

New Series, 1933  
No. 8

Whole Number 451

THE  
JOHNS HOPKINS  
UNIVERSITY CIRCULAR

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REPORT OF THE PRESIDENT OF  
THE UNIVERSITY  
1932-1933

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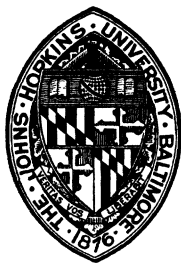
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**THE JOHNS HOPKINS UNIVERSITY CIRCULAR**

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ANNUAL REPORT  
OF  
THE PRESIDENT OF  
THE JOHNS HOPKINS UNIVERSITY  
1932-1933



BALTIMORE  
THE JOHNS HOPKINS PRESS  
1933

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# THE JOHNS HOPKINS UNIVERSITY CIRCULAR

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New Series, 1933, No. 8

AUGUST, 1933

Whole Number, 451

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## ANNUAL REPORT OF THE PRESIDENT

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TO THE BOARD OF TRUSTEES OF THE JOHNS HOPKINS UNIVERSITY:

*Gentlemen:*

I have the honor to submit to you my report as President of the University, for the year ending June 30, 1933. To it are appended reports of the various departments and schools of the University, as well as that of the Registrar.

The separate reports of the various activities of the University give convincing evidence, I think, that the intellectual life and activity of the University is good; but the Financial Statement emphasizes a situation which must cause each of you deep concern. The necessity of securing more income for the University and of practising the utmost economy is more than clear.

As I reported to you in May, all the faculties of the University and all the members of the Administrative Staff offered voluntarily to the University a reduction in their salaries for the academic year 1933-1934. Such an act was indeed unprecedented and shows, if evidence is required, how devoted to the welfare of the University all of its members are. I wish to add this statement that the spirit shown by the Faculty during the past year has been in every respect cooperative and helpful, and I have taken several opportunities to express to everyone how grateful to them your Board is and how appreciative of their attitude.

In connection with the report of the Librarian, I beg to call attention to what he says concerning the Friends of the Library. This is a group of people interested in enabling the University to buy for its Library rare books and sets of books which under ordinary circumstances the

University could not afford to purchase. At the present time there are a hundred and seventy-two members and during the past year they contributed more than four thousand dollars. The good that comes to the University through this group cannot be expressed except in what some might call extravagant language. It is fair to say that every department of the Faculty of Philosophy, especially in the fields of History, Political Economy and Philology, benefits greatly. The officers of the Society arrange from time to time for meetings in Gilman Hall at which some speaker describes special features dealing with libraries and literary subjects. The whole movement has been one of the great successes of the University in the past few years.

I wish also to draw attention to what the Librarian of the Welch Medical Library says concerning the great value of the John Whitridge Williams' collection and also to what he says concerning the greater usefulness of the Library during the past year. Many important gifts have come to this Library in the way of manuscripts, collections, and so on, and in the special field of the History of Medicine, under the stimulus of Dr. Sigerist, great activity has been shown.

Another report deserves your special notice, that of the Johns Hopkins Press. In the past year numerous volumes have been published, including thirty-three by members of our own Faculty. The most notable publication has been the first volume of the Variorum Edition of Spenser. The preparation of this edition was the life work of the late Professor Greenlaw. The Tudor and Stuart Club assisted by the purchase of editions of Spenser and other authors, and a group of scholars has been engaged for many years in preparing texts. On the death of Dr. Greenlaw, it was decided to continue with the project under the editorial supervision of Dr. Charles G. Osgood of Princeton, and Dr. Frederick M. Padelford of Washington. The University should be very grateful to these two scholars for their whole-hearted cooperation. The other volumes to make up the complete edition will be issued promptly, some of them being ready for the Press at the present time.

I beg to call to your attention the fact that this year marks the completion of the first twenty years of the School of Engineering. It is true that engineering subjects were taught in the University many years before 1913, and it is also true that in the first group of students admitted to the University in 1876, engineers were invited to come and several of them were made Fellows. However, the Engineering School, as we understand it today, owes its origin to an Act of the General Assembly of the State of Maryland, and took form in the autumn of 1913. The outstanding fact in regard to this School is that from its origin special attention has been paid by the members of the Faculty to developing fields of investigation

and carrying on important researches. The number of students who return or come to this School for the purpose of learning methods of research is large, and the most conspicuous service rendered by the School to the country has undoubtedly been the emphasis placed upon this activity.

It may be considered worthy of note that the enrollment of students in the University has remained on the whole stationary, showing practically no decreases in many of the Schools and increases in several. In view of the financial situation throughout the whole country, it is in my judgment a notable fact that so many students have come to us especially in the fields of graduate study.

Many of the problems and suggestions referring to University organization, which I have discussed in previous reports to your Board have been under consideration during the past year by the various schools of the University; and, although no definite actions have been taken and no formal recommendations to your Board have been made by the faculties, nevertheless, in my judgment, great progress has been made. In my report to you this year, I have no further suggestions to offer, but hope that at the end of the coming year, I shall be able to report definite progress.

It is with deep regret that I report to you officially that at the close of the present year the activities of the Institute of Law will be suspended. This action has been taken because of the inability of the University at this time to secure sufficient endowment funds for its maintenance. I wish to express my sincere appreciation of the services to the University rendered by members of the staff of the Institute, and my pleasure at their productivity during the past five years.

Although new appointments on the Faculty are noted in another part of my report, I think I should call attention specifically to three additions to our permanent staff of professors which will take effect at the beginning of the next academic year. Dr. Philip Bard, Associate Professor at Harvard University, will come to us as Professor of Physiology in the School of Medicine, in succession to Dr. E. K. Marshall, who a year ago became Professor of Pharmacology.

In the Faculty of Philosophy, Dr. Benjamin D. Meritt of the University of Michigan will become Francis White Professor of Greek, in succession to Dr. C. W. E. Miller who retires this June. Dr. George Boas, Associate Professor of Philosophy in this University, will become Professor of the History of Philosophy.

#### DEATHS AMONG THE TRUSTEES AND FACULTY

It is with deep regret that I record the deaths of the following:

Mr. Charles P. Howland, member of the Board of Trustees and also

Member of the Walter Hines Page School of International Relations, was killed accidentally on November 12, 1932. Mr. Howland became a member of the Board of Trustees in October 1926, and from that time until his death was deeply concerned with the interests of the Institution. He attended practically all the meetings of the Board and his good judgment and wide knowledge of university affairs and university problems were of great value in all discussions before the Board of Trustees. I need not call attention here to his brilliant career and the long list of services which he rendered the country.

On July 22, 1932, Dr. Roger Jones, Professor of Greek, was accidentally drowned. Dr. Jones came to Johns Hopkins in the fall of 1931, having been before that on the staff of the University of California. During his brief residence here, he had won the respect and affection of all who had the privilege of knowing him. His work as a scholar was outstanding and his influence in his own Department and also in the whole University was such that he has been deeply missed.

On July 30, 1932, Dr. Wilfred P. Mustard, Professor of Latin, died after a long illness. Dr. Mustard was a graduate student of this University in 1899 and 1890, holding a Fellowship in the latter year, at the end of which he received the degree of Doctor of Philosophy. After holding academic positions in Colorado College and Haverford, he returned to the University in 1907 and became Professor of Latin. In his chosen field of work, Dr. Mustard's reputation was notable and he endeared himself by his personal qualities to all of his students and to all the members of the Faculty.

On October 24, 1932, Dr. Ernst Huber, Associate Professor of Anatomy, died suddenly. Dr. Huber was a Swiss by birth and received his early education in his native country. He came to us as Associate in Anatomy in 1921 and in 1925 became Associate Professor of Anatomy. His researches in the subject soon won for him a well deserved reputation, and his death removes from the Department of Anatomy one of its best scholars.

On December 10, 1932, Dr. William Sidney Thayer, Professor Emeritus of Medicine, died suddenly. Dr. Thayer was a graduate of Harvard College and of Harvard Medical School in the Class of 1889. He came to Johns Hopkins in 1890 and was associated with it from that time until his death. In 1919 he became Professor of Medicine in the University and Physician in Chief of the Johns Hopkins Hospital, positions which he held until 1921, at which time he became Professor Emeritus of Medicine. Dr. Thayer's distinguished career as a physician and a scholar is known to everyone, but it is proper to say that there has never been on the

Faculty of the University a man more deeply loved by associates and students than was Dr. Thayer.

#### RETIREMENTS

Dr. John M. T. Finney who was a student in Pathology at the University as early as 1889-1890 and who has been on the Surgical Staff since 1893, retires at the end of this academic year. Dr. Finney has been Professor of Surgery in the School since 1911, and it is the hope of everyone that he will long continue to maintain his professional connection with the School.

Dr. C. W. E. Miller who came to the University as a student in the College of Arts and Sciences in 1880 and who received both his bachelor's and his doctor's degree at this University will also retire at the close of this year. He was the successor to Professor Gildersleeve as the Francis White Professor of Greek, and has been an honored member of our Faculty for more than a generation.

Dr. W. W. Willoughby will also retire at the close of this year. He, as well as Professor Miller, obtained both his bachelor's and his doctor's degree at this University, and has been Professor of Political Science since the year 1905. When the Thomas B. Stran Professorship was established, it was attached to the Department of Political Science, and Professor Willoughby was its first incumbent.

I am glad to be able to report that in the case both of Dr. Miller and Dr. Willoughby, their retirements will not separate them from the University, and both of them will return next year as Lecturers in their respective departments.

#### FINANCIAL STATEMENT

The Financial Statement, showing in detail the operations for the fiscal year ending June 30, 1933, and the condition of the University finances on that date, is published separately and may be had upon request. Reference to it will reveal the following facts:

Total Income for Operations this year was.....	\$2,747,842.88
Total Income for Operations the preceding year was.....	3,006,378.59
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A decrease this year of.....	\$ 258,535.71
This decrease came from the following sources:	
Decrease in Tuition Fees.....	\$ 19,975.48
Decrease in Miscellaneous Income.....	167,612.62
Decrease in Funds Income.....	70,947.61
	<hr/>
	\$ 258,535.71

Of the total income, the amount received from students was 28.4 per cent., the income from invested funds 49.0 per cent., from the State of Maryland, 2.8 per cent., and from other items 19.8 per cent.

The total operating expenses for the year were..... \$2,915,781.93

A decrease for the year of..... \$216,503.81

This decrease is accounted for as follows:

Decrease in salaries..... \$ 99,004.29

Decrease in:

Apparatus, books, wages, fuel,

supplies, etc..... \$117,499.52

                     \$216,503.81

The amount paid for salaries during the year constituted 63.4 per cent. of the total expenses, the amount paid for expenses 36.6 per cent.

We closed the year with a deficit of \$167,939.05.

#### ASSETS AND LIABILITIES (JUNE 30, 1933)

The University has assets as follows:

Stocks, Bonds, Productive Real Estate, etc., belonging to Endowment Funds.....	\$30,069,742.74
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Plant, Equipment, etc.—

Old Physics Laboratory.....	\$ 177,846.86
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School of Medicine.....	8,160,616.31
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Homewood .....	4,202,233.62
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School of Hygiene and Public Health Bldg..	1,278,984.06
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                     13,819,680.85

Accounts receivable.....	556,771.94
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Cash on hand.....	210,609.79
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<i>Making Total Net Assets (Book Value).....</i>	<i>\$44,656,805.32</i>
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Corresponding to Liabilities, i. e., Funds and Balances, as follows:

Endowment Funds:

Unrestricted .....	\$ 4,228,082.25
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Restricted .....	25,760,489.95
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Profit Balance, Consoli dated Funds.....	241,737.46
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Profit Balance, Funds Con- solidated for Wilmer In- stitute Purposes.....	7,701.01
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                     \$30,238,010.67

Funds Subject to Annuity.....	560,442.50
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Unexpended income of Special Funds.....	139,301.82
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Sundry Open Accounts.....	516,305.15
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                     31,454,060.14

Leaving .....	\$13,202,745.18
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Which is represented by—

Plant, Funds .....	\$13,746,433.37
Against which has been charged—	
Accumulated Deficits .....	543,688.19
	<hr/> \$13,202,745.18

#### GIFTS AND BEQUESTS

The University is deeply grateful to its friends for their interest and support as evidenced by the following gifts and bequests received during the fiscal year ending June 30, 1933.

Anonymous—through Dr. Joseph S. Ames for tuition account...	\$ 24.00
Anonymous—through Dr. Joseph S. Ames for Students' Loan Fund .....	500.00
Anonymous—Institute of Law Fund .....	10,000.00
Anonymous—for Jacques Loeb Fellowships in Medicine .....	3,000.00
Anonymous—for Psychiatry Research Fund .....	5,000.00
Anonymous—gifts for Research in Syphilis .....	150.00
Miss Blanche Adler—Friends of the Library .....	25.00
Miss Blanche Adler—Emergency Fund of 1933 .....	100.00
Dr. Harry Adler—Friends of the Library .....	5.00
Mr. Charles B. Alexander—Friends of the Library .....	25.00
American Can Company—for American Can Company Fellowships in Chemistry (Oregon, California and Utah) .....	3,000.00
American Chemical Society—for Scholarship Mr. A. P. Smith ..	800.00
American Council of Learned Societies—for the publication of a documentary history of primitivism and antiprimitivism ....	1,500.00
American Dental Association—for support of swine feeding investigation .....	1,000.00
American Medical Association—for work on the Hormone of the Adrenal Gland .....	200.00
American Medical Association—for scientific study in Guatemala	300.00
American Medical Association—for study of Vertebrate Red Corpuscles .....	250.00
Dr. Joseph S. Ames—Friends of the Library .....	25.00
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Mr. Hari Austrian—Friends of the Library .....	10.00
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Chemical Foundation—for Francis P. Garvan Fellowship in Chemistry .....	2,000.00
Chemical Foundation—for Mary Carroll Garvan Fellowship in Chemistry .....	2,000.00



Chemical Foundation—for Patrick Garvan Fellowship in Chemistry .....	\$ 2,000.00
Chemical Foundation—for salary of Professor Chemical Education .....	2,000.00
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Commonwealth Fund for research in Insulin.....	3,500.00
Commonwealth Fund—for running expenses, Pathology.....	150.00
Commonwealth Fund—Psychiatry Fellowships.....	16,400.00
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Consolidated Gas Electric Light & Power Co. of Baltimore—Gas Engineering Fund.....	2,000.00
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Miss D. E. Dollar—gift through Wilmer Foundation for fund for publishing "Atlas of the Fundus Oculi".....	25.00

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Dr. H. A. B. Dunning—Friends of the Library.....	100.00
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E. I. duPont de Nemours & Co.—for Fellowship in Chemistry..	750.00
E. I. duPont de Nemours & Co.—for duPont Fellowship in Chemistry (Virginia).....	1,000.00
Mr. Charles W. Dupuis—Ohio Study, Institute of Law.....	100.00
Mr. Jacob Epstein—Lectureship in Jewish Literature.....	100.00
Fairfield-Western Maryland Dairy—Fellowship in Chemical Hygiene .....	1,700.00
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Mr. Louis Fine—Lectureship in Jewish Literature.....	100.00
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Rockefeller Foundation—for support of the Biological Sciences ..	45,000.00
Rockefeller Foundation—for research in Chemistry .....	11,250.00
Rockefeller Foundation—for Eastern Health District .....	27,956.50
Rockefeller Foundation—for Fluid Research in the Humanities ..	21,666.66
Rockefeller Foundation—for study of Obstetrical Records .....	5,900.00
Rockefeller Foundation—for Otology Research .....	12,168.09
Rockefeller Foundation—for research in Psychiatry .....	5,000.00
Rockefeller Foundation—for running expenses, Medicine .....	50.00
Rockefeller Foundation—for Fellows, School of Hygiene .....	5,800.00
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#### APPOINTMENTS, PROMOTIONS, AND RESIGNATIONS

(Up to and including October, 1933)

The following appointments, promotions and resignations have been made for 1933-34:

#### *Faculty of Philosophy*

New Titles:

Dr. C. W. E. Miller, Professor Emeritus of Greek and Lecturer in Greek.



- Dr. W. W. Willoughby, Professor Emeritus of Political Science and Lecturer in Political Science.  
 Dr. Ernst Cloos, Lecturer in Geology.  
 Dr. Ray L. Heffner, Associate in English.  
 Dr. Tracy M. Sonneborn, Associate in Zoology.  
 Dr. Alexander Weinstein, Associate in Zoology.

#### Appointments:

- Dr. Emil Forrer, of the University of Berlin, Visiting Professor in the Oriental Seminary, first term.  
 Dr. Thomas H. Briggs, Professor of Education, Columbia University, Visiting Professor of Education, first term.  
 Dr. Thomas Woody, Professor of the History of Education, University of Pennsylvania, Visiting Professor of Education, second term.  
 Dr. Johannes Hoops, of the University of Heidelberg, Speyer Visiting Professor of English.  
 Dr. Benjamin D. Meritt, Francis White Professor of Greek.  
 Dr. James G. McManaway, Associate in English.  
 Dr. Maurice L. Huggins, Associate in Chemistry.  
 Dr. Harold Cherniss, Associate in Greek.  
 Dr. Donald Pace, Instructor in Zoology.  
 Dr. Jacob Yerushalmy, Instructor in Mathematics.  
 Dr. Francis M. Hasbrouck, Instructor in Romance Languages.  
 Dr. Charles H. Shaw, Instructor in Physics.  
 Dr. John A. Sanderson, Instructor in Physics.  
 Dr. Augustus J. Prah, Instructor in German.  
 Dr. Joe Lee Dorroh, Instructor in Mathematics.

#### Junior Instructors

##### Romance Languages:

Emanuel von der Mühl

#### Student Assistants

##### Botany:

Rex N. Webster

##### Plant Physiology:

Otto Veerhoff

##### Psychology:

Carl E. Wilder

Martha E. Thrum

Thomas W. Harrell

##### Zoology:

Willard J. Trezise

John B. Buck

#### Promotions:

- Dr. George Boas, from Associate Professor of Philosophy to Professor of the History of Philosophy.  
 Dr. Richard M. Haywood, from Instructor to Associate in Latin.  
 Dr. David R. McKee, from Instructor to Associate in Romance Languages.

#### *School of Engineering*

##### Resignation:

- Dr. Oscar W. Lusby, Research Associate in Gas Engineering.

*School of Medicine \**

## New Title:

Dr. John M. T. Finney, Professor Emeritus of Surgery.

## Appointment:

Dr. Philip Bard, Professor of Physiology.

## Promotion:

Dr. Leo Kanner, from Associate in Psychiatry and Macy Foundation Fellow in Psychiatry to Associate Professor of Psychiatry.

*School of Hygiene and Public Health*

## New Titles:

Dr. Arthur Louis Meyer, Lecturer in Physiology.

Dr. Nathan Bernard Herman, Lecturer in Physiology.

## Appointments:

Dr. Ralph G. Schott, Assistant in Biology.

Dr. Marjorie E. Gooch, Assistant in Biology.

Dr. Alexander Gordon Gilliam, Instructor in Epidemiology.

Dr. Aurel Overton Foster, Instructor in Helminthology.

Dr. Anthony Ciocco, Student Assistant in Biology.

Dr. Floyd Owen Atchley, Student Assistant in Protozoology.

Dr. Katharine Atwood, Student Assistant in Biostatistics.

## Promotion:

Dr. Harry S. Mustard, from Associate to Associate Professor of Public Health Administration.

## Resignation:

Dr. George H. Ramsay, Associate Professor of Epidemiology.

*Walter Hines Page School of International Relations*

## Appointment:

Dr. Ernest Price, Associate Member.

## COMMEMORATION DAY

The fifty-seventh anniversary of the opening of the University was observed on Wednesday, February twenty-second, in the auditorium of the Peabody Institute, at eleven o'clock. The Reverend Arthur B. Kingsolving, Rector of St. Paul's Church, offered the opening prayer and pronounced the benediction. A portrait of Dr. John Whitridge Williams, late Professor of Obstetrics, painted by Thomas C. Corner, was presented to the University on this occasion, the presentation speech being made by Dr. Henrius J. Stander, Professor of Obstetrics and Gynecology, Cornell Medical College.

The principal address of the day was delivered by Mr. Bernard M. Baruch, on whom the honorary degree of Doctor of Laws was conferred. The music was rendered by the Johns Hopkins Orchestra.

\* For changes in titles and for changes in the personnel of the School of Medicine below the rank of Associate Professor, see p. 109.

## CONFERRING OF DEGREES

The conferring of degrees took place in the Lyric Theatre, Tuesday, June thirteenth. The Reverend John I. Yellott, of Belair, offered the invocation and pronounced the benediction.

The President addressed the candidates for degrees and made some announcements concerning the University.

A list of the names of recipients of degrees, during the academic year covered by this report, is included in the Report of the Registrar. Announcement of the commissions in the Reserve Officers' Training Corps awarded to members of the military unit of the University was made by Major Carl F. McKinney. The musical program was presented by the Johns Hopkins Orchestra.

## PUBLIC LECTURES

*The George Huntington Williams Memorial Lectureship*

"Disarmament to Date," was the subject of a lecture on Friday, March 10, by Mr. W. Arnold-Forster, Observer at Geneva for the British Peace Movement and Technical Adviser to the National Peace Council, London.

*The Percy Turnbull Memorial Lectures on Poetry*

Three lectures on The "Metaphysical" Poets were given on January 31, February 1 and 3 by Mr. T. S. Eliot.

*The James Schouler Foundation*

On October 31, November 2, and November 4, Thomas Shaw, Lord Craigmyle, Baron Shaw of Dumferline, delivered a series of lectures on "Chief Justice Marshall."

On November 22, "The Expanding Universe" was the subject of a lecture by Abbe G. Lemaitre, and on February 16, "Recent Developments in German Education" was the topic of Dr. Georg Kartzke, of the German Institute for Foreigners, University of Berlin.

*The James Schouler and Albert Shaw Foundations*

Two lectures on "American Diplomacy in the World War," were given by Dr. Charles Seymour, Provost and Professor of History at Yale University: March 6, "The German Appeal to Wilson"; March 8, "The Negotiation of the Armistice."

## OTHER LECTURES

March 21: "An Artistic and Religious Revolution in Ancient Egypt," by Dr. Hermann Ranke, Professor of Egyptology, University of Heidelberg.

Under the auspices of the Walter Hines Page School of International Relations, a series of lectures was given by Mr. Paul van Zeeland, Director of the National Bank of Belgium and Vice-Director of the Bank for International Settlements: May 1, "Work of the Lausanne and Stresa Conferences in Struggling against the Crisis"; May 3, "Fundamental Problems such as 'Politics or Economics?'" ; May 4, "The Financial and Economic Crisis as Illustrated in Belgium"; May 5, "General Summary and Conclusions."

#### *Public Lectures on Engineering Topics*

The following lectures to the student body, and open to the public were delivered during the course of the year by visiting engineers:

"What is Ahead of the Student of Engineering of Today?" by A. A. Potter, President, A. S. M. E.; "Transmission of Lightning Surges through Transformer Windings," by K. K. Palueff, Research Engineer, General Electric Co.; "A New Line of Low Voltage Circuit Breakers," by H. J. Lingal, Westinghouse Elec. & Mfg. Co.; "Cathode Ray Tubes, Characteristics and Applications," by Allan B. DuMont, DuMont Labs.; "Some Design Features of a Modern Broadcast Receiver," by Robert L. Kelly, Engineer, Atwater-Kent Mfg. Co.; "The New Police Transmitter," by E. C. Ballantine, R. C. A. Engineer; "Aircraft Radio," by F. C. McMullen, Western Electric Company; "Modern Developments in Precision Time-Keepers," by Max Goldstein, Johns Hopkins University; "A Method of Analyzing Governor Performance Using the Oscillograph for Recording Data," by J. W. Allen, Pennsylvania Water and Power Co.; "The Manufacture of Structural Steel Shapes and Related Specialities," by M. J. Hittinger, Engineer, Bethlehem Steel Corp.; "The Contributions of Science to the Medical and Surgical Professions," by Dr. T. S. Cullen, Johns Hopkins Hospital; "Bituminous Roads," by G. E. Robbins, Engineer New York District, The Texas Company; "Tar in Highway Work," by George E. Martin, Consulting Engineer, The Barrett Company; "Brick Roads," by A. A. Campbell, Assistant Chief Engineer, National Paving Brick Manufacturers Asso.; "Warrenite Bitulithie," by A. A. Johndrow, Manager Technical Service, Warren Brothers Company, Cambridge, Massachusetts; "The Work of the Underwriters' Laboratories," by G. B. Muldaur, National Board of Fire Underwriters.

#### *The A. R. L. Dohme Lectureship*

The following lectures were given before the department of Chemistry during the year 1932-33:

"Stereochemistry of Diphenyl," by Dr. Roger Adams, University of Illinois, on December 2; "Some New Developments in the Field of Pyri-

midine Chemistry," by Dr. Treat B. Johnson, Yale University, on February 17; "Hemoglobin, and Other Complex Salts of Bio-chemical Importance," by Dr. James B. Conant, Harvard University, on March 24; "Scientific Research and Industrial Depression," by Dr. C. E. K. Mees, Eastman Kodak Company, on May 5; "Two Dimensional Gases, Liquids, and Solids," by Dr. Irving Langmuir, General Electric Company, on May 5.

#### *The Herter Lectureship*

The twenty-first course of lectures was given by Professor J. J. R. Macleod of the University of Aberdeen, on "The Control of Carbohydrate Metabolism," and "The Nervous System and Carbohydrate Metabolism." The lectures were delivered on January 23, 25, and 27.

#### *The William Sydney Thayer and Susan Read Thayer Lectureship in Clinical Medicine*

The sixth course of lectures was delivered on April 5, 6, and 7 by Dr. Theobald Smith, formerly Director of the Department of Animal Pathology of the Rockefeller Institute for Medical Research, on "A Comparative Study of Focal Cell Reactions in Tuberculosis and Allied Diseases," and "Undulant Fever."

#### *The Charles E. Dohme Memorial Lectureship*

The ninth course of lectures was given by Sir Henry H. Dale, Director of the National Institute for Medical Research, Hampstead, London, England, the general subject being "Progress in Autopharmacology": April 20, "Introduction. The action of histamine and the evidence restricting its probable significance. Evidence for other natural vasodilators"; April 21, "Acetylcholine; its natural occurrence and probable function. Adenosine and its derivatives"; April 22, "Kallikrein. Vasodilators from blood-vessels, blood, intestine and brain. General survey of the possible functions of such constituents of the tissues, in relation to those of nerves and specific hormones."

#### *De Lamar Lectures in Hygiene*

The thirteenth series was as follows:

A series of three lectures on "The Principles of Heredity in Man and Their Application to Human Society," by Dr. Reginald Ruggles Gates, Professor of Botany, University of London, on October 19th, 20th, and 21st; "Current Theories of the Aetiology of Pellagra," by Dr. Harriette Chick, of the Lister Institute of Preventive Medicine, London, on November 15th; "Health Problems in Siam," by Dr. Edwin Charles Cort, Superintendent, Chiangmai Hospital, Siam, on March 14th; and "Psittacosis," by Dr. Thomas M. Rivers, Member of the Rockefeller Institute for Medical Research, New York City, on May 16th.

## THE TUDOR AND STUART CLUB

The Tudor and Stuart Club, founded by Sir William and Lady Osler in memory of their son, Revere Osler, carried on with success its usual program of activities. These included the annual public lecture on November 29 by Professor Allardyce Nicoll, of the University of London, on "Kenelm Digby, Poet, Philosopher, and Pirate" and smokers addressed by Dr. T. B. Futeher; by Dr. E. P. Goldschmidt, of London; by Dr. T. M. Parrott, of Princeton University; and by Mr. Edward Lucas White, of Baltimore. The members of the club paid a special visit to the Folger Shakespeare Library in Washington for an inspection of the rare books in that collection. The Club lost by death two valued members, Dr. Wilfred P. Mustard and Dr. W. S. Thayer. The officers chosen for the year 1933-1934 were Dr. W. H. Wilmer, president, Dr. R. D. Havens, vice-president, Dr. John C. French, curator, and Mr. W. W. Yardley, secretary-treasurer.

Respectfully yours,

JOSEPH S. AMES.

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## REPORTS OF THE INSTRUCTION IN THE CHIEF BRANCHES OF STUDY, 1932-1933

Prepared by the Principal Instructors in the Several Departments

### ARCHAEOLOGY AND ART

The instruction in 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, the Baltimore Museum of Art, and by conferences with individual students. The members of the seminary meeting weekly devoted their attention to selected problems in Greek and Roman archaeology. There were fifteen advanced students in the seminary and all presented long original papers as well as short reports. Eight absolved the requirements for the degree of Ph. D.:

J. Walter Graham, *Domestic Architecture in Classical Greece* (appointed assistant in Archaeology, Johns Hopkins University).

Ruth I. Hicks, *Thesaurus*.

Dorothy K. Hill, *Conventions of Attic Black-Figured Drawing* (appointed research assistant to Dr. Hetty Goldman, New York City).

Bertha L. Loomis, *The Elephant in the Literature and Art of Greece and Rome* (Professor of Classics and Acting Head of the Department, Hood College).

Susan H. Martin, *Ancient Melos* (appointed Professor of Classics in the College of Nazareth, Kalamazoo, Michigan).

Doris Raymond, *Macedonian Regal Coinage before Philip II* (appointed Professor of Classics, St. Mary's College, Leavenworth, Kansas).

William S. Rusk, *Walter, Latrobe, and Thornton and the Classical Influence on their Works* (appointed Head of Department of Fine Arts, Wells College).

Carl G. Wolf, *The Peacock in the Literature and Art of the Greeks and Romans* (Lutheran minister in Baltimore).

There were 114 different students taking Archaeology and Art or Ancient History as undergraduates or graduates or in the College for Teachers.

In addition to his direction of the seminary, Professor Robinson lectured once a week on Greek and Roman Vases (24 students), once a week on Topography and Monuments of Greece and Asia Minor (11 students), and once a week on the History of Greek Literature (12 students). Once a week for six weeks he gave a course in Modern Greek. In the History department he gave a graduate course once a week on the History of Greece in Hellenistic Times (10 students). In the Greek department he lectured once a week on Apollonius Rhodius with readings from the *Argonautica* (6 students). In the College for Teachers he lectured two hours a week on the History of Art (47 students) and two hours a week on Greek History (30 students).

Professor Robinson gave the following public illustrated lectures or addresses. Syracuse: July 7, "Homer and the Epic"; July 11, "The Life, Literary Qualities, and Characters of Homer"; July 18, "Sappho, the World's Greatest Lyric Love-Poetess"; July 25, "Aeschylus and the Greek Drama"; Aug. 1, "Herodotus, the Story-Teller, and Thucydides, the First Political Scientist"; Aug. 8, "Demosthenes and the Greek Orators"; "Greek and Latin Inscriptions of Sardis," "Coins of Olynthus," Harvard Club, Boston, Aug. 23; "Olynthus," Murray State Teachers' College, Classical Association of Kentucky, Murray, Kentucky, Oct. 21; "Athens," Freshman History Class of Johns Hopkins, Nov. 17; "Excavations at Olynthus," Vassar College, Dec. 2; "Egyptian Antiquities at Johns Hopkins," History Class of Maryland State Normal School, Dec. 7; "A Typical Block of Houses at Olynthus with

an Account of Three Hoards of Coins," Archaeological Institute, Syracuse, Dec. 28; "Olynthus," Cosmopolitan Club, Johns Hopkins, Jan. 21; "The Greek House," Maryland State Normal School, Feb. 9; "Macedonia," Presbyterian Social Union, Franklin Presbyterian Church, Feb. 16; "The Modern Making of Ancient History," History and Latin Teachers' Club, Friends' School, Mar. 2; "Olynthus," Park School, Mar. 6; Richmond, Va., April 10; Sweet Briar College, April 11; Roanoke, April 12; as guest of Classical Association of the Middle West and South, William and Mary College, April 15; Hamilton Presbyterian Church, April 20; "Domestic Greek Art," Eastern Arts Association, Wardman Park Hotel, Washington, D. C., April 27; "The Value of Archaeology and the Classics," Washington College, Chestertown, Maryland, May 11. A series of six lectures was also given in Greek and Roman Art at the Maryland Institute of Baltimore.

Professor Robinson has been appointed first vice president of the Archaeological Institute of America, a director of the College Art Association and Chairman of its Publication Committee, honorary president of the Baltimore Archaeological Society, member of the Council of the American Classical League, member of the Council of the Maryland Academy of Sciences, and editor of News, Discussions, and Bibliography of the American Journal of Archaeology. He was granted the degree of Doctor of Letters by Syracuse University on June 5.

Progress is being made on the Baltimore fascicles of the International *Corpus Vasorum Antiquorum* with a grant from the American Council of Learned Societies. The first fascicle is in the hands of the printer. The American Council also made a grant of \$5,000 toward the publication of vol. V of *The Excavations at Olynthus*.

George E. Mylonas, Ph. D., has been appointed assistant professor of Fine Arts at Washington University, St. Louis. Mr. R. C. Medford, A. M., has been appointed Director of the Museum of Fine Arts at Hagerstown. Miss Marian Welker won the fellowship of the American School of Classical Studies in Athens, given to the one who received the highest marks in seven examinations. She is the fourteenth student of this department to win that high honor. Miss Sarah Freeman, Miss Gladys Davidson, and Mr. Edward Fluck, Hopkins graduate students and fellows of the American School in Athens, are continuing their researches in Greece. Arthur W. Parsons has been appointed for three years as fellow of the excavations in the Athenian Agora. The appointments given to this year's Ph. D.'s are mentioned above.

Dr. Marian Guptill and Mr. J. Walter Graham, as research assistants, have done efficient work, especially in connection with the finds from Olynthus, and have been reappointed.

#### PUBLICATIONS

##### Books

David M. Robinson.

The Greek and Latin Inscriptions of Sardis (*Sardis VII*). Pp. 198, 212 figs., 13 pls. Leyden, E. J. Brill, 1932 (with W. H. Buckler).

Excavation at Olynthus (Part V). Mosaics, Vases, and Lamps Found in 1928 and 1931. Pp. xxii, 297, 18 figs., 209 pls. (14 colored). Johns Hopkins Press, 1933.

Excavations at Olynthus (Part VI). The Coins Found at Olynthus in 1931. Pp. xiv, 111, 2 figs., XXX pls. Johns Hopkins Press, 1933.

##### Articles

Fresh Revelations of the Art and Life of Classical Greece. *Gardens, Houses, and People*, VII, Jan., 1-3, 25; Feb., 4, 14; Mar., 4, 14; and April, 4-5.

Illustrations of Aeschylus' *Choephoroi* and of a satyr play on Hydrias by the Niobid painter. *A. J. A.*, XXXVII, 401-406.



- New Inscriptions from Olynthus and Environs. *T. A. P. A.*, LXII, 40-56.  
 Excavations at Olynthus. *Bull. of Am. Council of Learned Societies*, no. 18, 111-15.  
 A Typical Block of Houses at Olynthus with an Account also of Three Hoards of Coins. *A. J. A.*, XXXVII, 111-13.  
 Bibliography of Archaeological Books of 1932. *A. J. A.*, XXXVII, pp. 363-375.  
 Rev. of Memoirs of the American Academy in Rome IX. *A. J. A.*, XXXVI, 209 f.  
 Rev. of Baur Rostovtzeff, Excavations at Dura-Europos, preliminary report of second season. *A. A.*, XXXIII, 279 f.  
 Rev. of Hetty Goldman, Excavations at Eutresis. *Art Bulletin*, XIV, 277-78.  
 Rev. of Memoirs of the American Academy in Rome, X. *A. J. A.*, XXXVII, 188-89.  
 Editor (with G. H. Chase and H. N. Fowler) of *Corinth*. Vol. I, *Topography, Architecture*, 1932; Vol. XI, *The Coins*, 1933.  
 Joint Editor (with G. D. Hadzsits) of *Our Debt to Greece and Rome*.  
 B. L. Ullman's Ancient Writing and Its Influence; J. T. Dobson's Ancient Education and Its Meaning to Us; Arthur Fairbanks' Greek Art.  
 Editorial work as associate editor of *Supplementum Epigraphicum Graecum*, the *Classical Weekly*, the *American Journal of Archaeology*, the *American Journal of Philology*, the *Art Bulletin*, *Art and Archaeology*, and *Litteris*.  
 Editor, *Johns Hopkins University Studies in Archaeology*: Vol. 15, Hazel Hansen, *Early Civilization in Thessaly*; Vol. 16, Bessie E. Richardson, *Old Age Among the Ancient Greeks*; Vol. 17, Mabel Gude, *The History of Olynthus with Prosopographia and Testimonia*.  
 Editor, archaeological news, discussions, and bibliography. *A. J. A.*, XXXVI, 327-67, 521 64; XXXVII, 117 72.  
 J. Walter Graham.  
 . Lamps from Olynthus, 1931, in Robinson, *Excavations at Olynthus*, V, 265-84.  
 Dorothy K. Hill.  
 Some Boundary Stones from the Piraeus. *A. J. A.*, XXXVI, 254-60.  
 Bessie E. Richardson.  
*Old Age Among the Ancient Greeks*. Johns Hopkins Press, 1933, pp. xv, 376, 27 figs.  
 The Greek Version of De Senectute. *T. A. P. A.*, LXIII, xlix-1.  
 A Comparative Study of the Vergilian and Dantesque Topography of the Inferno and Purgatorio. *T. A. P. A.*, LXIII, lxx-lxxi.  
 Duration of Life Among the Greeks from Inscriptional Evidence. *A. J. A.*, XXXVII, 111-12.  
 DAVID M. ROBINSON,  
*W. H. Collins Vickers Professor of Archaeology and Epigraphy  
 and Lecturer on Greek Literature.*

## CHEMISTRY

The total enrollment in the Department of Chemistry was 785 persons; distributed as follows: 106 graduate students (30 State Fellows), 10 research fellows, 395 (20 newly enrolled in Feb.) in regular undergraduate courses, 13 B.S. Chemistry seniors; 8 graduate students from other departments and 11 undergraduates in Faculty of Philosophy courses only; summer session 1932 regular courses 76, conferences 21; night school 145. On account

of the large number using the undergraduate stockroom one laboratory section in Chemistry 3 worked at night.

Two additional fellowships have been endowed: the H. A. B. Dunning Fellowship for Maryland and the F. G. Donnan Fellowship for England, by Dr. H. A. B. Dunning and Professor W. A. Patrick respectively. The Eli Lilly Company Fellowship and the A. R. L. Dohme lectureship have been renewed for another four year period. The following new appointments have been made to fellowships: P. B. Onderdonk, H. A. B. Dunning Fellowship for Maryland; W. W. Davis, Eli Lilly Company Fellowship for Indiana; J. F. Taylor, Francis P. Garvan Fellowship for New York; Sutton Redfern, Fleischmann Company Fellowship for Washington; C. F. Squire, Francis P. Garvan Fellowship at large.

The Fourth Annual Conference of Donors under the National Fellowship Plan was held on May 5 with Dr. C. E. K. Mees of the Eastman Kodak Co. and Dr. Irving Langmuir of the General Electric Co. as guest speakers. For the subjects of their addresses and a list of the other Dohme Lectures see page 22 of this report. A special lecture was given before the Department by Dr. John R. Bates of the University of Michigan on March 30, on "The Reaction of Hydrogen Atoms with Oxygen." Outside speakers also participated in some of the seminars and in the Chemistry Conferences in the Summer Session.

Chemistry 1C and 2C were combined, Dr. Gordon, lecturer, Mr. Shea in charge of the laboratory. Dr. Patrick gave a special course in physical chemistry for engineering students the second semester. Other undergraduate courses were given as scheduled. Graduate instruction followed the same general plan as last year, with chief emphasis upon research. 53 students carried on research the first half of the year and 64 the second half; 15 doctors of philosophy were engaged in research and all of the members of the faculty carried on or directed research. A brief resumé of the principal research activities is given herewith.

#### RESEARCH

*Organic Chemistry.* Under the direction of Dr. Reid the study of aliphatic sulphur compounds has been extended to the polymethylene dimercaptans and their reactions to form ring compounds. The study of low temperature oxidation of organic compounds has been continued. The investigation of certain ring compounds containing two nitrogen atoms has been begun. Dr. Jenkins has been concerned with unsymmetrical benzoin and their derivatives, the mechanism of their formation and rearrangements. Dr. Corwin was interested in synthetic methods applicable to the production of substances hitherto unavailable in order to throw light upon the chemical nature of chlorophyll and related substances. Dr. Craig has investigated syntheses of nicotine analogs and has devised a new synthesis of nicotine itself. A number of compounds have been prepared and their insecticidal properties determined. Dr. Ruhoff has studied the preparation and properties of the isomeric dichlorophenols.

*Physical and Organic Chemistry.* Dr. Rice has investigated the thermal decomposition of a variety of organic compounds into free radicals and has used the data so obtained to predict quantitatively the decomposition of other aliphatic compounds. Mr. Lipnick, working in the Physics Laboratory, has made measurements of supersonic sound velocities in gases with reference to other properties of the gases. Dr. Whaley has studied energy exchange between gaseous organic molecules and a metal surface.

*Thermodynamics.* Dr. Andrews, Dr. Ahlberg, Dr. Blue and their associates were interested in the investigation of thermal energy distribution in molecules as given in the following outline: (1) Experimental measurements of heat capacities with the associated problems of attaining and measuring low temperatures (liquid helium). Also adsorption and magnetic experiments at

low temperatures. (2) The nature of thermal energy as obtained from spectroscopic data, including new Raman data; and correlation with the mechanical vibrational spectra from molecular models. Mechanical crystal models of neon and nitrogen and correlation with actual crystal motions. Investigations of the rôle of the heavy H isotope in molecules are in progress.

*Inorganic Chemistry.* The research of Dr. Frazer and his students has been largely in the field of catalysis and adsorption, particularly with the chromites and metal oxides stabilized on inert oxides such as aluminum. Also the study of the relation of catalytic activity and spacing of the metal atoms in metal catalysts has been investigated both from the standpoint of their catalytic activity and X-ray structure. The possibility of preparing bivalent silver compounds and the effect of pressure on the stability of ammine salts have been investigated. Dr. Loane has studied the mechanism of the oxidation of carbon monoxide by cobalt oxide, prepared by oxidation of cobalt amalgam. Dr. Ebert has prepared a higher fluoride of silver by action of fluorine on silver foil at higher temperatures. This is a very active oxidizing agent, liberating ozone from dilute acids and oxygen from all aqueous solutions, converting chromium and manganese salts to chromates and permanganates, respectively, and oxidizing alcohol to acetaldehyde. Dr. A. B. F. Duncan has photographed bands belonging to the NiH molecule under low dispersion in the visible and under high dispersion to settle the origin of the bands.

*Quantitative Chemistry.* Dr. Thornton has investigated the estimation of bivalent and trivalent iron by the titanium method and done further work on the perchlorate method for potassium.

*X-Rays and Structure of Matter.* Under Dr. Ott's direction extensive measurements have been made on interplanar distances in crystals of paraffins, alcohols, alkyl bromides and acids and various mixtures of pairs of these. X-ray diffraction from liquids and gases has been studied. Certain mixed metal catalysts have been investigated with reference to crystal structure and dimensions as correlated with catalytic activity. In association with Dr. Gordon an X-ray study of the mechanism of the dyeing of wool has been made. Dr. Huggins has attacked the structure of complicated crystals along new lines and has derived an expression relating the interatomic distances, bond energies and vibration frequencies of diatomic molecules.

*Atomic Chemistry.* Dr. Mayer and his associates attacked the problem of atomic binding in molecules and crystals and measured lattice energies of RbBr and NaCl. With Dr. I. Wintner studies of low vapor pressures of salts and electron diffraction from gaseous salt molecules are under way.

*Physical Chemistry.* Dr. Patrick and associates continued the investigations of various colloidal phenomena. Capillary and plane surface adsorption studies were undertaken and interesting results were obtained in both cases. Adsorption measurements were made with precision quartz spiral balances, with micro balances, and with new micro electrical methods. New and interesting results were also obtained with studies of the diffusion of solutes in hydrated gels. Viscosity of colloidal solutions in fine capillaries, relation between electro kinetic potential and modulus of elasticity film pressure of mono molecular films, and the chemical retention of water by alumina, are among some of the other subjects of study. In addition an extensive study of the polymerization reactions brought about between various hydrocarbons and sulphur monochloride has been made.

#### PUBLICATIONS

D. H. Andrews, with V. Dietz.

The symmetry of the benzene molecule. *Journal of Chemical Physics*, 1, 62 (1933).

D. H. Andrews, with J. W. Murray.

Raman Spectra of ring compounds. I. Mono-substituted benzene compounds. *Journal of Chemical Physics*, **1**, 406 (1933).

Lyman C. Craig, with David I. Macht (jointly from J. H. U. Chem. Lab. and Hynson, Wescott & Dunning).

Comparative toxicity of nicotine alkaloid and nicotine salts. *Proceedings of the Society for Experimental Biology and Medicine*, **29**, 1250 (1932).

Lyman C. Craig.

Synthesis of a series of alpha-substituted N methylpyrrolines. *Journal of the American Chemical Society*, **55**, 295 (1933).

Elizabeth A. Crigler.

Raman Spectra Studies. I. Diphenylmethane, aliphatic bromides and mercaptans. *Journal of the American Chemical Society*, **54**, 4199 (1932); II. The relative intensities of characteristic lines in Raman spectra of benzene-toluene mixtures. *Ibid.*, 4207 (1932).

V. R. Dietz.

The vapor pressure of crystalline benzene and cyclohexene. *Journal of the American Chemical Society*, **55**, 472 (1933).

M. S. Ebert, E. L. Rodowskas and J. C. W. Frazer.

Note: Higher valence states of silver. *Journal of the American Chemical Society*, **55**, 3056 (1933).

M. L. Huggins.

Two rulers for use in analyzing rotating crystal photographs. *Review of Scientific Instruments*, **4**, 10 (1933).

Reviews: von Hevesey, Chemical analysis by X Rays and Its Applications, *Journal of Chemical Education*, **9**, 1841 (1932); Soddy, The Interpretation of the Atom, *ibid.*, **10**, 64, (1933); Physics Staff, University of Pittsburgh, An Outline of Atomic Physics, *ibid.*, **10**, (1933).

S. S. Jenkins.

The Grignard reaction in the synthesis of ketones. I. A new method of preparing desoxybenzoins. *Journal of the American Chemical Society*, **55**, 703 (1933); II. The preparation of a series of mono- and di chlorodesoxybenzoins. (With Edwin M. Richardson.) *Ibid.*, 1618; III. The preparation and characterization of a series of mono and di chlorodesoxybenzoins. *Ibid.*, 2896.

Note: The synthesis of isomeric unsymmetrical benzoins. *Ibid.*, **55**, 3048 (1933).

M. L. Krahrl.

The dependence of crystallization velocity on molecular structure. *Journal of the American Chemical Society*, **55**, 1425 (1933).

C. M. Loane.

A new method for the preparation of oxide catalyst for the carbon monoxide oxidation. *Journal of Physical Chemistry*, **37**, 615 (1933).

E. C. Lory.

The catalytic activity of chromites for the oxidation of carbon monoxide. *Journal of Physical Chemistry*, **37**, 685 (1933).

K. S. Markley (with R. E. Gibson). (From Geophysical Laboratory, Carnegie Institution, and Chemistry Department, J. H. U.)

Polymorphism in the substituted thiazole, 3 phenyl 2, 4-thiazolidione. *Journal of the American Chemical Society*, **55**, 2399 (1933).

J. E. Mayer and D. H. Andrews.

Subatomic phenomena. Chapter III. *Annual Survey of American Chemistry*, Vol. 7, 1932. Pages 38-44.

Joseph E. Mayer and Margaret McC. Maltbie.

Die Gitterenergien der Erdalkalioxyde und—Sulfide und die Elektronenaffinität des Sauerstoffs und des Schwefels. *Zeitschrift für Physik*, **75**, 748 (1932).

Joseph E. Mayer.

Dispersion and polarizability and the van der Waal's potential in the alkali halides. *Journal of Chemical Physics*, **1**, 270 (1933).

The lattice energies of the silver and thallium halides. *Ibid.*, 327.

Joseph E. Mayer, Stephen Brunauer and Maria Goeppert Mayer.

The entropy of polyatomic molecules and the symmetry number. *Journal of the American Chemical Society*, **55**, 37 (1933).

Joseph E. Mayer and Maria Goeppert Mayer.

The polarizabilities of ions from spectra. *Physical Review*, **43**, 605 (1933).

John W. Murray and James W. Swaine.

Note: The Raman spectra of the dichlorobenzenes. *Journal of Chemical Physics*, **1**, 512 (1933).

Emil Ott, with R. W. Cairns.

X-Ray studies on the system nickel-oxygen-water. I. Nickelous oxide and hydroxide. *Journal of the American Chemical Society*, **55**, 527 (1933); II. Compounds containing trivalent nickel. *Ibid.*, 534.

Emil Ott, with Wallace E. Duncan.

The formation of basic lead polysulphides by the reaction between basic lead mercaptides and sulfur. *Journal of the American Chemical Society*, **54**, 4463 (1932).

Emil Ott, with I. Levin.

Observations concerning the structure of interference lines obtained by the powder method. *Z. Kristallographie*, (A) **84**, 167 (1933).

X-Ray study of opals, silica glass and silica gel. *Ibid.*, **85**, 305 (1933).

Emil Ott and F. B. Slagle.

X-Ray studies of fatty acids and of mixtures of fatty acids. *Journal of Physical Chemistry*, **37**, 257 (1933).

Emil Ott and D. A. Wilson.

Raw ramie. *Journal of the American Chemical Society*, **55**, 2608 (1933).

Note: X-Ray studies of very complex mixtures of long chain compounds. *Science*, **78**, 16 (1933).

E. Emmet Reid.

A new era in synthetic organic chemistry. *Journal of Chemical Education*, **9**, 1561 (1932).

E. Emmet Reid and Wilton C. Harden.

The condensation of certain phenols with some aliphatic aldehydes. *Journal of the American Chemical Society*, **54**, 4325 (1932).

E. Emmet Reid and W. Norton Jones, Jr.

The composition and possible constitution of several sulphur dyes. *Journal of the American Chemical Society*, **54**, 4393 (1932).

- E. Emmet Reid, with Jane Dick Meyer.  
Isomorphism and alternation in the melting points of the normal alcohols, acetates, bromides, acids and ethyl esters from  $C_{10}$  to  $C_{18}$ . *Journal of the American Chemical Society*, **55**, 1574 (1933).
- E. Emmet Reid, with John R. Sampey, and Kenneth H. Slagle.  
Some analytical reactions of alkyl sulfides in benzene and purified naphtha solutions. *Journal of the American Chemical Society*, **54**, 3401 (1932).
- E. Emmet Reid, with John R. Sampey.  
Some analytical reactions of alkyl mercaptans in benzene solution. *Journal of the American Chemical Society*, **54**, 3404 (1932).
- E. Emmet Reid, with N. B. Tucker.  
Cyclic and polymeric compounds from the reactions of ethylene mercaptan with polymethylene halides. *Journal of the American Chemical Society*, **55**, 775 (1933).
- F. O. Rice, W. R. Johnston and B. L. Evering.  
The thermal decomposition of organic compounds from the standpoint of free radicals. II. Experimental evidence of the decomposition of organic compounds into free radicals. *Journal of the American Chemical Society*, **54**, 3529 (1932).
- F. O. Rice.  
The thermal decomposition of organic compounds from the standpoint of free radicals. III. The calculation of the products formed from paraffin hydrocarbons. *Ibid.*, **55**, 3035 (1933).
- Sydney Steele, Commonwealth Foundation Fellow. (From U. S. Bureau of Standards.)  
Infra red radiation from an Otto cycle engine. *Industrial and Engineering Chemistry*, **25**, 388, (1933).
- Wm. D. Urry. (Johnston Scholar).  
Further studies in the rare gases. I. The permeability of various glasses to helium. *Journal of the American Chemical Society*, **54**, 3887 (1933).  
An analysis of the adsorption phenomena with silica gel at low temperatures. *Journal of Physical Chemistry*, **36**, 1831 (1932).  
Radioactivity measurements. I. The radium content of the Keweenaw basalts and some accessory minerals. *Proceedings of the American Academy of Arts and Sciences*, **68**, (no. 4) 125 (1933); II. The occurrence of radium, uranium and potassium in the earth. *Ibid.*, 137.
- A. Wachter. (Nat. Res. C. Fellow).  
Thermodynamic properties of solid solutions of gold and silver. *Journal of the American Chemical Society*, **54**, 4609 (1932).
- Fred. R. Whaley.  
The exchange of energy between polyatomic molecules and a metallic surface. *Journal of Chemical Physics*, **1**, 186 (1933).

#### SPECIAL ACTIVITIES

Twenty-five papers were presented by members of the Department at the Detroit and Washington meetings of the American Chemical Society. The alumni had dinner meetings at both places, Dr. Ames being the guest speaker at Washington. Dr. L. C. Newell was elected president and Dr. N. E. Gordon secretary of the Chemistry Alumni. At the joint meeting of the A. A. A. S. and Mid-Atlantic Sections of the A. C. S. in Atlantic City papers were pre-

sented by Doctors Ott, Huggins, Dietz, and Goldheim, and a demonstration of Dr. Andrew's molecular models was held in connection with the Scientific Exhibition in Constitution Hall. The following special lectures were given by members of the Staff: Chemical Department, University of Heidelberg, F. O. Rice, "Preparation and Properties of Free Radicals"; Leningrad, Symposium on the Solid State, J. E. Mayer and Maria Goeppert Mayer, "The Theory of Ionic Patterns." Physical Society Meeting, Atlantic City, J. E. Mayer and M. L. Huggins, "Interatomic Distances in Crystals of the Alkali Halides." Chemists' Club, Loyola College: W. M. Thornton, Jr., "Organic Precipitants"; F. O. Rice, "Free Radicals in Organic Chemistry"; D. H. Andrews, "Thermal Motion in Molecules"; J. C. W. Frazer, "Heterogeneous Catalysis"; and W. A. Patrick, "Colloidal Chemistry." Dr. Andrews also lectured on Mechanical Models of Molecules before the following: Montreal Section of the Society of Chemical Industry; Department of Chemistry, Wellesley College; Lawrenceville School (N. J.); Philosophical Society of Washington, D. C.; Wilson College; Atlanta Section, North Carolina Section, and Akron Section, American Chemical Society; Chemistry Department, University of Virginia; Chemistry Club, Goucher College; Brooklyn Polytechnic Institute; and Amherst College; and at the Maryland State Normal School on "Contributions of Chemistry to Modern Life and Thought."

Dr. Rice was re-elected secretary-treasurer of the Maryland Section, American Chemical Society. Dr. Frazer was acting secretary-treasurer for most of the past year while Dr. Rice was in Germany. Dr. Andrews was vice-chairman of the Physical and Inorganic Section of National A. C. S.; he was elected a member of the American Philosophical Society. Dr. Gordon resigned as editor-in-chief of the *Journal of Chemical Education* and the editorial offices were moved from the University to the Mack Printing Company plant in Easton, Pa.

O. A. Short, B. S. in Chemistry junior, under the direction of Dr. Thornton, analyzed an imported tin-lead alloy used by our machine shop for making gaskets in order that the material may be prepared in this country.

#### RESIGNATIONS AND APPOINTMENTS

The personnel of the chemistry staff for 1933-34 will be about the same as this year, except that Dr. A. B. F. Duncan, associate in chemistry for the past three years, has resigned. His work will be divided among the other members of the staff. Dr. M. L. Huggins, formerly associate professor at Stanford University and Johnston Scholar here this year has been reappointed Johnston Scholar and will also have the title of associate in chemistry. He will give the course in Chemistry 1C and Dr. Gordon will give 2C. Mr. E. R. Blanchard has been appointed Grafflin Scholar. The Du Pont and the Jones Scholarships have been discontinued.

#### DEGREES AND FELLOWS

Eighteen students received the Ph.D. and one received the M. A. Ten received the B.S. in Chemistry degree. Those who received the Ph.D. are: W. E. Bleick, T. Cross, W. R. Johnston, R. D. Stiehler, and D. A. Wilson, State Fellows; L. Helmholtz, I. Levin, J. H. Long, and R. N. Love, who entered under the New Plan; and S. Brunauer, J. Greenberg, W. E. Land, W. H. Lockwood, J. R. Meadow, J. W. Murray, R. Roseman, T. F. Shea, and F. B. Slagle. Miss Hazel G. Robinson received the M. A. degree. For titles of the dissertations and the names of those receiving the B. S. in Chemistry see the Registrar's Report. Dr. M. L. Huggins was Johnston Scholar, Mr. L. Helmholtz was Grafflin Scholar, and Dr. F. R. Whaley was Du Pont Fellow. Dr. R. W. Blue and Dr. L. C. Craig, National Research Council Fellows, were Fellows by Courtesy.

E. EMMET REID,

*Secretary Chemistry Staff*

### COMPARATIVE LITERATURE SEMINARY

Seven students were accepted as members of the Seminary during the year 1932-33: one came from the Department of English, two from the Department of History, and four from the Department of Romance Languages.

Special attention was paid to the study of the psychology of travellers in foreign countries, and to the attitude of the American Press towards Montesquieu from 1700 to 1790.

Very satisfactory progress was made by Miss Francis, in her compilation of a bibliography of the French books printed in America during the nineteenth century.

During the year Professor Chinard continued to act as editor of the publications of the Institut Français de Washington. Two volumes were issued by the Johns Hopkins Press: *Brigadier General Louis Lebègue Duportail*, by Miss Elizabeth S. Kite, and *Inconographie Métallique du Général Lafayette*, by Dr. Paul Olivier.

GILBERT CHINARD,  
*Professor of Comparative Literature.*

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### EDUCATION

As Professor of Education, I beg to make the following report concerning the Department of Education in the School of Higher Studies of the Faculty of Philosophy.

If we regard Education as a social phenomenon as we must, it then becomes a matter of great importance to investigate the conditions which best promote learning, not necessarily schooling; what agencies affect physical, mental, or moral growth. Out of such problems arises the need for scientific research in Education. The answers to these queries may not affect the practical school situation at all but they do advance the frontier of knowledge in the field of Education. For this sort of research students enroll in the School of Higher Studies of the Faculty of Philosophy and work for the Master of Arts or Doctor of Philosophy degrees.

During the past year, seven students were enrolled in the department and in June, 1933, two were awarded the degree of Doctor of Philosophy, Michael F. Rouse (Brother Bede) and G. Ballard Simmons.

For a statement concerning the activities of the members of the department during the past year, see the report on the School of Higher Studies in Education.

FLORENCE E. BAMBERGER,  
*Professor of Education.*

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## ENGLISH

During the year 46 students were enrolled in the department, 31 men and 15 women. These students hold degrees from 33 institutions, representing every section of the country; five are holders of degrees from this University. On June 13, three of the students of the department received the doctorate: Lewis Franklin Ball, Thomas Austin Kirby, and Mary Fisher Parmenter. Mr. Ball in his dissertation made a study of the structure of the minor epics of the English Renaissance; Mr. Kirby presented a detailed examination of Chaucer's *Troilus* in relation to its chief source, the *Filostrato* of Boccaccio, and to the courtly love literature of the Middle Ages; Miss Parmenter examined anew the relationship of Edmund Spenser and Gabriel Harvey.

This has been a notable year for the Spenser project launched by the late Professor Greenlaw and carried forward under the auspices of the department. Volume I of the projected variorum edition of Spenser's works, which by its distinguished format reflects great credit on the Johns Hopkins Press, appeared in December, 1932. This volume, devoted to the first book of the *Faerie Queene*, has as its special editor Professor Frederick M. Padelford of the University of Washington, who has had this section of the work in charge since the inception of the project nearly a decade ago and who is at present engaged on Book Three. From 1930 to 1932 Professor Padelford had the assistance of Drs. Ray Heffner and Ernest A. Strathmann of our University, who were responsible for the arrangement of material, for much of the textual work, and for the entire textual appendix. Dr. James G. McManaway, secretary of the Spenser research unit, assisted with most of this work. The late Professor Greenlaw served until the time of his death as special editor of Volume II, now completed and at the press. There is good prospect of finishing the work on the first six volumes, comprising the six books of the *Faerie Queene*, within the next two years. Because of the resignation of Dr. Strathmann, who left us last fall to become assistant professor of English in Pomona College, the Spenser research unit is now reduced to a staff of two, but in spite of this reduction the work has proceeded at a satisfactory pace, and this without any sacrifice in the quality of the output. The entire work is now under the general editorship of Professor Charles G. Osgood of Princeton University, who has come to Baltimore frequently in order to give personal supervision to every detail. During the first half of the coming year he will devote all his time to the edition.

During the first term, Professor Havens conducted a pro-seminary in English romanticisms, and a seminary on Wordsworth's *Prelude*. By lengthening the class meetings and concentrating the work he was able to do almost as much in a single term as he ordinarily does in a year. During the second term, he went abroad, on leave of absence, and devoted himself to the completion of his forthcoming study of the *Prelude*. He served as chairman of the sub-committee appointed by the American Association of University Professors to investigate academic freedom and security of tenure in one of our larger universities. He represented the Johns Hopkins University at the centenary of the University of Zurich, April 28 to May 1. In the autumn of 1932 he was elected to membership in the Academic Council for a period of five years. While in residence he continued his service as a member of the editorial board of *Modern Language Notes*.

Professor Malone served as chairman of the department, and as president of the History of Ideas Club, throughout the year. He read a paper on Changing Fashions of Grammatical Study at the annual meeting of the Modern Language Association of America. At the same meeting he was appointed a member of the committee in charge of the prospective Dictionary of Old English to be got out under the auspices of the Association. During

the year he lectured weekly on mediaeval civilization, and gave a pro-seminary in Old English heroic poetry, a seminary in English morphology, and a seminary in the metrical romances of Middle English. He continued to serve as a member of the editorial board of *Modern Language Notes*. In September, 1932, the twelfth volume of *Hesperia Ergänzungsreihe, Schriften zur englischen Philologie*, the monograph series under his editorship, was issued by the Johns Hopkins Press. During the summer of 1932 he held the Frederick Ives Carpenter Visiting Professorship of English in the University of Chicago. The work on his research project, a critical bibliography of Old English writings, had proceeded steadily during the year, with the active cooperation of Drs. Einarsson and Ericson.

Professor Louis I. Bredvold of the University of Michigan served as visiting professor in the department during the second term. He conducted a seminary and a pro-seminary in the English literature of the seventeenth century, a field which had been neglected at this University since the death of Professor Greenlaw in 1931, assisted in the conduct of doctors' examinations, advised students concerning their theses, and read papers before the Johns Hopkins Philological Association and the History of Ideas Club. The soundness of Professor Bredvold's scholarship and the stimulating quality of his teaching combined with his pleasant personality, his enthusiasm and vigor made him a valuable addition to our academic family.

Associate Professor Spencer gave an introductory course in European drama and dramatic criticism, a pro seminary in the English drama to 1600, and a seminary dealing with various problems in the history of seventeenth century and eighteenth century drama. He served as a co editor of *Modern Language Notes*, and as secretary of the Johns Hopkins Philological Association, before which he read a paper on "Seventeenth century Cuts in Hamlet's Soliloquies." This paper he afterwards presented at the annual meeting of the Modern Language Association of America. He also served on a committee of that Association for the revival and administration of the Furness Variorum Edition of Shakespeare. During the summer of 1932 he gave courses in Shakespeare and in the English drama from Sheridan to Shaw at the Harvard Summer School. He also gave a lecture recital on "Drama and Society" at Radcliffe College.

Dr. Einarsson conducted an introductory course in Old and Middle English and a pro seminary in Icelandic. He gave a lecture at the Johns Hopkins Playshop on Björnsterne Björnson.

Dr. Heffner was in charge of the Spenser research unit during the year, working as has been said, under the general supervision of Professor Osgood of Princeton. He read a paper before the Johns Hopkins Philological Association entitled "Spenser and Essex." At the annual meeting of the Modern Language Association of America he made a report on the progress of the Spenser Allusion Book, a cooperative undertaking now proceeding under his leadership. During the summer of 1932 he conducted a seminary in Spenser, and gave courses in Milton, and in bibliography and methods, at St. Louis University. At the end of the year his academic title was changed from research associate to associate in English.

Dr. McManaway served throughout the year as secretary of the department and as a member of the Spenser research unit. At the end of the year he was made associate in English.

Dr. Hooker held a Johnston scholarship during the year, and has been given a reappointment. He served besides as secretary of the Journal Club, and conducted some of the meetings of the English Conference.

## PUBLICATIONS

Stefán Einarsson:

Parallels to the Stops in Hittite. *Language*, VIII, 177-182.

Some Icelandic Words with HV~KV. *Acta Phil. Scandinavica*, VII, 226-248.

Icelandic Dialect Studies I, Austfirðir. *Journal of English and Germanic Philology*, XXXI, 537-572.

Um mál á Fljótsdalshéraði og á Austfjörðum 1930. *Skírnir*, CVI, 33-54.

Guðmundur Kamban. *Tímarit Þjóðræknisfélags Íslendinga*, XIV, 7-29.

Reviews: H. Hermannsson, The Cartography of Iceland, *Journal of English and Germanic Philology*, XXXI, 603-605, and *Isis*, XIX, 237-240; Dietrich von Kralik, Die Ueberlieferung der Thidrikssaga, *JEGP.*, 575-578; A. Jolivet, Le Théâtre de Strindberg, *Modern Languages Notes*, XLVIII, 122-123; E. A. Kock and R. Meissner, *Skaldisches Lesebuch* 1, 2, *ibid.*, 131-133.

Ray Heffner:

Did Spenser Die in Poverty? *Modern Language Notes*, XLVIII, 221-226.

Textual Appendix to Book I of the *Faerie Queene* (with Dr. Ernest A. Strathmann), Johns Hopkins Press, 1932.

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Edward Niles Hooker:

Johnson's Understanding of Chaucer's Metrics. *Modern Language Notes*, XLVIII, 150-151.

Herrick and Song Books. *Times Literary Supplement*, March 2, 1933; June 1, 1933.

Reviews: J. C. Powys, A Glastonbury Romance, *Sewanee Review*, January, 1933.

K. Malone:

The Frumtings of Widsith, *English Studies*, XIV, 154-158.

Old and New, *Emory Alumnus*, VIII, 4, 7-12.

A Pilgrimage to Oxford, *ibid.*, 13-14.

Notes on Beowulf, *Anglia*, LVI, 436-437; LVII, 218-220.

On the OE Sound-shift e to i, *Beiblatt zur Anglia*, XLIII, 284-287.

Ic wæs mid Eolum, *Englische Studien*, LXVII, 321-324.

On King Alfred's Geographical Treatise, *Speculum*, VIII, 67-78.

Beowulfiana, *Medium Ævum*, II, 58-64.

Sidney Lanier, *Johns Hopkins Alumni Magazine*, XXI, 244-249.

Mr. Flexner's Vineyard, *American Scholar*, II, 235-239.

Some Linguistic Studies of 1931 and 1932, *Modern Language Notes*, XLVIII, 378-396.

Reviews: R. W. Chambers, *Beowulf*, *English Studies*, XIV, 190-193; J. Hoops, *Beowulfstudien*, *ibid.*, XV, 94-96; S. O. Andrew, *Old English Alliterative Measure*, *Journal of English and Germanic Philology*, XXXI, 639.

Brief Mentions: *Medium Ævum*, *Modern Language Notes*, XLVIII, 205; *Harvard Studies and Notes in Philology and Literature*, *ibid.*; R. A. S. Macalister, *Tara*, *ibid.*, p. 206; R. S. Loomis (translator), *Tristan and Ysolt*, *ibid.*; J. Hoops, *Beowulfstudien*, *ibid.*

James G. McManaway:

Contributions to "Spenser Allusions," *PMLA*, XLVIII, 623-628.

Edward T. Norris:

*Titus Andronicus* (Prologue to an Adaptation), *Times Literary Supplement*, May 11, 1933.

Hazelton Spencer:

Shakespeare's *King Richard III*, edited with introduction, a new text, notes, appendices, and glossary. Boston: D. C. Heath & Co. Pp. xxviii—254.  
Brief Mention: Ebisch and Schücking, Shakespeare Bibliography, *Modern Language Notes*, XLVII, 486.

#### PUBLICATIONS OF STUDENTS IN RESIDENCE

J. Kerby Neill:

Thomas Drue's *Dutches of Suffolke* and the Succession, *Modern Language Notes*, XLVIII, 97-99.

Richard H. Perkinson:

The Plot of the *Faerie Queene*, *PMLA*, XLVIII, 295-297.  
Structural Contrast in Old and Modern Poetry, *Classical Bulletin*, June, 1933.

W. Gordon Zeeveld:

The Uprising of the Commons in Sidney's *Arcadia*, *Modern Language Notes*, XLVIII, 209-217.

KEMP MALONE,  
*Professor of English Philology.*

## ENGLISH

### COLLEGIATE COURSES

During the past year Prose Composition was, for the first time, put entirely under the jurisdiction of Dr. Wheeler. All students who passed a preliminary examination in writing were allowed to enter English 1 C at the beginning of the term. Other students who subsequently passed this examination sufficiently early were allowed to transfer (in either first or second term).

The following Collegiate courses were conducted, with two hours of lectures and one conference a week each:

General Survey Course (1 C).

Lectures: Prof. Miles.

Conferences: Mr. Ewing, Dr. Harper, Mr. Kilbourne, Dr. Norris.

The Eighteenth Century (9 C).

Lectures: Mr. Ewing.

Conferences: Prof. Miles, Mr. Ewing, Mr. Kilbourne.

Nineteenth Century Prose (10 C).

Lectures: Prof. Miles.

Conferences: Dr. Harper, Dr. Lyons.

Reading Courses in the Novel (Dr. Miles, Mr. Ewing and Dr. Harper),  
Essay (Mr. Ewing and Dr. Lyons), Drama (Dr. Norris).

Courses in the Philosophical Faculty open to properly qualified undergraduates included:

Courses in Mediaeval Studies (Prof. Malone), the Drama (Prof. Spencer),  
Old and Middle English (Dr. Einarsson), Eighteenth and Early Nineteenth Centuries (Prof. Havens).

L. WARDLAW MILES,  
*Collegiate Professor of English.*

## GEOLOGY

The attendance of graduate and New Plan students in 1932-33, while not as large as in the preceding year, has been well maintained. The enrollment reached a total of 28, of whom 15 were working on their dissertations and the remainder with from one to three years of graduate work here or elsewhere. In addition there were from time to time several of the former graduates of the Department who while unemployed in commercial work returned to the University to catch up with the recent literature of their special subjects.

### FIELD INSTRUCTION

The field instruction was somewhat curtailed due to the large group of mature men and to the economic situation among the students which made the financing of field trips somewhat burdensome.

Field instruction by weekly trips into the region about Baltimore and a longer excursion into Western Maryland were given the undergraduates by Dr. Secrist.

Frequent excursions were also made by the graduate students working on dissertations or under the direction of members of the staff.

For reasons mentioned above Dr. Singewald omitted his usual long trip into the mining districts of the southern states.

### ACTIVITIES OF THE PERSONNEL

Professor Mathews continued his usual courses and was largely occupied in directing the work of the more mature candidates for degrees. Much of his time was devoted to administrative activities in connection with his various official positions and as Treasurer of the Geological Society of America and of the XVth International Geological Congress which holds its sessions in Washington in 1933. During the year Dr. Mathews has been appointed to the newly formed Water Resources Commission, authorized by the last Legislature, and to the Advisory Committee of the Division of Geology and Geography of the National Research Council.

Professor Reid has continued active work on his own problems and in consultation with the students.

Professor Swartz has devoted his time principally to the completion of his studies on the Carboniferous and in amplifying his notes on special points by field trips into Garrett County and contiguous areas in West Virginia and Pennsylvania.

Professor Berry has continued his researches, principally a continuation of work in progress on fossil floras from South America, especially in Bolivia and Ecuador, and on the Miocene floras of the western United States. He prepared a paper on the geological history of the Behring land bridge for the Pan-Pacific Science Congress which met at Vancouver. With the aid of a grant from the National Research Council a late Paleozoic flora from Rhodesia was investigated but the results embody such an involved problem of intercontinental correlation that they are not yet in shape for publication. He expects to spend the summer in geological work in Venezuela.

Professor Singewald arranged for and was leader of an excursion of the XVth International Geological Congress to the mining districts of the Mississippi Valley and the Southern Appalachians. He also continued the work of the committee of geologists of the American Institute of Mining Engineers on the volume on the present status of the science of economic geology and as chairman of the Mining Geology section of the Institute. He is a member

of a committee of three geologists and three mining engineers to prepare a volume on the copper deposits of the world.

Dr. Donnay has successfully carried on his work of instruction in mineralogy and in the prosecution of his own studies resulting in publications listed in the bibliography attached.

Dr. Collins, besides assisting Professor Berry in the courses in paleontology, has continued his work on Tertiary forms from various points in Cuba, Jamaica, Mexico and South America referred to him by collectors in these countries.

Dr. Secrist has conducted the undergraduate work in general geology with field trips during the fall and spring. During the summer vacation he will be working on the preparation of a textbook and continue his studies of the limestone in the vicinity of the Delaware Water Gap.

Dr. Cloos, besides giving a lecture course on geophysics and field instruction in the technique of his petrotectonic methods, has been very active in the completion of his report on the Sierra Nevada batholith based on field work in the summer of 1932, and in field studies in the Piedmont of Maryland. Toward the end of the year he visited the well-known Bancroft Haliburton district of Canada and brought back information which will have an important bearing on the interpretation of this classic region. During the year he gave a course of lectures at Cornell University on structural methods on the batholith problem.

Five candidates absolved the requirements for the degree of Doctor of Philosophy, presenting dissertations on the following subjects:

Richard V. Hughes, *The Geology of the Beartooth Mountain Front in Park County, Wyoming.*

Christina Lachman, *The Fauna of the Bonnetterre Formation of Missouri.*

S. S. Philbrick, *The Contact Metamorphism of the Onawa Pluton, Piscataquis County, Maine.*

W. S. Pike, Jr., *Correlation of the Upper Cretaceous between McCarty and Alamosa Creek, New Mexico.*

Arnold E. Waters, Jr., *The Gold and Tin-bearing Placers of the Rampart-Hot Springs Region, Alaska.*

F. H. Kellogg also filed a dissertation on *The Rôle of the Clay Minerals in Soil Mechanics* but was unable to take the oral examinations before his departure for Panama.

Other students were practically ready for the degree but have delayed presenting themselves because of the lack of a demand for geologists at the present time.

During the field season of 1933 most of the graduate students have been engaged in some sort of field or laboratory work. They have been distributed as follows:

R. C. Becker in charge of the excursions of the XVth International Congress.

Edgar O. Bowles and W. S. Pike, Jr., on grants from the Geological Society of America in Louisiana and New Mexico.

Charles T. Berry, Carl Broedel, C. J. Cohen, H. G. Hershey, John Marshall, and M. A. Pentz on geological problems in Maryland.

Benjamin Gildersleeve and C. S. Maurice in Virginia and North Carolina.

S. S. Philbrick and Arnold Waters, Jr., in compiling a geological map of South America.

M. W. Corbin in New Hampshire.

G. D. Johnson in Montana.

H. R. Joesting in Alaska.

P. L. Killeen in Pennsylvania.

- V. E. Scheid acted as an assistant leader on one of the Excursions of the XVIth International Congress.  
 F. A. Wade in Maine.  
 H. E. Stocking in Arizona.

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Edward W. Berry.

- Still another Anniversary (Pizarra). Editorial Page *Evening Sun*, Sept. 23, 1932.  
 Carboniferous plants interbedded in the marine section of Bolivia. *Am. Jour. Sci.*, (5) v. 25, pp. 49-54, 1933.  
 New occurrences of Pleistocene plants in the District of Columbia. *Wash. Acad. Sci.*, Jour. v. 23, pp. 1-25, 1933.  
 A new *Lygodium* from the late Tertiary of Ecuador. *Wash. Acad. Sci.*, Jour. v. 23, pp. 208-210, 1933.  
 Fossil plants from Morrison, Colorado. *Wash. Acad. Sci.*, Jour. v. 23, pp. 308-312, 1933.  
 A *Protolopodendron* from the Devonian of Virginia. *Torrey Bot. Club Bull.* v. 60, pp. 73-75, 1933.  
 A *Jacaranda* from the Pliocene of Brazil. *Torrey*, v. 33, pp. 38-40, 1933.  
 The College at the Johns Hopkins University. *Johns Hopkins Alumni Mag.*, v. 21, pp. 316-329, 1933.

Ernst Cloos.

- Is the Sierra Nevada batholith a batholith? *Wash. Acad. Sci.*, Jour. v. 22, pp. 309-310, 1932.  
 Structure of the "Ellicott City granite" Maryland. *Nat. Acad. Sci.*, Proc. v. 19, pp. 130-138, 1933.  
 Sierra Nevada batholiths and the Mother Lode (abstract). *Geol. Soc. Am.*, Bull. v. 44, pp. 79-80, 1933.  
 Structural history of the fracture systems at Grass Valley, California (abstract) (with W. D. Johnston, Jr.). *Geol. Soc. Am.*, Bull. v. 44, p. 88, 1933.  
 Structure of the Sierra Nevada batholith. *16th Int. Geol. Cong.* U. S. Guidebook 16-Exc. C-1, pp. 40-45, 1933.

R. Lee Collins.

- Mylodont* (ground sloth) dermal ossicles from Colombia, South America. *Wash. Acad. Sci.*, Jour. v. 23, pp. 426-429, 1933.

Joseph D. H. Donnay.

- Artificial spherulites (with H. W. Morse). *Am. Min.*, v. 18, pp. 66-67, 1933.  
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 Composition and structure of artificial spherulites (with H. W. Morse and Emil Ott). *Am. Jour. Sci.*, (5) v. 25, pp. 494-498, 1933.

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Richard V. Hughes.

Peneplanation of Beartooth Mountains. *Pan-Am. Geol.*, v. 59, pp. 321-327, 1933.

Edward B. Mathews.

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Shailer S. Philbrick.

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Harry Fielding Reid.

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Vernon E. Scheid.

Magnet Cove, Arkansas (with K. K. Landes, Bryan Parks). *16th Int. Geol. Cong. U. S. Guidebook 2: Exc. A-2*, pp. 104-112, 1933.

Joseph T. Singewald, Jr.

Mining districts of the Eastern States. *16th Int. Geol. Cong. U. S. Guidebook 2: Exc. A-2*. 161 pp., Wash., D. C., 1932.

*Mining geology*. Ore finders, idle, turn to research and authorship. *Min. & Metal.*, v. 14, pp. 9-11, 1933.

EDWARD B. MATHEWS,

Chairman, Geological Department.

## GERMAN

The German Seminary and the advanced courses were given as announced in the University Circular. Special mention is to be made of the lectures by Dr. Julius Petersen, of the University of Berlin, Speyer Visiting Professor for the year 1932-1933.

Professor Kurrelmeyer continued his work upon the Wieland edition of the Berlin Academy; he spent the summer of 1932 in German libraries, chiefly those of Weimar, Berlin, and Munich. The printing of Volume 11, Part 1, containing the critical apparatus of Volume 9, has been completed, and approximately one-fourth of the text of Volume 12 is in type. At the same time the editorial work on Volume 13 (Oberon) is progressing.

Professor Feise gave a number of courses for advanced students as announced in the circular; special attention was given to the 17th Century, to Metrics, and to the Drama of the 18th and 19th Centuries. He served as President of the Johns Hopkins Philological Association and as Secretary of the History of Ideas Club. He conducted the Middlebury College School of German at Bristol, Vermont, as its director. He read a paper on Goethe's Metrics before the meeting of the M. L. A. at New Haven.

Professor R. B. Roulston conducted, up to the time of the arrival of Professor Julius Petersen, a graduate course on "The German Novel of the Eighteenth Century."



He also supervised the undergraduate work in the College of Arts and Sciences, the College for Teachers, and the Summer Courses. In this work he was assisted by Messrs. Karl J. Arndt, Gurney W. Clemens, Ralph V. Ehle, and Augustus J. Prah, junior instructors in the College of Arts and Sciences; Dr. Emma E. Walters, Dr. Jane F. Goodloe, Miss Frida Ilmer, Mr. Gurney W. Clemens, and Mr. Ralph V. Ehle, instructors in the College for Teachers; and Dr. Olga Marx, instructor in the Summer Courses. Professor Roulston gave three courses in the College of Arts and Sciences, nine hours, and three courses in the College for Teachers, four hours. He also gave a course during the summer term.

Professor Roulston attended upon invitation a demonstration class in German at the Hamilton Junior High School, and also addressed the teachers of German at the Eastern High School. He also continued to serve as managing editor of the *Johns Hopkins Alumni Magazine*.

During the year there were twelve students following German as their principal subject. The degree of Doctor of Philosophy was awarded to the following students:

- K. J. Arndt, dissertation: Wildenbruch's "Rudolph von der Wart" and its motif in German Drama.
- Ralph V. Ehle, dissertation: America reflected in the two German periodicals "Die deutsche Rundschau," "Die neue Rundschau," from 1900-1928.
- Frida Ilmer, dissertation: Der Künstler bei Schnitzler.
- Edmund E. Miller, dissertation: Zur Textgeschichte von Wielands "Agathon."
- A. J. Prah, dissertation: Gerstäcker und die Probleme seiner Zeit.

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Ernst Feise.

- Studien zu Goethe's Verskunst. *The Germanic Review*, VIII, 75-83.
- Goethe Publications, 1932. *Books Abroad*, VI, 407-410.
- The Redemption. *Monatshefte für deutschen Unterricht*, XXV, 83.
- Review of O. Walzel's German Romanticism. *Modern Language Notes*, XLVIII, 45-46.
- Review of Eduard Castle's Deutsch-österreichische Literaturgeschichte. *Modern Language Notes*, XLVIII, 46-47.
- Review of Walther Rehm's Der Todesgedanke in der deutschen Dichtung. *The Germanic Review*, VII, 288-289.
- Review of Friedrich Bruhn's Goethes Gedichte und Sprüche in Prosa. *Monatshefte für deutschen Unterricht*, XXIV, 264-265.
- Review of Hermann Bahr's Das Konzert ed. Wiehr. *The Modern Language Journal*, XVII, 236-237.
- Numerous Reviews in *Books Abroad*.
- Advisory Editor: *Modern Language Notes* and *Books Abroad*.
- Contributing Editor: *Monatshefte für deutschen Unterricht*.

W. Kurrelmeyer.

- Thackeray and Friedrich von Heyden: *Modern Language Notes*, XLVIII, 12-16.
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- Co-Editor: *Modern Language Notes*.

R. B. Roulston.

- Conrad Ferdinand Meyer. *Huttens letzte Tage. An Historical-Critical Edition*. The Johns Hopkins Press, Baltimore, 1933.

Review of *Conrad Ferdinand Meyer: The Style and the Man*, by Arthur Burkhard. *Modern Language Notes*, March, 1933.  
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W. KURRELMMEYER,  
 Professor of German.

## GREEK

### SCHOOL OF HIGHER STUDIES

The Greek Seminary met two hours weekly under the direction of Professor Miller. The subject of study was Aristophanes. Papers were read by Messrs. Poultney, Pritchett, Vassilliw, and Harvey.

Mr. Vassilliw finished an essay on *Expressions of Purpose in Aristophanes*, and on June 13 received the degree of Master of Arts. Mr. Poultney continued work on his study of the Genitive in Aristophanes.

Besides directing the Seminary, Professor Miller continued work on his Aristophanic project, edited the *American Journal of Philology*, and gave the following courses:

1. Pindar, The Nemeans, Isthmians, and Fragments. *One hour weekly through the year.*
2. Hesiod, Homeric Hymns, and some of the later Epic poets. *One hour weekly through the year.*

Dr. Harold Cherniss conducted the following courses:

1. Selections from Homer's *Iliad* and from Herodotus. *Three hours weekly during the first half-year.*
2. The *Theaetetus* of Plato. Reading of the entire dialogue, with papers and reports by members of the class on various aspects of the dialogue. *Three hours weekly during the first half-year.*

Dr. E. B. Stevens conducted the following courses:

1. Thucydides, selected books. *Three hours weekly during the second half year.*
2. Plato, *Sophistes* and part of the *Timaeus*. *Three hours weekly during the second half-year.*

Professor Robinson gave the following courses:

1. The *Argonautica* of Apollonius of Rhodes. *One hour weekly through the year.*
2. Greek Literature. (Introductory Course.) *One hour weekly through the year.*

### COLLEGE OF ARTS AND SCIENCES

Mr. James W. Poultney conducted the following courses:

1. Benner & Smyth's *Beginner's Greek Book*; Xenophon's *Anabasis*, Book I. *Four hours weekly through the year.*
2. Xenophon's *Anabasis*; Plato (selections); Homer's *Iliad*, 6 books. *Four hours weekly through the year.*

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C. W. E. Miller.

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E. B. Stevens.

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C. W. E. MILLER,

*Francis White Professor of Greek.*

## HISTORY

### ENROLLMENT AND DEGREES

Thirty-eight students took graduate courses offered by the department. Twenty-two students were enrolled as candidates for degrees, fifteen men and seven women. Of these, thirteen were working in residence on full time. Of the group on part time, five were students who had completed the residence requirements and were participating in the seminars and taking occasional courses while completing their dissertations. Four others were on leave of absence. Miss Junietta Kalbitzer held a Foreign Exchange Fellowship and spent the year at the University of Vienna, taking courses and collecting material for her dissertation.

Three of the candidates for degrees had first degrees from this University, the rest from thirteen other institutions. Of these, eight are in the South, three in the North and West; one in England, and one in Austria. There were four New Plan students, all of whom entered from our own college. Six of the candidates for degrees were in their first year of graduate work; eight in their second year; and eight had either spent or were advised to spend more than three years in such work.

The department recommended no candidates for the Doctor of Philosophy degree and one for degree of Master of Arts.

### SEMINARIES AND COURSES

The junior seminary in European history, to which eight students were admitted, devoted its attention to the period since 1870. The corresponding section in American history, to which eight students were admitted, was engaged in studying a technique for the investigation of the urban movement in American life. Instead of lecturing on American history Dr. Holt conducted a study of American historiography on the seminary method. The advanced sections of the seminars were engaged, as usual, in the criticism and development of dissertations. Courses were given as announced in the 1932-33 Circular.

### BOOKS AND ARTICLES PUBLISHED

William Stull Holt.

Section on publications in the United States on American history of the *International Bibliography of Historical Sciences*, 1927, published by the International Committee of Historical Sciences, Armand Colin, Paris, 1932.

Frederic C. Lane.

Venetian Shipping during the Commercial Revolution. *The American Historical Review*, January, 1933, pp. 219-239.

Sidney Painter.

William Marshal, Knight-Errant, Baron, and Regent of England. The Johns Hopkins Press. 305 pp.

Monday as a Date for Tournaments. *Modern Language Notes*, February, 1933, pp. 81-83.

To Whom were Dedicated the *Fables* of Marie de France? *Modern Language Notes*, June, 1933, pp. 367-369.

Mary M. Kenway.

Correspondence between General William Winder and President Monroe with Reference to Proposals Made by the United Provinces of South America. *The Hispanic American Historical Review*, November, 1932. xii, 457-461.

Hugh G. Soulsby.

The Right of Search and the Slave Trade in Anglo-American Relations, 1814-1862, *The Johns Hopkins University Studies in Historical and Political Science*, li, No. 2.

#### COLLEGIATE INSTRUCTION

Courses were given as announced in the 1932-33 Circular of the College. For the first time all students who took advanced courses had the background supplied by the two-year survey of Occidental Civilization, and the result was a marked improvement in the quality of their work. Seven students elected history as their major subject, and six were recommended for degrees, after passing comprehensive tests which included an oral examination.

KENT ROBERTS GREENFIELD,  
*Professor of Modern European History.*

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#### INDOLOGY

The following courses were given through the year:

1. Introduction to the Comparative Philology of the Indo-European Languages. This course comprised a general account of the various members of the Indo-European family of speech and a study of the Phonology and Morphology of the Indo-European languages with special reference to Sanskrit, Greek and Latin. 7 students.

2. Elementary Sanskrit. Elements of the Grammar; grammatical exercises; analysis and translation of easy texts: Nalopakhyaṇa, Hitopadeṣa. Two hours weekly. 2 students.

3. Second year Sanskrit. Analysis and interpretation of classical texts: a. extracts from the Kathāsaritsāgara and the Mānavadharmasāstra; b. the first act of the Çakuntalā of Kālidāsa. Two hours weekly. 1 student.

4. Third year Sanskrit. Interpretation of Vedic texts: a. Kaṭha-Upaniṣad; b. Chāndogya-Upaniṣad; c. Hymns of the Atharvaveda. One hour weekly. 1 student.

Professor P. E. Dumont presented the following papers at the meeting of the American Oriental Society: a. The Indic god Aja Ekapād, the one-legged goat; b. A note on Bhagavadgītā X, 30.

## PUBLICATIONS

L'Illuminé—la légende du Bouddha, par Luigi Sualì—traduit de l'italien par P. E. Dumont, Paris (Denoël et Steele), 1933, 352 pp.

Reviews: W. Caland, Pañcaviṃṣa Brāhmaṇa, The Brāhmaṇa of the Twenty-five Chapters, *Journal of the American Oriental Society*, LII, 387-90; J. M. van der Hoogt, The Vedic Chant studied in its Textual and Melodic Form, *ibid.*, LII, 390-1; C. V. Vaidya, *History of Sanskrit Literature*, Vol. I, Āṛti (Vedic) Period, *ibid.*, LII, 391-2.

P. E. DUMONT,

*Professor of Sanskrit and Indology.*

## LATIN

The Latin Seminary—14 members—studied the literature of the last two decades of the Republic. Graduate courses were also given in Cicero's essays, in Latin inscriptions, in Roman History of the Empire, and in Cicero's political speeches: this last by Dr. Haywood. The scheduled undergraduate courses were given by Dr. Haywood.

## PUBLICATIONS

Tenney Frank.

Economic Survey of Ancient Rome. Vol. I, 435 pp. Johns Hopkins Press.

Cicero, Hertz Lecture, British Academy. *Proc. Brit. Ac.*, 1932, 26 pp.

Notes on Cato's *De Agric.* in *Mélanges Glotz*, 377-80.

Parody in Act V of Plautus' *Mercator*, *Am. Jour. Phil.*, LIII, 242-48.

T. Publilius Pelli, the Plautine actor. *Am. Jour. Phil.*, LIII, 248-52.

The Sacred Treasure, and Manumission. *Am. Jour. Phil.*, LIII, 360-63.

Financial Legislation in Sullan Period. *Am. Jour. Phil.*, LIV, 54-58.

An Interpretation of Cato, *Agric.*, 136. *Am. Jour. Phil.*, LIV, 162-65.

Financial Activities of the Knights, 200-150 B. C. *Cl. Phil.*, XXVIII, 1-12.

Richard M. Haywood.

Studies on Scipio Africanus, J. H. U. Diss. *J. H. U. Stud. in Hist. and Pol. Sci.*, 114 pp.

On Cicero, *ad Att.* VI, 1, 19 and VI, 5, 2. *Am. Jour. Phil.*, LIV, 66 f.

Some Traces of Serfdom in Cicero's Day. *Am. Jour. Phil.*, LIV, 145-53.

Carcopino's *Sulla*. *Am. Jour. Phil.*, LIII, 284-86.

TENNEY FRANK,

*Professor of Latin.*

## MATHEMATICS

The Mathematical Seminary met regularly once a week during the year. In addition to the usual talks by members of the faculty and students, there was an address by Professor M. H. Stone, Yale University, on Boolean Algebras, and by Dr. P. M. Swingle, visiting National Research Fellow. *The American Journal of Mathematics* is now in its fifty-fifth volume and will contain approximately 700 pages. Volume 54 contained 802 pages. Two students, Beatrice Aitchison and C. H. Wheeler obtained the Ph. D. degree in June, 1933.

Professor Murnaghan gave an introductory course in Applied Mathematics and two seminar courses, Tensor Analysis during the first semester and Hydro-

dynamics during the second. He read, by invitation, a paper on "The Expanding Universe" before the Washington Philosophical Society in February, 1933. He read a paper on "The parametric representation of orthogonal matrices" at the meeting of the American Mathematical Society, Atlantic City, December, 1932, and on "Four rowed orthogonal matrices" at the meeting of the Md. Va. D. C. Section of the Mathematical Association of America in Charlottesville, May, 1933.

Professor Cohen gave a course in Elementary Analysis, three hours weekly.

Associate Professor Zariski lectured throughout the year on projective geometry of hyperspaces and on plane algebraic curves. He was the invited speaker at the December meeting of the Md.-Va.-D. C. Section of the Mathematical Association of America in Baltimore, the topic of his paper being: "Recent contributions to the problem of existence of curves with assigned singularities." He spoke by invitation before the Mathematical Seminar of Princeton University on "Certain questions concerning algebraic curves." Professor Zariski is writing a book dealing with the theory of algebraic surfaces. The book is nearly completed and will be published in the collection of monographs "Ergebnisse der Mathematik," sponsored by the *Zentralblatt für Mathematik und ihre Grenzgebiete*.

Dr. Williamson gave an introductory course in algebra, four hours weekly throughout the year. This course treated the theory of equations, determinants, matrices, quadratic and bilinear forms, elementary group theory and the theory of algebraic numbers. During the first semester he gave a second course in algebra treating Galois Group Theory and the modern theory of Rings, Fields and Ideals.

Dr. Whyburn gave an introductory course in real variables treating the real number system, continuity, derivatives, differentials, implicit functions, Riemann integration, line and surface integrals, infinite series, power series, Fourier's series and integrals. He also gave a course on Point Set Theory treating abstract spaces, metric spaces, convergence and connectivity of sets, continuous curves and plane topology. He directed the dissertations of Miss B. Aitchison and Mr. C. H. Wheeler. From December, 1932, to July, 1933, Dr. P. M. Swingle, National Research Fellow, was engaged in research, under the direction of Dr. Whyburn, on some problems in point set theory and unified "analysis situs." Dr. Whyburn read a paper entitled "Note on a homogeneity property" at the meeting of the American Mathematical Society in Los Angeles, September, 1932, and a paper "On the existence of totally imperfect and punctiform connected sets in a given continuum" at the meeting of the American Mathematical Society in Atlantic City, December, 1932.

Dr. Wintner gave a course in complex variable theory covering the topics announced in the circular of the School of Higher Studies. He also gave a seminar course in partial differential equations and one (in connection with the Seminar on Theoretical Physics) in group theory. He directed the work of Dr. Haviland, whose papers are mentioned below. Dr. Wintner also collaborated in the report of the Committee for Celestial Mechanics at the Congress of the International Astronomical Union held in Cambridge, Mass., September, 1932.

Dr. E. R. van Kampen gave an introductory course in projective and differential geometry as announced in the circular of the School of Higher Studies. He will spend the coming year, on leave of absence, at the Institute for Advanced Studies, Princeton, N. J.

Mrs. Lucille Whyburn served as voluntary assistant.

Dr. C. H. Harry read a paper entitled "Concerning spaces without local cut points" at the meeting of the American Mathematical Society, Atlantic City, December, 1932.

Miss Beatrice Aitchison read a paper entitled "On mapping with functions of finite sections" at the Baltimore meeting of the Md.-Va.-D. C. Section of the Mathematical Association of America, December, 1932. At the Charlottesville meeting of the same Association, May, 1933, Mr. C. H. Wheeler read a paper entitled "A problem concerning the homogeneity of continua."

#### UNDERGRADUATE COURSES

The following courses were given by Professors Cohen, Murnaghan, Zariski, Drs. Harry, Morrill, Whyburn, Williamson and Messrs. Blackwell, Erskine, Schweigert, Trott, Turpin, Wardwell.

- 1C Trigonometry, Analytic Geometry, Elements of Calculus. *Four hours weekly*, 3 sections.
- 2C Analytic Geometry, Elements of Calculus. *Four hours weekly*, 7 sections.
- 3C Calculus. *Four hours weekly*, 5 sections.
- 4C Elementary Analysis. *Three hours weekly*.
- 5E Differential equations for Engineering Students. *Two hours weekly, first half year*, 2 sections.

#### NIGHT COURSES FOR TECHNICAL WORKERS

Mathematics 775N. Trigonometry, Analytic Geometry, Elements of Calculus. *Two evenings weekly*. Dr. Morrill.

Mathematics 776N. Calculus. *Two evenings weekly*. Professor Cohen.

#### PUBLICATIONS

Cohen, A.

An Elementary Treatise on Differential Equations, entirely revised and rewritten. D. C. Heath and Co. (In press.)

Haviland, E. K.

On the Lagrange condition for extremal surfaces in the Calculus of Variations. *Math. Zeits.*, 1933.

On statistical methods in the theory of almost periodic functions. *Proc. Nat. Acad. of Sci.*, 19, May, 1933.

On the addition of convex curves in Bohr's theory of Dirichlet series. *Amer. Jour. Math.*, July, 1933.

van Kampen, E. R.

On the fundamental group of an algebraic curve. *Amer. Jour. Math.*, 55 (1933), pp. 255-260.

On the connection between the fundamental groups of some related spaces. *Amer. Jour. Math.*, 55 (1933), pp. 261-267.

On some lemmas in the theory of groups. *Amer. Jour. Math.*, 55 (1933), pp. 268-273.

Whyburn, G. T.

Characterizations of certain curves by continuous functions defined upon them. *Amer. Jour. Math.*, 55, 131-134, 1933.

On the existence of totally imperfect and punctiform connected sets in a given continuum. *Ibid.*, 55, 146-152.

Sets of local separating points of a continuum. *Bull. Amer. Math. Soc.*, 34, 97-100, 1933.

Decompositions of continua by means of local separating points. *Amer. Jour. Math.*, 55, 1933.

Concerning S-regions in locally connected continua. *Fundamenta Mathematicae*, 20 (1933), pp. 131-139.

Williamson, J.

Matrices whose sth compounds are equal. *Bull. Amer. Math. Soc.*, February, 1933.

Expansion of determinants of composite order. *Amer. Math. Monthly*, February, 1933.

Sets of semi-commutative matrices. *Proc. Edin. Math. Soc.*, February, 1933.

Wintner, A.

On an application of diophantine approximation to the repartition problems of dynamics. *Jour. London Math. Soc.*, 7, 1932.

Ueber eine Anwendung der Theorie der fastperiodischen Funktionen auf das Levi-Civitasche Problem der mittleren Bewegung. *Annali di Matematica*, 10, 1932.

Ueber die statistische Unabhängigkeit der asymptotischen Verteilungsfunktionen inkommensurabler Partialschwingungen. *Math. Zeit.*, 36, 1933.

Bemerkung zum Eindeutigkeitssatz der Laplaceschen Transformierten. *Math. Zeit.*, 36, 1933.

Dynamische Systeme und unitäre Matrizen. *Math. Zeit.*, 36, 1933.

Remarks on the recurrent behavior of the characteristics on a torus. *Amer. Jour. Math.*, 54, 1932.

Upon a statistical method in the theory of Diophantine approximations. *Amer. Jour. Math.*, 55, 1933.

On the stable distribution laws. *Amer. Jour. Math.*, 55, 1933.

FRANCIS D. MURNAGHAN,

*Professor of Applied Mathematics.*

A. COHEN,

*Collegiate Professor of Mathematics.*

## ORIENTAL SEMINARY

The following courses were given in the Oriental Seminary, all continuing through the year:

Professor Albright—Problems in the Study of the Pentateuch (Seminary, two hours); History of the Ancient Orient in the Iron Age, 1200-600 B. C. (one hour); Ancient Oriental Archaeology, I: Egypt, Phoenicia, and Palestine (one hour); The Prophet Isaiah (lectures, reading, and reports, one hour); Introduction to Assyrian Cuneiform (two hours).

Associate Professor Blake—Hebrew Phonology (one hour); Elementary Syriac (one hour); Comparative Grammar of the Semitic Languages (one hour).

Dr. Rosenblatt (Lecturer on Jewish Literature)—The History of the Jews in Palestine and Babylonia after the Destruction of the Second Temple (one hour); Arabic Readings (Quran first half, Tabari second half, one hour); Hebrew Grammar (one hour).

Mr. Bergman (Rayner Fellow)—Hebrew Conversation (one hour).

Among the other scholarly activities in which the members of the staff took part we may mention the following:

Professor Albright presented the following papers at learned society meetings: "New Light on the Early History of the Hebrew Language" (Society of Biblical Literature, at Chicago), "The Age of the Hyksos" (American Oriental Society, at New York). He also delivered two lectures in Dr.



Lane's course in Occidental Civilization, and gave a dozen lectures and addresses outside the University, besides informal talks for various organizations. He served as member of the American Council of Learned Societies and as chairman of its Committee on Mediterranean Antiquities (resigning at the end of the year because of his new duties as director of the American School of Oriental Research in Jerusalem, after July 1st, 1933); he also acted as a director of the American Oriental Society. During the months of June-September, 1932, he directed the fourth campaign of excavation at Tell Beit Mirsim in Palestine, on behalf of the American Schools of Oriental Research.

Associate Professor Blake presented the following papers at meetings of learned societies: "The Parts of Speech" (Linguistic Society of America, at New Haven), "Arabic Verbs of Stative Form with Meanings not Clearly Stative" (American Oriental Society, at New York). He was elected to membership in the Executive Committee of the Linguistic Society.

Dr. Rosenblatt received a small grant from the American Council of Learned Societies for the purpose of securing photostats of the Leningrad manuscript of Abraham Maimonides' *Kifâyat-ul-'Abidin*, a complete critical edition of which he expects to publish. The reviews of his edition of the first chapters of this work have been uniformly favorable, both in American and in European journals. During the year he gave some nine public lectures on various problems of Jewish history and thought.

Dr. William Rosenau, now professor emeritus, has continued his scholarly activities without interruption. At the New York meeting of the American Oriental Society he presented two papers, "Raphael in the Book of Tobit" and "Some Talmudic Personal Names." He has also delivered numerous lectures and addresses before organizations in various parts of the country.

The Rayner Fellow, Mr. Bergman, read a paper on "The Hebrew Conquest of Eastern Palestine in the Light of Territorial History" at the New York meeting of the American Oriental Society.

#### PUBLICATIONS

W. F. Albright.

The Excavation of Tell Beit Mirsim. Vol. I: *The Pottery of the First Three Campaigns* (Annual of the American Schools of Oriental Research, XII). New Haven, 1932, pp. xxi + 165, with 71 full-page cuts and 15 figures in the text.

The Fourth Joint Campaign of Excavation at Tell Beit Mirsim. *Bulletin of the American Schools of Oriental Research*, No. 47, pp. 3-17.

Exilic and Post-exilic Judah in the Light of Palestinian Archaeology. *Actes du XVIII<sup>e</sup> Congrès International des Orientalistes*, Leiden, 1932, pp. 202-4.

An Anthropoid Clay Coffin from Sahâb in Transjordan. *American Journal of Archaeology*, XXXVI, pp. 295-306, with plate.

A New Decipherment of the Hittite Hieroglyphs. *American Journal of Semitic Languages*, XLIX, pp. 61-6.

The North-Canaanite Epic of Al'êyân Ba'al and Môt. *Journal of the Palestine Oriental Society*, XII, pp. 185-208.

Palestine in the Light of Archaeology. *Annals of the American Academy of Political and Social Science*, Nov., 1932, pp. 184-9.

A Set of Egyptian Playing Pieces and Dice from Palestine. *Mizraim*, I, pp. 130-4, with plate.

Archaeological and Topographical Explorations in Palestine and Syria. *Bulletin*, No. 49, pp. 23-31.

The Chalcolithic Age in Palestine. *Bulletin*, No. 48, pp. 10-3.

More Light on the Canaanite Epic of Aleyân and Môt. *Bulletin*, No. 50, pp. 13-20.

The Chaldaean Conquest of Judah. A Rejoinder. *Journal of Biblical Literature*, LI, pp. 385-6.

James Hardy Ropes and Dana Carleton Munro in Memoriam. *Bulletin*, No. 49, pp. 31-2.

Sketch of Abraham Kuenen. *Encyclopaedia of the Social Sciences*, VIII, p. 609.

Reviews of the following: Robinson and Oesterly, *A History of Israel*, two vols. (*JPOS*, XII, 251-67); Grant, *Ain Shems Excavations (Art and Archaeology)*, XXXIV, p. 110); FitzGerald, *The Four Canaanite Temples of Beth shan, the Pottery* (*ibid.*, XXXIV, p. 111); Vincent and Abel, *Emmaus, sa basilique et son histoire* (*AJA*, XXXVII, 192a-93b); Sukenik, *Bêt hak-kenéset ha 'atiq be-Bêt alfa (Kirjath Sepher*, X, p. 25); Reubeni, *Shem, Ham we-Yafet* (*ibid.*, X, pp. 28-9). Also: "Recent Books on the Archaeology of Palestine," *Bulletin*, No. 48, pp. 15 7.

Editorial Work: Four numbers (47 50) of the *Bulletin of the American Schools of Oriental Research*, 158 pp.

William Rosenau.

Reviews of the following: *Moses Mielziner (Jewish Quarterly Review*, Oct., 1932, pp. 71 2); *Kohler's Studies, Addresses, and Personal Papers* (*ibid.*, pp. 73-5); Hertz, *Commentary on Exodus (The Jewish Times*, Dec. 9, 1932); *Encyclopaedia Judaica*, IX (*The Reform Advocate*, Dec. 16, 1932); *Moses Mendelssohn—his Philosophy and Aesthetics* (*ibid.*, Dec. 23, 1932).

F. R. Blake.

Review of Lambert, *Traité de grammaire hébraïque*, fasc. I-II (*Language*, IX).

W. F. ALBRIGHT,

W. W. Spence Professor of Semitic Languages.

## PHILOSOPHY

Professor Lovejoy received leave of absence for the year, and until April 1st. was resident at Harvard University as William James Lecturer. Dr. H. L. Friess, Associate Professor of Philosophy in Columbia University, conducted a graduate course on Recent German Philosophy. Dr. W. T. Feldman gave an undergraduate course in the Philosophy of Law in the second term. Courses by Associate Professor Boas and Dr. Blumberg were given as previously announced.

## PUBLICATIONS

Arthur O. Lovejoy.

The First Gothic Revival and the Return to Nature. *Modern Language Notes*, XLVII, 1932, pp. 419-446.

The Chinese Origin of a Romanticism. *Journal of English and Germanic Philology*, XXXII, 1933, pp. 1-20.

Monbodo and Rousseau. *Modern Philology*, XXX, 1933, pp. 275 296.

George Boas.

*Philosophy and Poetry*. Wheaton College Press, 1932. Norton, Mass., pp. 34.

*The Happy Beast in French Thought of the Seventeenth Century*. The Johns Hopkins Press. Baltimore, 1933, pp. vii + 159.

An Eightfold Confusion in Aesthetic Evaluations. *Modern Language Notes*, XLVIII, 1933, pp. 69-80.

- Review of Meyerson's *Du Cheminement de la Pensée* and Gillet's *La Philosophie de M. Meyerson*, *Journal of Philosophy*, XXIX, 1932, pp. 554-556.  
 Review of Irving Babbitt's *On Being Creative*, *Modern Philology*, XXX, 1932, pp. 217-221.

Albert E. Blumberg.

- Demonstration and Inference in the Sciences and Philosophy. *The Monist*, XLII, 1932, pp. 577-584.  
 Review of Davis's *Philosophy and Modern Science*, *Journal of Philosophy*, XXIX, 1932, pp. 585-587.  
 Notices in *Philosophical Review* (7), *Monist* (1), and *Modern Language Notes* (2).

ARTHUR O. LOVEJOY,  
*Professor of Philosophy.*

## PHYSICS

The Department of Physics reports that the regular courses of instruction were given during 1932-1933 as announced in the circular. The only deviations from the announcement were the following: The lectures on Electrical Oscillations by Professor J. C. Hubbard were not given. Dr. S. Silverman lectured one hour a week, throughout the year, on Infra-red Spectroscopy.

Mr. Albert Smith assisted Professor Pfund in the laboratory.

In the undergraduate course, *Elements of Physics*, Professor Hubbard was assisted by Dr. R. B. Barnes, and Messrs. Bryant, Haines, Hume, Sanderson, Shaw, Wells and Wheeler.

Dr. Shirleigh Silverman had charge of the courses in Physics given in the Night Courses for Technical Workers.

There were 39 full-time students working as candidates for the degree of Doctor of Philosophy, and 272 undergraduate students in elementary physics.

Professor Wood gave a lecture at the Atlantic City meeting of the American Association for the Advancement of Science on "The purple gold of Tut-Ankh-Amen." He also lectured at the meetings of the National Academy of Science and the Physical Society, both held in Washington at the end of April on the "Optical Properties of the Alkali Metals." He was made an honorary member of the London Physical Society.

Professor Pfund has carried out investigations on the temperature emission of finely divided crystalline powders in the infra-red; on the optical properties of metallic blacks; on a universal vacuum gauge and on the emissive properties of the Welsbach mantle.

Professor Herzfeld gave the Commencement address at Marquette University, Milwaukee, Wisconsin, on June 7th, and at Seton Hill College, Greensburg, Pennsylvania, on June 11th. He received the degree of Doctor of Science, *honoris causa*, from Marquette University on June 7th.

Professor Hubbard was invited to lead a symposium on supersonics at the meeting of the Acoustical Society of America at Ann Arbor, November 28-29, 1932, his subject being "Methods and Results of Supersonic Interferometry." He was elected an Associate Editor of the *Physical Review*.

Professor Dieke reported on the "Internal Resonance in the CO Molecule" at the New York meeting of the Physical Society.

Professor Bearden has been investigating the intensity distribution and the wave-lengths of x ray lines with a double crystal spectrometer. Studies have been made on the radioactive contamination of various materials and the use of the refraction of x-rays by quartz for determining the charge on the electron or the wave-length of x-rays. Experiments on the disintegration of aluminum and test for long range  $\alpha$  particles from polonium have been carried out. Dr. Bearden had associated with him in research, Messrs. Shaw, Hafstad, Haines, Wells, Wheeler, Miss Lyford, and Dr. P. F. Gottling.

Mr. W. Charles Price, Commonwealth Fellow from the University of Wales, has been working together with Dr. G. Collins, under the direction of Professor Wood and Dr. Dieke.

Dr. R. W. Blue, of California, National Research Fellow in Chemistry, worked with Professor Dieke.

Dr. Harold Straub from the University of Munich, who had been at the Johns Hopkins University for one year, returned to Munich at the end of April.

The work of the members of the Department will be shown by their publications listed at the end of this report.

The names of the students who received their doctor's degree in June 1933 are as follows: Messrs. Lawrence R. Hafstad, Jesse Plummer, John A. Sanderson, Charles H. Shaw, John A. Wheeler. The titles of their theses appear below.

Mr. Chester R. Randall received the Doctor's degree in June 1932, the title of his dissertation being: "Ultrasonic measurements of the compressibility of solutions and of solid particles in suspension."

The Department had the pleasure of having the following lectures given by visiting physicists:

The Abbe G. Lemaitre, Professor of Physics at the University of Louvain, lectured on Wednesday, November 23, on "The Formation of the Nebulae in the Expanding Universe," after having given a public lecture on "The Expanding Universe."

Professor Niels Bohr lectured on "Measurements in Atomic Physics" on May 4, 1933.

Professor Otto Hahn of the Kaiser Wilhelm Institut of Chemistry in Berlin lectured on "The Application of Radioactive Methods in Chemistry" on Saturday, May 27.

These lectures were attended by large audiences, and were much enjoyed.

The dividing engines have been in charge of Professor Wood, who has been assisted in the work of ruling the gratings by Mr. W. H. Perry. Seven very fine 6" gratings of 30,000 lines to the inch have been ruled. Three very good glass gratings of 15,000 lines to the inch, and six echelette gratings have been ruled. A method for successfully grinding diamond points for ruling the gratings has been developed, and special diamond holders have been added to the ruling engines, such that the diamond points can be changed from one engine to another and retain their adjustment. The engine which rules 15,000 lines to the inch has been reconditioned, and is now in very good adjustment.

#### PUBLICATIONS

J. A. Bearden.

Status of x-ray wave lengths. *Phys. Rev.*, **41**, 399, 1932.

Wave-lengths of the silver, molybdenum, copper, iron and chromium  $K_{\alpha}$  lines. *Phys. Rev.*, **43**, 92, 1933.

- $\alpha$ -particles emitted by various materials. *Phys. Rev.*, **43**, 376, 1933.  
Radioactive contamination of ionization chambers. *Rev. of Sci. inst.*, **4**, 271, 1933.
- J. A. Bearden and C. H. Shaw.  
Shapes and wave-lengths of the K series of Cu, Ni, Co, Fe, and Cr. *Phys. Rev.*, **43**, 1050, 1933.
- J. A. Bearden and J. A. Wheeler.  
Determination of  $e$  or  $\lambda$  by refraction of x-rays. *Phys. Rev.*, **43**, 1059, 1933.
- G. H. Dieke.  
Internal resonance in the CO molecule. *Phys. Rev.*, **43**, 780, 1933.  
On the astigmatism of the concave grating. *Jour. Opt. Soc.*, **23**, 274, 1933.
- G. H. Dieke and W. F. Meggers.  
Infrared spectra of helium. *Bureau of Standards Jour. of Research*, **9**, 121, 1932.
- G. H. Dieke and J. W. Mauchly.  
The structure of the third positive group of CO-bands. *Phys. Rev.*, **43**, 12, 1933.
- K. F. Herzfeld.  
Size and Structure of Molecules. *Hand. der Physik*, Berlin, **24**, 2nd half, 1933, 2nd edition.  
The Philosophy of Emile Meyerson. *Thought*, **8**, 90, 1933.
- K. F. Herzfeld and R. H. Lee.  
Theory of Forced Double Refraction. *Phys. Rev.*, **44**, 625, 1933.
- J. C. Hubbard.  
A brief survey of supersonics. *Jour. Acoustical Soc. of Am.*, **4**, 99, 1932.
- M. Goeppert-Mayer and M. Born.  
Dynamische Gittertheorie der Kristalle. *Hand. der Phys.*, Berlin, **24**, 2nd half, 2nd edition, 1933.  
Other papers of Dr. Goeppert-Mayer are given in the Report of the Department of Chemistry.
- A. H. Pfund.  
A filter for the study of the Raman effect. *Phys. Rev.*, **42**, 582, 1932.  
Temperature radiation from crystalline powders. *J. O. S. A.* (in print).
- C. R. Randall.  
Ultrasonic measurements of the compressibility of solutions and of solid particles in suspension. *Bu. of Stand., Jour. of Research*, **8**, 79, 1932.
- J. A. Wheeler.  
Theory of Dispersion and Absorption of Helium. *Phys. Rev.*, **43**, 258, 1933.
- R. W. Wood.  
Remarkable Optical Properties of the Alkali Metals. *Nature*, **131**, 582, 1933. *Phys. Rev.*, **44**, 353, 1933.

R. W. Wood,  
Chairman, Department of Physics.

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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 cooperative 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; Dr. William O. Weyforth, Associate Professor of Political Economy; Dr. Broadus Mitchell, Associate Professor of Political Economy; Dr. George H. Evans, Jr., Associate in Political Economy; Dr. Howard E. Cooper, Instructor in Accounting; and Mr. Roy J. Bullock, Instructor in Marketing; 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: "Competition in the Gas Industry," by Mr. Brown; "The Scope of the Maryland Workmen's Compensation Law," by Miss Singleton; "The United States Export of Oranges," by Mr. Komaroff; "An Index of Building," by Mr. Riggleman; "The History of the Great Atlantic and Pacific Tea Company," by Mr. Bullock; "The Foreign Debt of the Argentine Republic," by Mr. Peters; "Mutual Savings Banks in Baltimore," by Mr. Thon; "American Trade Unionism and Social Insurance," by Professor Barnett; "Ricardo's Minor Papers on the Currency Question," by Professor Hollander; "Early English Preferred Stocks," by Dr. Evans; "Goodwill and the Law," by Mr. Bloomberg; "Investment Problems and Policies of Mutual Savings Banks of Baltimore," by Mr. Thon; "The Foreign Debt of the Argentine Republic," by Mr. Peters; "The Changes in the Lending and Investment Policies of Commercial Banks during Recent Years," by Miss Cook; "The Foreign Debt of the Argentine Republic," by Mr. Peters; "The United States Exports and Imports of Citrus Fruits," by Mr. Komaroff; "Technocracy," by Dr. Mitchell; "Federal Financing, 1919-1933," by Mr. Van Sant; "Workmen's Compensation in Maryland," by Miss Singleton; "Federal Reserve Structure and Credit Control," by Dr. Weyforth; "The Philosophy of the American Federation of Labor," by Mr. Mitchell; "The Barbers' Union," by Mr. Hall; "Banking Policy and Speculation," by Mr. Hedges; "Delaware Business Incorporations, 1700-1829," by Mr. Larcom; "License Taxation," by Mr. Richardson.

Appreciable progress has been made by members of the Seminary in the study of special aspects of the several questions chosen for investigation.

Professor Hollander lectured two hours a week on the Development of Economic Opinion and one hour a week on Public Finance.

Professor Barnett lectured one hour a week throughout the year on American Trade Unionism.

Associate Professor Weyforth lectured one hour a week throughout the year on Industrial Fluctuations.

Associate Professor Mitchell lectured one hour a week during the second half-year on The Slave South.

Dr. Evans lectured one hour a week during the second half-year on Index Numbers.

Dr. Cooper gave a series of lectures in the second half-year on The Interpretation of Financial Reports.

Members of the staff were called upon for public service in various capacities. Professor Barnett served as President of the American Economic Association from January 1932 to December 1932, and as a member of the Advisory Committee of the United States Census. Dr. Weyforth and Dr. Mitchell served as members of the Municipal Commission on Employment Stabilization. Dr. Cooper was elected President of the Baltimore Chapter of the National Association of Cost Accountants. Dr. Weyforth, Dr. Mitchell and Dr. Evans participated in a series of radio talks on current economic events.

Professor Hollander, Professor Barnett, Associate Professor Weyforth, Associate Professor Mitchell, Dr. Evans, Dr. Cooper, Mr. Bullock, Dr. Howell and Dr. Richeson conducted the following undergraduate courses:

1. Elements of Economics. *Three hours weekly, through the year.* Associate Professor Weyforth, Associate Professor Mitchell and Dr. Evans.
  2. Statistics. *Three hours weekly, through the year.* Dr. Evans.
  3. Money and Banking. *Three hours weekly, through the year.* Associate Professor Weyforth.
  4. Labor Problems. *Three hours weekly, through the year.* Professor Barnett.
  11. Principles of Accounting. *Three hours weekly, through the year.* Dr. Cooper.
  12. Economic History. *Three hours weekly, through the year.* Associate Professor Mitchell.
  14. Corporation Accounting. *Three hours weekly, through the year.* Dr. Cooper.
  16. The Money Market. *One hour weekly, through the year.* Professor Hollander.
  17. The Theory of Investments. *One hour weekly, through the year.* Professor Barnett.
  20. Marketing. *Three hours weekly, through the year.* Mr. Bullock.
  21. Sales Management. *Three hours weekly, through the year.* Mr. Bullock.
  22. Commercial Law. *Two hours weekly, through the year.* Dr. Howell.
- Mathematics 6-B. Mathematics of Finance and Statistics. *Three hours weekly through the year.* Dr. Richeson.

#### EVENING COURSES IN BUSINESS ECONOMICS

During the past seventeen years the Johns Hopkins University has offered 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 are planned to meet the needs also of those who have a more general interest in the subjects. The following courses were offered during the year:

Current Economic Problems, Professor Hollander; Investments, Professor Barnett; Money and Banking, Associate Professor Weyforth; Political Economy, American Economic History, Associate Professor Mitchell; Business Statistics, Corporation Finance, Dr. Evans; Corporation Accounting, Dr. Cooper; Sales Problems, Marketing, Mr. Bullock; Elementary Accounting,

Dr. Bryan; Mercantile Credit, Mr. Clautice; Auditing Principles and Practice, Income Tax Accounting, Mr. Baker; Business Organization and Management, Dr. Stevens; Advanced Commercial Law, Dr. Watkins; Salesmanship and Salesmanagement, Mr. Ramsen; Advanced Auditing and Accountant's Working Papers, Mr. Stegman; Applications of Psychology to Business, Applications of Psychology to Business (Advanced), Dr. Bentley; Advanced Accounting Problems, Mr. McCord; Principles of Advertising, Mr. Corner; Commercial Law, Mr. Thomsen; Specialized Accounting, Mr. Smith; English Grammar and Composition, Dr. Fagin; Business English, Dr. McManaway; Public Speaking, Dr. Lyons.

#### SCHOOL OF BUSINESS ECONOMICS

The academic year 1932-33 marked the eleventh year of operation of the School of Business Economics. The School was established to take care of the increasing need of specialized academic training for men contemplating a business career. In planning the curriculum of the School of Business Economics there was kept in mind the need for an adequate training in certain fundamental subjects, as well as for specialized instruction in economics and business subjects. Accordingly, during the first two years the studies are rather closely prescribed and are selected so as to furnish an essential background for a career in any field of business. In these years the curriculum is very similar to what would be taken in the College of Arts and Sciences. In the third year greater latitude is allowed the student in the selection of subjects, and in the fourth year nearly all the subjects are elective. During these last two years it is intended that there should be intensive specialization in studies in business economics.

During the academic year 1932-33 students in the School of Business Economics were called upon, in partial fulfillment of the requirements for the degree of Bachelor of Science in Economics, to submit in the last year of residence an essay dealing with some business or economic subject.

In 1933, 10 students were graduated. These students were awarded the degree of Bachelor of Science in Economics.

The total registration in the School was 107, divided as follows: first year, 34, upper classes 73.

#### PUBLICATIONS

George E. Barnett.

American Trade Unionism and Social Insurance. Presidential address delivered at the 45th annual meeting of the American Economic Association, December 29, 1932; in *American Economic Review*, March, 1933, pp. 1-15.

Review of F. C. Mills, *Economic Tendencies. Aspects of Pre-War and Post War Changes*, in *Journal of the American Statistical Association*, March, 1933, pp. 103-104.

Roy J. Bullock.

The Early History of the Great Atlantic and Pacific Tea Company, in *Harvard Business Review*, April, 1933, pp. 289-298.

G. H. Evans, Jr.

Review of R. G. Rodkey, *Preferred Stocks as Long Term Investments*, in *Journal of the American Statistical Association*, March, 1933, pp. 117-119.

Jacob H. Hollander.

Minor Papers on the Currency Question by David Ricardo. (Edited with notes). (Baltimore, The Johns Hopkins Press, 1932), pp. ix, 231.

Report to the Mayor of Baltimore on Working Conditions in the Garment



- Industry (issued in mimeograph); October 24, 1932 (with collaboration of Dr. Joel Seidman, Dr. George H. Ramsey, Dr. Anna Baetjer, Dr. Janet Clark, Dr. A. L. Meyer, Professor Elinor Pancoast, and Mr. Sidney Nyburg).
- Report of the Tax Survey Commission. Submitted to the Governor and General Assembly of Maryland. December 1, 1932.
- Observations on the Effects of the Corn Laws by Thomas Robert Malthus, 1814. (Editor) Second number of fourth series of Reprint of Economic Tracts. (Baltimore, The Johns Hopkins Press, 1932), pp. 37.
- Sure Cures for Capital's Ills, in *The American Mercury*, January, 1933, pp. 26-29.
- Biographical sketches on Earl of Lauderdale and Francis D. Longe in *Encyclopaedia of the Social Sciences*, vol. 9, pp. 191 and 605; on Joseph Massie in *ibid.*, vol. 10, p. 202.
- American Public Opinion and the War Debts. An address. Report of the Eighth Conference on the Cause and Cure of War, pp. 211-219. Also printed in *The Congressional Record*, January 24, 1933, pp. 2559-2561.
- An address presenting Mr. Bernard M. Baruch for the degree of Doctor of Laws, at Commemoration Day Exercises, February 22, 1933, in *Johns Hopkins Alumni Magazine*, June, 1933, pp. 370-371.
- Review of E. A. J. Johnson, American Economic Thought in the Seventeenth Century, in *The Philosophical Review*, May, 1933, p. 339.
- Broadus Mitchell.
- Malthus, New Style, in *The Commonweal*, December 28, 1932, pp. 231-234.
- The American Nationalist School of Economists. Brief address at the meeting of the American Economic Association, December 29, 1932, in Supplement to *American Economic Review*, vol. 23, March, 1933, pp. 87-88.
- Tardy Technocrats, in *The Commonweal*, February 15, 1933, pp. 427-429.
- Biographical sketch of William Gregg in *Encyclopaedia of the Social Sciences*, vol. 7, pp. 165-166.
- and reviews as follows:
- Chase, A New Deal; Cole, A Guide Through World Chaos, and Economic Tracts for the Times; Fairchild, Profits or Prosperity; Boucke, Laissez Faire and After—in *Virginia Quarterly Review*, January, 1933, pp. 119-123.
- Dabney, Liberalism in the South, in *Survey Graphic*, December, 1932, pp. 657-658.
- Cole, titles as above, in *World Tomorrow*, Nov. 23, 1932, pp. 500-501; and in *The Intercollegian*, Feb., 1933, p. 141.
- Johnson, American Economic Thought in the Seventeenth Century, in *American Economic Review*, December, 1932, pp. 698-699.
- Arkwright, The A B C of Technocracy; Scott, Introduction to Technocracy; Loeb, Life in a Technocracy; Raymond, What is Technocracy?; Chase, Technocracy, an Interpretation—in *Virginia Quarterly Review*, April, 1933, pp. 281-285.
- Armstrong, Insuring the Essentials, in *California Law Review*, July, 1933.

JACOB H. HOLLANDER,  
 Abram G. Hutzler Professor of Political Economy.

## POLITICAL SCIENCE

### THE DEPARTMENT

Professor W. W. Willoughby resigned his chair as Thomas P. Stran Professor of Political Science, to take effect in June, 1933. He has been a member of the faculty since 1894, and professor since 1905. He will, however, continue his connection with the department, and will give a course of lectures during the first term of 1933-1934.

Professor Willoughby was the first editor of the *American Political Science Review*, and was president of the American Political Science Association in 1913. He has published numerous volumes on political theory and public law, and has been called the dean of American political scientists.

Dr. Frederick S. Dunn, Creswell Lecturer on International Law, was appointed a member of the Committee on Latin American Research, an organization formed under the auspices of the Social Science Research Council to further research in problems connected with Latin America. He has also been appointed External Examiner in International Law and Organization for Swarthmore College. Following the resignation of Dr. Willoughby, Dr. Dunn was appointed Faculty Adviser of the International Relations Club.

In 1933-1934 the department will be in charge of a committee composed of Drs. James Hart, Frederick S. Dunn, and Johannes Mattern. Mr. John Van A. MacMurray and Mr. Leon Sachs will also participate in the program of instruction.

Next session the department will inaugurate two new policies: (1) the number of full-time students will be limited to twenty-three, and vacancies will be filled by selection from prospective students who have filed applications for admission by June 1; (2) membership in the seminars will be by invitation, which will normally not be extended to students in their first year of residence.

During 1932-1933 thirty-six students were enrolled in the department, of whom twelve were part-time students.

### SEMINARIES

The general seminary met every other week, alternating with two special seminars. The first of these, dealing with international relations, was conducted during the first term by Professor Willoughby, and during the second term by Dr. Dunn. The second, dealing with American government and politics, was conducted throughout the year by Associate Professor Hart. The special topic of Dr. Hart's seminary was the American Presidency.

Hereafter, the general seminary will be given the more appropriate title of general conference, and seminars will be conducted on international law and American government and politics by Drs. Dunn and Hart, respectively.

### LECTURES

During the first term Professor Willoughby gave a two-hour lecture course on the League of Nations.

Dr. Dunn gave throughout the year a two hour course on the nature and application of rules and principles of international law.

Professor Cook gave during the second term a one hour course on legal method, and Dr. Mattern a one-hour course throughout the year on the new governments of Europe, with special reference to Russia.

Mr. W. F. Willoughby, formerly Director of the Bureau of Government Research of the Brookings Institution, gave during the first term a series of lectures on the organization and work of the federal Congress.

Mr. Leon Sachs conducted throughout the year a weekly conference for the discussion of current questions of United States constitutional law.

#### DR. HART'S EXPERIMENTAL COURSE

Associate Professor Hart made of his course announced as "Problems of Government" an experiment in the presentation, by experts in related fields, of a series of lectures designed to emphasize the interdependence of the social sciences and the bearing of other disciplines upon the study of government and politics. To this end he invited thirteen of his colleagues and one outsider to give two lectures each upon their respective subjects in relation to political science. To these persons the department is indebted for their generous coöperation in an undertaking which was successful beyond all expectations.

The schedule of lectures in this course was as follows:

Dr. James Hart—Introduction (one lecture).

Dr. George Boas—Philosophical Analysis and the Social Sciences (one lecture).

Dr. Albert Blumberg—Scientific Method and the Social Sciences (four lectures).

Dr. H. S. Jennings—The Biological Basis of Human Nature (two lectures).

Dr. Knight Dunlap—Psychology and Political Science (two lectures).

Dr. Joseph T. Singewald—The Geographical and Political Distribution of Mineral Deposits (three lectures).

Dr. W. Stull Holt—Historical Bibliography and Materials and Political Science Research (one lecture).

Drs. Roberts Greenfield and Sidney Painter—History and Political Science (one lecture).

Dr. W. W. Cook—Public Law and Political Science (two lectures).

Dr. Leon Marshall—Reclassification in the Social Sciences (two lectures).

Mrs. William Bauernschmidt—Politics in Action (two lectures).

Dr. G. H. Evans—Statistics and the Social Sciences (two lectures).

Dr. W. B. Kouwenhoven—Technocracy (one lecture).

Dr. F. S. Dunn—The Future of Political Science (two lectures).

The stimulation of new viewpoints which this course produced suggests the desirability of making the plan a permanent feature of the department's program. Perhaps several departments could coöperate to their mutual benefit in the periodic repetition of the plan.

#### THE COLLEGE OF ARTS AND SCIENCES

Under the new plan for the College eight students were enrolled as majors in political science. During the first term Associate Professor Hart met them in weekly conferences. Four of these were candidates for the bachelor's degree, and three obtained the degree.

Associate Professor Hart conducted college courses in American government and politics and in foreign governments. Especially qualified undergraduates were admitted to Dr. Mattern's course in the Faculty of Philosophy, and political science majors in the College were invited to attend Dr. Hart's experimental course. Courses in the College for Teachers were also available.

## COURSES IN THE COLLEGE FOR TEACHERS

Associate Professor Winslow, of Goucher College, gave two courses, the first on National and State Government, the second on Political Parties and Municipal Government. Mr. Leon Sachs gave a course on the elements of United States constitutional law, and Mr. Gordon Post a course on the history of political thought.

## SUMMER COURSES

Associate Professor Winslow, of Goucher College, gave three college courses, which dealt with: (1) American National Government; (2) Political Parties; and (3) American Constitutional History.

## DEGREES

Following are the names of recipients of higher degrees conferred upon students in the department during the sessions, together with the titles of their dissertations or essays:

Henry Burke, Ph. D. The Maryland Public Service Commission.  
 Ting-Young Huang, Ph. D. Rebus Sic Stantibus.  
 Vernon O'Rourke, Ph. D. The Juristic Status of Egypt.  
 Charles Gordon Post, Ph. D. Political Questions.  
 Ernest B. Price, Ph. D. Russo-Japanese Secret Treaties.  
 Cromwell Riches, Ph. D. The Unanimity Rule in International Action.  
 Cromwell Thomas, A. M. Constructive Contempts of Courts.

## PUBLICATIONS

James Hart.

The President and His Policies, in *American Year Book*, 1932.  
 National Personalities, in *American Year Book*, 1932.

Frederick S. Dunn.

The Protection of Nationals; A Study in the Application of International Law. The Johns Hopkins Press. Pp. x + 228.  
 The Diplomatic Protection of Americans in Mexico. Columbia University Press. Pp. vii + 439.

Charles James Rohr.

The Governor of Maryland. *Johns Hopkins University Studies in Historical and Political Science*, Series L, No. 3. Pp. 175.

Nasim Sousa.

The Capitulatory Régime of Turkey: Its History, Origin, and Nature. *Johns Hopkins University Studies in Historical and Political Science*, Extra Volume, New Series, No. 18.

Willard H. Humbert.

The Democratic Joint Policy Committee, in *American Political Science Review*, Vol. XXVI, p. 552.

JAMES HART,  
 FREDERICK S. DUNN,  
 JOHANNES MATTERN,  
*Political Science Committee.*

## PSYCHOLOGY

During the year 1932-33, advanced courses in Psychology were given by Professor Dunlap, Professor Johnson, Dr. Dorcus, and Dr. Beasley. Under the joint direction of the members of the staff, research was conducted by thirteen students, three of whom received the Ph.D. degree in June. Undergraduate courses were given in the College of Arts and Sciences by Dr. McComas, Dr. Dorcus, and Dr. Beasley; in the College for Teachers by Professor Johnson, Dr. McComas and Dr. Beasley; and in the Evening Courses in Business Economics by Dr. Bentley. The Child Institute was conducted by Professor Johnson and Dr. Cook with an enrollment of 32 children.

Professor Dunlap and Dr. Dorcus have continued as managing editor and assistant editor respectively of the *Journal of Comparative Psychology*, *Comparative Psychology Monographs*, and *Psychology Classics*. Professor Johnson has continued to edit *Child Development* and *Mental Measurements Monographs*. The affiliations of the department with the National Research Council, Gallaudet College, The Roland Park Country School for Girls, and the Baltimore County Children's Aid Society through staff members on Boards and Committees of these organizations, has been continued. Dr. Dorcus has been elected President of the Southern Society for Philosophy and Psychology, and Professor Johnson has been made Secretary of the newly organized national Society for Child Development. Members of the staff and graduate students have been active as usual in the several professional societies of psychologists. Extra-mural lectures, conferences with social and industrial agencies, and individual adjustment work have provided manifold contacts with the public as in past years.

The experimental research of the staff and students has covered topics in animal, child, and both normal and abnormal adult human psychology, in coöperation with the Johns Hopkins Hospital, the Harriet Lane Hospital, St. Elizabeth's Hospital, and other institutions and organizations. Old lines of investigation have been continued as far as facilities have permitted, and several new lines of unusual interest have been developed.

The reduced physical facilities of the department have made it possible to continue research on a satisfactory level only through the fine coöperation of students and excessive contributions of time and energy on the part of the staff members. The enrollment of advanced students has been necessarily kept down. Standards for admission to the laboratory have been further raised, with the included provision that students admitted after July 1, 1933 shall absolve the modern language requirements at the beginning of their first year.

## PUBLICATIONS

K. Dunlap.

Habits; their making and unmaking. Liveright, N. Y., 1932, pp. 336.

Are emotions teleological constructs? 1932, *Amer. Jour. Psychol.*, 44: 572-86.

Some problems of street and highway. 1932, *Scientific Monthly*, 35: 416-26.

The problem of adjusting human beings to their social environments. 1933, *Johns Hopkins Alum. Mag.*, 21: 281-243.

The susceptibility of rats to electric shock. 1933, *Jour. Comparative Psychol.*, 25: 199-208.

On driving your car. 12 articles in the *Baltimore Evening Sun*.

K. Dunlap and R. S. Gill.

The dramatic personality of Jesus. 1933, Williams and Wilkins Co., Baltimore, pp. 186.

B. J. Johnson.

Child psychology. 1933, Charles C. Thomas, Springfield, Ill., pp. xi, 439.

R. M. Doreus.

The effect of intermittent rotation on orientation and habituation of nystagmus in the rat, and some observations on the effect of pre-natal rotation on post-natal development. 1933, *Jour. Comparative Psychol.*, 5: 469-476.

R. M. Doreus and W. L. Gray.

The effectiveness of food and electrical shock in learning and retention by rats, when applied at central parts of the maze. 1932, *Jour. Comparative Psychol.*, 4: 191-218.

W. C. Beasley.

Visual pursuit in 109 white and 142 negro newborn infants. 1933, *Child Development*, 4: 106-120.

E. L. Beebe.

Motor learning in children in hand and eye coördination with introduction of prismatic deflection. 1933, *Child Development*, 4: 6-25.

P. Eigler.

The effect of unusual stimulation on motor coördination in children. 1933, *Child Development*, 3: 207-229.

O. H. Mowrer.

A comparison of the visual functions of nictitation and blinking. 1933, *Jour. Comparative Psychol.*, 15: 75-94.

O. H. Mowrer and W. R. Casey.

A note on the relationships between nystagmus duration and thyroid conditions. 1932, *Endocrinology*, 16: 431-33.

L. A. Petran.

An experimental comparison of adverb-verb and verb-adverb controlled association reaction times. 1932, *Journal General Psychol.*, 7: 381-404.

KNIGHT DUNLAP,

*Professor of Experimental Psychology.*

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## ROMANCE LANGUAGES

### I. ADVANCED COURSES

The Seminary in French Linguistics met one hour weekly throughout the year, under the direction of Professor Blondheim. The subject, as in previous years, was the French Glosses in the Talmudical Commentaries of Rashi; studies bearing upon the history of Old French medicine were specially emphasized. The Seminary in French Literature of the Seventeenth Century met two hours weekly throughout the year, under the direction of Professor Lancaster. The subject investigated was the comedy of Molière's contemporaries. The Seminary in French Literature of the Eighteenth and Nineteenth Centuries met two hours weekly, under the direction of Professor Chinard. Work was done on Chateaubriand's *Génie du Christianisme*, and progress was made towards the preparation of a critical edition of it. Professor Chinard also conducted a Seminary, one hour weekly, devoted to Problems in Comparative Literature.

Professor Blondheim gave weekly courses in Old French Historical Grammar, Old French Readings—Elementary and Advanced, History of Old French Literature, and Modern French Syntax; Professor Lancaster in French Literature, 1550-1600, in the Novel, 1600-1660, and in the Nineteenth Century Drama; Professor Chinard in the Philosophical Movement during the second half of the Eighteenth Century, and in the Chief Currents of Modern French Poetry, 1870-1900; Professor Shanks in French Literature of the Nineteenth Century (two hours weekly); Professor Gruenbaum in Readings in Italian Literature, in Rumanian Readings and Historical Grammar, in Spanish Historical Grammar (two hours weekly), and in Readings in Old Spanish Literature; Mr. Robles in the Spanish *Novela picaresca* and in the Novel of the Nineteenth Century.

## II. COLLEGE OF ARTS AND SCIENCES

French Reading, *four hours weekly*, six sections, was taught by Dr. McKee, Dr. Hasbrouck, Mr. Hocking, and Mr. Lowenstein. French I, *four hours weekly*, two sections, was taught by Mr. Spurlin, Dr. Shanks and Mr. Hocking. French 2C, *three hours weekly*, was taught by Dr. McKee. French 3C, *three hours weekly*, was taught by Professor Shanks; French 4C, *one hour weekly*, by Dr. McKee; French 6C, *one hour weekly*, by Professor Shanks; Italian I, *three hours weekly*, by Dr. Radoff, and Italian 2, *three hours weekly*, by Professor Gruenbaum; Spanish I, *four hours weekly*, by Dr. Hasbrouck.

## III. COLLEGE FOR TEACHERS

French 1T, *three hours weekly*, three sections, was taught by Professor Seibert and Dr. Myers; 2T, *three hours weekly*, three sections, by Dr. McKee, Dr. Radoff, and Dr. Moody; 3T, *two hours weekly*, by Dr. Moody; 4T and 5T, each *two hours weekly*, by Dr. Dulac; Italian 1T and 2T, each *two hours weekly*, by Professor Lemmi; Spanish, 1T, *two hours weekly*, in two sections, and 2T, *two hours weekly*, by Professor Crooks; 3T, *two hours weekly*, by Dr. Radoff and Mr. Robles.

## IV. SUMMER COURSES

Professor Silin gave courses on French Pronunciation and Practical Phonetics, sixty hours, and on French Drama of the Nineteenth Century, thirty hours. Dr. McKee gave Intermediate French, thirty hours, and French Readings, sixty hours, and Professor Beall, elementary French, sixty hours. Mr. Hasbrouck gave courses in Spanish Elements and Spanish Readings, sixty hours each; and Professor Beall a course in elementary Italian, sixty hours.

## V. PUBLICATIONS

### a) Books:

Maurice Baudin.

Les Bâtards au théâtre en France. Baltimore, The Johns Hopkins Press. Pp. 122.

G. Chinard.

Chateaubriand, *Les Natchez*. Publiés avec une Introduction et des Notes. Paris et Baltimore, The Johns Hopkins Press, 1932. Pp. 554.

Un Français en Virginie. Paris et Baltimore, The Johns Hopkins Press, 1932. Pp. 158.

L. C. Durel.

L'Œuvre d'André Mareschal. Baltimore, The Johns Hopkins Press. Pp. 136.

L. A. Hill.

The Tudors in French Drama. Baltimore, The Johns Hopkins Press. Pp. 176.

b) Articles and Reviews:

D. S. Blondheim.

Review of A. G. Solalinde, Dos nombres de animales puros e impuros en las traducciones medievales españolas de la Biblia. *Revista de filología española*, XIX, 68-73.

H. C. Lancaster.

American Bibliography. III. French. *PMLA.*, XLVIII, 1266-75.

C. C. Marden. *MLN.*, XLVII, p. v.

Reviews of Fülöp-Miller, Tolstoy, *MLN.*, XLVII, 482-3; M. Rudwin, The Devil in Legend and Literature, *MLN.*, XLVII, 485-6; H. March, F. Soulié, *MLN.*, XLVII, 540-1; F. Gaiffe, Le Rire et la scène française, *MLN.*, XLVII, 541-2; O. Guerlac, les Citations françaises, *MLN.*, XLVII, 552-3; K. E. Wheatley, Molière and Terence, *MLN.*, XLVII, 553-4; G. L. van Roosbroeck, Saint Evremond, la Comédie des Académistes; Boileau, etc., Chapelain Décoiffé, *MLN.*, XLVIII, 121-2; M. A. White, Acoubar, *MLN.*, XLVIII, 135-6; A. W. Osborn, Sidney en France, *MLN.*, XLVIII, 269-73; A. J. Knock, The Urquhart-Le Motteux Rabelais; J. Plattard, Fr. Rabelais; H. Brown, The Tale of Gargantua, *MLN.*, XLVIII, 273-5.

#### VI. DISSERTATIONS AND ESSAYS

For the dissertations and essays accepted during the year, see the Report of the Registrar.

H. CARRINGTON LANCASTER,

*James M. Beall Professor of French Literature.*

## ZOOLOGY, BOTANY AND PLANT PHYSIOLOGY

### I. ZOOLOGY

#### *School of Higher Studies*

*Students:* Twenty-seven (of whom two were part time). Four entered this year without bachelor's degree.

*Degrees:* Four absolved the requirements for the Ph.D. degree. These, with titles of dissertations, are:

Coleen Fowler. Changes in the Water Content of Amoeba.

Emma J. Papenfuss. Experimental Studies on Fusion in Hydra, with Special Reference to the Fusion of Parts to Form Whole Individuals.

Heinz Specht. Respiration in Protozoa, with Special Reference to Anaerobiosis.

Amos Benkov Penn. Factors Conditioning the Encystment of Pleurotricha lanceolata.

In addition, Mr. C. L. Newcombe, graduate student, received in May the Ph. D. degree from the University of Toronto.

Dr. A. C. Hetherington was Adam T. Bruce Fellow.

Dr. Margot E. Metcalfe, from England, was Fellow on the Commonwealth



Fund. Mr. A. B. Penn held a Tsing Hua University Scholarship from the Chinese Government. Johns Hopkins Scholarships were held by Coleen Fowler, Heinz Specht, and E. M. Walzl.

The Student Assistants were W. L. Doyle, Brainard Hawk, C. D. Howell, Cosmo Mackenzie, C. L. Newcombe, J. F. Oliphant, Willard Trezise.

The following members of the Zoological Department were engaged during the summer of 1932 in investigations at the Marine Biological Laboratory at Woods Hole, Mass.: Professor S. O. Mast, Professor R. P. Cowles, Dr. Tracy M. Sonneborn, Dr. Ruth S. Lynch, Dr. D. M. Pace, Dr. C. L. Prosser, Mr. W. L. Doyle, Mr. Heinz Specht, Miss Bernice Pierson, Miss Rachel Carson, Miss Grace Lippy, Mr. Amos Penn, Mrs. Emma J. Papenfuss.

Lectures, Addresses and Papers by Members of the Department: At the Christmas meetings of the National Societies, 14 papers were presented by members of the Department before the American Society of Zoologists and the Genetics Society of America. Professor C. W. Metz and Dr. Alexander Weinstein presented papers and demonstrations before the International Congress of Genetics at Ithaca, N. Y., in the summer of 1932.

Public lectures and addresses were given outside the University as follows: Professor H. S. Jennings, the Terry Lectures at Yale University, on Religion in the Light of Science and Philosophy; also addresses at the Rand School of Social Science in New York City; at Vassar College; at Connecticut College, New London, Conn.; before the Child Study Association of New York City; before the Baltimore City Medical Society; before the Bridgeport Community Forum; before the Zoological Seminary of the University of Pennsylvania; and at the Anniversary Convocation of the Evans Dental Institute of the University of Pennsylvania. Professor S. O. Mast, at Western Maryland College. Professor C. W. Metz before the Johns Hopkins Chapter of Sigma Xi. Dr. T. M. Sonneborn, before the Baltimore Branch of the Child Study Association of America.

Lectures and addresses before the Department, by guest speakers: Dr. S. R. Guild and Dr. W. Mansfield Clark of the Johns Hopkins Medical School; Dr. H. W. Chalkley of the U. S. Public Health Service; Dr. J. W. Gowen, Dr. E. H. Gay and Dr. R. G. Schott of the Rockefeller Institute for Medical Research; Dr. R. E. Cleland of Goucher College; Dr. E. Uhlenhuth of the University of Maryland; Dr. M. Demerec of the Carnegie Institute of Washington.

The honorary degree of Doctor of Science was conferred on Professor H. S. Jennings by the University of Pennsylvania in May, and by Oberlin College in June, 1933.

Professor R. P. Cowles has been appointed a member of the committee which outlines the plans for research and instruction in the new Chesapeake Biological Laboratory at Solomon's Island, Md., a state institution conducted by the Maryland Conservation Commission. At the request of the Director of the Laboratory, Professor Cowles has prepared a plan for a biological survey of the waters about Solomon's Island.

#### COURSES IN THE SCHOOL OF HIGHER STUDIES

Professor H. S. Jennings: Genetics; lectures, conferences and investigations. Professor S. O. Mast: General Physiology; lectures, conferences, laboratory work and investigations. Professor C. W. Metz: Cytology; lectures, conferences, laboratory work and investigations. Professor R. P. Cowles: Advanced Vertebrate Zoology; conferences, readings, laboratory work and investigations. Dr. C. L. Newcombe: Invertebrate Zoology; lectures and laboratory work. The Journal Club met weekly, as usual.

## COURSES IN THE COLLEGE OF ARTS AND SCIENCES

Professor R. P. Cowles, Dr. C. E. Brambel and Dr. B. Cohen, with assistants: General Biology; lectures and laboratory work. Dr. Alexander Weinstein: Genetics and Evolution; lectures and conferences. Dr. W. G. Lynn: Comparative Anatomy of Vertebrates, including mammalian embryology; lectures and laboratory work.

## COURSES IN THE COLLEGE FOR TEACHERS

Professor R. P. Cowles: General Biology; lectures and laboratory work (Saturdays). Dr. Alexander Weinstein: History of Science, and Advanced History of Science; lectures, reading and reports; Genetics and Evolution (see College of Arts and Sciences). Dr. Emily W. Emmart: Histology; lectures and laboratory work.

## SUMMER COURSES

Dr. C. E. Brambel, Vertebrate Embryology; Advanced Embryology; Comparative Anatomy of Vertebrates. Miss Grace Lippy and Miss Rachel Carson: General Biology. Dr. Alexander Weinstein: Genetics and Evolution, I and II.

## PUBLICATIONS IN ZOOLOGY

E. A. Andrews.

Some habits of a Cuban snail, *Polymita picta* Born. *Nautilus*, XLVI (1932), 22-27.

Eggs of *Ampullaria* in Jamaica. *Nautilus*, XLVI (1933), 93-96.

C. E. Brambel.

Allanto-chorionic differentiation of the pig, studied histologically and histochemically. *Amer. Jour. of Anatomy*, LII (1933), 397-459.

R. P. Cowles.

A study of the vertical distribution of *Euglena* (abstract). *Anatomical Record*, LIV (1932), 111-112.

W. L. Doyle.

Method for study of unsectioned cells with Champy-Kull staining. *Anat. Rec.*, LIII (1932), 167-168.

A propos de la détection histochimique du cholestérol. *Bulletin d'Histologie Appliquée*, X (1933), 20-21.

Modification of the Backlin-Kirk combustion chamber for microdetermination of carbon and lipoids. *Science*, LXXVII (1933), 173.

J. A. Frisch.

Relation between locomotion and frequency of contraction of the contractile vacuole in *Paramecium caudatum* (abstract). *Anat. Rec.*, LIV (1932), 69.

W. F. Hahnert.

Studies on chemical needs of *Amoeba proteus*: a culture method. *Biol. Bull.*, LXII (1932), 205-211.

A quantitative study of reactions to electricity in *Amoeba proteus*. *Physiological Zoology*, V (1932), 491-526.

Relation between current density, time and response of *Amoeba proteus* to electricity (abstract). *Anat. Rec.*, LIV (1932), 68.

Reactions to electricity in *Spirostemum ambiguum* (abstract). *Anat. Rec.*, LIV (1932), 68-69.

A. Hetherington.

Is the usual balanced physiological medium suitable for avascular freshwater animals? (abstract). *Anat. Rec.*, LIV (1932), 40-41.

- H. S. Jennings, D. Raffel, R. S. Lynch, and T. M. Sonneborn.  
The diverse biotypes produced by conjugation within a clone of *Paramecium aurelia*. *Jour. Exper. Zool.*, LXII (1932), 363-408.
- H. S. Jennings.  
Originality in the Development of Life. *Yale Review*, XXII (1933), 559-572.  
Genetics of the Protozoa. *Japanese Jour. of Genetics*, VIII (1933), 65-84.
- S. O. Mast.  
The rate of adaptation to light and darkness in *Volvox globator*. *Zeitschrift für Vergleichende Physiologie*, XVII (1932), 644-658.
- S. O. Mast and W. L. Doyle.  
Structure and function of the so-called 'Glanzkörper'; 'nutritive spheres,' 'Golgi bodies,' or 'spherical bodies' in *Amoeba proteus*. *Anat. Rec.*, LIV (1932), 17.
- S. O. Mast and D. M. Pace.  
Synthesis of protoplasm from inorganic compounds in the colorless animal *Chilomonas paramecium*. *Anat. Rec.*, LIV (1932), 101-102.
- S. O. Mast and C. L. Prosser.  
Effect of temperature, salts and hydrogen-ion concentration on rupture of the plasmogel sheet, rate of locomotion and gel/sol ratio in *Amoeba proteus*. *Jour. of Cellular and Comp. Physiol.*, I (1932), 333-354.
- M. M. Metcalf.  
Eye and ear in "seasickness." *Archives of Ophthalmology*, VIII (1932), 269-270.
- C. W. Metz.  
Monocentric mitosis with segregation of chromosomes in *Sciara*, and its bearing on the mechanism of mitosis. *Biol. Bull.*, LXIV (1933), 333-347.
- C. W. Metz and S. Frolowa.  
Cytology of *Drosophila* species (demonstrations). *Proc. 6th Internat. Cong. of Genetics*, II (1932), 223.
- C. W. Metz, M. L. Schmuck, A. M. Du Bois, and H. B. Smith.  
Cytology and genetics of *Sciara* (demonstrations). *Proc. 6th Internat. Cong. of Genetics*, II (1932), 241-242.
- C. W. Metz and L. Schmuck.  
Method of preparing entire insect eggs for study of chromosomes (demonstration). *Proc. 6th Internat. Cong. of Genetics*, II (1932), 400.
- E. J. Papenfuss.  
Experimental studies on *Hydra* (abstract). *Anat. Rec.*, LIV (1932), 54-55.
- A. Mozley.  
A new interglacial pulmonate mollusc from the province of Saskatchewan. *The Amer. Midland Naturalist*, XIII (1932), 236-240.  
Notes on western Canadian Mollusca—*Planorbis campanulatus* Wisconsinensis Winslow. *Nautilus*, XLVI (1932), 59-62.  
A biological study of a temporary pond in Western Canada. *Amer. Naturalist*, LXVI (1932), 235-249.
- D. M. Pace.  
The relation of inorganic salts to growth and reproduction in *Amoeba proteus*. *Archiv. für Protistenkunde*, LXXIX (1933), 133-135.

## A. B. K. Penn.

A method for culturing *Bursaria truncatella* (abstract). *Anat. Rec.*, LIV (1932), 99.

## C. L. Prosser.

The influence of the central nervous system on response to light in the earthworm *Eisenia foetida* (abstract). *Anat. Rec.*, LIV (1932), 69.

## D. Raffel.

A genetic study of the reduction division in *Paramecium aurelia* (abstract). *Anat. Rec.*, LIV (1932), 98-99.

The occurrence of gene mutations in *Paramecium* (abstract). *Proc. 6th Internat. Cong. of Genetics*, II (1932), 162.

Gene mutations in *Paramecium aurelia*. *Woods Hole Collecting Net*, VII (1932), 267-268.

## Helen B. Smith.

Genetic studies on selective segregation of chromosomes in *Sciara*. *Proc. 6th Internat. Cong. of Genetics*, II (1932), 187-188.

## T. M. Sonneborn.

Experimental production of chains and its genetic consequences in the ciliate protozoan *Colpidium campylum* (Stokes). *Biol. Bull.*, LXIII (1932), 187-211.

Mendelian methods applied to the ciliate protozoan *Paramecium aurelia* (abstract). *Amer. Naturalist*, LXVII (1933), 72.

Reviews, books on Evolution by T. H. Morgan, by C. C. Hurst, and by J. B. S. Haldane. *Baltimore Evening Sun*, April 8, 1933.

## A. Weinstein.

A theoretical and experimental analysis of crossing over. *Proc. 6th Internat. Cong. of Genetics*, II (1932), 206-208.

Crossing over and coincidence. *Proc. 6th. Internat. Cong. of Genetics*, II (1932), 226-228.

## A. Weinstein (with H. J. Muller).

Evidence against the occurrence of crossing over between sister chromatids (abstract). *Amer. Naturalist*, LXVII (1933), 64-65.

## A. Weinstein.

Crossing over in triploids and in attached-X diploids (abstract). *Amer. Naturalist*, LXVII (1933), 65.

Palamedes. *Amer. Naturalist*, LXVII (1933), 222-253.

H. S. JENNINGS,

*Director of the Zoological Laboratory.*

## II. BOTANY

Botanical Lectures and Laboratory conducted in 1932-33 throughout the year.

Professor Johnson conducted lectures and laboratory work on reproduction and phylogeny of plants, Botany 3 P, 3 lectures, 6 hours laboratory weekly. Organography and life cycles of plants, Botany 1 TB, 3 lectures, 6 hours laboratory work weekly. Botanical Seminary, Botany 6 P, 1 hour weekly, November to May. Botanical Research, Botany 7 P, daily throughout the year.

Dr. Minnie B. Harris conducted advanced Bacteriology, Botany 2 P<sup>b</sup>, 3 lectures per week for the first semester; and General Bacteriology, Botany 2 P<sup>a</sup>, 9 hours weekly second semester.

## OTHER BOTANICAL LECTURES

Dr. Alexander F. Skutch lectured before the Zoological and Botanical Journal Club in October, on the nesting habits of Central American birds and in November before the Botanical Seminary, on the vegetation of Guatemala. On January 18, Professor Wm. Seifriz of the University of Pennsylvania, lectured on the results of his botanical expedition to the Sierra Nevada of Santa Marta, Colombia. Dr. Daniel Shoemaker lectured on March 9 before the Zoological and Botanical Journal Club on the cultivation, breeding and utilization of artichokes.

During March and April, 1933, Professor John N. Couch of the University of North Carolina, gave a series of 15 lectures and laboratory exercises on the lower fungi to graduate students in botany and from the School of Hygiene.

During July, 1932, Professor Johnson was in charge of the Hopkins botanical expedition in Jamaica, in which twelve persons participated. In August he spent ten days in Guatemala comparing the vegetation of the highlands of Guatemala with those of Jamaica. During the winter he completed for publication a paper on the symmetry and homologies of the capsules of *Marsilea* and *Pilularia*. On April 29th, Professor Johnson gave a lecture on the structure and homologies of the capsules of *Marsilea* and *Pilularia* before the faculty and students of the Botanical Department of the University of Toronto; and an evening lecture before the Royal Canadian Institute on the vegetation of the Blue Mountains of Jamaica.

Miss Douglass Rankin completed her study of the development and spermatogenesis of *Polypodium polypodioides* and submitted this as a dissertation in June, 1933. Messrs. W. A. Jenkins, with a dissertation on *Cordyceps argariciformia*, G. F. Papenfuss, with a dissertation on *Ectocarpus*, and Paul M. Patterson, with a dissertation on the development of *Dumortiera hirsuta*, also completed the requirements for the doctorate in June, 1933. Mr. B. L. Hammond nearly completed his research on *Podostomum ceratophyllum* which he expects to submit as a dissertation in February next. Mr. W. R. Hatch continued his study of the growth of skunk cabbage (*Symplocarpus*). Mr. Hatch spent two very profitable weeks studying the montaine vegetation of certain volcanoes of Guatemala, during August.

W. R. Hatch was reappointed student assistant in Botany 1 P and 3 P. Eva Van Schaack was reappointed assistant in the herbarium and Botanical Department. Mr. Rex. N. Webster of Indianapolis was appointed assistant in microtechnique, all for 1933-34.

## BOTANICAL GARDEN

A very considerable number of tropical plants were collected by our party in Jamaica and by Professor Johnson and Mr. Hatch in Guatemala. Most of these are flourishing splendidly. Other important additions to the collection have been received from the Botanical Garden of the University of Toronto and the usual important gifts of seeds have come from the botanical gardens of Kew, La Mortola, Paris and Lisbon. A considerable number of trees and shrubs have been transplanted from the Botanical Garden or its nursery to the part of the campus lying east of Rowland Hall. The species used fit into the plan adopted several years ago for distribution of various plant families about the campus.

Permanent bronze foil labels for some 1500 plants in the Botanical Garden were prepared during the year. Miss Eleanor Musselman generously donated the many hours of work required for this.

Our gardener's house continued to be used as quarters for the Child Institute of the Department of Psychology.

DUNCAN S. JOHNSON,  
*Director of the Botanical Laboratory  
and the Botanical Garden.*

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### III. PLANT PHYSIOLOGY

The general course in plant physiology was given as usual and three advanced students began research. Mr. W. L. Norem, student assistant, prepared an annotated bibliography of studies in which flowing solutions have been used and he has helped to develop a method for the standardization of black porous-porcelain atmometer spheres. Mr. Otto Veerhoff carried out a series of solution cultures of wheat, in which the nutrient solution flowed slowly and continuously through a series of small culture jars on a rotating table. Combining continuous flow with planetary rotation insures maintenance of solution properties and gives to all cultures practically the same aerial environment. Mr. Donald B. Lawrence carried out some preliminary experiments on the lowering of the humidity of the soil atmosphere as the soil becomes nearly dry through decrease in its liquid water content. He constructed a first working model of an instrument for estimating, for periods such as days or weeks, the integrated heating or cooling influence of air or soil; our aim is to develop, if possible, an integrating device for comparing the heating or cooling capacities of different environments, somewhat as atmometers are employed in comparing the drying capacities of air and radiation in different habitats. Such a device might be regarded as an integrating form of Hill's katathermometer.

At the Atlantic City meeting of the Ecological Society of America, in December, 1932, Professor Livingston, Miss Ruth Beall and Mr. Norem demonstrated the recently obtained black porous porcelain spheres and Bellani plates, for integrating the drying power of radiation, notably of sunshine. At the same meeting Professor Livingston presented results of a study carried out several years ago with the assistance of Dr. Cornelia Marschall Smith, on the difference between daily sunlight integrations obtained with spherical and with horizontal plane surfaces for absorbing sunshine. The two forms of radiation absorber gave sensibly the same result only so long as the axis of direct solar radiation met the plane at an angle greater than about 62°. A paper concerning the influence of ethylene on CO<sub>2</sub> production and growth of young wheat seedlings at different maintained temperatures and with different oxygen pressures, by Dr. Warren B. Mack and Professor Livingston, has appeared in the *Botanical Gazette*. From data of that paper Professor Livingston has made an additional study of the relation of growth to CO<sub>2</sub> production, introducing the concept, rate of shoot elongation per milligram of CO<sub>2</sub> lost. A paper by Professor Livingston and Dr. Ferdinand W. Haasis, on temperature and time as influencing germination of rice seed, is about to appear in the *American Journal of Botany*. Dr. Grace Lubin Feinsinger's monograph on traction in water as shown by the Askenasy experiment, which reports a 2 year experimental study carried out in this laboratory, is nearly ready for publication; which is also true of a paper by Professor Livingston and Miss Ruth Beall, on the soil as possible source of some of the CO<sub>2</sub> consumed in photosynthesis of carbohydrates in green leaves. Dr. José H. Pardo's annotated bibliography on the nutritional value of NH<sub>3</sub> and NO<sub>2</sub>, as shown by plant growth, has been completed and is to appear in the *Quarterly Review of Biology*.

BURTON E. LIVINGSTON,  
*Director of the Laboratory of Plant Physiology.*

# REPORT OF THE DEAN OF THE COLLEGE OF ARTS AND SCIENCES

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## TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor to submit the following report concerning the College of Arts and Sciences for the year 1932-1933:

The work of the College during the academic year 1932-33 has proceeded along the lines indicated in previous reports. We now know exactly what we are trying to do and we have the curriculum organized for that purpose.

In the furtherance of the ideal to be individualistic and realistic, the College has been operated this year without points credit. Each candidate for the degree was required to pass a comprehensive examination set by one of the three Groups into which the Faculty is divided. This examination, naturally, varied in each Group. In the Natural Science Group it consisted of a general paper and a series of questions. In the Social Science Group, the various disciplines of which are more integrated, it consisted of a paper on Nationalism. In the Literature and Language Group, it was modified according to the major subject.

The results were on the whole satisfactory and the same plan will be followed next year. In the light of this year's experience this method of determining a candidate's fitness for a degree will undoubtedly work more smoothly and efficiently as time passes.

The enrollment has been the largest in the history of the College and the progressive spread in the geographic distribution of the students is a cause for satisfaction.

From my limited experience it seems to me that the character of the student body is marked by an earnestness and a proficiency which are progressively better from year to year. The personnel of the teaching staff has never been higher and it is a pleasure to testify to their cooperation in carrying out the plans which have been under way during the past four years for making the collegiate work more realistic and effective.

## CHANGES IN THE FACULTY

A list of changes in the faculty will be found on page 19.

## STUDENT ACTIVITIES

There has been no change during the year in the management or control of various student activities. Under the presidency of Mr. William Triplett the Student Council has performed its functions most satisfactorily, and I am happy to announce that Mr. Triplett was awarded the Alexander K. Barton Cup on Class Day. As a result of the balloting by the student body, Mr. Edward H. Sadtler, Jr., was elected President of the Student Council for the coming year.

## ENROLLMENT

The number of undergraduate students in the University was 946. Of these 489 were in the College of Arts and Sciences, 107 in the School of Business Economics, and 350 in the School of Engineering. The number of new undergraduate students was 306, of whom 162 were in the College of Arts and Sciences, 34 in the School of Business Economics, and 110 in the School of

Engineering. Expressed in tabular form, the registration figures for the past three years are as follows:

## A. TOTAL ENROLLMENT

	1930-31	1931-32	1932-33
College of Arts and Sciences.....	372	440	489
School of Business Economics.....	93	105	107
School of Engineering.....	332	359	350
	<u>797</u>	<u>904</u>	<u>946</u>

## B. NEW STUDENTS

	1930-31	1931-32	1932-33
College of Arts and Sciences.....	150	152	162
School of Business Economics.....	40	38	34
School of Engineering.....	118	130	110
	<u>308</u>	<u>320</u>	<u>306</u>

## WITHDRAWALS FROM COLLEGE

## A. Voluntary.

During the academic year 51 undergraduate students left the University of their own choice. Of these 40 formally withdrew from the University, and 11 simply ceased attending sometime between September and June. Two students died during the year. The reasons offered by the 40 students for withdrawing from the University are tabulated below:

Illness .....	5
Financial Difficulties.....	9
Poor Scholarship.....	5
Transferred to Another Institution.....	5
Reason not given.....	<u>16</u>
	40

## B. Compulsory.

At the end of the year 98 students were considered by the Board of Collegiate Studies. The action of the Board in these cases was as follows:

	College	School of Business Economics	Engineering School
Dropped .....	6	2	4
Advised to take courses and apply in fall.....	20	2	12
Allowed to return and absolve all failures in one year...	13	7	10
Allowed to return and transfer to another school in University .....	..	..	3
Allowed to return and continue.....	13	..	1
Allowed to return and start again in fall.....	..	..	1
No action taken—to be considered in fall.....	1	2	1
	<u>53</u>	<u>13</u>	<u>32</u>

The following tables show how the dropped students were distributed according to:

## 1. YEAR OF RESIDENCE

First year.....	42
Second year.....	38
Third year.....	14
Fourth year.....	<u>4</u>
	98

Ten of the men dropped entered the University with advanced standing from some other institution.



## 2. PREPARATION FOR COLLEGE

When the enrollment and the number of students considered by the Board of Collegiate Studies because of poor scholastic records are tabulated according to the School from which the student came, certain interesting facts appear:

Institution	I Enrollment	II Considered by Board of Collegiate Studies
Baltimore City College.....	185	7
Baltimore Polytechnic Institute.....	200	21
Forest Park High School.....	72	..
Public Schools of Maryland.....	93	13
Public Schools of Other States.....	203	21
Private Schools of Maryland.....	104	14
Private Schools of Other States.....	112	8
Foreign Institutions.....	5	..

Of the 98 students considered by the Board of Collegiate Studies, there were 14 who were admitted on examination, certificate and examination, or basis other than certification. These are included in column I, but not in column II.

## STATISTICS OF STUDENTS AWARDED DEGREES

The number who were awarded the A. B. degree in 1932-33 was 100; these students entered the College at various times, as follows:

Admitted	1st Year	2nd Year	3rd Year	4th Year	Total
1924	1				
1925	4				
1927	1	1			
1928	3				
1929	58				
1930	14	13			
1931		4	1		
					100 *

## COURSES IN THE SCHOOL OF HIGHER STUDIES

Ninety-seven undergraduate students availed themselves of the opportunity to take courses in the School of Higher Studies. The number of courses taken in the various departments by these students was as follows:

Botany .....	12	Mathematics .....	5
Chemistry .....	60	Oriental Seminary.....	12
English .....	5	Philosophy .....	5
French .....	1	Physics .....	8
Geology .....	1	Political Economy.....	1
Greek .....	2	Political Science.....	10
History .....	6	Psychology .....	2
Italian .....	1	Spanish .....	1
	Zoology.....		10

## STUDENTS AT THE END OF THE SECOND YEAR

In accordance with rules adopted by the Board of Collegiate Studies, permission to remain in the College of Arts and Sciences after two years of residence is given "only to those students who give evidence by the character of their work that they should be encouraged to acquire a liberal education or to prepare for professional training." This rule has been in effect six years, and the results as shown last year were very encouraging, the proof being in the small number of students in their third year who were dropped or had failures. In June 1933 there were 135 students who had either completed their second year of residence or had entered in September 1932 with

\* Including three students who entered the Faculty of Philosophy under the New Plan for their fourth year of residence in the University.

advanced standing, and it may be of interest to note what action was taken in regard to these students, or what they themselves determined to do. The essential figures are shown in the accompanying table:

Students who were allowed to return.....	120
Students who were not allowed to return.....	2
Students who will do graduate work under "New Plan" 1933-34.....	3
Students who will go to other colleges in 1933-34.....	2
Students who must study during summer in order to continue.....	8
	<hr/> 135

#### EMPLOYMENT OF STUDENTS AS CLERICAL ASSISTANTS

By action of the Board of Trustees taken some years ago the privilege is given certain students to absolve part of their tuition fees by rendering clerical assistance to the University. Each student is paid fifty cents per hour, which is credited towards his tuition fees, it being provided that in no case may a student receive credit for more than one half his tuition fees. During the past year 55 students were given this privilege. The number of hours of work done by the students amounted to 15,500, for which, accordingly, tuition fees were credited to the amount of \$7,750.00.

It is interesting to note that 47 students were employed at various times in the library, 1 in the Department of Biology, 4 in the Department of Education and 3 in the Department of Psychology.

EDWARD WILBER BERRY,  
*Dean of the College of Arts and Sciences.*

## REPORT OF THE CHAIRMAN OF THE EXECUTIVE COMMITTEE OF THE COLLEGE FOR TEACHERS

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### TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor to submit the following report concerning the College for Teachers for 1932-33.

The work of the College during the academic year 1932-33 proceeded along the lines formulated during the past two years. The main purpose of the changes was to provide greater flexibility to meet the needs of individual students.

The enrollment in the College was 1,401. These may be classified as follows:

- 470 teachers in the public schools of the city and county
- 55 teachers in private schools
- 355 students from other schools in the University
- 70 students in the College for Teachers carrying full programs
- 46 students at other institutions (Peabody Conservatory and Maryland Institute)
- 405 others taking special courses.

During the year 48 students received the degree of Bachelor of Science. These may be divided according to their major interests as follows: 24 in Education; 5 in English; 4 in History; 2 in Business Economics; 3 in Art; 2 in German; 2 in Music; and one in each of the following subjects: Chemistry, Mathematics, Biology, Engineering, Philosophy, and French.

Two students, Martha Tovell and Maria Tranzillo, were the first graduates electing music as their major, to receive the Bachelor of Science degree under the cooperative plan whereby half of the work was taken at the Peabody Conservatory of Music under the direct supervision of Mr. Otto Ortmann, Director, and the academic and professional preparation was done in the College for Teachers.

### COURSES OF INSTRUCTION

Instruction was given in the courses announced, except Education 6 T, 9 T, 23 T, 53 T, and 151 T.

The large enrollment in Biology 3 T, English 1 T, French 1 T, French 2 T, German 1 T, and Mathematics 1 T made it necessary to divide the classes. The laboratory hours of Biology 3 T were divided into two sections, the second section being placed in charge of Dr. Emily W. Emmart. The conference hour of English 1 T was divided into two sections, section A<sup>1</sup> being placed in charge of Mr. George W. Cobb and A<sup>2</sup> under Mr. David Lovett. English 1 T, B, was divided into three sections for the conference hour as follows: B<sup>1</sup> under Dr. N. Bryllion Fagin, B<sup>2</sup> under Mr. Alexander M. Saunders, and B<sup>3</sup> under Mr. George W. Cobb. A third section of French 1 T was formed and placed in charge of Mr. Rowland M. Myers. French 2 T was divided into three sections, section B under Dr. George T. Moody and Section C under Dr. M. Leon Radoff. German 1 T was divided into five sections as follows: section A under Dr. Emma E. Walters; section B, Miss Frida Ilmer; section C, Mr. G. W. Clemens; section D, Dr. Emma E. Walters; section E, Dr. Jane Goodloe. Mathematics 1 T was divided into two sections, Dr. Francis D. Murnaghan being placed in charge of section B. Dr. M. Leon Radoff gave the instruction in Spanish 3 T during the first half year during the absence of

Mr. José Robles from the University. In response to special requests the following courses were added: Education 162 T, Music Education, Section A, in the Secondary School, Mr. John Denués, one hour weekly throughout the year and section B, in the Elementary School, Mr. John Denués, one hour weekly throughout the year; Education 163 T, Administration of Physical Education in Public Schools, Dr. Louis R. Burnett, two hours weekly, second half year.

The new courses appearing in the circular of the College for Teachers for 1932-33, were as follows:

Biology: Histology, Dr. Emily W. Emmart.

French: Advanced Course in French Reading and Literature, Dr. George T. Moody.

Geology: Historical Geology, Mr. Vernon Scheid.

German: Advanced Prose Composition, Professor Robert B. Roulston.

History of Science: Advanced Course, Dr. Alexander Weinstein.

Philosophy: Philosophy in Literature, Mr. Frank N. Trager.

The plan adopted in English Composition two years ago again proved eminently satisfactory. To meet the needs of the small group of students who completed the required course in English Composition on or before February, a course in advanced composition was introduced. This course may be substituted for the introductory course for those students gifted in English.

Provision was made for 22 reading courses in 4 different subjects for 17 students. Three students wishing advanced work in Italian reading registered for Italian 2 T and were given special assignments to meet their needs.

Carrying on the plan adopted two years ago in regard to offering annually a series of alternating courses for a planned sequence in each major field, we are now able to offer students a series of at least five courses in the academic subjects which they may be called upon to teach. It is gratifying to report the continued interest in these groups as given below.

#### A. Science and Logic:

	Enrolled	
	1st term	2nd term
<i>Biology</i>		
General Biology.....	46	43
Genetics and Evolution.....	69	59
Histology .....	34	28
<i>Chemistry</i>		
Offered in the Night Courses for Technical Workers.		
<i>Geology</i>		
Historical Geology.....	15	14
<i>History of Science</i>		
History of Science.....	40	35
History of Science: Advanced Course.....	17	14
<i>Hygiene</i>		
Hygiene .....	27	26
Mental Hygiene .....	15	..
Mental Hygiene and Education.....	..	9
<i>Mathematics</i>		
Plane Trigonometry and College Algebra.....	66	56
Analytic Geometry .....	14	11
Advanced Calculus and Differential Equations.....	28	12
<i>Physics</i>		
Offered in the Night Courses for Technical Workers.		
<i>Psychology</i>		
Introduction to Scientific Psychology.....	31	29
Child Psychology .....	14	13
Social Psychology .....	11	7

#### B. Social Science and Ethics:

<i>Art</i>		
History of Art.....	42	42

	Enrolled	
	1st term	2nd term
<i>Geography</i>		
Development of Modern Geography.....	21	20
<i>History</i>		
The History of England from the Rise of the Stuarts to the Present Time .....	24	18
Recent United States History.....	53	45
Contemporary European History, 1870 to the Present.....	31	22
The History of Greece: Archaeological, Literary, Religious, Intellectual, Cultural .....	31	25
<i>Philosophy</i>		
Aesthetics .....	32	31
Philosophy in Literature.....	14	13
History of Philosophy .....	12	10
<i>Political Science</i>		
American Government: Political Parties and Municipal Government ..	12	15
The Elements of United States Constitutional Law.....	14	15
History of Political Thought.....	20	16
<i>Education: General</i>		
Applications of Psychology to Education: Introductory Course..	55	47
Philosophy of Education.....	62	53
The History of Education.....	51	47
Applications of Psychology to Education: Elementary School Subjects .....	3	..
The Principal and His School.....	20	16
The Curriculum: Character Education.....	4	3
Critic Teaching: Introductory Course in Teacher Training.....	7	7
<i>Education: Elementary</i>		
A Survey of Elementary Education.....	4	6
Methods of Instruction in the Intermediate Grades.....	5	5
The Elementary School Curriculum: Reading in the Primary Grades .....	..	7
The Elementary School Curriculum: Language Arts in the Primary Grades .....	7	..
The Elementary School Curriculum: Health Education.....	12	7
<i>Education: Secondary</i>		
The Junior High School: Its Development and Special Functions ..	57	..
The Junior High School: Curriculum and Procedures.....	..	43
The Teaching of History in the Junior High School.....	9	9
The Teaching of Civics in the Junior High School.....	3	3
The Teaching of English in the Junior High School.....	11	12
The Teaching of General Science in the Junior High School.....	21	20
The Teaching of Commercial Education in the Junior High School ..	18	19
The Secondary School: The Curriculum and Instruction.....	47	44
Teaching in the Secondary Schools: Theory, Observation, and Practice .....	4	4
The English Curriculum in the Senior High School.....	6	5
<i>Education: Special</i>		
Clinical Study of Atypical Children.....	16	11
Industrial Arts for Handicapped Children.....	23	26
Methods of Special Class Teaching.....	13	13
Education of Physically Handicapped Children.....	4	4
Principles and Practice of Educational and Vocational Guidance ..	15	12
Music Education: A, in the Secondary School.....	7	6
B, In the Elementary School.....	12	10
Administration of Physical Education in the Public Schools.....	..	10
<b>C. Literature and Language:</b>		
<i>Chinese</i>		
Fundamental Elements of Chinese Civilization.....	7	5
<i>English</i>		
English Composition.....	135	99
Advanced English Composition.....	16	12
Short Story Writing.....	21	16
Victorian Poets .....	11	16
Shakespeare .....	19	17
Chaucer .....	20	18
History of English Literature.....	86	63
English Literature of the Romantic Period, 1780-1832.....	18	16
The History of American Literature.....	25	30
Contemporary Verse.....	11	13
Play Writing and Play Production.....	17	15
Modern British and American Drama.....	28	25
Social Forces in American Literature.....	16	14

	Enrolled	
	1st term	2nd term
<i>French</i>		
French Elements .....	56	53
French Reading .....	66	62
Advanced Course in French Reading and Literature.....	32	29
Practical French .....	17	13
French Literature .....	12	12
<i>German</i>		
German Elements .....	142	105
German Readings, Section A.....	86	27
Section B, Prose Composition.....	26	20
Advanced German, A, Readings in Contemporary Literature....	23	23
B, Prose Composition.....	10	10
Advanced Prose Composition.....	14	13
Scientific German.....	13	13
<i>Greek</i>		
Introductory Course .....	2	1
<i>Italian</i>		
Italian Elements .....	13	12
Italian Reading and Conversation.....	6	6
<i>Latin</i>		
Readings in Latin Authors.....	10	7
<i>Russian</i>		
Russian .....	12	7
<i>Spanish</i>		
Spanish Elements .....	25	18
Practical Spanish .....	19	18
Spanish Literature .....	15	15

A group of Hagerstown students who are candidates for the degree of Bachelor of Science in the College for Teachers have formed an active organization called the Johns Hopkins Club. The purpose of the Club is to keep in touch with University activities. To further this purpose they have invited members of the faculty of the College for Teachers to speak at their monthly meetings. Professor Florence E. Bamberger spoke to them during December and Dr. N. Bryllion Fagin during May.

FLORENCE E. BAMBERGER,  
*Chairman of the Executive Committee  
of the College for Teachers.*

## REPORT ON THE SCHOOL OF HIGHER STUDIES IN EDUCATION

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TO THE PRESIDENT OF THE UNIVERSITY:

As Professor of Education, I beg to make the following report concerning the School of Higher Studies in Education.

Historically the effectiveness of the work of teachers has been evaluated and measured by certain standards which represent expert opinion. These standards have never been experimented with in order to discover whether they are actually effective in enabling pupils to attain knowledge. Much of the research carried on in the Seminary has been an endeavor to discover whether these traditionally accepted standards actually produce greater learning.

The following studies were undertaken from this point of view: Mary S. Braun with a group of supervisors worked with a number of teachers to find out whether those factors which supervisors evaluated as excellent procedure actually correlated with returns in knowledge on the part of children. Sister M. Xavier (Higgins) constructed a chart for evaluating teachers' work which brought supervisory judgment into greater unison. Eva E. Gerstmyer found a supervisory technique which did actually correlate pupils' gains in knowledge. This beginning of a scientific investigation of traditional standards in relation to actual pupil achievement will be extended during 1933-34. Several modes of controlling the variables in the teaching situation have been devised in the Department to aid in these investigations.

In June, 1933, the degree of Doctor of Education was conferred upon Mary S. Braun and Sister M. Xavier (Higgins), and the Master of Education upon Eva E. Gerstmyer.

During the past year seventy-nine students were enrolled in the School of Higher Studies in Education—thirty-six men and forty-three women. In addition, five students already holding the Ph. D. degree returned for assistance in certain research work they had under way.

Twenty-four of these working for the doctorate hold Master's degrees from fourteen different universities. Two hold the Johns Hopkins M. A. and one the M. Ed. degree. Among the other institutions represented were Columbia University, Indiana University, University of Louisville, University of Virginia, New York University, and Gallaudet College.

Forty-five students holding baccalaureate degrees from fourteen different institutions are working for advanced degrees. Twenty-seven of these received the Bachelor of Science degree from the Johns Hopkins University and two have the Bachelor of Arts degree from the same University. Among the other institutions represented are Columbia University, Goucher College, Franklin and Marshall College, Vassar College, and Fordham University.

It is interesting to note that five students who received the Bachelor of Science degree in the College for Teachers in June 1932, continued in the School of Higher Studies in Education with definite plans for carrying on study and research leading to a higher degree.

### THE SEMINARY AND JOURNAL CLUB

All the work of the advanced students in the field of Education both in the School of Higher Studies in Education and in the School of Higher Studies of the Faculty of Philosophy centers around the research activities and the

Seminary which serves as a clearing house for all experimentation and research. In the seminary research technique carried on by the various members of the staff and by the students is discussed and critically evaluated. The reports during the year showed a wide range of topics. Anita S. Dowell reported on a study on the "Physical Efficiency of White Elementary Teachers in Baltimore City during the Years 1924-30"; Mary S. Braun on "An Experiment in Evaluating Objectively the Teacher Learning Situation"; Eva E. Gerstmyer on "Study of the Relative Value of Test Determined Supervisory Aid versus Non test-determined Supervisory Aid in the Supervision of Primary Reading"; Howard A. Kinhart on "Effect of Supervision in High School English"; Arthur Lichtenstein on "The Influence of Education on Children's Attitudes"; Evelyn A. Mudge on "A Study of the Transfer of Training from High School Chemistry as Taught in the Class Room to Everyday Problems in the Home and Shop"; Rev. Robert A. McCormack on "The Influence of Henry Barnard on Educational Activity"; Michael F. Rouse (Brother Bede) on "A Study of the Development of Negro Education under Catholic Auspices in Maryland and the District of Columbia.

Because the seminary meetings are used mainly for reports upon doctoral dissertations and masters' essays there is a monthly Journal Club and Educational Conference held throughout the year for members of the staff, alumni, and graduate students for reports on original investigations and recent scientific experiments found in current scientific journals and journals of Education. The program included the following reports: "New Organization for the Course in the History of Education," Dr. E. E. Franklin; "An Experiment Carried on in Goucher College in Teaching French," Dr. Louise C. Seibert; "School Instruction in Relation to Promoting Attitudes of Pupils," Arthur Lichtenstein; "Critical Review of the Writing of Abstracts, Reviews, Précis, and Bibliographies," Dr. N. B. Fagin.

#### COURSES IN THE SCHOOL OF HIGHER STUDIES IN EDUCATION

The Department of Education was delighted to have a course on Education and the Social Order offered by so well known a philosopher as Professor John Dewey during the first half year.

The students reported enthusiastic approval over the short course of lectures given by President Joseph S. Ames on Scientific Method. We are hoping that at some future time, President Ames will be gracious enough to repeat the course. Students from other departments of the University, from Washington, and from the State attended.

During the second half year, Professor I. Leon Kandel gave a course on Contemporary Educational Movements Abroad. This was Professor Kandel's second course on the campus and his brilliant scholarship together with his intimate knowledge of the details of the various types of education in Europe as well as in America made this a valuable course for our students.

In addition to the advanced courses there is a series of courses designed to acquaint students with the various tools and procedures necessary for applying statistical, historical, and philosophic techniques of research to education. The student has the responsibility of making himself familiar with the more important and the more recent use of the tools of research in the various fields.

#### THE EDUCATIONAL CONSULTATION

The work of the Educational Consultation, which had been suspended since the death of Dr. Mary L. Dougherty in 1932, was resumed in 1933 under the guidance of Professor Bamberger with Mr. Arthur Lichtenstein acting as clinician. Children who are out of step in their school work are brought



here for clinical consultation as part of the service rendered by the Department of Education.

Four cases were seen in the clinic from January to June, 1933. The sources were private school, the Juvenile Court, and parents. Three of the cases involved reading difficulty and one was a case of arithmetic difficulty. The four cases required a total of sixteen visits for a total of fourteen hours of clinical attention.

In addition, the advanced class in Clinical Procedures under Professor Bamberger diagnosed three cases of reading retardation in the junior high school and made suggestions for remedial work which were successfully carried out at the school. The class worked with reading tests during 1932-33. In 1933-34 arithmetic tests and procedures will be considered.

#### Summary for 1933

Case No.	Fee	Type	Source	First Visit	No. of Visits	Remarks
1a	Free	Reading Difficulty	Private School	Jan. 19	11	Tutoring by clinician
2a	Paid	" "	Juvenile Court	June 15	2	School adjustment
3a	Free	" "	" "	June 16	1	School adjustment
4a	Free	Arithmetic	Parents	June 26	2	Tutoring recommended

#### STAFF ACTIVITIES

Professor Florence E. Bamberger, on October 6, 1932, addressed the Child Education Section of the National Safety Council at their annual meeting in Washington, D. C., on "An Evaluation of Techniques Used in Teaching Safety." From October 16 to 28 she attended the annual meetings of the Washington Education Association. While there she spoke in Longview, Takoma, Seattle, Spokane, Walla Walla, Wenatchee, and Yakima. A few of her topics were "Modern Tendencies in Education," "Education and Worthwhile Leisure," "A Sense of Direction in Reading," "Active Youth and Its Needs." On November 9, she addressed the Garrison Junior High School Parent-Teachers Association on "Modern Phases of Education." She gave a series of lectures before the Child Lecture Group as follows: on January 4, "Socrates"; January 11, "Rousseau"; March 22, "G. Stanley Hall"; March 29, "John Dewey." On December 10, she attended the first quarterly meeting of the Executive Committee of the American Council on Education in Washington, D. C. On January 5, 1933, she attended the annual meeting of the National Academy of Sciences in Washington, D. C. On January 12, she lectured on "Social Standards in the Home" to the Parent-Teacher Association of Public School No. 212. On February 9, she spoke at the Friends School in Homeland on "A Sense of Direction in Reading." From February 25 to March 3, she was in Minneapolis, Minnesota, attending the annual meetings of the National Education Association. On March 9, in connection with National Business Women's Week, she addressed the pupils of Public School No. 70 on "Advantages of Women in Business and Professions." On March 10, she addressed the members of the Women's City Club in connection with the program of the Educational and Welfare Committee on "Character Building Through Recreation." On March 27, she spoke to the faculty of School No. 1 on "Some Psychological Principles Underlying Effective Class Room Teaching and Management." On April 11, she went to Princeton, N. J., to speak on "Behavior Aspects of Child Development." On April 19, she attended the second quarterly meeting of the Executive Committee of the American Council on Education in Chicago, Ill., and on May 4, the third quarterly

meeting in Washington, D. C., and on June 2, the last quarterly meeting in New York. On April 29, she was initiated into Phi Beta Kappa, Alpha Chapter of Maryland, at the Johns Hopkins University.

Associate Professor David E. Weglein was a member of the Committee on Plans and Problems of the American Council on Education; Second Vice-President of the Department of Superintendence, National Education Association; of the Commission on the 1934 Yearbook on Problems of School Administration, Department of Superintendence; of the Joint Commission on the Emergency in Education, Department of Superintendence; of the Executive Committee of the Legislative Committee of the National Education Association; of the Middle Atlantic Regional Council of the National Advisory Council on School Building Problems.

Dr. E. Earle Franklin acted as Secretary of the Hopkins Chapter of the American Association of University Professors. He was Chairman of the Committee on Educational Progress of the Maryland State Teachers Association.

Miss Frances R. Dearborn is a member of the Committee on the 1934 Yearbook of the Department of Supervisors and Directors of Instruction of the National Education Association and attended the committee meetings in Detroit, Mich., on June 3, 4, and 5. She is Chairman of the Elementary Level of the Curriculum Commission of the National Council of Teachers of English which is preparing a curriculum in oral and written composition, reading, literature, and corrective teaching from the kindergarten through the university levels. On October 21, she addressed the Principals' Section of the Maryland State Teachers Association on "The Meaning and Implications of Unified Teaching" and on March 7, the Parent-Teacher Group of the Towson State Normal School on the subject of "Character Education."

Dr. John M. Stephens is continuing his experiment in an attempt to secure a partial answer to the following question: To what extent and by what means does the school affect the habit system of the individual? The preliminary volume will be ready shortly.

Two new numbers of the Johns Hopkins University Studies in Education appeared during the year and are listed below. This brings the total of the Studies to twenty.

#### PUBLICATIONS

Florence E. Bamberger:

A Nation's Strength, *Childhood Education*, Washington, D. C., 1933, No. 5, pp. 227-229.

Frances R. Dearborn:

Co-author with R. L. Lyman and R. J. Johnson, Daily Life Language Series, Ginn and Co., Boston. (In press).

John M. Stephens:

Punishment and Reward in Learning, *Science*, 1933, No. 78, p. 60.

A Change in the Interpretation of the Law of Effect, *British Journal of Psychology*. In press.

The Influence of Punishment on Learning, *Journal of Experimental Psychology*. In press.

The Conditioned Reflex as the Explanation of Habit Formation; II The Operation of High Order Reaction and a Lower Order Reaction in Close Succession, *Journal of General Psychology*. In press.

Linus W. Kline and Gertrude L. Carey:

- A Measuring Scale for Free-Hand Drawing, Part II, Design and Composition, *The Johns Hopkins University Studies in Education*, No. V, Part III, The Johns Hopkins Press, 1933, pp. 58, 10 tables.

Grace A. Kramer:

- The Effect of Certain Factors in the Verbal Arithmetic Problem Upon Children's Success in the Solution, *The Johns Hopkins University Studies in Education*, No. XX, The Johns Hopkins Press, 1933, pp. 117, 24 tables.

FLORENCE E. BAMBERGER,  
*Professor of Education.*

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## REPORT OF THE DIRECTOR OF THE SUMMER COURSES

TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor to present the following report of the twenty second session of the Summer Courses, which was held from June 27 to August 6, 1932.

I am very happy to report that, in spite of the prevailing economic distress, the 1932 session was a very successful one, both from the point of view of attendance and from that of quality of the work done. We announced the largest program ever undertaken in the Summer Courses and taxed the facilities of the University to their utmost capacity. All available space was occupied. Levering Hall was put at our disposal through the courtesy of the Board of Managers of the University Y. M. C. A. The "Barn" and Professor Buford Johnson's nursery school building were also used. Laboratories in Rowland Hall were taken by certain classes which could not be otherwise accommodated. We also enjoyed the usual cooperation of the University faculty, the Departments of Education of the State of Maryland and of the City of Baltimore, and of the authorities of the Enoch Pratt Free Library.

When our summer session circular appeared we had organized a demonstration school of our own, consisting of a platoon school with grades four, six, and seven B, under the direction of Professor Florence E. Bamberger as principal. Before the session opened, however, Superintendent David E. Weglein was able to make arrangements for our usual demonstration school as one of the summer schools conducted by the public school authorities of Baltimore. The teachers who had been engaged willingly released the University of its contracts with them, and most of them joined the staff of the demonstration school and were paid by the City of Baltimore as members of the public school system. The demonstration school, which was conducted on the platoon plan, was again under the efficient direction of Miss Ida V. Flowers. Because of the innovation in the organization of the school, Miss Alice P. Barrows, of the United States Bureau of Education, and Miss Julia A. Spooner, a national authority on the platoon schools, were invited to become members of our staff. Miss Barrows gave a lecture before the staff and students in Education, while Miss Spooner conducted regular courses in connection with her specialty. In addition to the classes of the demonstration school, Professor Bamberger directed the work of an extra first grade which was taught by Miss Marie E. Wallace and used for demonstration purposes in the courses in Primary Education. Professor Bamberger also conducted the course in Education 23S, *Demonstration School: Intermediate and Primary Grades*, which was organized after the circular had been printed.

There was but one change necessary in the staff of the Summer Courses. Dr. Harold M. March, of Yale University, was compelled to resign on account of illness. His place was taken by Dr. Josephine de Boer, an alumna of the University in the Department of Romance Languages.

An outstanding feature of the session was the series of chemistry conferences, held during the first five weeks, under the direction of Professor Neil E. Gordon, with the cooperation of the Chemistry Department. Professor Andrews, Patrick, Frazer, and Reid presided over various phases of the most recent progress in chemical research. The purpose of these conferences, which may be considered as having been extremely successful in view of the present conditions, was to bring about discussion between investigators,—specialists in their respective branches,—and students, concerning the unsolved problems of the most recent stages of chemical investigations. We hope to be able to continue them in the future.

The concert of the Summer Chorus under the direction of Mr. John Denues was held on Friday evening, July 29. The following recitals were given at the Peabody Conservatory of Music: July 1, Mr. Pasquale Tallarico, pianist; July 10, Mr. Louis Robert, organist, and Mr. J. C. van Hulsteyn, violinist; July 17, Mr. Austin Conradi, pianist; July 24, Mr. Frank Gittelsohn, violinist.

The enrollment for 1932 was twelve hundred and eighteen or a decrease of two hundred and fifty-five, or over seventeen per cent, from that of 1931. This decrease was chiefly due to the fact that in the previous summer session we had included the courses of the American Association to Promote the Teaching of Speech to the Deaf.

Of the twelve hundred and eighteen students enrolled, three hundred and eighty-five, or over thirty two per cent, were men, and eight hundred and thirty-three, or nearly sixty-eight per cent, were women. The total number of course registrations was twenty-nine hundred and eighty-five, the average number of courses taken per person being nearly two and one-half. The distribution of these selections was as follows: one course was taken by one hundred and sixty-seven students; two courses by three hundred and thirty-nine; three courses by six hundred and ninety-eight; four courses by fourteen. Eight hundred and forty-eight, or nearly seventy per cent of the students, were administrative and supervisory officers, teachers, or prospective teachers in state and county systems of education, colleges, and normal schools, public and private schools, and other institutions. Two hundred and eighty-six, or over twenty-three per cent, were students in colleges, normal schools, and other institutions. Thirty-six, or nearly three per cent, were librarians. Forty-eight, or nearly four per cent, included those representing other occupations and those reporting, or engaged in, no occupation. Three hundred and thirty students held academic and professional degrees from one hundred and ten different institutions. Of these two hundred and eighty-six students, one hundred and twenty-eight were candidates for a baccalaureate degree in this University. Three hundred and thirty students followed the advanced or graduate courses. As compared with 1931, this represented a decrease of sixteen, or nearly five per cent.

The geographical distribution was as follows: Maryland was represented by ten hundred and ninety one, of whom six hundred and thirty one, or nearly fifty-eight per cent, were from Baltimore City and four hundred and sixty, or over forty-two per cent were from the counties. Four hundred and nineteen were representatives of the public elementary and secondary schools of the twenty-three counties of Maryland. This was a decrease of fifty-two, or over eleven per cent of the number in this group for 1931. Twenty-four states, China, and Colombia, S. A., were represented by one hundred and twenty-seven, or over fourteen per cent:

Alabama .....	2	New York.....	18
Connecticut .....	1	North Carolina.....	1
Delaware .....	10	Ohio .....	1
District of Columbia.....	11	Oklahoma .....	1
Florida .....	1	Pennsylvania .....	29
Georgia .....	2	South Carolina.....	2
Illinois .....	3	Texas .....	2
Indiana .....	3	Vermont .....	1
Iowa .....	1	Virginia .....	13
Kentucky .....	2	West Virginia.....	4
Louisiana .....	1		
Massachusetts .....	5	China .....	1
Michigan .....	1	Colombia, S. A.....	1
New Jersey.....	10		

The Demonstration School, under the principalship of Miss Ida V. Flowers, included a staff of fifteen teachers. The school was organized on the platoon plan and included two sections each, A and B, of the four elementary grades

from three to six, and one 7B, two 7A's, one 8B, and one 9A, the last five being the junior high school. Four hundred and twenty-one pupils were admitted to the demonstration classes, these admissions being based on the procedure of selection of former years. These pupils were representatives of fifty-four public schools in the City of Baltimore. The School performs a valuable service to the Summer Courses as a laboratory of teaching in connection with the courses in Education. This is clearly shown by the record of the special demonstration lessons, of which fifty-four were conducted in the elementary school and thirty-three in the junior high school subjects. The continued success of the Demonstration School in showing what normal and superior children can do under excellent teaching conditions during a six weeks' session is indicated by the fact that ninety-seven and seven-tenths per cent of the pupils were recommended for promotion to the next higher half-grade. This opportunity for advancement extended from the third through the ninth grade. Of the pupils promoted at the end of the summer session, ninety-nine and seven-tenths per cent were again promoted in February in the regular public school classes.

The following table records the courses which were given in the different departments and specifies the credit, as graduate or collegiate, with the maximum number of points in the latter, the student enrollment, and the number completing the courses by taking the examinations. The percentage of students completing the work of the courses was nearly ninety-six per cent. The failures on examinations totaled one hundred and eighteen individuals in thirty-six courses in twelve different subjects: Chemistry, Drawing, Economics, Education, English, French, German, History, History of Science, Library Science, Political Science, and Spanish.

Subject and Courses	Points Credit	Enroll- ment	Number taking Examina- tion for Credit
<i>Biology</i>			
1 S. Advanced Embryology.....	3	6	4
2 S. Comparative Anatomy of Vertebrates.....	8	10	9
3 S. Vertebrate Embryology.....	4	6	6
4 S. Zoology .....	4	18	18
5 S. General Biology.....	4	13	13
6 S. Genetics and Evolution.....	2	7	2
<i>Chemistry</i>			
1 S. General Chemistry: Non-Metals.....	6	5	5
2 S. General Chemistry: Metals.....	5	30	30
3 S. Qualitative Analysis.....	5	2	2
4 S. Quantitative Analysis.....	5	9	9
5 S. Organic Chemistry.....	6	15	14
6 S. Physical Chemistry.....	2	10	10
7 S. Chemical Education.....	G	7	7
8 S. History of American Chemistry.....	G	2	2
9 S. Chemistry Curriculum Content.....	G	4	4
10 S. Conferences on Recent Developments in Chemistry:			
A. Raman Effect and Problems in Molec- ular Structure.....	..	18	..
B. Colloidal Chemistry.....	..	14	..
C. Catalysis .....	..	19	..
D. Relation of Properties to Constitution of Organic Compounds.....	..	11	..
11 S. Research Problems.....	G	1	1
<i>Drawing</i>			
111 ES. Engineering Drawing.....	..	21	21
<i>Economics</i>			
1 S. Economic Problems of Today.....	2	21	21
2 S. American Economic History.....	2	25	25
3 S. Elements of Political Economy.....	2	12	12

Subject and Courses		Points Credit	Enroll- ment	Number taking Examina- tion for Credit
<i>Education</i>				
13 EdS.	School Administration.....	3	26	25
2 EdS.	Supervision of Schools.....	G	41	41
58 S.	Experimental Education.....	G	7	7
59 S.	Critic Teaching: Philosophy and Organiza- tion of Teacher Training.....	G	11	9
60 S.	Critic Teaching: Introductory Course in Teacher Training.....	G	25	23
61 S.	Platoon School: Philosophy and Organiza- tion.....	2	10	9
62 S.	Platoon School: Management and Teaching	G	18	17
1 TS.	Applications of Psychology to Education: Introductory Course.....	2	79	79
63 S.	Applications of Psychology to Education: Elementary School Subjects.....	3	49	49
4 S.	Applications of Psychology to Education: Childhood.....	3	22	21
5 S.	Applications of Psychology to Education: Behavior Problems of Elementary School Children.....	3	25	25
64 S.	Applications of Statistical Method to Edu- cation.....	2	7	7
2 TS.B.	Philosophy of Education.....	3	54	54
3 TS.A.	History of Education.....	2	35	35
3 TS.B.	History of Education.....	2	18	18
113 TS.	Secondary School: Current Problems in Sec- ondary Education.....	G	59	59
6 S.	Principalship of County and Rural High Schools.....	G	10	10
9 S.	Principles of Organization and Teaching the Social and Natural Sciences in the Sec- ondary School.....	G	36	34
65 S.	The Applied Problems in the Mathematical Curricula of Secondary Schools: Their In- struments, Solution and Teaching.....	2	4	4
66 S.	Modern Trends in the Teaching of French in the Secondary School.....	G	4	3
11 S.	The Teaching of Latin in the Secondary School.....	G	15	15
12 S.	The Problems of Music Education in the Secondary School.....	2	8	8
115 TS.	The English Curriculum in the Senior High School.....	G	12	12
7 S.	The Teaching of Mathematics in the Senior High School.....	G	9	9
10 S.	The Teaching of History and Civics in the Senior High School.....	3	9	9
91 TS.	The Junior High School: Its Development and Special Functions.....	3	23	23
95 TS.	The Teaching of English in the Junior High School.....	G	26	26
13 S.	The Teaching of Mathematics in the Junior High School.....	G	10	10
67 S.	The Teaching of History and Civics in the Junior High School.....	G	12	12
68 S.	The Teaching of French in the Junior High School.....	G	7	7
14 S.	The Teaching of Geography in the Junior High School.....	3	14	14
16 S.	Practicum in Supervision in the Elementary School.....	G	8	8
24 TS.	The Elementary School as a Social Institu- tion.....	2	34	34
18 S.	Methods and Management of the Ele- mentary School.....	2	41	41
23 TS.	Children's Literature in the Elementary School.....	3	142	140
19 S.	Appreciation of Music: Advanced Course...	2	7	6
20 S.	Appreciation of Music.....	2	17	15

Subject and Courses		Points Credit	Enroll- ment	Number taking Examina- tion for Credit
69 S.	Creative Drama for Children.....	3	22	22
21 S.	Art Appreciation.....	2	19	18
22 S.	Art for the Elementary School.....	3	79	69
23 S.	Demonstration School: Primary and Inter- mediate Grades.....	2	15	12
25 TS.A.	The Elementary School Curriculum: Read- ing in the Intermediate Grades.....	2	31	30
26 TS.B.	The Elementary School Curriculum: So- cial Studies in the Intermediate Grades...	3	41	41
27 TS.B.	The Elementary School Curriculum: Lan- guage Arts in the Intermediate Grades	3	46	46
27 S.	The Teaching of Geography in the Interme- diate Grades.....	3	43	43
28 S.	Problems of Music Education in the Inter- mediate Grades.....	2	16	16
70 S.	Levels of Development of Primary Children.	3	20	20
30 S.	The Unification of the Kindergarten-Primary Grades .....	3	7	7
71 S.	Problems of Curriculum Construction in the Primary Grades.....	3	24	24
25 TS.B.	The Elementary School Curriculum: Read- ing in the Primary Grades.....	2	46	44
72 S.	Demonstration Course in Beginning Reading	2	53	50
26 TS.A.	The Elementary School Curriculum: So- cial Studies in the Primary Grades.....	2	14	14
27 TS.A.	The Elementary School Curriculum: Lan- guage Arts in the Primary Grades.....	2	59	59
28 TS.	The Elementary School Curriculum: Arithme- tic in the Primary Grades.....	2	56	55
34 S.	Problems of Music Education in the Kinder- garten-Primary Grades.....	2	24	24
73 S.	Physical Education Administration.....	2	18	18
39 S.	Gymnasium Class Programs, Schoolroom and Playground Games.....	2	15	15
74 S.	Health Education for Intermediate and Jun- ior High Grades.....	3	14	14
75 S.	Commercial Education in the Secondary Schools:			
	A. Teaching of Shorthand and Typewrit- ing in Secondary Schools.....	2	16	16
	B. Survey of the Commercial Education Curriculum .....	3	11	11
46 S.	Theory and Practice of Diversified Shop Work for Elementary, Junior and Senior High Schools.....	3	13	13
48 S.	Industrial Arts: Elementary and Advanced.	3	2	2
152 TS.	Clinical Study of Atypical Children.....	6	15	15
154 TS.	Applications of Psychology to the Education of the Abnormal School Child. Part I...	3	27	27
155 TS.	Industrial Arts for Special Classes.....	2	20	20
156 TS.	Methods in Special Class Teaching.....	2	20	20
54 S.	Psychometrics .....	4	2	2
<i>English</i>				
40 S.	Old English.....	G	8	8
48 S.	Studies in 18th Century Novelists.....	G	12	7
11 S.	Pre-Shakespearean Drama.....	3	17	17
13 S.	Shakespeare .....	2	44	44
15 S.	Elizabethan Poetry.....	2	10	4
18 S.	Milton .....	2	3	3
23 S.	The Romantic Poets.....	2	29	27
25 S.	The Chief Victorian Poets.....	3	35	34
26 S.	19th Century Prose.....	2	21	20
7 S.	English Literature, 1600-1700.....	2	25	25
2 S.	Prose Composition.....	2	49	49
<i>French</i>				
1 S.	Elementary French.....	6	30	26
2 S.	French Readings.....	6	16	16
3 S.	Intermediate French.....	3	26	26



Subject and Courses	Points Credit	Enroll- ment	Number taking Examina- tion for Credit
4 S. Racine .....	2	6	5
5 S. French Pronunciation.....	4	30	30
6 S. The Romantic Movement in France.....	2	4	2
7 S. French Literature of the 17th Century.....	G	4	4
<i>Geography</i>			
1 S. General and Regional Geography.....	3	26	26
<i>Geology</i>			
1 S. Physical Geology.....	4	13	12
<i>German</i>			
1 S. German Elements.....	6	35	31
2 S. Intermediate German.....	6	16	13
3 S. Advanced German: The Short Story in German .....	2	6	6
<i>History</i>			
1 S. History of Hispanic-America.....	4	16	16
2 S. History of Mexico.....	2	18	18
3 S. American Historians and Their Histories.....	2	9	9
4 S. History of the United States.....	4	62	62
<i>History of Science</i>			
1 S. History of Science.....	2	12	9
<i>Hygiene</i>			
1 S. Elements of Hygiene and Preventive Medicine.....	2	12	12
2 S. Child Health Problems.....	2	7	7
<i>Italian</i>			
1 S. Elementary Italian.....	4	6	5
<i>Library Science</i>			
1 S. Library Work with Children.....	2	19	14
2 S. Reference Work.....	2	10	7
3 S. Book Selection.....	2	27	15
4 S. School Library Methods.....	2	22	21
<i>Mathematics</i>			
1 S. Vector and Tensor Analysis.....	G	3	3
2 S. Differential and Integral Calculus.....	2	8	8
3 S. College Algebra.....	2	10	9
<i>Philosophy</i>			
1 S. Philosophy of the Social Sciences.....	G	14	10
2 S. Introduction to Scientific Method.....	2	4	4
<i>Political Science</i>			
1 S. American National Government.....	2	26	24
2 S. Political Parties.....	2	13	13
3 S. American Constitutional History.....	2	13	12
<i>Psychology</i>			
1 S. Applied Psychology.....	2	19	18
2 S. Introductory Psychology.....	4	16	15
<i>Spanish</i>			
1 S. Spanish Elements.....	4	18	15
2 S. Spanish Readings.....	4	6	6

R. B. ROULSTON,  
Director of Summer Courses.

## REPORT OF THE DEAN OF THE SCHOOL OF ENGINEERING

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TO THE PRESIDENT OF THE UNIVERSITY:

I beg to submit herewith the report of the twentieth year of operation of the School of Engineering, ending June 30th, 1933.

During the year now closing the normal programs of instruction, both undergraduate and in the advanced field, have been actively prosecuted. Notwithstanding the critical economic and financial situation throughout the country, interest in education in the field of engineering has apparently been well maintained. The student enrollment was 381, this being a decrease of about 3% as compared with last year, when, however, the enrollment was by far the largest since the establishment of the School. The healthy activity in advanced instruction and research noted in recent years has been well maintained. The total number of graduate students was 31. The number of papers published presenting the results of new study, experiment and engineering progress, has been unusually large. Members of the teaching staff have delivered lectures elsewhere and have coöperated with and rendered service in a number of directions outside the University. A varied program of lectures by visiting engineers has been presented as enumerated elsewhere in this report.

I regret to report the resignations during the year of Mr. A. Baños, Jr. and Mr. E. W. Greenfield, Research Assistants in Electrical Engineering. These resignations, with others reported last year, have been caused by the withdrawal of financial support specifically for research, heretofore supplied by several outside agencies, as the result of the present industrial depression. The loss of these experienced and competent research men and the necessary curtailment of research activity will be seriously felt.

Early in the year Mr. R. C. Mildner was appointed a Fellow by Courtesy in Electrical Engineering. Mr. Mildner is a graduate of the University of London and is in this country as a Robert Blair Fellow of the London County Council for study in the field of high voltage insulation. He has been working under the direction of Professor Whitehead.

The National Electric Light Association, through its Committee on High Voltage Cable Research, continued its support of work in this University on the problems arising in the insulation of high voltage cables. This work has been under the direction of Professor Whitehead with the assistance of Dr. S. K. Waldorf and Messrs. E. W. Greenfield, Research Assistant, and C. O. Newman and C. E. Young, technical assistants. Unfortunately the Association, owing to the present business depression found it necessary to discontinue its support after February 28th, 1933.

The Commonwealth Edison Company of Chicago and the Standard Oil Company of New Jersey have made contributions for the extension of the studies of the fundamental properties of impregnated paper insulation as utilized in high voltage cables, conducted during the past several years through the Utilities Research Commission of Illinois. This work has been under the direction of Professor Whitehead with the assistance of Dr. S. K. Waldorf and Mr. E. W. Greenfield.

The General Cable Corporation has continued its coöperation in the foregoing researches through the loan of expensive special equipment and materials.

The drastic and extended character of the financial depression has been reflected in the funds available for research in Gas Engineering. Nevertheless, the research on methods of gas manufacturing and purification carried out under the supervision of Dr. Huff for a number of years by Dr. Oscar W. Lusby, Research Associate, and Mr. Donald T. Bonney, Research Assistant, was continued over much of the year, and certain phases of the work have been in large scale operation for sometime. Sufficient funds have been provided for bringing this work to public attention through the usual commercial channels, after which time it will probably be closed. With the completion of this work, the Department of Gas Engineering loses the services of Dr. Lusby.

For demonstrations, inspections, and plant studies, the Department of Gas Engineering has continued to enjoy the cooperation and help of nearby industries, particularly the Consolidated Gas Electric Light and Power Company of Baltimore and the Bethlehem Steel Corporation.

The School of Engineering has continued the coöperation noted in foregoing reports with the Geophysical Section of the Bureau of Mines. This relationship has been under the direction of Dr. F. W. Lee, Research Associate in Electrical Engineering. Experimental and other studies in this connection have been conducted this year by Dr. E. V. Potter and Dr. J. H. Swartz.

The Committee on Electrical Insulation of the National Research Council of which Committee Professor Whitehead is Chairman, held its annual meeting at the University October 10th-14th, 1932. Sessions of the Regional Meeting of the American Institute of Electrical Engineers being held in Baltimore at the same time, were also conducted at the University.

As in foregoing years, the local sections of several national engineering societies, in which members of the teaching staff take active part, have held frequent meetings in the University buildings.

This year marking the completion of the twentieth year of operation of the School of Engineering, it has appeared to the Alumni of the School an appropriate time to unite in a formal organization. An active local committee was formed and on the evening of June 3rd one hundred and seventy-four former students of the School of Engineering attended a reunion dinner in Latrobe Hall. As a result, a formal organization to be called "The Johns Hopkins Engineers," was established, to be operated as a branch or section of the J. H. U. Alumni Association. Abel Wolman, '15, was elected President, and J. Harold Lampe, '18, Secretary.

#### GRADUATE INSTRUCTION

At the Commencement Exercises on June 13th, 1933, the degree Doctor of Engineering, with Electrical Engineering as principal subject, was conferred upon Messrs. L. W. Marks, B. E. 1930, Johns Hopkins University, and G. M. L. Sommerman, B. E. 1929, Johns Hopkins University. The degree Doctor of Philosophy with Gas Engineering as principal subject was conferred on M. A. Elliott, B. E. 1930, Johns Hopkins University. The degree Master of Civil Engineering was conferred upon Carl H. Walther, B. E. 1931, Johns Hopkins University; and the degree Master of Mechanical Engineering was conferred upon Messrs. E. J. Dwyer, A. B. 1930, St. John's College, and J. I. Yellott, B. E. 1931, Johns Hopkins University.

The graduate courses in all departments as listed in the Circular, together with the usual weekly Seminary and Journal meetings, were conducted throughout the year.

## GRADUATE RESEARCH

*In Civil Engineering:*

Professor Thompson has made several studies which formed the bases of reports to the Bureau of Public Roads which are listed elsewhere.

Professor Thompson and Mr. Hubbard are continuing their studies of Plaster of Paris models of reinforced concrete beams.

Mr. C. H. Walther, graduate student, has completed his essay entitled, "An Experimental Study of the Deflections Existing in a Model of a Concrete Road Slab."

*In Gas Engineering:*

Mr. M. A. Elliott, working under the direction of Professor Huff, completed his dissertation upon "The Catalytic Effect of Soda on the Reaction between Steam and Carbon from the Pyrolysis of Low Grade Oils." The results have been presented to the American Chemical Society and the American Gas Association and have attracted much interest. The experimental study shows that it is possible to increase markedly the total gas yields and thermal yields by the proper use of soda.

Professor Huff presented a paper before the American Chemical Society describing the construction and operation of an automatic gas pipette which greatly aids the routine analysis of gas and which has been successfully applied to many different types of apparatus.

Dr. Lusby and Mr. Bonney, working under the direction of Dr. Huff, continued work on methods of purifying commercial gases. The same group of workers also gave some attention to the analytical absorption of hydrogen in liquid media at low temperatures in further extension of methods of gas analysis.

Mr. D. M. Barrett, under the direction of Dr. Huff, spent some time preparing iron salts for the absorption of carbon monoxide and for detection of traces of nitrogen oxide.

Professor Huff, with the assistance of Mr. Barrett and Mr. Henry Albert, Jr., made an examination of practical gaseous flow formulae and developed a convenient approximation for the estimation of the viscosity correction for commercial flow formulae.

Dr. Logan continued his study of steam decomposition in the water gas machine.

Studies by Professor Huff, Dr. Logan, Dr. Lusby, and Mr. Bonney on (a) the synthesis of oxygenated organic compounds and (b) the catalytic removal of sulphur compounds in gas making were substantially completed during the past year and are now being developed coöperatively by the industries concerned.

*In Electrical Engineering:*

Professor Whitehead, with the assistance of Dr. Waldorf and Messrs. Greenfield, Newman and Young, has continued his studies of the basic properties of insulating oils and the electrical stability under high electric stress of impregnated paper insulation, as used in high voltage cables. This year the work has been directed to the influence of the type and properties of a number of well known insulating oils. Two papers embodying the results have been published during the year. These researches have been supported by the National Electric Light Association, the Commonwealth Edison Company of Chicago, the Standard Oil Company of New Jersey, and the General Cable Corporation.

Professor Whitehead, with the cooperation of Mr. Greenfield, has completed a series of experimental studies on the capillary properties of oil as related to pure cellulose paper. Important correlations with the theory of capillary action have been revealed, with corresponding indications of improved methods in the impregnation of paper insulation. The results have been published.

Professor Kouwenhoven and Dr. D. R. Hooker, of the School of Hygiene and Public Health, have continued their investigations of the effects of electric shock on the dog's heart. They have studied the production of ventricular fibrillation both by direct, alternating and interrupted currents, and revealing interesting differences. They have also studied the recovery of the fibrillating heart by the use of electric countershock.

Dr. Lampe is conducting an investigation of the behavior of cotton fibers in the electrostatic field.

Dr. Hamburger is making a study of electronic oscillations at ultra high frequencies.

Mr. W. S. Baird is studying a method for the measurement of electrical conductivity based on the degree of penetration of alternating magnetic fields.

Mr. E. P. Barlow has continued his development of a high sensitivity Schering bridge for the measurement of small samples of very pure insulating liquids.

Mr. M. K. Goldstein has continued his problem of the measurement of extremely low values of alternating currents, using the amplifying hot cathode vacuum tube.

Mr. E. W. Greenfield in collaboration with Professor Whitehead has continued his studies on the viscosity, surface tension, and other physical properties of insulating oils as related to the impregnation of paper.

Mr. L. W. Marks has completed a study of various methods proposed by the American Society for Testing Materials for the measurement of power factor and dielectric constant of solid insulation up to 1,000 cycles. This study was offered as a dissertation for the degree Doctor of Engineering.

Mr. E. E. Minor is studying the accumulation, distribution, and general nature of the space charges appearing in dielectric liquids of low conductivity when subjected to high electric stress.

Mr. M. F. Rheinhardt, Jr. is studying a method for the detection of transverse fissures or flaws in steel rails.

Mr. S. H. Shevki is investigating the nature of the improvement in the insulating properties of oils which results from the continued application of continuous potential.

Mr. G. M. L. Sommerman has completed an investigation of the electrical properties of dielectric polar substances in non-polar solvents, as bearing on the general question of the cause of dielectric loss and changes in capacitance in insulating materials under alternating electric stress. The results of this study have been offered as a dissertation for the degree Doctor of Engineering.

Mr. R. C. Mildner, Fellow by Courtesy, has been studying the solution of air and other gases in insulating oils with special reference to the influence of electric stress.

#### *In Mechanical Engineering:*

Professor Smallwood is pursuing his investigation of the corrosion of iron and steel pipe, in cooperation with the National Tube Company.

Mr. F. W. Kouwenhoven has continued to serve as consulting engineer for the Borden's Farm Products Company of New York City and has just commenced a study of the costs of packaging fluid milk in a single service container invented by the Reinforced Paper Bottle Corporation of New York City.

Mr. E. J. Dwyer made an investigation of the frictional resistance to flow of gases in chimneys. This consisted of model tests on a 12-inch diameter flow with different types and sizes of interior roughness.

Messrs. Dwyer and Yellott made a joint study for the Prime Movers Committee of the National Electric Light Association of the proper correction to turbine performance when the condensate leaving the condenser is below the temperature corresponding to the vacuum.

Mr. J. I. Yellott has carried out an extensive research to show the actual existence of a supersaturation in the rapid expansion of steam together with a study of drop size in the formation of steam droplets.

#### SCHOLARSHIPS

The total number of regular awards of scholarships under the laws of the State was 106, including 4 to graduates of Maryland colleges. In addition to these 39 men were aided, 7 of these receiving full scholarships and 32 receiving one-half scholarship each. These special scholarships were awarded by the Trustees to especially deserving students, residents of the State, who for various reasons were unable to secure the regular awards. The students holding these special scholarships have in all cases conformed to the requirements of the regular scholarships. The total number of full scholarships for undergraduate instruction awarded during the year, therefore, was 129.

Scholarships to graduate students in Engineering, established by the Trustees, were awarded to Messrs. M. K. Goldstein, J. I. Yellott, D. M. Barrett, and C. H. Walther.

Four scholarships in Gas Engineering supported by various gas companies have been continued through the year.

#### UNDERGRADUATE INSTRUCTION

The regular undergraduate courses in Civil, Gas, Electrical and Mechanical Engineering, and in Chemistry, as set forth in the University Circular, have been conducted as usual.

The total enrollment for the year was 381, of which 31 were graduate students.

On Commencement Day, June 13th, the degree Bachelor of Engineering was conferred upon 49 candidates, and the degree Bachelor of Science in Chemistry upon 10 candidates.

#### LECTURES

The following lectures to the student body, and open to the public were delivered during the course of the year by visiting engineers.

A. A. Potter, President, A. S. M. E.

"What is Ahead of the Student of Engineering of Today?"

K. K. Palueff, Research Engineer, General Electric Co.

"Transmission of Lightning Surges Through Transformer Windings."

H. J. Lingal, Westinghouse Elec. & Mfg. Co.

"A New Line of Low Voltage Circuit Breakers."

Allan B. DuMont, DuMont Labs.

"Cathode Ray Tubes, Characteristics and Applications."

- Robert L. Kelly, Engineer, Atwater-Kent Mfg. Co.  
 "Some Design Features of a Modern Broadcast Receiver."  
 E. C. Ballantine, R. C. A. Engineer  
 "The New Police Transmitter."  
 F. C. McMullen, Western Electric Company  
 "Aircraft Radio."  
 Max Goldstein, Johns Hopkins University  
 "Modern Developments in Precision Time-Keepers."  
 J. W. Allen, Pennsylvania Water and Power Co.  
 "A Method of Analyzing Governor Performance.  
 Using the Oscillograph for Recording Data."  
 M. J. Hittinger, Engineer, Bethlehem Steel Corp.  
 "The Manufacture of Structural Steel Shapes and Related Specialties."  
 Dr. T. S. Cullen, Johns Hopkins Hospital  
 "The Contributions of Science to the Medical and Surgical Professions."  
 G. E. Robbins, Engineer  
 New York District, The Texas Company  
 "Bituminous Roads."  
 George E. Martin, Consulting Engineer  
 The Barrett Company  
 "Tar in Highway Work."  
 A. A. Campbell, Assistant Chief Engineer  
 National Paving Brick Manufacturers Asso.  
 "Brick Roads."  
 A. A. Johndrow, Manager  
 Technical Service, Warren Brothers Company  
 Cambridge, Massachusetts.  
 "Warrenite Bitulithic."  
 G. B. Muldaur  
 National Board of Fire Underwriters  
 "The Work of the Underwriters' Laboratories."

#### VISITS OF INSPECTION

Visits of inspection to various industrial plants, power houses and other engineering works are made each year by the students under the direction of members of the teaching staff. These visits are made in connection with a definite program of instruction and are of proven value.

During the year 47 such visits were made by parties from the several departments.

#### STUDENT SOCIETIES

Student branches of the American Society of Civil Engineers, the American Society of Mechanical Engineers, and of the Gas Engineers' Association are active in the School of Engineering. The students in Electrical Engineering are organized in the Electrical Club. The programs of the meetings of these student societies include addresses by visiting engineers, as well as papers by students themselves on engineering topics. These student branches are each under general advisory direction of a member of the teaching staff. During the year nine meetings of this type with accompanying lectures were held.

At the May Meeting of the Baltimore Section of the American Institute of Electrical Engineers, held in the School of Engineering, Mr. M. K. Goldstein, B. E. 1930, graduate student, was awarded the first prize in an annual contest for the best first paper of the author. The title of Mr. Goldstein's paper was "Telemetering." At the same meeting, Mr. J. M. Kopper of the senior class

in Electrical Engineering was awarded third prize in the same contest for his paper entitled, "Modern Developments in Precision Time Keepers."

## PUBLICATIONS

## A. G. Christie:

- Surplus Power from Industrial Plants, *Mechanical Engineering*, November, 1932.
- Surplus Power in the Pulp and Paper Industry, *Paper Trade Journal*, March 2, 1933.
- Surplus Power, Availability, Cost and Economic Disposal, *Power Plant Engineering*, May, 1933.
- Commercial Aspects of High Boiler Pressure, *The Baltimore Engineer*, April, 1933.
- The 50,000 kw. S. T. A. L. Double Rotation Turbine, *Power*. (In Press.)
- Turbines, *Annual Report of the Prime Movers Committee of the National Electric Light Association*. (In Press.)
- Sections on "Thermodynamics," "Steam," "Steam Turbines," and "Turbo-Pumps," for the Eleventh Edition of *Kent's Mechanical Engineer's Handbook*. (In Press.)

## J. H. Gregory:

- Holding-Down Power of Concrete Piles—Results of Field Tests Made at Columbus, Ohio, on Square Precast Piles with Parallel Sides.

## W. J. Huff:

- Determination and Calculation of Humidity in Air and Fuel Gases. *American Gas Journal*, Vol. 137, p. 28 (1932). Joint paper with J. C. Holtz.
- Book Review: *Die Industrielle Herstellung von Wasserstoff*, Pincass (For *Industrial and Engineering Chemistry*.)
- Chapter on Gaseous Fuels, *Chemical Engineering Handbook*, McGraw-Hill Book Company. This handbook, in preparation for several years, is now in type and is expected to issue shortly.

## W. B. Kouwenhoven:

- Further Research in Injuries from Electrical Shock. Joint paper with O. R. Langworthy. *Electrical Engineering*, Vol. 51, p. 693, October, 1932.
- Injuries Produced by Contact with Electric Circuits. Joint paper with O. R. Langworthy, *Journal of the Franklin Institute*, Vol. 215, No. 1, January, 1933.
- Troubles Physiologiques Provoqués Par Le Contact Avec Les Circuits Electriques. Joint paper with O. R. Langworthy. Report No. 7 to Section 10 of the International Congress on Electricity, Paris, France, July, 1932.
- The Effect of Alternating Electrical Currents on the Heart. Joint paper with D. R. Hooker and O. R. Langworthy. *The American Journal of Physiology*, Vol. 103, No. 2, February, 1933.
- Injuries Produced by Contact with Electric Circuits. Joint paper with O. R. Langworthy. *The American Journal of Hygiene*, Vol. 16, No. 3, November, 1932.

## Lloyd Logan:

- Water Gas Manufacture. Preprint. Report of the Subcommittee on New Developments, pp. 7-46. Chemical Committee, American Gas Association, 1932; Proceedings, American Gas Association, 1932, pp. 976-1015.
- Alterations of the Composition of Manufactured Gas. 288 pp. Published as part of report of Perry Gas Making Research Committee of the American Gas Association for distribution to company delegates. (Prepared with assistance of Messrs. M. A. Elliott and D. S. Bittinger.)



O. W. Lusby:

A number of U. S. patents were issued to Dr. Lusby for research work carried out under the direction of Professor Huff.

J. C. Smallwood:

An analysis of Chimney Draft Equations. *Mechanical Engineering*, January, 1933.

J. T. Thompson:

Legislative Regulation of Motor Vehicles and its Effect upon their Design and Operation. Joint paper with Thomas H. MacDonald, Chief of the Bureau of Public Roads. *Journal of the Society of Automotive Engineers*, November, 1932.

Review of Messrs. Wilkinson's and Forty's book, "Bituminous Emulsions," by Professor Thompson, *The Contractors' Record and Municipal Engineering*, London, February 22, 1933.

Reports to U. S. Bureau of Public Roads as Specialist in Highway Research:

A Comparison of the Tax Rates Which Should Theoretically be Levied Against Motor Vehicles in Developed and Undeveloped States.

A Statement Concerning a Proposed Long-Interval Fatigue Test on Concrete Beams.

Relation of Concrete Pavement Thickness to Motor Vehicle Wheel Loads—An Attempt to Correct a Misapprehension.

Suggested Regulations Covering the Size, Speed, and Weight of Motor Vehicles.

S. K. Waldorf:

Amplifier-Oscillograph Applied to the Study of Dielectrics with Continuous Potentials. *Physics*, Vol. 3, No. 1, July, 1932.

J. B. Whitehead:

Capillary Action in Impregnated Paper Insulation. Joint paper with E. W. Greenfield. *Physics*, Vol. 3, No. 6, December, 1932.

The Dielectric Losses in Impregnated Paper. Presented at the Mid-winter Convention, A. I. E. E., January 23-27, 1933.

The Life of Impregnated Paper. Presented at Summer Convention, A. I. E. E., June 26-30, 1933.

Editorial Articles in *Electrical World*.

OTHER ACTIVITIES OF THE TEACHING STAFF

Professor Christie attended the annual meeting of the American Society of Mechanical Engineers and the annual meeting of the Technical Association of the Pulp and Paper Industry, at both of which he presented papers.

Professor Christie has continued to serve on several committees of the American Society of Mechanical Engineers and as a member of the Prime Movers Committee of the National Electric Light Association.

Professor Gregory was appointed as one of an Engineers Advisory Board of five, by the Directors of the Reconstruction Finance Corporation, in the consideration of applications for loans by the Corporation from the funds made available by the Congress of 1933.

Four addresses on "The Engineers Advisory Board of the Reconstruction Finance Corporation," were delivered by Professor Gregory; in October, in Washington, at the Annual Conference of the State Sanitary Engineers of the United States; in November, before the Engineers Club of Baltimore; in January, before the Washington Society of the Massachusetts Institute of

Technology; and in April, in Washington, at the Spring Meeting of the Four-State Section of the American Water Works Association.

Professor Gregory has continued to serve the cities of Baltimore and Columbus, Ohio, as consulting engineer on sewage disposal, and the City of Baltimore as consulting engineer on water supply and water works improvements.

Professor Gregory attended the annual Convention of the American Society of Civil Engineers at the Yellowstone Park in July, and the Fall Meeting of the Society at Atlantic City in October, 1932; also the annual Meeting of the Society in New York in January, 1933. He is a member of the Research Committee of the Society and also a member of the Committee on Publications.

During the year Professor Gregory was appointed a member of the Committee on Education and Training of the Public Health Engineering Section of the American Public Health Association, and, also a member of a Municipal Cleansing Committee, made up of representatives of several of the national engineering societies.

In April, Professor Gregory made the principal address at the Mayflower Hotel in Washington, at the annual Engineers' Banquet of The George Washington University.

Professor Huff has continued his work on the Gas Reference Committee of the City of Baltimore, serving also on the Subcommittee on Requirements.

Professor Huff has also continued to serve as chairman of a committee on behalf of the Gas Industry for commemorating the first public exhibition of gas in America at Peale's Museum, Baltimore. Through the efforts of this committee, on April 28th there was presented to this Museum a series of panels depicting the development of the industry and its widespread public use.

Professor Huff cooperated with the Chemical Committee of the American Gas Association in studying new developments in gas purification.

Mr. F. W. Kouwenhoven served as Secretary Treasurer of the Baltimore Section, American Society of Mechanical Engineers.

Professor W. B. Kouwenhoven during the year served as Vice-President of District No. 2, of the American Institute of Electrical Engineers. He is also a member of the Sections Committee, the Technical Program Committee, the Electrophysics Committee, and the Instruments and Measurements Committee of the American Institute of Electrical Engineers, and the Committee on Magnetic Analysis and the Committee on Electrical Insulating Materials of the American Society for Testing Materials.

During the year Professor Kouwenhoven addressed the students of the University of Pittsburgh on the subject of "Research," and the students of Lafayette College, Lehigh University and Bucknell University on the subject of "Electric Shock." He also addressed the Student Conference of the students of Lehigh, Drexel, University of Pennsylvania, Haverford, and Swarthmore College at Drexel University, Philadelphia, on the subject of "Student Branch Activities of the American Institute of Electrical Engineers."

Professor Kouwenhoven has visited the Washington and Philadelphia Sections of the A. I. E. E. In addition he has talked before the following Institute Sections on the subject of "Electric Shock": Pittsburgh, Cleveland, Toledo, and Akron. He also talked before the Cincinnati Section at their annual meeting on the subject of "Technocracy."

Professor Kouwenhoven's paper on "*Troubles Physiologiques Provoqués Par Le Contact Avec Les Circuits Electriques*," for which he was awarded a prize of 2,000 francs, was presented at the International Electrical Congress in Paris in July, 1932.

Professor Kouwenhoven presented a paper on "A Standard of Low Power Factor," at the Mid-winter Convention of the American Institute of Electrical Engineers. He has served as consultant on electrical definitions and terminology for the new edition of Webster's dictionary. He has rendered important services in connection with the installation of electrical apparatus and equipment in various departments of the University.

During the past year Professor Kouwenhoven addressed the students interested in engineering on the subject of "Engineering as a Vocation," at the following schools: Baltimore Polytechnic Institute, Baltimore City College, and Clifton Park Junior High School.

Professor Logan has served as a member of the Chemical Committee of the American Gas Association and was a member of the Subcommittee on New Developments of the American Gas Association, studying developments in Unit Processes of interest to the Gas Industry.

Mr. Pullen is a member of the Board of Trustees of the Maryland Academy of Sciences.

During the past summer Professor Thompson was again engaged as Highway Research Specialist by the United States Bureau of Public Roads.

Professor Thompson has been elected Vice-President of the Maryland Section of the American Society of Civil Engineers. During the year he made addresses to the student bodies of the Gilman Country School, Towson High School, and the Baltimore Polytechnic Institute.

Professor Whitehead has been elected President of the American Institute of Electrical Engineers for the year 1933 1934.

Professor Whitehead attended the Mid winter Convention of the American Institute of Electrical Engineers, New York, January 23 27, 1933, and presented a paper entitled, "The Dielectric Losses in Impregnated Paper." Professor Whitehead attended the Annual Convention of the American Institute of Electrical Engineers, Chicago, June 26-30, 1933. At the general Annual Meeting of the Institute, he was formally notified of his election as President and made a brief address. He also addressed the Annual Conference of Sections' Delegates. At one of the technical sessions, he presented a paper entitled, "The Life of Impregnated Paper."

Professor Whitehead is a member of the Committees on Standards, Electrochemistry, Code of Principles of Professional Conduct, Research, and Electrical Definitions, of the American Institute of Electrical Engineers.

Professor Whitehead, as Chairman of the Committee on Electrical Insulation, National Research Council, arranged and conducted, with the assistance of the active local committee, a two day annual meeting and conference, held in the School of Engineering, October 10-13, 1932. At this Conference his Chairman's annual address was entitled, "Recent Research in Dielectrics and Insulation." He also presented two papers embodying the results of experimental work under way here.

#### PROFESSIONAL SERVICES

As in foregoing years professional services have been rendered in many directions by members of the teaching staff. The number of such instances in all departments during the past year was thirty-five.

#### NIGHT COURSES FOR TECHNICAL WORKERS

The total registration in these courses was 444. The marked decrease over last year is due to the stagnant conditions in the technical industries. One student, Mr. Robert B. Miller, was granted the degree Bachelor of Science with

Engineering as a major at the graduating exercises on June 13th, 1933. Nineteen courses were offered during the year.

#### GENERAL STATEMENT

As in foregoing years the buildings of the School of Engineering are operated on practically continuous programs through the academic year and also through a considerable portion of the summer. They provide quarters for a number of other departments of the University. The Department of Geology is housed in all its operations. Other activities which have found accommodations either in part or in whole are the Department of Psychology, the Evening Courses in Business Economics, Night Courses for Technical Workers, College for Teachers, College of Arts and Sciences, Summer Courses. Maryland Hall operates on a practically continuous program from 8:00 A. M. to 10:30 P. M.

The Faculty of Engineering, through its Advisory Committee on Engineering and various individual members of its staff, has rendered engineering services to the University in connection with new work in various directions, and especially in the supervision of the operation of the heating and power plants of the University.

The chief need of the School of Engineering is additional financial resources. The most pressing demand is for new members of the teaching staff for relieving the excessive burdens of the undergraduate programs on certain members, and for expansion of graduate instruction and research. The faculty originally organized for undergraduate instruction only, has, with fine spirit, rendered additional services and taken on additional burdens for the development of a graduate school. This is especially true in the Department of Civil Engineering. The results of these efforts have been most encouraging both as to quality and increasing numbers of graduate students attracted each year. This work cannot go forward without additional encouragement and support to those who have initiated it.

J. B. WHITEHEAD,

*Dean of the School of Engineering.*

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# REPORT OF THE DEAN OF THE MEDICAL FACULTY

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TO THE PRESIDENT OF THE UNIVERSITY:

Sir: I have the honor to submit the following report of the activities of the School of Medicine for the year 1932-1933:

## ADMISSION AND ENROLLMENT OF STUDENTS

The enrollment of students who are candidates for the degree of Doctor of Medicine has remained at the customary level, that is, under 300 persons (actually 289 at the beginning of the year). Thus far there has been no decrease in the number of students applying for admission. At the Commencement Day Exercises 72 candidates received the degree of Doctor of Medicine. Fifteen students were registered in the course in Art as Applied to Medicine.

## INSTRUCTION OF STUDENTS

The instruction of the students who are candidates for the degree of Doctor of Medicine proceeded along the lines laid down by the Medical Faculty, and so far as the writer is aware, it was maintained at a satisfactory level. Only one significant change was put into effect in the curriculum during the past year, and that was in the required course in Obstetrics. This work is given in the third year, and in the past consisted largely of recitations and conferences participated in by large sections. It extended over more than two quarters of the academic year. During the past year the arrangement of hours was changed so that a section of the class, not exceeding one third, could pursue the subject for one quarter and complete the required work in that time. The method of instruction was altered so that fewer hours were devoted to recitation and conferences, and more to direct work with patients in the clinic. The curriculum was so arranged that this instruction would be taken in the quarter devoted to Neurology and Psychiatry. Thus far the arrangement has seemed to work out well, although it has the disadvantage, perhaps, of being harder upon the instructional staff than the older method, since it necessitates teaching in all four quarters of the year, and means repetition of the same course. At any rate, the required work in Obstetrics is now of a pattern with that of the other clinical subjects of the third year in so far as arrangement of hours and general method of instruction are concerned.

No students were registered for the regular post-graduate work offered by the School of Medicine. Three holders of fellowships bestowed by outside agencies elected to pursue their studies in some of the departments of the School of Medicine. Two candidates for the degree of Doctor of Philosophy, to be awarded by the Faculty of Philosophy, carried on the work for that degree in the Department of Physiological Chemistry under the supervision of Dr. Clark.

## RESEARCH ACTIVITIES

It has not been the custom to give, in this report, any detailed account of the research activities of the members of the staff. An idea of the scope of their investigations is best conveyed by an examination of the titles of the papers which have issued from the departments during the course of the year. These titles are listed at the end of this report.

## DR. WILLIAM SYDNEY THAYER

The sudden death of Dr. William Sydney Thayer, Professor Emeritus of Medicine, on December 10, 1932, came as a great shock to many of his

friends and acquaintances in the School. Some of his intimates knew that he had not been in the best of health, but the superficial observer would not have suspected, from Dr. Thayer's conduct, that anything was seriously wrong with him. His sudden fatal attack was, therefore, all the more of a shock to the School.

Dr. Thayer's death removes another of that group of men who have been associated with the Hospital and the School of Medicine since the earliest days of both. He came to Baltimore in 1890 to be an Assistant Resident Physician of the Hospital, on the staff of Dr. Osler, and he soon succeeded to the position of Resident Physician, which he occupied until 1898, when he resigned to enter the practice of medicine in Baltimore. At the opening of the School of Medicine in 1893 he was appointed Associate in Medicine and was subsequently promoted to the grade of Associate Professor. When Dr. Osler relinquished the Chair of Medicine in 1905, and Dr. Barker was called to succeed him, Dr. Thayer was appointed Professor of Clinical Medicine, a post which he held until 1919, at which time he was made Professor of Medicine. He held that position for two years, and then resigned, feeling that the time had come to entrust the affairs of the department to a younger man. Although on the "emeritus list," he continued to be an active teacher up to the time of his death, and in reality never retired.

It is difficult to over estimate Dr. Thayer's services to the School of Medicine and to the Hospital. His intellectual distinction, his abiding interest in the development of his chosen field, his great personal charm, and his high standards of professional conduct, all combined to make him not only a leader in the group of which he was a member, but an outstanding figure in this country as well.

Others have written of his distinguished services during the World War, first as a member of the American Red Cross Mission to Russia, later as Brigadier General in the Medical Corps of the Army, and Medical Consultant for the American Expeditionary Force in France, and of how, later, he was made President of the American Medical Association, and honored by French and English colleagues alike. Proud as we were of these honors which were bestowed upon him, and cognizant as we are of what they signify in respect of the far flung esteem in which he was held, nevertheless, there arises before the eyes of those of us who were privileged to be his pupils another, and to us a more enduring picture—that of a wise and beloved physician and teacher who taught and practiced the art of healing supremely well, and who exerted an ennobling influence upon all those who came within his orbit. The example which he set the students of this school in the proper attitude of the physician to the patient, no matter what the circumstances of the case, is one of those precious heritages which will continue to have its beneficial effect for years to come. We shall not soon see his like again.

#### DR. ERNST HUBER

Dr. Ernst Huber, Associate Professor of Anatomy and a member of that department since 1921, died suddenly October 24, 1932. Through his untimely death the School lost an able teacher and the science of Anatomy an experienced investigator of great promise. Dr. Huber was a native of Switzerland and a graduate of the University of Zurich, receiving his degree of Ph. D. there in 1917. He was an Assistant in Anatomy in that university from 1917 to 1921, and then was appointed Associate in Anatomy in this school, being promoted to the post of Associate Professor of Anatomy in 1925.

Dr. Huber's interests were in the field of comparative anatomy. Of late years he had busied himself with the problem of the evolution of the facial musculature, and a monograph from his pen, bringing together his own investigations in this field, appeared only a short while before his death.

This monograph has attracted wide attention and has served to indicate how promising was the career that lay ahead of him. In Dr. Huber's death the School has lost one of its ablest young men, an attractive teacher and a most capable investigator.

DR. R. HOOPER SMITH

Dr. R. Hooper Smith, Assistant in Medicine, died March 5, 1933, after a very brief illness. Dr. Smith received his M. D. degree from the School in 1924, and after a period of three years spent in the Municipal Hospitals at Bay View, was appointed to the staff of the Department of Medicine. As Assistant Dispensary Physician he contributed valuable services to the Hospital, and he had just begun to take an active part in the teaching in the course in Clinical Microscopy when his fatal illness set in. His many friends will greatly regret his unexpected and untimely death.

CHANGES IN THE FACULTY

Dr. John M. T. Finney, Sr., reached the retiring age before the close of the academic year, and, in accordance with the regulations of the Board of Trustees of the University, his title was automatically changed to that of Professor Emeritus of Surgery at the end of the year. Dr. Finney has served the School of Medicine and the Hospital with great distinction for many years, and has endeared himself to members of the faculty and to students alike. His retirement in no sense represents a severance of his relationships with either the School or the Hospital. It is the hope of many that he will still have the time to carry on his instructional duties as in the past, and that the students may continue to profit by his vivid and forceful teaching, and his engaging personality.

In my report last year I mentioned the transfer of Dr. E. Kennerly Marshall, Jr. from the Professorship of Physiology to that of Pharmacology and Experimental Therapeutics. I am glad to report this year that the post of Professor of Physiology has been filled through the selection of Dr. Philip Bard, Assistant Professor of Physiology in Harvard University. Dr. Bard received the degree of Doctor of Philosophy from Harvard University, and since graduation he has been connected first with Princeton University and later with the Department of Physiology of Harvard University. His investigations have been in the domain of the physiology of the nervous system. The Advisory Board of the Medical Faculty considers itself most fortunate in having been able to persuade Dr. Bard to assume the direction of the Department of Physiology in the School of Medicine.

During the year the administration of the affairs of the Department of Physiology was in the hands of Dr. Charles D. Snyder, Professor of Experimental Physiology, and the Medical Faculty is grateful to him for assuming this burden in addition to his other academic duties. The regular scheduled lectures in Physiology were delivered by Dr. J. J. R. Macleod, Professor of Physiology in the University of Aberdeen. Dr. Macleod accepted the invitation of the Medical Faculty to be Visiting Professor of Physiology during the academic year, and also to deliver the Herter Lectures. Both courses of lectures were given by Dr. Macleod in the face of great physical discomfort to himself, due to illness, and his extraordinary fortitude in completing both series of lectures was admired quite as much as his lectures were enjoyed.

THE OSLER AND HALSTED CLINICS AND THE HURD MEMORIAL HALL

On Friday, October 28th, 1932, formal exercises were held in the Henry M. Hurd Memorial Hall for the purpose of dedicating that building, and also in order to mark the formal opening of the Osler and Halsted Clinics. These buildings and the purposes for which they were erected have already been described in previous reports, and there is no occasion to do so again. The

exercises were presided over by Judge Harlan, President of the Board of Trustees of the Hospital, and by President Ames. Judge Harlan spoke of Dr. Hurd's work in connection with the Hospital during its early years, and Dr. Smith, Director of the Hospital, spoke of Dr. Hurd's influence in hospital administration. Dr. Thayer traced the history of the Medical Clinic of the Hospital, and Dr. Finney spoke on the development of the Surgical Clinic. At the close of the exercises the buildings were inspected.

#### LECTURES

The twenty first course of Herter Lectures was delivered by Professor J. J. R. Macleod of the University of Aberdeen on January 23rd, 25th, and 27th (1933). The titles of the lectures were as follows:

The control of carbohydrate metabolism.

The nervous system and carbohydrate metabolism.

The sixth course of lectures under the auspices of the William Sydney Thayer and Susan Read Thayer Lectureship in Clinical Medicine was given by Dr. Theobald Smith, formerly Director of the Department of Animal Pathology of the Rockefeller Institute for Medical Research, on April 5th, 6th, and 7th (1933). The titles of the lectures were as follows:

A comparative study of focal cell reactions in tuberculosis and allied diseases.

Undulant fever.

The ninth course of lectures under the Charles E. Dohme Memorial Lectureship was given by Sir Henry Dale, Director of the National Institute for Medical Research, Hampstead, London, England, on April 20th, 21st, and 22nd (1933). The titles of the lectures were as follows:

The action of histamine, and the evidence restricting its probable significance. Evidence for other natural vasodilators.

Acetylcholine; its natural occurrence and probable function. Adenosine and its derivatives.

Kallikrein. Vasodilators from blood vessels, blood, intestine and brain.

General survey of the possible functions of such constituents of the tissues, in relation to those of nerves and specific hormones.

#### HOSPITALIZATION INSURANCE FOR STUDENTS

At the opening of the academic year, group insurance against the costs of hospitalization for sickness was made compulsory for all students in the School of Medicine. This plan has now been in operation for a full academic year, and from the standpoint of the students, it has proved to be entirely satisfactory. The student pays a fee (\$10.00 for 1932-1933) to the School of Medicine, and in return for this fee he is entitled to be indemnified for disability due to illness or bodily injury, contracted during the school year and requiring hospitalization, at the rate of \$35.00 per week during the period of such hospitalization, the maximum period for which indemnity will be paid being ten weeks. He is also entitled to indemnification for special hospital fees up to a maximum of \$30.00, so that his total possible benefits for any one illness would amount to \$380.00.

The insurance is taken out by the School with an outside company, a blanket policy being issued to cover the entire group. For the forthcoming year the rate will be slightly under \$11.00 per annum, a rate which is by no means prohibitive. The plan has found favor with the student body, and will be continued as long as the students are in favor of it, and the cost remains within reason.



## PATENTS

Among the subjects which came up for discussion before the Advisory Board of the Medical Faculty during the year was that of the attitude of the Medical Faculty toward the problem of the taking out of patents by members of the Medical Faculty. No formal action had ever been taken before by the Advisory Board on this question. After a thorough discussion, the Board voted to adopt the following statement indicating its attitude in the matter: "The Advisory Board of the Medical Faculty considers it undesirable for any member of the Medical Faculty or anyone connected with the School of Medicine to patent any invention or discovery which may affect the public health; but, in case any member thinks it desirable to secure a patent, he should bring the matter before the Advisory Board before so doing." The Board also went on record as opposing the idea that the University should own or hold patents taken out on inventions or discoveries made in the laboratories of the University.

## FINANCIAL SITUATION

During the past year almost all the departments of the School of Medicine operated on somewhat restricted budgets, but the restrictions were not sufficiently great to make serious inroads on the productivity of those departments. However, actual shrinkage in income during the year, beyond that anticipated, and the prospect of further shrinkages during the forthcoming year have necessitated a sharp reduction in the appropriations for 1933-1934 to those departments of the School which are financed out of unrestricted funds. The policy of the Executive Committee of the Medical Faculty in the past ten years has been so to arrange the budget of the School as to avoid a deficit. This purpose was actually achieved during the years just prior to the academic year 1931-1932. During that year a deficit was sustained in the operations of the School; the first in many years. A portion of this deficit was written off through the application of special funds which could be used for the purpose, but not all of the deficit could be taken care of in this manner, and it has been necessary to provide for it in the budget of the forthcoming year. This has been done, and the School will enter upon the academic year 1933-1934 with a fully balanced budget, according to the present estimates of income. In order to arrange such a budget it was necessary to put into effect a uniform wage and salary reduction in those departments financed out of unrestricted funds. It is hoped that further reductions will not be necessary, but if it is necessary to make them, in order to balance the budget, they will be made.

## GIFTS TO THE SCHOOL

The School of Medicine has received many gifts during the past year, indeed a surprising number, in view of present economic conditions. All of these gifts were donated for specific purposes, and could not be applied to the general activities of the School, but they were most welcome, nevertheless, and it is a great pleasure to record them in detail.

From the Rockefeller Foundation the School received a pledge of \$20,000 a year for a period of four years, for the support of research in psychiatry. This gift, which becomes effective July 1st, 1933, will fulfill a want to which attention has been repeatedly called in these reports. Mr. Walter Lagemann contributed \$5,000 for special investigations in the Department of Psychiatry, and Mr. Augustus L. Richards gave \$1,000 for use in a statistical study by Dr. Esther L. Richards.

The Hartley Corporation renewed its gift of \$10,000 for the support of investigations in three clinical departments, allocated as follows: Surgery, \$5,000; Medicine, \$3,000; Pediatrics, \$2,000. In addition, the Corporation

gave \$300 for the support of the work of Dr. Firor, and Mrs. Pierre Lorillard of New York City gave \$250 for the same purpose.

The Carnegie Corporation gave \$10,000 for endocrine research under the direction of Dr. John J. Abel. This gift and a gift of \$6,000 from the Commonwealth Fund have made it possible for the University to maintain for Dr. Abel in the New Hunterian Building a laboratory where he can have all the necessary assistance and facilities for the conduct of his investigations. This fact is a source of great satisfaction to the members of the Medical Faculty.

Mead Johnson and Company renewed their gifts for research in the Department of Pediatrics. Of the total sum of \$15,000, given during the year, \$8,000 was specified to be used for the study of the effects of ergosterol upon rickets and \$7,000 for an investigation of the metabolism of fat.

Eli Lilly and Company gave \$2,000 for the study of arsenical products used in the treatment of syphilis, and an anonymous donor gave \$50.00 for research in that subject.

From the Trustees of the Anna Fuller Fund the School received \$3,000 for the study of cancer by Dr. Charles F. Geschickter, and a pledge of \$6,000 for the support of that work during the coming academic year.

The Trustees of the International Cancer Research Foundation gave the sum of \$8,085 for the support of the tissue culture work from February 1st, 1933 to July 1st, 1934. This work will be carried out in the Department of Surgery.

Mrs. Alfred I. Hess of New York City gave \$1,000 for research in Otolaryngology, under the direction of Dr. Crowe, and Mr. Harry G. Haskell of Wilmington, Delaware, contributed \$500 for the same purpose. The Jacques Loeb Fellowships in Medicine, which for several years have been important factors in the resources of the Department of Medicine were again renewed by the anonymous donor, the sum of \$3,000 being given for the purpose.

Mr. Joseph Pulitzer of Saint Louis, Missouri, gave \$250 for the study of protein sensitization under the supervision of Dr. Gay, and Mr. H. A. B. Dunning of Baltimore contributed \$100 for the same purpose.

Dr. W. B. Johnston of Reno, Nevada, donated \$275 to be used as a travel fund for the Department of Medicine.

From the Committee on Scientific Research of the American Medical Association the sum of \$250 was received, representing a grant in-aid to Dr. M. M. Wintrobe for the study of vertebrate red corpuscles. The same committee gave \$200 as a grant in aid to Dr. Arthur Grollman for the support of his investigations on the hormone of the adrenal cortex, and the National Research Council made a grant of \$300 for the same purpose.

Mr. Roswell Miller of New York City gave \$100 for the study of whooping cough by Dr. L. Emmett Holt, Jr., and a like amount was given by an anonymous donor for the Franklin P. Mall Scholar in Anatomy for 1933-1934.

The Medical Faculty has every reason to be proud of having received so many generous gifts during the past year, and appreciates the confidence reposed in the School by the donors.

#### APPOINTMENTS AND RESIGNATIONS

During the academic year the following new appointments, promotions and transfers were recommended by the Advisory Board and passed by the Trustees of the University:

*Promotions*

- Leo Kanner, from Associate in Psychiatry and Macy Foundation Fellow in Psychiatry to Associate Professor of Psychiatry  
 Louis B. Flexner, from Instructor in Anatomy to Associate in Anatomy  
 James Bordley III, from Instructor in Medicine to Associate in Medicine  
 Lay Martin, from Instructor in Medicine to Associate in Medicine  
 Moses Paulson, from Instructor in Medicine to Associate in Medicine  
 Charles W. Wainwright, from Instructor in Medicine to Associate in Medicine  
 Benjamin Rones, from Instructor in Ophthalmology to Associate in Ophthalmology  
 Eric G. Ball, from Instructor in Physiological Chemistry to Associate in Physiological Chemistry  
 Wendell S. Muncie, from Instructor in Psychiatry to Associate in Psychiatry  
 James N. Brawner, from Assistant in Gynecology to Instructor in Gynecology  
 Benjamin M. Volk, from Assistant in Laryngology to Instructor in Laryngology and Otology  
 Warde B. Allan, from Assistant in Medicine to Instructor in Medicine and Assistant Physician in charge Medical Care of Students  
 A. Murray Fisher, from Assistant in Medicine to Instructor in Medicine  
 Thomas P. Magill, from Assistant in Medicine to Instructor in Medicine  
 Louis J. Soffer, from Assistant in Medicine to Instructor in Medicine  
 Arthur M. Koff, from Assistant in Obstetrics to Instructor in Obstetrics  
 Frank B. Walsh, from Assistant in Ophthalmology to Instructor in Ophthalmology  
 Anthony A. Cioceo, from Assistant in Otology to Instructor in Otology  
 Charles O'Donovan, Jr., from Assistant in Pediatrics to Instructor in Pediatrics  
 Harry B. Friedgood, from Assistant in Pharmacology and Experimental Therapeutics to Instructor in Pharmacology and Experimental Therapeutics  
 Edward G. Billings, from Assistant in Psychiatry to Instructor in Psychiatry  
 Jacob H. Conn, from Assistant in Psychiatry to Instructor in Psychiatry  
 Eleanor Pavenstedt, from Assistant in Psychiatry to Instructor in Psychiatry  
 Thomas A. C. Rennie, from Assistant in Psychiatry to Instructor in Psychiatry  
 Fred W. Geib, from Assistant in Surgery to Instructor in Surgery  
 F. Adelbert Hoshall, from Assistant in Orthopedic Surgery to Instructor in Orthopedic Surgery  
 Gordon M. Dean, from Assistant in Urology to Instructor in Urology

*New Appointments*

- Isidore Gersh, Instructor in Anatomy  
 Chandler M. Brooks, Instructor in Physiology  
 Wilbur R. Miller, Instructor in Psychiatry and Commonwealth Fellow in Psychiatry  
 Laman A. Gray, Assistant in Gynecology  
 Thomas F. Huey, Jr., Assistant in Laryngology and Otology  
 John C. O'Dell, Jr., Assistant in Laryngology and Otology  
 John D. Ware, Assistant in Laryngology and Otology  
 W. Halsey Barker, Assistant in Medicine  
 Henry D. Stebbins, Assistant in Medicine  
 R. Carmichael Tilghman, Assistant in Medicine  
 Robert A. Reiter, Assistant in Medicine (Bay View)  
 Christopher C. Shaw, Assistant in Medicine (Bay View)  
 L. DeWitt Wilcox, Assistant in Medicine (Bay View)  
 Gerald T. Altimas, Assistant in Obstetrics  
 Merrell L. Stout, Assistant in Obstetrics  
 Franklin H. Maury, Assistant in Ophthalmology

Fred M. Reese, Assistant in Ophthalmology  
 Norman L. Cutler, Assistant in Ophthalmology and Harkness Fellow in Ophthalmology  
 Warren C. Corwin, Assistant in Pathology  
 Lindol R. French, Assistant in Pathology  
 Samuel A. Vest, Jr., Assistant in Pathology (Bay View)  
 Horace L. Hodes, Assistant in Pediatrics  
 Clinton N. Woolsey, Assistant in Physiology  
 Norman Cameron, Assistant in Psychiatry  
 Dorothy E. Donley, Assistant in Psychiatry  
 John H. Greist, Assistant in Psychiatry  
 Beverly E. Smith, Assistant in Psychiatry  
 Exie E. Welch, Assistant in Psychiatry  
 Morris S. Wheeler, Assistant in Psychiatry  
 George O. Gey, Assistant in Surgery  
 Samuel McLanahan, Jr., Assistant in Surgery  
 James C. Owings, Assistant in Surgery  
 George O. Eaton, Assistant in Orthopedic Surgery  
 Marcus Schwartz, Assistant in Orthopedic Surgery  
 Manley B. Shaw, Assistant in Orthopedic Surgery  
 Irvin Stein, Assistant in Orthopedic Surgery  
 Hugh J. Jewett, Assistant in Urology  
 David H. Sprong, Jr., Assistant in Surgery and William Stewart Halsted Fellow in Surgery  
 Harris B. Shumacker, Jr., Assistant in Surgery and Hunterian Fellow in Surgery

#### *Transfers*

John M. T. Finney, from Professor of Surgery to Professor Emeritus of Surgery  
 David L. Reeves, from Assistant in Surgery and Hunterian Fellow in Surgery to Assistant in Anatomy  
 Morton J. Goodman, from Assistant in Medicine and John D. Archbold Fellow in Medicine to Assistant in Medicine and Eli Lilly Fellow in Medicine  
 John Eager Howard, from Assistant in Medicine and Jacques Loeb Fellow in Medicine to Assistant in Medicine and John D. Archbold Fellow in Medicine  
 William McN. Nicholson, from Assistant in Pathology to Assistant in Medicine and John D. Archbold Fellow in Medicine  
 Rowland H. Merrill, from Assistant in Ophthalmology and Edith Strohn Copley Fellow in Ophthalmology to Assistant in Ophthalmology  
 Joseph Dessoff, from Assistant in Ophthalmology to Assistant in Ophthalmology and Mellon Fellow in Ophthalmology  
 David Freeman, from Assistant in Ophthalmology to Assistant in Ophthalmology and Edith Strohn Copley Fellow in Ophthalmology  
 Edward S. Stafford, from Assistant in Surgery and William Stewart Halsted Fellow in Surgery to Assistant in Surgery

#### *Resignations*

The following resignations were accepted:

Nicholson J. Eastman, Associate in Obstetrics  
 Gerald B. Hurd, Instructor in Gynecology  
 J. Lewis Dill, Instructor in Laryngology  
 Theodore J. Abernethy, Instructor in Medicine  
 Elmer Highberger, Instructor in Medicine  
 Milton F. Little, Instructor in Ophthalmology and Harkness Fellow in Ophthalmology  
 Richard T. Paton, Instructor in Ophthalmology and Harkness Fellow in Ophthalmology.

T. Campbell Goodwin, Instructor in Pediatrics  
 S. Alan Challman, Instructor in Psychiatry  
 Theodore P. Wolfe, Instructor in Psychiatry  
 Caroline C. Bedell, Assistant in Medicine  
 Harry F. Dowling, Assistant in Medicine  
 Bennett A. Stoen, Assistant in Medicine (Bay View)  
 Albert Weinstein, Assistant in Medicine  
 Walter L. Winkenwerder, Assistant in Medicine  
 Alexander H. Davis, Assistant in Medicine and John D. Archbold Fellow in Medicine  
 Jay I. Evans, Assistant in Medicine and John D. Archbold Fellow in Medicine  
 Charles A. Landshof, Assistant in Medicine and John D. Archbold Fellow in Medicine  
 Paul Padget, Assistant in Medicine and Jacques Loeb Fellow in Medicine  
 Eleanor A. Bliss, Assistant in Medicine and John J. Abel Fellow in Medicine  
 Ralph W. Jack, Assistant in Obstetrics  
 Suleiman Enalieff, Assistant in Ophthalmology and Mellon Fellow in Ophthalmology  
 Carlyle Flake, Assistant in Otology  
 Conrad B. Acton, Assistant in Pathology (Bay View)  
 Gifford Seitz, Assistant in Pathology  
 James V. Bickford, Assistant in Pediatrics  
 Ann Gayler Kuttner, Assistant in Pediatrics  
 Robert F. Barbour, Assistant in Psychiatry  
 Thomas A. Munroe, Assistant in Psychiatry  
 James B. Overton, Jr., Assistant in Psychiatry  
 Chester L. Reynolds, Assistant in Psychiatry  
 James Valentine, Assistant in Psychiatry  
 Richard H. Young, Assistant in Psychiatry  
 Claude B. Smith, Assistant in Orthopedic Surgery  
 Eben C. Hill, Lecturer in Roentgenological Anatomy  
 John C. Gittings, Lecturer in Pediatrics

## GRADUATES 1933

Upon Commencement Day, June 13th, 1933, the degree of Doctor of Medicine was conferred upon the following seventy-two Fourth Year students:

Granville Quinn Adams	Wilbur Eugene Fisher
Sidney Adler	Richard Van Fletcher
John Hamilton Allen	Henry Morgenthau Fox
Wilfred John Allison, Jr.	Ella Mae Gallavan
John Wamsley Barnaby, Jr.	Mark Edward Gann
Joseph Theodor Bergmeyer	Dorothy Alice Geib
Charles Bernard Brack	George Otto Gey
Thomas McPherson Brown	Hermon Camp Gordinier
Edward Parris Burch, II	Henry Clay Harrill
Norman Cameron	Henry Mathies Hensen
Eugene Paul Campbell	William Grafton Hersperger
Forrest LaFon Carpenter, Jr.	Arthur Henry Hurd
Abraham George Cohen	Alfred Hurwitz
Joseph George Cutler	Henry Van Zile Hyde
Albert Clare Daniels	Oliver Aldon James
John English Deitrick	Ferdinand Emil Kadan
Ella Katherine Delanty	Ferdinand Leonard Philip Koch
William Alfred DeSautelle	Orren Bond Landrum
Daniel Vincent Dougherty	Elisabeth Louise Langeluttig
Edward Virgil Famiglietti	James Cobb Laslie
Gerald Robert Fisher	Elfred Llewellyn Leech

Robert Anderson Lyon  
 John Beebee McCue  
 Henry Benedict Makover  
 Wesley Kwoh Chen May  
 William Mendelsohn  
 Carl George Merkel  
 J. Webster Merritt  
 Woodbridge Edwards Morris  
 Emily Guild Nichols  
 Claude Carlyle Nuckols, Jr.  
 Mahlon Dickerson Ogden, Jr.  
 Morris Herbert Pincus  
 John Faulkner Rainey  
 Middleton Elliott Randolph  
 Layton Simmerman Rogers

Herman Max Schiebel  
 Harold Saul Schiro  
 Irving Hoos Schwab  
 Warren Hooper Sears  
 Hamilton Southworth  
 Luther Campbell Spengler, Jr.  
 John Francis Spranz  
 Richard Henry Todd  
 William Joseph Turner  
 Thomas David Tyson, Jr.  
 Loftus Linwood Walton  
 Tobias Weinberg  
 William Hugh Latimer Westbrook, Jr.  
 Clinton Nathan Woolsey  
 Francis Howell Wright

## LIST OF PUBLICATIONS

*Anatomy*

- De Garis, Charles F.; Aortic axillary collaterals and the pattern of the arm arteries in anomalous right subelavian artery. *Amer. Jour. Anat.*, 1932, li, 189.
- Flexner, Louis B., Janet H. Clark, and Lewis H. Weed; The elasticity of the dural sac and its contents. *Amer. Jour. Physiol.*, 1932, ci, 292.
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- ; The differential diagnosis and treatment of the senile prostate. *Southern Surgeon*, 1932, i, 16.
- ; Lipomatosis or destructive fat replacement of renal cortex: Report of 11 cases. *Tr. Amer. Assn. Genito Urin. Surgeons*, 1932, xxv, 105.
- ; Obstructions to the ureter produced by aberrant blood vessels; plastic repair without ligation of vessels or transplantation of ureters. *Surg., Gyn. and Obstet.*, 1932, liv, 26.
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Respectfully submitted,

ALAN M. CHESNEY,  
*Dean, School of Medicine.*

## REPORT OF THE DEAN OF THE SCHOOL OF HYGIENE AND PUBLIC HEALTH

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TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor to submit the following report upon the activities of the School of Hygiene and Public Health for the academic year 1932-1933.

The School has passed through the year with no major changes in the courses of instruction offered, in general policy, or in the student body. This does not imply that the School has become in any sense stationary. This year, as in each previous year, various changes have been made in the curriculum, and though in a single year these are of minor character, their cumulative effect, if there is a consistency in their direction, becomes considerable. Equally or more important changes appear to be developing gradually in the relations of the School to official and unofficial agencies interested in public health, and in the character of the several classes of students coming to the School. These, however, are trends which become plainly evident only in a view extending over a number of years. It is to be hoped that in another year several such trends, which appear to be significant, may be sufficiently well defined to warrant a discussion which would be premature at this time.

The chair of Physiology, left vacant by the retirement of Dr. Howell, has not been filled as yet, and as it seemed probable before the session ended that another year or more might elapse before the appointment of a Professor of Physiology, Dr. E. V. McCollum, Professor of Biochemistry, was requested to act for the time being as head of the Department of Physiological Hygiene.

Dr. George H. Ramsey, Associate Professor of Epidemiology, who has been a member of this Faculty since 1926, resigned January 31, 1933, to accept appointment as Director of the Bureau of Communicable Diseases of the New York State Department of Health. Though Dr. Ramsey goes to a position which offers more extensive facilities than are available here for epidemiological investigation, his resignation is a severe loss to the School.

### *Eastern Health District—Field Study and Training Area*

It was recorded in the report rendered last year that a generous grant from the International Health Division of the Rockefeller Foundation had made it possible for the School to join with the Baltimore City Health Department and certain other agencies in the establishment of a public health district especially equipped for teaching and investigation. It is a pleasure to report now that the plan outlined last year has been put into operation and that the original grant, furnishing support for the first year, has been supplemented, so that maintenance is now provided for a five year period.

The district comprises the sixth and seventh wards of the city, an area of about one square mile, with a population of about 60,000. It is unusually well provided with clinic service by the Johns Hopkins and Sinai hospitals, two municipal dispensaries for tuberculosis and venereal diseases, and infant welfare clinics maintained by the Babies' Milk Fund and McElderry House. It also includes a large part of the territory covered by the out-patient obstetrical service of the Johns Hopkins Hospital.

This area has been organized as the Eastern Health District of the Baltimore City Health Department, and is operated as a unit of that department, with the cooperation of the other public health agencies previously established in the field, and with supplementary support from the School of Hygiene



to complete the organization and adapt it to the special purposes of teaching and investigation. The School furnishes the services of Dr. Harry S. Mustard, Associate Professor of Public Health Administration, who serves under appointment by the Commissioner of Health as Health Officer of the District; Dr. Martin Frobisher, Associate in Bacteriology, in charge of the District laboratory; Miss Katherine Peirce as Supervisor of Nurses, and two Assistant Supervisors, Miss Johnson and Miss Nichols. It also provides quarters, clerical service and part of the equipment for the district offices at 2201-03 Orleans Street, with equipment and maintenance for the district laboratory, located in the School of Hygiene. The City Health Department has assigned to the district the staff of 3 medical officers and 8 nurses previously at work in the area, and has placed this personnel under Dr. Mustard's direction as District Health Officer. The Health Department also gives appropriate status in its nursing service to the supervising nurses of the district. The other participating agencies, the Instructive Visiting Nurse Association, the Babies' Milk Fund and McElderry House, all contribute to the District by the assignment of nurses who, of course, continue their special duties and responsibilities but are at the same time effectively included in the district organization.

Beginning with the appointment of Dr. Mustard, September 15th, 1932, the district organization has been built up gradually, and by the end of the scholastic year was well established as an administrative unit. The development of the special functions of teaching and field investigation has necessarily proceeded more slowly, but the district has already demonstrated its usefulness for these purposes. In addition to providing demonstrations for students in this School, the district staff gave, in the latter part of the year, an organized course of instruction to a small group of nurses from the City Health Department and pupil nurses from the Johns Hopkins Hospital Training School. Next year the district will be able to accommodate several larger groups in these courses, and will be prepared to offer excellent facilities for the several field investigations which are planned.

#### *Enrollment and Graduations*

The number of students registered during the year was 155, classified as follows:

Candidates for Doctor of Public Health.....	8
Candidates for the Certificate in Public Health	45
Candidates for Doctor of Science in Hygiene...	43
Candidates for Master of Science in Hygiene...	16
Special Students.....	43
	<hr/> 155

The number of graduates for the year is 65, of whom 41 received the Certificate in Public Health, 3 the degree of Doctor of Public Health, 13 the degree of Doctor of Science in Hygiene, and 8 that of Master of Science in Hygiene. A list of these graduates follows:

#### *Certificate in Public Health*

Margaret Witter Barnard, of New York, A. B. Smith College, 1917; M. D. Cornell University, 1923.  
 Morley Burnell Beckett, of Michigan, M. B. University of Toronto, 1926.  
 Charles Arthur Bourdon, of Canada, M. D. University of Montreal, 1917.  
 Travis Pollard Burroughs, of New York, A. B. University of Missouri, 1917; M. D. Harvard University, 1925.  
 Lewis Charles Coleman, of Kentucky, M. B. University of Cincinnati, 1928; M. D. 1929.  
 Carleton Dean, of Michigan, M. D. Detroit College of Medicine and Surgery, 1924.

- Mohammad Djamil, of Java, M. D. University of Utrecht, 1932.  
 Charles Howe Eller, of New Mexico, A. B. Stanford University, 1927; M. D. University of Colorado, 1930.  
 Kenan Fevzi, of Turkey, M. D. University of Istanbul, 1925.  
 Malcolm Tennyson Foster, of South Carolina, A. B. Wake Forest College, 1925; M. D. Emory University, 1927.  
 Alexander Gordon Gilliam, of Virginia, S. B. University of Virginia, 1926; M. D. 1931.  
 Edward Grzegorzewski, of Poland, M. D. University of Warsaw, 1931.  
 Verne Kenneth Harvey, of Indiana, S. B. Indiana University, 1927; M. D. 1929.  
 Huang Ké kang, of China, M. D. Peiping Union Medical College, 1928.  
 Reuben Louis Kaufman, of California, A. B. University of California, 1925; M. D. 1928.  
 Harold Mills Kelso, of Tennessee, M. D. University of Tennessee, 1927.  
 George Kinneard, of Bahama Islands, M. D. University of Manitoba, 1922.  
 William Francis Lamb, of Kentucky, M. B. Northwestern University, 1929; M. D. 1930.  
 Morton Loeb Levin, of Maryland, M. D. University of Maryland, 1930.  
 Gerald Elledge McDaniel, of South Carolina, S. B. Clemson College, 1920; M. D. Medical College of the State of South Carolina, 1927.  
 Mehmet Nazif, of Turkey, M. D. University of Istanbul, 1923.  
 William Patrick O'Callaghan, of Ireland, M. D. and B. Ch. University College, Dublin, 1929; B. Sc. and D. P. H., 1931.  
 Guillermo Bustillo Oliva, of Honduras, S. B. National Institute of San Salvador, 1913; M. R. C. S. England, L. R. C. P. London, 1922.  
 Don Collins Peterson, of Texas, M. D. University of Texas, 1926.  
 John Joseph Phair, of Ohio, S. B. University of Cincinnati, 1926; M. B. 1928; M. D. 1929; S. M. 1931.  
 Albert Marvin Price, of West Virginia, M. D. University of Louisville, 1924.  
 Peter Ramneantz, of Rumania, S. B. Gymnasium Timisoara, 1921; M. D. University of Cluj, 1927.  
 William Perry Richardson, of North Carolina, A. B. Wake Forest College, 1926; M. D. Medical College of Virginia, 1928.  
 George Evans Riley, of Mississippi, S. B. Mississippi Agricultural and Mechanical College, 1919; M. D. University of Tennessee, 1929.  
 Louis Philippe Robert, of Canada, A. B. St. Mary's College, 1924; M. D. University of Montreal, 1930.  
 William James Sandidge, of Louisiana, M. D. Tulane University, 1916.  
 Sedgwick Simons, of South Carolina, M. D. Medical College of the State of South Carolina, 1926.  
 Robert Tula Stimpson, of North Carolina, A. B. University of North Carolina, 1921; M. D. University of Pennsylvania, 1927.  
 Russell Ellsworth Teague, of Kentucky, M. D. University of Louisville, 1929.  
 Jean Tiffeneau, of France, D. H. University of Paris, 1931; M. D. 1932.  
 Samuel Lewis Wadley, of Tennessee, A. B. Christian Brothers College, 1906; A. M. (Hon.) 1913; M. D. University of Tennessee, 1909.  
 Wilson Carter Williams, of Tennessee, M. D. Vanderbilt University, 1925.  
 Martin Bryan Woodward, of South Carolina, S. B. Clemson College, 1920; M. D. University of Georgia, 1929.  
 Harlin Le Roy Wynns, of California, A. B. University of California, 1924; M. D. 1929.  
 Neokarl Yang, of China, M. D. Provincial Medical College of Chekiang, 1919.  
 Nuri Zia, of Turkey, M. D. University of Istanbul, 1923.

#### *Master of Science in Hygiene*

- Barbara Jean Betz, of Wisconsin, A. B. Mount Holyoke College, 1931. Principal subject, Biology. Thesis on The population of a nest of the hornet *vespa maculata*.

- Joseph Michael Cordi, of Maryland, A. B. Johns Hopkins University, 1931. Principal subject, Helminthology. Thesis on The effect of various temperatures on the eggs and larvae of *strongyloides fulleborni*.
- Sue Gardner Florance, of Virginia, A. B. University of Richmond, 1931. Principal subject, Bacteriology. Thesis on The aerobic bacterial flora of powdered milk.
- Dorothy Austin Houck, of New York, A. B. Wellesley College, 1929. Principal subject, Bacteriology. Thesis on Bacteriophage production by two strains of *bacillus dysenteriae*.
- Charlotte Ann Keisling, of Florida, A. B. Florida State College for Women, 1930. Principal subject, Immunology. Thesis on The distribution of heterophile antigen in certain vegetable seeds.
- Gretchen Lombard Moorehouse, of Iowa, A. B. Drake University, 1930. Principal subject, Physiological Hygiene. Thesis on The effect of repeated light exercise on the blood cells of albino rats.
- Lucille Winkley Wade, of Indiana, A. B. De Pauw University, 1931. Principal subject Immunology. Thesis on Herpetic inclusions in tissue culture.
- Maryland Kraft Young, of Maryland, A. B. Goucher College, 1929. Principal subject, Biostatistics. Thesis on The symptomatology of successive attacks of upper respiratory disease (common cold).

*Doctor of Science in Hygiene*

- Harld Blumberg, of Maryland. Principal subject, Biochemistry. Dissertation: On the existence of an unrecognized dietary factor, essential for the growth of the rat.
- Edward Thorpe Boardman, of Florida, S. B. University of Florida, 1928; S. M. 1929. Principal subject, Helminthology. Dissertation on A comparative study of the behavior of the pre-parasitic larvae of four bursate nematodes.
- Harry G. Day, of Iowa, A. B. Cornell College (Iowa), 1930. Principal subject, Biochemistry. Dissertation on The effects of magnesium deprivation, with a superimposed calcium deficiency, on the animal body, as revealed by symptomatology and blood changes.
- John Holmes Dingle, of Washington, S. B. University of Washington, 1930; S. M. 1931. Principal subject, Immunology. Dissertation on Bacterial carbohydrates: Their isolation, serological specificity, and immunological significance.
- Aurel Overton Foster, of New Jersey, A. B. Wesleyan University, 1929; A. M. 1930. Principal subject, Helminthology. Dissertation on Studies on the resistance of dogs and cats to infection with the dog hookworm, *ancylostoma caninum*.
- Vernal Irons, of Indiana, A. B. Indiana State College for Teachers, 1927. Principal subject, Filterable Viruses. Dissertation on Studies on bird-pox (*epithelioma contagiosum*).
- Elven Clifford Nelson, of Colorado, A. B. University of Colorado, 1929; A. M. 1930. Principal subject, Protozoology. Dissertation on Cytology and conjugation in the balantidium from the chimpanzee with experiments on cultivation and transmission.
- Sydney Raffel, of Maryland, A. B. Johns Hopkins University, 1930. Principal subject, Immunology. Dissertation on Specific and non-specific immunity in *trypanosoma equiperdum* infections.
- Andrés Rodríguez, of Colombia, A. B. Duke University, 1929. Principal subject, Bacteriology. Dissertation on The survival of members of the bacillus coli-lactis aerogenes group in milk pasteurized in the laboratory and in the commercial plants, with observations on the resistance of bacillus coli to a temperature of 142° F.

- Marguerite Massicot Schmidt, of Maryland, A. B. Goucher College, 1928. Principal subject, Biochemistry. Dissertation on Changes in inorganic metabolism of animals deprived of magnesium.
- Mary Shaw Shorb, of Idaho, S. B. College of Idaho, 1928. Principal subject, Immunology. Dissertation on Heterophile antigen in bacteria.
- William Weekley Swezey, of Ohio, S. B. Mount Union College, 1930. Principal subject, Protozoology. Dissertation on Studies on the cytology, cultivation and behavior of *triglodytella abgrassarti*, a protozoan parasite of the chimpanzee.
- Seigmund Benton Talbot, of West Virginia, S. B. Davis Elkins College, 1924. Principal subject, Helminthology. Dissertation on Life history, systematic and morphological studies on trematodes of the subfamily reniferinae.

#### Doctor of Public Health

- Luang Bhayung, of Siam, G. M. Chulalongkorn University, 1918; C. P. H. Johns Hopkins University, 1932. Principal subject, Medical Entomology. Thesis on The lateral abdominal hairs of mosquito larvae.
- Parameswaran Kumaran Nair, of India, L. M. & S. University of Madras, 1924; D. P. H. Medical College, Madras, 1929. Principal subject, Helminthology. Thesis on Factors influencing the distribution of ascaris, trichuris, and hookworm in communities.
- James Eliab Perkins, of Minnesota, S. B. University of Minnesota, 1927; M. B. 1929; M. D. 1930; C. P. H. Johns Hopkins University, 1931. Principal subject, Epidemiology. Thesis on A study of the care of cases of tuberculosis occurring in residents of the Eastern Health District.

#### REPORTS FROM THE DEPARTMENTS

The activities of the School in research and in public relations are summarized in the following reports from the heads of the several departments. The range of interests in research is further indicated by the publications listed, and by the titles of dissertations and theses submitted by candidates for degrees.

**Bacteriology.**—The members of the staff have been engaged in rather diversified investigations, representing, for the most part, special interests developed in previous years. Dr. Ford has been working toward completion of a history of bacteriology, and has maintained an advisory relation to a bacteriological and epidemiological study of dysentery which is being carried on in Henrico County, Virginia, by the State Department of Health of Virginia.

Dr. Lange has continued her studies on the relationships of leptospira found in water to pathogenic varieties; and in cooperation with Dr. Harris, has completed a study of the preservation of acid fast bacteria *in vacuo*.

Dr. Damon has completed and published the results of a study of the trend of the agglutination curve in *Brucella abortus* infection in cattle over a four-year period, and is continuing work designed to free certain selected herds of dairy cattle from infectious abortion. With Mr. A. A. Hajna he has completed some observations on the differentiation of *A. cloacae* and *A. aerogenes* on the basis of the hydrolysis of sodium hippurate. He has also continued to serve as a member of the Dairy Advisory Committee of Baltimore, and has been actively interested, in an advisory capacity, in the production of certified milk for the Baltimore market.

Dr. Eliot has prosecuted further her efforts to bring to cultivation *Bar-tonella muris*; and in conjunction with Mrs. Warren Lewis has continued work on the isolation of an agent causing "colds" in young chickens. She

is also engaged in the analysis of a large series of confirmed *B. coli* cultures from water.

Dr. Hampil has continued her work on tetanus toxin with regard to methods of precipitation and concentration and has been carrying on, with Dr. John J. Abel, a study of the general phenomenon of the effect of tetanus toxin in various animals. She has also begun a study of the incidence, in Baltimore, of *Spirillum muris* (*Spirillum morsus muris*), the cause of rat bite fever.

Dr. Harris has extended his observations on the preservation of bacteria *in vacuo* as well as chemical studies on the nature of diphtheria toxin. He has also begun a study of the flora of the oral cavity in monkeys.

As has been the case previously, a fund of \$5,000, donated by the firm of Sharpe and Dohme of Philadelphia, has been employed for the expense of further work on disinfection and has made possible continued retention of Dr. Hampil as a member of the staff. This year the field of application of this fund has been broadened somewhat to include a cooperative investigation of the effect of the tetanus antitoxin on various animals, which Dr. Hampil has been carrying on with Dr. John J. Abel.

In addition to the investigations carried on by members of the staff, six graduate students enrolled as candidates for higher degrees, have been actively engaged in research in the Department while three others, working under the supervision of members of the staff have pursued their investigations extramurally—one in the laboratory of the Brady Urological Clinic and two in the laboratory of the State Department of Health.

The following papers have been published by workers in this department during the year:

Samuel R. Damon. Some observations on the natural course of the *Brucella* agglutination reaction in a dairy herd over a four year period. *American Journal of Hygiene*, Vol. 16: 298-305.

James D. Reid. The disinfectant action of certain organic acids. *American Journal of Hygiene*, Vol. 16: 540-556.

——— Sensitivity of a group of fluorescent organisms of the genus *Pseudomonas* to physico chemical germicides. *American Journal of Hygiene*, Vol. 16: 556-565.

*Biochemistry.*—One of the major activities of the Department, has been a continuation of studies on the effects of magnesium deficiency in animals. Dr. H. D. Kruse and Miss Marguerite M. Schmidt were engaged throughout the year in a study of changes in inorganic metabolism of animals deprived of magnesium, with reference especially to the influence of this deficiency upon the excretion of magnesium, calcium, phosphorus and nitrogen. They have also made a thorough study of electrical reactions of dogs and rats suffering from magnesium deficiency, with results which confirm the view, based upon chemical study and symptomatology, that magnesium deficiency induces a specific and hitherto unobserved type of tetany. In the course of their metabolism studies on dogs on a low magnesium diet, they have observed the excretion of an abnormal amount of a pigment in the urine. A chemical study of this substance is now in progress.

Dr. Kruse and Mr. Harry G. Day have studied the effects of magnesium deprivation, with a superimposed calcium deficiency, on the animal body, as revealed by symptomatology and blood changes; and in collaboration with Miss Orent, Dr. Kruse has completed a study which was begun last year, on the antagonism between calcium and magnesium in calcification phenomena, showing that rats on a low magnesium diet have bones calcified to an extent considerably above normal. In the same general field, Dr. Kruse and Miss

Becker have conducted a study on the symptomatology of magnesium deficiency in the adult rat and have made progress on a study of sterility in male rats resulting from magnesium deficiency. It appears that deprivation of magnesium is the most rapid method known for bring about injury to the germinal epithelium. Studies on the effect of magnesium deprivation on the reproductive capacity of female rats are still in progress.

Dr. Rask and, under his direction, Mr. Itter and Mr. Fleming, have been engaged during the year on a study of the possibility of separating the amino acids from protein hydrolysate by applying a principle entirely new in this field, using a non aqueous system whereby mixtures of the acid amino acid, glutamic acid, the amphoteric one—alanine, and the basic one—arginine, which are typical of the types of digestion products of proteins, can be selectively dissolved. The study has brought to light some new and interesting possibilities which will require further investigation.

By the use of supplements of amino acids, Dr. Kruse and Mr. Day have been successful in obtaining growth for the first time with gelatin as the source of protein. The inadequacy of gelatin has been attributed to deficiency in the amino acids cystine, tyrosine, and tryptophane. From the work in this laboratory, it now becomes apparent that gelatin is deficient in two other amino acids, namely, histidine and an unknown factor recently described by Rose; hence the nutritive limitations of gelatin are of a chemical nature rather than physical, as has been postulated in the past by some investigators.

Dr. Elsa R. Orent has been engaged in a study of a new procedure for the isolation of certain of the water soluble group of vitamins. Her work has progressed to a point where two principles, both of which are apparently indispensable in nutrition, can be precipitated almost quantitatively, leaving behind a filtrate which has a very low vitamin value as compared with the sample before precipitation. The two components in question give characteristic color reactions, and a method for their separation has been found.

Dr. O. S. Rask and Mr. Emanuel Kaplan have carried on an extensive study designed to develop an effective technique for extracting the water soluble vitamins from yeast or wheat germ, using non aqueous solvents. Significant progress has been made in this direction. Young rats have been reared to essentially adult size and have reproduced on diets containing no other sources of water soluble vitamins than these highly potent extracts. Dr. Orent is using this extraction technique as a means of securing vitamin concentrates for isolation studies. Miss J. Ernestine Becker has conducted a large number of assays of preparations made by the methods above referred to and, at the request of the Committee on Revision of the U. S. Pharmacopoeia, has made assays of standard samples of carotene and of cod liver oil for their vitamin A content. This is a part of a project in which several laboratories have cooperated in order to establish an official standard for this vitamin.

Mr. Harold Blumberg has continued his study of the problem of preparing a diet in which all the fat soluble vitamins were added in forms free from any neutral fats or fatty acids. This experiment was begun as a crucial test for the existence of vitamin E. Its existence has been confirmed, but in the course of the study certain observations were made which seem to be explained only on the tentative assumption that there exists an hitherto undescribed nutrient principle associated with fats.

Dr. Henry Klein has further pursued his studies on the effect of diets faulty in certain respects upon susceptibility of rats to dental caries. The work of a number of years seems to establish that in contrasting groups of our inbred rat colony with an unusually uniform physical stamina it is pos-

sible, by changing the content of a diet in respect of concentration and ratio between calcium and phosphorus, and by changing the content of vitamin D, to render animals on the one hand practically immune to caries, and on the other highly susceptible. A related study has been made by Dr. Henry Whittle on tooth structure and on susceptibility to tooth decay of rats which are fed a diet containing the maximum percentage of rolled oats which can be included in an experimental diet. This investigation was started two years ago in order to test the theory which postulates the existence of an anticalcifying agent which antagonizes the effect of vitamin D in the normal calcification of teeth or bones. Dr. Whittle's studies, lend no support to this view. He has been able to produce sound and healthy teeth which remain highly resistant to caries with a diet composed principally of oats.

Miss Emeline Freeborn has spent the year in a study of synthetic media in their relation to the form of growth of *Lactobacillus acidophilus*; and Mr. N. D. Kehar has collaborated with Dr. Donald R. Hooker in a study of the ions given off by the heart to a perfusate during and following the fibrillation brought about by electrical shock.

In addition to the courses offered in this School, Dr. McCollum and Dr. Kruse, by special request, gave a course of lectures on nutrition, during the fourth quarter, to students in the School of Medicine of the Johns Hopkins University; Miss Becker continued her lectures on nutrition and diet to pupil nurses of the Johns Hopkins Hospital, and conducted a seminar for student dietitians in the hospital; and Dr. McCollum, at the request of the Council of Social Agencies, gave a series of eight lectures to the personnel of the agencies represented.

Dr. McCollum has continued to serve as a consultant to the Merrill-Palmer School, of Detroit, in connection with problems of nutrition and growth of children, and to the Research Laboratories of the National Dairy Products Corporation. During the year he was appointed to membership on the National Advisory Health Committee which functions as an advisory body to the U. S. Public Health Service, and he served also in an advisory capacity to the family relief organizations set up by the Governors of the States of Pennsylvania and New York and to the Extension Division of the Department of Agriculture of New Jersey. He and Miss Becker have also been in close relation to the relief agencies of the City of Baltimore in their nutritional problems.

In the course of the year public lectures in the field of nutrition were given by Dr. McCollum to the Society of Sigma Xi, District of Columbia Chapter; the Maryland Section, American Chemical Society; the Pennsylvania State Nurses' Association; the Baltimore City Health Department Nurses; the University of Chicago (student body); the Joint Committee of the Organized Medical and Dental Professions of Greater New York; Smith College (student body); the Eastern New York Section, American Chemical Society; the Noonday Clinic, Albany Medical College; the Ninth District Dental Society; the Odontological Society of Western Pennsylvania, Uniontown; the State College of Agriculture and Mechanical Arts, Ames, Iowa; the Iowa State Dental Society, Des Moines; and the St. Louis District Dairy Council.

Following is a list of the papers published from the Department of Biochemistry during the year:

- H. D. Kruse and E. V. McCollum. Review of recent studies on the anti-neuritic vitamin. *Journal of the American Medical Association*, Vol. 98: 2201.
- R. E. Gardner, E. R. Orent, E. V. McCollum, and R. R. Hyde. No inhibition of a transplantable sarcoma and carcinoma of the rat after depletion of magnesium by diet. *American Journal of Hygiene*, Vol. 16: 323.

- Hans Selye. A condition simulating human scleroderma in rats injected with parathyroid hormone. *Journal of the American Medical Association*, Vol. 99: 108.
- O. S. Rask. An introductory story of baking powders. *Journal of Chemical Education*, Vol. 3: 1340.
- Marvin R. Thompson. The extraction and assay of crude ergot. *Journal of the American Pharmaceutical Association*, Vol. 21: 853.
- Elsa R. Orent, H. D. Kruse and E. V. McCollum. Studies on magnesium deficiency in animals. II. Species variation in symptomatology of magnesium deprivation. *American Journal of Physiology*, Vol. 101: 454.
- Hans Selye. Action of parathyroid hormone on the epiphyseal junction of the young rat. *Archives of Pathology*, Vol. 14: 60.
- Elsa R. Orent and E. V. McCollum. The estrual cycle in rats on a manganese free diet. *Journal of Biological Chemistry*, Vol. 98: 101.
- Marvin R. Thompson. The extraction and assay of crude ergot. *Journal of the American Pharmaceutical Association*, Vol. 21: 1135.
- Henry Klein and E. V. McCollum. The significance of food particle size in the etiology of macroscopic dental decay in rats. *Journal of Dental Research*, Vol. 12: 69.
- George R. Sharpless and E. V. McCollum. Is fluorine an indispensable element in the diet? *Journal of Nutrition*, Vol. 6: 163.
- H. D. Kruse, Elsa R. Orent, and E. V. McCollum. Studies on magnesium deficiency in animals. III. Chemical changes in the blood following magnesium deprivation. *Journal of Biological Chemistry*, Vol. 100: 603.
- Harold Blumberg and O. S. Rask. The spectrographic analysis of milk ashes. *Journal of Nutrition*, Vol. 6: 285.
- John M. Newell and E. V. McCollum. Studies on the rôle of zinc in nutrition. *Journal of Nutrition*, Vol. 6: 289.

*Biology.*—The Department has been singularly fortunate in having as a guest during the year Dr. John W. Gowen, head of the Department of Genetics of the Rockefeller Institute for Medical Research, who has spent a sabbatical year of leave here, bringing with him two assistants, Dr. Ralph G. Schott and Miss Elizabeth H. Gay. This group has contributed greatly to the activities and interests of the department, as is reflected in some part in the list of publications.

The research program of the Department is concentrated on an interconnected set of problems falling in three general fields as indicated in the following scheme:

The life cycle of the individual.....	{ Growth	(2)
	{ Senescence	
	{ Longevity	(2)
Population—the biology of groups.....	{ Quantitative aspect	(7)
	{ (Fertility, growth of groups)	
	{ Qualitative aspect	(8)
	{ (Social biology, eugenics)	
Genetics of lower animals and man.....	{ Variation	(2)
	{ Heredity	(6)
	{ Environmental effects	(2)

In the development of this program it naturally happens that in any particular year the published results are likely to be more heavily concentrated on certain fields than on others. In the above scheme the figures in brackets indicate the number of titles assignable to each item during the past year. On the basis of this rough classification it is evident that the year's output has fallen chiefly in the fields of population studies and genetics.



On the experimental side of our population studies the most significant advance of the year was recorded in a paper by the head of the Department in which the experimental proof is completed that in *Drosophila* the rate of reproduction varies inversely as the density of the population. Quantitatively and qualitatively the relationship between these two variables is such as to indicate that the decrease of fecundity with increasing density of population is primarily the result of a collision phenomenon, affecting directly all the physiological functions of the individual. In earlier work we had shown that the number of adult flies produced varied inversely as the density of population; now we have pushed the matter back to the production of eggs, with the same result. In the same experimental field Dr. Alpatov has contributed useful data as to the total egg production of *Drosophila* throughout its life, and incidentally added further supporting evidence in favor of the "rate of living" theory of life duration.

During the year our studies on human fertility have progressed satisfactorily. In previous reports mention has been made of the extensive cooperative study with the Research Division of the Milbank Memorial Fund regarding the extent of the practice of contraception among American women and its effectiveness as practised. On December 31, 1932, the collection of material in connection with the project was completed, with a total of 30,951 case histories. The coding of these data preparatory to their transfer to punch cards for mechanical tabulation is now well advanced. During the year a detailed preliminary report on the first 2000 cases has been published. This sample of material indicates that among the lower economic and social classes of white married women delivered in hospitals only about 36 per cent had practised any form of contraception, and this with a very small, though statistically significant, reduction in their progeny rates as compared with women not practicing contraception at all. Along similar lines, but with different material, another paper showed that there is a small but statistically significant inverse correlation between economic status (income per week) and the pregnancy and birth rates in samples of both white and colored women, but no correlation between economic status and the reproductive wastage rate.

Dr. Miner has continued his studies on the sociobiological relation of organized religion to social well-being, so far as the latter may be indicated by per capita wealth, literacy, health, or sexual morality, and has published a contribution on the subject.

Among the other published results of the year's work may be mentioned Dr. Imai's contribution in which he shows that the intensity of parent-offspring heredity in physical characters of *Drosophila* varies inversely as the temperature of the environment in which the flies are reared, proceeding from zero at the highest temperature to a value of over  $+0.4$  at  $18^{\circ}$ , a value of about the same magnitude as the normal standard for parent-offspring correlations deduced from Galton's "law of ancestral inheritance" as developed by Pearson. The theoretical significance of Dr. Imai's results in the field of genetics, if confirmed by further work, is considerable.

During the past year the Department has been engaged in a cooperative enterprise with the Department of Neurology of the George Washington University Medical School. The head of that department, Dr. Walter Freeman, has made the most extensive collection of quantitative autopsy material relative to the endocrine organs of man ever brought together, through his work as pathologist to St. Elizabeth's Hospital. A grant from the Josiah Macy, Jr. Foundation has made it possible for this Department and Dr. Freeman to undertake cooperatively a thorough biometric analysis of this material. Considerable progress has been made in the work, thanks to the

efficient aid of Miss Marjorie E. Gooch, and it is hoped that some of the results will shortly be ready for publication.

During the year the head of the department has served on a national committee to study the needs and opportunities in medical education for the Negro, with special reference to the conditions at Harlem Hospital in New York; has continued to act as Chairman of the Committee on Funds for Publication of Research of the National Academy of Sciences; and has given two extra mural addresses, one on the "Inheritance of Longevity" before the technical staff of the Research Laboratories of the General Electric Company, and the other on "Constitution and Disease" at the Army Medical Center in Washington.

The following publications by members of the staff and students in the department have appeared during the year:

- W. W. Alpatov. Egg production in *Drosophila melanogaster* and some factors which influence it. *Journal of Experimental Zoology*, Vol. 63: 85-111, 1932.
- Joshua L. Baily, Jr., Raymond Pearl, and Charles P. Winsor. Variation in *Goniobasis virginica* and *Anculosa carinata* under natural conditions. I. The problem, material and methods. *Biologia Generalis*, Bd. 8: 607-630, 1932. Plates XIV and XV.
- II. The relation between size of the shells and environmental factors. *Biologia Generalis*, Bd. 9: 301-366, 1933. Plates VI-VIII.
- Barbara J. Betz. The population of a nest of the hornet *Vespa maculata*. *Quarterly Review of Biology*, Vol. 7: 197-209, 1932.
- Antonio Cioco. Hearing acuity and middle ear infections in constitutional types. *Acta Oto-Laryngologica*, Vol. 18: 365-380, 1933.
- Thomas I. Edwards. Temperature relations of seed germination. *Quarterly Review of Biology*, Vol. 7: 428-433, 1932.
- Sophia A. Gould, Raymond Pearl, Thomas I. Edwards and John R. Miner. Available food, relative growth, and duration of life in seedlings of *Cucumis melo*. *Proceedings of the National Academy of Sciences*, Vol. 19: 228-233, 1933.
- John W. Gowen. Anomalous human sex linked inheritance of color blindness in relation to attached sex chromosomes. *Human Biology*, Vol. 5: 130-134, 1933.
- Constitutional effects of the hairless gene in diploid and triploid *Drosophila*. *American Naturalist*, Vol. 67: 178-180, 1933.
- The effect of selection on the resistance of a population. *Record of Proceedings, American Society of Animal Production*, Annual meeting, 1932.
- Meiosis as a genetic character in *Drosophila melanogaster*. *Journal of Experimental Zoology*, Vol. 65: 83-106, 1933.
- John W. Gowen and E. H. Gay. Eversporting as a function of the Y chromosome in *Drosophila melanogaster*. *Proceedings of the National Academy of Sciences*, Vol. 19: 122-126, 1933.
- Effect of temperature on eversporting eye color in *Drosophila melanogaster*. *Science*, Vol. 77: 312, 1933.
- Takeo Imai. The influence of temperature on variation and inheritance of bodily dimensions in *Drosophila melanogaster*. *Wilhelm Roux' Archiv für Entwicklungsmechanik der Organismen*, Bd. 128: 634-660, 1933.
- John R. Miner. The churches and social well being. *Human Biology*, Vol. 4: 421-428, 1932.
- The cost of biological books in 1932. *Quarterly Review of Biology*, Vol. 7: 498-499, 1932.
- Raymond Pearl. The influence of density of population upon egg production in *Drosophila melanogaster*. *Journal of Experimental Zoology*, Vol. 63: 57-84, 1932.

- Raymond Pearl. Contraception and fertility in 2000 women. *Human Biology*, Vol. 5: 363-407, 1932.  
Recent literature useful in the study of human biology. *Human Biology*, Vol. 4: 435-451, 1932.  
Some data on fertility and economic status. *Human Biology*, Vol. 4: 525-553, 1932.  
Tobias Venner and his Via Recta. *Human Biology*, Vol. 4: 558-583, 1932.  
Recent literature useful in the study of human biology. *Human Biology*, Vol. 4: 584-602, 1932.  
Preliminary notes on a cooperative investigation of family limitation. *Milbank Memorial Fund Quarterly Bulletin*, Vol. 11: 37-60, 1933.  
Statistical report on the fifth year's operations of the Bureau for Contraceptive Advice. *Fifth Report of the Bureau for Contraceptive Advice*, Baltimore, pp. 5-17, 1933.  
Recent literature useful in the study of human biology. *Human Biology*, Vol. 5: 135-154, 1933.  
Professors go trending. *Baltimore Evening Sun*, March 1, 1933, p. 15.  
America today and maybe tomorrow. *Quarterly Review of Biology*, Vol. 8: 96-101, 1933.  
The way of the reformer. *The Nation*, Vol. 136: 588-589, May, 24, 1933.  
Recent literature useful in the study of human biology. *Human Biology*, Vol. 5: 295-312, 1933.  
The inheritance of longevity. In "Explorations in Science." Schenectady, New York, Research Laboratory, General Electric Company, 1933, pp. 73-75.  
Charles P. Winsor. The eggs of *Goniobasis virginica* Gmelin and *anculosa carinata* Brugière. *Journal of the Washington Academy of Sciences*, Vol. 23: 34-36, 1933.  
Charles P. Winsor and Agnes A. Winsor. Polyvitelline eggs and double monsters in the pond snail *Lymnaea columella* Say. *Biological Bulletin*, Vol. 63: 400-404, 1932.

There have appeared during the year one complete volume of each of the two journals edited in the department, *The Quarterly Review of Biology* and *Human Biology*.

*Biostatistics*.—The research of this Department has been focused on certain problems in the field of mathematical statistics and on biometric problems concerned with population growth, physical measurement of man, and disease.

The biometric studies on various physical and physiological factors in man as related to his disease history which the Department has been carrying on jointly with Colonel Love of the U. S. Army Medical Corps, have been completed this year. The data on which these studies have been based consist of long time records on the same individuals, these individuals being U. S. Army officers and therefore physically above the average of the general male population. From these records it was possible to relate the findings of early physical examinations to subsequent health records, or to take persons showing certain disease conditions and find out what their physical and physiological set-up had been at previous examinations. The studies cover a number of different relationships but may be partially summarized by the statement that a relationship is shown to exist between certain physical characteristics of young, healthy individuals and their disease history twenty or thirty years later. The data have been analyzed not only for relationships of physical factors and disease but also for changes in physical norms with age, these norms being determined through studies of time changes in the same individuals. Although the joint work with Colonel Love has been completed, further studies on these records are in progress in the department.

Dr. Reed has been working jointly with Mr. Theriault and Mr. Butterfield of the Office of Stream Pollution Investigations of the U. S. Public Health Service in Cincinnati, on certain chemical and biological relationships in the population growth of bacterial colonies, when the colonies are grown in pure culture, under varying controlled conditions, and when they are grown in the presence of other biological forms.

Dr. Palmer has been working with the Office of Field Investigations in Child Hygiene of the U. S. Public Health Service on certain problems connected with the physical growth of children. His analysis of the records of 2500 elementary school children who were weighed monthly over a period of years under the supervision of medical officers of the U. S. Public Health Service, brought out very definite evidence of seasonal variation in growth, the highest rate being in the fall months and the lowest in the spring. The analysis also brought out comparisons between seasonal growth rates of boys and girls according to age, and of children classified according to the incidence of sickness. Further studies on these data are being continued at the present time.

The Department has been allied with the work carried out under the John J. Abel Fund, and Dr. Gafafer, working under this fund, has completed a number of statistical studies on various physical and physiological factors in relation to the common cold.

Dr. Hedrich, working in cooperation with the Office of Statistical Investigations of the U. S. Public Health Service, has completed a study on epidemic meningitis dealing with epidemic cycles according to geographical distribution and distribution in time.

The following publications from the Department have appeared during the year:

- A. W. Hedrich. Study of the prevalence of epidemic meningitis, 1915-30. *U. S. Public Health Reports*, Vol. 46: 2709-2726.
- C. E. Palmer. The relationship of erect body length to supine body length. *Human Biology*, Vol. 4: 262-271.
- W. M. Gafafer. Tonsillectomy and upper respiratory disease (common cold) in adults. *The Laryngoscope*, Vol. 42: 385-389.
- Adenoids and upper respiratory disease (common cold) in adults. *Annals of Otology*, Vol. 41: 517-522.
- Hardening procedures and upper respiratory diseases (common cold). *American Journal of Hygiene*, Vol. 16: 233-240.
- C. E. Palmer. Relation between size of frontal nasal sinuses and (1) attacks of upper respiratory disease (common cold) and (2) certain nose and throat conditions. *American Journal of Hygiene*, Vol. 16: 224-232.
- L. J. Reed and A. G. Love. Biometric studies on U. S. Army officers. Economic efficiency (length of service) in relation to physical fitness and other factors. *The Military Surgeon*, Vol. 71: 231-238.
- W. M. Gafafer. Disease of the upper respiratory tract (common cold) in Jews and Non Jews. *Human Biology*, Vol. 4: 429-433.
- L. J. Reed. Time changes in the number of gainfully employed men and women in the United States in relation to population growth. In "Problems of Population," edited by G. H. L. F. Pitt Rivers, George Allen and Unwin, Ltd., London, 1932.
- W. M. Gafafer. Eye color and disease of the upper respiratory tract (common cold). *American Journal of Hygiene*, Vol. 16: 880-884.
- L. J. Reed and A. G. Love. Biometric studies on U. S. Army officers. Somatological norms, correlations, and changes with age. *Human Biology*, Vol. 4: 509-524.
- W. M. Gafafer. Adenotonsillectomy and upper respiratory disease (common cold) in adults. *Journal of Infectious Diseases*, Vol. 51: 489-492.

- L. J. Reed and A. G. Love. Biometric studies on U. S. Army officers. Soma-  
tological norms in disease. *Human Biology*, Vol. 5: 61-93.
- C. E. Palmer. Seasonal variation of average growth in weight of elementary  
school children. *U. S. Public Health Reports*, Vol. 48: 211-233.
- A. W. Hedrich. Monthly estimates of the child population 'susceptible' to  
measles, 1900-1931, Baltimore, Maryland. *American Journal of Hygiene*,  
Vol. 17: 613-636.

*Epidemiology.*—The advanced course in Epidemiology, inaugurated two years ago, was presented this year with the able assistance of Dr. Merrell, of the Department of Biostatistics, as a joint course in Epidemiology and Biostatistics; and as it is believed that this better meets the needs of the students who elect this course, it is proposed to continue the arrangement.

Dr. Van Volkenburgh, who has been engaged for several years in epidemiological studies of the common cold, has continued his work in this field, utilizing data collected in previous years in field studies carried out with support from the John J. Abel Fund. In addition to the papers published during the year, material has been assembled for others dealing with apparent communicability within the family, evidence bearing on immunity following attack, and the characteristics of cases observed during an influenza epidemic. Dr. Van Volkenburgh has also continued to serve as Secretary of the John J. Abel Fund.

For the past three years this Department has collaborated with Dr. E. A. Park, Pediatrician-in-Chief of the Johns Hopkins Hospital, and members of his staff, in epidemiological studies of tuberculosis, using the records of Dr. Park's special clinic for tuberculous children. The scope of this study has been extended during the past year by the appointment of Dr. Brailey to a position of responsibility in the clinic, establishing a closer relation between the epidemiological and the clinical interests. At the same time, a grant from the Milbank Foundation has made it possible to extend the field service of the clinic, and to bring up to date the records of the families represented. Thus material is now available for extending the preliminary studies of familial infection made in previous years by Dr. Brailey and Dr. Wheeler.

In preparation for the development next year of a continuing study of tuberculosis in the newly established Eastern Health District, the records of this disease in the District have been assembled for the decade since 1923; and Dr. Perkins has made an intensive study of a sample of recently reported cases, with a view to ascertaining as precisely as possible the circumstances of their occurrence and the extent of medical and social relief furnished. The sample studied is too small to warrant general conclusions, but the results are of value as a guide in the further studies which are planned.

Both Dr. Brailey and Dr. Perkins have received substantial assistance from Dr. Frobisher, in charge of the Eastern Health District laboratory, which constitutes an invaluable addition to the resources of the School for field investigations.

Dr. Frost has continued his advisory relation to the Tennessee State Department of Health in epidemiological studies of tuberculosis, and Dr. Ramsey, until his resignation, held a similar relation to the Virginia State Department of Health in a study of dysentery.

The following papers have been published from the department:

- W. H. Frost and Mary Gover. The incidence and time distribution of the  
common cold in several groups kept under continuous observation. *Public  
Health Reports*, Vol. 47: 1815-1841.
- W. H. Frost. The risk of persons in familial contact with pulmonary tuber-  
culosis. *American Journal of Public Health*, Vol. 23: 426-432.

- V. A. Van Volkenburgh and W. H. Frost. Acute minor respiratory diseases in a group of families residing in Baltimore, Maryland, 1928-29. Prevalence, distribution and clinical description of observed cases. *American Journal of Hygiene*, Vol. 17: 122 153.

Also, in collaboration with the Clinical Laboratory of the John J. Abel Fund, and the Department of Biostatistics, the following:

- J. A. Doull, V. A. Van Volkenburgh, N. B. Herman and W. M. Gafafer. Relationship of abnormalities of the upper respiratory tract to minor respiratory diseases. *American Journal of Hygiene*, Vol. 17: 743 760.

*Helminthology*.—During July and August, 1932, the field studies of the project for the study of ascariasis in children in the United States were completed with an extensive survey in Arkansas conducted by Dr. G. F. Otto with the aid of a group of technicians. This project, which was started in the fall of 1927, has been carried on by the Department of Helminthology with a grant from the American Child Health Association and has been administered with the aid of the Division of Medical Sciences of the National Research Council. The investigations have consisted chiefly of epidemiological studies of the parasitic helminths of children in southwestern Virginia, Tennessee, Kentucky, North Carolina, Florida, Louisiana, and Arkansas, always with the full cooperation of the State and local health authorities. From these surveys we now know the general distribution and significance of ascariasis, trichurias, and hook worm infestations in these areas, and have gained an increased knowledge of the factors which influence their dissemination.

The project for the studies of the relation to its host of the dog hookworm, which is supported by a grant from the International Health Division of the Rockefeller Foundation, was continued during the year by Dr. A. O. Foster, who has investigated the effect of different factors in reducing the resistance of dogs to infection with this parasite. With the aid of Mr. Walter Landsberg, he has also made a series of studies on the blood picture in dogs with different types of hookworm infestation. The present investigations are centered particularly on the problems of the exact mechanism of resistance and the nature of the anemia produced by the worms.

Dr. W. W. Cort continued his investigations during the summer of 1932 on the life histories of trematodes at the University of Michigan Biological Station; and related studies have been carried on in the Department during the year by assistants and advanced students as follows:

The host parasite relations of the nematode of the rat, *Nippostrongylus muris*, by G. L. Graham; life histories of trematodes of the subfamily *Keniferinae*, by S. B. Talbot; the activities of the larval stages of four bursate nematodes, by E. T. Boardman; experimental life history studies on the nematode genus *Rhabdias* from the lungs of snakes and frogs, by T. C. Chu; host relations of a trichostrongylid of the pigeon, by Eugenia Cuvillier; an investigation of intestinal worms in a coastal village in Porto Rico, by P. K. Nair; relation of diet to the resistance of the rat nematode, *Nippostrongylus muris*, by D. A. Porter; quantitative life history studies on *Hymenolepis* in the mouse and rat, by A. V. Hunninen; effect of chemicals on the eggs of *Ascaridia galli* of the chicken, by Anne A. McRae; the temperature relations of the free stages of *Strongyloides fülleborni* of monkeys, by J. M. Cordi.

As in previous years, Dr. Cort served during the summer of 1932 as a member of the staff of the University of Michigan Biological Station. Other activities include service by Dr. Cort as secretary of Section N (Medical Science) of the American Association for the Advancement of Science, and as chairman of the editorial board of the *Journal of Parasitology*, presentation of a paper on ascariasis investigations at a joint meeting of the American

Society of Tropical Medicine and the Public Health Section of the Southern Medical Association, a lecture at the University of Alabama on hookworm disease, and a lecture by Dr. Otto before the Arkansas State Health Conference on "Ascaris and Hookworm."

The following papers have been published from the Department during the year:

- W. W. Cort. Professor Henry Baldwin Ward and the Journal of Parasitology. *Journal of Parasitology*, Vol. 19: 99-105.  
Variations in hookworm disease. *Journal of Parasitology*, Vol. 19: 142-147.
- W. W. Cort and G. F. Otto. The ascaris problem in the United States. *Southern Medical Journal*, Vol. 26: 273-278.
- A. O. Foster. Prenatal infection with the dog hookworm, *Ancylostoma caninum*. *Journal of Parasitology*, Vol. 19: 112-118.
- A. O. Foster and W. W. Cort. The relation of diet to the susceptibility of dogs to *Ancylostoma caninum*. *American Journal of Hygiene*, Vol. 16: 241-265.
- A. O. Foster and W. W. Cort. The effect of a deficient diet on the susceptibility of dogs and cats to non-specific strains of hookworms. *American Journal of Hygiene*, Vol. 16: 582-601.
- G. L. Graham. Studies on age resistance of laboratory rats to *Nippostrongylus muris* (Yokogawa, 1920). *Journal of Parasitology*, Vol. 19: 157-158.
- G. F. Otto. Ascaris and hookworm. *Gamma Alpha Record*, Vol. 22: 143-150.
- G. F. Otto and W. W. Cort. Post-treatment infestation with ascaris and hookworm in Kentucky. Abstract. *Journal of Parasitology*, Vol. 19: 179.
- S. B. Talbot. The mother sporocyst of *Lechriorchis primus* (Stafford). *Journal of Parasitology*, Vol. 19: 250-251.
- G. F. Winfield. On the immunity of snails infested with the sporocysts of the Strigeid, *Cotylurus flabelliformis*, to the penetration of its cercaria. *Journal of Parasitology*, Vol. 19: 130-133.
- Quantitative experimental studies of the rat nematode *Heterakis spumosa*, Schneider, 1866. *American Journal of Hygiene*, Vol. 17: 168-228.

*Immunology.*—In this Department, which includes what was formerly a separate Department of Filterable Viruses, the research interest extends to studies of the filterable viruses as well as problems falling more definitely in the conventional field of immunology.

In the field of filterable viruses, Dr. Hyde, with Miss Carpenter and Miss O'Neal, has pursued further the studies on the virus of the common cold which were begun in the preceding year, carrying out an extensive series of experiments in tissue culture and by inoculation of laboratory animals. The results have been negative to the extent that they have developed no certain method for identification of the virus other than its property of inducing "colds" in man and the chimpanzee. It is proposed, however, to continue the observations through another year. Other investigations in relation to filterable viruses include a continuation, by Dr. Gardner, of studies of transplantable tumors in rats; a study of two strains of herpes virus by Miss Wade, who finds that one strain regularly forms inclusion bodies in tissue culture, while the other does not; a rather elaborate study by Dr. Irons of the virus disease commonly known as fowl-pox; and further studies by Mr. Allisbaugh on ultra-filtration, in an attempt to determine more accurately the particulate size of virus particles. Dr. Chapman, using various modifications of Kendall's technique, has made an exhaustive study of the possibility of demonstrating a filterable stage of *B. leptosepticum*, but with only negative results.

The heterophile antigenic properties of a number of animal tissues, vegetable seeds and bacteria have been studied by Dr. Bailey, Dr. Shorb and Miss

Keisling, with results which throw light on many hitherto unsuspected immunological relationships among bacteria and animal tissues, and will probably give an explanation for a number of obscure and confusing serological reactions encountered in immunological work. The investigations of Dr. Bailey and Dr. Shorb show that pneumococci of all types have broad relationships to each other and to many other bacterial and tissue heterophile antigens through a common heat stable component possessed by all these antigens, these common properties being shown not only by serological tests *in vitro* but also by positive phagocytic and protection tests in rabbits and mice. It is also shown that the superior opsonic properties of anti-pneumococcus rabbit serum as compared with the homologous horse serum is partly due to the species specific heterophile antibody in the former serum; and that the deficiency of this type of antibody in the horse serum can be supplemented by mixing a small amount of the rabbit serum with it, the combination having much greater phagocytic and protective powers in rabbits and mice than the same amounts of either serum alone.

Other investigations which may be mentioned are a study of bacterial carbohydrates by Mr. Dingle, and a study of specific and non-specific immunity in *T. equiperdum* infections of the rat, guinea pig and rabbit by Mr. Raffel.

The following papers have been published from the Department during the year:

- Roscoe R. Hyde and Raymond E. Gardner. Infectious myxoma of rabbits. *American Journal of Hygiene*, Vol. 17: 446 465.
- Roscoe R. Hyde, R. E. Gardner, E. R. Orent and E. V. McCollum. No inhibition of a transplantable sarcoma and carcinoma of the rat after depletion of magnesium by diet. *American Journal of Hygiene*, Vol. 16: 323 324.
- Herald R. Cox and Roscoe R. Hyde. Physical factors involved in ultrafiltration. *American Journal of Hygiene*, Vol. 16: 667 728.
- Raymond E. Gardner and Margaret R. Lewis. A simple method for studying the cytology of the infectious myxoma of the rabbit. *American Journal of Pathology*, Vol. 8: 583 587.
- Roscoe R. Hyde. The filterable viruses. *Gamma Alpha Record*, Vol. 22: 137 143.
- G. H. Bailey, R. R. Hyde, H. M. Powell and W. A. Jamieson. A comparative study of antipneumococcus serum containing heterophile antibody. *American Journal of Hygiene*, Vol. 17: 102-121.
- G. H. Bailey and M. S. Shorb. Chemical and immunological properties of pneumococci and other heterophile antigens. *American Journal of Hygiene*, Vol. 17: 329 357.
- G. H. Bailey and M. S. Shorb. Immunological relationships of pneumococci and other heterophile antigens, and biological significance in pneumococcus infections. *American Journal of Hygiene*, Vol. 17: 358 411.
- M. R. Greene. The effects of vitamins A and D on antibody production and resistance to infection. *American Journal of Hygiene*, Vol. 17: 60 101.
- Pearl Kendrick. The antigenic properties of bacteriophage lysates of *Salmonella suipestifer*. I. General introduction and preliminary study of cultures and lytic filtrates. *American Journal of Hygiene*, Vol. 17: 297-317.
- II. Rate of disappearance of injected bacteriophage from the blood stream of rabbits. *Ibid.*, Vol. 17: 318 328.
- A. R. Rich and C. M. McKee. The protective action of antibody in immunized animals deprived of leucocytes. *Archives of Pathology*, Vol. 14: 284.

*Physiological Hygiene*.—Research work in this Department has proceeded along several lines dealing with different aspects of environmental physiology.



Dr. Meyer has continued his work on respiration and metabolism. He has investigated the effect of skin extract on the metabolism of the mouse, using a method of extraction different from the one employed in his previous work on isolated tissue. He has also made a series of observations to determine whether a rise in temperature of the nasal mucosa, brought about by local application of heat to the carotids, would result in a change in the resistance to the passage of air under constant pressure. The results were negative, indicating that heating *per se* is probably not the causal agent in the swelling of the respiratory mucosa. He has also been developing a method of determining the total capacity of the nasal cavities and their adjoining sinuses.

Dr. Clark has continued her work on the elasticity of body tissues and has developed a satisfactory method for measuring the elasticity of veins *in vivo*. The results check well with measurements made on excised veins and show a change in functional elasticity with age. Under Dr. Clark's direction Dr. Szczygiel has been investigating the effect of infra red radiation on the growth of vitamin-deficient animals, and Miss Gomez-Vega has been studying the effect of ultraviolet radiation, and visible radiation in the presence of sensitizers, on fungi and yeasts.

Dr. Baetjer has been investigating the relation of the sympathetic nervous system to muscular contractions. Having previously confirmed Orbeli's experiments that sympathetic stimulation causes a temporary increase in muscular work, she is now investigating the manner in which this is brought about. She has also been studying the relation of potassium and calcium to the height of muscular contractions. In collaboration with Dr. Kruse of the Department of Biochemistry, the effect of diets deficient in calcium on the heart beat has been investigated. Working under the direction of Dr. Baetjer, Miss Moorehouse has been studying the effect of daily repeated light exercise on the blood cells of rats and on their resistance to a paratyphoid infection. The results have shown that repeated light exercise of such degree and duration as given in these experiments is without any significant effect on the blood cells or the resistance.

Dr. Hooker and Dr. Kouwenhoven have continued their work of electric shock on the dog's heart under a grant from the Committee on Physiology of the Conference on Electric Shock. Their work has followed a number of different lines. They have studied the production of fibrillation by means of direct current, and found that it requires approximately 6.5 times as much direct current to fibrillate the heart as alternating current. A series of tests were also made using interrupted direct current. At present they are engaged in the study of ways and means of improving contacts between the skin and the electrodes. They hope to devise a form of electrode that will permit the use of low voltage in the application of counter shock in recovering the heart from ventricular fibrillation. Dr. Hooker, with the assistance of Mr. Kehar of the Department of Biochemistry, has also been investigating the possible chemical disturbances in the heart tissue incident to the condition of ventricular fibrillation.

At the request of Dr. Jacob H. Hollander, who had been requested by the Mayor of Baltimore to investigate certain conditions in the garment industry, Dr. Meyer, Dr. Clark and Dr. Baetjer cooperated with Dr. Ramsey in an investigation of the physical conditions in the shops of the industry in Baltimore.

Dr. Baetjer has been appointed a member of the Advisory Committee on Sanitation to the Baltimore City Health Department, of which Dr. Howell is chairman. She has given several lectures to the industrial hygiene inspectors who are now being trained by the Health Department.

The following papers have been published from the Department during the academic year 1932-1933:

- J. H. Clark. A method for measuring elasticity *in vivo* and results obtained on the eyeball at different intraocular pressures. *American Journal of Physiology*, Vol. 101: 474.
- L. B. Flexner, J. H. Clark and L. H. Weed. The elasticity of the dural sac and its contents. *American Journal of Physiology*, Vol. 101: 292.
- A. M. Baetjer. The effect of muscular fatigue upon resistance. *Physiological Review*, Vol. 12: 453.
- D. R. Hooker, W. B. Kouwenhoven and O. R. Langworthy. The effect of alternating currents on the heart. *American Journal of Physiology*, Vol. 103: 444.
- Assunta Vasti. The insensible water loss through the skin. *American Journal of Physiology*, Vol. 102: 60.
- W. G. Whitman. Some observations on the effect of radium irradiation on tissue cultures. *American Journal of Cancer*, Vol. 17: 932.

*Protozoology*.—Investigations in this Department have been concerned principally with the protozoa of man, chimpanzees, and birds, including trichomonad flagellates from the intestine and vagina, balantidial ciliates from various species of hosts, *Troglodytella* from the chimpanzee, dysentary amoebae from man, coccidia of birds and malaria of birds.

With the aid of grants from the National Research Council and the Bache Fund, Drs. Hegner and Johnson were able to join an expedition into the Coto region of Chiriqui Province, Panama, where protozoa were obtained from an extensive series of wild monkeys and other wild animals. This material is being worked up and added to that already in hand on the relations between the protozoa of man and other primates. Leave of absence was granted to Dr. Hegner and Miss Eskridge during the month of January, 1933, in order to enable them to make a survey of the intestinal protozoa of the 22 chimpanzees maintained at Orange Park, Florida, by Yale University. Data were secured of value for comparison with the protozoa of man and experiments were conducted involving diet and therapeutic agents.

At Baltimore, Dr. Hegner has devoted the time available for research to studies of the human flagellate, *Trichomonas hominis* and the ciliates of the genus *Balantidium*. The reactions of the flagellates in cultures and in raw feces to various antiseptics and disinfectants were observed and methods of cultivation and counting perfected. A comparative study was made of the balantidia from man, pig, and various other animals and 6 new species described.

Dr. Hegner gave an address on "Host Parasite Relations of Human Protozoa" to the medical students of the George Washington University in October, 1932, and the principal addresses at the annual meetings of the Society of Sigma Xi at Syracuse University on March 17, and at Cornell University on May 18, 1933.

Dr. Andrews has been working most of the year on the experimental epidemiology and control of coccidiosis in gallinaceous birds. In collaboration with Dr. C. M. Johnson and Major S. C. Schwartz, a study was made which showed that the addition of filtered aqueous infusions extracted from human feces significantly improved the usual media employed in the culture of *Endamoeba histolytica*. With the assistance of Dr. Altamas of the Johns Hopkins Hospital, a survey has been made to determine the prevalence of *Trichomonas vaginalis* in pregnant women appearing at the obstetrical dispensary, and to correlate its presence with the local symptoms of inflammation which, it has been claimed, may be caused by this parasite. In association with Dr. Moses Paulson of the Johns Hopkins Hospital, work has con-

tinued on the survey of the intestinal protozoa, with special reference to *Endamoeba histolytica*, found in individuals appearing at the gastro-enterological clinic.

Dr. Johnson has continued his studies on the pathogenesis of amoebiasis. His work indicates that early lesions are largely due to mechanical penetration.

Dr. Boughton has continued his investigations into the nature and mechanism of the periodicity of oöcyst discharge exhibited by certain avian species of the coccidial genus, *Isospora*.

Mr. Nelson has studied the sexual processes in the *Balantidium* from the chimpanzee and appears to have elucidated for the first time the complete cycle. He has shown definitely that the ciliates in the chimpanzee and guinea pig are distinct species.

Mr. Swezey has carried out a careful study of the cytology of *Troglodytella abressarti*, a large ciliate that occurs in chimpanzees and gorillas.

Mr. Atchley is devoting his time to methods of counting and cultivating *Balantidium* and to the reactions of this ciliate to changes in the environment.

Miss Richardson has continued her experiments on the transmission of trichomonad flagellates of birds.

Dr. St. John's principal research has been the action of drugs on *Endamoeba histolytica* in culture.

Dr. Shah has been working on certain phases of the periodicity of asexual and sexual generations of *Plasmodium cathamerium*, an avian malarial parasite.

*Medical Entomology.*—In this division, Dr. Root has made a study of a number of species of American "sand-flies" (genus *phlebotomus*), with the object of making it possible to identify females as well as males in this group. In collaboration with Dr. Hoffman, of the School of Tropical Medicine in Porto Rico, Dr. Root has also continued the study of the American biting midges of the genus *Culicoides* and related genera. A collection of about ten thousand specimens of these tiny flies has recently been received for study from Dr. Dampf, Entomologist to the Mexican Government.

Other investigations in progress include an experimental study of the food requirements of mosquito larvae by Mr. Rozeboom, a study of the lateral abdominal hairs of Anopheline and Culicine larvae by Dr. Bhayung, and a study of the life histories and taxonomy of the flies of the family Psychodidae by Mr. del Rosario.

Publications from the Department during the year were as follows:

- Robert Hegner. Parasitology shows kinship of monkeys and man. *Evolution*, Vol. 3: 8-9, 1932.  
Differential reactions of species and strains of trichomonad flagellates to changes in the environment. *American Journal of Hygiene*, Vol. 16: 513-522, 1932.  
Sir Ronald Ross and the discovery of the mosquito transmission of malaria. *Journal of Parasitology*, Vol. 19: 312-313, 1933.  
F. M. Root. The pleural hairs of American Anopheline larvae. *American Journal of Hygiene*, Vol. 16: 777-784, 1932.  
Justin Andrews. Cysts of the dysentery-producing *Endamoeba histolytica* in a Baltimore dog. *American Journal of Tropical Medicine*, Vol. 12: 401-405, 1932.  
The control of poultry coccidiosis by the chemical treatment of litter. *American Journal of Hygiene*, Vol. 17: 466-490, 1932.

- Justin Andrews and Floyd Atchley. Negative occult blood tests in carriers of the dysentery producing *Endamoeba histolytica*. *Journal of the American Medical Association*, Vol. 99: 1340-1342, 1932.
- Wendell Gingrich. Immunity to superinfection and cross immunity in malarial infections of birds. *Journal of Preventive Medicine*, Vol. 6: 197-246, 1932.
- George E. Daniel. Studies on *Ichthyophonus hoferi*. I. *American Journal of Hygiene*, Vol. 17: 262-276, 1933. II. *American Journal of Hygiene*, Vol. 17: 491-501, 1933.
- Robert M. Stabler. An extended study of variations in a single race of a coli like amoeba and its bearing on the specificity of *Councilmania lasfleurii*. *American Journal of Hygiene*, Vol. 16: 1-31, 1932.
- W. W. Swezey. The transition of *Troglodytella abraxarti* and *Troglodytella abraxarti acuminata*, intestinal ciliates of the chimpanzee, from one type to the other. *Journal of Parasitology*, Vol. 19: 12-16, 1932.

*Public Health Administration.*—The teaching work of the Department has been carried on in the usual manner. The arrangement of courses and the number of students were approximately the same as in previous years.

The most important development of the year was the inauguration of the Eastern Health District. The need for such an area for study and training has long been felt in the Department and the final realization of the plan makes possible the development of methods of teaching and research which have previously been impossible. The addition of the Director of the district to the staff of the Department makes possible a very much needed expansion in the scope of the instruction offered.

The facilities for field teaching and research in rural areas offered by the Anne Arundel County Health Department were used more freely than in the past years. A group of students conducted during the fourth quarter a most interesting study of the prevalence of tuberculosis in an isolated area of the county populated entirely by Negroes.

Relations with the City and State Health Departments during the year have been most cordial and fruitful. Doctor Freeman has served as a member of the Board of Consultants of the City Health Department during the year, has cooperated in the preparation of the annual budget, and made during the year, at the request of the Health Commissioner, a study of the venereal disease service of the Department.

During January, in cooperation with the State Department of Health, a short course for rural public health nurses was organized and conducted in the School. Instruction was given by members of the various departments and of the staff of the Eastern Health District, with special lecturers from other institutions in the city. Twenty-five nurses completed the course.

The work at McElderry House was continued during the year. A number of students assisted in the work of the welfare clinics. The record material continues to grow in value for both teaching and research.

Doctor Freeman, during the year, conducted short teaching institutes for health officers in West Virginia and in Mississippi. These "institutes," taking the place of the usual "conference of health officers," are becoming increasingly interesting and valuable.

Cooperation with local and national health organizations has continued during the year, although the amount of field work carried on by these agencies has been much diminished during the present economic situation.

During the year the "Study of Rural Public Health Service," edited by Dr. Freeman, to which reference has been made in previous reports, has been put through the press and is now in print in book form.

*Sanitary Engineering.*—Instruction in Sanitary Engineering was given as usual in the fourth quarter by Professor Gregory, with the assistance of Mr. Powell, with special lectures, by invitation, by Mr. C. E. Keefer, Engineer of Sewage Disposal of the City of Baltimore, Mr. George K. Armeling, Superintendent of the Back River Sewage Disposal Works, and Mr. William J. Orchard, of the Wallace and Tiernan Company. In addition to lectures, the course includes conferences, visits of inspection to water-purification and sewage disposal works, and individual studies of assigned topics.

*De Lamar Lectures in Public Health.* The series of lectures in public health, supported by the De Lamar Fund, has brought to the School again this year a group of distinguished lecturers whose presence and discussions have been of interest and value to the students and faculty. The lecturers and their subjects are as follows:

October 19th	} Reginald Ruggles Gates, Ph.D. Professor of Botany, University of London. A series of three lectures on "The principles of heredity in man and their application to human society."
October 20th	
October 21st	
November 15th	Harriette Chick, D.Sc. The Lister Institute of Preventive Medicine, London. "Current theories of the aetiology of pellagra."
March 14th	Edwin Charles Cort, M.D. Superintendent, Chiengmai Hospital, Siam. "Health problems in Siam."
May 16th	Thomas M. Rivers, M.D. Member of the Rockefeller Institute for Medical Research, New York City. "Psittacosis."

*Society of Hygiene.*—The Society of Hygiene, established for the purpose of bringing together the faculty and students of the School for discussion of their scientific work, has continued its monthly meetings, Dr. McCollum serving as President, and Dr. Bailey as Secretary. The following papers were presented:

The use of counter-shock in resuscitation from electrical shock. ....	{ Dr. D. R. Hooker Dr. W. B. Kouwenhoven Dr. O. R. Langworthy
Some properties of the neurotropic virus of yellow fever. ....	Dr. Martin Frobisher, Jr.
The presence of tetanus bacilli in street dust in Baltimore and its significance. ....	{ Dr. E. C. Gilles Presented by Dr. W. W. Ford
The control of poultry coccidiosis by the chemical treatment of litter. ....	Dr. Justin M. Andrews
Epidemics of diarrhoea and enteritis following a series of picnics. ....	{ Dr. G. H. Ramsey Dr. C. H. Halliday Dr. Oscar Reinhard Dr. J. H. Janney
Changes in the chemical composition of the bone following magnesium deprivation. ..	Dr. Elsa R. Orent
The Eastern Health District: a field for studies in public health problems and methods. ....	Dr. H. S. Mustard
The preservation of acid-fast bacteria in vacuo. ....	{ Dr. M. M. Harris Dr. L. B. Lange
Changes in the incidence and severity of smallpox in recent years. ....	Dr. A. W. Hedrich
Prenatal infection with parasitic worms...	Mr. A. O. Foster

- A motion picture showing the activities of the Johns Hopkins Hospital, from the admission of patients to the time of discharge, including two operations. { Presented by Dr. Winford H. Smith, Director, and Mr. R. A. R. Downey, Assistant Director.
- The influence of immediate ancestry on longevity. .... Dr. Raymond Pearl
- The elasticity of body tissues. .... Dr. Janet H. Clark
- The differentiation of *A. aerogenes* and *A. cloacae* on the basis of hydrolysis of sodium hippurate. .... { Dr. S. R. Damon  
Mr. A. A. Hajna
- Some poison cases of interest to public health officers. .... Dr. D. I. Macht

*American Journal of Hygiene.*—Early in the year it was brought to the attention of the Editorial Board of the *American Journal of Hygiene* that the *Journal of Preventive Medicine* would be discontinued in 1932, and that this would probably result in bringing to the *Journal of Hygiene* an increased number of papers in the field of Epidemiology and Biostatistics. In order to emphasize the interest of the *American Journal of Hygiene* in promoting the collection and wider distribution of good material in this field, it was decided, with the approval of the Advisory Board, that one number of each volume be designated as an "Epidemiological Number" devoted entirely to papers falling within this classification; and that these numbers, in addition to being furnished to regular subscribers, be made available on a separate subscription list. As it was thought that this arrangement might involve some increase in the total volume of the Journal, the allotment from the De Lamar Fund for support of the Journal has been increased by the transfer of \$500 from the allotment for De Lamar Lectures, which are supported from the same Fund. On recommendation of the Editorial Board, Dr. Edwin O. Jordan, of the University of Chicago, formerly editor of the *Journal of Preventive Medicine*, was invited to become Associate Editor of the Epidemiological Numbers of the *American Journal of Hygiene*, and has kindly consented. The first Epidemiological Number appeared in May, 1933, as the third number of Volume XVII, and it is proposed for the present so to designate the third number of each volume.

With the approval of the Advisory Board, Dr. H. D. Kruse, Associate in Biochemistry, has been appointed Assistant to the Managing Editor. No other changes of consequence have been made in the management of the *Journal*. Its financial status is satisfactory, and it continues to receive an ample supply of material.

W. H. FROST,

*Dean of the School of Hygiene and Public Health.*

## REPORT OF THE DIRECTOR OF PHYSICAL EDUCATION

TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor to submit the following report of the Director of Physical Education for the year 1932-33.

The general course of activities in Physical Education was carried on as usual, with no change in the staff.

All first year undergraduate students who are required to take Physical Training reported to the class known as Physical Education I. There were enrolled 164 students in this course. Physical Education II is designated for second year undergraduates requiring Physical Training, and 113 students in this class were given credit in lieu of participation in various athletic sports. There were 314 first year undergraduates reported to us (including 20 mid-year entrants), of whom 150 chose Military Training, and the balance, 164, Physical Training. For the second year, 261 reported, of whom 148 chose Military Training, and 113 Physical Training.

There was a total of 1145 examinations made during the year, but the report of only the 314 entering students follows:

	Physical Education	Military Training
64 showed defective vision:		
Those already wearing glasses.....	31	23
Uncorrected or without glasses.....	5	1
Blind in one eye.....	1	..
Color blind.....	2	1
19 Flatfoot .....	11	8
40 Athlete's foot.....	22	18
30 High blood pressure.....	12	18
1 Organic heart disease.....	1	..
6 Hernia present.....	2	4
6 Hernia operated previous to entry.....	5	1
21 Appendix removed previous to entry.....	10	11
6 Referred to Johns Hopkins Hospital.....	..	..
1 Nephritis chronic . . . . .	1	..
5 Infantile paralysis.....	5	..
5 Rejected for R. O. T. C.....	..	2
(tentatively) .....	..	3
51 Miscellaneous defects.....	31	20
21 Re-examined .....	16	5

The physical examinations of these first year students give the following averages, which varies little from previous years:

	Yrs. Age	lbs. Weight	ins. Height	ins. Chest Exp.	ins. Chest Insp.	mm. Blood Pressure	Strength Test
Average:	18.54	143.91	69.63	33.71	36.47	123/67	505.6
As compared with last year's class of 1931-32:							
	17.83	139.57	68.94	32.53	35.43	126/62	497.5

All of the entering students except one reported as being vaccinated against smallpox.

There were 30 students vaccinated against smallpox and 29 inoculated against typhoid fever. These comprise mostly the students going to the military camps.

Our athletic activities have been mostly of the intercollegiate type, and we have been represented in the various sports enumerated below during the year:

1932-33	No. of men out	No. of games at home	No. of games away
FOOTBALL .....	59	6	2
Head Coach: Dr. Ray Van Orman.			
Asst. Coaches: Carroll Long, G. Mal- lonee, George Darley.			
BASKETBALL .....	36	7	10
Head Coach: George Darley.			
WRESTLING .....	42	—	6
CROSS COUNTRY.....	19	2	2
Coach: Waldo Hambleton.			
TENNIS .....	40	8	6
TRACK .....	67	1	5
Coach: Waldo Hambleton.			
LACROSSE .....	79	6	1
Head Coach: Dr. Ray Van Orman.			
Asst. Coaches: K. Morrill, George Darley.			
Adviser: Wm. C. Schmeisser.			
SWIMMING .....	43	1	4
Coach: Waldo Hambleton.			
ICE HOCKEY (unofficial).....	16		
RIFLE TEAM.....	59	69 matches by mail.	
Coach: Capt. F. P. Coffin.		1 Shoulder to shoul- der match away.	

This makes a total of 460 students engaged in some form of athletic sport, which is about 54% of all the undergraduate students.

The athletic activities have been under Dr. Ray Van Orman, the Director of Athletics, and the assistants enumerated under the team headings. We have had an outstanding lacrosse team, which maintains our prestige in this particular sport.

The athletic management is under the supervision of Mr. Henry Iddins, whose report will be forthcoming to the Athletic Council.

I will call your attention to the very great need for facilities for physical training and athletic sports on the campus, which have been enumerated in former reports.

RONALD T. ABERCROMBIE, M. D.,  
*Director of Physical Education.*



## REPORT OF THE FACULTY OF THE INSTITUTE OF LAW

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TO THE PRESIDENT OF THE UNIVERSITY:

In the Report of the Institute of Law for last year, a detailed statement was made of the publications of the staff up to that time, as well as the work then in progress. It seems unnecessary to repeat this earlier statement even in summary form.

The financial difficulties which have forced the suspension of the Institute of Law cause this current report to be the final report of the Faculty. It goes almost without saying that this unfortunate termination occurred just as the Study of the Judicial System of Maryland, the Study of Judicial Administration in Ohio, and the Survey of Litigation in New York were reaching fruition. Inevitably, part of the work that was in contemplation and for which data had been gathered cannot be carried to completion.

### I. THE STUDY OF THE JUDICIAL SYSTEM OF MARYLAND

There was published during the academic year 1932-33 in connection with the Maryland study the following bulletin:

L. C. Marshall, Judicial Criminal Statistics in Maryland, 1931: Courts of General Criminal Jurisdiction, *Bulletin 5*.

There is now available in manuscript form the following:

W. W. Cook, Lewis Danziger, and Elvira K. Drake, *Expenditures of Public Money for the Administration of Justice in Maryland, 1930*.

Data have been collected and processed into tables for the following studies:

W. W. Cook and Jeanette R. Siegal, *Maryland Criminal Cases, 1930-1931*.

W. W. Cook, Helen W. Tippy, and Anita J. Faatz, *The Work of the People's Court of Baltimore*.

W. W. Cook and Jeanette R. Siegel, *Civil Litigation in Maryland in 1930*.

### II. THE SURVEY OF LITIGATION IN NEW YORK

The following study has been completed and is now in print:

*Some Aspects of Appeals.* A study of various aspects of every appeal taken from a money judgment in the Supreme Court, New York County, during one year, to the Appellate Division and the Court of Appeals. Pp. 36. New York Law Society, Ballou Press, November, 1933.

The following are reported by the Director of the Survey to be in manuscript form ready for publication:

*The Work of the Supreme Court.* A statistical analysis of every alternate issue in the Supreme Court, New York County, during one year, tabulating the types of cases, their duration, the amount of the judgments rendered and the Court costs in each case.

*The Work of the City Court.* A statistical analysis of every alternate judgment entered in the City Court, New York County, during one year, similar to that of the Supreme Court.

*The Work of the Municipal Court.* A statistical analysis of every fifth action started and summary proceedings instituted in the then nine Municipal

Court districts of Manhattan during one year, similar to that of the Supreme and City Courts.

Selima Lobsenz, *The Practical Operation of the Workmen's Compensation Law in New York*. A study by a member of the New York Bar with the aid of a member of the staff of the New York Survey of Litigation.

### III. THE STUDY OF JUDICIAL ADMINISTRATION IN OHIO

In this study, the following publications have been issued since the last annual Report of the Faculty. All were published by the Johns Hopkins Press.

L. C. Marshall, *Comparative Judicial Criminal Statistics: Six States, 1931*. The Courts of General Criminal Jurisdiction of Ohio, New Jersey, Iowa, Maryland, Rhode Island, and Delaware. Pp. 125.

Alfred Bettman, W. C. Jamison, L. C. Marshall, and R. E. Miles, *Ohio Criminal Statistics, 1931*. An experiment in methods and techniques of state reporting; covering police, judicial and penal statistics. By an associated group from the Institute of Law and the Ohio Institute. Pp. 189.

Thomas C. Billig, *Equity Receiverships in the Common Pleas Court of Franklin County, Ohio* in the years 1927 and 1928. Pp. 172.

Silas A. Harris, *Appellate Courts and Appellate Procedure in Ohio*. Pp. 183.

Ruth Reticker in collaboration with Leon C. Marshall, *Expenditure of Public Money for the Administration of Justice in Ohio*. Pp. 227.

Paul Douglass and others, *The Mayor's Courts of Hamilton County, Ohio*. Pp. 138.

Leon C. Marshall and Geoffrey May, *The Divorce Court. II. Ohio*. Pp. 440.

Kenneth J. Martin, *The Waiver of Jury Trial in Criminal Cases in Ohio*. Pp. 85.

Francis J. Amer, *The Development of the Judicial System of Ohio from 1787 to 1932*. Pp. 45. *Bulletin 8*.

L. C. Marshall and others, *A Standard Classification of Offenses for Criminal Statistics*. A report to the Bureau of Investigation of the Department of Justice and the Bureau of the Census of the Department of Commerce. Pp. 16. *Bulletin 10*.

L. C. Marshall in collaboration with Willis L. Hotchkiss, Charles E. Gehlke and other workers in the field. *Judicial Criminal Statistics*. A report to the Judicial Section of the American Bar Association and to the National Conference of Judicial Councils. Pp. 56. *Bulletin 11*.

L. C. Marshall, *The Improvement of Divorce Statistics in Ohio*. A plan for inexpensive collection of divorce statistics. Pp. 43. *Bulletin 12*.

One copy of each of the following manuscripts has been bound and filed with the Judicial Council of Ohio. In addition, data sheets and photostats of certain statistical tables were filed with the Council.

Paul T. Key, *A Study of Uniform Entries in Divorce Cases*.

Robert M. Hunter, *A Study of the Eight Domestic Relations Courts of Ohio*.

F. R. Aumann, *A Preliminary Study of the Organization of the Court System of Ohio*.

H. E. Yntema, *Analysis of Ohio Municipal Court Acts*.

The following studies are still in process and will be carried to completion notwithstanding the suspension of the Institute of Law:

C. E. Gehlke, *Criminal Cases in the Common Pleas Courts of Ohio*.

W. J. Blackburn, *Administration of Criminal Justice in Franklin County, Ohio*.

W. W. Dawson, *Municipal Court of Cleveland, Ohio*.

C. F. Luberger, *Municipal Court of Cincinnati, Ohio*.

Malcolm K. Benadum, *Ohio Bar Examinations*.

Ben W. Lewis, *The Public Utilities Commission of Ohio*.

L. C. Marshall and Nettie Nulton, *Manual of Judicial Criminal Statistics for Ohio*.

L. C. Marshall, *Individual Backgrounds of 8,000 Divorce Litigants in Ohio*.

L. C. Marshall, *Comparative Study of Divorce in Maryland, Ohio, New Jersey, Delaware, and the District of Columbia*.

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#### IV. OTHER PUBLICATIONS

Following is a list of publications which have been reported by the members of the Institute of Law for the past year, omitting from the list the publications mentioned above.

Walter W. Cook.

Review of Allen, *Legal Duties and Other Essays in Jurisprudence*, 42 *Yale Law Journal*, 299 (1932).

'Substance' and 'Procedure' in the Conflict of Laws, 42 *Yale Law Journal*, 333 (1933), pp. 26.

*Cases on Equity*. Revised three-volume edition, pp. xvi, 679; xv, 662; xvi, 862.

Herman Oliphant.

Parallels in the Development of Legal and Medical Education, *The Annals of the American Academy of Political and Social Science*, Vol. 167 (May, 1933), pp. 156-64.

The Public and the Law—the Three Major Criticisms, *The American Bar Association Journal*, XVIII (December, 1932), 787-93; XIX (January, 1933), 46 50, 56.

Leon C. Marshall.

Proceedings of the Judicial Section in *Proceedings of the Annual Meeting of the American Bar Association*, October, 1933. Pp. 21.

The Institute of Law, The Johns Hopkins University, *The American Scholar*, II (January, 1933), p. 115.

Judicial Statistics in the United States, *The Annals of the American Academy of Political and Social Science*, Vol. 167 (May, 1933), pp. 135-42.

Criminal Actions in the Courts of General Jurisdiction in 1931, *Third Annual Report of Judicial Council of New Jersey*. Pp. 59.

*Unlocking the Treasuries of the Trial Courts* (The Johns Hopkins Press, 1933), pp. 42.

*A Social Process Approach to Curriculum Making in the Social Studies*. Mimeographed edition prepared for American Historical Society's Commission on Social Studies in the Schools. Mrs. Rachel Marshall Goetz, co-author.

Background Materials in the Secondary Business Curriculum, *Proceedings of the University of Chicago Conference on Business Education*, June, 1933.

Unemployment and Public Works, *The National Crisis Series* (Bureau of Publications, Teachers College, Columbia University). Pp. 29.

The Changed Scene in Industry and Transportation, *The National Crisis Series* (Bureau of Publications, Teachers College, Columbia University). Pp. 29.

Funds and the Financial System, *The National Crisis Series* (Bureau of Publications, Teachers College, Columbia University). Pp. 29.

The Judicial House That Jack Built, You and Your Government Series V, Lecture No. 10, To appear in *The National Municipal Review*. Pp. 5.

Hessel E. Yntema.

The Implications of Legal Science, 10 *New York University Law Quarterly Review* (1933), 279 310.

The Jurisdiction of the Federal Courts in Controversies between Citizens of

Different States (a series of three articles), 19 *American Bar Association Journal* (1933), 71 76, 119 121; 149 154; 265 271.

The Enforcement and Recognition of Foreign Judgments in Anglo American Law. A general report to the International Congress of Comparative Law held at the Hague, August, 1932. Pp. 63. Forthcoming in *Acta Academiae Universalis Jurisprudentiae Comparativae*.

Geoffrey May.

*Moneylending in Great Britain* (New York: Russell Sage Foundation, 1933), pp. 189. Joint author.

Articles on Prostitution, and Small Loans in *The Encyclopaedia of the Social Sciences*.

Article on Law and Social Work in *Social Work Year Book*.

L. C. MARSHALL,  
*Acting Director, Institute of Law.*

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## REPORT OF THE WALTER HINES PAGE SCHOOL OF INTERNATIONAL RELATIONS

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TO THE PRESIDENT OF THE UNIVERSITY:

During the past year the School has published two of the studies prepared by members of its staff—that of Dr. Frederick Sherwood Dunn, on the Protection of Nationals, and that of Dr. Ernest B. Price, on the Russo-Japanese Treaties of 1907-1916 Concerning Manchuria and Mongolia.

The School has also published, in its series of studies, under the title of "A View of Europe, 1932," the lectures on the workings of economic nationalism, which were delivered at the University during May last under the auspices of the School by Mr. Paul van Zeeland, Director of the National Bank of Belgium.

Professor C. F. Remer's study of Chinese boycotts, with special reference to their economic effectiveness, is now in the press, and is expected to appear within a few weeks.

Dr. A. K. Weinberg's study of manifest destiny has been substantially completed, as has also Dr. Lazare Teper's inquiry into the question of Russian debts; both are expected to be ready for the press within a few weeks. Dr. Maurice T. Price's study of the Shanghai Incident of May 30, 1925, although considerably advanced, has not yet been completed, and may require some months before it is ready for the press. Progress has also been made with Professor Gilbert Chinard's work on the American attitude towards France, and Colonel Samuel C. Vestal's analysis of peace systems.

The very considerable reduction in the budget available for the Page School has necessitated a reduction in the volume of its work, which however is being continued along lines which it is hoped will preserve the continuity of purpose and method of the School's endeavors.

The Shaw Lectures for this year were given by Professor Charles Seymour, on the subject of the United States and Problems in the Diplomacy of the World War. His manuscript of the lectures is now undergoing final revision and is expected to be in hand shortly for the purpose of early publication.

It has been arranged that the Shaw Lectures for the ensuing year are to be given by Professor DeWitt C. Poole, Director of the Princeton School of Public and International Affairs, as an enlargement and revision of his previous study of the conduct of international relations.

In addition to the unfinished projects to which reference has been made above, Dr. Dunn will continue his study of the subject of intervention; Dr. Ernest Price will take over the work on the study of the underlying factors of international policy in Eastern Asia, which was left unfinished by the death of Mr. Charles P. Howland, whom Dr. Price had been assisting in certain phases of the work. Dr. Lazare Teper is proposing to take up a study of the petroleum industry in Russia.

Leave of absence has been granted to the director of the School, to enable him to accept a reappointment in the Diplomatic Service.

J. V. A. MACMURRAY,  
*Director, Walter Hines Page School  
of International Relations.*

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## REPORT ON MILITARY SCIENCE AND TACTICS

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TO THE PRESIDENT OF THE UNIVERSITY:

There were no material changes this year in the several R. O. T. C. courses, nor in the methods of conducting these courses. The mission of the R. O. T. C. at this University has been carried out in every respect.

No new enrollment in the Medical Unit was made this year because all Medical R. O. T. C. units are to be discontinued after those students who enrolled last year have completed the four year course. However, the average over the past five years remain about the same; 384 students were enrolled at the beginning of the 1932 33 school year, divided as follows: Infantry Unit 157, Engineer Unit 184, Medical Unit 43.

40 students qualified for commission in the Officers' Reserve Corps.

One officer, Captain John M. Silkman, Corps of Engineers, was relieved last November, leaving three officers to conduct the instruction.

On May 20, 1933, Captain Frank P. Coffin, Infantry, and Lieutenant Frank Z. Pirkey, Corps of Engineers, were detailed for temporary duty with the Civilian Conservation Corps.

The encouraging assistance of yourself and the members of the Military Committee of the faculty is greatly appreciated by this department.

CARL F. MCKINNEY,  
*Major, Infantry; Professor of Military Science  
and Tactics.*

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## REPORT OF THE LIBRARIAN

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TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor on behalf of the Library Staff to submit the following report for the year ending June 30, 1933.

### GROWTH OF THE LIBRARY

At Homewood our net accessions of bound books numbered 15,800. As the Welch Medical Library was increased by 6,905 volumes, the collections of the University have grown during the past year by 22,705 volumes and now include 446,206 books. Of these 340,069 are at Homewood in Gilman Hall and department libraries.

Counting both books and pamphlets the libraries at Homewood have received 29,007 pieces from various sources as follows: by purchase 9,097; by exchange 10,195; as gifts 6,756; on indefinite deposit from the U. S. Government 224; from the Maryland Geological Survey 148; from the Maryland Historical Society 2,313; from the Peabody Institute 120; from the Johns Hopkins Hospital 100. The total includes also 155 MS. Johns Hopkins dissertations, 127 maps, and 91 volumes presented by the Johns Hopkins Press from its publications. We have received two copies each of 40 printed Johns Hopkins dissertations, 23 photostats, and 5 pieces of music. Foreign dissertations received numbered 6,716, of which 4,350 were German and 2,366 French.

### GIFTS

During the year the Library has received and acknowledged gifts from public and private organizations too numerous to be recorded in detail. Among gifts received from individuals the following are of special interest:

From Dr. Lawrason Brown, A. B. '95, M. D. 1900, his collection of first editions and manuscripts of Oliver Wendell Holmes.

From Mr. J. Alan Haughton, '03, a selection of books and scores, 69 pieces in all, from his musical library.

From Miss Amelia Marburg, 93 volumes, including fine sets of Henry James and Sir Walter Scott ordered for our English Literature Collection.

From Miss Emma Marburg, the "Verdi Edition" of Buel's *The Great Operas*, 1899, in ten volumes, handsomely bound.

From Dr. L. C. Marshall, 540 pieces from his library.

From Dr. Irving Miller, 377 pieces from the private library of the late Bessie Irving Miller, Ph. D. 1914, presented in her memory.

From the Estate of Alexander Randall, 63 pieces including partial sets of the *Penny Magazine* and the *Congressional Globe*.

From Mr. Blanchard Randall, 34 pieces from his private library.

From Mr. Aubrey H. Starke, of Chicago, a collection of pamphlets, books, and photostats gathered for his recently published life of Sidney Lanier.

From Dr. Helen H. Tanzer, of New York, several hundred miscellaneous volumes from her library.

From Dr. W. W. Willoughby, 465 pieces from his library.

The thanks of the library are due also to the following persons who have generously presented the number of pieces or volumes indicated after their names:

Dr. W. F. Albright, 1; Pres. J. S. Ames, 117; Anonymous, 34; Capt. J. Aoki, 1; Lt. I. Arima, 96; G. Dudley, 2; H. Austrian, 6; Dr. F. E. Bam-

berger, 10; Dr. D. S. Blondheim, 123; Mrs. C. Briscoe, 1; Dr. W. W. Cook, 9; Miss Esther L. Cox, 19; T. Craig, 2; I. Davidson, 4; Dr. P. E. Dumont, 1; Dr. N. B. Fagin, 2; W. A. Fairburn, 3; Miss A. D. Field, 11; Dr. J. C. French, 3; Mrs. E. George, 1; G. W. Gerwig, 2; A. C. Gillis, 114; Dr. F. J. Goodnow, 19; Miss Goodwillie, 1; R. B. Gregg, 1; Dr. J. H. Gregory, 10; A. C. Harris, 9; Dr. R. D. Havens, 23; Dr. R. M. Haywood, 1; Dr. W. S. Holt, 4; T. F. Huntington, 4; Dr. H. S. Jennings, 1; Dr. D. B. Johnson, 1; Miss E. B. Jones, 1; T. F. Jones, 1; J. Josling, 1; Mrs. L. B. Keefer, 3; Dr. H. C. Lancaster, 3; Dr. J. V. A. MacMurray, 69; Dr. K. Malone, 69; Hon. Theodore Marburg, 4; Dr. E. B. Mathews, 6; Dr. J. Mattern, 4; D. I. Miu, 6; A. C. Munzner, Jr., 11; Mrs. W. P. Mustard, 4; R. M. Myers, 1; Maj. R. Nakaniski, 3; Emory N. Niles, 1; F. Oppenheimer, 3; Miss K. O'Shaughnessy, 12; Dr. Julius Peterson, 3; C. G. Post, Jr., 3; Kenneth Rede, 1; S. G. Remington, 17; J. Price, 1; Dr. D. M. Robinson, 1; H. M. Rogers, 2; N. M. Rollenborg, 1; Dr. R. B. Roulston, 9; Miss Elizabeth Russell, 1; N. M. Sadig, 5; Hiroshi Saito, 1; J. S. Short, 1; Dr. H. E. Sigerist, 1; Miss Evelyn Smith, 1; Mrs. F. van der Veer, 4; S. Weisberger, 1; F. E. Weymouth, 20; Dr. P. M. Wheeler, 12; J. F. Whiteley, 14; A. Wintner, 2; A. Woods, 1; Dr. O. Zariski, 1.

We are indebted to the following authors for copies of their works:

Dr. G. Chinard; J. E. Ehrhard; E. Emerson; Dr. N. B. Fagin; W. A. Fairburn; Alice Field; Dr. Tenney Frank; G. W. Gerwig; Albert Gminder; R. H. de Haas; Dr. J. H. Hollander; F. T. Huntington; Dr. Buford Johnson; T. F. Jones; J. Kerner; T. M. Knappen; E. Korats; Mary O. Lewis; F. W. Lorbeer; Dr. A. O. Lovejoy; R. J. McCarty; J. P. McConnell; W. A. McKay; J. C. Meyers; C. J. O'Donnell; A. N. Peck; J. C. Pritchard; H. M. Rogers; R. Schmidt; Upton Sinclair; G. Sodoffsky; Dr. H. Spencer; Mrs. D. R. Thayer; Dr. J. E. Uhler; A. S. Will; L. Zoepf.

#### THE FRIENDS OF THE LIBRARY

In spite of adverse conditions, the Friends of the Library have continued their activities with marked success. Since February of this year 167 members have renewed their contributions, which as this is written amount to more than \$3,500, and have presented books of such value as to bring the total to more than \$4,000.

In addition to continuing our subscriptions for the printed catalogs of the British, French, and German national libraries, the Society has secured for the Library during the year works which could not have been acquired without its help, the more important being the following:

Farmer's *Tudor Facsimile Texts*, 1907 14, an almost complete set in 152 volumes; Mazzatinti, G., *Inventari dei Manoscritti delle Biblioteche d'Italia*, 50 vols.; *La Voce della Verità, Gazzetta dell'Italia Centrale*, VII-X; Omont, *Tableau, Dits, et Contes en Verses Français du XIIIe Siècle* (Facsimile); *Gazzetta Piemontese*, 1849-1859; Le Sage, *Le Théâtre de la Foire . . .* 10 vols.; Peddie's *Subject Index of Books before 1800; Séances des Ecoles Normales*, 1800, in 13 vols.; *Edda and Norsk Tidsskriftindex*, complete files; *The London Times, Literary Supplement*, 1919-1922; Topsell, E., *The History of Four footed Beasts and Serpents*, 1658; Woodrolphe, J., *The Marrow of the French Tongue*, 1625; Pereria, G., *Antoniana Margarita*, 1554-5; Raymundus de Sabunde, *Theologia Naturalis*, Strasburg, 1496; Mattioli, Pietro Andrea, Works edited by Kaspar Bauhin, Basel, 1674.

#### TUDOR AND STUART CLUB PURCHASES

The most significant single acquisition ever made by the Tudor and Stuart Club was the purchase in May from Dr. Rosenbach of a first edition, 1595, of Spenser's *Amoretti*. In employing all of its accumulated book fund and



pledging some future income to secure this little book the Club was fulfilling Dr. Osler's expressed desire that it should seek a few choice books rather than many miscellaneous works. Only eleven copies of this edition are known to exist, six of them in the United States. Of the others in this country two are owned by private collectors and one each by the Huntington, Folger, and Wrenn (University of Texas) collections. Our copy will be of immediate value to the scholars who are editing here the Variorum Edition of Spenser, in process of publication by the Hopkins Press.

Earlier in the year, the Club secured the following: Samuel Daniel's "Works Newly Augmented," London, 1601 and the 1602 edition of the same work; Browne's *Brittania's Pastorals*, 1625; The Lismore Papers, ed. by Grosart, First and Second Series; Heywood's *The Hierarchie of the Blessed Angells* . . . 1635; Minsheu, *The Guide into Tongues*, 1627; E. P. Goldschmidt's *Gothic Renaissance Book Bindings*; and Five Manuscript commonplace Books of the Seventeenth Century.

#### CATALOGING AND CLASSIFYING

Two changes in the staff of the Catalog Division occurred during the year. Mrs. Robert Settle resigned in September and Miss Juliet Iglehart, a graduate of the Columbia University Library School, was appointed to fill the vacancy. Miss Iglehart resigned in November to be married, and Mrs. M. A. Pentz, a graduate of the School of Library Science of Drexel Institute, was appointed to succeed her.

Current accessions were cataloged during the year and some progress was made in cutting down the accumulated arrears. Of these we handled about 500 volumes of material from various departments. Cataloging of the Sanskrit Collection was begun by a graduate student, under the supervision of a member of the staff, and with the valued assistance of Professor Dumont. About 125 volumes were thus cataloged and classified.

Along with others of the chief learned libraries in the country, we were invited to contribute to a plan for cooperative cataloging financed by one of the foundations and carried out by a committee of the American Library Association. This means that we supply copy for foreign titles and analyticals of certain monographic series, the cards being printed by the Library of Congress and sold at a nominal rate. We are able at the same time to buy cheaply printed cards for other works prepared by various other libraries. This division of labor is already proving to be a great advantage, for we now procure cards for much valuable material which has hitherto been unanalyzed on our shelves.

Progress on the revision of the huge depository catalog of the Library of Congress has not been all that we could wish, but the work is going forward. About 50,000 cards were added to this catalog during the year, filed with the help of student assistants. The placing of call numbers on added entries in the main catalog has been completed as far as EGZ.

In the main reading room, under the direction of Miss Thies, 35,726 cards were filed in our own union catalog. The total number of cards in this general catalog for the entire university is now 861,702.

The statistical report of the Catalog Division, which is under the direction of Miss Jessie R. Bowes, is as follows:

Volumes cataloged.....	17,919	
Pamphlets cataloged.....	1,116	
Maps cataloged.....	39	
	<hr/>	19,074
Individual titles cataloged.....		9,909

## Cards:

Main entries.....	9,909	
Duplicate main entries.....	7,993	
Added entries.....	22,877	
Duplicate added entries.....	24,248	
Shelf list.....	6,885	
Accessions .....	127	
Source .....	2,105	
Cross references.....	1,766	
	<hr/>	75,910

This total of 75,910 cards represents:

Library of Congress printed cards.....	49,523
Typed cards.....	12,830
Multigraphed cards.....	12,728
Wistar cards.....	<hr/> 829

## PERIODICALS AND BINDING

During the year our periodical list has been studied by departments with a view to cancelling subscriptions that can be spared without serious injury to our work, and we have been represented in the movement of American librarians to reduce the excessive cost of certain German scientific publications.

We have continued with success the plan of having books repaired and pamphlets bound by students in our own work-rooms and have accomplished a considerable saving by this means. Student-workers have wire-stitched and bound 376 pamphlets; rebacked or otherwise repaired 599 defective volumes; built 9 portfolios; and applied Gaylord covers to 150 pamphlets. The Division also prepared 7,405 volumes for our commercial binder. Of these 480 were valuable old books in need of complete rebinding. The work has been under the general direction of Mr. Munzner and the Serial Record has been conducted by Mr. Kuethe.

## INTERLIBRARY LOANS

During the year the staff at Homewood handled interlibrary loans amounting to more than two thousand separate items. We borrowed for our readers as follows: from other American universities, 204 volumes; from foreign libraries, 8; from the Library of Congress, 186; from the Welch Library, 448. We sent to other libraries in this country and Canada, 605 volumes; to the Welch Library, 553.

## ANALYSIS OF EXPENDITURES

## I. Philosophical and Collegiate Departments:

Books and manuscripts.....	\$ 8,156.04	
Periodicals and continuations purchased.....	11,678.46	
Value of periodicals used for exchange.....	2,978.90	
Maps .....	12.80	
Binding and rebinding.....	5,834.91	
Equipment and special services.....	1,023.38	
Library of Congress cards.....	1,256.73	
Postage, printing, supplies.....	1,848.75	
Cleaning of books.....	438.23	
	<hr/>	\$33,228.20

## II. School of Engineering:

Books .....	339.26	
Periodicals and continuations purchased.....	517.63	
Binding .....	321.06	
Library of Congress cards.....	40.00	
Postage, printing, supplies.....	29.05	
	<hr/>	1,247.00

## III. Institute of Law:

Books .....	611.56	
Periodicals and continuations.....	715.21	
Binding .....	151.18	
Library of Congress cards.....	125.00	
Postage, printing, supplies.....	119.83	
	<hr/>	1,722.78

## IV. Page School of International Relations:

Books .....	1,566.32	
Periodicals and continuations.....	3,174.25	
Binding .....	1,745.29	
Library of Congress cards.....	25.00	
Maps .....	4.20	
Postage, printing, supplies.....	623.51	
		7,138.57

## Library Expenditures at Homewood:

Expended for books, etc.....		\$43,336.55
Regular salaries.....	47,334.00	
Summer Session.....	440.00	
Total salaries.....		47,774.00
Total for Homewood.....		91,110.55

## Library Expenditures in the Welch Medical Library:

Books, periodicals, binding.....	25,232.24	
Salaries .....	30,498.24	
Total for Welch Library .....		55,730.48

## Library Expenditures for the University:

Books, periodicals, binding, etc.....	68,568.79	
Salaries .....	78,272.24	
Grand total.....		\$146,841.03

## MEETINGS AND EXHIBITS

During the year the Friends of the Library held four important meetings in Gilman Hall.

On December 14, at 8.15 p. m., in the north wing of the main reading room, a meeting addressed by Miss Belle da Costa Greene, director of the Pierpont Morgan Library, in New York, and an exhibit of rare books and manuscripts from the collection of Mr. Robert Garrett. Mr. Garrett spoke briefly about this exhibit.

On November 10, at 4.30 p. m. in the Gilman Room a meeting and a tea at which Dr. Lawrason Brown's Oliver Wendell Holmes Collection was formally presented to the University. Dr. Brown, Dr. W. S. Thayer, and President Ames spoke, and selected items from the collection were exhibited.

On January 31, at 4.30 p. m. in the Gilman Room, a tea and an address by Mr. Frederick W. Ashley, chief assistant librarian of the Library of Congress. Mr. Ashley discussed the Gutenberg Bible and other treasures of his library.

On May 4, at 4.00 p. m. a meeting and a tea at which Mr. William A Slade, director of the Folger Shakespeare Memorial Library in Washington, told the history of the Folger Collection and described the remarkable building created to house it.

Other meetings and exhibits were held as follows:

On January 24, at 8.30 p. m. in the main reading room a concert by the Johns Hopkins Symphony Orchestra arranged by the Women's Faculty Club.

For several weeks in January and February an exhibit of book-plates, including specimens loaned by Mr. R. T. H. Halsey, Mr. C. Gordon Post, Jr., Miss Helen Tanzer, Miss Lilian S. Greif, and others.

On the afternoon of Commemoration Day an exhibit including the Schapiro Collection of Central American pottery and sculpture, recent purchases by Friends of the Library, and publications of the Johns Hopkins Press.

During the spring months a loan exhibit from the collection of Mr. Blanchard Randall of selected works of the French engraver C. Ferdinand Gaillard, 1834 1887.

#### THE COLLEGE RESERVE

Until the present year, books reserved by instructors on account of assigned reading were placed in an open-shelf collection in the reading rooms. As the number of college students increased this plan proved so unsatisfactory that a supervised college reserve was instituted in October, 1933. The books are now concentrated in one alphabet in the main reading room, and are in charge of attendants from 9 a. m. to 9 p. m. The result has been gratifying, since readers have been efficiently served, and losses have become negligible. Miss Nancy Lanier is in charge of the collection.

#### NEEDS OF THE LIBRARY

For many years our library, though placing emphasis on learned periodicals, made no attempt to collect files of newspapers. Bound newspapers are so costly and so bulky that we are forced to leave to other Baltimore libraries the task of preserving local journals; but certain national dailies are essential to research. By a fortunate purchase we have been able to secure a file of the *New York Times* from 1914 to 1931. Combined with the *Times Index*, which begins with 1913, this constitutes an indispensable source for the history of recent years. We should, if possible, carry this file farther back and should add to our scanty collection of important foreign journals. We should welcome the gift of any newspaper files and particularly of additions to our incomplete runs of *De Bow's Review*, *Lippincott's Magazine*, *Littell's Living Age*, and *The Critic*.

JOHN C. FRENCH,  
*Librarian.*

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## REPORT OF THE LIBRARIAN OF THE WILLIAM H. WELCH MEDICAL LIBRARY

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TO THE PRESIDENT OF THE UNIVERSITY:

On behalf of the Library Committee, I have the honor to submit the following report upon activities of this Library during the Academic year 1932-33.

In September, 1932, on motion of Professor Sigerist to the Library Committee, the collections, purchases and properties of the Institute of the History of Medicine were constituted a separate Departmental Library, carrying on its own cataloguing, shelf-classification, shelving and binding, under immediate control of the Director and his associate, Dr. Temkin. At the same time, a complete revision and standardization of call numbers taken over from the Library of Congress, was made by the Librarian and Assistant Librarian over the total shelf-arrangement of the stacks, to avoid unnecessary subdivision and to eliminate multiple call numbers for identical subjects, which, however useful in a vast national library, are apt to create confusion in a smaller collection. In consequence of these new departures, the work of the Cataloguing Division has been materially lightened and cataloguing on the special collections has been forwarded to the extent indicated by the Assistant Librarian below. Reprints are now arranged by subjects according to the new standardized shelf-classification.

At the instance of the President, as Chairman of the Library Committee, the Blumenthal, Cushing and Sabin Funds were expended for appropriate and necessary purchases. Valuable reference books have been donated by Miss Elisabeth Gilman, Professor E. A. Park, and others. An oil portrait of the late Professor William S. Halsted by Mr. Hermann Becker was purchased for suspension in the Reading Room and a bronze replica of the death mask of the late Professor William S. Thayer, made by Professor Adolf H. Schultz, was accepted for the Library by consent of the Board of Trustees of the University. Due to expansion of the Nurses' Library and to afford additional space for Institute administration, the books and appointments in the Kelly Room have been moved to the double room at the north-east corner of the building below stairs.

A reduction of \$1018.12 in prospective expenses for the coming academic year was effected by dropping duplicate or triplicate subscriptions to some sixty five current periodicals. The effective set of Library Rules, approved by the Library Committee in June, 1932, has been manifolded by mimeograph process for general use.

Subjoined is the Fifth Annual Report of the Assistant Librarian, Mr. W. G. Shules, covering activities of the technical departments during 1932-33.

At the instance of the Library Committee, the bound periodicals of special scientific moment have been made available for research workers on Decks 2 and 3 of the stacks while those of more general interest have been filed in the basement. Both arrangements are in strictly alphabetic order at the same time.

The books in the general collection were rearranged so as to afford easier access to books in the vertical line by allowing four or five shelves only to each section of the book presses, with ample space above and below for expansion.

Within the academic year, the John Whitridge Williams collection of

books on obstetrics, acquired in 1932, has been completely incorporated in the catalogued and classified holdings of the Library, and substantial progress has been made in the assimilation of the Kelly Collection of modern medical books, as well as of the remains of the Halsted, Hurd, and other minor collections. In the course of this work, 450 volumes, mostly standard works and textbooks, were relegated to the duplicate files.

During the year, 11,661 cards were filed in the Reading Room Catalogue, and 900 cards in the Catalogue of the Institute of the History of Medicine (October, 1932). Statistics of new entries in the Shelf list, Source or Gift Catalogues and of Institute purchases made through our Order Division will appear under their respective rubrics in the tabulation below.

The number of readers and borrowers was 4,779 over that of last year. The increase of actual calls for books, exclusive of reference and inter-library loans, was 2,941. The doorkeeper's count of readers and visitors shows an increase of 2,305 over the preceding year.

Statistical Summary of Work Done in all Departments of the Library during the Academic Year.

#### CATALOGUING STATISTICS, July 1, 1932-June, 1933.

Volumes catalogued: 7241

Cards produced.	3,685 main or author entries
	5,664 duplicate main entries (for Institute)
	8,614 added entries
	989 duplicate added entries ( " " )
	3,419 shelf-list cards
	2,148 source cards
	338 cross references
	<hr/>
	24,857 cards

#### Books classified:

Mrs. Thies-Meyer	1,296 titles	
Mr. Wm. G. Shules	462 " [Institute books]	
" " " "	1,092 "	
	<hr/>	
Total	2,850	

#### Card files:

New entries filed in Reading Room Catalogue	11,296
Old entries refilled in Reading Room Catalogue	565
Cards filed in Inst. Hist. of Medicine Catalogue	900
	<hr/>

12,761 cards

#### Report of the Order Division:

Total purchases [books]	1,746 volumes. Divided as follows:
Welch Medical Library	1,008 " [880 bound; 128 unbound]
Institute Library	738 " [555 " ; 183 " ]
Total accessions [Periodicals]:	845

[Of these 528 were subscriptions, 177 acquired by exchange, [92 on part of the Bulletin of the Johns Hopkins Hospital, and 85 on part of the American Journal of Hygiene,] and 140 by gift (currently received)].

#### Report of the Office:

According to the report of the Secretary, 1,548 requests for inter-library loans were made by the Welch Medical Library from outside libraries

and received, while outside libraries requested and received 585 titles from us.

The names of the donors and gifts received during the year are as follows:

Dr. J. J. Abel, 280 bd., 1117 unb., 3477 reprints, 24 pamphlets; Dr. T. J. Abernethy, 6 bd., 235 unb.; American Heart Assoc., N. Y., 1 bd.; Dr. J. S. Ames, 3 unb., 6 reprints; Annual Com. Georgetown, Demerara, 1 bd.; Anonymous, 1 bd.; Baker & Taylor Co., N. Y. 1 bd.; Dr. L. F. Barker, 1 bd., 2 unb.; Dr. L. V. Briggs, Boston, 1 bd.; Bisodol Co., 1 bd.; Dr. E. P. Carter, 20 bd., 402 unb., 22 reprints, 3 pamphlets; Dr. Alan Chesney, 1 bd., 4 unb., 15 reprints; Com. of Privy Council for Med. Research, London, 1 unb.; Dr. B. Cohen, 3 unb.; Dr. Wm. R. Dunton, 7 unb.; Enoch Pratt Free Library, 1 bd.; Dr. F. H. Garrison, 6 bd., 41 unb., 8 reprints; Dr. E. M. K. Geiling, 2 unb.; Miss Elis. Gilman, 52 bd.; Dr. J. C. Gittings, 5 unb.; Dr. Harry Goldblatt, Cleveland, 1 unb.; Otto Harrassowitz, Leipzig, 1 unb.; Dr. E. Donald Hooker, 39 unb.; Hosp. for Joint Diseases, N. Y., 1 unb.; Dr. Ernst Huber's Collection, 350 unb.; Dr. T. Cullen, 434 unb., 96 reprints, 98 pamphlets; Dr. W. E. Dandy, 1 bd.; F. A. Davis Co., 1 bd.; Univ. of London, 2 bd.; Dept. of Legislative Ref., City Hall, Balto., 23 bd., 84 unb.; Dr. I. B. Hudson, England, 1 bd.; Dr. A. F. Hurst, England, 2 bd.; J. H. U. Homewood, 38 bd., 25 unb.; Jos. Price Hosp. Phila., 1 bd.; Dr. L. B. Lange, 267 unb.; Dr. Lloyd Lewis, 97 unb.; Dr. Dean Lewis, Editorial Com. of the Libman Anniversary Vols., N. Y., 3; Lifwynn Foundation, N. Y., 1 bd.; J. B. Lippincott Co., Phila., 1 bd.; Dr. D. I. Macht, 1 bd.; Dr. Irving Miller, 500 bd., 680 unb.; 198 pamphlets, 101 diss., 352 addresses; N. Y. Univ. Press, 1 bd.; Dr. J. R. Oliver, 219 unb.; Dr. R. Pearl, 2 unb.; Dept. Pediatrics, 37 unb., 123 reprints, 2 pamphlets; Dr. A. S. & B. Peskind, Cleveland, 1 unb.; Dr. B. E. Read, Peiping, China, 1 unb.; Dr. Wm. Rienhoff, Jr., 177 unb.; Dr. D. P. Ray, Johnstown, Pa., 1 bd.; Dr. H. B. Rothschild, 67 unb.; Social Service Dept., J. H. H., 157 unb.; Dr. H. E. Sigerist, 1 unb.; Sch. of Hyg. & Pub. Health, 1 bd., 24 theses; Mrs. T. Cramer von Storch, Mass., 1 bd.; Dr. H. Taussig, 39 unb.; Mrs. Isa R. Thayer, 1 bd.; Dr. W. S. Thayer's Collection, 3108 unb., 8357 reprints, 28 pamphlets, 133 diss., 10 portraits, 5 medals; Dr. I. R. Trimble, 3 unb.; Warszawa, Russia, 1 bd.; Dr. Chas. A. Waters 1 bd.; Dr. W. H. Welch, 1 bd.; Dr. J. W. Williams' Collection, 176 unb., 816 bd., Dr. Frank Smith, Sr., 98 bd., 5 unb.; Williams & Wilkins Co., 1 bd., Welcome Research Inst., 1 bd.; Dr. H. H. Young, 12 bd., 579 unb., 84 reprints; Dr. Lewis H. Weed, 1 bd.; Johns Hopkins Hospital Bulletin, 86 bd.

562	Bound volumes
2635	Unbound volumes
750	Pamphlets
281	Dissertations
12197	Reprints
6070	Misc. odd numbers of periodicals
10	Portraits
5	Medals

*Summary of Accessions to the Library* (exclusive of Reprints and miscellaneous periodical numbers):

Books (by purchase)	1,746	volumes
Periodicals (by subscription)	528	"
Periodicals (by exchange)	177	"
Periodicals (by gift)	140	"
Total accessions through Order Division	2,591	"

## Gifts received through the Office:

Books .....	3,197	volumes
Pamphlets and dissertations.....	1,031	"

Total accessions through Office.....	4,228	"
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Grand total of books and pamphlets accessions.....	6,819
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(This total does not include books sent in for review to the Bulletin of the Johns Hopkins Hospital, 92 such copies being received)	92
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	6,911
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*Report on Binding:*

Total number returned by binders.....	1,498	volumes
New binding (Periodicals).....	1,079	"
New binding (Books).....	125	"
Old binding (Periodicals).....	77	"
Old binding (Books).....	217	"

*Report of Reading Room:*

Total number of readers and borrowers.....	37,014
Total number of books given out (exclusive of reference books and inter library loan books).....	22,855
Total number of entrants counted at the front door.....	37227

Respectfully submitted,

FIELDING H. GARRISON,  
*Librarian, Welch Medical Library.*



## REPORT OF THE JOHNS HOPKINS PRESS

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TO THE PRESIDENT OF THE UNIVERSITY:

I submit herewith an abstract of the report of The Johns Hopkins Press for the past year:

*American Journal of Mathematics*, published under the joint auspices of The Johns Hopkins University and the American Mathematical Society. Edited by Professors E. W. Chittenden, University of Iowa; A. B. Coble, University of Illinois; Abraham Cohen, The Johns Hopkins University; G. C. Evans, Rice Institute, and F. D. Murnaghan, The Johns Hopkins University. There were published during the year number 4 (176 pages) completing volume liv, 1932 (810 pages octavo) and numbers 1 and 2 (308 pages) of volume lv, 1933.

*American Journal of Philology*, edited by Professor C. W. E. Miller, with the coöperation of Professors Hermann Collitz, Tenney Frank and D. M. Robinson. Numbers 3 and 4 (214 pages) completing volume liii, 1932 (406 pages octavo) and two numbers (200 pages) of volume liv, 1933 were issued.

*Biologia Generalis*, founded by Doctors L. Löchner, Graz; Raymond Pearl, Baltimore; and V. Růžicka, Prag; but now edited by O. Abel, L. Adametz, O. Porsch, C. Schwarz, J. Versluys and R. Wasicky, all of Wien, Austria. Number 2 (288 pages) completing volume viii, 1932 (698 pages octavo) and numbers 1 and 2 (448 pages) of volume ix, 1933 were published.

*Bulletin of the Johns Hopkins Hospital*, edited by Doctor E. Cowles Andrus, with the following collaborators: Doctors Charles R. Austrian, Thomas R. Boggs, Edward P. Carter, Arnold R. Rich, Paul G. Shipley and Frank R. Smith. Two complete volumes were published during the year. They include six numbers each and comprise the following: volume li (394 pages octavo) and volume lii (424 pages octavo), and to this latter volume there was also supplementary matter from the Department of the History of Medicine, 192 pages with numerous illustrations.

*Comparative Psychology Monographs*, Professor Knight Dunlap, Managing Editor. Associate Editors: Professors John E. Anderson, University of Minnesota; Harvey A. Carr, The University of Chicago; Walter S. Hunter, Clark University; Alfred V. Kidder, Carnegie Institution of Washington; Samuel O. Mast, The Johns Hopkins University and Robert M. Yerkes, Yale University. Four numbers of volume ix were published. These have comprised: "Development of an infant chimpanzee during her first year" by Carlyle F. and Marion M. Jacobsen and Joseph G. Yoshioka, 94 pages; "Studies in concept formation" by Paul E. Fields, 70 pages; "Conditioning finger retraction to visual stimuli near the absolute threshold" by Sidney M. Newhall and Robert S. Sears, 25 pages and "The organization of learning and other traits in chickens" by Jack W. Dunlap, 55 pages.

*Hesperia: Schriften zur englischen Philologie*, edited by Professor Kemp Malone. *Ergänzungsreihe* 12. Heft, "The Use of Swa in Old English" by Eston Everett Ericson, 89 pages octavo, was published in October 1932.

*Human Biology*, edited by Dr. Raymond Pearl in association with Doctors H. S. Jennings, Adolf Meyer, Adolph H. Schultz, Curt P. Richter and John R. Miner, with Miss Blanche F. Pooler, Managing Editor. Numbers 3 and 4 (306 pages) completing volume iv, 1932 (612 pages octavo) and numbers 1 and 2 (312 pages) of volume v, 1933 were published.

*The Johns Hopkins Studies in Romance Literatures and Languages*, edited by Professors D. S. Blondheim, Gilbert Chinard and Henry Carrington Lancaster. There were four numbers published during the year, composed of: volume xx, *The Tudors in French Drama*, by Alfreda Hill, 182 pages octavo; volume xxi, *Les Bâtards au Théâtre en France de la Renaissance à la Fin du XVIII<sup>e</sup> Siècle*, by Maurice Baudin, 124 pages octavo; volume xxii, *L'Œuvre d'André Mareschal, Auteur Dramatique, Poète et Romancier de la Période de Louis XIII*, by Lionel Charles Durel, 136 pages octavo, and extra volume v, *Recherches lexicographiques sur d'anciens textes français d'origine juive*, by Raphael Levy, 92 pages octavo.

*The Johns Hopkins University Circular*. Numbers 6 to 11 (658 pages) concluding volume li, 1932 (1080 pages octavo) and numbers 1 to 5 (269 pages) of volume lii, 1933 were published. These have included: The Institute of Law 1932-1933; College for Teachers 1932-1933; School of Higher Studies in Education 1932-1933; Report of the President of the University 1931-1932; Catalogue and Announcement for 1932-1933 of the School of Medicine; School of Engineering 1933-34; The College of Arts and Sciences 1933-1934; Summer Courses 1933; School of Higher Studies of the Faculty of Philosophy 1933-34; School of Business Economics 1933-34; School of Hygiene and Public Health 1933-34.

*The Johns Hopkins University Studies in Education*, edited by Dr. Florence E. Bamberger. There were published during the year the following: Number 19, "Private Secondary Education in the Association of Colleges and Secondary Schools of the Southern States" by Rothwell Wilcox, President, Darlington School, Rome, Georgia (164 pages, 33 tables, octavo); Number 5, "A Measuring Scale for Free Hand Drawing. Part II. Design and Composition" by Linus Ward Kline of Skidmore College and Gertrude L. Carey, formerly of the College of William and Mary (58 pages, 10 tables, octavo); Number 20, "The Effect of Certain Factors in the Verbal Arithmetic Problem upon Children's Success in the Solution" by Grace A. Kramer of the Public Schools of Baltimore City (117 pages, 24 tables, octavo).

*The Johns Hopkins University Studies in Historical and Political Science*, edited by the Departments of History, Political Economy and Political Science. Two numbers (272 pages) completing volume l, 1932 (572 pages octavo) and number 1 (114 pages) of volume li, 1933 were published. These have included: "The Governor of Maryland: A Constitutional Study" by Charles James Rohr; "The Yellow Dog Contract" by Joel I. Seidman and "Studies on Scipio Africanus" by Richard Mansfield Haywood.

*Modern Language Notes*, edited by Professor H. Carrington Lancaster with the coöperation of Professors Gustav Gruenbaum; Raymond D. Havens; William Kurrelmeyer; Kemp Malone; José Robles and Hazelton Spencer. Numbers 7 and 8 (174 pages plus xviii pages of bibliography) completing volume xlvii, 1932 (592 pages plus lxiv pages of bibliography) and six numbers (418 pages plus xxxviii pages of bibliography) of volume xlviii, 1933 have appeared.

*A Reprint of Economic Tracts*, under the editorial direction of Professor Jacob H. Hollander. A second part of the Fourth Series entitled "Observations on the Effects of the Corn Laws" by Thomas Robert Malthus, 1814, was published.

*Terrestrial Magnetism and Atmospheric Electricity*, conducted by Dr. J. A. Fleming with the coöperation of eminent investigators. Numbers 3 and 4 (306 pages) completing volume xxxvii, 1932 (508 pages octavo) and number 1 (78 pages) of volume xxxviii, 1933 were published.

Of the publications of the Institute of Law the following appeared: *Bulletin*

number 5 of the *Study of the Judicial System of Maryland*, and *Bulletin numbers 8 to 12 inclusive of the Study of Judicial Administration in Ohio; Comparative Judicial Criminal Statistics: Six States, 1931*, by Leon C. Marshall; *Ohio Criminal Statistics, 1931*, by An Associated Group from the Institute of Law and the Ohio Institute; *Equity Receiverships in The Common Pleas Court of Franklin County, Ohio*, by Thomas Clifford Billig; *The Public Service Commission of Maryland*, by Henry G. Burke; *The Divorce Court, Volume One, Maryland*, by Leon C. Marshall and Geoffrey May.

*Unlocking the Treasuries of the Trial Courts*, by Doctor Leon C. Marshall, was published on May 12, 1933. It contains 42 pages with numerous graphs.

*The Albert Shaw Lectures on Diplomatic History*, under the auspices of the Walter Hines Page School of International Relations. "The Monroe Doctrine, 1826-1867" by Dexter Perkins, Watson Professor of History in the University of Rochester, was published on April 3, 1933. It contains 592 pages 12mo.

Also issued by The Walter Hines Page School of International Relations, *The Protection of Nationals: a study in the application of international law* by Frederick Sherwood Dunn, Associate Member of the Page School, on December 13, 1932, containing 240 pages octavo; *A View of Europe, 1932: an interpretative essay on some workings of economic nationalism* by Paul van Zeeland, Director of the National Bank of Belgium, on May 29, 1933, containing 160 pages octavo; *The Russo-Japanese Treaties of 1907-1916 concerning Manchuria and Mongolia* by Ernest Batson Price, Associate Member of the Page School, on June 28, 1933, containing 178 pages octavo.

*Institut Français de Washington, Historical Documents*, edited by Professor Gilbert Chinard. The following appeared: "Un Français en Virginie. Voyages d'un François Exilé pour la Religion avec une description de la Virgine & Marilan dans l'Amérique" Introduction and Notes by Gilbert Chinard, 158 pages quarto; "Les Acadiens Louisianais et Leur Parler" by Jay K. Ditchy, 272 pages octavo; "Brigadier-General Louis Lebègue Duportail: Commandant of Engineers in the Continental Army, 1777-1783" by Elizabeth S. Kite, 303 pages octavo; "Iconographie Métallique du Général Lafayette" by P. Olivier, 93 pages quarto.

*The Johns Hopkins University Studies in Archaeology*, edited by Professor David M. Robinson. The following volumes were published: November 15, "Early Civilization in Thessaly" by Hazel D. Hansen, Assistant Professor of Classical Literature, Stanford University, 222 pages octavo with numerous illustrations and plates; Number 16, "Old Age Among the Ancient Greeks" by Bessie Ellen Richardson, former Instructor in Latin and Greek, State University of Iowa, 391 pages octavo, profusely illustrated; Number 18, "Excavations at Olynthus. Part V. Mosaics, Vases and Lamps of Olynthus Found in 1928 and 1931" by David M. Robinson, 318 pages and 209 plates (including several in colors) quarto; and Number 19, "Excavations at Olynthus. Part VI. The Coins Found at Olynthus in 1931" by David M. Robinson, 125 pages and 30 plates, quarto.

*The Johns Hopkins University Studies in Historical and Political Science, Extra Volumes, New Series*, Number 17, "The New Balance of Power in Europe" by Valentine de Balla, 212 pages octavo, appeared on September 19, 1932 and Number 16, "National Collective Bargaining in the Pottery Industry" by David A. McCabe, Professor of Economics, Princeton University, 459 pages octavo, appeared on November 15, 1932.

The Department of History began a new series entitled *The Johns Hopkins Historical Publications*. The first volume "William Marshal: Knight Errant, Baron and Regent of England" by Sidney Painter, Professor of History in The Johns Hopkins University, 316 pages octavo, appeared on March 25, 1933.

A new series was inaugurated by *The Wilmer Ophthalmological Institute* and "Allergy and Immunology in Ophthalmology" by Alan C. Woods, Associate Professor of Ophthalmology in the Medical School was published as Monograph Number 1. It contains 190 pages octavo and was published on April 3, 1933.

*A History of French Dramatic Literature in the Seventeenth Century. Part II, the Period of Corneille, 1635 1651* by Henry Carrington Lancaster, Professor of French Literature in The Johns Hopkins University, in two volumes, was published on July 6, 1932. It contains 820 pages octavo.

*The Herter Lectures for 1931: "Epidemiology: Historical and Experimental"* by Dr. Major Greenwood of the University of London, containing 90 pages octavo, was published on September 1, 1932.

*The Cabinet Council of England in the Seventeenth and Eighteenth Centuries, 1622-1784* by the late Professor Edward Raymond Turner. The manuscript of this volume was edited by Doctor Gaudence Megaro. It contains 500 pages octavo and appeared on October 12, 1932.

*The Works of Edmund Spenser. A Variorum Edition*, edited by Professors Edwin Greenlaw, Charles Grosvenor Osgood and Frederick Morgan Padelford. "The Faerie Queene," Book One, edited by Frederick Morgan Padelford, was published on December 5, 1932. It contains 568 pages quarto.

*Chateaubriand's Les Natchez*, published with an Introduction and Notes by Professor Gilbert Chinard with the assistance of Chandler B. Beall, Charles R. Hart, Meta H. Miller, Louis H. Naylor and J. Van Ness Smead, appeared on November 16, 1932. It contains 557 pages octavo with several illustrations.

*Minor Papers on the Currency Question, 1809 1823* by David Ricardo, edited with an introduction and notes by Professor Jacob H. Hollander, was published on December 28, 1932. It contains 240 pages octavo.

Conrad Ferdinand Meyer's *Huttens Letzte Tage*, an historical critical edition by Professor Robert Bruce Roulston, was published on February 20, 1933. It contains 256 pages quarto.

*The Happy Beast in French Thought of the Seventeenth Century* by Professor George Boas was published on April 3, 1933. It contains 168 pages octavo.

*William Bartram: Interpreter of the American Landscape*, by Dr. N. Bryllion Fagin, 240 pages octavo, was published on May 8, 1933.

*Blindman's Buff*, by Samuel Chappuzeau, translated and adapted from the French of 1662 by Professor H. Carrington Lancaster. This was published on June 23, 1933.

Under the general title *An Economic Survey of Ancient Rome*, edited by Professor Tenney Frank with several collaborators, four volumes are announced: I. Rome and Italy of the Republic; II. Italy of the Empire; III. The Eastern Provinces; IV. The Western Provinces. The first volume: "Rome and Italy of the Republic" by Professor Tenney Frank was published on June 24, 1933 and contains 446 pages crown octavo.

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In press for publication during 1933 34 are:

*The History of Olynthus* by Mabel Gude (The Johns Hopkins University Studies in Archaeology No. 17).

*Treaties Defeated by the Senate: a study of the struggle between President and Senate over the conduct of foreign relations* by W. Stull Holt (The Johns Hopkins Historical Publications).

*The Shanghai Incident of May 30, 1925: a case study in social-political conflict* by Maurice T. Price (Walter Hines Page School).

*The Economic Effectiveness of the Chinese Boycotts* by C. F. Remer (Walter Hines Page School).

*The Soviet Government and the Russian Debts: an inquiry into the nature and present status of the question* by Lazare Teper (Walter Hines Page School).

*Manifest Destiny: a study of nationalist expansion in American history* by Albert K. Weinberg (Walter Hines Page School).

*A Dramatic Adaptation of Rabelais in the Seventeenth Century: Les Aventures et le Mariage de Panurge (1674) by Pousset de Montauban with a study of his life and other plays* by Marion F. Chevalier (Johns Hopkins Studies in Romance Literatures and Languages).

*Philip Mazzei, Friend of Jefferson: His Life and Letters* by Richard Cecil Garlick, Jr. (Johns Hopkins Studies in Romance Literatures and Languages).

*The United States and Problems in the Diplomacy of the World War* by Charles Seymour (Albert Shaw Lectures on Diplomatic History).

*An Economic Survey of Ancient Rome. Volume II: Italy of the Empire*, edited by Tenney Frank with collaborators.

*A Critical Bibliography of the Works of Edmund Spenser Printed Before 1700* by Francis R. Johnson.

*The Works of Edmund Spenser, Variorum Edition of The Faerie Queene* edited by Edwin Greenlaw, Charles G. Osgood, and Frederick M. Padelford, volumes II and III.

*L'Īśvaragītā, le Chant de Śiva, Texte Extrait du Kūrma-Purāna* by P. E. Dumont.

*The Classic Deities in Bacon: A Study in Mythological Symbolism* by Charles W. Lemmi.

*The Unanimity Rule and the League of Nations* by Cromwell A. Riches (The Johns Hopkins University Studies in Historical and Political Science, Extra Volumes, New Series).

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## DISSERTATIONS

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Following is a list of dissertations for the degree of Doctor of Philosophy published during the year:

de Balla, Valentine: *The New Balance of Power in Europe.*

Baudin, Maurice: *Les Bâtards au Théâtre en France de la Renaissance à la Fin du XVIIIe Siècle.*

Beebe, Eleanor Lee: *Motor Learning of Children in Hand and Eye Coördination with Introduction of Prismatic Deflection.*

Berberich, Leo J.: *A Standard of Low Power Factor.*

Burke, Henry G.: *The Public Service Commission of Maryland.*

Byck, Harold Theodore: *The Exchange of Energy between Organic Molecules in a Molecular Beam and Metallic Surfaces.*

Cairns, Robert W.: *X-Ray Studies of the System Nickel-Oxygen-Water. I. Nickelous Oxide and Hydroxide. II. Compounds Containing Trivalent Nickel.*

Crigler, Elizabeth Aylor: *Raman Effect in Liquids and in Liquid Mixtures.*

- Deitz, Victor R.: Molecular Symmetry and the Vapor Pressure of Solid Benzene, Cyclohexene.
- Durel, Lionel Charles: L'Œuvre d'André Mareschal: Auteur Dramatique, Poète et Romancier de la Période de Louis XIII.
- Eigler, Pauline O.: The Effect of Unusual Stimulation in Motor Coördination in Children.
- Ericson, Eston Everett: The Use of Swa in Old English.
- Fagin, N. Bryllion: William Bartram: Interpreter of the American Landscape.
- Gerberich, Albert H.: Luther and the English Bible.
- Gilchrist, Raleigh: A New Determination of the Atomic Weight of Osmium.
- Hahnert, William F.: A Quantitative Study of Reactions to Electricity in *Amoeba Proteus*.
- Hallock, Frances A.: The Relationship of *Garrya*. The Development of the Flowers and Seeds of *Garrya* and its bearing on the Phylogenetic position of the Genus.
- Harden, Wilton Cope: The Condensation of Phenols with Aliphatic Aldehydes.
- Haywood, Richard Mansfield: Studies on Scipio Africanus.
- Hill, L. Afreda: The Tudors in French Drama.
- Jones, W. Norton, Jr.: The Composition and Possible Constitution of Several Sulfur Dyes.
- Joyce, J. Wallace: I. Electromagnetic Absorption by Rocks with some Experimental Observation taken at the Mammoth Cave of Kentucky.  
II. Modification of the Torsion Balance.
- Karl, Mary Cordia: The Projective Theory of Orthopoles.
- Krahl, Maurice E.: The Dependence of Crystallization Velocity on Molecular Structure.
- Kramer, Grace A.: The Effect of Certain Factors in the Verbal Arithmetic Problem upon Children's Success in the Solution.
- Kurrelmeyer, Carrie May: The Economy of Actors in Plautus.
- Levin, Isador: X Ray Study of So Called Amorphous Varieties of Silica.
- Loane, Clarence M.: A Study of the Activity of Finely Divided Metals and Metallic Oxides.
- Mauchly, John William: The Structure of the Third Positive Group of Carbon Monoxide.
- Meyer, Jane Dick: The Higher Alcohols and their Physical Constants.
- Price, Ernest Batson: The Russo-Japanese Treaties of 1907-1916 Concerning Manchuria and Mongolia.
- Richardson, Bessie Ellen: Old Age Among the Ancient Greeks.
- Rohr, Charles James: The Governor of Maryland: A Constitutional Study.
- Ryan, Genevieve: An Experiment in Class Instruction Versus Independent-Study at College Level.
- Sandidge, John R.: Foraminifera from the Ripley Formation of Alabama.
- Schoenherr, Karl E.: Resistance of Flat Surfaces Moving Through a Fluid.
- Tucker, N. Beverley: Cyclic and Polymeric Compounds from Reactions of Ethylene Mercaptan with Polymethylene Halides.
- Wheeler, John A.: Theory of the Dispersion and Absorption of Helium.
- White, Annabel Lee: The Retention of Elementary Algebra through Quadratics after Varying Intervals of Time.
- Wilcox, Rothwell: Private Secondary Education in the Association of Colleges and Secondary Schools of the Southern States.

C. W. DITTS,  
*Manager, Johns Hopkins Press.*

# REPORT ON THE BUREAU OF APPOINTMENTS

TO THE PRESIDENT OF THE UNIVERSITY:

I respectfully submit the following statistical account regarding the work of the Bureau for the year ending June 30, 1933:

TABLE I  
PERMANENT EMPLOYMENT

<i>Classification</i>	<i>Applications</i>	<i>Recommendations</i>
Chemistry .....	3	6
Engineering .....	1	
Insurance .....	18	14
Investment Banking.....	7	8
Merchandising .....	15	13
Social Welfare.....	3	
Statistical Work.....	1	
Teaching .....	29	21
	<hr/>	<hr/>
	77	62

TABLE II  
PART-TIME AND SUMMER EMPLOYMENT

<i>Classification</i>	<i>Applications</i>	<i>Recommendations</i>	<i>Appointments</i>
Chauffeur .....	1	1	1
Clerk .....	73	73	73
Companion .....	1	2	1
Department Store Worker.....	3	6	8
Investigators .....	4	9	4
Journalist .....	1	1	1
Recreation Supervisor.....	2	1	1
Resident Tutor Companion.....	3	1	1
Riding Instructor.....	1	2	1
Salesman .....	86	33	6
Sales Promoter.....	5		
Social Service Adviser.....	1		
Teacher .....	2	1	1
Tour Organizer.....	1		
Tutor .....	51	78	49
Typist .....	5	5	5
Waitress .....	2	2	2
	<hr/>	<hr/>	<hr/>
	242	220	149

TABLE III  
APPLICATIONS FOR TEACHERS

<i>Subject</i>	<i>College</i>	<i>High School</i>	<i>Total</i>
Art .....	1		1
Biology .....	3		3
Chemistry .....	2		2
Commercial Subjects.....		1	1
Dramatics .....	1		1
English .....	7		7
German .....	3		3
History .....	1		1
Mathematics .....	3		3
Physics .....	2		2
Political Science.....	1		1
Psychology .....		1	1
Romance Languages.....	3		3
	<hr/> 27	<hr/> 2	<hr/> 29

TABLE IV  
REGISTRATION

Total registration for employment.....	771
Total previous registration for full-time employment.....	283
New registration: total.....	488
For full-time employment.....	121
Graduate students.....	24
Undergraduates .....	13
Former Students.....	25
Unclassified .....	59
For part-time employment.....	276
For summer employment.....	91

TABLE V  
STUDENT LOANS

<i>School</i>	<i>Total No. Loans</i>	<i>Total Amount Lent</i>
Faculty of Philosophy.....	4	\$1,000.00
College of Arts and Sciences.....	1	300.00
School of Engineering.....	5	1,500.00
	<hr/> 10	<hr/> \$2,800.00

R. N. DEMPSTER,  
*Director, Bureau of Appointments.*



## REPORT OF THE YOUNG MEN'S CHRISTIAN ASSOCIATION

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TO THE PRESIDENT OF THE UNIVERSITY:

I respectfully submit the following report of the activities of the Young Men's Christian Association for the year ending June, 1933.

### OBJECTIVE

In planning the program of the Association two facts have been kept in mind: first, the religious background of the students who attend the Johns Hopkins University; and second, the general program of the University and its influence upon the basic motives in the lives of the students. The aim has been to supplement and bring to completion processes that are inevitably started by college experiences in an institution such as the Johns Hopkins University. The program of the Association is successful to the extent that it is able to help students to acquire a religious philosophy and way of life on a level equal to that of the academic standard of the University.

### ORGANIZATION

*Board of Managers:* The work of the Association has been greatly helped through the organization of a Board of Managers composed of faculty members, alumni, parents, and students. The personnel of this Board for 1933-34 is as follows:

Dr. Edward B. Mathews, *Chairman*  
Edwin M. Lockard, *Vice-Chairman*  
H. Milton Wagner, Jr., *Treasurer*  
Theodore B. Wiehe, *Recorder*  
Dr. W. F. Albright  
Dr. Joseph S. Ames, *ex officio*  
Edward T. Beall  
Dr. Albert E. Blumberg  
Keith Conning  
Richard Feise

Dr. John C. French  
Dr. John C. Hubbard  
Dr. Wm. B. Kouwenhoven  
Wm. C. Schmeisser  
John W. Sherwood  
Dr. Jos. T. Singewald, Jr.  
Rev. T. Guthrie Speers  
Dr. George A. Stewart  
Wm. Edward Thomsen, Jr.  
John G. Weeks

*Cabinet:* The Cabinet, composed of thirty-five men, is immediately responsible for the program and planning of the work. Cyrus C. Young, Jr., '33, presided over the work during the past year, and John G. Weeks, '34, has been chosen to lead the Cabinet during 1933-34. They have as their specific objectives during the coming year the following:

### THE TWO-FOLD PURPOSE FOR 1933-34

1. To assist students in developing a thorough-going Christian philosophy and way of life.
2. To challenge the young people of Baltimore and the surrounding communities to a careful study of the significance of the religion of Jesus when applied vigorously to personal and social problems.

### THE FOUR-POINT PROGRAM FOR 1933-34

1. Development of a personal religion adequate to challenge youth today.
2. A study of international relations from the view-point of the highest religion has to offer.
3. A frank facing of the problems arising out of inter-racial relations with a view to arriving at a Christian solution.

4. The application of the highest religious concepts to present economic questions.

#### PROGRAM

*Freshman Work:* The members of the Freshman Class were invited to spend two days at Camp Letts, on the Rhodes River, between registration and the opening of classes. Seventy five men accepted. The program aimed to help orient the students to college life.

*Freshman Commission:* A Freshman Commission of twenty-five men was organized at the opening of college. These men met each week under the leadership of Mr. Edwin M. Lockard, '31, until the beginning of the second semester when they joined with the upper class Cabinet.

*Handbook:* Sixteen hundred copies of the Handbook were issued and distributed to the students and faculty. A special edition was published for the students at the Medical School and the School of Hygiene which contained the Hospital Formulary in condensed form.

*"Y" News:* Six issues of the Johns Hopkins "Y" News were published and distributed to students, faculty, and contributors.

*University Supper Club:* The Association organized a University Supper Club composed of 170 members. The speakers for the year were:

Dr. Jerome Davis, Professor of Practical Philanthropy at Yale University.

Dr. Sherwood Eddy, world traveler and lecturer.

Mr. Paul Blanshard, Secretary of the League for Industrial Democracy.

Dr. Bernard Clausen, Pastor of First Baptist Church, Syracuse, N. Y.

Rev. R. A. McGowan, a director of the Department of Social Action of the National Catholic Welfare Conference.

Dr. Lynn Harold Hough, Professor of Homiletics and Comprehensive Scholarship at Drew Theological Seminary.

Dr. Ralph Harlow, Professor of Religion and Social Ethics at Smith College.

Dr. Norman Thomas, founder of the *World Tomorrow*, and former editor of the *Nation*.

Dr. George A. Buttrick, Pastor of Madison Avenue Presbyterian Church, New York City.

*University Lectures on Religion:* A new departure this year was the arrangement of a series of University Lectures on Religion under the auspices of the Association, but held at the First Methodist Episcopal Church. The speakers were the same as at the University Supper Club with the exception of Dr. Hornell Hart, Professor of Social Economy and Social Research at Bryn Mawr College, who spoke in place of Father McGowan.

*Graduate Student—Faculty Program:* A reception and dance were given to the graduate students and faculty at the opening of the school year.

*Speakers' Bureau:* Nearly every Sunday throughout the year, as well as some days during the week, speakers have been furnished for young peoples' societies, Sunday Schools, church services, service clubs, and other organizations of the city and suburban sections.

*Undergraduate Luncheon Group:* An undergraduate luncheon group with an average attendance of ten, met Mondays throughout the year. The group was under the leadership of Mr. D. Elton Trueblood, Secretary of Homewood Friends' Meeting.

*Friendly Relations Committee:* At the opening of the school year the Association tendered a reception to all foreign students in the city. About one hundred attended. The Association also cooperated in the work of the Cosmopolitan Club and arranged for the Annual International Thanksgiving Dinner which was attended by one hundred and twenty foreign students and their hosts.

A luncheon-discussion group composed of a few Americans and students from other countries met each Friday under the leadership of Mr. and Mrs. H. Milton Wagner, Jr.

*Office Services:* The office secretary renders a daily service to the campus by supplying information and assisting students who enter in the fall to find suitable living quarters. More than one hundred students were directed to rooms during the opening weeks of school.

*Conferences:* The Association has been represented at many conferences with delegations of students. Six men attended the ten-day summer conference at Huguenot, N. Y., in June; the Hopkins Association was host to the annual Fall Tri-State conference in November which was addressed by representatives of the four political parties; three delegates attended a Mid-winter conference at Buck Hill Falls, Pennsylvania; ten students represented Hopkins at the Tri-State conference held on board ship and at Hampton Institute in February; ten delegates also attended the Spring conference of the Tri-State Council of Christian Associations at Camp Kahlert the last of April; and small delegations were sent to a number of conferences relating to social and political issues held at Washington at different times during the year.

Mr. Cyrus C. Young, Jr., president of the Association, attended the Y. M. C. A. Presidents' School at Union Theological Seminary during the summer. The Executive Secretary of the Association represented the Middle Atlantic area at the National Council meeting of Student Christian Associations at Columbus, Ohio, early in April.

*Library:* The Library of Levering Hall has been supplied with select magazines and books. A small collection of books has been purchased and more are being added each month as funds are available.

*Assembly Speakers:* During the year the Association arranged for Dr. Jack Hart and Dr. Albert E. Day to speak at the Assembly.

*Church Coöperation:* The Association coöperated with the Homewood Churches in inviting out-of-city students of the University to attend their services. A census was taken showing church preferences of students and this information was supplied to churches desiring it.

*Student Finance Campaign:* Early in November the students on the campus were asked to contribute \$1,200 to the expenses of the Association. They responded with pledges totalling nearly \$1,300.

*Medical School:* During the opening weeks of school the Association employed John F. Spranz, Jr., fourth year medical student, to distribute Hand-books and help new students find suitable living quarters in the vicinity of the school.

*School of Hygiene and Public Health:* John H. Dingle was employed by the Association to assist students at the School of Hygiene and Public Health in finding suitable living quarters.

*Levering Hall:* Levering Hall has been used to capacity throughout the year. Offices are furnished for the undergraduate publications and the Student Council. Numerous other organizations hold business and social meetings in the building regularly.

The Cafeteria serves about four hundred meals daily. A special dining room for the faculty is maintained and special luncheons and dinners are served for various University groups each week. The Soda Fountain serves approximately one thousand every day. Exact figures are not available as to the attendance in the building, but the lobby, parlor, and library are filled to capacity at different times during the day.

E. A. SCHAAL,  
*Executive Secretary, Y. M. C. A.*

## REPORT OF THE REGISTRAR

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TO THE PRESIDENT OF THE UNIVERSITY:

I have the honor to submit the following report for the year ending June 30, 1933.

### REGISTRATION OF STUDENTS

During the past year there were enrolled in the various divisions of the University 4639 persons, a decrease of 992 from last year. In the School of Higher Studies of the Faculty of Philosophy there were 511 as compared with 526 in 1931-32; in the School of Higher Studies in Education there were 84 as compared with 118; in the School of Medicine 289 candidates for the degree as compared with 282, and 15 students in Art as Applied to Medicine (this figure not reported last year); in the School of Hygiene and Public Health 155 as compared with 166; in the School of Engineering 380 (30 advanced students) as compared with 395 (36 advanced students); in the College of Arts and Sciences 489 as compared with 440; in the School of Business Economics 107 as compared with 105; in the afternoon and evening courses, including the College for Teachers, the Evening Courses in Business Economics and the Night Courses for Technical Workers 2166 as compared with 2886. In the Summer Courses of 1932 there were 1218 as compared with 1473 in 1931. The Short Course for Metermen, previously given in June of each year, was omitted in 1932. Seven hundred and seventy-five students registered in more than one division, but the above figures represent individuals rather than the number of registrations. There were 41 fellows in the various schools of the University as compared with 58 the previous year.

### DEGREES CONFERRED

During the year degrees in course were granted to 407 persons (78 women): Bachelor of Arts 100; Bachelor of Engineering 52; Bachelor of Science 48 (42 women); Bachelor of Science in Chemistry 10; Bachelor of Science in Economics 10; Master of Arts 8 (3 women); Master of Education 1 woman; Master of Science in Hygiene 8 (7 women); Master of Engineering 3; Doctor of Public Health 3; Doctor of Science in Hygiene 13 (2 women); Doctor of Engineering 2; Doctor of Education 2 women; Doctor of Medicine 72 (5 women); Doctor of Philosophy 75 (16 women). Certificates in Public Health were awarded to 41 persons (1 woman). The honorary degree of Doctor of Laws was conferred upon one person.

Beginning in 1878 degrees have been granted as follows: Bachelor of Arts 2517; Bachelor of Engineering (Bachelor of Science in Engineering 1915 18) 709; Bachelor of Science in Chemistry 119; Bachelor of Science 522 (419 women); Bachelor of Science in Economics 100; Bachelor of Science in Hygiene 18 (10 women); Master of Arts 434 (202 women); Master of Engineering 17; Master of Education 4 (2 women); Master of Science in Hygiene 12 (4 women); Doctor of Engineering 16; Doctor of Education 9 (6 women); Doctor of Public Health 132 (5 women); Doctor of Science in Hygiene 143 (45 women); Doctor of Medicine 2570 (277 women); Doctor of Philosophy 1858 (173 women). Certificates of proficiency in applied electricity were awarded to 91 persons from 1888 to 1899. Of these 73 were granted the degree of Bachelor of Engineering extra ordinem. Certificates in Public Health have been given to 258 persons, beginning in 1920. Honorary degrees have been conferred as follows: Doctor of Laws 61; Doctor of Philosophy 1; Master of Arts 11.

## ACADEMIC STAFF

The academic staff included 698 persons. Three of these were engaged in administrative work only and eighteen were emeritus. Of the 677 engaged in teaching or research, 104 were engaged primarily in graduate instruction in the School of Higher Studies of the Faculty of Philosophy and the School of Higher Studies in Education, 38 primarily in the College of Arts and Sciences and the School of Business Economics, 25 in the School of Engineering, 367 in the School of Medicine, 58 in the School of Hygiene and Public Health, 5 in the Institute of Law and 4 in the Walter Hines Page School of International Relations. In addition there were 91 persons not regular members of the teaching staff, who gave instruction in the College for Teachers, the Evening Courses in Business Economics, the Night Courses for Technical Workers and the Summer Courses. Of the total force 698 women numbered 77.

Appended hereto are the enrollment data and a list of the names of the recipients of degrees conferred during the academic year.

R. N. DEMPSTER,  
*Registrar.*

## FACULTY

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President and Professors, . . . . .	106
Clinical Professors, . . . . .	6
Associate Professors, . . . . .	70
Assistant Professors, . . . . .	3
Associates, . . . . .	125
Instructors, . . . . .	148
Assistants, . . . . .	127
Lecturers, . . . . .	19
Additional Instructors in the Afternoon and Evening Courses and in the Summer Courses, . . . . .	91
Faculty members engaged only in administrative work, . . . . .	3
	<hr/> 726

## A. ENROLLMENT STATISTICS

## SUMMARY OF ENROLLMENT, 1932-1933

1. School of Higher Studies of the Faculty of Philosophy:		
(a) Full time,	855	
(b) Part time,	156	
	<hr/>	511
2. School of Higher Studies in Education:		
(a) Full time,	7	
(b) Part time,	77	
	<hr/>	84
3. School of Medicine:		
(a) Candidates for Doctor's degree	289	
(b) Students of Art Applied to Medicine,	15	
	<hr/>	304
4. School of Hygiene and Public Health:		
(a) Candidates for Doctor of Public Health,	8	
(b) Candidates for Certificate in Public Health,	45	
(c) Candidates for Doctor of Science in Hygiene,	43	
(d) Candidates for Master of Science in Hygiene,	16	
(e) Special Students,	17	
(f) Students registered in the College of Arts and Sciences taking special courses,	1	
(g) Students registered in the College for Teachers taking special courses,	25	
	<hr/>	155
5. College of Arts and Sciences:		
Candidates for Bachelor's degree,		489
6. School of Engineering:		
(a) Candidates for Bachelor's degree,	350	
(b) Advanced students,	30	
	<hr/>	380
7. School of Business Economics:		
(a) Candidates for Bachelor's degree,		107
8. Afternoon and Evening Courses:		
(a) Candidates for Bachelor's degree,	811	
(b) Special students,	1855	
	<hr/>	2166
9. Summer Courses (1932),		1218
	<hr/>	
Total,		5414
Counted more than once,		775
	<hr/>	
Net total,		4639

## ENROLLMENT BY YEARS

	Total*	Graduates	Undergraduates	
			Candidates for Degrees	Special
1876-77	89	54	12	23
1877-78	104	58	24	22
1878-79	123	63	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	159	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
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

\* Including those enumerated in table of College for Teachers, etc., and excluding duplicates.

	Total*	Graduates	Undergraduates	
			Candidates for Degrees	Special
1917-18	2232	552 { Phil. 157 Med. 390 Eng. 5	343 { A. B. 210 S. B. (E) 133	13
1918-19	1986	540 { Phil. 135 Med. 382 Hyg. 18 Eng. 5	614 { A. B. 350 B. Eng. 264	4
1919-20	3137	685 { Phil. 221 Med. 390 Hyg. 70 Eng. 4	662 { A. B. 350 B. Eng. & { B. S. in Ch. 303 B. S. in Hyg. 9	33
1920-21	3486	652 { Phil. 242 Med. 359 Hyg. 45 Eng. 6	692 { A. B. 384 B. Eng. & { B. S. in Ch. 300 B. S. in Hyg. 8	59 { A. & Sc. 3 Eng. 9 Hyg. 47
1921-22	3872	701 { Phil. 290 Med. 348 Hyg. 60 Eng. 3	683 { A. B. 388 B. Eng. 230 B. S. in Ch. 61 B. S. in Hyg. 4	99 { A. & Sc. 26 Eng. 6 Hyg. 67
1922-23	3881	725 { Phil. 313 Med. 337 Hyg. 70 Eng. 5	642 { A. B. 356 B. Eng. 207 B. S. in Ch. 52 B. S. in Ec. 21 B. S. in Hyg. 6	126 { A. & Sc. 17 Eng. 5 Bus. Ec. 2 Hyg. 102
1923-24	3926	730 { Phil. 356 Med. 306 Hyg. 65 Eng. 3	629 { A. B. 352 B. Eng. 181 B. S. in Ch. 42 B. S. in Ec. 47 B. S. in Hyg. 7	128 { A. & Sc. 7 Eng. 3 Bus. Ec. 1 Hyg. 117
1924-25	4394	754 { Phil. 374 Med. 294 Hyg. 73 Eng. 13	796 { A. B. 454 B. Eng. 237 B. S. in Ch. 37 B. S. in Ec. 60 B. S. in Hyg. 8	53 { A. & Sc. 7 Eng. 0 Bus. Ec. 2 Hyg. 44
1925-26	4621	801 { Phil. 450 Med. 272 Hyg. 69 Eng. 10	830 { A. B. 460 B. Eng. 276 B. S. in Ch. 25 B. S. in Ec. 69 B. S. in Hyg. 2	59 { A. & Sc. 6 Eng. 3 Bus. Ec. 0 Hyg. 48
1926-27	4995	844 { Phil. 486 Med. 275 Hyg. 69 Eng. 14	838 { A. B. 479 B. Eng. 242 B. S. in Ch. 43 B. S. in Ec. 74	75 { A. & Sc. 6 Hyg. 69
1927-28	5175	868 { Phil. 497 Med. 281 Hyg. 76 Eng. 13 Biol. Res. 2	805 { A. B. 424 B. Eng. 271 B. S. in Ch. 37 B. S. in Ec. 73	Hyg. 67
1928-29	5446	900 { Phil. 527 Med. 283 Hyg. 74 Eng. 15 Biol. Res. 1	705 { A. B. 339 B. Eng. 256 B. S. in Ch. 39 B. S. in Ec. 71	75 { A. & Sc. 4 Bus. Ec. 1 Hyg. 70
1929-30	5318	943 { Phil. 500 Med. 283 Hyg. 84 Eng. 17 Ed. 59	707 { A. B. 330 B. Eng. 268 B. S. in Ch. 32 B. S. in Ec. 77	86 { A. & S. 3 Hyg. 83
1930-31	5638	1066 { Phil. 528 Med. 278 Hyg. 120 Eng. 32 Ed. 108	793 { A. B. 370 B. E. 280 B. S. in Ch. 50 B. S. in Ec. 93	78 { A. & S. 2 Eng. 2 Hyg. 74
1931-32	5631	1065 { Phil. 526 Med. 282 Hyg. 103 Eng. 36 Ed. 118	895 { A. B. 436 B. E. 290 B. S. in Ch. 64 B. S. in Ec. 105	72 { A. & S. 4 Eng. 5 Hyg. 63
1932-33	4639	879 { Phil. 355 Med. 304 Hyg. 112 Eng. 30 Ed. 84	946 { A. B. 489 B. E. 300 B. S. in Ch. 50 B. S. in Ec. 107	Hyg. 43

\* Including those enumerated in table of College for Teachers, etc., and excluding duplicates.



## COLLEGE FOR TEACHERS, SUMMER COURSES, ETC.

	College for Teachers	Summer Courses	Evening Courses in Business Economics	Night Courses for Technical Workers	Courses in Social Economics	Short Course for Metermen
†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	436	654 { Grad. 110 Coll. 485 Med. 59	499	208		
1917-18	350	570 { Grad. 102 Coll. 416 Med. 52	351	207		
1918-19	347	326 { Grad. 75 Coll. 251	228	157		
1919-20	633	422 { Grad. 89 Coll. 333	704	338	30	
1920-21	769	462 { Grad. 97 Coll. 345 Med. 20	772	390	57	
1921-22	1037	949 { Grad. 165 Coll. 874	627	247	27	
1922-23	1221	819 { Grad. 148 Coll. 639 Med. 32	582	267	29	
1923-24	1206	782 { Grad. 149 Coll. 604 Med. 29	636	314	48	
1924-25	1297	825 { Grad. 40 Coll. 772 Med. 13	726	379	24	24
1925-26	1528	918 { Grad. 187 Coll. 731	637	449	26	19
1926-27	1548	1008 { Grad. 248 Coll. 760	972	430	21	23
1927-28	1520	1165 { Grad. 228 Coll. 937	1008	505	14	22
1928-29	1526	1107 { Grad. 229 Coll. 878	1171	465	..	22
1929-30	1515	1101 { Grad. 261 Coll. 840	1135	641	..	27

† This table was discontinued in 1930 owing to a change in recording the enrollment of the afternoon and evening courses. A report on the summer courses of 1932 may be found on p. 86.

## SCHOOL OF MEDICINE

	<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	1913-14	- 360	- 18	- 378
1894-95	- 51	- 77	- 128	1914-15	- 361	- 22	- 383
1895-96	- 84	- 69	- 153	1915-16	- 353	- 27	- 380
1896-97	- 123	- 11	- 134	1916-17	- 358	- 13	- 371
1897-98	- 167	- 74	- 241	1917-18	- 373	- 17	- 390
1898-99	- 197	- 55	- 252	1918-19	- 378	- 9	- 382
1899-1900	- 211	- 73	- 284	1919-20	- 390	- 0	- 390
1900-01	- 209	- 96	- 305	1920-21	- 359	- 0	- 359
1901-02	- 229	- 129	- 358	1921-22	- 348	- 0	- 348
1902-03	- 256	- 89	- 345	1922-23	- 337	- 0	- 337
1903-04	- 276	- 78	- 354	1923-24	- 306	- 0	- 306
1904-05	- 291	- 77	- 368	1924-25	- 294	- 13	- 307
1905-06	- 293	- 75	- 368	1925-26	- 272	- 0	- 272
1906-07	- 263	- 83	- 346	1926-27	- 275	- 0	- 275
1907-08	- 277	- 70	- 347	1927-28	- 281	- 0	- 281
1908-09	- 297	- 78	- 375	1928-29	- 283	- 0	- 283
1909-10	- 334	- 73	- 407	1929-30	- 283	- 0	- 283
1910-11	- 351	- 65	- 416	1930-31	- 278	- 0	- 278
1911-12	- 355	- 51	- 406	1931-32	- 282	- 0	- 282
1912-13	- 351	- 34	- 385	1932-33	- 289	- 0	- 289

## SCHOOL OF HYGIENE AND PUBLIC HEALTH

	<i>Grad.</i>	<i>Under- Grad.</i>	<i>Special</i>	<i>Total</i>		<i>Grad.</i>	<i>Under- Grad.</i>	<i>Special</i>	<i>Total</i>
1918-19	- 18	- 4	- 4	- 22	1926-27	- 69	- 0	- 49	- 118
1919-20	- 70	- 9	- 10	- 89	1927-28	- 76	- 0	- 67	- 143
1920-21	- 45	- 8	- 47	- 100	1928-29	- 74	- 0	- 70	- 144
1921-22	- 60	- 4	- 67	- 131	1929-30	- 84	- 0	- 83	- 167
1922-23	- 70	- 6	- 102	- 178	1930-31	- 120	- 0	- 74	- 194
1923-24	- 65	- 7	- 117	- 189	1931-32	- 103	- 0	- 63	- 166
1924-25	- 73	- 8	- 69	- 150	1932-33	- 112	- 0	- 43	- 155
1925-26	- 69	- 2	- 75	- 146					

## GEOGRAPHICAL DISTRIBUTION \*

	<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	1905-06	- 304	- 416
1877-78	- 71	- 33	1906-07	- 257	- 414
1878-79	- 76	- 47	1907-08	- 267	- 416
1879-80	- 97	- 62	1908-09	- 311	- 420
1880-81	- 95	- 81	1909-10	- 286	- 466
1881-82	- 97	- 78	1910-11	- 337	- 478
1882-83	- 106	- 98	1911-12	- 337	- 465
1883-84	- 123	- 126	1912-13	- 358	- 442
1884-85	- 130	- 160	1913-14	- 436	- 420
1885-86	- 130	- 184	1914-15	- 487	- 439
1886-87	- 162	- 216	1915-16	- 491	- 458
1887-88	- 199	- 221	1916-17	- 578	- 455
1888-89	- 183	- 211	1917-18	- 464	- 441
1889-90	- 215	- 189	1918-19	- 695	- 459
1890-91	- 235	- 233	1919-20	- 808	- 569
1891-92	- 273	- 274	1920-21	- 801	- 587
1892-93	- 266	- 285	1921-22	- 872	- 582
1893-94	- 260	- 262	1922-23	- 840	- 601
1894-95	- 260	- 329	1923-24	- 889	- 627
1895-96	- 272	- 324	1924-25	- 1015	- 626
1896-97	- 254	- 266	1925-26	- 1058	- 659
1897-98	- 279	- 362	1926-27	- 1067	- 690
1898-99	- 277	- 372	1927-28	- 1010	- 731
1899-1900	- 262	- 383	1928-29	- 922	- 758
1900-01	- 270	- 381	1929-30	- 953	- 783
1901-02	- 273	- 421	1930-31	- 1076	- 861
1902-03	- 283	- 412	1931-32	- 1159	- 873
1903-04	- 294	- 421	1932-33	- 1160	- 870
1904-05	- 312	- 434			

\*Including School of Higher Studies of the Faculty of Philosophy, School of Medicine, School of Hygiene and Public Health, School of Higher Studies in Education, College of Arts and Sciences, School of Engineering, and School of Business Economics.

## GEOGRAPHICAL DISTRIBUTION OF STUDENTS, 1932-1933

## UNITED STATES

	School of Higher Studies of the Faculty of Philosophy	School of Higher Studies in Education	School of Medicine	School of Hygiene and Public Health	College of Arts and Sciences	School of Engineering	School of Business Economics	Afternoon and Evening Courses	Summer Courses	Total without Duplications	Total with Duplications
Alabama . . . . .	1	..	3	..	..	..	..	..	2	6	6
Arizona . . . . .	1	..	..	..	..	..	..	1	..	1	2
Arkansas . . . . .	..	..	4	..	..	..	..	1	..	5	5
California . . . . .	3	..	15	5	..	..	..	..	..	23	23
Colorado . . . . .	2	..	..	1	..	..	..	..	..	3	3
Connecticut . . . . .	4	..	7	1	8	1	..	12	1	24	34
Delaware . . . . .	5	..	3	..	1	1	1	1	10	21	22
District of Columbia . . . . .	35	6	10	2	7	5	1	11	11	75	88
Florida . . . . .	2	2	6	2	2	..	..	1	1	15	16
Georgia . . . . .	6	..	6	..	..	..	1	2	2	16	17
Hawaii . . . . .	1	..	..	..	..	..	..	..	..	1	1
Idaho . . . . .	..	..	1	1	..	..	..	..	..	2	2
Illinois . . . . .	5	..	6	..	..	..	..	1	3	15	15
Indiana . . . . .	9	..	5	5	..	..	1	1	3	22	24
Iowa . . . . .	1	..	2	4	..	..	..	2	1	9	10
Kansas . . . . .	2	..	..	..	..	..	..	..	..	2	2
Kentucky . . . . .	3	..	4	3	1	..	..	2	2	15	15
Louisiana . . . . .	2	..	..	2	1	..	..	1	1	6	7
Maine . . . . .	2	..	4	2	..	..	..	2	..	10	10
Maryland . . . . .	258	69	56	47	281	352	97	1945	1091	3618	4196
Baltimore (included in Maryland) . . . . .	(225)	(58)	(48)	(48)	(253)	(250)	(82)	(1670)	(681)	(2817)	(3260)
Massachusetts . . . . .	6	1	10	2	6	..	..	6	5	33	36
Michigan . . . . .	2	..	4	4	..	..	..	1	1	12	12
Minnesota . . . . .	4	..	4	1	..	..	..	2	..	10	11
Mississippi . . . . .	5	..	..	1	..	..	..	..	..	6	6
Missouri . . . . .	3	1	1	1	1	..	..	..	..	7	7
Montana . . . . .	..	..	1	..	..	..	..	..	..	1	1
Nebraska . . . . .	2	..	1	..	1	..	..	2	..	4	6
New Hampshire . . . . .	1	..	1	..	..	..	..	1	..	3	3
New Jersey . . . . .	9	1	13	1	31	2	1	20	10	67	88
New Mexico . . . . .	..	..	1	1	..	..	..	..	..	2	2
New York . . . . .	27	..	42	7	99	10	2	66	18	204	271
North Carolina . . . . .	5	..	6	2	..	..	..	2	1	15	16
North Dakota . . . . .	2	..	1	..	..	..	..	..	..	3	3
Ohio . . . . .	9	..	14	4	7	1	..	9	1	41	45
Oklahoma . . . . .	..	..	2	..	1	..	..	1	1	4	5
Oregon . . . . .	3	..	1	..	..	..	..	..	..	4	4
Pennsylvania . . . . .	23	4	25	3	23	3	3	38	29	120	151
Philippine Islands . . . . .	..	..	..	1	..	..	..	..	..	1	1
Porto Rico . . . . .	..	..	..	..	..	..	..	1	..	1	1
Rhode Island . . . . .	3	..	2	..	..	..	..	1	..	6	6
South Carolina . . . . .	6	..	3	4	1	..	..	2	2	16	18

	School of Higher Studies of the Faculty of Philosophy	School of Higher Studies in Education	School of Medicine	School of Hygiene and Public Health	College of Arts and Sciences	School of Engineering	School of Business Economics	Afternoon and Evening Courses	Summer Courses	Total without Duplications	Total with Duplications
Tennessee . . . . .	2	..	7	5	..	..	..	..	..	12	14
Texas . . . . .	5	..	4	2	2	..	..	3	2	15	18
Vermont . . . . .	1	..	..	1	..	..	..	..	1	3	3
Virginia . . . . .	14	..	10	4	3	1	..	12	13	46	57
Washington . . . . .	1	..	2	3	..	..	..	..	..	6	6
West Virginia . . . . .	3	..	7	2	5	..	..	2	4	21	23
Wisconsin . . . . .	4	..	3	1	..	..	..	..	..	7	8
Wyoming . . . . .	1	..	..	..	..	..	..	..	..	1	1

FOREIGN COUNTRIES

Austria . . . . .	1	..	..	..	..	..	..	..	..	1	1
Brazil . . . . .	..	..	..	1	..	..	..	..	..	1	1
British West Indies . . . . .	..	..	..	1	..	..	..	..	..	1	1
Canada . . . . .	5	..	1	2	..	1	..	3	..	9	12
China . . . . .	7	..	1	6	1	..	..	2	1	15	18
Cuba . . . . .	..	..	..	..	1	..	..	1	..	1	2
Colombia . . . . .	..	..	..	2	..	..	..	1	1	3	4
Dominican Republic . . . . .	..	..	..	..	1	..	..	..	..	1	1
England . . . . .	3	..	..	..	..	..	..	..	..	3	3
France . . . . .	..	..	..	1	2	..	..	..	..	2	3
Germany . . . . .	1	..	1	..	..	..	..	..	..	2	2
Greece . . . . .	1	..	..	..	..	..	..	..	..	1	1
Honduras . . . . .	..	..	..	1	..	..	..	..	..	1	1
India . . . . .	..	..	1	4	..	..	..	..	..	5	5
Ireland . . . . .	..	..	..	1	..	..	..	1	..	1	2
Japan . . . . .	2	..	..	1	..	..	..	1	..	3	4
Java . . . . .	1	..	..	1	..	..	..	..	..	2	2
Mexico . . . . .	..	..	..	1	2	2	..	1	..	5	6
Palestine . . . . .	2	..	..	..	..	..	..	..	..	2	2
Panama . . . . .	..	..	1	..	1	..	..	2	..	3	4
Poland . . . . .	..	..	..	2	..	..	..	..	..	2	2
Rumania . . . . .	..	..	..	1	..	..	..	..	..	1	1
Russia . . . . .	1	..	..	..	..	..	..	..	..	1	1
Scotland . . . . .	..	..	..	..	..	..	..	1	..	1	1
South Africa . . . . .	1	..	..	..	..	..	..	..	..	1	1
Siam . . . . .	..	..	..	1	..	..	..	..	..	1	1
Spain . . . . .	..	..	..	1	..	..	..	..	..	1	1
Switzerland . . . . .	3	..	2	..	..	..	..	1	..	6	6
Turkey . . . . .	..	..	..	3	..	1	..	..	..	3	4
	511	84	304	155	489	380	107	2166	1218	4639	5414

## B. DEGREES CONFERRED

## Summary of Degrees Conferred in Course \*

	A.B.	Ph.D.	M.D.		A.B.	Ph.D.	M.D.
1877-78	-	..	-	4	-	..	
1878-79	-	3	-	6	-	..	
1879-80	-	16	-	5	-	..	
1880-81	-	12	-	9	-	..	
1881-82	-	15	-	9	-	..	
1882-83	-	10	-	6	-	..	
1883-84	-	23	-	15	-	..	
1884-85	-	9	-	13	-	..	
1885-86	-	31	-	17	-	..	
1886-87	-	24	-	20	-	..	
1887-88	-	34	-	27	-	..	
1888-89	-	36	-	20	-	..	
1889-90	-	37	-	33	-	..	
1890-91	-	51	-	28	-	..	
1891-92	-	41	-	37	-	..	
1892-93	-	40	-	28	-	..	
1893-94	-	41	-	34	-	..	
1894-95	-	37	-	47	-	..	
1895-96	-	37	-	36	-	..	
1896-97	-	36	-	42	-	15	
1897-98	-	49	-	36	-	22	
1898-99	-	38	-	42	-	33	
1899-1900	-	46	-	35	-	43	
1900-01	-	43	-	30	-	53	
1901-02	-	47	-	17	-	57	
1902-03	-	46	-	27	-	49	
1903-04	-	37	-	31	-	45	
1904-05	-	33	-	35	-	54	
1905-06	-	48	-	32	-	85	
1906-07	-	47	-	35	-	76	
1907-08	-	47	-	28	-	63	

	A.B.	Ph.D.	M.D.	A.M.	B.E.	B.S.	D. P.H.	D.S. Hyg.	B.S. Hyg.	B.S. Chem.	M. Eng.	D. Eng.	B.S. Econ.	D. Ed.	M. Ed.	M.S. Hyg.
1908-09	-	37	27	53	4	..	..	..	..	..	..	..	..	..	..	..
1909-10	-	14	25	69	3	..	..	..	..	..	..	..	..	..	..	..
1910-11	-	31	28	85	11	..	..	..	..	..	..	..	..	..	..	..
1911-12	-	37	32	85	5	..	..	..	..	..	..	..	..	..	..	..
1912-13	-	36	32	76	11	..	..	..	..	..	..	..	..	..	..	..
1913-14	-	52	30	91	13	..	..	..	..	..	..	..	..	..	..	..
1914-15	-	35	31	89	12	3	..	..	..	..	..	..	..	..	..	..
1915-16	-	27	37	82	13	12	3	..	..	..	..	..	..	..	..	..
1916-17	-	44	45	92	13	37	3	..	..	..	..	..	..	..	..	..
1917-18	-	47	11	87	13	26	8	..	..	..	..	..	..	..	..	..
1918-19	-	39	12	93	9	18	4	1	..	..	..	..	..	..	..	..
1919-20	-	66	31	93	12	28	13	2	1	1	8	..	..	..	..	..
1920-21	-	78	32	92	21	39	14	14	1	4	12	1	..	..	..	..
1921-22	-	80	36	81	21	45	17	8	5	4	14	1	1	..	..	..
1922-23	-	82	44	93	32	49	23	12	17	..	11	..	..	..	..	..
1923-24	-	79	53	80	27	34	22	14	9	3	10	..	..	..	..	..
1924-25	-	93	39	78	25	37	29	16	13	4	9	3	..	6	..	..
1925-26	-	85	53	67	35	52	17	13	11	2	7	2	..	8	..	..
1926-27	-	75	53	76	28	38	36	8	11	..	7	2	1	10	..	..
1927-28	-	89	69	70	20	54	56	9	10	..	6	1	2	14	..	..
1928-29	-	78	74	66	32	45	50	7	7	..	12	..	1	11	..	..
1929-30	-	68	64	69	30	52	68	5	14	..	6	..	2	12	2	..
1930-31	-	55	60	69	22	42	49	15	19	..	5	..	3	9	2	2
1931-32	-	74	81	67	14	46	62	5	12	..	2	4	4	20	3	1
1932-33	-	100	75	72	8	52	48	3	13	..	10	3	2	10	2	1
Total	-	2517	1858	2570	434	709	522	132	143	18	119	17	16	100	9	4

\* For Ph. D. and A. M. degrees by departments and years, see following table.

## DEPARTMENTAL DISTRIBUTION OF PH. D. AND A. M. DEGREES CONFERRED

Subject	1878-1932 inc.		1933		Total	
	Ph. D.	A.M.	Ph. D.	A. M.	Ph. D.	A. M.
Philosophy .....	19	6	..	..	19	6
Psychology .....	65	10	3	1	68	11
Education .....	21	52	2	..	23	52
Political Economy.....	58	63	4	1	62	64
History .....	176	32	..	1	176	33
Political Science.....	63	14	6	1	69	15
Greek .....	73	5	..	1	73	6
Latin .....	55	10	..	..	55	10
Classical Archaeology.....	22	20	8	..	30	20
Sanskrit .....	14	1	..	..	14	1
Oriental Seminary.....	23	2	..	..	23	2
English .....	86	35	3	..	89	35
Germanic Languages.....	38	6	5	..	43	6
Romance Languages.....	110	43	5	2	115	45
Mathematics .....	98	24	2	..	100	24
Astronomy .....	5	..	..	..	5	..
Physics .....	157	43	5	..	162	43
Engineering .....	9	1	1	..	10	1
Chemistry .....	415	16	18	1	433	17
Geology .....	93	3	5	..	98	3
Biology .....						
Bacteriology .....	6	3	..	..	6	3
Physiology .....	31	1	..	..	31	1
Plant Physiology.....	25	1	..	..	25	1
Zoology .....	91	27	4	..	95	27
Botany .....	21	2	3	..	24	2
Physiological Chemistry.....	3	1	1	..	4	1
Pathology .....	2	1	..	..	2	1
Bio-Chemistry .....	4	1	..	..	4	1
Anatomy .....	..	1	..	..	..	1
Medicine .....	..	1	..	..	..	1
Chemical Hygiene.....	..	1	..	..	..	1
Total.....	1783	426	75	8	1858	434

## GROUP DISTRIBUTION OF PH. D. AND A. M. DEGREES CONFERRED

Group	1878-1932 inc.		1933		Total	
	Ph. D.	A.M.	Ph. D.	A. M.	Ph. D.	A. M.
Philosophy and Social Sciences..	402	177	15	4	417	181
Classics and Ancient Languages..	187	38	8	1	195	39
Modern Languages.....	234	84	13	2	247	86
Mathematics and Physical Sciences	777	87	31	1	808	88
Biological Sciences.....	183	40	8	..	191	40
Total.....	1783	426	75	8	1858	434

## DEGREES CONFERRED, 1932-33

### DEGREES IN COURSE

#### DOCTORS OF PHILOSOPHY

- Beatrice Aitchison, of the District of Columbia, A. B., Goucher College, 1928; A. M., Johns Hopkins University, 1931. Mathematics. Dissertation: On Mapping with Functions of Finite Sections.
- Karl John Richard Arndt, of Maryland, A. M., Washington University, 1928. German. Dissertation: Wildenbruch's "Rudolf v. d. Wart" and Its Motif in German Drama.
- Lewis Franklin Ball, of Maryland, A. B., Johns Hopkins University, 1928. English. Dissertation: Studies in the Structure of the Minor English Renaissance Epics.
- Willard Evan Bleick, of New Jersey, M. E., Stevens Institute of Technology, 1929. Chemistry. Dissertation: The Mutual Repulsive Potential of Closed Shells.
- Stephen Brunauer, of the District of Columbia, A. B., Columbia University, 1925; S. M., George Washington University, 1929. Chemistry. Dissertation: Studies in the Thermodynamics and Kinetics of Surface Nitride Formation on Iron Synthetic Ammonia Catalysts.
- Roy Johnson Bullock, of Maryland, A. B., Doane College, 1925; M. B. A., Harvard University, 1927. Political Economy. Dissertation: A History of the Chain Grocery Store in the United States.
- Henry Gershon Burke, of Maryland, LL. B., University of Maryland, 1927. Political Science. Dissertation: The Public Service Commission of Maryland.
- Tung Tou Chen, of China, A. B., Nan Kai University, 1926. Physiological Chemistry. Dissertation: Electrode Potentials of Biologically Important Oxidation—Reduction Systems with Unstable Oxidants.
- Marion Frances Chevalier, of California, A. B., Pomona College, 1924; A. M., 1925; A. M., University of Southern California, 1928. Romance Languages. Dissertation: A Dramatic Adaptation of Rabelais in the Seventeenth Century: *Les Aventures et le Mariage de Panurge* (1674) by Pousset de Montauban, with a Study of His Life and Other Plays.
- Thomas Cross, Jr., of Kentucky, B. S. in Industrial Chemistry, University of Kentucky, 1930. Chemistry. Dissertation: The Relative Oxidizability of Organic Compounds by Gaseous Oxygen.
- Gladys Dorsey, of Maryland, A. B., Goucher College, 1926. Romance Languages. Dissertation: *Histoire de la Royne Berte et du Roy Pepin* (MS. Berlin Staatsbibliothek, 130), Edited with an Introduction and Glossary.
- Ralph Veeder Ehle, of New York, A. B., Johns Hopkins University, 1927; A. M., 1931. German. Dissertation: America Reflected in the Two German Periodicals: *Die Deutsche Rundschau*, and *Die Neue Rundschau*, from 1900 to 1928.
- Martin Anderson Elliott, of Maryland, B. E., Johns Hopkins University, 1930. Gas Engineering. Dissertation: The Catalytic Effect of Soda on the Reaction between Steam and Carbon from the Pyrolysis of Low Grade Oils.
- Coleen Fowler, of Maryland. Zoology. Dissertation: Permeability of Amoeba Proteus to Water.
- James Walter Graham, of Nova Scotia, A. B., Acadia University, 1927; A. M., 1928. Archaeology. Dissertation: Domestic Architecture in Classical Greece.
- Wendell Lafon Gray, of Georgia, A. B., Oglethorpe University, 1928. Psychology. Dissertation: The Effect of Forced Activity on Maze Learning and the Selection and Consumption of Food by Rats.

- Joseph Greenberg, of Maryland, S. B., Johns Hopkins University, 1926. Chemistry. Dissertation: Properties of Ketene.
- Lawrence Randolph Hafstad, of the District of Columbia, S. B., University of Minnesota, 1926. Physics. Dissertation: The Application of the FP-54 to Atomic Disintegration Studies with Observations on Neutrons and on the Resonance-Disintegration of Aluminum.
- Francis Mahlon Hasbrouck, of Maryland, A. B., Johns Hopkins University, 1928. Romance Languages. Dissertation: Spanish and Portuguese Historical Characters in Modern French Drama before 1830.
- Lindsay Helmholtz, of Minnesota. Chemistry. Dissertation: Lattice Energies of Rubidium Bromide and Sodium Chloride and Electron Affinities of Their Halogens.
- Ruth Ilsley Hicks, of Maryland, A. B., Vassar College, 1930. Archaeology. Dissertation: Theseus.
- Dorothy Kent Hill, of New York, A. B., Vassar College, 1928. Archaeology. Dissertation: Conventions of Attic Black Figured Drawing.
- Ting young Huang, of China, A. B., Soochow University, 1929; A. M., University of Illinois, 1930. Political Science. Dissertation: The Doctrine of *Rebus Sic Stantibus* in International Law.
- Richard Van Voorhees Hughes, of Nebraska, S. B., University of Nebraska, 1925. Geology. Dissertation: Geology of the Beartooth Mountain Front in Park County, Wyoming.
- Frida Ilmer, of Colorado. German. Dissertation: Die Gestalt des Künstlers bei Schnitzler.
- William Redmond Johnston, of Washington, S. B., University of Washington, 1930. Chemistry. Dissertation: Activation Energies in Thermal Organic Decompositions.
- Thomas Austin Kirby, of Maryland. A. B., Catholic University of America, 1927; A. M., 1928. English. Dissertation: Chaucer's *Troilus*: A Study in Courtly Love.
- Abner Komaroff, of Palestine, B. V. A., American University of Beirut, 1930. Political Economy. Dissertation: The Foreign Trade of the United States in Citrus Fruits.
- William Everett Land, of Maryland, B. S. in Chemistry, Johns Hopkins University, 1928. Chemistry. Dissertation: A Study of the Influence of Capillarity on the Melting Point of Iodine.
- Isador Levin, of Maryland. Chemistry. Dissertation: X Ray Study of So-Called Amorphous Varieties of Silica.
- Christina Lochman, of Illinois, A. B., Smith College, 1929; A. M., 1931. Geology. Dissertation: The Fauna of the Basal Bonnetterre Formation of Missouri.
- William Howard Lockwood, of Tennessee, B. S. in Chemistry, University of Tennessee, 1926; S. M., 1927. Chemistry. Dissertation: Catalytic Oxidation.
- John Herpick Long, of Pennsylvania. Chemistry. Dissertation: A Study of the Structure and the Activity of Mixed Metal Catalysts.
- Bertha Lillian Loomis, of New York, A. B., Keuka College, 1910; A. M., Columbia University, 1922. Archaeology. Dissertation: The Elephant in the Literature and Art of Greece and Rome.
- Raymond Nathan Love, of Maryland. Chemistry. Dissertation: A Study of the Distribution of Solutes in Gels.
- Susan Hutchinson Martin, of Indiana, A. B., St. Mary-of-the-Woods College, 1924. Archaeology. Dissertation: Ancient Melos.
- Jacob Robert Meadow, of Mississippi, A. B., Arkansas College, 1925; A. M., University of Arkansas, 1927. Chemistry. Dissertation: Ring Compounds and Polymers from Polymethylene Dihalides and Dimercaptans.
- Edmund Erskine Miller, of Delaware. A. B., Washington Missionary College, 1922; A. M., University of Maryland, 1929. German. Dissertation: Zur Textgeschichte von Wielands "Agathon."
- John Wolcott Murray, of New York, A. B., Colgate University, 1930. Chemistry. Dissertation: The Raman Spectrum of the Benzene Ring as Shown by Some Benzene Compounds.



- Rowland Mason Myers, of New York, S. B., Dartmouth College, 1928. Romance Languages. Dissertation: Contribution à l'Histoire du Sentiment Musical dans la Litterature Française de la Renaissance à la Fin du Règne de Louis XIII.
- Vernon Alfred O'Rourke, of Michigan. Political Science. Dissertation: The Juristic Status of Egypt and the Sudan.
- Emma J. Johnstone Papenfuss, of Missouri, A. M., Johns Hopkins University, 1931. Zoology. Dissertation: Experimental Studies on Fusion and Reunion in Hydra.
- George Frederik Papenfuss, of South Africa, S. B., North Carolina State College, 1929. Botany. Dissertation: Alternation of Generations in *Ectocarpus siliculosus*.
- Mary Fisher Parmenter, of Florida, A. B., Goucher College, 1921; A. M., Johns Hopkins University, 1930. English. Dissertation: Colin Clout and Hobbinsoll: A Reconsideration of the Relationship of Edmund Spenser and Gabriel Harvey.
- Paul Morrison Patterson, of South Carolina, A. B., Davidson College, 1925; A. M., University of North Carolina, 1927. Botany. Dissertation: A Study of *Dumortiera hirsuta*.
- Robert Hamilton Peckham, of Maryland, A. B., University of Rochester, 1930. Psychology. Dissertation: The Study of Eye-Movements during Alteration in Binocular Vision.
- Amos Benkov Kuanchin Penn, of China. Zoology. Dissertation: Factors Which Control Encystment in *Pleurotricha lanceolata*.
- Shailer Shaw Philbrick, of Illinois, A. B., DePauw University, 1930. Geology. Dissertation: The Contact Metamorphism of the Onawa Pluton, Piscataquis County, Maine.
- William Sibley Pike, Jr., of Maryland. Geology. Dissertation: Correlation of the Upper Cretaceous between McCarty and Alamosa Creek, New Mexico.
- Jesse Hopkins Plummer, of Maryland. Physics. Dissertation: Infra-red Powder Filters.
- Charles Gordon Post, Jr., of Maryland, A. B., Johns Hopkins University, 1925. Political Science. Dissertation: The Doctrine of Political Questions.
- Augustus John Prah, of Maryland, A. M., Washington University, 1928. German. Dissertation: Gerstäcker und die Probleme Seiner Zeit.
- Ernest Batson Price, of Maryland, A. B., University of Rochester, 1913. Political Science. Dissertation: The Russo-Japanese Treaties of 1907-16, Concerning Manchuria and Mongolia.
- Douglass Evans Rankin, of North Carolina, A. B., Agnes Scott College, 1927. Botany. Dissertation: A Study of the Life History of *Polypodium polypodioides*, with Especial Reference to Spermatogenesis.
- Doris Raymond, of Wisconsin, A. B., Milwaukee-Downer College, 1924; A. M., University of Chicago, 1928. Archaeology. Dissertation: Macedonian Regal Coinage before Philip II.
- Cromwell Adams Riches, of Maryland, A. B., Reed College, 1925; A. M., Columbia University, 1926. Political Science. Dissertation: The Unanimity Rule and the League of Nations.
- Reuben Roseman, of Maryland, B. S. in Chemistry, Johns Hopkins University, 1929. Chemistry. Dissertation: The Preparation of Very Pure Solutions of Titanic Sulfate and Titanous Sulfate, and the Estimation of Iron in Solutions Containing Both Bivalent Iron and Trivalent Titanium.
- Edna Rothholz, of Maryland, A. B., Goucher College, 1914; A. M., Middlebury College, 1922. Romance Languages. Dissertation: The Vocabulary of the Earlier Works of Chateaubriand.
- Michael Francis Rouse (Brother Bede), of Maryland, S. B., Villanova College, 1895; A. M., University of Louisville, 1923. Education. Dissertation: A Study of the Development of Negro Education under Catholic Auspices in Maryland and the District of Columbia.
- William Sener Rusk, of New York, A. B., Princeton University, 1915; A. M., Johns Hopkins University, 1924. Archaeology. Dissertation:

- Thornton, Latrobe and Walter and the Classical Influence on Their Works.
- John Adolph Sanderson, of Mississippi, A. B., University of Mississippi, 1928; A. M., 1929. Physics. Dissertation: The Rotation Vibration Spectrum of  $\text{CS}_2$  at  $4.6 \mu$ .
- Vernon Phillip Scheidt, of Maryland, A. B., St. John's College, 1929. Psychology. Dissertation: Revision and Further Application of the Nela Test for Color Blindness.
- Charles Henry Shaw, of California, A. B., University of California at Los Angeles, 1930. Physics. Dissertation: Shapes and Wave-lengths of X-ray Lines.
- Thomas Francis Shea, of Maryland, S. B., Massachusetts State College, 1923; S. M., University of Washington, 1927. Chemistry. Dissertation: Adsorption on a Plane Surface.
- G. Ballard Simmons, of Florida, A. B., University of Florida, 1922; A. M., 1929. Education. Dissertation: The Consolidation of Higher Public Education in Florida.
- Evelyn Ellen Singleton, of Maryland, A. B., Goucher College, 1930. Political Economy. Dissertation: Workmen's Compensation in Maryland.
- Fred Barnes Slagle, of Maryland, B. S. in Chemistry, Johns Hopkins University, 1930. Chemistry. Dissertation: X ray Studies of Fatty Acids and Mixtures of Fatty Acids.
- Heinz Specht, of Maryland, S. B., Princeton University, 1930. Zoology. Dissertation: Relation between Oxygen Tensions and Metabolic Activity in *Spirostomum ambiguum*.
- Robert Daniel Stiehler, of New York. Chemistry. Dissertation: Equilibria in Azine Oxidation Reduction Systems.
- Robert William Thon, Jr., of Maryland. Political Economy. Dissertation: Mutual Savings Banks in Baltimore.
- Arnold Elzey Waters, Jr., of Maryland, A. B., Johns Hopkins University, 1927. Geology. Dissertation: Placers of the Rampart and Hot Springs District, Alaska: A Study of Their Mineralogy and Its Geologic Significance.
- Charles Horatio Wheeler, III, of West Virginia, S. B., Washington and Jefferson College, 1926. Mathematics. Dissertation: A Type of Homogeneity for Continuous Curves.
- John Archibald Wheeler, of Maryland. Physics. Dissertation: Theory of the Dispersion and Absorption of Helium.
- Donald Alvin Wilson, of Pennsylvania, S. B., Geneva College, 1930. Chemistry. Dissertation: X-Ray Studies of Long Chain Compounds at Low Temperatures and at Room Temperature.
- Carl George Wolf, of Maryland, A. B., Capitol University, 1907; A. M., Johns Hopkins University, 1921. Archaeology. Dissertation: The Peacock in Classical Civilization.

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## DOCTORS OF MEDICINE

- Granville Quinn Adams, of Maryland, A. B., St. Johns College, 1929.
- Sidney Adler, of Michigan, A. B., Albion College, 1929.
- John Hamilton Allen, of Connecticut, A. B., Johns Hopkins University, 1929.
- Wilfred John Allison, Jr., of Texas, S. B., Southern Methodist University, 1928.
- John Walmsley Barnaby, Jr., of Maryland, A. B., Johns Hopkins University, 1928.
- Josef Theodor Bergmeyer, of Germany, A. B., University of North Dakota, 1929; A. M., 1931.
- Charles Bernard Brack, of Maryland, A. B., Johns Hopkins University, 1929.
- Thomas McPherson Brown, of the District of Columbia, A. B., Swarthmore College, 1929.
- Edward Parris Burch, II, of Minnesota, S. B., Princeton University, 1928.
- Norman Cameron, of Maryland, A. B., University of Michigan, 1923; Ph. D., 1927.
- Eugene Paul Campbell, of California, A. B., University of California at Los Angeles, 1929.

- Forrest La Fon Carpenter, Jr., of South Carolina, S. B., Virginia Military Institute, 1929.
- Abraham George Cohen, of New York, S. B., College of the City of New York, 1928.
- Joseph George Cutler, of Massachusetts,, A. B., Harvard University, 1929.
- Albert Clare Daniels, of California, A. B., Stanford University, 1929.
- John English Deitrick, of Pennsylvania, S. B., Princeton University, 1929.
- Ella Katherine Delanty, of Washington, A. B., University of Oregon, 1929.
- William Alfred De Sautelle, of Tennessee, S. B., Harvard University, 1929.
- Daniel Vincent Dougherty, of New York, A. B., University of Alabama, 1928; A. M., 1929.
- Edward Virgil Famiglietti, of Rhode Island, A. B., Brown University, 1928.
- Gerald Robert Fisher, of New Mexico, S. B., University of New Mexico, 1929.
- Wilbur Eugene Fisher, of Pennsylvania S. B., University of Pittsburgh, 1928; M. S., 1929.
- Richard Van Fletcher, of Georgia, S. B., University of Georgia, 1929.
- Henry Morgenthau Fox, of New York, S. B., Harvard University, 1928.
- Ella Mae Gallavan, of Tennessee, A. B., Colorado College, 1924.
- Mark Edward Gann, of Maryland, A. B., Johns Hopkins University, 1929.
- Dorothy Alice Geib, of Pennsylvania, A. B., Goucher College, 1929.
- George Otto Gey, of Pennsylvania, S. B., University of Pittsburgh, 1921.
- Hermon Camp Gordinier, of New York, A. B., Williams College, 1928.
- Henry Clay Harrill, of North Carolina, S. B., Davidson College, 1929.
- Henry Mathies Hensen, of Maryland, S. B., Gettysburg College, 1929.
- William Grafton Hersperger, of Maryland, A. B., Johns Hopkins University, 1929.
- Arthur Henry Hurd, of California, A. B., University of California at Los Angeles, 1929.
- Alfred Hurwitz, of Massachusetts, A. B., Harvard University, 1929.
- Henry Van Zile Hyde, of Ohio, A. B., Yale University, 1929.
- Oliver Aldon James, of Delaware, S. B., Dickinson College, 1929.
- Ferdinand Emil Kadan, of Maryland, A. B., Johns Hopkins University, 1929.
- Ferdinand Leonard Philip Koch, of Wisconsin, A. B., Stanford University, 1928; A. M., University of Wisconsin, 1931.
- Orren Bond Landrum, of Tennessee, S. B., University of Tennessee, 1929.
- Elisabeth Louise Langeluttig, of Maryland, A. B., Goucher College, 1929.
- James Cobb Laslie, of Alabama, A. B., University of Alabama, 1929.
- Elfred Llewellyn Leech, of Maine, A. B., Bowdoin College, 1929.
- Robert Anderson Lyon, of California, A. B., University of California at Los Angeles, 1927.
- John Beebe McCue, of Delaware, A. B., University of Delaware, 1929.
- Henry Benedict Makover, of Maryland, A. B., Johns Hopkins University, 1929.
- Wesley Kwoh-Chen May, of China, A. B., Johns Hopkins University, 1928.
- William Mendelsohn, of Connecticut, S. B., Yale University, 1924.
- Carl George Merkel, of Maryland, A. B., St. John's College, 1929.
- J. Webster Merritt, of Florida, S. B., University of Florida, 1929.
- Woodbridge Edwards Morris, of Connecticut, A. B., Yale University, 1923.
- Emily Guild Nichols, of Maine, A. B., Wellesley College, 1922.
- Claude Carlyle Nuckols, Jr., of New York, S. B., Colgate University, 1929.
- Mahlon Dickerson Ogden, Jr., of Arkansas, S. B., Princeton, 1929.
- Morris Herbert Pincus, of New York, S. B., University of Maryland, 1929.
- John Faulkner Rainey, of South Carolina, A. B., Erskine College, 1927.
- Middleton Elliott Randolph, of Virginia, S. B., University of Virginia, 1929.
- Layton Simmerman Rogers, of California, A. B., University of California at Berkeley, 1929.

- Herman Max Schiebel, of Pennsylvania, A. B., Johns Hopkins University, 1929.
- Harold Saul Schiro, of Maine, A. B., Bowdoin College, 1929.
- Irving Hoos Schwab, of Pennsylvania, A. B., Lehigh University, 1929.
- Warren Hooper Sears, of Massachusetts, A. B., Amherst College, 1928.
- Hamilton Southworth, of New York, A. B., Yale University, 1929.
- Luther Campbell Spengler, Jr., of Virginia, A. B., Washington and Lee University, 1929.
- John Francis Spranz, of New Jersey, A. B., Holy Cross College, 1929.
- Richard Henry Todd, of Pennsylvania, A. B., Johns Hopkins University, 1929.
- William Joseph Turner, of Pennsylvania, S. B., Pennsylvania State College, 1927.
- Thomas David Tyson, Jr., of North Carolina, A. B., Duke University, 1929.
- Loftus Linwood Walton, of Virginia, A. B., University of Richmond, 1929.
- Tobias Weinberg, of Maryland, A. B., Johns Hopkins University, 1930.
- William Hugh Latimer Westbrook, Jr., of Virginia, A. B., Duke University, 1929.
- Clinton Nathan Woolsey, of New York, A. B., Union College, 1928.
- Francis Howell Wright, of New York, S. B., Haverford College, 1929.

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## DOCTORS OF PUBLIC HEALTH

- Luang Bhayung, of Siam, G. M., Chulalongkorn University, 1918; C. P. H., Johns Hopkins University, 1932. Medical Entomology. Essay: The Lateral Abdominal Hairs of Mosquito Larvae.
- Parameswaran Kumaran Nair, of India, L. M. & S., University of Madras, 1924; D. P. H., Medical College, Madras, 1929. Helminthology. Essay: Factors Influencing the Distribution of Ascaris, Trichuris, and Hookworm in Communities.
- James Eliab Perkins, of Minnesota, S. B., University of Minnesota, 1927; M. B., 1929; M. D., 1930; C. P. H., Johns Hopkins University, 1931. Epidemiology. Essay: A Study of the Care of Cases of Tuberculosis Occurring in Residents of the Eastern Health District.

(3)

## DOCTORS OF SCIENCE IN HYGIENE

- Harold Blumberg, of Maryland. Biochemistry. Dissertation: On the Existence of an Unrecognized Dietary Factor, Essential for the Growth of the Rat.
- Edward Thorpe Boardman, of Florida, S. B., University of Florida, 1928; S. M., 1929. Helminthology. Dissertation: A Comparative Study of the Behavior of the Pre parasitic Larvae of Four Bursate Nematodes.
- Harry G. Day, of Iowa, A. B., Cornell College (Iowa), 1930. Biochemistry. Dissertation: The Effects of Magnesium Deprivation, with a Superimposed Calcium Deficiency, on the Animal Body, as Revealed by Symptomatology and Blood Changes.
- John Holmes Dingle, of Washington, S. B., University of Washington, 1930; S. M., 1931. Immunology. Dissertation: Bacterial Carbohydrates: Their Isolation, Serological Specificity, and Immunological Significance.
- Aurel Overton Foster, of New Jersey, A. B., Wesleyan University, 1929; A. M., 1930. Helminthology. Dissertation: Studies on the Resistance of Dogs and Cats to Infection with the Dog Hookworm, *Ancylostoma caninum*.
- Vernal Irons, of Indiana, A. B., Indiana State College for Teachers, 1927. Filterable Viruses. Dissertation: Studies on Bird Pox (*Epthelioma contagiosum*).

Elven Clifford Nelson, of Colorado, A. B., University of Colorado, 1929; A. M., 1930. Protozoology. Dissertation: Cytology and Conjugation in the Balantidium from the Chimpanzee with Experiments on Cultivation and Transmission.

Sydney Raffel, of Maryland, A. B., Johns Hopkins University, 1930. Immunology. Dissertation: Specific and Non-Specific Immunity in Trypanosoma Equiperdum Infections.

Andrés Rodríguez, of Colombia, A. B., Duke University, 1929. Bacteriology. Dissertation: The Survival of Members of the Bacillus Coli-lactis Aerogenes Group in Milk Pasteurized in the Laboratory and in the Commercial Plants, with Observations on the Resistance of Bacillus Coli to a Temperature of 142° F.

Marguerite Massicot Schmidt, of Maryland, A. B., Goucher College, 1928. Biochemistry. Dissertation: Changes in Inorganic Metabolism of Animals Deprived of Magnesium.

Mary Shaw Shorb, of Idaho, S. B., College of Idaho, 1928. Immunology. Dissertation: Heterophile Antigen in Bacteria.

William Weekley Swezey, of Ohio, S. B., Mount Union College, 1930. Protozoology. Dissertation: Studies on the Cytology, Cultivation and Behavior of Troglodytella abassarti, a Protozoan Parasite of the Chimpanzee.

Seigmund Benton Talbot, of West Virginia, S. B., Davis-Elkins College, 1924. Helminthology. Dissertation: Life History, Systematic and Morphological Studies on Trematodes of the Subfamily Reniferinae.

(13)

## DOCTORS OF EDUCATION

Mary Stansbury Braun, of Maryland, S. B., Johns Hopkins University, 1927. Dissertation: Objective Rating of Teachers in Terms of Pupil Growth.

Sister Mary Xavier Higgins, R. S. M.,

of Maryland, A. B., Mt. St. Agnes College, 1913; A. M., Johns Hopkins University, 1919. Dissertation: The Value of an Analysis Chart in Supervision—Experimentally Determined.

(2)

## DOCTORS OF ENGINEERING

Louis Wendell Marks, of Maryland, B. E., Johns Hopkins University, 1930. Electrical Engineering. Dissertation: Comparison of Methods for Measuring the Dielectric Constant and Power Factor of Sheet Insulation at 1,000 Cycles.

George Miller Louis Sommerman, of Maryland, B. E., Johns Hopkins University, 1929. Electrical Engineering. Dissertation: Behavior of Dielectrics under Alternating Stress.

(2)

## MASTERS OF ARTS

John Ammen Blake, of South Carolina, A. B., Presbyterian College of South Carolina, 1926. Psychology. Essay: History of Reaction Time Measurement.

Lawrence Nelson Bloomberg, of Virginia, A. B., University of Richmond, 1930. Political Economy. Essay: Goodwill: Its Nature and Valuation.

Alice Diggs, of Maryland, S. B., Johns Hopkins University, 1925. Romance Languages. Essay: The Bible in Victor Hugo's Plays.

Betty Klinefelter, of Maryland, A. B., Smith College, 1930. Romance Languages. Essay: The Materials of Women's Costumes in French Texts of the Twelfth and Thirteenth Centuries.

Warren Bartlett Ranney, of South Dakota, S. B., Eastern State Teachers College, 1929. History. Essay: American Newspaper Opinion of the Eastern Question, 1875-1878.

Hazel Gard Robinson, of Oregon, S. B., University of Oregon, 1926; A. M., Columbia University, 1927. Chemistry. Essay: Alternation of Melting Points in Organic Series.

Sedwick Cromwell Holmes Thomas, of Maryland, LL. B., University of Baltimore, 1930. Political Science. Essay: Origin and History of the

Act of Congress of March 2, 1931, with Reference to Contempts of Court.

William John Vassilli, of New York, A. B., St. Stephen's College of Columbia University, 1931. Greek. Essay: The Study of Purpose Constructions and Related Expressions in Aristophanes. (8)

#### MASTER OF EDUCATION

Eva Elizabeth Gerstmyer, of Maryland, S. B., Johns Hopkins University, 1928. Essay: A Study of the Relative Value of Test-Deter-

mined Supervisory Aid versus Non-Test Determined Supervisory Aid in the Supervision of Primary Reading. (1)

#### MASTERS OF ENGINEERING

Edward James Dwyer, of Connecticut, A. B., St. John's College, 1930. Mechanical Engineering. Essay: The Effect of Surface Roughness upon the Friction Factor of Large Ducts. Carl Hugo Walther, of Maryland, B. E., Johns Hopkins University, 1931. Civil Engineering. Essay: An Ex-

perimental Study of the Deflections Existing in a Model of a Concrete Road Slab.

John I. Yellott, Jr., of Maryland, B. E., Johns Hopkins University, 1931. Mechanical Engineering. Essay: Supersaturated Steam. (3)

#### MASTERS OF SCIENCE IN HYGIENE

Barbara Jean Betz, of Wisconsin, A. B., Mount Holyoke College, 1931. Biology. Essay: The Population of a Nest of the Hornet *Vespa Maculata*.

Joseph Michael Cordi, of Maryland, A. B., Johns Hopkins University, 1931. Helminthology. Essay: The Effect of Various Temperatures on the Eggs and Larvae of *Strongyloides fülleborni*.

Sue Gardner Florance, of Virginia, A. B., University of Richmond, 1931. Bacteriology. Essay: The Aerobic Bacterial Flora of Powdered Milk.

Dorothy Austin Houck, of New York, A. B., Wellesley College, 1929. Bacteriology. Essay: Bacteriophage Production by Two Strains of *Bacillus Dysenteriae*.

Charlotte Ann Keisling, of Florida, A. B., Florida State College for Women, 1930. Immunology. Essay: The Distribution of Heterophile Antigen in Certain Vegetable Seeds. Gretchen Lumbard Moorehouse, of Iowa, A. B., Drake University, 1930. Physiological Hygiene. Essay: The Effect of Repeated Light Exercise on the Blood Cells of Albino Rats.

Lucille Winkley Wade, of Indiana, A. B., DePaw University, 1931. Immunology. Essay: Herpetic Inclusions in Tissue Culture.

Maryland Kraft Young, of Maryland, A. B., Goucher College, 1929. Biostatistics. Essay: The Symptomatology of Successive Attacks of Upper Respiratory Disease (Common Cold). (8)

#### BACHELORS OF ARTS

Louis Henry Armstrong, of Maryland. Maynard Backer Badanes, of New York.

Samuel Belsky, of Maryland. Paul Alexander Bendix, of New York. Percy Harold Bennett, of Connecticut. Eugene Sydney Bereston, of Maryland.

Sidney Jay Berkowitz, of New Jersey. Julian Hecht Blattner, of Maryland. Jerome Blum, of Maryland. John Bonner Buck, of Maryland. Abram Burk, of Maryland. Howard Addison Campbell, of Maryland.

- Lewis Capland, of Florida.  
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 Chi Siang Tom, of China.  
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## BACHELORS OF SCIENCE

- Anna Grace Baker, of Maryland.  
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 Dorothy Elizabeth Boesche, of Maryland.  
 Nora Virginia Brainard, of Maryland.  
 Lillian Donovan Braun, of Maryland.  
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 Florence Virginia Donelson, of Maryland.  
 Minnie Margaret Glantz, of Maryland.  
 Fannie Myra Harbaugh, of Maryland.  
 Dorothy Henkel, of Maryland.  
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 Cyrile Sonia Kader, of Maryland.  
 Sarah Ethel Katsoff, of Maryland.  
 Mary Fitzgerald Keczerski, of Maryland.  
 Josephine Catherine Kelley, of Maryland.  
 Minnie Regina Mencke, of Maryland.  
 Anna Laura Miller, of Maryland.  
 Isaac Raymond Miller, of Maryland.



Robert Boyd Miller, of Maryland.  
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 Carroll Stephen Rankin, of Maryland.  
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 Frieda Scharf, of Maryland.  
 Dorothy M. Schepler, of Maryland.

Lillian Schofer, of Maryland.  
 Fannie Serpick, of Maryland.  
 Albert Jacob Silverman, of Maryland.  
 Louis Julius Soffer, of Maryland.  
 Katherine Leona Tames, of Maryland.  
 Martha Louise Tovell, of Maryland.  
 Maria Tranzillo, of Maryland.  
 Grace Katherine Vogel, of Maryland.  
 Ida Miriam Watkins, of Maryland.  
 Evelyn Kathryn Wieland, of Maryland.  
 (48)

#### BACHELORS OF SCIENCE IN CHEMISTRY

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 John Marion Grove, of Maryland.  
 Charles Royer Hager, of Maryland.  
 Lawrence Leroy Heffner, of Maryland.  
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 Edwin Mounger Richardson, of Maryland.  
 William Joseph Wiseman, of Maryland.  
 (10)

#### BACHELORS OF SCIENCE IN ECONOMICS

Charles Webber Cornwell, of New York.  
 Joseph Gaillard Frey, of Maryland.  
 Howard James King, Jr., of Maryland.  
 Conrad Albert Kuper, Jr., of Maryland.  
 George William La Mont, of New York.

James Merriken, of Maryland.  
 Philip Austin Murphy, of Maryland.  
 Alfred Edward Quick, of Maryland.  
 George Neilson Sigler, of Maryland.  
 Helmuth Frederick Stude, of Maryland.  
 (10)

#### RECIPIENTS OF CERTIFICATES IN PUBLIC HEALTH

Margaret Witter Barnard, of New York, A. B., Smith College, 1917; M. D., Cornell University, 1923.  
 Morley Burnell Beckett, of Michigan, M. B., University of Toronto, 1926.  
 Charles Arthur Bourdon, of Canada, M. D., University of Montreal, 1917.  
 Travis Pollard Burroughs, of New York, A. B., University of Missouri, 1917; M. D., Harvard University, 1925.  
 Lewis Charles Coleman, of Kentucky, M. B., University of Cincinnati, 1928; M. D., 1929.  
 Carleton Dean, of Michigan, M. D., Detroit College of Medicine and Surgery, 1924.  
 Mohammad Djamil, of Java, M. D., University of Utrecht, 1932.  
 Charles Howe Eller, of New Mexico, A. B., Stanford University, 1927; M. D., University of Colorado, 1930.  
 Kenan Fevzi, of Turkey, M. D., University of Stamboul, 1925.

Malcolm Tennyson Foster, of South Carolina, A. B., Wake Forest College, 1925; M. D., Emory University, 1927.  
 Alexander Gordon Gilliam, of Virginia, S. B., University of Virginia, 1926; M. D., 1931.  
 Edward Grzegorzewski, of Poland, M. D., University of Warsaw, 1931.  
 Verne Kenneth Harvey, of Indiana, S. B., Indiana University, 1927; M. D., 1929.  
 Huang Ké-kang, of China, M. D., Peiping Union Medical College, 1928.  
 Reuben Louis Kaufman, of California, A. B., University of California, 1925; M. D., 1928.  
 Harold Mills Kelso, of Tennessee, M. D., University of Tennessee, 1927.  
 George Kinneard, of Bahama Islands, M. D., University of Manitoba, 1922.  
 William Francis Lamb, of Kentucky, M. B., Northwestern University, 1929; M. D., 1930.

- Morton Loeb Levin, of Maryland, M. D., University of Maryland, 1930.
- Gerald Elledge McDaniel, of South Carolina, S. B., Clemson College, 1920; M. D., Medical College of the State of South Carolina, 1927.
- Mehmet Nazif, of Turkey, M. D., University of Stamboul, 1923.
- William Patrick O'Callaghan, of Ireland, M. D. and B. Ch., University College, Dublin, 1929; B. Sc. and D. P. H., 1931.
- Guillermo Bustillo Oliva, of Honduras, S. B., National Institute of San Salvador, 1913; M. R. C. S., England, L. R. C. P., London, 1922.
- Don Collins Peterson, of Texas, M. D., University of Texas, 1926.
- John Joseph Phair, of Ohio, S. B., University of Cincinnati, 1926; M. B., 1928; M. D., 1929; S. M., 1931.
- Albert Marvin Price, of West Virginia, M. D., University of Louisville, 1924.
- Peter Ramneantz, of Roumania, S. B., Gymnasium Timisoara, 1921; M. D., University of Cluj, 1927.
- William Perry Richardson, of North Carolina, A. B., Wake Forest College, 1926; M. D., Medical College of Virginia, 1928.
- George Evans Riley, of Mississippi, S. B., Mississippi Agricultural and Mechanical College, 1919; M. D., University of Tennessee, 1929.
- Louis Philippe Robert, of Canada, A. B., St. Mary's College, 1924; M. D., University of Montreal, 1930.
- William James Sandidge, of Louisiana, M. D., Tulane University, 1916.
- Sedgwick Simons, of South Carolina, M. D., Medical College of the State of South Carolina, 1926.
- Robert Tula Stimpson, of North Carolina, A. B., University of North Carolina, 1921; M. D., University of Pennsylvania, 1927.
- Russell Ellsworth Teague, of Kentucky, M. D., University of Louisville, 1929.
- Jean Tiffeneau, of France, D. H., University of Paris, 1931; M. D., 1932.
- Samuel Lewis Wadley, of Tennessee, A. B., Christian Brothers College, 1906; A. M. (Hon.), 1913; M. D., University of Tennessee, 1909.
- Wilson Carter Williams, of Tennessee, M. D., Vanderbilt University, 1925.
- Martin Bryan Woodward, of South Carolina, S. B., Clemson College, 1920; M. D., University of Georgia, 1929.
- Harlin Le Roy Wynns, of California, A. B., University of California, 1924; M. D., 1929.
- Neokarl Yang, of China, M. D., Provincial Medical College of Chekiang, 1919.
- Nuri Zia, of Turkey, M. D., University of Stamboul, 1923.

# THE JOHNS HOPKINS UNIVERSITY CIRCULAR No. 451

AUGUST, 1933

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