed. The results promise to establish the law of corona formation more definitely than heretofore, and to define a standard of high voltage of much greater accuracy than any at present available.

Dr. Kouwenhoven has developed experimentally a new method for correcting the characteristic curves of compound generators for errors due to speed variation. The results will be published shortly.

Dr. Kouwenhoven has also completed an important comparative study of several methods of the measurement of iron losses at high alternating frequencies. The results are ready for publication.

Mr. F. W. Lieberknecht is engaged in an experimental study of the electric strength of various gases other than air.

Mr. H. B. Brooks has designed, and is constructing in the shops of the National Bureau of Standards, an absolute electrometer for alternating voltages up to 100,000 volts. The instrument will be used by Mr. Brooks in an experimental investigation looking to a dissertation for the degree of Doctor of Philosophy.

Professor Whitehead delivered a lecture on "The Measurement of High Alternating Voltage" before the Franklin Institute, of Philadelphia, on November 23, 1916.

The following papers have been published during the year:

J. B. Whitehead and W. S. Brown: "The Electric Strength of Air, VII." *Proceedings, American Institute of Electrical Engineers*, February, 1917.

J. B. Whitehead: "The Electric Strength of Air and Methods of Measuring High Voltage." *Journal of the Franklin Institute*, April, 1917.

H. B. Brooks: "A Variable Self and Mutual Inductor." *Bureau of Standards, Scientific Papers*, No. 290, October 12, 1916.

Professor Whitehead has taken an active part in the work of the American Institute of Electrical Engineers, through membership in several of its committees. The Baltimore Section of the Institute, of which Professor Whitehead is Chairman, has held its monthly meetings in the Laboratory.

A number of trips of inspection of electrical engineering plants and projects have been taken by the advanced classes, in charge of members of the faculty, the most noteworthy being visits to the National Bureau of Standards in Washington, and to the Pennsylvania Water & Power Company's plant at Holtwood, Pa.

## MECHANICAL ENGINEERING

*Advanced Courses*

Seminary and Journal Meetings. *One two-hour period per week, second half-year.* Professor Thomas.

Internal Combustion Engines. *Two hours weekly through the year.* Professor Thomas and Associate Professor Christie.

*Undergraduate Courses*

Mechanical Engineering 1. Thermodynamics of Power Production. *Fours hours weekly through the year.* Professor Thomas.

Mechanical Engineering 2. Design and operation of Power Machinery. *Three hours weekly through the year.* Associate Professor Christie.

Mechanical Engineering 3. Design of Machine Parts and Calculation of Stresses. *Three hours weekly through the year.* Professor Thomas.

Mechanical Engineering 4. Laboratory work. *Two afternoons weekly through the year.* Associate Professor Christie.

Mechanical Engineering 5. Industrial Organization. *One hour weekly through the year.* Associate Professor Christie.

Kinematics of Machinery. *Four hours weekly, second half-year.* Mr. Dana.

The Department of Mechanical Engineering has conducted investigations during the past year as follows:

Two graduate students have made an extended investigation of the conditions inside the smokestack of the University Power Plant, with a view to determining constants needed in the design of smokestacks. They have extended their investigations so as to include some observations on other stacks in Baltimore, and the results of this work have been contributed in the form of an essay for the degree of Master of Arts, by Mr. J. C. Smallwood.

Mr. Smallwood has conducted an investigation of the heat losses occurring in connection with the food preserving industry. This work is to be continued during the present summer and the coming academic year. Active co-operation of firms representing this important industry has been obtained and it is thought that valuable results will come from the investigation.

Professor Christie has continued his work on "Public Utilities" from an engineering standpoint, and has contributed various articles to the technical press.

Professor Thomas has advanced his work on the cooling of water for power-plant purposes and delivered an address upon this subject before the Franklin Institute, in Philadelphia. Professor Thomas has also brought to completion his investigation of a new method for recovering used lubricating oils and has developed a new

method for recovery of gasoline, which has been used in dry cleaning processes. Reports on these lines of investigation will be forthcoming at an early date, and the processes are now being developed for practical application.

The work on the measurement of air, which has been conducted during the past two years, jointly by the United States Navy Department and the Department of Mechanical Engineering, has been advanced during the present year, and apparatus for this work has been moved from the University to Annapolis, where the investigation is being carried on at present.

The equipment for the by-product laboratory has been received at the University and entirely erected, with the exception of the coal distilling retort in the warden's house on the University grounds. It is hoped to begin work in the by-products laboratory during the present summer.

Professors Thomas and Christie attended the Spring Meeting in Cincinnati of the American Society of Mechanical Engineers.

A number of student inspection trips have been conducted by the department during the year, to industrial plants in the vicinity of Baltimore, and reports upon these trips have been made by students.

The department has conducted its usual Seminary during the year, participated in by faculty and graduate students, the subjects treated being "The theory of the internal combustion engine" and "The theory of the steam turbine." The Journal Meeting during the latter half of the year has been participated in by fourth-year students, graduates and faculty, and has confined its attention to the metallurgy of iron and steel.

#### THE J. E. ALDRED LECTURES ON ENGINEERING PRACTICE

A series of nine lectures on the above subject was delivered by engineers engaged in the practice of the profession. In accordance with the wish of Mr. Aldred, particular stress was laid in arranging these lectures that they should deal with practical phases of engineering problems, rather than with underlying theory, or new and striking applications. The lectures were as follows:

"The Operation of a Hydro-Electric Plant." Mr. A. E. Bauhan, Station Superintendent, Pennsylvania Water & Power Co., Holtwood, Pa.

"Some Things Engineers Should Know Concerning the Rudiments of Corporate Finance." Mr. Ralph D. Mershon, Consulting Engineer, New York.

"The Development of Power from the Standpoint of the Boiler Room." Mr. C. F. Hirshfeld, Chief of Research Dept., Detroit Edison Company, Detroit, Mich.

"Power and Service in Industrial Plants." Mr. R. J. S. Pigott, Superintendent of Motive Power, Remington Arms Company, Bridgeport, Conn.

"Gas Manufacture, Construction and Operation." Mr. George P. Marrow, Assistant Engineer, in charge of Gas Manufacture, Consolidated Gas, Electric Light & Power Company, Baltimore.

"Rapid Transit Problems in American Cities." Mr. George Staples Rice, Engineer of the Sixth Division of the Public Service Commission of New York.

"Some Practical Problems met with in the Design and Construction of Bridges and Similar Structures." Mr. W. W. Pagon, Consulting Engineer, Baltimore.

"Experimental Engineering, particularly the Construction of Testing Stations on Water and Sewerage Problems." Mr. Langdon Pearse, Division Engineer, Sanitary District of Chicago.

"Public Utility Engineering and Finance." Mr. Herbert A. Wagner, President, Consolidated Gas, Electric Light & Power Company, Baltimore.

#### NIGHT COURSES FOR TECHNICAL WORKERS

A series of evening courses in engineering subjects for technical workers was given during the year for the first time. They have been attended by a large number of students, and the results of this work have shown that a very real demand exists for these courses. The work for next year has been planned so that those who have pursued evening courses during the past year will be able to continue in more advanced courses during the coming year, and at the same time provision has been made for the entering class of new students. A prospectus has been issued, covering the program for the coming year. During the first half of the year 1916-17, the night courses in Engineering were attended by 218 students, and during the second half year by 152 students. Instruction was given in the following subjects:—

- Heat Engines
- Machine Design
- Industrial Organization
- Theory of Direct Currents
- Theory of Alternating Currents
- Mechanics of Structures
- Hydraulics
- Elementary Mathematics
- Elementary Physics
- Elementary Chemistry

For the coming year, in addition to the courses just named, instruction will be given in Power Plant Design, Mechanics of Machinery, Structural Design, Water and Sewage Analysis, and an extension of the work in Electrical Engineering, and in Mathematics, Physics and Chemistry.

C. C. THOMAS,  
C. J. TILDEN,  
J. B. WHITEHEAD, *Secretary*.



## SCHOLARSHIPS IN THE DEPARTMENT OF ENGINEERING

Scholarships were held during the year 1916-17 by the following persons:

SCHOLARSHIPS IN THE DEPARTMENT OF ENGINEERING  
CREATED BY ACT OF LEGISLATURE, 1912*To Graduates of Maryland Colleges*

Eugene F. Baldwin (A. B., Loyola College).  
 Anthony V. Buchness (A. B., Loyola College).  
 J. Wilmerton Darley (A. B., Western Maryland College).  
 John L. De Marco (S. B., St. John's College).  
 Edgar K. Pfitsch (S. B., Washington College).  
 Carl L. Schaeffer (A. B., Western Maryland College).  
 William D. Tipton (A. B., Western Maryland College).  
 Oliver P. Winslow (S. B., St. John's College).  
 A. Roy Woodland (S. B., Washington College).

*To Residents of Baltimore City and the Counties*

Mark H. Biser, of Frederick County.  
 Kenneth O. Bitter, of Baltimore County.  
 Charles W. Black, of Baltimore (Fourth District).  
 Harry E. Bloomsburg, of Baltimore (Fourth District).  
 James M. Bowling, Jr., of Charles County. [Senatorial]  
 Daniel B. Bratt, of Talbot County. [Senatorial]  
 Guy L. Bryan, Jr., of Dorchester County. [Senatorial]  
 Louis L. Cassard, of Baltimore (Third District).  
 William D. Cecil, of Queen Anne's County. [Senatorial]  
 Charles W. Chesley, of St. Mary's County. [Senatorial]  
 Theodore L. Chisholm, of Montgomery County.  
 William L. Clark, of Harford County.  
 Edwin C. Clayton, of Baltimore (Fourth District).  
 Hyman A. Cohen, of Baltimore (Second District).  
 John H. Collins, of Kent County. [Senatorial]  
 George H. Cronin, of Harford County.  
 Edgar S. Daugherty, of Somerset County.  
 Francis M. Defandorf, of Montgomery County.  
 John L. Defandorf, of Montgomery County. [Senatorial]  
 Frank C. Dehler, of Baltimore (Second District).  
 Ryland N. Dempster, of Baltimore (Third District).  
 Richard S. Dodson, Jr., of Talbot County.  
 John J. Downey, of Montgomery County.  
 Richard T. Earle, of Prince George's County.  
 Harry Ewald, of Allegany County.  
 Joseph P. Folkoff, of Baltimore (First District).  
 Frank I. Fonaroff, of Baltimore (Fourth District).  
 John Hager, of Cecil County. [Senatorial]  
 E. Gerry Hall, of Baltimore (Third District).  
 Milton L. Hancock, of Worcester County.  
 George S. Harris, of Queen Anne's County.  
 Louie W. Henck, of Frederick County. [Senatorial]  
 Stanley L. Howard, of Baltimore County.  
 Jacob S. Jammer, of Allegany County.  
 John R. Johnston, of Washington County.  
 Lloyd E. Johnston, of Somerset County.  
 Albert B. Junkins, of Baltimore (Fourth District). [Senatorial]  
 Bernard Kaplan, of Washington County.

Erman R. Kauffman, of Carroll County.  
 Jacob F. Kauffman, of Caroline County.  
 Lester S. Kauffman, of Caroline County. [Senatorial]  
 Clarence E. Keefer, of Baltimore (Third District).  
 Joseph L. Krieger, of Baltimore. [At large]  
 Jacob Levin, of Baltimore (First District). [Senatorial]  
 Morris Levin, of Baltimore (First District).  
 Roger E. Martz, of Washington County.  
 Louis Meyerhoff, of Baltimore (Second District).  
 Daniel T. Ordeman, of Frederick County.  
 Noble L. Owings, of Baltimore (Third District). [Senatorial]  
 E. Everett Perkins, Jr., of Prince George's County. [Senatorial]  
 Abraham Pikoos, of Baltimore (First District).  
 George J. Porter, of Wicomico County.  
 Henry L. Prince, Jr., of Baltimore County.  
 G. W. Harold Reed, of Washington County.  
 Milton Reiner, of Baltimore (Second District).  
 John D. Roop, Jr., of Carroll County. [Senatorial]  
 Jacob S. Rosenthal, of Baltimore. [At large]  
 Harry B. Shaw, of Frederick County.  
 George B. Shawn, of Caroline County.  
 Eli Silberstein, of Baltimore (First District).  
 E. Guy Stapleton, of Baltimore County. [Senatorial]  
 Bernard A. Sullivan, of Baltimore (Second District). [Senatorial]  
 J. T. Thompson, of Baltimore. [At large]  
 Walter T. Tibbets, of Howard County. [Senatorial]  
 Paul E. Tignor, of Wicomico County. [Senatorial]  
 Francis H. Townsend, Jr., of Baltimore. [At large]  
 Benjamin T. Truitt, Jr., of Worcester County. [Senatorial]  
 J. LeRoy Tull, of Anne Arundel County. [Senatorial]  
 John M. Twigg, of Allegany County. [Senatorial]  
 Hermann Wacker, Jr., of Baltimore (Fourth District).  
 Everett L. Warner, of Baltimore County.  
 C. Lester Warnick, of Allegany County.  
 John S. Watson, of Charles County.  
 Francis P. Weaver, of Baltimore County.  
 William D. Webb, of Harford County. [Senatorial]  
 Walter E. Weeks, of Baltimore (Third District).  
 Joseph Weil, of Baltimore (Second District).  
 Carroll E. Williams, of Anne Arundel County.  
 George M. Wingard, Jr., of Talbot County.  
 Alexander McW. Wolfe, of Baltimore. [At large]  
 John W. Young, of Somerset County. [Senatorial]  
 Louis McC. Young, of Washington County. [Senatorial]  
 Charles T. Zahn, of Carroll County.  
 Isadore M. Zeskind, of Baltimore. [At large]  
 Louis M. Zeskind, of Baltimore (First District).

(85)

SPECIAL SCHOLARSHIPS IN THE DEPARTMENT OF ENGINEERING  
 NOT PROVIDED FOR BY THE LEGISLATURE BUT CREATED  
 BY THE TRUSTEES FOR MARYLAND STUDENTS  
 ENTERING IN OCTOBER, 1912

R. Wilson Evitt, of Baltimore County.  
 E. LeRoy Smith, of Harford County.  
 Walter A. Wood, Jr., of Baltimore County.

(3)

## REPORT OF THE DIRECTOR OF THE GYMNASIUM

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TO THE PRESIDENT OF THE JOHNS HOPKINS UNIVERSITY:

The work of the Gymnasium Department for the year 1916-1917 has undergone a complete transition, owing particularly to two factors,—first the removal to Homewood where we have had no regularly established building for carrying on work in physical education, and the establishment of a course in military training. According to this transition we emphasized the course in military training, endeavoring to get the majority of the students to take that work instead of selecting the ordinary physical training course. As a result we had only thirty-two students in the regular physical training course and this was about the capacity of our equipment. In military training in the beginning of the year we had enrolled one hundred and sixty-nine. Our maximum strength during the year was two hundred and twenty-seven. This was at the time of the declaration of war. The work in military training has been eminently successful, and has done everyone who went into it good, and it is hoped that the same class of work will continue in years to come.

On the athletic side we continued regular work until the first part of April, when all intercollegiate athletics were declared off. However, we have had engaged this year in active intercollegiate sports one hundred and fifty-six students. This does not include those who were engaged in tennis, basketball or intramural sports of any sort. If this number were included we would have about two hundred students engaged in athletic work of some sort. It is our desire to get every man in the college department engaged in some sort of athletic activity and, with that end in view, the Athletic Association has engaged for next year the services of Mr. R. G. Murphy, an A. B. from Pennsylvania and now at Gilman Country School as their head of athletics. He comes to us as an all-time man whose duty it is to look after the coaching end of the work connected with the teams, and to facilitate a thorough organization amongst the students for active participation in sports, and to further the interest in all intramural sport. I think this is the first step that we have taken to really organize intramural sports on any substantial basis, and I think Mr. Murphy is thoroughly capable of taking care of the active work.

The spring athletics, which were abandoned on account of the war, makes the intercollegiate situation for next year a little disorganized, but I believe the consensus of opinion is that athletics in the colleges will resume next fall on a normal basis, and a meeting, to this end, of the National Athletic Association will be called some time during the summer to pass upon a uniformity of activity amongst

all the colleges. So I think our outlook for next year is good for the continuance of intercollegiate sport.

In addition to that, however, it will be our aim to get every man in the undergraduate department interested in some intramural activity, and so gain the benefit thereby so needed amongst our students. With the prospect before us of really starting on a sound basis our work in this department, I hope it will be that definite suitable time will be allowed for such work, and I hope that the eight-thirty hour, or even an eight o'clock hour will be established as the beginning of the day's work and will persist throughout the year.

The military training for next year will not necessarily be so intensive as it was this year and will probably only take the prescribed two sessions a week; thus the organization of the athletic sports amongst the students and the work in the military training can be worked out satisfactorily.

RONALD T. ABERCROMBIE,  
*Director of the Gymnasium.*

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## REPORT ON INSTRUCTION IN MILITARY SCIENCE AND TACTICS

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TO THE PRESIDENT OF THE JOHNS HOPKINS UNIVERSITY:

On the thirty-first of May the military department concluded its year's work with the annual inspection of the battalion by the officer detailed from the War Department for that purpose. The battalion, although badly depleted at that time because of enlistments in the various branches of the military and naval services, presented a creditable appearance and was highly complimented by the inspecting officer for its efficiency and the condition of its equipment.

The department was organized for the first time on October 16, 1916, with a battalion of three companies of infantry. The undersigned was detailed as Professor of Military Science and Tactics, and two enlisted assistants from the regular army were present throughout the school year. These were First Sergeant William Evans, United States Engineers, retired, and Sergeant Albert Friedlander, Infantry, unassigned, formerly 1st Sergeant, Company "B," 36th U. S. Infantry. One hundred and sixty-nine student cadets were enrolled in the Corps at the beginning of the year and the strength of the Corps varied during the year between that figure and two hundred and twenty-seven, its maximum strength. Instruction was afforded in nearly all branches of military science, including infantry drill, ceremonies, guard, tactical exercises, terrain exercises, combat exercises, manual of arms, bayonet exercise, Butt's manual, intrenching, care and nomenclature of the rifle and visual signalling. A number of efficient and able officers were developed and all of these are now in the government military service. Uniforms were obtained by purchase from the Depot Quartermaster, Philadelphia, the khaki service being worn. The university purchased considerable equipment at its own expense, including drums, bugles and office equipment. A handsome silk standard was presented to the battalion by Dr. Ronald T. Abercrombie, the Director of the Gymnasium.

Throughout the entire year a most commendable spirit of loyalty and enthusiasm was displayed by the students who took the course and the whole-hearted support and co-operation of the faculty and university authorities was most gratifying to the instructors in the Department. The impossibility of obtaining complete equipment for the boys made the work less comprehensive than might have been desired. The thanks of the Department are due the Commanding Officer of the Fourth Maryland Infantry for permission to use that organization's armory and rifles during the winter weeks when it was impossible to drill outside and before the rifles for the Corps were furnished.

C. WINSLOW ELLIOTT,

*First Lieutenant, 4th U. S. Infantry, Collegiate Professor of  
Military Science and Tactics.*

## REPORT OF THE REGISTRAR

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TO THE PRESIDENT OF THE UNIVERSITY:

During the year 1916-1917 the academic staff included two hundred and seventy-one teachers, ninety-six in the philosophical and engineering departments and one hundred and seventy-five whose work lay wholly or chiefly in medicine. In addition, there were forty-one instructors—not members of the regular teaching body—in the College Courses for Teachers, the Summer Courses, and the Courses in Business Economics; and there were twenty-eight lecturers, most of them non-resident, who gave single lectures or short courses. The number of students enrolled in the regular courses was ten hundred and thirty-three, of whom five hundred and seventy-seven were residents of Maryland (Baltimore, three hundred and seventy-six), four hundred and thirty-five came here from forty-three other States and Territories of the Union, and twenty from foreign countries. Among the students were six hundred and thirty-seven already graduated, of whom two hundred and forty-nine were enrolled in the department of Philosophy and the Arts (including sixty-three women), three hundred and seventy-one in the department of Medicine (including forty-one women), and seventeen in the department of Engineering.

There were two hundred and nineteen candidates for the degree of Bachelor of Arts, one hundred and sixty-five candidates for the degree of Bachelor of Science in Engineering, and thirteen were enrolled as special students, pursuing courses of study for which they seemed fitted, without reference to graduation. The college courses for teachers were attended by four hundred and thirty-five persons; the summer college and graduate courses of 1916 by five hundred and ninety-five; the summer courses for physicians (1916) by fifty-nine. The evening courses in Business Economics were followed by four hundred and ninety-nine persons and those for technical workers by two hundred and eight, this being the first year of these courses. The enrolment for the year is summarized below:

<i>Faculty</i>	
President and Professors.....	65
Clinical Professors.....	7
Associate Professors.....	39
Associates .....	34
Instructors and Assistants.....	126
	— 271
Lecturers for the year.....	28
Additional Instructors in College Courses for Teachers, Summer Courses, and Courses in Business Economics.....	41

<i>Students</i>	
I. Graduate Students:	
A. Department of Philosophy:	
1. Fellows by Courtesy.....	28
2. Fellows:	
University .....	14
Adam T. Bruce.....	1
William S. Rayner.....	1
Edmund Law Rogers.....	1
3. Other Graduate Students:	
a. Candidates for higher degrees.....	132
b. Special Students.....	72
	<hr/>
	249
B. Department of Medicine:	
1. Candidates for the degree of Doctor of Medicine .....	358
2. Physicians attending Special Courses.....	13
	<hr/>
	371
C. Department of Engineering:	
1. Candidates for a higher degree.....	4
2. Candidates for the degree of Bachelor of Science in Engineering.....	13
	<hr/>
	17
II. Undergraduate Students:	
1. Candidates for the degree of Bachelor of Arts...	164
2. Candidates for the degree of Bachelor of Science in Engineering.....	144
3. Candidates for Matriculation.....	76
4. Special Students.....	13
	<hr/>
	397
Total .....	<hr/>
	1034
III. Attendants on College Courses for Teachers:	
1. Candidates for the degree of Bachelor of Science	39
2. Candidates for Matriculation.....	11
3. Special Students.....	385
	<hr/>
	435
IV. Attendants on Evening Courses:	
1. Business Economics.....	499
2. Technical Courses.....	208
	<hr/>
	707
V. Attendants on Summer Courses, 1916:	
1. Courses for Physicians.....	59
2. Graduate and College Courses.....	595
	<hr/>
	654
Total receiving instruction.....	2830
Counted twice.....	163
	<hr/>
Net total.....	2667

During the first forty-one years of the University's existence, eight thousand six hundred and seventy-two individuals attended the regular courses. Three thousand four hundred and eighty-six were registered as from Maryland (two thousand six hundred and fifty from Baltimore) and five thousand one hundred and eighty-six from eighty-four other states and countries. Five thousand eight hundred and eighty-four persons entered as graduate students and two thousand seven hundred and eighty-eight as undergraduates. Of the undergraduates, seven hundred and twelve have subsequently followed graduate courses here, many of them proceeding to higher degrees. The total number of graduate students enrolled is six thousand five hundred and ninety-six. The following table shows the enrolment by years from the beginning.

	Total*	Graduates	Undergraduates	
			Candidates for Degrees	Special
1876-77	89	54	12	23
1877-78	104	58	24	22
1878-79	123	68	25	35
1879-80	159	79	32	48
1880-81	176	102	37	37
1881-82	175	99	45	31
1882-83	204	125	49	30
1883-84	249	169	53	37
1884-85	290	174	69	47
1885-86	314	184	96	34
1886-87	378	228	108	42
1887-88	420	231 { Phil., 220 Med., 11	127	62
1888-89	394	216 { Phil., 202 Med., 14	129	49
1889-90	404	229 { Phil., 209 Med., 20	130	45
1890-91	468	276 { Phil., 233 Med., 43	141	51
1891-92	547	337 { Phil., 298 Med., 39	140	70
1892-93	551	347 { Phil., 297 Med., 50	133	71
1893-94	522	344 { Phil., 261 Med., 83	123	55
1894-95	589	412 { Phil., 284 Med., 128	126	51
1895-96	596	406 { Phil., 253 Med., 153	149	41
1896-97	520	344 { Phil., 210 Med., 134	144	32
1897-98	641	456 { Phil., 215 Med., 241	152	33
1898-99	649	462 { Phil., 210 Med., 252	163	24
1899-1900	645	469 { Phil., 185 Med., 284	159	17
1900-01	651	473 { Phil., 168 Med., 305	158	20
1901-02	694	530 { Phil., 172 Med., 358	158	6
1902-03	695	532 { Phil., 187 Med., 345	147	16
1903-04	715	556 { Phil., 202 Med., 354	141	18
1904-05	746	563 { Phil., 195 Med., 368	160	23
1905-06	720	530 { Phil., 162 Med., 368	163	27
1906-07	671	504 { Phil., 158 Med., 346	146	21
1907-08	683	518 { Phil., 171 Med., 347	142	23
1908-09	731	562 { Phil., 187 Med., 375	138	31
1909-10	821	595 { Phil., 188 Med., 407	143	14
1910-11	916	625 { Phil., 210 Med., 415	180	10
1911-12	1206	623 { Phil., 217 Med., 406	170	9
1912-13	1090	600 { Phil., 215 Med., 385	192 { A. B., 165 S. B. (E), 27	8

\* Including those enumerated in table of College Courses for Teachers, etc., and excluding duplicates.



	Total*	Graduates	Undergraduates	
			Candidates for Degrees	Special
1913-14	1325	607 { Phil., 213 Med., 378 Eng., 16	249 { A. B., 170 S.B.(E), 79	14
1914-15	1413	637 { Phil., 235 Med., 383 Eng., 19	273 { A. B., 169 S.B.(E), 104	16
1915-16	1668	625 { Phil., 226 Med., 380 Eng., 19	303 { A. B., 175 S.B.(E), 128	21
1916-17	2667	637 { Phil., 249 Med., 371 Eng., 17	384 { A. B., 219 S.B.(E), 165	13

The enrolment in the College Courses for Teachers and the other courses established from time to time since 1909 is given below. The figures for the Summer Courses are in each case for the Summer of the year first named.

	College Courses for Teachers	Summer Courses	Business Courses	Night Technical Courses
1909-10	69			
1910-11	101			
1911-12	118	335		
1912-13	119	201		
1913-14	167	347 { Coll., 277 Med., 70		
1914-15	189	356 { Coll., 287 Med., 69		
1915-16	343	487 { Grad., 65 Coll., 363 Med., 59		
1916-17	435	654 { Grad., 110 Coll., 485 Med., 59	499	208

\* Including those enumerated in table of College Courses for Teachers, etc., and excluding duplicates.

The enrolment in the medical department, not including the summer courses, has been as follows:

	<i>Candidates for M.D.</i>	<i>Drs. of Med.</i>	<i>Total.</i>		<i>Candidates for M.D.</i>	<i>Drs. of Med.</i>	<i>Total.</i>
1893-94	18	65	83	1905-06	293	75	368
1894-95	51	77	128	1906-07	263	83	346
1895-96	84	69	153	1907-08	277	70	347
1896-97	123	11	134	1908-09	297	78	375
1897-98	167	74	241	1909-10	334	73	407
1898-99	197	55	252	1910-11	351	65	416
1899-1900	211	73	284	1911-12	355	51	406
1900-01	209	96	305	1912-13	351	34	385
1901-02	229	129	358	1913-14	360	18	378
1902-03	256	89	345	1914-15	361	22	383
1903-04	276	78	354	1915-16	353	27	380
1904-05	291	77	368	1916-17	358	13	371

The geographical distribution of the students in the regular courses is shown by the following table:

	<i>From Maryland.</i>	<i>From Other States and Countries.</i>		<i>From Maryland.</i>	<i>From Other States and Countries.</i>
1876-77	59	30	1897-98	279	362
1877-78	71	33	1898-99	277	372
1878-79	76	47	1899-1900	262	383
1879-80	97	62	1900-01	270	381
1880-81	95	81	1901-02	273	421
1881-82	97	78	1902-03	283	412
1882-83	106	98	1903-04	294	421
1883-84	123	126	1904-05	312	434
1884-85	130	160	1905-06	304	416
1885-86	130	184	1906-07	257	414
1886-87	162	216	1907-08	267	416
1887-88	199	221	1908-09	311	420
1888-89	183	211	1909-10	286	466
1889-90	215	189	1910-11	337	478
1890-91	235	233	1911-12	337	465
1891-92	273	271	1912-13	353	442
1892-93	266	285	1913-14	436	420
1893-94	260	262	1914-15	487	439
1894-95	260	329	1915-16	491	458
1895-96	272	324	1916-17	578	455
1896-97	254	266			

The attendance upon the regular graduate and undergraduate courses has been as follows during the last five years:

	1912-13	1913-14	1914-15	1915-16	1916-17
Mathematics	104	174	198	208	240
Physics and Astronomy	132	177	191	170	185
Chemistry	110	130	147	127	156
Geology and Mineralogy	51	57	65	63	53
Zoology, Botany, Plant Physiology	66	83	86	73	89
Greek	41	51	36	30	38
Latin	56	74	55	54	55
Classical Archaeology and Art	24	35	18	20	25
Sanskrit and Comparative Philology	27	26	33	25	22
Semitic Languages	16	22	17	32	34
English	191	251	271	248	299
German	104	116	114	110	117
French, Italian and Spanish	127	149	177	165	207
History	91	85	81	85	105
Political Economy	104	80	104	96	138
Political Science	35	24	31	55	36
Philosophy, Psychology and Education	73	75	...	...	...
Psychology	...	...	17	23	41
Philosophy and Education	...	...	82	...	...
Philosophy	...	...	...	132	130
Education	...	...	...	10	22
Engineering (Civil, Elec. and Mech.)	...	47	78	96	112

The following tables record the enrolment by subjects in the College Courses for Teachers and in the Summer Courses since their initiation:

*College Courses for Teachers*

	1909- 10	1910- 11	1911- 12	1912- 13	1913- 14	1914- 15	1915- 16	1916- 17
Mathematics .....	9	15	6	..	6	..	..	6
Chemistry .....	..	10	..	..	6	..	20	10
Biology .....	1	4	..	..	..	..	..	1
Latin .....	3	..	6	4	6	..	..	..
Hebrew .....	..	..	..	1	..	..	..	..
English Composition.....	29	28	36	26	27	27	49	44
English Literature.....	16	8	22	32	49	46	50	70
German .....	4	6	9	23	25	5	22	39
French .....	2	5	12	17	35	33	33	43
History .....	7	15	12	4	8	9	10	12
Education .....	..	14	21	21	21	43	73	121
Psychology .....	..	..	..	7	9	11	34	46
Political Economy.....	..	..	..	..	..	16	34	42
Hygiene .....	..	..	..	..	..	7	7	20
Italian .....	..	..	..	..	..	..	11	11
Spanish .....	..	..	..	..	..	..	6	18
Life Insurance.....	..	..	..	..	..	..	42	..
Biblical Archaeology.....	..	..	..	..	..	..	..	3
History of the Ancient East	..	..	..	..	..	..	..	7
History of Art.....	..	..	..	..	..	..	..	35
History of Israel.....	..	..	..	..	..	..	..	2
Literature of the Bible..	..	..	..	..	..	..	..	3
Philosophy .....	..	..	..	..	..	..	..	2
Physics .....	..	..	..	..	..	..	..	1

*Summer Courses*

	1911	1912	1913	1914	1915	1916	1917
Mathematics .....	23	8	9	16	19	12	11
Physics .....	14	11	7	13	27	20	8
Chemistry .....	25	29	41	28	39	40	27
Biology .....	59	9	19	18	15	16	30
Latin .....	22	9	12	9	6	7	14
English Composition.....	121	65	51	68	72	93	40
English Literature.....	48	39	37	49	35	53	32
German .....	33	24	20	20	46	41	24
French .....	26	26	15	27	29	27	42
Spanish .....	..	..	..	7	9	20	19
History .....	56	31	50	43	44	71	40
Education .....	172	95	148	135	245	387	313
Domestic Science and Art	24	15	27	22	31	17	14
Manual Training.....	24	4	19	12	24	31	24
Politics .....	..	..	..	14	16	9	7
Plaground and Recreation	..	..	..	..	16	14	..
Psychology .....	..	..	..	..	15	57	50
Geography .....	..	..	..	..	..	28	11
Economics .....	..	..	..	..	..	11	23
Penmanship .....	..	..	..	..	..	84	33
Fine Arts.....	..	..	..	..	..	..	34
Philosophy .....	..	..	..	..	..	..	16
Semitic Languages.....	..	..	..	..	..	..	17

Degrees were conferred during the year upon two hundred and thirty-three candidates—Bachelor of Arts, forty-four; Bachelor of Science in Engineering, thirty-seven; Bachelor of Science, three; Master of Arts, thirteen; Doctor of Philosophy, forty-four; Doctor of Medicine, ninety-two. Since degrees were first conferred, in 1878,

thirteen hundred and twenty-seven persons have attained the degree of Bachelor of Arts; fifty-two, the degree of Bachelor of Science in Engineering; six (including five women); the degree of Bachelor of Science; eighty-five (including twenty-four women), the degree of Master of Arts; ten hundred and seventy (including twenty-seven women), the degree of Doctor of Philosophy; and thirteen hundred and seventeen (including one hundred and nineteen women), the degree of Doctor of Medicine. The total number of individuals graduated is thirty-four hundred and ninety-eight. Certificates of proficiency in applied electricity were awarded to ninety-one persons from 1889 to 1899.

*Summary of Degrees Conferred*

A. B. Ph. D. M. D.					A.B. Ph.D. M.D. A.M. B.S. B.S. (E.)							
1877-78	-	..	-	4 - ..	1897-98	-	49	36	22	..	..	..
1878-79	-	3	-	6 - ..	1898-99	-	38	42	33	..	..	..
1879-80	-	16	-	5 - ..	1899-1900	-	46	35	43	..	..	..
1880-81	-	12	-	9 - ..	1900-01	-	43	30	53	..	..	..
1881-82	-	15	-	9 - ..	1901-02	-	47	17	57	..	..	..
1882-83	-	10	-	6 - ..	1902-03	-	46	27	49	..	..	..
1883-84	-	23	-	15 - ..	1903-04	-	37	31	45	..	..	..
1884-85	-	9	-	13 - ..	1904-05	-	33	35	54	..	..	..
1885-86	-	31	-	17 - ..	1905-06	-	48	32	85	..	..	..
1886-87	-	24	-	20 - ..	1906-07	-	47	35	76	..	..	..
1887-88	-	34	-	27 - ..	1907-08	-	47	28	63	..	..	..
1888-89	-	36	-	20 - ..	1908-09	-	37	27	53	4	..	..
1889-90	-	37	-	33 - ..	1909-10	-	14	25	69	3	..	..
1890-91	-	51	-	28 - ..	1910-11	-	31	28	85	11	..	..
1891-92	-	41	-	37 - ..	1911-12	-	37	32	85	5	..	..
1892-93	-	40	-	28 - ..	1912-13	-	36	32	76	11	..	..
1893-94	-	41	-	34 - ..	1913-14	-	52	30	91	13	..	..
1894-95	-	37	-	47 - ..	1914-15	-	35	31	89	12	3	..
1895-96	-	37	-	36 - ..	1915-16	-	27	37	82	13	12	3
1896-97	-	36	-	42 - 15	1916-17	-	44	44	92	13	37	3
										1327	1070	1317
										85	52	6

THOMAS R. BALL,  
Registrar.

## REPORT OF THE LIBRARIAN

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TO THE PRESIDENT OF THE UNIVERSITY:

Herewith is submitted my ninth annual report on the library, covering the year ending June 30, 1917.

We have now been one season in Gilman Hall, and it is not too much to say that the arrangement of this unique building—the first apartment house among the libraries of the world—has been keenly appreciated by those who have lived there, as well as by the numerous visiting professors and architects.

Nor are there signs of misery in the branch libraries of the scientific departments in their temporary housings at Homewood. The Biological Library, unified once more and fireproof, is certainly better off in the basement of Gilman Hall than it was on Eutaw Street, where it battled with dirt and climbed crowdedly to twelve-foot ceilings.

A very pleasing room, with abundant northern light, has proved to be the one found for Physics and Astronomy in the Mechanical and Electrical Engineering building, and the reunion there, on the fine old oak shelving of McCoy Hall, of all our books in these subjects, has been a matter of pride and convenience to the department.

Professor Mathews' happy solution of the shelving problem for Geology (and Civil Engineering) in the building of the latter has served to bring together in one room out of the old pigeonholes this really splendid collection of material which all the members of that staff take such interest in fostering.

And finally, the Medical School Library is free of the danger of destruction by fire always so feared, and in its new quarters in the Hunterian Laboratory an arrangement has been worked out that seems to give much satisfaction to its busy users.

So that 1916 in the annals of the library will always be clearly perceived by students of its history to begin the Fourth Series of its course—and happily,—the Second being marked by the entrance into McCoy Hall in 1894, and the Third by the fire of 1908.

### ACCESSIONS

But the next chapter is war. War sent men from their beneficent tasks to thoughts of destruction, curtailing production in fields which universities are wont to till, and checking distribution of what did reach fruition. Consequently our accessions, whether by purchase, gift, or exchange, fell below normal this year.

Irrespective of binding, we received of books and pamphlets, by purchase 2,556 volumes; by gift, 4,623 v.; by exchange, 2,511 v.;

U. S. deposit, 147 v.; Maryland Geological Survey deposit, 24 v.; J. H. U. manuscript dissertations, 95 (the file of two years); 2 copies each of 30 J. H. U. printed dissertations; 11 other J. H. U. publications. Total, 10,027 pieces. In addition we received 113 maps, 11 manuscripts, 1 chart, and 223 odd numbers of periodicals. Of these receipts 5,977 were bound. As, however, 594 volumes were disposed of, the net bound accessions amounted to 5,383 volumes. The present accession number of bound volumes in the library is 202,247.

Compare these figures with the annual averages for the three years immediately preceding the war, 1911-12—1913-14: Pieces purchased, 5,674; pieces given, 5,458; pieces received by exchange, 9,047; these, with other classes, making an average annual total of 20,759 pieces; and of bound accessions, 8,500 volumes.

The mortality in learned serials is particularly distressing, and, what practically amounts to the same thing so far as American scientists and scholars are concerned, the paralysis of the international exchange system and of transportation in general has served to break the current of thought between the United States and continental Europe.

After the proclamation of blockade in March, 1915, the British authorities arranged for the importation of certain classes of enemy publications, and in the autumn the scheme was extended to include universities, colleges, and public bodies of the United States, the Librarian of Congress serving as intermediary. But difficulties soon developed, and by the spring of 1916 shipments to America ceased altogether—a condition that still obtains. Under these circumstances a special committee of the American Library Association was formed toward the close of 1916 to deal with the problem. Of this committee the Librarian of this University served as Secretary, and conducted the negotiations through the Department of State with the Foreign Office. Following eighteen months of unremitting labor on the part of Dr. Herbert Putnam, Librarian of Congress, and aided by him still at every turn, even to the extent of dispatching a member of his staff to London for a residence of six months, the Secretary found valued allies in an old comrade of us all, who never quite forgets us, Sir William Osler, and in Mr. J. Y. W. MacAlister, President of the (British) Library Association and Secretary of the British Society of Medicine. The result is that in June, 1917, Mr. Balfour terminated the existing arrangement and ordered the release of shipments detained at Rotterdam, if destined for public institutions of the United States. As soon, therefore, as transportation facilities are available, we may expect to receive these accumulations so far as they had left Germany. How much remains stored there and what her attitude toward exportation will be, now that we are a belligerent, are unknown. But when the "Trading-with-the-Enemy Act" is disposed of by Congress, we expect to test the case.

Even with neutrals and countries in possession of active shipping, exchange relations have greatly slackened, because of the submarine menace and the consequent necessity of devoting tonnage to primary supplies.

## LIBRARY OF HYGIENE

With the founding of the School of Hygiene and Public Health, active preparations were begun this year for gathering a library in this field, for which \$2,500 a year has been set aside. Among the first provisions of this budget was one for bibliographical aid. Accordingly, by courtesy of the Surgeon-General's Office, accommodation in that library was given for over a month to an assistant preparing typewritten lists of books in hygiene and a long line of related topics, largely suggested by Dr. F. H. Garrison (A. B. 1890), who is now attached to the Surgeon-General's Library as Assistant Librarian, and the editor of its great Index-catalog, as well as of Index medicus.

The first acquisition, however, was a nearly complete set of the Reports of the Medical Officer of the Local Government Board of Great Britain in 35 volumes, presented through Dr. W. H. Welch by the Board.

This library will be installed in the new home of the School and will have an attendant in charge at the very outset, and a local catalog made, of course, at Homewood and duplicated for the general catalog in Gilman Hall as well as for insertion in that of the Medical School.

## PURCHASES

First mention under this heading is due the Bibliothèque de l'Ecole des Chartes, of which we secured a complete set in 77 volumes, from 1839 to 1915.

We succeeded at last in completing the Medical School set of *Jahresbericht über die fortschritte der tierchemie*, of which the first volumes have heretofore been lacking.

Sets of the Arden and First Folio Shakespeares, Lope de Vega, and the Warner library of the world's best literature (with a full set of A. L. A. analyticals) were other acquisitions.

A most interesting accession was a collection, in four volumes, of 32 tracts by Nassau William Senior, which came from the library of Sylvian Van de Weyer. These form worthy additions to the Hutzler Collection of economic classics.

## GIFTS

There were a number of interesting gifts made this year.

By the terms of his will, the library of Joseph Henry Hewitt (M. D. 1906) came to the University in honor of Dr. W. H. Welch. It numbered 841 volumes and 60 numbers of periodicals. In it are found bound files, quite or nearly complete, of several journals, chiefly in pathology, including: American journal of diseases of children, v. 1-7, 1911-1914; American journal of medical sciences, old series, v. 1-26; new series, v. 1-133, 1907; American medical association, Journal, v. 1-162, 1883-1914; Archives of internal medicine, v. 1-13; Beiträge zur pathologischen anatomie und allgemeinen pathologie,

v. 1-49; Journal of experimental medicine, v. 1-19, 1896-1914; Journal of medical research, new series, v. 1-24, 1901-1914; Journal of pathology and bacteriology, v. 1-17; Virchow's archiv, v. 11, 15-182, 201-220. With this library came a fund of \$5,149.00, from the income of which the collection is to be maintained. The northeast corner room on the second floor of the pathological building has been fitted up to receive it and a local catalog installed—all under custody.

The library of another graduate of the Medical School came to us **this year**—that of Miss Alma Emerson Beall (M. D. 1900). Including some volumes from her father's collections, it numbered 189 volumes and 13 numbers of periodicals.

Professor Fonger DeHaan (Ph. D. 1895) performed a graceful act when he acquired the library of the late Professor J. E. Matzke (Ph. D. 1888) and turned it over to the possession of their common Alma Mater and the memory of the loved master. Such volumes as we could use to advantage were to be added to our shelves. These amounted to 156 volumes, mainly in the Romance languages and literatures. The remainder, including several valuable sets of periodicals, should be sold, and the proceeds added to the publication fund of the A. Marshall Elliott Monographs. Thus once more is demonstrated the priceless value to the University of the Elliott tradition, for his men were linked to him and to each other with hooks of steel. There is no field of human endeavor where the kindly heart does not outlast severity and calculation.

Another graduate from the Romance department, Samuel Garner (Ph. D. 1881), presented 112 volumes from his library—mostly in French literature and philology.

The Professor Frank Jewett Mather, Jr. (Ph. D. 1892) gift of \$2,000.00, the income to be used in the purchase of books for the Latin department, brings to mind once more the tragic death of his comrade and former devoted teacher in the University, Morris Crater Sutphen (Ph. D. 1899), in whose memory the gift is made. This enables us to make permanent the provisions begun with former gifts from Professor Mather to the same end.

Professor Gildersleeve, though employing a home office in the conduct of his work since his retirement from active professorship, very generously had most of his classical library sent to Homewood for installation and use in the offices of the department. Furthermore, he is having the shelves examined and volumes added to the University library where these seem calculated to do the greatest amount of good now. One hundred and sixty-three volumes came thus into our possession this year.

Dr. Henry J. Berkley presented a list of texts which will prove welcome additions to our collection of medical classics. The titles should be given in detail:

Aurelianus, C. Caeli Aureliani Siccensis Afri Aucutorum morborum libri III. Chronicum libri V ed. . . A. v. Haller. . . 1774. 2 v. in 1.

[Baglivus, C. . . . De praxi medica adnexis operibus quatuor minoribus Joannis Dominici Santorini].



- Boerhaavius, H. . . . Praelectiones academicae. . . 1740-1744. 7 v.  
 Celsius, A. C. . . . De re medicina libri octe. . . 1748.  
 Celsius, A. C. . . . De re medica libri octo. . . 1823.  
 Cheselden, W. The anatomy of the human body. . . 1741.  
 Culpepper, N. The English physician enlarged. . . 1725.  
 Ettmüller, D. M. . . . Kurzer begriff der ganzen artznen-kunst. . . 1717.  
 Ganivetius, J. Ioannis Ganiveti Amicus medicorum. . . 1714.  
 Hippocrates. Hippocratis aphorismi graeco-latini e regione ex optima versione cum indice nouo. . . 1631.  
 Hippocrates. Hippocratis Coi Aphorismi graecè, & latinè. . . 1627.  
 Hippocrates. Hippocratis magni Coacae praenotiones. . . 1665.  
 Kerckring, T. . . . Spicilegium anatomicum. . . 1670. *Bound with this his Anthropogeniae ichnographia.* . . 1671. 2 v. in 1.  
 Mayer, J. C. A. Anatomisch-physiologische abhandlung vom gehirn, rückenmark, und ursprung der nerven. . . 1779.  
 Morgagni, G. B. De sedibus et causis morborum per anatomen indagatis libri quinque. . . 1827-1829. 6 v.  
 Primerose, J. . . . De vulgi erroribus in medicina, libri IV. . . 1664. *Bound with this:* Jonston, J. . . . Thaumatographia naturalis. . . 1632. 2 v. in 1.  
 Swieten, K. van. . . . Commentaria in Hermanni Boerhaave aphorismos. . . 1754-1775. 6 v.  
 Sydenham, T. . . . Opera universa. . . 1726.

These were accompanied by a copy of Belidor, B. F. de. La science des ingénieurs dans la conduite des travaux de fortification et d'architecture civile. . . . 1775.

Additions were made to the Textbook library in education by Little, Brown & Co. and Silver, Burdett & Co., who sent 16 and 49 volumes respectively.

The war, of course, brings a steady stream of minor writings of propagandist character; W. M. Dixon, with 34 gifts, and Sir Gilbert Parker, with 177, were the largest contributors.

Among other donors were the following:

E. A. Andrews, 13 biological publications; E. C. Armstrong, 31 French texts and grammars; F. J. Goodnow, 192 miscellaneous volumes, together with 43 odd numbers and reprints; Henry Holt & Co., 44 of their recent issues; John Howland, Index medicus, 2. ser. vols. 5-13 (1907-1915), American journal of medical sciences, n. s. vols. 127-151 (1904-1916), and six other volumes; Ira Remsen, 114 miscellaneous volumes; K. F. Smith, 27 volumes, including Lachmann's Propertius and Tibullus, published each in 1829.

## ANALYSIS OF EXPENDITURES

I. *Philosophical, Collegiate and Engineering Departments*

Salaries .....		\$13,880.50
Books .....	\$3,795.67	
Periodicals .....	2,293.08	
Binding .....	4,904.06	
Maps .....	31.00	
Library of Congress cards.....	300.00	
A. L. A. cards.....	18.48	
Library Bureau cards.....	180.00	
Card cabinets.....	131.36	
Book supports.....	383.00	
Vacuum cleaner.....	125.00	
Book truck.....	35.00	
Printing and supplies.....	368.29	
Postage and transportation.....	284.23	
Miscellaneous .....	232.20	
		<hr/>
		13,081.37
		<hr/>
		\$26,961.87

II. *Medical School*

Salary .....		\$600.00
Books .....	\$239.99	
Periodicals .....	727.21	
Binding .....	803.40	
Concilium Bibliographicum cards.....	4.50	
Linoleum .....	112.05	
Chairs .....	86.40	
Miscellaneous .....	69.11	
		<hr/>
		\$2,042.66
		<hr/>
		\$2,642.66

III. *School of Hygiene and Public Health*

Salary .....		\$198.00
Books .....	\$6.50	
Periodicals .....	6.50	
Binding .....	34.80	
Miscellaneous .....	12.75	
		<hr/>
		60.55
		<hr/>
		\$258.55

## CATALOGING AND CLASSIFICATION

With the removal to Homewood, and temporary helpers all gone, the Cataloging Department has this year for the first time in its existence gotten down practically to the basis upon which it is hereafter to live.

For a long while to come there will be stray volumes in relatively unimportant subjects coming up for recataloging, especially collections of pamphlets, specifically omitted in the estimate of 1910.

Thus during the year, the Chief Cataloger, feeding the multigraph directly, cleared off a large accumulation of geological pamphlets, the Stokes collection in physics, twenty-four volumes of history pamphlets, nine of medical reprints, nine of Hewitt reprints, and finished the revision and subject heading of about 2,000 main entry cards for pamphlet collections in the Classical section.

Classification is not done, because the schedules are not all in print yet. Thus, we are yet to handle Church history, Classics and Archeology, the Oriental, Spanish, Portuguese, Dutch, and Scandinavian languages and literatures, as well as Italian and American

literatures (not the languages). But as fast as the tables are ready in Washington, this side of the work will be cared for by the Assistant Librarian, Mr. J. Mattern. Thus, he has this year brought nearly to completion the classification of English language and literature.

In the new organization, the current classification falls to the Chief Cataloger, Mr. W. B. Schulz, who also at the same time assigns subject headings. The assumption of this new duty patently shortens the time spent on the two processes assigned him, for one examination of the book brings decision to both questions, but, while freeing Mr. Mattern for other pressing duties, it serves to lower the cataloging output of Mr. Schulz.

Finally, the help of the Librarian's Secretary, Miss Ethel Hubbard, in shelf-listing such volumes as, coming to her in the conduct of the Order Department, required no other cataloging record, had to be withdrawn because of the growing pressure of her regular duties. So again the catalogers suffered loss, and not a mean one, as is shown by the fact that this contribution in 1915-16 amounted to 1,414 volumes.

I have spread these two facts out on the record because they are symptomatic of what is happening in a library staff all the time. Those two decisions represent two front line trenches lost and in the end mean defeat unless reinforcement comes, for the enemy grows steadily in strength. It is not too much to expect at this late date that whenever a new department is added or new book resources uncovered, the Trustees shall automatically reflect that this means increase of the library staff's burden and the obligation arises correspondingly to enlarge its resources. More orders are to be made and records of them kept, more gifts to be recorded and acknowledged, more volumes to be catalogued and classified—processes which increase in nicety of adjustment and consequent difficulty and tedium as the library grows,—more borrowers to accommodate, with less time, therefore, available for keeping the shelves in order, more binding to be got out and repairs to be made, more periodicals to be entered daily, more correspondence, more relations to be fostered. And, unhappy to say, relief in hardly one of these categories is afforded by the appointment of a new custodian where a branch library is established. For reasons of economy and efficiency processes are centralized as far as possible. The chief burden is on central, but it is more difficult for the outsider to realize the strain here and relieve it promptly than to perceive and mechanically meet the need at an outlying point, just as it is easier to get money for a dormitory than to lift a deficit.

Now here is a striking fact. In the eight years that have elapsed since my first full year's budget went into effect, normal annual accessions and book funds have shown an advance of 50%, but the number of the staff remains the same, though the Assistant Librarianship then vacant is now filled, and an appointment for Hygiene is made toward the close of the session. If necessity is the mother of invention, she has a vigorous brood to show for those years.

Witness the Cataloging department. At the opening of the present fiscal year it had a budget actually \$90.00 less than it had September

1, 1909, and yet each of the present members has had increase of salary, the average percentage being 36.

In this division there have been in reality but two to catalog. There is another to run in the headings and a fourth to multiply the cards, while the Chief classifies and assigns subjects. Yet his report shows nearly 12,000 volumes handled and over 45,000 cards prepared and sent 6,004 volumes (cf. 3,738 volumes, the yearly fact that a good percentage of this work has to be duplicated and in four cases triplicated, since sixteen departmental catalogs are maintained in addition to one complete one.

The following table shows the record in detail:

Cards:

Main entries.....	7,791
Duplicate main entries.....	9,676
Added entries.....	14,349
Duplicate added entries.....	8,687
Shelf list cards.....	2,823
Accession cards.....	442
Source cards.....	884
Cross references.....	571
	<hr/>

45,223  
11,949

Volumes .....

Of the *titles* handled cards were secured from the Library of Congress for 48.6%, from Berlin 2%, while the record of the remaining 49.4% was prepared by us—multigraphed (11%), or typewritten (38.4%). As last year, the normal proportions are again upset by the non-arrival of the Berlin cards and most of the material covered by them. Of the 45,223 *cards* prepared, 21,854 (or 48%) were printed by the Library of Congress, 434 (or 1%) by the Royal Library of Berlin, 16,426 (or 36%) on our multigraph, and the remaining 6,509 (or 15%) were typewritten. In the Reading Room catalog, which aims to be complete for the University, 23,369 cards were filed by the custodians. The total now is 425,150 cards. In the Library of Congress depository catalog 32,860 cards representing new entries were filed. For incorporation in the union catalog of American libraries maintained in Washington by the Library of Congress, we selected 1,625 of our current titles, and sent two cards for each.

Another contribution in national coöperation was made. The Bibliographical Society of America has undertaken to publish a Census of Incunabula owned in the United States and Canada. Mr. Mattern prepared the difficult text for the forty-six titles discovered to be in our possession, and added three found in the Johns Hopkins Hospital Library.

Mr. Schulz supplied the classification for 1,143 titles in addition to those accepted from the Library of Congress.

#### BINDING

Reduction of purchase this year provided the opportunity to overhaul the shelves and put the library into good repair. All departments were gone over systematically, with the result that our binding bill was \$5,742.26, as against \$3,828.62, the annual average

for the preceding five years. Of this sum, \$5,582.15 was incurred with local bookbinders, to whom Mr. Munzner reports having prepared and sent 6,004 volumes (cf. 3,738 volumes, the yearly average for the preceding five years). Of this number, 3,705 were rebindings. As a matter of fact, 311 other volumes were sent to the binders, but had not been returned when the fiscal year closed.

The story is made clear by a display of percentages. In the preceding five years the average annual expenditures on the three items, "books," "periodicals," and "binding," have stood in the following ratios: 39%, 36½%, 24½%. The corresponding ratios for the year 1916-17 were 31½%, 23½%, 45%. In other words, the binding nearly doubled, and, as might be expected, the drop in periodicals was greater than in books.

The custom, now almost unbroken here, of binding pamphlets into monographic series was extended to zoology, where 70 volumes were made up, very large subject groupings being used so as to clear up all accumulations each year after withdrawal of reprints from journals which come to the Library.

#### VACUUM CLEANING

In the new buildings surrounded by woods and lawns and freed from the dirt of streets and furnaces, we could at last entertain the hope of obtaining some approach to the virtue next to godliness. A new vacuum cleaner was installed and men set going over the shelves for months. This will be an annual event now, and perhaps at length we can extract the in-grindings of years and avoid the necessity of soap and water after the handling of books.

#### INTER-LIBRARY LOANS

In the operation of the inter-library loan system we borrowed 242 volumes from 19 institutions and lent 140 volumes to 34 institutions.

M. L. RANEY,  
*Librarian.*

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## REPORT OF THE JOHNS HOPKINS PRESS

(ABSTRACT)

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TO THE PRESIDENT OF THE UNIVERSITY:

I submit herewith the report of the Johns Hopkins Press for the past year.

*American Journal of Insanity.* This journal is the official organ of the American Medico-Psychological Association. Its editorial control is in the hands of a committee of the Association, consisting of Doctors Henry M. Hurd and E. N. Brush, of Baltimore; G. Alder Blumer, of Providence, R. I.; J. Montgomery Mosher, of Albany, N. Y.; and Charles K. Clarke, of Toronto, Ont. Volume LXXIII (four numbers) was issued. The volume contains 796 pages, 8vo.

*American Journal of Mathematics*, edited by Professor Frank Morley with the co-operation of Professors A. Cohen, Charlotte A. Scott and other mathematicians. Numbers 3 and 4 (230 pages, completing volume XXXVIII (450 pages quarto) and two numbers of volume XXXIX (220 pages) have been issued.

*American Journal of Philology*, edited by Professors Basil L. Gildersleeve and C. W. E. Miller. Numbers 3 and 4 (270 pages) completing volume XXXVII (524 pages, 8vo.) and two numbers (236 pages) of volume XXXVIII have appeared.

*Beiträge zur Assyriologie und semitische Sprachwissenschaft*, edited by Professor Haupt. No part was received during the year.

*Hesperia: Schriften zur germanischen Philologie*, edited by Professors Collitz and Wood, and *Schriften zur englischen Philologie*, edited by Professor Bright. A fourth number of the English section, entitled Tennyson's Use of the Bible, by Miss Edna Moore Robinson, was published during the year.

*Johns Hopkins Hospital Publications.* We have continued the publication, on behalf of the Johns Hopkins Hospital, of the *Bulletin*, appearing monthly, and of the *Reports*, of irregular issue.

Of the *Bulletin* six numbers (280 pages) completing volume XXVII (372 pages, 8vo.) and six numbers (216 pages) of volume XXVIII have been issued.

Of the *Reports* volume XVIII, No. 1 (161 pages, quarto, and 3 charts) appeared in July.

*The Johns Hopkins University Circular*, including the Annual Report of the President, University Register, Medical Department Catalogue, etc., T. R. Ball, Editor. Four numbers (656 pages) completing volume XXXV (1,318 pages, 8vo.) and five numbers (406 pages) of volume XXXVI have been issued. These have included Conferring of Degrees, 1916, The Johns Hopkins Philological Association, 1915-1916, Directory of Summer Courses, 1916, issued in July;

Catalogue and Announcement for 1916-1917 of the Medical Department, issued in October; University Register, 1916-1917, Preliminary Issue, issued in November; The University in its New Home (illustrated), issued in December; Report of the President, 1915-1916, issued in January; Commemoration Day, 1917, issued in February; Contributions to Geology and Plant Physiology, issued in March; Summer Courses June 26-August 7, 1917, issued in April and University Register, 1916-1917, issued in May.

*The Johns Hopkins University Studies in Historical and Political Science.* The Studies are issued under the direction of the departments of history, political economy and political science. One number (160 pages) completing Series XXXIV (630 pages octavo) and two numbers (436 pages) of Series XXXV have been published. These have included "State Administration in Maryland" by John L. Donaldson; "The Virginia Committee System and the American Revolution," by J. M. Leake; and "The Organizability of Labor," by W. O. Weyforth.

*Modern Language Notes.* This journal is edited by Professors James Wilson Bright (Editor-in-Chief), Murray Peabody Brush, William Kurrelmeyer, and James Eustace Shaw, and Dr. G. Gruenbaum. Two numbers (146 pages, plus xii pages of bibliography) completing volume XXXI (530 pages, plus xlviii pages of bibliography, octavo) and six numbers (384 pages, plus xxiv pages of bibliography) have been issued.

*Elliott Monographs in Romance Languages and Literatures*, edited by Professor E. C. Armstrong. We have not been able to issue any numbers during the past year.

*Reprint of Economic Tracts*, edited by Professor J. H. Hollander. No part appeared during the year.

*Terrestrial Magnetism and Atmospheric Electricity*, edited by Dr. Bauer. Numbers 3 and 4 (108 pages) completing volume XXI (216 pages, 8vo.) and two numbers (96 pages) of volume XXII were issued.

There were published in September and November volumes 2 and 3 of the *Institutional Care of the Insane in the United States and Canada*. This work was undertaken by us for the American Medico-Psychological Association. The volumes contain 904 and 888 pages, respectively, with numerous illustrations. Volume 4 will complete the set and is announced for early publication.

A new edition of *An Outline of Psychobiology* by Professor Knight Dunlap was published in April. This book has had a most gratifying reception, not only from psychologists but also from biologists, and has proved an exceptionally useful text and reference book for students of psychology and education and even for students of biology. This edition has a complete glossary.

Two additional volumes of the *Albert Shaw Lectures in Diplomatic History* will appear shortly under the following titles: "The Early Diplomatic Relations between the U. S. and Japan, 1853-1865," by Payson J. Treat; and "West Florida, 1798-1813: A Study in American Frontier Diplomacy," by Isaac Joslin Cox.

We are now putting through press for the Department of Engineering the *J. E. Aldred Lectures on Engineering Practice*. This volume will contain the nine lectures which were delivered at the University during March and April, 1917.

The *New Book Department* received during the year 7,413 volumes, including 521 sent on inspection. Of these 6,862 were purchased by members of the University, 187 by the library, and 364 were returned to the publishers.

Consignments of books on inspection were sent through the courtesy of Messrs. G. E. Stechert & Co., the Macmillan Company and Messrs. Longmans, Green & Co., all of New York.

#### DISSERTATIONS PUBLISHED DURING THE YEAR

Following is a list of dissertations for the degree of Doctor of Philosophy published during the year, of which the required number of one hundred and fifty copies have been received by the University:

Blocher, John Milton, Jr.: Osmotic Pressure Measurements of Levulose Solutions at Thirty Degrees.

Brown, William S.: The Electric Strength of Air at Atmospheric Pressure under Alternating and Continuous Potentials.

Churchill, E. P., Jr.: The Absorption of Nutriment from Solution by Fresh Water Mussels.

Clarke, W. F.: I. A Study of the Hydrogen Electrode, of the Calomel Electrode, and of Contact Potential. II. A Study of the Ethylene Electrode. III. Studies in Oxidation and Reduction.

Donaldson, J. L.: State Administration in Maryland.

Edwards, John Bowen: The Demesman in Attic Life.

Emmet, Boris: Profit-Sharing in the United States.

Gossard, Harry Clinton: On a Special Elliptic Ruled Surface of the Ninth Order.

Janes, George Milton: The Control of Strikes in American Trade Unions.

Kimball, John Willard: The Esterification of Benzoic Acid by Isomeric Butyl Mercaptans.

Leake, James Miller: The Virginia Committee System and the American Revolution.

Little, Homer Payson: The Geology and Mineral Resources of Anne Arundel County.

McCall, Arthur C.: The Physiological Balance of Nutrient Solutions for Plants in Sand Cultures.

McLean, Forman T.: A Preliminary Study of Climatic Conditions in Maryland, as Related to Plant Growth.

Markel, Paul D.: The Transposition of Esters and the Interdependence of Limits.



Meredith, Clement Orestes: The *Partes Orationis* as Discussed by Virgilius Maro Grammaticus, with some Observations upon his Inflection and Syntax.

Miller, Bessie Irving: A New Canonical Form of the Elliptic Integral.

Moseley, Thomas Addis Emmet: The "Lady" in Comparisons from the Poetry of the "Dolce Stil Nuovo."

Murnaghan, Francis D.: The Lines of Electric Force Due to a Moving Electron.

Myrick, Raymond Thompson: A Study of the Osmotic Pressures of Concentrated Solutions of Sucrose with a Resistance Pressure Gauge.

Ordeman, G. Fred: A Study of the Dissociating Powers of Free and of Combined Water.

Overbeck, Robert M.: The Copper Ores of Maryland.

Pardee, Arthur McCay: A Study of the Conductivity of Certain Organic Salts in Absolute Ethyl Alcohol at 15°, 25°, and 35°.

Robinson, Edna Moore: Tennyson's Use of the Bible.

Sachs, John Harrison: The Esterification of Ortho, Meta and Para Toluic Acids with Ethyl Mercaptan.

Sousley, C. P.: Invariants and Covariants of the Cremona Cubic Surface.

Van Epps, George Dudley: I. Preparation of Nitriles. II. Catalytic Preparation of Nitriles.

Weyforth, William O.: The Organizability of Labor.

Wroth, Benjamin Blackiston: A Study of the Solubilities of Liquids in Liquids. The Partition of the Lower Alcohols between Water and Cottonseed Oil.

Young, Mabel M.: Dupin's Cyclide as a Self-Dual Surface.

C. W. DITTUS,

Secretary, The Johns Hopkins Press.

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## REPORT OF THE OFFICIAL STATE BUREAUS CONNECTED WITH THE UNIVERSITY

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TO THE PRESIDENT OF THE UNIVERSITY:

I submit herewith a report of the official State Bureaus connected with the University and conducted in co-operation with the Geological Department.

### THE MARYLAND GEOLOGICAL SURVEY

The Maryland Geological Survey has now been in existence for twenty-one years, having been established by an Act of the General Assembly in March, 1896. The work has been in charge of Professor Clark as State Geologist from the beginning. The appropriation during the first two years amounted to \$10,000 annually. In 1898 a second Act was passed providing \$5,000 additional to be used chiefly in the preparation of a base map of the State. These appropriations remained in effect until the end of the fiscal year September 30, 1916, when an Act of the Legislature abolished all continuing appropriations. For the two fiscal years ending September 30, 1918, the Survey was allotted \$14,000 annually.

The Survey devotes its activities chiefly to geological studies and to the preparation of topographic maps of the State, although consideration is also given independently or in co-operation with other bureaus, both Federal and State, to the study of problems connected with the terrestrial magnetism, hydrography, agricultural soils, and forestry of the State.

The Survey maintained for twelve years, from 1898 to 1910, a Highway Division. During the earlier years of this period the work was largely advisory. A testing laboratory was established and plans and specifications for road and street improvement by the state, county, and municipal authorities were prepared. In 1904 an Act was passed providing for the construction of State Aid roads, \$200,000 annually being appropriated by the State, to be met by an equal amount from the counties, the work to be done under the plans, specifications, and supervision of the State Geological Survey. In 1906, 1908, and 1910, \$384,000 in all were appropriated for the construction, under the auspices of the Geological Survey, of a modern highway from Baltimore to Washington. Altogether over \$1,500,000 were appropriated by the State and counties to be spent under the auspices of the Survey, and over 150 miles of modern roadway were constructed. During this period the various deposits available for road construction throughout the State were tested, as well as the various materials employed on the streets of most of the cities and towns of the State. Much advice in the matter of road and street construction was given to the public officials. In 1910 the highway work of the Survey was transferred to the State Roads Commission, which had been organized in 1908, and

of which President Remsen and Professor Clark were members until 1914.

The geological work, which is directly under the charge of the State Geologist and the Assistant State Geologist, Professor Mathews, is divided into three divisions, covering the areas of the Piedmont Plateau, the Appalachian Region, and the Coastal Plain. Investigations are in progress in all these districts and extensive areas in each have already been studied. Reports have been issued for Allegany, Cecil, Calvert, St. Mary's, Prince George's, and Anne Arundel counties, while the investigations have been completed for Harford, Kent, Queen Anne's, Talbot, Caroline, and Washington counties. Work is now in progress in Baltimore, Frederick, Carroll, and Howard counties. In the conduct of the geological work the aid of numerous experts in various parts of the country has been sought, particularly in the study of the several groups of fossil animal and plant remains. Monographs on the Devonian, Lower Cretaceous, Upper Cretaceous, Eocene, Miocene, Pliocene, and Pleistocene deposits of the State have already been published, and similar reports on other formations are now in preparation. Special economic reports on building stones, clays, coals, limestones, and iron ores have been issued and work is now in progress on the fire-clays of Western Maryland and the water resources of the State.

The results of topographical work conducted in co-operation with the United States Geological Survey are presented to the public on the scale of one mile to one inch, in the form either of 15' sheets or of county maps, showing the topography and election districts. They present in a very detailed manner not only the relief of the land but cultural features as well. Maps of all the counties have already been published. Two additional sheets of the map of Baltimore and vicinity on the scale of 1000 feet to the inch have been issued during the year.

The investigations in terrestrial magnetism, hydrography, agricultural soils, and forestry have been proceeding as hitherto in co-operation with State and National bureaus. The agricultural soil survey of Howard County was completed during the past field season in co-operation with the United States Bureau of Soils. The forestry work is now, for the most part, in charge of the later-organized State Board of Forestry, but the Geological Survey continues to publish county reports and maps on this subject.

#### THE MARYLAND WEATHER SERVICE

The Maryland Weather Service has been in existence for twenty-six years, having been organized in May, 1891, under the joint auspices of the Johns Hopkins University, the Maryland Agricultural College, and the United States Weather Bureau. It was established as an official organization by the General Assembly of 1892, the Act being approved by the Governor in April of that year. The State Weather Service under this Act was permanently placed at the Johns Hopkins University, under the direction of a Board of Control nominated by the heads of the three institutions above mentioned, and subsequently commissioned by the Governor. The appropriation for the maintenance of the Bureau was \$2,000 annually up to September 30, 1916, the fund being used mainly for investiga-

tions relating to the climatology of the State. Professor Clark has been the chief of the Bureau since its organization. The Service received no appropriation from the last Legislature but has an adequate balance of unexpended funds to meet current expenses.

The Weather Service has published, in addition to many minor reports and bulletins, three large final volumes, the first dealing with the physiography and meteorology of the State at large, the second with the climate and weather of Baltimore and vicinity, and the third with the distribution of plant life, particularly in its relations to climate and soils.

The Weather Service has taken up, under the direction of Professor Livingston, of the Johns Hopkins University, a quantitative study of the results of climatic factors upon vegetation. By growing various cultivated plants at different stations throughout the State under similar soil conditions and keeping a careful quantitative record of their growth, changes, and physiological activity, it is expected that accurate data will be obtained showing the result of the varying climatic conditions on crop production. A preliminary pamphlet has already been issued.

Another important line of work is the study of the rainfall which is being conducted by Dr. Fassig, Chief of the Baltimore office of the United States Weather Bureau. In connection with this and in co-operation with the State Geological Survey and State Department of Health an investigation of the surface and underground water resources of the State is in progress.

#### THE MARYLAND FORESTRY BUREAU

An Act was passed by the General Assembly of 1906 providing for a State Board of Forestry, to consist of seven members, four of whom are *ex officio* the same as the commissioners of the Geological Survey, the fifth is the State Geologist, while the sixth and seventh are appointed by the Governor.

Professor Clark is the executive officer of the Board and has been authorized by it to see that the provisions of the Act are carried out. Mr. F. W. Besley is the State Forester. Under this Act \$3,500 were appropriated for the first two years and \$4,000 annually for the succeeding four years, while an additional \$1,000 were appropriated by the General Assembly of 1910 to meet the expenses of publication of forestry maps. The Legislature of 1912 greatly increased the resources and powers of the State Board of Forestry by appropriating \$10,000 annually for the general expense of the Board, besides \$50,000 for the purchase of lands in the valley of the Patapsco River in Baltimore and Howard counties for a State Reservation, \$8,500 for the purchase of old Fort Frederick and the surrounding lands in Washington county, and \$6,000 for the publication of maps and reports. At the same time provision was made for the establishment of a State Forest Nursery, which is located on land put at the disposal of the Board by the Maryland Agricultural College, at College Park. The Legislature of 1914 passed laws, at the suggestion of the Board, providing for the preservation of roadside trees and the planting of shade trees along the highways. At the same time it prohibited the placing of unauthorized signs along

the public roads. The administration of these laws is in the hands of the Board. Upon the termination of the present continuing appropriation of \$10,000 annually on September 30, 1916, the General Assembly provided for the maintenance of the forestry work for the following two years, the sum of \$14,000 annually—\$5,000 of this amount to be employed each year for fire protection in co-operation with the United States Forest Service and \$1,000 for the care of the Patapsco Reservation.

The State Forester and his assistants have prepared plans for more economical forest management of the woodlands of the State and have, on request, given advice to a large number of owners of wood lots throughout the State. One of the chief aims of the Forestry Board has been the education of the people of the State in matters pertaining to forest management in order that the growing timber of the State may be utilized to the greatest advantage.

#### CO-OPERATION

Much aid has been rendered the several State bureaus above mentioned by the chiefs of the various Federal bureaus. Particular reference should be made to the co-operation granted by the Director of the United States Geological Survey, the Chief of the United States Coast and Geodetic Survey, the Chief of the United States Weather Bureau, the Chief of the United States Forest Service, the Director of the United States Bureau of Mines, and the Chief of the United States Bureau of Soils, all of whom have cordially supplemented the work of the State organizations in many ways. The work of the State bureaus is in progress along so many lines that it affords admirable opportunities for the students of the University to obtain much desired practical experience both in the field and in the laboratory; at the same time the State receives much benefit from the trained force of men which is always at its disposal.

WM. BULLOCK CLARK.

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## REPORT OF THE DIRECTOR OF THE BUREAU OF APPOINTMENTS

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TO THE PRESIDENT OF THE UNIVERSITY:

I respectfully submit the following report of the activities of the Bureau of Appointments of this University for the academic year ending September 30, 1917.

During the year the Bureau has registered 39 graduate students, 8 undergraduates, and 25 former students and members of summer or afternoon courses. We have had 79 applications for teachers, for which we have recommended 41 candidates, 17 of whom have been appointed. We have had 13 applications for tutors, have made 11 recommendations and 9 appointments. We have had 19 applications for business positions, several for more than one applicant, for which we have made 32 recommendations and 30 appointments. We have also had a number of other inquiries that come under unclassified heads, for which we have made recommendations when we could, with about a fifty per cent. average of appointments. The letters and general correspondence and city telephoning in connection with the work of the Bureau have been as usual; and the work of the Bureau has taken the full office hour of the director every day through the year and has averaged more than an hour a day for his secretary. The increasing value of the Bureau seems to be borne out by the many letters which come in from graduates who have been placed in positions or helped to transfer from one position to a better one.

The next fall the Bureau purposes to send a slip to each undergraduate student asking him how much money he has made during the school year and during the vacation, so that that information can be added to its next annual report. An increasing number of applications from various commercial firms has come to the Bureau this year. In some cases direct recommendations are made, but in most cases notices have been put on the Bureau of Appointments' bulletin board near the postoffice, and students have been asked to make application direct if interested. The only difficulty I find about this plan is that several of the students have taken positions in that way and have failed to report the fact, which of course diminishes the number of appointments that the Bureau credits to itself.

The Bureau has also written scores of letters supplementary to those of the heads of departments, for which it takes no credit in its report, crediting itself only with appointments initiated in the office of the Bureau.

To this report I append a tabular list of applications for teachers, according to subject, with the number of appointments; a list of applications in general, with the number of recommendations and

appointments; and a statement of the present registration and of the correspondence of the Bureau.

	Applications	Recommendations	App'tm'ts
Teachers .....	79	41	17
Business .....	19	30	28
Dean .....	1	1	1
Curator .....	1	0	0
Guide .....	1	1	1
Housemaster .....	2	0	0
Laboratory assistant .....	1	1	1
Physician .....	1	0	0
Private Secretary .....	1	1	0
Reader .....	1	1	1
Tutor .....	12	12	8
Summer tutor .....	3	3	3
Y. M. C. A. ....	1	1	0

	Applications	Appointments
Arithmetic .....	2	1
Athletics .....	1	0
Biology .....	3	0
Chemistry .....	12	3
English .....	4	2
French .....	1	0
German .....	1	0
History .....	3	1
Labor Legislation .....	1	0
Latin .....	2	2
Mathematics .....	5	0
Physics .....	2	2
Political Economy .....	1	1
Political Science .....	1	0
Science .....	1	0
Spanish .....	1	1

#### REGISTRATION

Undergraduates .....	8
Graduate students .....	39
Former students .....	9
Summer School .....	6
College Courses for Teachers.....	3
Unclassified .....	7
	<hr/> 72
Letters .....	430
Circulars .....	117
Telegrams .....	15
Telephone calls .....	500

R. V. D. MAGOFFIN,

*Director.*

## REPORT OF THE YOUNG MEN'S CHRISTIAN ASSOCIATION

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TO THE PRESIDENT OF THE UNIVERSITY:

I beg to submit the following report of the activities of the Young Men's Christian Association for the year ending June 1st, 1917.

### *New Students' Work*

Letters were sent to all new students previous to their coming to Baltimore. One thousand handbooks were distributed at the opening of the University and Medical School and each out-of-town student was aided in securing a suitable rooming place and boarding house. The opening reception to new students, given by the Y. M. C. A., was well attended in both departments, about 600 being present. A religious census was taken at the opening of the college year and all students have been put in touch with the church of their preference.

### *Membership*

The membership at the University for the past year has been 142 and at the Medical School, 125. The work of the Association has not been confined to the membership alone, for many who were not members of the Association have been active in the work.

### *Chapel*

Chapel has been conducted at the University each week, Mondays to Fridays, inclusive, by the Association with an average attendance of 19. This average may not seem very high, but when we consider that the men had to come at 8:40 A. M. we feel that it is very good. After the Easter vacation we did not attempt to continue chapel, for the reason that classes began at 8:30 A. M.

### *Bible Study*

We have had two fraternity classes, with an average attendance of 34, and one class of graduate students in the Philosophical Department, with an average attendance of 24. One class was conducted in the Medical Department with an enrollment of 35. We have also co-operated with a number of classes in churches.

### *Deputation Work*

We have supplied speakers for a number of the young people's organizations and boys' clubs of the city. Thirty-four men have been engaged in this form of work. We believe this to be one of the most important departments of the work of the Association. We have planned to place more emphasis upon this phase of work during the coming year.



*Community Service*

In the Academic Department 14 men have given from one to two nights a week to conducting boys' clubs, teaching English to foreigners and other forms of community service. The greater number of these men have been engaged at the West Park Recreation Centre, at Hampden. In the Medical Department 24 men have been active in hospital service, boys' clubs, medical aid to poor families and work with the Federated Charities.

*Missions*

Eighteen men were enrolled in mission study. Twenty-four attended the State Missionary Conference. Twenty-seven foreign students have been enrolled in the different departments of the University, and we have tried in every way to interpret the highest American ideals to them.

The Association arranged a course of eight Life Work addresses at the University, with an average attendance of 90. We believe that these meetings were of great value to the students. At the Medical School 20 meetings have been held with an average attendance of 45.

During the week before Christmas the Hopkins Y. M. C. A. joined a number of other colleges and universities in this country in an effort to raise \$150,000 for the Prison Relief Work in Europe. We started out to raise \$1,000 of this amount and at the close of a three days' campaign, in which 50 men were active, \$700.25 had been raised. This money was forwarded to the International Committee of the Y. M. C. A. for distribution among the prison camps.

The past year has been very encouraging and we feel that the Association has come more nearly into the rightful place in the life of the University. The strongest men in the University have been active in the Y. M. C. A.

The following have been elected as officers for the coming year:

In the Academic Department—

W. H. Swartz, President.  
R. G. Hoffman, Vice-President.  
Charles T. Leber, Corresponding Secretary.  
M. B. Carroll, Recording Secretary.  
Harris E. Kirk, Jr., Treasurer.

In the Medical Department—

B. Douglas, President.  
P. J. Bowman, Vice-President.  
W. C. Huyler, Secretary.  
R. K. Ghormley, Treasurer.

*Finances*

The expenditures for the year, including salaries, printing, stenographic work, and current miscellany, amounted to \$873.00; the receipts were \$928.30 in the Academic Department and \$124.00 in the Medical School, which included the University appropriation, membership dues, contributions from the Faculty, the Students, Alumni, and business men, and payment for advertising in the Hand-book.

A. E. LINDLEY,  
*General Secretary.*

## DEGREES CONFERRED, 1916-17

### DOCTOR OF PHILOSOPHY

Charles Clinton Bramble, of Centreville, Md., Ph. B., Dickinson College, 1912. *Subjects*: Mathematics, Astronomy, and Geological Physics. *Dissertation*: A Complete System for a Collineation Group Isomorphic with the Group of the Double Tangents of a Plane Quartic. *Referees on Dissertation*: Professors Morley and Coble.

Grace Bagnall Branham, of Baltimore, A. B., Bryn Mawr College, 1910; A. M., Johns Hopkins University, 1916. *Subjects*: English, Philosophy, and French. *Dissertation*: The Metaphysical Poets. *Referees on Dissertation*: Professors Bright and Lovejoy.

John Leo Campion, of New York, N. Y., A. M., Columbia University, 1912. *Subjects*: Germanic Philology, German Literature, and English. *Dissertation*: Ulrich von Türheim: *Tristan*. Nach allen bekannten Handschriften. *Referees on Dissertation*: Professors Collitz and H. Wood.

Leslie Cornelius Cox, of Bowmanville, Ont., A. B., University of Toronto, 1913. *Subjects*: Latin, Greek, and Sanskrit. *Dissertation*: The Artistic Use of the Love Charm in Greek and Latin Literature. *Referees on Dissertation*: Professors Smith and Mustard.

Ray Harbaugh Dotterer, of Baltimore, Ph. B., Franklin and Marshall College, 1906; A. M., Johns Hopkins University, 1916. *Subjects*: Philosophy, Psychology, and Education. *Dissertation*: The Argument for a Finitist Theology. *Referees on Dissertation*: Professors Lovejoy, Dunlap, and Morley.

Boris Emmet, of Washington, D. C., A. B., University of Wisconsin, 1913. *Subjects*: Political Economy, Political Science, and History. *Dissertation*: Profit Sharing in the United States. *Referees on Dissertation*: Professors Hollander and Barnett.

Edgar McCreary Faber, of Gettysburg, Pa., S. B., Pennsylvania College, 1914. *Subjects*: Chemistry, Physical Chemistry, and Mineralogy. *Dissertation*: The Esterification of Acetic and Propionic Acids by Methyl, Ethyl, Propyl, Iso-butyl and Iso-amyl Mercaptans. *Referees on Dissertation*: Professor E. E. Reid and Frazer.

Early Lee Fox, of Front Royal, Va., A. B., Randolph-Macon College, 1909; A. M., Johns Hopkins University, 1914. *Subjects*: History, Political Science, and Political Economy. *Dissertation*: The American Colonization Society (1817-1840). *Referees on Dissertation*: Professors Latané and Vincent.

Raymond Freas, of Baltimore, A. B., Wittenberg College, 1906. *Subjects*: Chemistry, Physical Chemistry, and Bacteriology. *Dissertation*: Esterification Limits of Benzoic and Toluic Acids with Lower Alcohols. *Referees on Dissertation*: Professors E. E. Reid and Lovelace.

Edward Elway Free, of San Francisco, Cal., A. B., Cornell University, 1906. *Subjects*: Plant Physiology, Geology, and Physical Chemistry. *Dissertation*: The Oxygen Requirement of Plant Roots in Relation to Soil Aeration. *Referees on Dissertation*: Professors Livingston and Johnson.

Neil Elbridge Gordon, of Baltimore, Ph. B., Syracuse University, 1911. *Subjects*: Chemistry, Physical Chemistry, and Mathematics. *Dissertation*: The Solubility of Liquids in Liquids. The Partition of the Lower Acids between Water and Cottonseed Oil. Also the Partition of Formic Acid between Water and Various Organic Compounds. *Referees on Dissertation*: Professors E. E. Reid and Lovelace.

Walter Scott Hastings, of Snow Hill, Md., A. B., Princeton University, 1910. *Subjects*: French, Italian, and Spanish. *Dissertation*: The Drama of Honoré de Balzac. *Referees on Dissertation*: Professor Armstrong and Mr. Carcassonne.

George Remington Havens, of Shelter Island Heights, N. Y., A. B., Amherst College, 1913. *Subjects*: French, Spanish, and Italian. *Dissertation*: The Abbé Prévost and English Literature: A study of his Literary Criticism. *Referees on Dissertation*: Professor Armstrong and Mr. Carcassonne.

Frank Merrill Hildebrandt, of Baltimore, A. B., Johns Hopkins University, 1913. *Subjects*: Plant Physiology, Physical Chemistry, and Botany. *Dissertation*: A Physiological Study of the Climatic Conditions of Maryland as Measured by Plant Growth. *Referees on Dissertation*: Professors Livingston and Johnson.

Allan Wilson Hobbs, of Guilford College, N. C., A. B., Guilford College, 1907, and Haverford College, 1908. *Subjects*: Mathematics, Physics, and Astronomy. *Dissertation*: On a Problem of Projectiles. *Referees on Dissertation*: Professors Morley and Cohen.

Henry Fuller Holtzelaw, of Moro, Ark., A. B., University of Arkansas, 1913. *Subjects*: Political Economy, Mathematics, and Political Science. *Dissertation*: The Lumber Industry and Trade. *Referees on Dissertation*: Professors Hollander and Barnett.

Roger Howell, of Baltimore, A. B., Johns Hopkins University, 1914. *Subjects*: Political Science, Law, and History. *Dissertation*: The Privileges and Immunities of State Citizenship. *Referees on Dissertation*: President Goodnow and Professor Latané.

Elizabeth Frieench Johnson, of Manassas, Va., A. B., Goucher College, 1911; A. M., Johns Hopkins University, 1916. *Subjects*: German Literature, Germanic Philology, and Italian. *Dissertation*: Weckherlin's Eclogues of the Seasons. *Referees on Dissertation*: Professors H. Wood and Collitz.

Harry Isaac Johnson, of Daleville, Va., A. B., Roanoke College, 1912. *Subjects*: Chemistry, Physical Chemistry, and Mineralogy. *Dissertation*: The Conductivity and Dissociation of Certain Inorganic and Organic Salts in Formamid and in Mixtures of Formamid with Ethyl Alcohol. *Referees on Dissertation*: Professors E. E. Reid and Frazer.

Earl Steinfeld Johnston, of Strasburg, Pa., Ph. B., Dickinson College, 1913. *Subjects*: Plant Physiology, Physical Chemistry, and Physics. *Dissertation*: The Seasonal March of Climatic Conditions in a Greenhouse, as related to Plant Growth. *Referees on Dissertation*: Professors Livingston and Johnston.

Ethel Dorothea Kanton, of Baltimore, A. B., Goucher College, 1911; A. M., Johns Hopkins University, 1913. *Subjects*: English, Germanic Philology, and Philosophy. *Dissertation*: Character-Writing in English Literature during the Eighteenth and Nineteenth Centuries. *Referees on Dissertation*: Professors Bright and Smith.

Malcolm Horace Lauchheimer, of Baltimore, A. B., Johns Hopkins University, 1914. *Subjects*: Political Science, Law, and Political Economy. *Dissertation*: Labor Law of Maryland. *Referees on Dissertation*: President Goodnow and Professor Barnett.

Edward Lyons, of Baltimore, S. B., Washington and Lee University, 1912. *Subjects*: Chemistry, Physical Chemistry, and Mineralogy. *Dissertation*: The Identification of Acids. *Referees on Dissertation*: Professors E. E. Reid and Lovelace.

Arthur Lewis McCobb, of Boothbay Harbor, Me., A. B., Bowdoin College, 1905; A. M., Harvard University, 1910. *Subjects*: Germanic Philology, German Literature, and History. *Dissertation*: The Double Preterit Forms *gie-gienc*, *lie-liez*, *vie-viens* in Middle High German. *Referees on Dissertation*: Professors Collitz and H. Wood.

William Frederick Meggers, of Clintonville, Wis., A. B., Ripon College, 1910; A. M., University of Wisconsin, 1916. *Subjects*: Physics, Mathematics, and Astronomy. *Dissertation*: Wave-Length Measurements in Spectra from 5600 Å to 9600 Å. *Referees on Dissertation*: Professors Ames and Pfund.

Clarke Cothran Minter, of Davidson, N. C., S. B., Davidson College, 1913. *Subjects*: Chemistry, Physical Chemistry, and Mathematics. *Dissertation*: The Osmotic Pressure of Concentrated Glucose Solutions. *Referees on Dissertation*: Professors Frazer and Lovelace.

Fred Loomis Mohler, of Carlisle, Pa., A. B., Dickinson College, 1914; A. M., Johns Hopkins University, 1916. *Subjects*: Physics, Astronomy, and Mathematics. *Dissertation*: Resonance Radiation of Sodium Vapor excited by One of the *D* Lines. *Referees on Dissertation*: Professors R. W. Wood and Pfund.

Elias N. Rabinowitz, of Baltimore, A. B., Haverford College, 1903; Jewish Theological Seminary, New York. *Subjects*: Hebrew, Arabic, and Egyptian. *Dissertation*: "Strê Ham-ma'loth," or the Songs of the Return. *Referees on Dissertation*: Professors Haupt and Ember.

Edna Moore Robinson, of Chicago, Ill., A. B., University of Chicago, 1907. *Subjects*: English, Greek, and Germanic Philology. *Dissertation*: Tennyson's Use of the Bible. *Referees on Dissertation*: Professors Bright and Greene.

Jesse Squibb Robinson, of Boston, Pa., A. B., Allegheny College, 1911. *Subjects*: Political Economy, Political Science, and History. *Dissertation*: The Amalgamated Association of Iron, Steel, and Tin Workers: A Study in Trade Unionism. *Referees on Dissertation*: Professors Hollander and Barnett.

Thomas Hunton Rogers, of Danville, Ky., A. B., Centre College, 1914. *Subjects*: Chemistry, Physical Chemistry, and Mathematics. *Dissertation*: A Study of the Vapor Pressure and Osmotic Pressure of Aqueous Solutions of Mannite at 20°. *Referees on Dissertation*: Professors Frazer and Lovelace.

Francis Metcalf Root, of Oberlin, O., A. B., Oberlin College, 1911. *Subjects*: Zoology, Plant Physiology, and Botany. *Dissertation*: Inheritance in the Asexual Reproduction of *Centropyxis Aculeata*. *Referees on Dissertation*: Professors Jennings and Mast.

Aaron Schaffer, of Baltimore, A. B., Johns Hopkins University, 1914. *Subjects*: German Literature, Germanic Philology, and French. *Dissertation*: George Rudolf Weckherlin: The Embodiment of a Transitional Stage in German Metrics. *Referees on Dissertation*: Professors H. Wood and Collitz.

Virgil Bernard Sease, of Little Mountain, S. C., A. B., Newberry College, 1908. *Subjects*: Chemistry, Physical Chemistry, and Applied Electricity. *Dissertation*: A Study of the Vapor Pressure of Aqueous Solutions of Potassium Chloride at 20°. *Referees on Dissertation*: Professors Frazer and Lovelace.

Kemper Simpson, of Baltimore, A. B., Johns Hopkins University, 1914. *Subjects*: Political Economy, Philosophy and Mathematics. *Dissertation*: A New Class of Industrial Flotations in the United States (1906-1916). *Referees on Dissertation*: Professors Hollander and Barnett.

William Taylor Thom, Jr., of Lexington, Va., S. B., Washington and Lee University, 1913. *Subjects*: Geology, Economic Geology, and Physical Chemistry. *Dissertation*: Problems of the Cretaceous-Eocene Boundary in Montana and the Dakotas. *Referees on Dissertation*: Professors Clark and Berry.

William Edward Tottingham, of Madison, Wis., S. B., Massachusetts Agricultural College, 1903; M. S., University of Wisconsin, 1908. *Subjects*: Plant Physiology, Physiological Chemistry, and Botany. *Dissertation*: A Preliminary Study of the Influence of Chlorides upon the Growth of Certain Cultivated Plants. *Referees on Dissertation*: Professors Livingston and Johnson.

Sam Farlow Trelease, of Urbana, Ill., A. B., Washington University, 1914. *Subjects*: Plant Physiology, Botany, and Physical Chemistry. *Dissertation*: The Relation of Salt Proportions and Concentration to the Growth of Young Wheat Plants in Nutrient Solutions containing a Chloride. *Referees on Dissertation*: Professors Livingston and Johnson.

Vivian Voss, of Pretoria, S. Africa, A. B., Transvaal University College, 1913; A. M., Johns Hopkins University, 1916. *Subjects*: Physics, Astronomy, and Mathematics. *Dissertation*: The Ratio of the Intensities of the D Lines of Sodium. *Referees on Dissertation*: Professors R. W. Wood and Pfund.

Bruce Wade, of Trenton, Tenn., S. B., Vanderbilt University, 1913. *Subjects*: Geology, Paleontology, and Physical Chemistry. *Dissertation*: The *Gastropoda* of the Ripley Formation in Tennessee. *Referees on Dissertation*: Professors Clark and Berry.

Howard Crosby Warren, of Princeton, N. J., A. B., Princeton University, 1899. *Subjects*: Psychology, Philosophy, and Education. *Dissertation*: A History of the Association Psychology from Hartley to Lewes. *Referees on Dissertation*: Professors Watson and Lovejoy.

Gilbert Hayes Whiteford, of Glyndon, Md., S. B., Maryland Agricultural College, 1897; A. M., Columbia University, 1912. *Subjects*: Chemistry, Physical Chemistry, and Biological Chemistry. *Dissertation*: A Study of the Decomposition of Silicates by Barium Salts. *Referees on Dissertation*: Professors Frazer and Lovelace.

Ralph Coplestone Williams, of Baltimore, A. B., Johns Hopkins University, 1908. *Subjects*: French, Italian, and Spanish. *Dissertation*: The Theory of the Heroic Epic in Italian Criticism of the Sixteenth Century. *Referees on Dissertation*: Professors Shaw and Armstrong.

Lucy Wilson, of Waban, Mass., A. B., Wellesley College, 1909. *Subjects*: Physics, Physical Chemistry, and Astronomy. *Dissertation*: The Structure of the 2536 Mercury Line. *Referees on Dissertation*: Professors R. W. Wood and Pfund.

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## DOCTOR OF MEDICINE

James Burns Amberson, Jr., of Waynesboro, Pa., Ph. B., Lafayette College, 1913.

James Kerr Anderson, of Pittsburgh, Pa., A. B., Washington and Jefferson College, 1913.

Walter Thomas Anderson, of Washington, Pa., A. B., Washington and Jefferson College, 1913.

John Herman Baird, of Newark, O., A. B., Kenyon College, 1913.

Horace McMurran Banks, of Shepherdstown, W. Va., A. B., Washington and Lee University, 1913.

Burton Elias Belcher, of St. Petersburg, Fla., S. B., Florida State College, 1905.

William Campbell Blake, of Birmingham, Ala., S. B., rd College, 1913.

Irene M. Blanchard, of Normal, Ill., A. B., University of i-gan, 1898.

Leo Brady, of Baltimore, A. B., Johns Hopkins University, 1913.

Rowland Sill Briggs, of Sacramento, Cal., S. B., University of California, 1913.

William Lewis Brosius, Jr., of Gallatin, Mo., A. B., University of Missouri, 1915.

G. Bedford Brown, Jr., of Georgetown, Ky., S. B., Georgetown College, 1912, and Yale University, 1913.

Hugh Max Bullard, of Newberry, Pa., S. B., Bucknell University, 1913.

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